



TAMIL NADU PUBLIC SERVICE COMMISSION

Advertisement No. 741

Notification No. 8/2026

Date: 31.08.2026

Combined Technical Services Examination (Interview Posts)

Applications are invited only through online mode for direct recruitment to the posts in Combined Technical Services Examination (Interview Posts).

1. Important Instructions:

1.1. Candidates to ensure their eligibility for the examination:

All candidates are requested to carefully read the “Instructions to Applicants” available in the Commission’s website www.tnpsc.gov.in and this Notification. The candidates applying for the examination should ensure that they fulfill all eligibility conditions for admission to the examination. **Their admission to all stages of the examination will be purely provisional, subject to their satisfying the eligibility conditions.** Mere admission to the written examination, certificate verification, interview, counselling or inclusion of name in the selection list will not confer on the candidates any right to appointment. The Commission reserves the right to reject candidature at any stage, after due process even after selection has been made, if a wrong claim or violation of rules or instructions is confirmed.

1.2. Important Dates and Time:

Date of Notification	31.08.2026
Date of commencement of receiving application	07.09.2026
Last date and time for submission of online application	06.10.2026 11:59 PM
Application Correction Window period	10.10.2026 12:01 AM to 12.10.2026 11:59 PM
Date and Time of Examination	
Paper - I	
Subject	Subject Code
Tamil Eligibility Test, General Studies, Aptitude and Mental Ability	503
Paper - II	
Subject Paper	Subject Code
Animal Husbandry and Veterinary Science (PG Degree)	397
Animal Husbandry and Veterinary Science (Degree)	396
Associate Company Secretaryship (Final)	473
Basics of Engineering	422
Business Administration, Financial and Cost Accountancy	525
Chemical, Electrical, Electronics and Mechanical Engineering	527

Will be announced later

Computer Science, Information Technology and Electrical, Electronics and Communication Engineering	554	Will be announced later
Computer Science, Information Technology, Electrical, Electronics and Communication and Mechanical Engineering	566	
Electronics and Instrumentation Engineering	402	
Engineering and Business Administration (Project Management)	475	
Engineering and Business Administration (Infrastructure)	474	
Financial and Cost Accountancy	434	
Library and Information Science	595	
Nautical Science	596	
Psychology	372	
Public Administration and Business Administration	524	
Statistics and Economics	564	
Statistics, Mathematics and Economics	504	
Stenography in English	378	
Stenography in Tamil	383	
Town Planning, Civil Engineering and Architecture	560	
Traditional Architecture and Traditional Sculpture	511	
Textile Technology and Handloom Technology	628	
Zoology and Medical Entomology	567	

1.2.1. The paper wise date and time for the examination, will be informed only through Commission's website www.tnpsc.gov.in

1.3. How to Apply:

1.3.1. One Time Registration and Online Application:

Candidates are required to apply online by using the Commission's website www.tnpscexams.in. The candidate needs to register himself / herself first at the One Time Registration (OTR) platform, available on the Commission's website, and then proceed to fill up the online application for the examination. If the candidate is already registered, he / she can proceed straightway to fill up the online application for the examination.

1.3.2. Application Correction Window:

After the last date for submission of online application, the Application Correction Window will open for 3 days from 10.10.2026 to 12.10.2026. During this period, candidates will be able to edit the details in their online application. After the last date of the Application Correction Window period, no modification is allowed in the online application.

1.3.3. Subject Paper Options:

Candidates should choose the subject paper(s) and specify in the online application. The candidates should only choose the subject paper(s) in which they have obtained the educational qualification or equivalent qualification for appearing in the examination.

1.3.4. The detailed instructions regarding how to apply and the examination centres are available in Annexure I of this Notification.

1.3.5. Any claim by the candidate after the submission of an online application will not be entertained.

1.4. Banned Items:

1.4.1. Candidates are not allowed to bring mobile phone, pager or any electronic equipment or programmable device or storage media like pen drive, electronics /digital /smart watches, watches with in-built memory notes, rings with in-built memory notes, etc., or camera or Bluetooth devices or communication chips or any other equipment or related accessories either in working or switched off mode capable of being used as a communication device into the examination hall / room. Candidates are not allowed to bring non-electronic devices such as P&G Design Data Book, mathematical and drawing instruments, log tables, stencils of maps, slide rules, books, notes, loose sheets, guides, rough sheets, hand bags into the examination hall / room.

1.4.2. If they are found to have any such things or instruments, they will not be allowed to write the examination, besides invalidation of the answer sheet and / or debarment and / or rejection of candidature. If it is considered necessary, they will be subjected to a thorough physical search including frisking on the spot.

1.4.3. Candidates are advised, in their own interest, not to bring any of the banned items including mobile phones to the venue of the examination, as arrangements for safekeeping of the same cannot be assured.

2. Warning:

2.1. All the recruitments by the Tamil Nadu Public Service Commission are purely merit-based. The Tamil Nadu Public Service Commission hereby cautions the candidates against touts and agents who may cheat, by making false promises of securing jobs through unfair means. The Tamil Nadu Public Service Commission shall not be responsible or liable for any loss that may be caused to any candidate on account of indulging in any sort of dealings with such unscrupulous elements.

2.2. Candidates are solely responsible for their claims in the online application. They cannot blame service providers like internet cafes / browsing centers / common service centers for the mistakes made while applying online for recruitment. Candidates are advised to check the filled-in online application before finally submitting the same.

3. Posts and Vacancies:

S. No.	Name of the Post	Post Code	Name of the Department / Organization	Distribution of Vacancies		Number of Vacancies	Level of Pay
1.	Port Officer	3799	Tamil Nadu Maritime Board	GT(G)	1	1	Level 30
2.	Unit Head – Deputy General Manager Cadre	3389	Tamil Nadu Cements Corporation Limited	BL_SC(G)	1	1**	Level 28 (EPF)
3.	Assistant General Manager (Finance)	3373	State Industries Promotion Corporation of Tamil Nadu	MBC/DC(W)	1	1	Level 27 (GFTR, PFTR, SPF-cum GSTR)
4.	Deputy Manager (Instrumental)	3397	Tamil Nadu Cements Corporation Limited	MBC/DC(G)	1	2	Level 25 (EPF)
				SC(A)(W)(PSTM)	1		
5.	Deputy Manager (Safety)	3399	Tamil Nadu Cements Corporation Limited	GT(G)	1	1	

6.	Financial Advisor cum Company Secretary	3750	Tamil Nadu Backward Classes Economic Development Corporation Limited	GT(G)	1	1	Level 25 (EPF)	
7.	Assistant General Manager (Projects) (Project Management)	3344	Tamil Nadu Industrial Development Corporation Limited	BL_SC(G)	1	2*		
				MBC/DC(G)	1			
8.	Assistant General Manager (Projects) Infrastructure	3345	Tamil Nadu Industrial Development Corporation Limited	BL_SC(G)	1	2*		
				MBC/DC(G)	1			
9.	Assistant General Manager (Projects) Investment	3343	Tamil Nadu Industrial Development Corporation Limited	GT(G)	1	1	Level 23 (EPF)	
10.	Manager (Accounts)	3809	Electronics Corporation of Tamil Nadu	GT(G)	1	1		
11.	Research Assistant	1694	Institute of Veterinary Preventive Medicine, Ranipet	BL_ST(G)	1	5*		Level 22
				GT(G)(PSTM)	1			
				BC(OBCM)(W)	1			
				MBC/DC(G)	1			
				SC(G)(PSTM)	1			
12.	Veterinary Assistant Surgeon	1695	Animal Husbandry and Veterinary Services	BL_GT(HH)	3	79*		
				BL_BC(OBCM)(LD/AC)	2			
				BL_BC(OBCM)(HH)	1			
				BL_SC(G)(HH)	2			
				GT(G)	11			
				GT(G)(PSTM)	3			
				GT(W)	6			
				GT(W)(PSTM)	1			
				BC(OBCM)(G)	8			
				BC(OBCM)(HH)	1			
				BC(OBCM)(LD/AC)	1			
				BC(OBCM)(G)(PSTM)	3			
				BC(OBCM)(W)	4			
				BC(OBCM)(W)(PSTM)	2			
				BC(M)	2			
				BC(M)(W)(PSTM)	1			
				MBC/DC(G)	8			
				MBC/DC(G)(PSTM)	2			
				MBC/DC(W)	3			
				MBC/DC(W)(PSTM)	1			
				SC(G)	6			
				SC(LD/AC)	1			
				SC(G)(PSTM)	1			
				SC(W)	3			
				SC(A)	1			
				SC(A)(W)	1			
				ST(G)	1			
13.	Bursar	3010	Collegiate Education	GT(LV)	1	1		

14.	Assistant Director of Statistics	2097	Economics and Statistics	GT(G)	1	4	Level 22
				GT(W)(PSTM)	1		
				BC(M)(W)	1		
				SC(G)	1		
15.	Regional Sthapathi	3526	Hindu Religious and Charitable Endowments	BC(OBCM)(G)	1	3	
				MBC/DC(W)	1		
				SC(G)(PSTM)	1		
16.	English Reporter	2090	Tamil Nadu Legislative Assembly	BL_MBC/DC(G)	2	6* [@]	
				BL_SC(G)	2		
				BC(OBCM)(W)	1		
				SF_SC(G)	1		
17.	Tamil Reporter	3336	Tamil Nadu Legislative Assembly	GT(G)(PSTM)	1	5	
				BC(OBCM)(PSTM)	1		
				BC(M)	1		
				MBC/DC(G)	1		
				SC(W)	1		
18.	Assistant Director of Industries and Commerce (Technical)	1897	Industries and Commerce	GT(G)	1	5	
				GT(W)	1		
				BC(OBCM)(G)	1		
				BC(OBCM)(W)	1		
				MBC/DC(G)(PSTM)	1		
19.	Senior Entomologist	2032	Public Health and Preventive Medicine	GT(G)	1	13	
				GT(G)(PSTM)	1		
				GT(W)(PSTM)	1		
				BC(OBCM)(G)	3		
				BC(M)(W)	1		
				MBC/DC(G)	2		
				MBC/DC(W)	1		
				SC(G)	2		
				SC(A)(PSTM)	1		
20.	District Library Officer	3019	Public Libraries	GT(G)	1	6	
				GT(W)	1		
				BC(OBCM)(G)	1		
				BC(OBCM)(W)	1		
				MBC/DC(W)	1		
				SC(G)	1		
21.	Assistant Director of Town and Country Planning	1778	Town and Country Planning	Will be announced later		1	
22.	Senior Officer (Technical)	3265	The Tamilnadu Industrial Investment Corporation Limited	GT(G)	1	10	Level 22 (EPF and EGF)
				GT(G)(PSTM)	1		
				BC(OBCM)(G)	1		
				BC(OBCM)(PSTM)	1		
				BC(OBCM)(W)	1		
				BC(M)	1		
				MBC/DC(G)	1		
				MBC/DC(G)(PSTM)	1		
				SC(G)	1		
				SC(W)	1		
23.	Senior Officer (Finance)	3302	The Tamilnadu Industrial Investment Corporation Limited	GT(G)	1	3	
				BC(OBCM)(G)	1		
				MBC/DC(W)	1		
24.	Assistant Director of Textiles	3594	Textiles	SF_SC(G)	1	1 ^{\$}	Level 22

25.	Psychologist	1942	Prisons and Correctional Services	Will be announced later		1	Level 22
26.	Assistant Secretary	3360	Tamil Nadu Industrial Development Corporation Limited	BL_MBC/DC(G)	1	2**	Level 22 (EPF)
				BL_SC(G)	1		
27.	Accounts Officer	3337	Tamil Nadu Industrial Development Corporation Limited	BL_SC(G)	1	2*	
				GT(G)	1		
28.	Assistant Manager (General)	3665	State Industries Promotion Corporation of Tamil Nadu	BC(OBCM)(G) (PSTM)	1	2	Level 22 (GFTR, PFTR, SPF-cum GSTR)
				MBC/DC(G)	1		
29.	Assistant Manager	3616	State Industries Promotion Corporation of Tamil Nadu	GT(G)	1	6	
				GT(W)	1		
				BC(OBCM)(G)	1		
				BC(OBCM)(W)	1		
				MBC/DC(G)(PSTM)	1		
				SC(G)(PSTM)	1		
30.	Assistant Manager (Finance)	3341	State Industries Promotion Corporation of Tamil Nadu	GT(G)	1	1	
31.	System Analyst	3833	Adi Dravidar Welfare	GT(G)	1	1	Level 22
Total						170	
* Including backlog vacancies. ** Only backlog vacancies. @ Including shortfall vacancies. \$ Only shortfall vacancies.							
Abbreviations:							
EPF – Employees' Provident Fund				SPF – Special Provident Fund			
GFTR – Gratuity Fund Trust Rules				EGF – Employee's Gratuity Fund			
PFTR – Provident Fund Trust Rules				GSTR – Gratuity Scheme Trust Rules			

3.1. The number of vacancies and distribution of vacancies are tentative and is liable for modification, before the publication of the results of the written examination. Whenever the vacancies are revised, the number of candidates selected for the successive stages will also be revised commensurately.

3.2. The Commission reserves the right to include additional posts with different nomenclature and having similar eligibility conditions, as announced in this notification.

4. Eligibility Conditions:

4.1. Age Limit: (as on 01.07.2026)

The candidates should have completed the age of 21 years for all the posts. The category wise maximum age limit and age concession details are given below.

4.1.1. Others (Candidates not belonging to SCs, SC(A)s, STs, MBCs/DCs, BC(OBCM)s and BCMs):

S. No.	Name of the Post	Post Code	Maximum Age (Should not have completed)	Age Concession		
				Persons with Benchmark Disability	Ex-Servicemen	Destitute Widow
1.	Assistant Director of Industries and Commerce (Technical)	1897	37	47	50	No Maximum Age Limit
2.	District Library Officer	3019				
3.	Assistant Director of Town and Country Planning	1778	32**	42		
4.	Veterinary Assistant Surgeon	1695	32			
5.	Research Assistant	1694				
6.	Bursar	3010				
7.	English Reporter	2090				
8.	Tamil Reporter	3336				
9.	Senior Officer (Technical)	3265				
10.	Senior Officer (Finance)	3302				
11.	Manager (Accounts)	3809				
12.	Assistant Director of Textiles	3594				
13.	Assistant Director of Statistics	2097				
14.	Regional Sthapathi	3526				
15.	Assistant General Manager (Projects) (Project Management)	3344				
16.	Assistant General Manager (Projects) Infrastructure	3345				
17.	Assistant General Manager (Projects) Investment	3343				
18.	Assistant Secretary	3360				
19.	Psychologist	1942				
20.	Deputy Manager (Instrumental)	3397				
21.	Deputy Manager (Safety)	3399				
22.	Unit Head – Deputy General Manager Cadre	3389				
23.	Accounts Officer	3337				
24.	System Analyst	3833	37			
25.	Senior Entomologist	2032				
26.	Financial Advisor cum Company Secretary	3750				
27.	Assistant General Manager (Finance)	3373	47	NA	47	47
28.	Port Officer	3799	40		50	45
29.	Assistant Manager (General)	3665	32		32	32
30.	Assistant Manager	3616				
31.	Assistant Manager (Finance)	3341				
**	The maximum age limit of 32 years prescribed for appointment to this post shall not apply to persons appointed from the category of Town Planning Officers of Municipal Councils or other Local Bodies in the State.					
NA	Not Applicable, since persons with benchmark disability are not eligible to apply for this post.					

4.1.2. SCs, SC(A)s, STs, MBCs/DCs, BC (OBCM)s and BCMs:

S. No.	Name of the Post	Post Code	Maximum Age (Should not have completed)	Age Concession		
				Persons with Benchmark Disability	Ex-Service men	Destitute Widow
1.	Port Officer	3799	45	NA	55	45
2.	Assistant General Manager (Finance)	3373	47		47	47
3.	Assistant Director of Statistics	2097	No Maximum Age Limit		NA	No Maximum Age Limit
4.	Regional Sthapathi	3526				
5.	Senior Entomologist	2032				
6.	Financial Advisor cum Company Secretary	3750				
7.	Assistant General Manager (Projects) (Project Management)	3344				
8.	Assistant General Manager (Projects) Infrastructure	3345				
9.	Assistant General Manager (Projects) Investment	3343				
10.	Assistant Secretary	3360				
11.	Psychologist	1942				
12.	Deputy Manager (Instrumental)	3397				
13.	Deputy Manager (Safety)	3399				
14.	Unit Head – Deputy General Manager Cadre	3389				
15.	Accounts Officer	3337				
16.	System Analyst	3833				
17.	Assistant Director of Textiles	3594	No Maximum Age Limit			
18.	Veterinary Assistant Surgeon	1695				
19.	Assistant Director of Town and Country Planning	1778				
20.	Senior Officer (Technical)	3265				
21.	Senior Officer (Finance)	3302				
22.	English Reporter	2090				
23.	Tamil Reporter	3336				
24.	Assistant Director of Industries and Commerce (Technical)	1897				
25.	District Library Officer	3019				
26.	Research Assistant	1694				
27.	Manager (Accounts)	3809	No maximum age limit			
28.	Bursar	3010		59		
29.	Assistant Manager (General)	3665		BC(OBCM)s, BCMs MBCs/DCs-34, SCs, SC(A)s, STs-37	NA	BC(OBCM)s, BCMs MBCs/DCs-34, SCs,SC(A)s, STs-37
30.	Assistant Manager	3616				
31.	Assistant Manager (Finance)	3341				
Abbreviations: BC(OBCM) - Backward Classes (Other than Backward Class Muslims) BCM - Backward Class Muslims MBC / DC - Most Backward Classes / Denotified Communities SC - Scheduled Castes SC(A) - Scheduled Castes (Arunthathiyars) ST - Scheduled Tribes NA - Not Applicable, since persons with benchmark disability are not eligible to apply for this post.						

4.1.3. No maximum age limit shall mean that the candidates should not have completed 60 years of age as on 01.7.2026 or at the time of selection / appointment to the post.

4.1.4. The above mentioned age concession will not apply to the Ex-Servicemen candidates who have already been recruited to any class or service or category, as per section 3 (j) (vii) of Tamil Nadu Government Servants (Conditions of Service) Act, 2016.

4.1.5. Supporting Documents:

4.1.5.1. The date of birth will be verified against the tenth standard (SSLC) or twelfth standard (HSC) mark sheet, issued by the Tamil Nadu Board of Secondary Education and Tamil Nadu Board of Higher Secondary Education respectively. Those candidates whose date of birth is not mentioned in their tenth standard / twelfth standard mark sheet must upload their Birth Certificate / Transfer Certificate / Degree MarkSheets, instead of the tenth standard or twelfth standard mark sheet. Any other form of evidence will not be accepted. Failure to upload such a document shall result in the rejection of candidature after due process.

4.1.5.2. Candidates claiming age concession should upload the supporting documents for such a claim. Failure to upload such a document shall result in the rejection of candidature after due process.

4.2. Educational Qualification, Technical Qualification and Experience:

4.2.1. Posts without Experience:

S. No.	Name of the Post	Post Code	Qualification
1.	Research Assistant	1694	(i) M.V.Sc., (Micro-biology / Pathology / Parasitology / Dairy Micro-biology / Animal Biotechnology); (ii) Must have passed SSLC Examination or its equivalent examination with Tamil as one of the languages (iii) Registered as Veterinary Practitioner with the Tamil Nadu State Veterinary Council constituted under the Indian Veterinary Council Act, 1984 (Central Act 52 of 1984)
2.	Assistant Director of Statistics	2097	Must hold a First Class Degree in Statistics or Mathematics or Economics or Applied Economics or Business Economics with not less than 60% marks or equivalent Cumulative Grade Point Average (CGPA); or Master's Degree in Statistics or Mathematics or Economics or Applied Economics or Applied Statistics or Applied Mathematics or Business Economics or Operation Research or Mathematical Economics or Econometrics
3.	English Reporter	2090	(i) Must hold a bachelor's degree (ii) A pass in the Government Technical Examination in Shorthand in English by 180 words per minute High Speed Test (iii) A pass in the Government Technical Examination in Typewriting in English by the senior grade (iv) Others things being equal, preference shall be given to persons who are qualified to report in Tamil also
4.	Tamil Reporter	3336	(i) Must hold a bachelor's degree (ii) A pass in the Government Technical Examination in Shorthand in Tamil by 120 words per minute High Speed Test (iii) A pass in the Government Technical Examination in Typewriting in Tamil by the senior grade

			(iv) Others things being equal, preference shall be given to persons who are qualified to report in English also
5.	Assistant Manager (General)	3665	Post Graduate in Statistics or Economics (Second class or its equivalent)
6.	Assistant Manager	3616	Degree in Engineering (Mechanical / Electrical and Electronics / Computer Science and Engineering / Information Technology / Electronics and Communication Engineering) – (Second Class or its equivalent)
7.	Assistant Manager (Finance)	3341	Must have passed the Final Examination conducted by the Institute of Chartered Accountants / Cost Accountants or MBA (Finance)
8.	Manager (Accounts)	3809	Should have qualified CA/ICWA course i.e. Must have passed the final examination conducted by the Institute of Chartered Accountants of India/ Institute of Cost Accountants of India.
9.	Senior Officer (Finance)	3302	CA /ICWA
10.	Port Officer	3799	(i) Must possess a Bachelor Degree in Nautical Science (or) Applied Nautical Science and (ii) Must have studied Tamil as one of the languages in 10 th (or) 12 th standard (iii) Must hold a Valid Certificate of Competency having validity throughout the Common Wealth as Master of a Foreign going vessels (unlimited capacity) and must served as Chief Officer
11.	Senior Officer (Technical)	3265	B.E., / B.Tech., /AMIE
12.	Assistant Director of Textiles	3594	B.Tech Textile Technology (or) B.Tech Handloom and Textile Technology
13.	District Library Officer	3019	(i) A Master's degree in Library Science or Library and Information Science of a University recognized by the University Grants Commission, in the pattern of 10+2 or its equivalent +3 + 1 + 1 or 10+2 or its equivalent +3+2; and (ii) Any Master's degree of a University recognized by the University Grants Commission.
14.	Veterinary Assistant Surgeon	1695	(i) B.V.Sc., Degree / B.V.Sc., & A.H and (ii) Must have passed SSLC Examination or its equivalent examination with Tamil as one of the languages (iii) Registered as Veterinary Practitioner with the Tamil Nadu State Veterinary Council constituted under the Indian Veterinary Council Act, 1984 (Central Act 52 of 1984)
15.	Assistant Director of Industries and Commerce (Technical)	1897	Must possess a Bachelor of Engineering or Bachelor of Technology degree of any discipline except Civil Engineering and Architectural Engineering of any University recognized by the University Grants Commission or Institution recognized by the All India Council for Technical Education

4.2.2. Posts with Experience:

S. No.	Name of the Post	Post Code	Qualification
1.	Regional Sthapathi	3526	(i) Must possess a Bachelor of Technology in Traditional Architecture or Bachelor of Fine Arts in Traditional Sculpture; and (ii) Must have practical experience for a period of not less than ten years in the field of temple renovation (iii) Other things being equal, preference shall be given to those who have obtained a degree in Bachelor of

			Technology in Traditional Architecture or Bachelor of Fine Arts in Traditional Sculpture awarded by the Government College of Architecture and Sculpture, Mamallapuram
2.	Assistant General Manager (Finance)	3373	(i) Chartered / Cost Accountant preferably with Post Graduate qualification in Industrial / Business Management (ii) Experience: Not less than 5 years experience in a Bank / Financial Institution / reputed Industrial or Commercial concern in independent senior capacity
3.	Accounts Officer	3337	(i) Must have passed the Final Examination conducted by the Institute of Chartered Accountants (ii) 1 year post qualification experience in handling finance and accounts in an organization in one / more of the following areas: a) Budget preparation, revised preparation, estimate preparation of books of accounts, voucher entry; understanding of taxation; understanding of audit processes; bill preparation; and BRS. b) Handling Internal audits, statutory audit and AG audits. c) Experience in handling RBI correspondence relating to NBFC compliance is preferred.
4.	Financial Advisor cum Company Secretary	3750	(i) Must have passed the final examination of ACS. & Associateship of the Institute (ii) Preferential Qualification: a) Additional qualification such as ICWA / CA / BL., b) Experience of 5 years as Company Secretary in any reputed firm either in public or private sector.
5.	Assistant Secretary	3360	(i) Full time UG Degree with Associate Company Secretary (Final) (ii) 2 years of post qualification experience in a Company or Secretarial Consultancy
6.	Assistant General Manager (Projects) (Project Management)	3344	(i) Full-time AICTE approved under graduate degree in Engineering with Full-time MBA or equivalent in Finance / International Business / Business Analytics / Investment / Project Management streams (ii) Atleast seven years of experience in Project and Contract Management. (iii) Experience in Procurements, Bid Process Management preferable
7.	Assistant General Manager (Projects) Infrastructure	3345	(i) Full-time AICTE approved under graduate degree in Civil Engineering / Architecture/Planning with Full-time MBA or equivalent in Finance / International Business / Business Analytics / Investment / Project Management streams (ii) Atleast seven years of experience in Infrastructure sector. (iii) Experience in project management, procurements, Bid process management preferable
8.	Assistant General Manager (Projects) Investment	3343	(i) Full - time under graduate degree with (a) Chartered Accountant or (b) Full - time MBA (Finance) / equivalent in Finance (ii) 7 years of post qualification experience in evaluating financial models, business plans for infrastructure models preferable.

9.	Psychologist	1942	(i) Master's Degree in Psychology (ii) Other things being equal, preference shall be given to candidates who have undergone training or who possess experience for a period of not less than one year in testing or clinical work in the field of Psychology
10.	Deputy Manager (Instrumental)	3397	(i) B.E / B.Tech., Instrumentation from a recognised University / Institute (ii) Experience: 10 years (in one million ton capacity Cement Plant)
11.	Deputy Manager (Safety)	3399	(i) B.E. / B.Tech., in Mechanical/Chemical/Electrical from a recognised University/Institute + Diploma in Safety Management or M.Tech. in Industrial Safety (ii) Experience:10 years in the field of Industrial Safety
12.	Unit Head – Deputy General Manager Cadre	3389	(i) B.E / B.Tech., in Mechanical / Chemical / Electrical Engineering from a recognized University / Institute, preferably with PG Degree (ii) Experience: 20 Years (in one million ton capacity Cement Plant) with minimum 5 years experience in senior position
13.	Senior Entomologist	2032	(i) Must possess a first or second class B.Sc.(Hons.) or M.A. Degree or the M.Sc. degree in Zoology or M.Sc., Degree in Medical Entomology of a University or Institution recognized by the University Grants Commission for the purpose of the grant (ii) Practical experience in laboratory work for atleast 3 years
14.	Bursar	3010	Must have passed Post Graduate Degree in Public Administration (or) Post Graduate Degree in Business Administration (MBA) with specialization in Finance Other things being equal, preference will be given to persons with experience for a period of not less than three years in finance or administration matters. Note: (i) Experience should be acquired in the Managerial cadre / Officers in the Public Sector Organizations in the field of Finance or Administration matters. (ii) Experience gained in Government / Universities / Quasi Government Organizations / Public Sectors / Private Institutions shall be accepted. Experience gained in Private Institution which have been registered under Company's Act (Private Limited) shall be accepted. (iii) The Competent authority to issue the Experience Certificate shall be the General Manager / Equivalent Cadre.
15.	Assistant Director of Town and Country Planning	1778	Post Graduate Degree in Town or City or Urban or Housing or Country or Rural or Infrastructure or Regional or Transport or Environmental Planning from a recognized University or Institute; (or) Must be an Associate of the Institute of Architects or possess B.Arch Degree or possess Degree or Diploma recognized and equivalent to the National Diploma in Architecture with experience in town planning works for a period of not less than three years in a Town Planning Department of Government or in the Statutory Boards or Urban Authorities

			or Universities or Recognized Research Institutions or Public Sector Undertakings or Semi Government or Statutory or Autonomous Organisations or Local Bodies; (or) Must possess B.E Degree (Civil or Highway) with experience in town planning works for a period of not less than two years in Town Planning Department of Government or in the Statutory Boards or Urban Authorities or Universities or Recognized Research Institutions or Public Sector Undertakings or Semi Government or Statutory or Autonomous Organisations or Local Bodies; (or) Must have passed Sections A & B of the Associate Member of the Institution of Engineers (India) Examination in the Civil Engineering Group with experience in town planning work for a period of not less than two years in Town Planning Department of the Government or in the Statutory Boards or Urban Authorities or Universities or Recognized Research Institutions or Public Sector Undertakings or Semi-Government or Statutory or Autonomous Organisations or Local Bodies; (or) Must possess Bachelor of Planning or Bachelor of Technology in Planning from a recognized University or Institute with two years experience in the field of Urban or Regional Planning in the State Government or in the Statutory Boards or Urban Authorities or Universities or Recognized Research Institutions or Public Sector Undertakings or Semi-Government or Statutory or Autonomous Organisations or Local Bodies
16.	System Analyst	3833	(i) B.E Degree in Computer Science or B.E Degree in Electronics and Communication or B.E Degree in Electrical and Electronics or B.Tech in Information Technology or A Master Degree in Computer Application or A Master Degree in Computer Science and (ii) Adequate knowledge in Tamil and (iii) Experience in programming for a period of not less than three years

4.2.3. The candidates should possess the educational qualification, technical qualification and experience prescribed for the post, on the date of notification.

4.2.4. The Under Graduate / Post Graduate degree qualification prescribed for the above posts should have been obtained by passing the required qualification in the following order of studies viz., SSLC + HSC / Diploma or its equivalent + Under Graduate Degree + Post Graduate Degree.

4.2.5. The period of practical or other experience should have been acquired after obtaining the educational qualification prescribed for the post.

4.2.6. Supporting Documents:

4.2.6.1. SSLC / HSC / Diploma / Degree / PG Degree / Integrated PG Degree / Provisional Degree or Provisional Diploma Certificate / Consolidated Mark Sheet along with Degree or Provisional Degree Certificate shall be accepted as proof of educational qualification.

4.2.6.2. In cases where the Diploma / Degree / PG Degree Certificates had not been issued before the date of notification, candidates must upload proof of the publication of results of the respective qualification(s) on or before the date of notification in the form of Provisional / Degree Certificate / Consolidated Mark Sheet / Certificate from the Head of the Institution / University in the format prescribed in Annexure VI of the Notification.

4.2.6.3. Candidates claiming possession of qualification higher than that prescribed for a post, must upload certificates, issued on / before the date of notification, in support of such claim.

4.2.6.4. Candidates claiming experience, should upload the experience certificate in the format available in Annexure V of this notification.

4.2.6.5. In cases where the duration of the prescribed educational / technical course / experience has been specified in the notification, any discrepancy between the claim in the application and the documents uploaded shall result in the rejection of candidature after due process.

4.2.6.6. For the posts of Veterinary Assistant Surgeon (Post Code - 1695) and Research Assistant (Post Code.1694), candidates should upload the Registration Certificate for having registered as a Veterinary Practitioner with the Tamil Nadu State Veterinary Council.

4.2.6.7. In case the Degree Certificate is lost or is not immediately available for reasons to be specified, an extract from the Convocation Register will be accepted as evidence of qualification.

4.2.6.8. The candidates claiming equivalence of qualification should upload a copy of the Government order at the time of uploading of documents / on or before Physical Certificate Verification, failing which his / her candidature will be rejected after due process. The Government orders relating to equivalence of qualification are available on the website of the Tamil Nadu State Council for Higher Education (www.tnsche.tn.gov.in).

4.3. Medical and Physical Standards:

4.3.1. Candidates selected for appointment to the posts will be required to submit a certificate of physical fitness to the Appointing Authority at the time of joining the post.

4.3.2. The prescribed standards of visual acuity of the candidates selected for the following posts are mentioned below;

S. No.	Name of the Post	Post Code	Standard of Vision
1.	Port Officer	3799	Standard I
2.	Assistant Director of Town and Country Planning	1778	Standard II or better
3.	Senior Entomologist	2032	Standard III or better. Colour Blindness will be a disqualification
4.	Assistant Director of Textiles	3594	Standard III or better. Colour blindness and Night blindness to be a disqualification.
5.	Manager (Accounts)	3809	Standard III or better. Colour vision defective and Night blindness will be disqualification.

6.	Financial Advisor cum Company Secretary	3750	Standard III or better
7.	Senior Officer (Technical)	3265	
8.	Research Assistant	1694	
9.	Bursar	3010	
10.	Assistant Director of Statistics	2097	
11.	Regional Sthapathi	3526	
12.	English Reporter	2090	
13.	Tamil Reporter	3336	
14.	Assistant Director of Industries and Commerce (Technical)	1897	
15.	District Library Officer	3019	
16.	Assistant General Manager (Finance)	3373	
17.	Assistant Manager (General)	3665	
18.	Assistant Manager	3616	
19.	Assistant Manager (Finance)	3341	
20.	Assistant General Manager (Projects) (Project Management)	3344	
21.	Assistant General Manager (Projects) Infrastructure	3345	
22.	Assistant General Manager (Projects) Investment	3343	
23.	Assistant Secretary	3360	
24.	Veterinary Assistant Surgeon	1695	
25.	Psychologist	1942	
26.	Deputy Manager (Instrumental)	3397	
27.	Deputy Manager (Safety)	3399	
28.	Unit Head – Deputy General Manager Cadre	3389	
29.	Senior Officer (Finance)	3302	
30.	Accounts Officer	3337	
31.	System Analyst	3833	

4.3.3. Candidates with defective vision should submit an Eye Fitness certificate from a qualified Eye Specialist working in a Government Hospital at the time of joining the post, to the Appointing Authority.

4.3.4. Candidates who have applied for the posts of Senior Entomologist (Post Code.2032), Assistant Director of Textiles (Post Code.3594) and Manager (Accounts) (Post Code.3809) should upload the eye fitness certificate obtained from the specialist in Ophthalmology working in the Government Hospital in Tamil Nadu in the format prescribed in Annexure VI at the time of submission of online application. Failing which his/her application will not be considered for the said posts.

4.3.5. For the post of Port Officer, candidates must produce a certificate of sight test in form vision only, issued by the Mercantile Marine Department of the Government of India or DG Shipping approved Doctor in the format prescribed in the Annexure VI of this notification.

4.4. Knowledge in Tamil:

4.4.1. Candidates should possess adequate knowledge in Tamil on the date of this Notification. The candidate shall be deemed to possess an adequate knowledge of Tamil if, he/she has passed the SSLC examination or its equivalent examination / HSC / Degree, etc., with Tamil as one of the languages or studied the High School Course in Tamil medium; or passed the SSLC examination or its equivalent examination in Tamil medium; or passed the Second Class Language Test (Full Test) in Tamil conducted by the Tamil Nadu Public Service Commission.

4.4.2. Candidates must upload either SSLC / HSC / Degree / PG Degree mark sheets or proof of having passed the Second Class Language Test (Full Test) in Tamil conducted by the Tamil Nadu Public Service Commission, at the time of submission of online application.

4.4.3. Failure to upload documents in support of the possession of adequate knowledge of Tamil, shall result in the candidate being required to pass the Second Class Language Test (Full Test) in Tamil conducted by the Commission, within a period of two years from the date of his / her appointment, failing which he / she shall be discharged from service. This instruction is not applicable to the posts of Veterinary Assistant Surgeon (Post Code.1695), Research Assistant (Post Code.1694), Port Officer (Code.3799) and System Analyst (Post Code.3833).

4.5. Restrictions on applying for the Examination:

4.5.1. The candidates not belonging to SCs, SC(A)s, STs, MBCs/DCs, BC(OBCM)s, and BCMs, who have put in 5 years or more of service, since his / her first appointment to a service of Government of India or Government of a State / Union Territory, are not eligible to apply even if they are within the age limit, except for the posts requiring experience.

4.5.2. Persons professing Hindu religion alone are eligible for the post of Regional Sthapathi in the Hindu Religious and Charitable Endowments Department. Candidates applying for the post should upload a Community Certificate / Certificate from the Revenue Authorities concerned, in support of the religion claimed in the online application, while applying online. Failure to upload such a certificate, shall result in the rejection of candidature after due process.

4.5.3. The persons with benchmark disabilities are not eligible for the following posts;

S.No.	Name of the Post	Post Code	Department / Organization
1.	Assistant Director of Statistics	2097	Economics and Statistics
2.	Regional Sthapathi	3526	Hindu Religious and Charitable Endowments
3.	Senior Entomologist	2032	Public Health and Preventive Medicine
4.	Assistant General Manager (Finance)	3373	State Industries Promotion Corporation of Tamil Nadu Ltd.,
5.	Assistant Manager (General)	3665	
6.	Assistant Manager	3616	
7.	Assistant Manager (Finance)	3341	
8.	Assistant General Manager (Projects) (Project Management)	3344	Tamil Nadu Industrial Development Corporation Ltd.,
9.	Assistant General Manager (Projects) Infrastructure	3345	
10.	Assistant General Manager (Projects) Investment	3343	
11.	Assistant Secretary	3360	
12.	Accounts Officer	3337	
13.	Port Officer	3799	Tamil Nadu Maritime Board
14.	Psychologist	1942	Prisons and Correctional Services
15.	Deputy Manager (Instrumental)	3397	Tamil Nadu Cements Corporation Ltd.,
16.	Deputy Manager (Safety)	3399	
17.	Unit Head – Deputy General Manager Cadre	3389	
18.	Financial Advisor cum Company Secretary	3750	Tamil Nadu Backward Classes Economic Development Corporation Limited
19.	System Analyst	3833	Adi Dravidar Welfare

4.6. Posts identified suitable for Persons with Benchmark Disability:

4.6.1. The following posts are identified as suitable for reservation to persons with benchmark disabilities as detailed below:

S. No.	Name of the Post	Post Code	Suitable Category of Benchmark Disabilities
1.	District Library Officer	3019	VI, LV, HH, HI, LD, CP, LC, DF, AC, MuD, ASD, SLD, MI
2.	Veterinary Assistant Surgeon	1695	HH, LD, AC
3.	Research Assistant	1694	LV, HI, HH, LD, CP, LC, DF, AC, MuD, SLD, MD
4.	Assistant Director of Textiles	3594	LD, CP, LC, DF, AC, SLD
5.	Bursar	3010	LV, HH, LC, DF, MD
6.	English Reporter	2090	LD, LC, DF, AC
7.	Tamil Reporter	3336	LD, LC, DF, AC
8.	Senior Officer (Finance)	3302	LV, HH, HI, LD(OA, OL, BL, OAOL, BLOA), AC, LC, DF
9.	Senior Officer (Technical)	3265	HH, LD(OA, OL,)
10.	Assistant Director of Town and Country Planning	1778	LV, HH, LD(OA, OL), LD(Others), AC, LC, DF
11.	Assistant Director of Industries and Commerce (Technical)	1897	LV, LD(OA, OL, OAL, BL(with assistive devices), BLOA, Others, DF, LC, AC, MI(Mod-with assessment by medical board on the ability to work under these conditions), SLD and MD.
12.	Manager (Accounts)	3809	HH, LD (with mobility), AC, DF, LC
Abbreviations:			
HH – Hard of Hearing (with assistive device) HI – Hearing Impaired LD – Locomotor Disability OA – One Arm OL – One Leg OAOL – One Arm One Leg OAL – One Arm One Leg BL – Both Leg BLOA – Both Leg One Arm ASD – Autism Spectrum Disorder LD (others) – Scoliosis and / or Kyphoscoliosis, Kyphosis, Spinal Cord Injuries and Spine Kyphoscoliosis. CP – Cerebral Palsy LV – Low Vision VI – Visually Impaired LC – Leprosy Cured AC – Acid Attack Victims DF – Dwarfism SLD – Specific Learning Disability MI – Mentally ill MD – Multiple Disabilities MuD – Muscular Dystrophy			

4.6.2. Persons with Benchmark Disability with only those category (ies) of disability (ies) mentioned above shall be eligible to apply for this Examination under Persons with Benchmark Disability category. Therefore candidates concerned are advised to read it carefully before applying appropriately for admission to the Examination.

5. Plan of Examination:

5.1. The Combined Technical Services Examination (Interview Posts) comprises of two stages (i) Written Examination and (ii) Interview. The candidates shall be admitted to the written examination, based on the claims made in the online application.

5.2. Onscreen certificate verification will be conducted before admission to the physical certificate verification and interview. The Commission will draw a list of candidates to be qualified for the onscreen certificate verification based on the criterion of minimum qualifying marks as mentioned in para 6 of notification and rule of reservation of appointments. The candidates will be admitted to onscreen certificate verification in the ratio of 1:3 / 1:4 (posts not requiring experience) and 1:10 (posts requiring experience).

5.3. The experience certificate uploaded by the candidates will be verified by the Committee constituted by the Head of the Department / Organisation concerned, during onscreen certificate verification. The Committee can reject the experience certificate of the candidate after due process. The decision of the Committee is final.

5.4. After onscreen certificate verification, based on the marks obtained in the written examination and subject to the rule of reservation of appointments, candidates shall be admitted to physical certificate verification and interview.

5.5. If the number of vacancies notified/reserved to be filled up by any one or more of the reservation categories [viz., Scheduled Castes, Scheduled Caste (Arunthathiyars), Scheduled Tribes, Most Backward Classes / Denotified Communities, Backward Classes (other than Muslim) or Backward Classes (Muslim) or General Turn], is five and above, the number of candidates to be admitted to the physical certificate verification and interview from those particular reservation categories, shall be two times the number of vacancies. If the number of vacancies notified / reserved to be filled up by any one or more of the reservation categories is four and below, the number of candidates to be admitted to the physical certificate verification and interview from those particular reservation categories, shall be three times the number of vacancies.

5.6. In respect of posts whose total cadre strength is one only and for which the rule of reservation of appointments does not apply, the number of candidates to be admitted to the physical certificate verification and interview on the basis of the marks obtained in the written examination shall be three.

5.7. The objective of the Interview is to assess the suitability of the candidate for the post by judging the candidate's personality, bearing, aptitude, general knowledge, technical knowledge etc.

5.8. Marks obtained by the candidates in the Written Examination (Part B and Part C of Paper I and Paper II) and Interview would determine final ranking. The final selection will be made based on the total marks obtained by the candidate in Written Examination (Part B and Part C of Paper I, Paper II) and Interview taken together subject to rule of reservation of appointments. Candidates will be allowed to participate in counselling (wherever applicable) based on his / her rank.

5.9. Ranking Procedure:

5.9.1. The merit list or the ranking list shall be prepared on the basis of total marks obtained, by combining the marks secured by the candidates in the written examination with the marks secured in the Interview.

5.9.2. In case of two or more candidates scoring equal marks, the candidate senior in age shall be placed above in the merit list.

5.9.3. When the age too is the same, then the candidate securing higher marks in the written examination shall be placed above in the merit list.

5.9.4. When the marks obtained in the written examination are also equal, then the candidate who had submitted his application earlier to the Commission, as determined from the application number, shall be placed above in the merit list.

5.10. Appearance in Paper I, Paper II and the Interview is compulsory. Candidates who have not appeared either for Paper I, Paper II and Interview, will not be considered for selection, even if they secure the minimum qualifying marks.

6. Scheme of Examination:

6.1. For the posts other than Tamil Reporter and English Reporter

Subject	Standard	No. of Questions	Duration	Maximum Marks	Minimum Qualifying Marks		Type of Examination	Mode of Examination
					SCs, SC(A)s, STs, MBCs/DCs, BC(OBCM)s and BCMs	Others*		
Paper I	SSLC	100	3 hours	150	60	60	Objective	CBT
Part A Tamil Eligibility Test								
Part B General Studies	Degree	75		150	135	180		
Part C Aptitude and Mental Ability	SSLC	25						
Paper II Subject Paper	Degree / PG Degree	200	3 hours	300				
Total (Part B and Part C of Paper-I and Paper-II)				450	-			
Interview				60	-			
Grand Total (Part B and Part C of Paper I, Paper II and Interview)				510	-			
*Others - Candidates not belonging to SCs, SC(A)s, STs, MBCs/DCs, BC(OBCM)s and BCMs								
CBT- Computer Based Test								

Paper II – Subject Paper						
S. No.	Subject Paper	Subject Code	Standard	Language of Question Paper	Name of the Post	Post Code
1.	Animal Husbandry and Veterinary Science	397	PG Degree	English	Research Assistant	1694
2.	Animal Husbandry and Veterinary Science	396	Degree	English	Veterinary Assistant Surgeon	1695
3.	Associate Company Secretaryship	473	Final	English	Financial Advisor cum Company Secretary	3750
					Assistant Secretary	3360
4.	Basics of Engineering	422	Degree	Tamil and English	Assistant Director of Industries and Commerce (Technical)	1897
					Senior Officer (Technical)	3265
5.	Business Administration, Financial and Cost Accountancy	525	PG Degree	English	Assistant General Manager (Projects) Investment	3343
6.	Chemical, Electrical, Electronics and Mechanical Engineering	527	Degree	English	Deputy Manager (Safety)	3399
					Unit Head – Deputy General Manager Cadre	3389

7.	Computer Science, Information Technology and Electrical, Electronics and Communication Engineering	554	Degree	English	System Analyst	3833
8.	Computer Science, Information Technology, Electrical, Electronics and Communication and Mechanical Engineering	566	Degree	English	Assistant Manager	3616
9.	Electronics and Instrumentation Engineering	402	Degree	English	Deputy Manager (Instrumental)	3397
10.	Engineering and Business Administration (Project Management)	475	Degree and PG Degree	English	Assistant General Manager (Projects) Project Management	3344
11.	Engineering and Business Administration (Infrastructure)	474	Degree and PG Degree	English	Assistant General Manager (Projects) Infrastructure	3345
12.	Financial and Cost Accountancy	434	Final	English	Assistant General Manager (Finance)	3373
					Assistant Manager (Finance)	3341
					Accounts Officer	3337
					Manager (Accounts)	3809
					Senior Officer (Finance)	3302
13.	Library and Information Science	595	PG Degree	English	District Library Officer	3019
14.	Nautical Science	596	Degree	English	Port Officer	3799
15.	Psychology	372	PG Degree	Tamil and English	Psychologist	1942
16.	Public Administration and Business Administration	524	PG Degree	Tamil and English	Bursar	3010
17.	Statistics and Economics	564	PG Degree	English	Assistant Manager (General)	3665
18.	Statistics, Mathematics and Economics	504	Degree	Tamil and English	Assistant Director of Statistics	2097
19.	Town Planning, Civil Engineering and Architecture	560	Degree	English	Assistant Director of Town and Country Planning	1778
20.	Traditional Architecture and Traditional Sculpture	511	Degree	Tamil	Regional Sthapathi	3526
21.	Textile Technology and Handloom Technology	628	Degree	English	Assistant Director of Textiles	3594
22.	Zoology and Medical Entomology	567	PG Degree	English	Senior Entomologist	2032

6.2. For the posts of Tamil Reporter and English Reporter

Subject	Standard	No. of Questions	Duration	Maximum Marks	Minimum Qualifying Marks		Type of Examination	Mode of Examination
					SCs, SC(A)s, STs, MBCs/DCs, BC(OBCM)s and BCMs	Others*		
Paper I	SSLC	100	3 hours	150	60	60	Objective	CBT
Part A Tamil Eligibility Test								
Part B General Studies	Degree	75		150	135	180		
Part C Aptitude and Mental Ability	SSLC	25						
Paper II Subject Paper	Diploma	100	1 ½ hours	300				
Total (Part B and Part C of Paper-I and Paper-II)				450	-			
Interview				60	-			
Grand Total (Part B and Part C of Paper I, Paper II and Interview)				510	-			
*Others - Candidates not belonging to SCs, SC(A)s, STs, MBCs/DCs, BC(OBCM)s and BCMs								
CBT- Computer Based Test								

6.2.1 Paper II - Subject Paper

Name of the Post	Post code	Subject Paper	Subject Code	Standard
Tamil Reporter	3336	Stenography in Tamil	383	Diploma
English Reporter	2090	Stenography in English	378	

6.3. The Paper II, Part B and Part C of Paper I will be evaluated only if the candidate secures minimum qualifying marks of 40% (i.e., 60 Marks) in Part A of Paper I.

6.4. The questions in Part B and Part C of Paper I will be set both in English and Tamil.

6.5. The differently abled candidates can avail exemption from writing Part A in Paper I (Tamil Eligibility Test). Such candidates have to furnish the required details in the online application without fail. Subsequent claim will receive no attention. The candidates should upload the Certificate of Disability in the format prescribed in the Annexure II of this notification.

6.6. The syllabus for the written examination is available in Annexure III of this Notification. Unit-wise distribution of questions mentioned in the syllabus is only indicative. Commission reserves the right to marginally increase or decrease the number of question in each unit if necessity arises.

6.7. The instructions to be followed while appearing for the examination, are available in Annexure IV of this Notification.

6.8. The Notification is published in English and Tamil versions. In case of doubt, English version is final.

7. Reservation of Appointments:

The rule of reservation of appointments applies to this recruitment. Reservation of appointment to Destitute Widow and Ex-Servicemen will not apply to this recruitment. The details of the reservation to candidates belonging to various categories are given in Annexure II of this Notification. In respect of posts whose total cadre strength is one only, the rule of reservation of appointment does not apply.

8. Communication to Candidates:

8.1. The memorandum of admission (Hall Ticket) for candidates will be made available on the Commission's website www.tnpscexams.in for downloading by candidates. The memorandum of admission will not be sent by post. The candidates must comply with every instruction given in the memorandum of admission.

8.2. The Commission will publish the written examination results, list of candidates admitted for onscreen certificate verification, date and time of physical certificate verification, and counselling on the Commission's website www.tnpsc.gov.in. No individual communication will be sent to the candidates by post. However, the Commission provides the additional facility to the candidates by informing the above said dates, events and intimation relating to Certificate upload, Certificate Verification and Oral Test etc., via SMS and e-mail through the registered Mobile Number and email ID. Candidates are directed to watch the Commission's website in this regard. The Commission shall not be responsible if the communication does not reach the candidate due to an incorrect / invalid e-mail ID /mobile number and failure / delay in delivery of SMS / email to the candidates due to any reason including technical issues. Any representation from the candidates for non-receipt of SMS or e-mail will not be responded.

9. Communication with the Commission:

9.1. Candidates requiring clarification, can contact the office of the Tamil Nadu Public Service Commission in person or over the **Toll-Free No.1800 419 0958** on all working days between 10.00 A.M and 5.45 P.M.

9.2. Queries relating to One Time Registration / online application may be sent to helpdesk@tnpscexams.in. Any other communication with the Commission must be made through email to grievance.tnpsc@tn.gov.in. Communications sent by post must be addressed only to the Secretary, Tamil Nadu Public Service Commission, TNPSC Road, V.O.C. Nagar, Park Town, Chennai - 600003.

9.3. All communications to the Commission should invariably contain the following particulars. Communications not containing the following particulars will not be attended to.

- a. Name of the examination
- b. Notification No. and year
- c. Registration No.
- d. Name of the Candidate (in full and in block letters)
- e. Complete postal address as given in the application
- f. Valid and Active E-mail ID

9.4. Request for exemption from age limit or other qualifications will receive no attention. Requests for furnishing causes of failure in the written examination or for non-selection based on the results of the written examination or for revaluation of answer sheets will not be entertained.

9.5. Request for change of date and time for applying online / examination / physical certificate verification/interview, relaxation of condition mentioned in the notification or examination related directions or guidelines or minimum marks or qualification/requirements etc. shall not be entertained

9.6. During the process of recruitment, from Notification till selection process, No information / clarification on the selection particulars / details will be furnished to any petitions / representations including petitions received under Right to Information Act.

9.7. As a part of Open Data Policy, all the disclosures will be made available in the Commission's website after the completion of the selection process.

10. Litigations:

The selection for appointment to the posts included in this recruitment is purely provisional subject to the final orders in the court cases, if any, pending before the Hon'ble High Court of Madras and Madurai Bench of Madras High Court, relating to this recruitment.

Secretary

Annexure I

How to Apply Online

1. Website: Candidates should apply only through online mode in the Commission's website viz., www.tnpscexams.in.

2. One Time Registration:

2.1. It is essential for the candidate to register himself / herself first at the One Time Registration (OTR) platform, available on the Commission's website, and then proceed to fill up the online application for the examination. Candidates should register only once in the One Time Registration by paying Rs.150/- as registration fee. Successfully registered One Time Registration is valid for five years from the date of registration.

2.2. During One Time Registration, the candidates should keep ready the scanned image of their photograph, taken within the last 3 months of size 20 KB – 50 KB and saved as "Photograph.jpg" and signature of size 10 KB – 20 KB and saved as 'Signature.jpg'. Both photograph and signature, of 200 DPI resolution, should be saved in a CD / DVD / Pen drive, to upload the same.

2.3. One Time Registration is not an application for any post. It is just a collection of information from the candidates and provides a separate dashboard to each candidate to facilitate the maintenance of their own profile. A candidate should make an online application separately for every examination for which he / she intends to appear.

2.4. A valid e-mail ID and mobile number are mandatory for One Time Registration. E-mail ID and mobile number are to be kept in 'ACTIVE' mode. Every candidate should have his / her email ID and password. No candidate should share his/her e-mail ID, password, mobile number with any other person. In case a candidate does not have a valid personal email ID, he / she should create a new email ID before applying online and must maintain that email account live. Inquiries relating to One Time Registration / online applications will be answered only if the inquiries are received through a registered e-mail ID.

2.5. Linking the Aadhaar number with One Time Registration (OTR) is mandatory for candidates. The information associated with the Aadhaar number including biometrics will be used only for identification purposes and will not be stored or shared. Candidates are requested to give their consent in their respective OTR. The Aadhaar details will be submitted to the Central Identities Data Repository (CIDR) only for authentication. Linking of the Aadhaar number is mandatory for all prospective candidates to create new OTR, renew / access the existing OTR and apply for any recruitment to be notified henceforth.

2.6. Details to be furnished during One Time Registration:

2.6.1. Candidates shall furnish their correct SSLC Register Number and Certificate Number, Month and Year of Passing, Medium of Instruction, and Name of the Board that issued the certificate while registering online. If any detail furnished is found to be wrong, the online application will be rejected at any stage after due process.

2.6.2. Candidates who have more than one SSLC mark sheet, should enter the details available in the mark sheet issued on the final attempt in which he / she had passed the SSLC examination.

2.6.3. Besides details related to SSLC, all other details required in the One Time Registration, shall be furnished without any mistake, as these details shall form the basis of all other details given subsequently by the candidate while filling the online application for each recruitment.

2.7. One-Time Registration (OTR) Edit:

2.7.1. The candidates shall be permitted to edit the details in the OTR whenever required by uploading the supporting documents.

2.7.2. Any changes in the One Time Registration must be made before the submission of the online application since the details furnished in the One Time Registration will be filled in automatically in the online application. Hence, incorrect particulars furnished in the One Time Registration may result in the rejection of online application after due process. Candidates are therefore advised to fill in the One Time Registration particulars carefully and correctly.

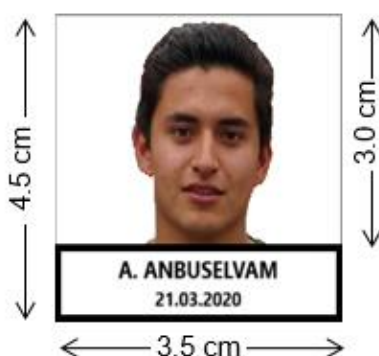
2.7.3. The Commission will not be responsible for any consequences arising out of failure on the part of the candidates to adhere to the instructions issued regarding One Time Registration or filling up of online application.

2.7.4. The instructions and illustration regarding One Time Registration are available on the website viz., www.tnpscexams.in.

3. Online Application:

3.1. A candidate who wishes to apply for any post shall click “APPLY” against the post notified on the Commission’s website and use the same User ID and Password given for One Time Registration. User ID and Password are to be created by the candidates themselves. In case the candidate forgets the User ID and Password, he/she can retrieve or reset them using the “FORGOT PASSWORD and FORGOT USER ID” options. The Commission will not furnish User ID and Password details to the candidates.

3.2. A candidate already having user ID and password, has to login. The available One Time Registration particulars will be displayed on the screen, including the photograph furnished at the time of One Time Registration, as well as the photographs uploaded with previous online applications. Candidates shall check and confirm the One Time Registration details before proceeding further. Thereafter, the candidates shall fill up additional details required in the specific recruitment application. If any of the One Time Registration details are found to be incorrect, the same should be corrected by clicking on OTR Edit. Changes made in the One Time Registration will be reflected only in online applications to be submitted subsequently.



3.3. Candidates shall upload their photograph taken on or after the date of notification at the time of submission of each and every online application. The photograph should be in colour, of passport size, against a white background and taken in a photo studio. The candidate should be photographed in frontal view showing both ears and part of the neck. The candidate should ensure that the name of the candidate and the date of photography (i.e., on or after the date of notification) are printed at the bottom of the photograph. The face of the candidate as well as his / her name and date of photography should be clearly visible in the photograph of height 4.5 cm (170 pixels) and width 3.5 cm (130 pixels). Of the total height of the photograph, the image of the candidate shall be 3.0 cm (115 pixels) and the candidate’s name and date of photography shall be 1.5 cm (55 pixels), as illustrated above. The photograph should be saved in a digital format (in CD / DVD / pen drive / hard drive), ready for uploading.

3.4. If the photograph is not available in a digital format, a passport-size photograph showing the image of the candidate along with the name of the candidate and the date of photography printed at the bottom, in the same dimensions as specified above, may be pasted on a plain white paper and scanned to obtain a resolution of 200 DPI. The image should then be cropped to show only the photograph of size 20KB–50KB saved as “Photograph.jpg” and uploaded. The entire sheet of white paper on which the photograph is pasted should not be scanned / uploaded. Photographs taken using cellular phones, selfies, photocopies (Xerox) of photographs, photographs taken during family functions, at tourist places, or against a backdrop of plants or buildings should not be uploaded. Photographs of nature, wildlife, buildings, etc. shall not be uploaded. In case of uploading an inappropriate photograph, in violation of the aforementioned instruction, the application is liable to be rejected after due process.

3.5. Before uploading of signature, the candidate shall draw a box of dimension 6.0 x 2.0 cm (230 pixels x 75 pixels) on white paper and sign within the box, using a blue or black ink pen. The paper should then be scanned to obtain a resolution of 200 DPI. The image should then be cropped to show only the box with the signature, of size 10 KB –20KB, and saved as “Signature.jpg” and uploaded.

3.6. Clear images of the photograph and the signature should be uploaded in the correct dimensions, size, and format. Failure to upload/upload clear images of the photograph and signature will result in the rejection of the online application after due process.

3.7. Examination Centres:

3.7.1. While applying online, candidates shall be permitted to choose two district centres as their preference for the Written Examination. Candidates shall be allotted a venue in one of these two district centres. However, candidates with benchmark disability, shall be permitted to choose only one district centre and shall be allotted a venue in that district centre.

3.7.2. Candidates must appear for the examination at the venue they have been allotted, as mentioned in the memorandum of admission (hall ticket). Request for change of examination centre will not be permitted.

3.7.3. The Commission reserves the right to increase or decrease the number of examination centres and to re-allot the candidates accordingly. The Commission also reserves the right to allot a candidate to the nearby centre, if he / she could not be accommodated in the centres opted by the candidate.

3.7.4. The written examination will be held at the centres given below:

S.No.	Name of the Centre	Code	S.No.	Name of the Centre	Code
1.	Chennai	0101	11.	Salem	1701
2.	Coimbatore	0201	12.	Thoothukudi	2401
3.	Erode	0601	13.	Tiruchirappalli	2501
4.	Kancheepuram	0701	14.	Tirunelveli	2601
5.	Nagercoil	0801	15.	Tiruppur	3201
6.	Karur	0901	16.	Vellore	2701
7.	Madurai	1001	17.	Virudhunagar	2901
8.	Namakkal	1201			
9.	Pudukkottai	1501			
10.	Ramanathapuram	1601			

3.8. Application Preview:

3.8.1. Candidates should carefully fill in the details in the online application at the appropriate places and click on the ‘SAVE AND PROCEED’ button at the end of each page of the application. Before pressing the ‘SAVE AND PROCEED’ button, candidates are advised to verify each particular field in the application.

3.8.2. Candidates can edit/add/delete any information while filling the online application. Before finally submitting the application, candidates will be given the option of seeing a preview of their application. As soon as a candidate clicks the button meant for preview, an SMS will be sent to the registered mobile number, informing the availability of such a preview in the registered email ID provided by the candidate.

3.8.3. Once the candidate desires to make modifications based on the preview arrangement as indicated in the paragraph above, he/she may re-open the application and make necessary modifications using the Edit option and make the final submission of the corrected application, before the last date prescribed for submission of the online application. It is the responsibility of the candidate to carefully check the details available in the preview and make suitable corrections, if any, in the application / OTR before final submission. The candidate will be solely responsible for any non-rectification or non-submission of the application.

3.8.4. An individual is considered to have applied for a recruitment, if and only if, he / she finally submits the application, by clicking the 'SUBMIT' button. The mere availability of a preview shall not be tantamount to "having applied" for a particular recruitment.

3.9. Examination Fee:

3.9.1. The examination fee of Rs. 200 (Rupees Two hundred only) should be paid at the time of submitting the online application for this recruitment, unless exemption of fee is claimed.

3.9.2. For every additional subject paper opted by the candidate in the online application Rs.200 for each subject paper should be paid additionally. Further, if the candidate withdraws one or more subject paper(s) then the fee already paid by the candidate will not be refunded.

3.9.3. Candidates belonging to special categories can avail of exemption from paying examination fees as per eligibility criteria. For further details refer to Annexure II of this Notification.

3.9.4. The total number of free chances availed, will be calculated based on claims made in previous applications. The number of free chances availed by the candidate may be verified by the Commission at any stage of the selection process. In case a candidate makes a false claim for exemption from payment of the application fee by suppressing information regarding his/her previous application(s), his / her candidature shall be rejected after due process and he / she shall be debarred for a period of one year, from appearing for examinations conducted by the Commission.

3.9.5. Candidates are directed to carefully choose the option "Yes" or "No" regarding availing of the fee concession. The choice made, cannot be modified or edited after successful submission of the online application. Candidates are advised in their own interest, to keep an account of the number of times fee concession has been availed, irrespective of the information displayed in the <Application History> of the candidate dashboard.

3.9.6. An application (irrespective of the post applied for) claiming fee concession will operate to exclude one chance from the number of free chances allowed. Candidates who have availed the maximum number of free chances permitted / candidates who do not wish to avail of the fee concession / candidates who are not eligible for fee concession shall choose the option "No" against the query regarding fee concession. Such candidates shall thereafter pay the requisite fee through the prescribed mode of payment.

3.9.7. Failure to pay the prescribed fee in time, along with the online application, will result in the rejection of the application after due process.

3.10. Examination Fee Payment:

3.10.1. After submitting the details in the online application, the candidates can pay the examination fee by online mode through Net Banking / Credit card / Debit card / UPI on or before the last date of submission of the online application by choosing the option in the online application. Candidates have to pay the service charges also as applicable.

3.10.2. Offline mode of payment if any received in the form of Demand Draft / Postal Order etc. will not be accepted and the applications forwarded with such modes of payment will be summarily rejected and the same will not be returned or refunded.

3.10.3. To facilitate payment of fees through the online mode, an additional page of the application format will be displayed wherein candidates may follow the instructions and fill in the requisite details to make payment. There is a possibility of online payment failure. Hence, if the online payment fails, candidates can check the status of the earlier transaction. If the earlier transactions have failed, the candidate shall retry paying the fee again by online mode. In case of online payment failure, the amount debited from the candidate's account will be reverted to his/her account. The candidates have been given a provision to check the status of the transaction made. If all the attempts/transactions have failed, candidates have to make the payment again. The Commission is not responsible for online payment failure. It is the responsibility of the candidates to ensure that the transaction made by them is successful.

3.10.4. After submitting the payment information in the online application format, wait for the intimation from the server. Meanwhile, DO NOT press 'Back' or 'Refresh' button to avoid payment failure or double payment.

3.10.5. If the online transaction has been successfully completed, an Application Number / Applicant ID will be generated. Candidates should note the Application Number / ID for future reference in respect of the recruitment applied for.

3.10.6. Tamil Nadu Public Service Commission reserves the right to change the mode of payment at any time.

3.11. Online Application Edit:

3.11.1. The candidates shall be permitted to edit all the details in the online application till the last date stipulated for submission of the online application.

3.11.2. If the candidate desires to change his / her photograph and/or signature in his / her online application, the candidate shall select the edit option in the online application to re-upload them which must be saved finally before submitting the online application.

3.11.3. Some of the information contained in the online application has been brought forward from the candidate's one-time registration. If such information has to be edited in the online application, the candidate shall select the edit profile option in One Time Registration (OTR) and shall make and save necessary corrections. After doing so, the candidate shall select the edit option in the online application and edit the details as desired. The candidate shall save the changes and submit it finally. The candidate shall take a printout of the same if required.

3.11.4. After editing the online application, if the edited details are not finally saved and submitted by the candidate, the details provided by the candidate in the application submitted before editing shall only be considered. If the candidate has to pay a fee based on the edited details, the candidate shall pay the prescribed examination fee in online. Candidates who have already paid the examination fee are not required to pay.

3.12. Application Correction Window:

3.12.1. After the last date for submission of the online application, the Online Application Correction Window shall open for 3 days as mentioned in Para 1 'Important Instructions' of this Notification. During this period, candidates will be able to edit the details in their online application. After the last date of the Correction Window period, no modification is allowed in the online application.

3.12.2. The applications shall be processed as per the details finally furnished by the candidates. It is the responsibility of the candidates and the Commission has no liability for subsequent rejection of the application consequent to the editing details already submitted in the online application. Request / representation received for modification of claims in the online application, in any mode shall not be entertained.

3.13. Candidates are advised in their own interest to apply online much before the closing date and not to wait till the last date to avoid the possibility of disconnection / inability / failure to log on to the Commission's website on account of heavy load on internet / website.

3.14. The Commission does not assume any responsibility for the candidates not being able to submit their online applications within the last date on account of the aforesaid reasons or for any other reason beyond the control of the Commission.

3.15. Candidates need not send the printout of the online application or any other supporting documents to the Commission by post unless asked for specifically.

3.16. The name of the candidate or the name of his / her father or mother, should be spelt correctly in the application as it appears in the certificates / mark sheets.

3.17. Any discrepancy between the details as given in the online application and the documents submitted shall result in the summary rejection of candidature after due process.

3.18. The Commission will not be responsible for any consequences arising out of furnishing of incorrect and / or incomplete details in the application or omission to provide the required details in the application.

3.19. Upload of Documents:

3.19.1. Candidates should upload the required documents of proof in respect of all the claims made in the application with reference to this notification while applying for this post. If the required certificates are not uploaded by the candidate in clear and legible form within the stipulated time, his/her candidature will be rejected after due process.

3.19.2. The candidates shall have the option of verifying the uploaded certificates / documents through their OTR. If any of the certificates / documents have wrongly been uploaded or not uploaded or if any modifications are to be done in the uploading of documents, the candidates shall be permitted to upload / re-upload the documents till two days prior to the date of hosting of hall tickets for that particular examination. (i.e., twelve days prior to the date of examination).

3.19.3. The uploaded credentials shall be mapped with the One Time Registration of the respective candidate along with the Application number and Notification Number (i.e., with reference to the notification for each post), so that they can be used during future submission of application by the same candidates.

3.19.4. The documents uploaded by the candidates shall be linked with OTR and retained in the server for a maximum period of two years. If the candidate applies subsequently for other posts within two years, the documents that were already uploaded shall be displayed to the candidate during the online application process for confirmation and the same need not once again be uploaded by the candidates. If the candidate applies to other posts after the period of retention i.e. two years, the candidate shall be instructed to upload all the documents afresh.

4. Information regarding criminal cases / disciplinary cases:

4.1. Candidates who have declared registered/ pending criminal or disciplinary cases in their online application, must upload a copy of the First Information Report (FIR) or memorandum of charges / show cause notice, as the case may be. Failure to upload such papers at the time of submission of online application, shall result in rejection of candidature after due process.

4.2. Candidates who have declared conviction / acquittal in criminal cases or punishment in disciplinary cases, in their online application, must upload the relevant court orders and / or release orders or memorandum of proceedings, as the case may be, at the time of submission of online application. Failure to upload such papers shall result in the rejection of candidature after due process.

4.3. In case any criminal case is filed / disciplinary action is taken against or conviction / punishment is imposed on a candidate after submission of the online application, at any stage of the recruitment process before the completion of the entire selection process, such candidates should report this fact to the Commission in the next immediate stage when Commission calls for uploading documents. Failure to comply with these instructions shall result in the rejection of candidature after due process and debarment for a period of one year.

4.4. The pendency of disciplinary cases / criminal cases shall in no way affect the selection prospects of candidates. However, failure to inform such pendency, shall result in the rejection of candidature after due process.

4.5. The selection of the candidates against whom the criminal case / disciplinary case is pending, will be withheld subject to the outcome of the pending criminal / disciplinary case.

5. Employment Details:

5.1. Candidates who are in the service of the Indian Union or a State in India or in the employment of Local Bodies or Universities or Quasi Government Organizations or Public Sector Units constituted under the authority of the Government of India or of a State in India, in regular service, must inform the Commission of such fact, at the time of applying. Suppression of the fact of employment by candidates shall result in rejection of candidature after due process.

5.2. Candidates need not send their applications through their Head of Department or employer. Instead, they may directly apply to the Commission after duly informing their employer in writing that they are applying for the particular recruitment, subject to the condition that they should produce 'No Objection Certificate' in the format prescribed as shown below.

No Objection Certificate

This is to certify that Thiru/Tmt./Selvi. (Name) employed as (designation) in this office from(specify the date from which appointed), who is regularly / temporarily appointed and who is as probationer / approved probationer / full member, had applied for the post ofinservice called for by the Tamil Nadu Public Service Commission through online application form to the Tamil Nadu Public Service Commission and informed the fact to this department / organisation. This department / organisation has 'no objection' for processing the said application of the individual by the Tamil Nadu Public Service Commission subject to the condition that the particulars furnished by the individual are found to be correct.

Appointing Authority
(Signature with Seal)

* In the case of a Government servant against whom departmental or criminal proceedings are contemplated or pending, the appointing authority shall inform the said fact to the Tamil Nadu Public Service Commission along with the "No Objection Certificate" and shall also inform the Tamil Nadu Public Service Commission about the initiation of departmental or criminal proceedings, if any, subsequently, till the date of his / her actual relief from the office to take up appointment in the post for which he / she has been selected.

5.3 Candidates who secure employment after submission of online application, must upload a 'No Objection Certificate' or at least an undertaking regarding the fact of employment and that 'No Objection Certificate' has been applied for. Failure to upload the 'No Objection Certificate' / an undertaking shall result in the rejection of candidature after due process.

5.4. Candidates who have been removed / dismissed / resigned from a post, shall intimate such fact to the Commission, through the One Time Registration Dashboard. Any failure in this regard shall result in the rejection of the candidature after due process.

5.5. Any change in the employment status of the candidate, whether appointment to or resignation / removal / dismissal, from a post, at any stage of the recruitment process, until completion of the entire selection process, must be informed to the Commission. Any failure in this regard shall result in the rejection of the candidature after due process.

5.6. Failure on the part of employed candidates to upload the 'No Objection Certificate' shall result in the rejection of candidature after due process.

Annexure II

1. Ex-Servicemen:

1.1. 'Ex-Serviceman' means,

1.1.1. Any person who had served in any rank (whether as combatant or not) in the Armed Forces of the Union for a continuous period of not less than six months after attestation, if released between 1st July 1979 and 30th June 1987 (both days inclusive):

- a. for reasons other than at his own request or by way of dismissal or discharge on account of misconduct or inefficiency; or
- b. at his own request after serving for a period of not less than five years; or

1.1.2. Any person who had served in any rank (whether as combatant or not) in the Armed Forces of the Union, and had retired or had been released on or after 1st July 1987 from such service:

- a. at his own request after earning his pension; or
- b. on medical grounds attributable to military service or circumstances beyond his control and awarded medical or other disability pension; or
- c. otherwise than at his own request after earning his pension, as a result of reduction in establishment; or
- d. after completing specific period of engagement, otherwise than at his own request or by way of dismissal or discharge on account of misconduct or inefficiency and has been given a gratuity.

1.1.3. Any person of the Territorial Army of the following categories, namely, pension holder for continuous embodied service, person with disability attributable to military service and gallantry award winner retired on or after 15th November 1986; or

1.1.4. Any person of the Army Postal Service, who retired on or after 19th July 1989 directly from the said service without reversion to Postal and Telegraph Department with pension or who has been released on or after 19th July 1989 from such service on medical grounds attributable to military service or circumstances beyond his control and awarded medical or other disability pension; or

1.1.5. Any person who was on deputation in the Army Postal Service for more than 6 months prior to the 14th day of April 1987; or

1.1.6. Any person who was boarded out or released on medical grounds and granted medical or disability pension; or

1.1.7. Any person discharged on or after July 1987 under Army Rule 13(3) III (V) for the reason that his service is no longer required and in receipt of pension; or

1.1.8. Such other person as may be notified by the Government from time to time.

1.2. Ex-Servicemen does not mean the wards / dependants of those mentioned above.

1.3. A person discharged before July 1987 under Army Rule 13(3) III (V) for the reason that his service is no longer required is not an Ex-Serviceman.

1.4. In all cases, an Ex-Serviceman once recruited to a post in any class or service or category, cannot claim the concession of being called an Ex-Serviceman for his further recruitment.

1.5. Persons serving in the Armed Forces shall be eligible to apply for posts under the Government, if they are due to complete the specified term of their engagement in the Armed Forces, within one year from the last date prescribed by the Commission, for receipt of the online application in respect of a particular recruitment.

1.6. Fee Concession: Two free chances.

1.7. Reservation of Appointments: The rule of reservation of appointment to Ex-Servicemen will not apply to this recruitment.

1.8. Supporting Documents:

1.8.1. A candidate who claims to have been demobilised from the Army or Navy or Air Force needs to upload / produce both the properly authenticated extract from his Discharge Certificate (viz., a Bonafide Certificate) issued by the Ex-Servicemen's Welfare Board in the format as depicted below or the Pension Pay Order at the time of submission of online application.

Form of Bonafide Certificate to be produced by Ex-Servicemen

1. Name of the applicant
2. Rank held, Name of the Service (Army / Navy / Air force)
3. Date of enrolment
4. Date of discharge
5. Reasons for discharge
6. Whether an 'Ex-Serviceman' should be specifically stated
7. Whether in receipt of pension
8. P.P.O No.
9. Conduct and character while serving in the defence forces
10. Name of the post applying for
11. Unique Service No.
12. Whether the individual is employed in any post under the Government of Tamil Nadu? If so, Name of the post and date of appointment

1.8.2. Persons serving in the Armed Forces who are due to complete the specified term of their engagement in the Armed Forces, within one year from the last date prescribed by the Commission, for receipt of the online application in respect of this recruitment, shall upload at the time of submission of online application an undertaking and a certificate from their Commanding Officer in the format as depicted below.

Form of Undertaking to be given by the Serving Personnel

I hereby accept that if selected on the basis of the recruitment / examination to which this application relates, I will produce documentary evidence to the satisfaction of the appointing authority that I have been duly released / retired / discharged from the Armed Forces and I am entitled to the benefits admissible to Ex-Servicemen given under Section 63 of the Tamil Nadu Government Servants (Conditions of Service) Act, 2016.

Place:

Signature of the Applicant

Form of Certificate for Serving Personnel

I hereby certify that according to the information available with me (Number)(Rank) (Name) is due to complete the specified term of his engagement with the Armed Forces on the (date)

Place:
Date:

Signature of the Commanding Officer

1.8.3. The candidates should also upload the Self Declaration in the format given below.

Self Declaration

1) I am aware of the fact that, as per the proviso to Section 3 (j) and 3(y) of the Tamil Nadu Government Servants (Conditions of Service) Act, 2016 (Tamil Nadu Act 14 of 2016) and as per note II under para.4-A of the Commission's Instructions to Applicants, "In all cases, an ex-serviceman once recruited to a post in any class or service or category, cannot claim the concession of being called an ex-serviceman for his further recruitment".

2) I am also aware of the fact that as per para.14(P)(V) of the Commission's Instructions to Applicants "Any change in the employment status of the candidate, whether appointment to, or resignation / removal / dismissal, from a post, at any stage of the recruitment process, until completion of the entire selection process, must be informed to the Commission. Any failure in this regard shall result in rejection of candidature after due process"

3) Knowing the above facts, I (Ex.No.....) Ex.Rank..... NameofDistrict hereby declare that I have never been employed in any post in any class or service or category classified under State service or Subordinate service of Tamil Nadu.

4) Knowing the above facts, I (Ex.No.....) Ex.Rank..... Name ofDistrict hereby declare that I have been employed in State service or Subordinate service of Tamil Nadu as from.....to.....after my retirement from the Armed Forces. I also enclose herewith the No Objection Certificate obtained from my employer.

5) Further, if the above declaration is found to be false, I may be subjected to any departmental / legal/ penal action as deemed fit and my candidature to the said examination will be cancelled by the Commission after due process.

(*Strikeout whichever is not applicable)

Date :
Place :

Signature :
Name :
Register No. :
Ex. No. :
Rank :
Mobile No. :

1.8.4. Failure to upload the supporting documents at the time of submission of online application shall result in the rejection of claim after due process.

1.9. Persons with Benchmark Disability:

1.9.1. "Person with Benchmark Disability" means a person with not less than forty percent of a specified disability where specified disability has not been defined in measurable terms and includes a person with disability where specified disability has been defined in measurable terms, as certified by the certifying authority designated by the Government under sub-section (1) of section 57 of the Rights of Persons with Disabilities Act, 2016.

1.9.2. Fee Concession: Full exemption.

1.9.3. Reservation of Appointments: (For posts identified suitable for persons with benchmark disabilities) Out of the total number of appointments to be made in the communal reservation categories, viz., Scheduled Castes / Scheduled Caste - Arunthathiyars (on preferential basis) / Scheduled Tribes / Most Backward Classes / Denotified Communities / Backward Classes (other than Muslim) / Backward Classes (Muslim) and General Turn, in the case of appointment made by direct recruitment, 1% each shall be reserved for persons with benchmark disabilities under categories (a), (b) and (c) and 1% for persons with benchmark disabilities under categories (d) and (e) both taken together, namely:

- a. blindness and low vision;
- b. deaf and hard of hearing;
- c. locomotor disability including cerebral palsy, leprosy cured, dwarfism, acid attack victims and muscular dystrophy;
- d. autism, intellectual disability, specific learning disability and mental illness;
- e. multiple disabilities from amongst persons under categories (a) to (d) including deaf-blindness in the posts identified for each disability.

1.9.4. Supporting Documents:

1.9.4.1. The Persons with Benchmark Disability shall ensure that the Differently Abled Certificates to be uploaded by them contain, among other things the following aspects.

- a. The exact sub-category (i.e. One Arm, One Leg, etc.,) as claimed by them in their online application.
- b. Affected part of the body.
- c. The percentage of disability.
- d. They should also ensure that the Differently Abled Certificate has been issued by the competent authority / authorities specified in para 2.4.3 table I & II of this notification.
- e. The signature, seal, designation and speciality of the issuing authority are clearly visible and
- f. The Differently Abled Certificate is valid as on the date.

1.9.4.2. If the Differently Abled Certificate already possessed by them does not contain any one or more the above aspects, such candidates shall obtain and upload a fresh Differently Abled Certificate in the format prescribed Form VIII of this notification. Failure to do so will lead to rejection of their application / claim after due process.

1.9.4.3. The Persons with Benchmark Disability should produce Disability Certificate at the time of online application in the format shown below, prescribed in the Rights of Persons with Disabilities Rules, 2017 and issued by the competent authority as mentioned below;

Form V
Certificate of Disability

(In cases of amputation or complete permanent paralysis of limbs or dwarfism and in case of blindness)

(Name and Address of the Medical Authority issuing the Certificate)

Recent passport size
attested photograph
(Showing face only) of
the person with
disability.

Certificate No. _____

Date: _____

This is to certify that I have carefully examined Shri./ Smt./ Kum. _____
Son / wife / daughter of Shri. _____ Date of Birth (DD/ MM/YY) _____ Age _____
years, male / female Registration No. _____ permanent resident of House No. _____ Ward /
Village / Street Post Office _____ District State _____, whose photograph is affixed above,
and am satisfied that:

(A) he / she is a case of:

- locomotor disability
- dwarfism
- blindness

(Please tick as applicable)

(B) the diagnosis in his / her case is _____

(C) he / she has _____ % (in figure) _____ percent (in words) permanent locomotor disability/
dwarfism/ blindness in relation to his / her _____ (part of body) as per guidelines
(..... number and date of issue of the guidelines to be specified).

2. The applicant has submitted the following document as proof of residence:-

Nature of Document	Date of Issue	Details of authority issuing certificate

(Signature and Seal of Authorized Signature of notified Medical Authority)

Signature/ thumb
impression of the
person in whose favour
certificate of disability is
issued.

Form VI
Certificate of Disability
(In cases of multiple disabilities)
(Name and Address of the Medical Authority issuing the Certificate)

Recent passport size
attested photograph
(Showing face only) of
the person with
disability.

Certificate No. _____

Date. _____

This is to certify that we have carefully examined Shri./ Smt./ Kum. _____ son/ wife/ daughter of Shri _____ Date of Birth (DD/ MM/ YY) _____ Age _____ years, male/ female _____. Registration No. _____ permanent resident of House No. _____ Ward/ Village/ Street _____ Post Office _____ District _____ State _____, whose photograph is affixed above, and am satisfied that:

(A) he/ she is a case of Multiple Disability. His/ her extent of permanent physical impairment/ disability has been evaluated as per guidelines (..... number and date of issue of the guidelines to be specified) for the disabilities ticked below, and is shown against the relevant disability in the table below:

Sl. No.	Disability	Affected part of body	Diagnosis	Permanent physical impairment/ mental disability (in%)
1.	Locomotor disability	@		
2.	Muscular Dystrophy			
3.	Leprosy cured			
4.	Dwarfism			
5.	Cerebral Palsy			
6.	Acid attack Victim			
7.	Low vision	#		
8.	Blindness	#		
9.	Deaf	£		
10.	Hard of Hearing	£		
11.	Speech and Language disability			
12.	Intellectual Disability			
13.	Specific Learning Disability			
14.	Autism Spectrum Disorder			
15.	Mental illness			
16.	Chronic Neurological Conditions			
17.	Multiple sclerosis			
18.	Parkinson's disease			
19.	Haemophilia			
20.	Thalassemia			
21.	Sickle Cell disease			

(B) In the light of the above, his/ her over all permanent physical impairment as per guidelines

(..... number and date of issue of the guidelines to be specified), is as follows : -

In figures :- ----- percent

In words :- ----- percent

2. This condition is progressive/ non-progressive/ likely to improve/ not likely to improve.

3. Reassessment of disability is:

(i) not necessary, or

(ii) is recommended/ after years months, and therefore this certificate shall be valid till --- --- ---

(DD) (MM) (YY)

@ e.g. Left/ right/ both arms / legs

e.g. Single eye

£ e.g. Left/ Right/ both ears

4. The applicant has submitted the following document as proof of residence:-

Nature of document	Date of issue	Details of authority issuing certificate

5. Signature and seal of the Medical Authority.

Name and Seal of Member	Name and Seal of Member	Name and Seal of the Chairperson

Signature/ thumb
impression of the
person in whose favour
certificate of disability is
issued.

Form VII**Certificate of Disability**

(In cases other than those mentioned in Forms V and VI)
(Name and Address of the Medical Authority issuing the Certificate)

Recent passport size attested
 photograph (Showing face
 only) of the person with
 disability.

Certificate No. _____

Date. _____

This is to certify that I have carefully examined Shri./ Smt./ Kum. _____ son / wife / daughter of Shri _____ Date of Birth (DD/ MM/ YY) ____ __ __ Age _____ years, male/ female _____ Registration No. _____ permanent resident of House No. _____ Ward/ Village/ Street _____ Post Office _____ District _____ State _____, whose photograph is affixed above, and am satisfied that he/ she is a case of _____ disability. His/ her extent of percentage physical impairment/ disability has been evaluated as per guidelines (..... number and date of issue of the guidelines to be specified) and is shown against the relevant disability in the table below:-

Sl. No.	Disability	Affected part of body	Diagnosis	Permanent physical impairment/mental disability (in %)
1.	Locomotor disability	@		
2.	Muscular Dystrophy			
3.	Leprosy cured			
4.	Cerebral Palsy			
5.	Acid attack Victim			
6.	Low vision	#		
7.	Deaf	€		
8.	Hard of Hearing	€		
9.	Speech and Language disability			
10.	Intellectual Disability			
11.	Specific Learning Disability			
12.	Autism Spectrum Disorder			
13.	Mental illness			
14.	Chronic Neurological Conditions			
15.	Multiple sclerosis			
16.	Parkinson's disease			
17.	Haemophilia			
18.	Thalassemia			
19.	Sickle Cell disease			

(Please strike out the disabilities which are not applicable)

2. The above condition is progressive / non-progressive / likely to improve / not likely to improve.

3. Reassessment of disability is:

(i) not necessary, or

(ii) is recommended/ after ___ years ___ months, and therefore this certificate shall be valid till
(DD/ MM/ YY) ____ ____ ____

@ - eg. Left/ Right/ both arms/ legs

- eg. Single eye/ both eyes

€ - eg. Left/ Right/ both ears

4. The applicant has submitted the following document as proof of residence:-

Nature of Document	Date of Issue	Details of authority issuing certificate

(Authorized Signatory of notified Medical Authority)
(Name and Seal)

Countersigned
{Countersignature and seal of the
Chief Medical Officer/ Medical Superintendent/
Head of Government Hospital, in case the
Certificate is issued by a medical authority who is
not a Government servant (with seal)}

Signature/ thumb impression of the person in whose favour certificate of disability is issued.
--

Form VIII
Certificate of Disability

Photograph of
the candidate
with the
signature of
the issuing
authority

1. This is to certify that, I have carefully examined the following individual, whose photograph is affixed above, as per the existing guidelines and satisfied that he /she is a differently abled person as detailed below:

Name	
Name of the Father / Mother	
Date of Birth	
Age	
Full Address	

2. Tick the relevant box

a)	Low Vision (LV)	
	Visually Impaired (VI)	
b)	Hard of Hearing (HH) (with assistive device)	
	Hearing Impaired (HI)	
c)	Locomotor Disability	
i	One Arm (OA)	
ii	One Leg (OL)	
iii	Both Legs (BL)	
iv	Both Arms (BA)	
v	One Arm One Leg (OAOL)	
vi	Both Leg One Arm (BLOA)	
vii	Both Arm Both Leg (BABL)	
viii	Cerebral Palsy (CP)	
ix	Leprosy Cured (LC)	
x	Dwarfism (DF)	
xi	Muscular Dystrophy (MuD)	
xii	Acid Attack Victims (AC)	

xiii	LD – Others (Scoliosis and/ or Kyphoscoliosis, Kyphosis, Spinal Cord Injuries and Spine Kyphoscoliosis)	
d)	Autism Spectrum Disorder (ASD)	
	Specific Learning Disability (SLD)	
	Mentally ill (MI)	
	Intellectual Disability	

3.	Affected Part of the body	
----	---------------------------	--

4.	Percentage of Disability	
----	--------------------------	--

5.	The condition is :	Non-Progressive	
		Progressive	

6. Re-assessment of disability is:

- a) Not Necessary
- b) Recommended after Years and Months

7. Details of the Issuing Authority

Signature with date	
Name	
Designation	
Name of the Speciality	
Name of the Institution with Seal	

a) Date of Issue :		Signature / Thumb impression of the Person in whose favour the certificate is issued	
b) Place of Issue :			

List of Certifying Authority for the issue of disability certificate

TABLE – I

S. No.	Specified disability	Medical Authority for the purpose of the issue of disability certificate	Certifying authority to issue certificate of disability
1	In case of amputation or complete permanent paralysis of limbs or dwarfism	Hospitals/ Institutions/ Primary Health Centres run by Central and State Government/ Statutory Local bodies	Any doctor/ medical practitioner working in the Hospitals/ Institutions/ Primary Health Centres run by Government/ Statutory Local bodies.
2	Multiple Disability	District Hospital/ Other hospitals/ Institutions run by Central and State Government /Statutory Local Bodies having relevant medical specialist and testing/assessment facilities	Medical Board consisting of three members of whom two will be specialist dealing with relevant disabilities
3	Specified Disabilities not mentioned in Serial numbers 1 & 2 above	Hospitals / Primary Health Centers / Institutions run by Central and State Government/ Statutory Local bodies having relevant medical specialist and testing / assessment facilities	A specialist dealing with the relevant disability as specified in the Table - II given below

TABLE – II

Sl. No.	Category	Specialist
1	Locomotor disability other than amputation or complete permanent paralysis of limbs and dwarfism	Specialist in Physical Medicine and Rehabilitation or Orthopaedician.
2	Muscular Dystrophy	Specialist in Physical Medicine and Rehabilitation or Orthopaedician.
3	Leprosy cured person	Specialist in Physical Medicine and Rehabilitation or Orthopaedician.
4	Cerebral Palsy	Specialist in Physical Medicine and Rehabilitation or Orthopaedician.
5	Acid Attack Victim	Specialist in Physical Medicine and Rehabilitation or Orthopaedician.
6	Blindness	Specialist in the field of Ophthalmology.
7	Low Vision	Specialist in the field of Ophthalmology.
8	Deaf	Specialist in the field of Ear, Nose, Throat (E.N.T).
9	Hard of Hearing	Specialist in the field of Ear, Nose, Throat (E.N.T).
10	Speech and Language Disabilities	Specialist in the field of Ear, Nose, Throat (E.N.T) and Neurologist.
11	Intellectual Disability	Adults with intellectual disability above the age group of 18 years – Psychiatrist.
12	Specific Learning Disabilities	Medical board consisting of a) Paediatrician; and b) Psychiatrist and Trained Psychologist.
13	Autism spectrum disorder	Medical Board consisting of a) Psychiatrist and Trained psychologist; and b) Paediatrician or General Physician.
14	Mental Illness	Psychiatrist.

15	Chronic Neurological Conditions such as Multiple Sclerosis and Parkinson's Disease	Medical Board consisting of a) Psychiatrist and Trained Psychologist; and b) Neurologist; and c) Orthopaedician or Specialist in Physical Medicine and Rehabilitation.
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2.4.2. In case the certificate is issued by a medical authority who is not a Government servant, it shall be valid only if countersigned by the Joint Director, Medical Services.

2.4.3. The disability claimed in the online application, shall be exactly the same as stated in the Disability Certificate. Any discrepancy in this regard shall result in rejection of claim after due process.

2.4.4. Claim as person with benchmark disability, unsupported by the prescribed documents shall result in rejection of claim after due process.

3. Destitute Widow:

3.1. "Destitute Widow" means a widow whose total monthly income from all sources shall not be more than Rs.8,000/-(Rupees Eight Thousand only), including any family pension or other receipts including income from private practice in the case of professionals. Destitute Widow shall not include a divorcee or a woman deserted by her husband. The status of an individual as Destitute Widow is with reference to the date of notification.

3.2. Fee Concession: Full exemption.

3.3. Reservation of Appointments: The rule of reservation of appointment to Destitute Widow candidates will not apply to this recruitment.

3.4. Supporting Documents:

3.4.1. The Destitute Widows should upload a certificate from the Revenue Divisional Officer or the Assistant Collector or the Sub-Collector concerned, in the format prescribed below. Failure to upload such certificate or uploading of a widow or divorcee certificate, at the time of submission of online application, shall result in rejection of claim after due process.

Form of Destitute Widow Certificate

1. Name of the individual
2. Full Postal Address
3. Details of job held, if any:
4. Particulars of her children, if any
5. Name and last occupation of her late husband
6. Date of demise of her husband
7. Monetary benefits received after her husband's death by way of family pension, insurance, etc., if any
8. Details of Properties if any immovable and movable left behind by him
9. Present monthly income
 - a. From salaries/wages
 - b. From family pension
 - c. From private properties
 - d. Rents received
 - e. From private practice
 - f. Other sources, if any
 - g. Total
10. Whether living alone or living with her husband's parents / in-laws / parents / brother(s)
11. Whether she satisfies the definition of the term "Destitute Widow" as defined in section 20(8) and 26 of Tamil Nadu Government Servants (Conditions of Service) Act, 2016.

Certified that I have verified the particulars furnished by the individual and satisfied myself as to the correctness of her claim with reference to the definition of the term – “Destitute Widow” in section 20(8) and 26 of Tamil Nadu Government Servants (Conditions of Service) Act, 2016.

Certificate Reference No.:

Signature:

Place:

Name:

Date:

Designation:

Revenue Divisional Officer / Assistant Collector / Sub-Collector

Explanation - The above certificate should be issued only by the Revenue Divisional Officer or the Assistant Collector or the Sub-Collector concerned.

3.4.2. A ‘Widow Certificate’ is different from a ‘Destitute Widow Certificate’. Candidates who have uploaded Widow Certificates will not be considered as Destitute Widow.

3.4.3. Claim as Destitute Widow shall be admitted only if the date of demise of husband is on or before the date of notification.

3.4.4. Any correction in the Destitute Widow certificate must be attested by the issuing authority or a fresh certificate in lieu thereof must be uploaded.

4. Persons Studied in Tamil Medium (PSTM):

4.1. “Persons Studied in Tamil medium” means a person who has studied through Tamil medium of instruction up to the educational qualification prescribed for direct recruitment in the rules or regulations or orders applicable to any appointment in the services under the State.

4.1.1. In cases where a Degree is prescribed as the educational qualification, one shall have studied from first standard to Degree through Tamil medium of instruction.

4.1.2. The candidates who did not join school in the 1 st standard, but joined schools directly in 2nd standard to 8th standard under the Right to Education Act on the basis of age, studied in Tamil as the medium of instruction and passed, and those who studied with Tamil as the medium of instruction in other states and then continued their education in Tamil Nadu from the standard they entered are also eligible.

4.1.3. Students who have studied in Tamil medium in regular stream in 10th, 11th and 12th standard and failed to pass one or more subjects in them, but have later passed in the subject as private students and have continued to study in schools and colleges in Tamil medium and have passed are eligible to be considered under PSTM category.

4.1.4. The candidates who have passed the examination through Tamil medium directly as private candidates without going to school are not eligible to be considered under PSTM category.

4.1.5. In cases where a Post Graduate Degree is prescribed as the educational qualification, one shall have studied from first standard to Post Graduate Degree through Tamil medium of instruction.

4.1.6. The provisions of Persons Studied in Tamil Medium (PSTM) Act 2010 as amended in Persons Studied in Tamil Medium (PSTM) (amendment Act No.12 of 2026) are applicable for this recruitment.

4.2. Supporting Documents:

4.2.1. Candidates claiming to be Persons Studied in Tamil Medium (PSTM) must upload evidence for the same, in the form of SSLC, HSC, Transfer Certificate, Provisional Certificate, Convocation Certificate,

Degree Certificate, PG Degree Certificate, Mark Sheets, Certificate from the Board or University or from the Institution, as the case may be, with a recording that he had studied the entire duration of the respective course(s) through Tamil medium of instruction from 1st standard.

4.2.2. The candidates should obtain certificates of education in Tamil medium from all the relevant educational institutions where they studied upto the prescribed educational qualification. Candidates must upload documents as evidence of having studied in the Tamil medium, all educational qualifications from 1st standard up to the educational qualification prescribed.

4.2.3. If no such document as evidence for 'Persons Studied in Tamil Medium' is available, a certificate from the Principal / Head Master / District Educational Officer / Chief Educational Officer / Director , Directorate of Government Examinations / Competent Authority, Principal of Industrial Training Institute / Principal of College / Registrar of University as the case may be, in the format as shown below, must be uploaded for each and every educational qualification, from 1st standard upto the educational qualification prescribed.

4.2.4. Failure to upload such documents as evidence for 'Persons Studied in Tamil Medium' for all educational qualification up to the educational qualification prescribed, shall result in the rejection of claim after due process.

4.2.5. Documents uploaded as proof of having studied in Tamil medium, for the partial duration of any course, shall not be accepted and shall result in the rejection of claim after due process.

Certificate for having studied in Tamil Medium*

This is to certify that **Thiru./Tmt./Selvi.**(Name) had studied Classes to with Tamil as the medium of instruction, in this school / through Private Studies during the year to and had satisfactorily completed the course of studies prescribed for Classes to

Thiru./Tmt./Selvi.(Name) was / was not awarded scholarship meant for students studying in the Tamil medium.

This certificate is issued with reference to Section 2(d) of the PSTM (Amendment) Act, 2020, based on the verifiable documentary evidence. The undersigned assumes full responsibility for the veracity of the contents herein.

Signature of Principal / Head Master /
District Educational Officer /
Chief Educational Officer /
Director, Directorate of Govt. Exams /
Competent Authority

Place:

Date: Seal of the Institution (Mobile No. _____)

* If the candidate has studied in different schools from 1st std. up to 10th std./ 12th std., then the above certificate shall be obtained from each of the schools the candidate has studied in.

Certificate for having studied in Tamil Medium@

This is to certify that Thiru / Tmt. / Selvi.(Name) had studied.....
(Diploma / Degree / PG Degree, etc.) during the year to with Tamil as the medium
of instruction and had satisfactorily completed the course of studies prescribed for.....(Diploma
/ Degree / PG Degree, etc.).

Thiru / Tmt. / Selvi.(Name) was / was not awarded scholarship meant for
students studying in the Tamil medium.

This certificate is issued with reference to Section 2(d) of the PSTM (Amendment) Act, 2020, based on
the verifiable documentary evidence. The undersigned assumes full responsibility for the veracity of the
contents herein.

Signature of Principal /
Registrar Industrial Training
Institute /
College / University

Place:

Date: Seal of the Institution (Mobile No. _____)

@ If the candidate has completed different courses in different Institutions, such a certificate shall be
obtained from each of these Institutions for the courses completed therein.

4.2.6. Candidates who have joined school directly under the Right to Education Act on the basis of age
should upload / produce the following certificate

Certificate for direct admission in School

This is to certify that Thiru/Tmt./Selvi/ _____(Name) S/o/D/o/Thiru/Tmt./
_____ had been admitted directly to _____ standard in our School / Institution
based on his/her age under the Right to Education Act through direct Admission.

Signature of Principal / Head Master
(Mobile Number) _____

Place: Official Seal of
Date: School / Institution

4.2.7. If the school name of the candidate has been changed subsequently such candidates should
upload the certificate in the following format.

Certificate for change of school name

This is to certify that Thiru/Tmt/Selvi. _____
S/o/D/o _____ studied the classes from _____ to _____ in
Tamil Medium during the years from _____ to _____ in this school.

It is further certified that this school was earlier known as _____ and
consequent to change in the name, this school is presently called as _____

This certificate is issued to the above person to claim preferential treatment under section 2 (d) of the
PSTM (Amendment) Act, 2020.

Place: _____

Date: _____

Signature with Seal:

Seal of the Institution

Name:
Designation:
(Head Master/Principal/
District Educational Officer/
Chief Educational Officer)

5. Scheduled Castes, Scheduled Caste (Arunthathiyars) and Scheduled Tribes:

5.1. "Scheduled Castes" means the communities given in the Annexure to the "Instructions to Applicants" [extracted from Part-A of Schedule-II of the Tamil Nadu Government Servants (Conditions of Service) Act, 2016].

5.2. 'Arunthathiyar' means the castes: Arunthathiyar, Chakkiliyan, Madari, Madiga, Pagadai, Thoti and Adi Andhra.

5.3. "Scheduled Tribes" means the communities given in the Annexure to the "Instructions to Applicants" [extracted from Part-B of Schedule-II of Tamil Nadu Government Servants (Conditions of Service) Act, 2016].

Note: Persons belonging to Tamil Nadu and to any one of the communities mentioned in the lists shown in the Annexure to the "Instructions to Applicants" alone shall be treated as Scheduled Castes or Scheduled Tribes as the case may be. Persons belonging to other States shall not be treated as belonging to the Scheduled Castes or Scheduled Tribes even though they may belong to any one of the communities specified in the list.

5.4. Fee Concession: Full exemption

5.5. Reservation of Appointments: The selection will be made following the rule of reservation of appointments for Scheduled Castes / Scheduled Caste (Arunthathiyars) / Scheduled Tribes.

Scheduled Caste (SC)	15%
Scheduled Caste (Arunthathiyar) (SCA)	3%
Scheduled Tribe (ST)	1%

5.6. Supporting Documents:

5.6.1. The Scheduled Caste (Arunthathiyars) and Scheduled Castes candidates should produce the Community certificate, citing either father's / mother's name, issued by Taluk Tahsildar, in whose jurisdiction the candidate claims to have permanent residence.

5.6.2. The Scheduled Tribe candidates should produce the Community certificate, citing either father's / mother's name, issued by the Revenue Divisional Officer / Assistant Collector / Sub-Collector / Personal Assistant (General) to the Collector of Chennai / District Adi-Dravidar Welfare Officer, in whose jurisdiction the candidate claims to have permanent residence.

5.6.3. Candidates belonging to Scheduled Tribe communities must upload the report of the State Level Scrutiny Committee (SLSC), if available. Failure to do so would render their claim liable to verification by the State Level Scrutiny Committee.

5.6.4. Uploading of a community certificate citing name of the spouse, shall result in rejection of claim after due process.

5.6.5. The certificate obtained by the candidates in the form other than the one referred to in G.O. Ms. No.781, Revenue Department, dated 2nd May 1988 and solely based on the entries in SSLC or Transfer Certificate or other school / college records will not be accepted.

5.6.6. Candidates are warned that if the community recorded in the certificate produced by them from the competent authority is not included in the list of Scheduled Castes, Scheduled Caste (Arunthathiyars), Scheduled Tribes, given in the Annexure to the "Instructions to Applicants" [extracted from the Tamil Nadu Government Servants (Conditions of Service) Act, 2016], they will not be permitted to claim to belong to Scheduled Castes, Scheduled Caste (Arunthathiyars), Scheduled Tribes, as the case may be. They will, in that case, be permitted to claim to belong to 'Others' category only.

5.6.7. Candidates belonging to Scheduled Castes, on conversion to religions other than Christianity / Islam, shall be treated as 'Others'. Candidates belonging to Scheduled Castes, on conversion to Islam shall be treated as "Backward Classes (Muslim)". However, Scheduled Caste converts to Sikhism and Buddhism shall be treated as Scheduled Castes.

5.6.8. Failure to upload the supporting documents at the time of submission of online application shall result in the rejection of claim after due process.

6. Backward Classes:

6.1. "Backward Classes" means the communities specified as Backward Classes, Backward Class Muslims, Most Backward Classes / Denotified Communities given in the Annexure to the "Instructions to Applicants" [extracted from Parts A, B, C and D respectively, of Schedule-I of the Tamil Nadu Government Servants (Conditions of Service) Act, 2016].

6.2. Explanation - Persons who belong to the State of Tamil Nadu alone, who belong to one of the communities specified in Schedule-I, of the Tamil Nadu Government Servants (Conditions of Service) Act, 2016 shall be treated as persons who belong to one of such communities.

6.3. Fee Concession: Three Free Chances

6.4. Reservation of Appointments: The selection will be made following the rule of reservation of appointments for Backward Classes (Muslim), Backward Classes, Most Backward Classes and Denotified Communities.

Backward Class (BC)	26.5%
Backward Class (Muslim) [BC (M)]	3.5%
Most Backward Class / Denotified Communities (MBC / DC)	20.0%

6.5. Supporting Documents:

6.5.1. The candidates belonging to Backward Classes (Muslim), Backward Classes, Most Backward Classes and Denotified Communities should produce the Community certificate, citing either father's / mother's name, issued by Revenue Officer not lower in rank than a Tahsildar or Head Quarters Deputy Tahsildar or Special Deputy Tahsildar appointed to issue Community Certificate or Deputy Tahsildar

(School Certificates) or Executive Deputy Tahsildar (in respect of Chennai district) or Additional Head Quarters Deputy Tahsildar or Zonal Deputy Tahsildar, in whose jurisdiction the candidate claims to have permanent residence.

6.5.2. The candidates belonging to Thottia Naicker (including Rajakambalam, Gollavar, Sillavar, Thockalavar, Thozhuva Naicker, and Erragollar) included in the list of MBC / DC should produce the Community certificate, citing either father's / mother's name, issued by Head Quarters Deputy Tahsildar/ Zonal Deputy Tahsildar, in whose jurisdiction the candidate claims to have permanent residence.

6.5.3. Uploading of a community certificate citing name of the spouse, shall result in rejection of claim after due process.

6.5.4. The certificate obtained by the candidates in the form other than the one referred to in G.O. Ms. No.781, Revenue Department, dated 2nd May 1988 and solely based on the entries in SSLC or Transfer Certificate or other school / college records will not be accepted.

6.5.5. Candidates are warned that if the community recorded in the certificate produced by them from the competent authority is not included in the list of Backward Classes (Muslim), Backward Classes, Most Backward Classes / Denotified Communities, given in the Annexure to "Instructions to Applicants" [extracted from the Tamil Nadu Government Servants (Conditions of Service) Act, 2016], they will not be permitted to claim to belong to Most Backward Classes / Denotified Communities, Backward Classes (other than Muslim) or Backward Classes (Muslim), as the case may be. They will, in that case, be permitted to claim to belong to 'Others' category only.

6.5.6. Candidates belonging to Backward Classes, Most Backward Classes / Denotified Communities on conversion to religions other than Christianity / Islam, shall be treated as 'Others'. Candidates belonging to Backward Classes, Most Backward Classes and Denotified Communities on conversion to Islam shall be treated as "Backward Classes (Muslim)".

6.5.7. Failure to upload the supporting documents at the time of submission of online application shall result in the rejection of claim after due process.

7. Women:

7.1. Reservation of Appointments: A minimum of 30% of all vacancies shall be set apart for women candidates, irrespective of the fact of whether the rule of reservation of appointments applies to the posts or not. In respect of the posts to which the rule of reservation of appointments applies, 30% of vacancies shall be set apart for women candidates, following the reservation for each communal category as well as open category. Women / Transgender (women) candidates shall be entitled to compete for the said 30% of vacancies. They shall also be entitled to compete for the remaining 70% of vacancies along with male / Transgender / Transgender (men) candidates.

7.2. Supporting Documents: Gender claimed shall be verified against the Transfer Certificate / Community Certificate. Failure to upload the supporting documents at the time of submission of online application shall result in the rejection of candidature after due process.

8. Transgender:

8.1. Supporting Documents:

8.1.1. Transgender / Transgender (Male) / Transgender (Female) candidates should produce the Transgender ID card issued only by the Tamil Nadu Transgender Welfare Board.

8.1.2. Uploading of Transgender ID card, issued by any authority other than the Tamil Nadu Transgender Welfare Board shall result in rejection of candidature after due process.

8.1.3. Transgender or Transgender (Male) or Transgender (Female) claim made in the online application must correspond to what is stated in the Transgender ID card. Any discrepancy in this regard shall result in rejection of candidature after due process.

8.1.4. Gender claim unsupported by the requisite documents shall result in rejection of claim after due process.

8.2. Community:

8.2.1. Transgender candidates, who do not possess any community certificate may choose to be considered under 'Others' or under Most Backward Classes.

8.2.2. Transgender candidates who belong to Scheduled Caste / Scheduled Caste (Arunthathiyar) / Scheduled Tribe communities and possess community certificate as such, shall be considered as per their respective community.

8.2.3. Transgender candidates who belong to communities other than Scheduled Caste / Scheduled Caste (Arunthathiyar) / Scheduled Tribe and possess community certificate as such, are permitted to choose to be considered as belonging to their own community or as Most Backward Class, whichever is advantageous to them, at the time of One Time Registration itself. Once the individual opts to be considered as a particular community, it shall be crystallized and this option shall not be changed in the future.

8.2.4. Transgender candidates who do not possess a community certificate and have chosen to be considered under 'Most Backward Classes' or 'Others' and those in possession of a community certificate as Backward Classes / Backward Classes (Muslim) / Denotified Communities but have chosen to be considered under 'Most Backward Classes', need not upload a community certificate in support of their claim.

8.2.5. Transgender candidates, in possession of a community certificate and who have chosen to be considered under the communal reservation category as stated in the community certificate, must upload the same. Failure to upload such a certificate shall result in rejection of candidature after due process.

8.2.6. All concessions permitted to Transgender candidates in the matter of choice of communal reservation category, shall be wholly dependent on the uploading of a Transgender ID card issued by the Tamil Nadu Transgender Welfare Board. Failure to upload the same or uploading of a Transgender ID card issued by other authorities, shall result in rejection of candidature after due process.

Annexure III

Syllabus

Paper I

Part A - Tamil Eligibility Test (SSLC Standard – 100 Questions)

Code: 503

அலகு I: இலக்கணம் (25 கேள்விகள்)

எழுத்து: பிரித்து எழுதுதல் - சேர்த்து எழுதுதல் - சந்திப்பிழை - குறில், நெடில் வேறுபாடு - லகர, ளகர, முகர வேறுபாடு - ணகர, ணகர வேறுபாடு - ரகர, றகர வேறுபாடு - இனவெழுத்துகள் அறிதல் - சுட்டு எழுத்துகள் - வினா எழுத்துகள் - ஒருமைப் பன்மை அறிதல்.

சொல்: வேர்ச்சொல் அறிதல் - வேர்ச்சொல்லில் இருந்து வினைமுற்று, வினையெச்சம், வினையாலணையும் பெயர், பெயரெச்சம் வகை அறிதல் - அயற்சொல் தமிழ்ச்சொல், எதிர்ச்சொல் வினைச்சொல் - எழுத்துப் பிழை, ஒற்றுப்பிழை அறிதல் - இரண்டு வினைச் சொற்களின் வேறுபாடு அறிதல்.

அலகு II: சொல்லகராதி (15 கேள்விகள்)

(i) எதிர்ச்சொல்லை எடுத்தெழுதுதல், ஓரெழுத்து ஒரு மொழி, உரிய பொருளைக் கண்டறிதல் - ஒருபொருள் தரும் பல சொற்கள், பொருந்தா சொல்லைக் கண்டறிதல், அகர வரிசைப்படி சொற்களைச் சீர்செய்தல்: ஒருபொருள் பன்மொழி - இருபொருள் குறிக்கும் சொற்கள் - பேச்சு வழக்கு, எழுத்து வழக்கு - சொல்லும் பொருளும் அறிதல் - ஒரு சொல்லிற்கு இணையான வேறு சொல் அறிதல்.

(ii) கோடிட்ட இடத்தில் சரியான சொல்லைத் தேர்ந்தெடுத்து எழுதுதல் - (எ.கா.) பள்ளிக்குச் சென்று கல்வி பயிலுதல் சிறப்பு (பயிலுதல், எழுதுதல்) - வானில் முகில் தோன்றினால் மழை பொழியும் (முகில், நட்சத்திரம்); பொருத்தமான பொருளைத் தெரிவு செய்தல் - (எ.கா.) ஊடகம் - தகவல் தொடர்புச் சாதனம் (செய்தி, தகவல் தொடர்புச் சாதனம்) - சமூகம் - மக்கள் குழு (மக்கள் குழு கூட்டம்); ஊர்ப் பெயர்களின் மருஉவை எழுதுதல் - (எ.கா.) புதுச்சேரி - புதுவை, மன்னார்குடி - மன்னை, மயிலாப்பூர் - மயிலை; பிழை திருத்துதல் (எ.கா.) ஒரு - ஓர் பேச்சு வழக்குச் சொற்களுக்கு இணையான தூய தமிழ்ச் சொற்களை இணைத்தல் - (எ.கா.) வெத்தில - வெற்றிலை, நாக்காலி நாற்காலி.

(iii) பேச்சு வழக்குத் தொடர்களிலுள்ள பிழை திருத்தம் - (எ.கா.) நேத்து மழ் பேஞ்சது - நேற்று மழை பெய்தது; சொற்களை இணைத்துப் புதிய சொல் உருவாக்குதல்: மற்றும், அல்லது. ஆல், பிறகு வரை, இதுவுமல்ல, இருப்பினும், எனினும், இதனால்: அடைப்புக்குள் உள்ள சொல்லைத் தகுந்த இடத்தில் சேர்த்தல் - (எனவே, ஏனெனில், ஆகையால், அதுபோல, அதனால், வரை, பின்பு) - (எ.கா.) நான் காட்டிற்குச் சென்றேன். அதனால் புலியைப் பார்த்தேன் - மாலைநேரம் முடியும் வரை விளையாடுவேன். தேர்வு முடிந்த பின்பு சுற்றுலா செல்லலாம்: பொருள் தரும் ஓர் எழுத்து - (எ.கா.) ஆ-பசு, ஈ-கொடு, தை-மாதம், தீ-நெருப்பு; பல பொருள் தரும் ஒரு சொல்லைக் கூறுதல் - (எ.கா.) கமலம், கஞ்சம், முளரி, பங்கயம் இச்சொற்கள் தாமரையைக் குறிக்கும்.

அலகு III: எழுதும் திறன் (15 கேள்விகள்)

(i) சொற்களை ஒழுங்குபடுத்திச் சொற்றொடர் அமைத்தல் - தொடர் வகைகள் - செய்வினை, செயப்பாட்டு வினை - தன்வினை, பிறவினை - ஒருமைப் பன்மை பிழையறிந்து சரியான தொடரறிதல்.

(ii) மரபுத் தமிழ்: திணை மரபு - உயர்திணை: அம்மா வந்தது - அம்மா வந்தாள்: அஃறிணை: மாடுகள் நனைந்தது - மாடுகள் நனைந்தன: பால் மரபு: ஆண்பால்: அவன் வந்தது - அவன் வந்தான்: பெண்பால்: அவள் வந்தது - அவள் வந்தாள்: பலர் பால்: அவர்கள் வந்தார்கள் - அவர்கள் வந்தனர்: ஒன்றன் பால்: அது வந்தன - அது வந்தது: பலவின் பால்: பறவைகள் பறந்தனர் - பறவைகள் பறந்தன: காலம்: நேற்று மழை பெய்யும் - நேற்று மழை பெய்தது: நேற்று வருவேன் - நேற்று வந்தேன்: இளமைப் பெயர்: பசு - கன்று: ஆடு - குட்டி: ஒலிமரபு: நாய் கத்தியது - நாய் குரைத்தது: வினைமரபு: கூடைமுடை, சோறு உண்: தொகை மரபு: மக்கள் கூட்டம் - ஆட்டு மந்தை, நிறுத்தல் குறியீடுகள்: கால்புள்ளி, அரைப் புள்ளி, முக்கால் புள்ளி, முற்றுப் புள்ளி, வியப்புக் குறி, வினாக்குறி அமையும் இடங்கள்.

அலகு IV: கலைச் சொற்கள் (10 கேள்விகள்)

பல்துறை சார்ந்த கலைச் சொற்களை அதாவது அறிவியல், கல்வி, மருத்துவம், மேலாண்மை, சட்டம், புவியியல், தொழில்நுட்பம், ஊடகம், தகவல் தொழில்நுட்பம் உள்ளிட்ட பல்துறை சார்ந்த கலைச் சொல்லுக்கு நேரான தமிழ்ச் சொற்களை அறிந்திருக்க வேண்டும். (உதாரணம்: search engine - தேடு பொறி, வலசை - Migration, ஒவ்வாமை - Allergy, மரபணு - Gene, கடல் மைல் - Nautical Mile).

அலகு V: வாசித்தல் - புரிந்து கொள்ளும் திறன் (15 கேள்விகள்)

கொடுக்கப்பட்ட பத்தியிலிருந்து கேட்கப்பட்ட வினாக்களுக்கு சரியான விடையைத் தேர்ந்தெடுத்தல் - செய்தித்தாள் - தலையங்கம் - முகப்புச் செய்திகள் - அரசு சார்ந்த செய்திகள் - கட்டுரைகள் - இவற்றை வாசித்தல் - புரிந்து கொள்ளும் திறன் - உவமைத் தொடரின் பொருளறிதல் - மரபுத் தொடரின் பொருளறிதல் - பழமொழிகள் பொருளறிதல் - ஆவண உள்ளடக்கங்களைப் புரிந்து கொள்ளும் திறன்.

அலகு VI: எளிய மொழி பெயர்ப்பு (5 கேள்விகள்)

ஆங்கிலம் மற்றும் பிறமொழிச் சொற்களுக்கு இணையான தமிழ்ச் சொற்கள் அறிதல் வேண்டும் - பயன்பாட்டில் உள்ள ஆங்கிலச் சொற்களை மொழிபெயர்த்தல் வேண்டும் (சான்று: pendrive, printer, computer, keyboard) - ஆவணங்களின் தலைப்பு - கோப்புகள் - கடிதங்கள் - மனுக்கள் - மொழிபெயர்ப்பு புரிந்து கொள்ளுதல்.

அலகு VII: இலக்கியம், தமிழ் அறிஞர்களும், தமிழ்த்தொண்டும் (15 கேள்விகள்)

திருக்குறள் தொடர்பான செய்திகள் (இருபது அதிகாரங்கள் மட்டும்) ஒழுக்கமுடைமை, பொறையுடைமை, ஊக்கமுடைமை, விருந்தோம்பல், அறன் வலியுறுத்தல், ஈகை, பெரியாரைத் துணைக்கோடல், வினை செயல்வகை, அவையஞ்சாமை, கண்ணோட்டம், அன்புடைமை, கல்வி, நடுநிலைமை, கூடா ஒழுக்கம், கல்லாமை, செங்கோன்மை, பண்புடைமை, நட்பாராய்தல், புறங்கூறாமை, அருளுடைமை - மேற்கோள்கள் - அறநூல் தொடர்பான செய்திகள் (நாலடியார், நான்மணிக்கடிகை, பழமொழி நானூறு, முதுமொழிக்காஞ்சி, திரிகடுகம், இன்னாநாற்பது, சிறுபஞ்சமூலம், ஏலாதி, அவ்வையார் பாடல்கள்) - தமிழின் தொன்மை, சிறப்பு, திராவிட மொழிகள் தொடர்பான செய்திகள் - உ.வே.சாமிநாத ஜயர், தெ.பொ.மீனாட்சி சுந்தரம், சி.இலக்குவனார் தமிழ்ப்பணி தொடர்பான செய்திகள் - தேவநேய பாவாணர், அகரமுதலி, பாவலரேறு பெருஞ்சித்திரனார், ஜி.யு. போப், வீரமாமுனிவர் தமிழ்த் தொண்டு தொடர்பான செய்திகள் - தமிழ்ச் சான்றோர் பற்றிய செய்திகள்: பாவேந்தர், டி.கே.சிதம்பரனாதர், தவத்திரு குன்றக்குடி அடிகளார், கண்ணதாசன், காயிதே மில்லத், தாரா பாரதி, வேலுநாச்சியார், பட்டுக்கோட்டைக் கல்யாணசுந்தரம், முடியரசன், தமிழ் ஒளி உருத்திரங்கண்ணனார், கி.வா.ஜகந்தாதர், நாமக்கல் கவிஞர்.

குறிப்பு: அலகு VII-க்கான பாடத்திட்டம் பத்தாம் வகுப்பு வரையிலான (upto SSLC Standard) பாடப் புத்தகங்களை அடிப்படையாகக் கொண்டது.

**PART B: GENERAL STUDIES
(DEGREE STANDARD) (75 Questions)**

UNIT I: GENERAL SCIENCE (5 Questions)

Scientific knowledge and scientific temper - Power of reasoning - Rote learning vs conceptual learning - Science as a tool to understand the past, present, and future; Nature of universe - General scientific laws - Mechanics - Properties of matter, force, motion, and energy - Everyday application of the basic principles of mechanics, electricity and magnetism, light, sound, heat, nuclear physics, laser, electronics, and communications; Elements and compounds, acids, bases, salts, petroleum products, fertilizers, pesticides; Main concepts of life science, classification of living organisms, evolution, genetics, physiology, nutrition, health and hygiene, human diseases; Environment and ecology; Latest inventions in science and technology; Current affairs.

UNIT II: GEOGRAPHY OF INDIA (5 Questions)

Location - Physical features - Monsoon, rainfall, weather and climate - Water resources - Rivers in India - Soil, Minerals and Natural Resources - Forest and Wildlife - Agricultural pattern; Transport - Communication; Social Geography - Population density and distribution - Racial, linguistic groups and major tribes; Natural calamity - Disaster management; Environmental pollution - Reasons and preventive measures - Climate change - Green energy; Geographical landmarks; Current affairs.

UNIT III: HISTORY, CULTURE OF INDIA, AND INDIAN NATIONAL MOVEMENT (10 Questions)

Indus Valley Civilization - Guptas, Delhi Sultans, Mughals, and Marathas - Age of Vijayanagaram and Bahmani Kingdoms - South Indian History; National Renaissance - Early uprising against British rule - Indian National Congress - Emergence of leaders - B.R.Ambedkar, Bhagat Singh, Bharathiar, V.O.Chidambaranar, Jawaharlal Nehru, Kamarajar, Mahatma Gandhi, Maulana Abul Kalam Azad, Thanthai Periyar, Rajaji, Subash Chandra Bose, Rabindranath Tagore, and others; Different modes of agitation: Growth of Satyagraha and Militant Movements; Communalism and Partition; Change and

continuity in the socio-cultural history of India; Characteristics of Indian Culture, Unity in Diversity – Race, Language, Custom; India as a secular state, Social harmony; Prominent personalities in various spheres – Arts, Science, Literature and Philosophy.

UNIT IV: INDIAN POLITY (15 Questions)

Constitution of India - Preamble to the Constitution - Salient features of the Constitution - Union, State and Union Territory - Citizenship, Fundamental Rights, Fundamental Duties, Directive Principles of State Policy - Union Executive, Union Legislature - State Executive, State Legislature - Local Governments, Panchayat Raj - Spirit of federalism: Centre - State relationships - Election - Judiciary in India – Rule of Law - Corruption in public life – Anti-corruption measures - Lokpal and Lok Ayukta - Right to Information - Empowerment of Women - Consumer Protection Forums, Human Rights Charter; Political parties and political system in India; Current affairs.

UNIT V: INDIAN ECONOMY AND DEVELOPMENT ADMINISTRATION IN TAMIL NADU (20 Questions)

Nature of Indian Economy – Five-year plan models - an assessment - Planning Commission and Niti Aayog; Sources of revenue - Reserve Bank of India - Fiscal Policy and Monetary Policy - Finance Commission - Resource sharing between Union and State Governments - Goods and Services Tax; Structure of Indian Economy and Employment Generation, Land Reforms and Agriculture - Application of Science and Technology in Agriculture - Industrial growth - Rural welfare oriented programmes - Social problems - Population, Education, Health, Employment, Poverty; Human Development Indicators in Tamil Nadu and a comparative assessment across the Country – Impact of social reform movements in the socio-economic development of Tamil Nadu - Political parties, and welfare schemes for various sections of people - Rationale behind the reservation policy, and access to the social resources - Economic trends in Tamil Nadu - Role and impact of social welfare schemes in the socio-economic development of Tamil Nadu - Social Justice and social harmony as the cornerstones of socio-economic development; Education and health systems in Tamil Nadu; Geography of Tamil Nadu and its impact on economic growth; Achievements of Tamil Nadu in various fields; e-Governance in Tamil Nadu; Public awareness and General administration - Welfare oriented Government schemes and their utility, Problems in public delivery systems; Current socio-economic issues; Current affairs.

UNIT VI: HISTORY, CULTURE, HERITAGE, AND SOCIO-POLITICAL MOVEMENTS IN TAMIL NADU (20 Questions)

History of Tamil Society, related archaeological discoveries, Tamil literature from Sangam age till contemporary times - Thirukkural - Significance as a secular literature - Relevance to everyday life, Impact of Thirukkural on humanity, Thirukkural and universal values - Relevance to Socio-political economic affairs, Philosophical content in Thirukkural; Role of Tamil Nadu in freedom struggle - Early agitations against British Rule - Role of women in freedom struggle; Evolution of 19th and 20th century socio-political movements in Tamil Nadu - Justice Party, Growth of Rationalism - Self Respect Movement, Dravidian Movement, and principles underlying both these movements; Contributions of Thanthai Periyar and Perarignar Anna.

PART C: APTITUDE AND MENTAL ABILITY (SSLC STANDARD) (25 Questions)

UNIT I: APTITUDE (15 Questions)

Simplification - Percentage - Highest Common Factor (HCF) - Lowest Common Multiple (LCM) - Ratio and Proportion - Simple interest - Compound interest - Area - Volume - Time and Work.

UNIT II: REASONING (10 Questions)

Logical reasoning - Puzzles - Dice - Visual reasoning - Alpha numeric reasoning - Number series.

Paper II

1. Animal Husbandry and Veterinary Science (PG Degree Standard)

Code: 397

Unit I: General: (10 Questions)

Role livestock management - food security - Livestock Population Census in the nation and state - Policy note on Animal Husbandry, Government of Tamil Nadu – Current Livestock Development programs and policies of State and Nation - Legislation for control of animal diseases - Legal duties of Veterinarian - Common offences against animals and laws governing import and export of animals - Certification of products - Drugs and Cosmetic Act 1940, Good Manufacturing practices of veterinary biologicals, Basic knowledge on Institutional Bio safety Committee (IBSC), Committee for the control and supervision of experimentation on animals (CCSEA) and Animal Welfare Board (AWB). Contribution of Livestock sector to National and State Economy. WTO, TRIPS, IPR and their impact on livestock sector. Export and import of livestock and livestock products.

Unit II: Animal Breeding and Genetics, Animal Nutrition and Livestock Production Management (20 Questions)

Animal Breeding and Genetics (5 Questions)

Important breeds of cattle, buffalo, sheep, goat, pig and poultry with special reference to economic characters - Principles of Genetics and Cytogenetics - Basis of Population Genetics – Hardy-Weinberg Law, Effects of selection, migration, mutation, genetic drift and inbreeding on gene and genotype frequencies, Effective Population Size, Genetic parameters - Animal Breeding: Aids to selection, methods of selection and culling, Sire Evaluation & Breeding value estimation, Field Progeny Testing, Response to selection. Methods of breeding – Inbreeding and outbreeding – Nucleus Breeding Systems, Synthetic breed formation, selection for combining ability in poultry - Molecular techniques and their applications in Animal Breeding including DNA chips and selection of High Genetic Merit breeding stock - Current livestock and poultry breeding policies and programmes in the state and country - Wild animal breeding in captivity. Pet animals and birds – breeds and breeding - Laboratory Animal Breeding - Conservation of Animal Genetic Resources.

Animal Nutrition (10 Questions)

Nutritional terms and definitions - Proximate composition and fibre fractions of feeds - Digestion and metabolism of nutrients in ruminants and non-ruminants. Importance of minerals and Vitamins in ruminants & non ruminants - Classification of feeds and fodders, antinutritional factors - Storage and conservation of feeds and fodders – Formulation of rations and feeding of Livestock, Poultry, Laboratory and pet animals - Utilisation of unconventional feeds, Industrial and animal by-products - Wild life nutrition. Use of feed additives. Feed milling technology - Laws and regulations of feed manufacturing industry, Codex alimentarius, HACCP. Therapeutic diets for pet animals - Feeding of animals during disaster - Hydroponic fodder - nanonutrients in animal production.

Livestock Production Management (5 Questions)

Common terms used in Animal Husbandry - Identification, Dentition and Age of animals – Watering livestock - Removal and disposal of manure and other animal waste – Disposal of carcasses and bio medical waste - Effect of environment on the health and productivity of livestock and measures to counteract it - Different systems of housing, enriched housing models, environmental controlled housing for livestock, Housing considerations for various classes of livestock with special reference to laboratory animals - Scientific techniques and regime of feeding and watering different categories of livestock - Traits of economic importance and their inter-relationships - labour management - clean milk production - management strategies different classes of livestock - Indices to assess the reproductive efficiency - Milk parlour systems - laws and practices governing dairy sector in India - Draught animal power - Climatology and livestock production - THSI index - effect of photo period on livestock productivity - Livestock and global warming - Behaviour and Animal Welfare - Significance of laboratory animal production and management - Management of companion animals and its management strategies - Economic importance of integrated farming system - Hatchery management - Different systems of poultry management - sexing and brooding of chicks - Common symptoms of diseases and control measures - Farm record maintenance.

Unit III: Livestock Products Technology (Dairy Science and Meat Science) (10 Questions)

Livestock Products Technology (Dairy Science) (5 Questions)

Retrospect and prospects of milk industry in India - Layout of milk processing plant and its management - Composition and nutritive value of milk - factors affecting milk composition. Physico-chemical properties of milk. Collection, chilling, standardization, pasteurization, UHT treatment, homogenization, and bacto-fugation. Preparation of cream, butter, ghee, channa, paneer, khoa, ice cream, dahi, lassi, mozzarella cheese, and dairy by-products - Dried, dehydrated and fermented milk - Introduction to functional milk products - Organic milk products. Common defects of milk products and their remedial measures - Microbiological deterioration of milk and milk products - Packaging, transportation, storage and distribution of milk and milk products - Good manufacturing practices and implementation of HACCP in milk plant - Food safety standards for milk and milk products - Cleaning and sanitation in milk plant - Dairy effluent management - Sampling of milk - Platform tests - Estimation of fat, solid not fat (SNF) and total solids - Cream separation - Detection of adulteration of milk - Determination of efficiency of pasteurization. Role of milk and milk products in human nutrition, Detection of adulterants in milk. Food safety Norms FSSAI.

Livestock Products Technology (Meat Science) (5 Questions)

Layout and management of rural, urban, and modern abattoirs. HACCP concepts in abattoir management. Animal welfare and pre-slaughter care of meat animals. Significance of Meat Inspection in Wholesome Meat Production Procedures of antemortem and post-mortem examination of meat animals. Slaughtering and dressing of meat animals and birds. Importance of evaluation of meat animals and grading their carcasses. Utilization of abattoir byproducts, rendering, and treatment of condemned meat and carcasses. Management of effluent emanating from abattoir. The prospect of the meat industry in India. Structure and composition of muscle. Conversion of muscle to meat. Nutritive value of meat. Fraudulent substitution of meat. Preservation of meat and poultry; drying, salting, curing, smoking, chilling, freezing, canning, irradiation, and chemicals. Aging of meat. Modern processing technologies of meat and meat products. Concept of value addition – Importance of value addition in the meat industry. Physico-chemical and microbiological quality of meat and its products. Nutritive value of egg. FSSAI, Codex Alimentarius Commission rules, and regulations pertaining to meat.

Unit IV: Animal Husbandry Extension and Economics (10 Questions)

Principles of extension education - Extension teaching methods, Audio visual aids - Characteristics of rural & urban societies. Diffusion of innovations, Innovation decision process, Adopter categories and factors influencing adoption of technologies, Panchayat Raj. Selection and training of leaders. Extension programme planning and evaluation. Principles and elements of animal husbandry extension management. Human resource management in the animal husbandry sector. ICT initiatives in Livestock Sector, State and Central Governmental Schemes - Role of animals in the economy of livestock owners. Statistics of animal and poultry – National and State wise. Milk and sheep co-operatives - Marketing of livestock and its products. Preparation of feasibility reports and projects (Economics of a dairy unit, poultry, piggery, sheep & goat units). Per capita availability and consumption of milk, meat and egg. Impact of AH programs in the state. Livestock entrepreneurship, avenues and job opportunities.

Unit V: Veterinary Anatomy and Physiology (20 Questions)

Veterinary Anatomy (10 Questions)

Gross study of bones of Ox and differences in Horse, Dog, Pig and Fowl, Palpable bony prominences of body of domestic animals, joints and muscles of skeleton of Ox. Gross study of heart and its conduction system, General plan of Pulmonary and systemic circulation, Palpable lymph nodes and arteries of the body of domestic animals. Surface veins for Venepuncture, Gross anatomy of Brain and Spinal cord, Gross study of organs of digestive, respiratory, urinary and reproductive system of Ox, Horse, Dog, Pig and Fowl, Systemic histology.

Veterinary Physiology (10 Questions)

Digestion, metabolism and absorption of carbohydrates, proteins and fats in simple stomach animals and ruminants - mechanism of respiration. General functions of blood (blood cells, plasma & serum) coagulation, blood groups in animals, cardiac cycle, Blood circulation, Blood pressure, renal function. Hormonal control of Lactogenesis. Endocrine control of Physiological system and application of hormones on Production-Renal System - Significance of Avian Excretory System - Physiological Significance of Avian Respiration - Stress Physiology - Mode of Stress management by body - Immune responses and Immune Physiology.

Unit VI: Surgery & Radiology (5 Questions)

General surgical principles - Asepsis and Antisepsis - sutures and suturing methods -Pre medication and Anaesthesia (Local Regional and General) in small and large animals – Anesthetic Monitoring - Anesthetic Emergencies and management - Anesthesia of wild and captive animals. Aural Hematoma in dogs - Small Animal GI tract surgical affections - Esophageal foreign Body – GDV – Intussusception - Foreign body syndrome – Megacolon - Ophthalmic affections in small animals - Amputation of tail - Large Animal GI tract affections - Choke – Rumenotomy - Abomasal Affections - Cecal Dilation and Torsion-Atresia Ani- Urogenital affections in small and large animals –Cystotomy – Urethrotomy - Perineal Urethrostomy - Tube Cystotomy. Orthopaedic Examination of Small Animals - Principles of Internal Fixation - including pinning, plating and external skeletal fixators. Fracture and its complications - Osteoarthritis and Hip Dysplasia - Patellar luxation in small animals - Spinal cord affections and its surgical management. Conformation of Horses - Lameness examination in large animals - Hoof affections on horses and cattle - musculoskeletal diseases -Principles of fracture fixation in large animals. Common surgical affections and operative procedures (Wound, Fracture, and dislocation) – cosmetic surgical operations - Imaging techniques Principles of radiographic interpretation - Ultrasound diagnostic imaging – CT Scan and MRI techniques. Pre-operative and post-operative care of animals - Intensive care - Physiotherapy - Diathermy – Surgical Emergencies.

Unit VII: Gynaecology and Obstetrics (5 Questions)

Role of hormones in various phases of reproduction in female & male - Symptoms of estrus and estrous cycle - Embryo Transfer Technology - Fertility and infertility in female & male, diagnosis and treatment - Pregnancy diagnosis - Diseases and accidents during gestation, Abortion - Causes and treatment, Stages of parturition in domestic animals - Types of dystocia, handling, diagnosis and treatment, post-partum diseases, and complications - Collection and evaluation and preservation of semen - Handling of frozen semen - Techniques of AI - Breeding soundness examination of bulls - Castration in different species. In-vitro fertilization - Transgenic animal production - Sexing of gametes and embryos - Herd health improvement program.

Unit VIII: Veterinary Microbiology and Preventive Medicine (60 Questions)

Veterinary Microbiology (30 Questions)

General Microbiology - Microscopy - Bacterial growth, Nutrition, metabolism - Bacterial Genetics - Determinants and pathogenicity markers - bacteriophages - antimicrobial agents - resistance and susceptibility. Morphological structure of virus - classification of virus Replication of DNA & RNA viruses - Viral Interactions, pathogenesis, persistence, oncogenic virus - Immune response to viral infections. Systematic veterinary Bacteriology and Virology Bacterial and Viral diseases of veterinary importance - etiology, antigenic and structural components, pathogenesis, Diagnosis, and control – Prions, emerging & transboundary diseases. Veterinary immunology - Poultry & livestock immune system - types of immunity- Organs and cells of Immune system - Antigens and its characteristics - Immunoglobulins - MHC – Hypersensitivity – Antigen-antibody Interaction – Immunological diseases - Veterinary Vaccine, Quality control recent advances in Vaccine delivery - Adjuvants – Vaccine failure. Veterinary Mycology, morphology, cultural characters - virulence factors - Antigenic components - pathogenesis - Diagnosis and control of fungal infection - Systematic study & animal mycoses.

Veterinary Preventive Medicine (30 Questions)

Epidemiology – definitions, terms, triad, concept, scope, objectives, and uses. Monitoring and surveillance, epidemiological disciplines - investigations, methods, mode and route of disease transmission, observational studies, rates, ratios, occurrence of disease, properties of diagnostic tests, gradient of infection, pattern of diseases, survey, Data collection and ecosystem. Epidemiology, aetiology, pathogenesis, clinical manifestations, diagnosis, differential diagnosis, treatment, prevention and control of common bacterial, viral, fungal, rickettsial, protozoan and parasitic diseases (ecto and endo) of livestock, poultry, companion animals and wild life species, regional - emerging and re- emerging important diseases, notifiable diseases, Allergic skin tests – Intradermal tests, and recent serology and molecular diagnostic techniques - disease outbreak investigations and vaccines - quality control - vaccination protocol for infectious diseases of livestock, poultry and pet animals – World Organisation for Animal Health

Unit IX: Veterinary Pathology and Parasitology (35 Questions)

Veterinary Pathology (20 Questions)

General Pathology: Causes of diseases - Neoplasm - Disturbances of cell metabolism and growth. Systemic Pathology: Cardio vascular, respiratory, digestive, genital, nervous and skin. Pathology of important diseases caused by bacteria, virus, fungi, helminths and protozoa in livestock and poultry. Clinical Pathology: Examination of clinical materials, postmortem techniques, vetro – Legal implications - Collection and despatch of materials. Preservation of specimens.

Veterinary Parasitology (15 Questions)

Classification of parasites - General life cycle, mode of transmission, pathogenesis, diagnosis and control of Trematodes, Cestodes, Nematodes, arthropods and Protozoa in animals and birds. Use and abuse of antiparasitic drug, anti-parasitic drug resistance, Parasites of zoonotic importance - Anti-parasitic vaccines.

Unit X: Veterinary Clinical Medicine and Veterinary Pharmacology & Toxicology (25 Questions)

Veterinary Clinical Medicine (10 Questions)

General - Special and systemic clinical examinations - Clinical diagnostic techniques -Diseases of digestive system, cardiovascular, respiratory, urinary, nervous, musculoskeletal, hemopoietic, mammary gland ,skin and sense organs - Etiology, clinical signs, pathogenesis, diagnosis, treatment , prevention and control of metabolic diseases and deficiency diseases (Minerals and vitamins) – Diseases of toxicants - Fluid therapy including blood transfusion -emergency and critical care medicine - Ethics and jurisprudence in domestic and wild animals - Interpretation of laboratory results.

Veterinary Pharmacology and Toxicology (15 Questions)

Drug action - Pharmacokinetics (absorption, distribution, biotransformation and excretion), Pharmacodynamics - Local and general anaesthetics - Antibiotics and chemotherapy – Toxicology, Ethno veterinary medicine. Pharmacy – Preparation of ointments liniments and injectable - Dispensing of pharmaceutical preparations. Pharmacokinetics (absorption, distribution, biotransformation, excretion) – Pharmacodynamics (structure and function of receptors, dose-response curve) – Anaesthetics (local and general), sedatives, analgesics - chemotherapy (general principles including resistance, antibacterials, anthelmintics, antiprotozoal) – Toxicology (General principles of treatment of poisoning, antidotes, toxicity of pesticides, herbs, venoms, and toxins) – herbal drugs in veterinary practice – Pharmacy (calculations, prescription writing, drug approval process)

2. Animal Husbandry and Veterinary Science (Degree Standard)

Code: 396

Unit I: General (20 Questions)

Livestock Population Census in the nation and state, - Role of livestock and their products in the Indian economy and human health, current livestock programs and policies of State and Nation Policy note on Animal Husbandry, Government of Tamil Nadu – Economics of dairy, sheep, goat, poultry, pig and rabbit farming; Livestock project preparation, constraints to the livestock development programs, common offenses against animals – SPCA, Animal Welfare Board of India, NGOs. Livestock marketing and Livestock entrepreneurship.

Unit II: Livestock Production Management (20 Questions)

Common terms used in Animal Husbandry – Dentition and ageing of animals – Livestock and poultry breeds and breed characters, housing systems for different classes of livestock, and requirements of space, ventilation, water, sanitation, and waste disposal. Management of milk, meat, egg, and wool-producing livestock, management of calves and heifers, management of breeding bulls, draught animal power, rearing buffaloes for meat, organic livestock production, small ruminant production systems, economic traits of cattle, sheep and goat. Farm records and their maintenance, strategies for livestock improvement for enhancing productivity. Systems of swine production in India, Exotic and indigenous breeds of pigs, Housing condition requirements for different classes of swine, feeding management for different classes of swine, breeding sow and boar management, piglet management, fattener

management. Indian breeds of horses, Equine housing, feeding and breeding management. Importance and significance of laboratory animal production and management, Wild animals in captivity and management.

Unit III: Animal Nutrition (20 Questions)

Nutritional terms and definitions – Role of nutrition in health and production- Feeds and fodder classification, composition, anti-nutritional factors, and toxins- Requirements of nutrients for different categories of livestock/poultry and formulation of least cost rations- Feeding of pet animals- BIS specifications for livestock and poultry feeds -Nutritional deficiency and its influence on livestock performance -Feed supplements and additives- Conservation and preservation of feed and fodders - Economic utilization of agro-industrial by-products for feeding livestock – Utilization of unconventional feeds – Feeding of captive wild animals and birds - Quality control of feed - Feed milling technology- Feed block/baling- By-products and by-pass Fat - Feeding livestock during scarcity - Metabolic disorders in Livestock and Poultry- Processing of feeds and forage to improve nutritive value - Use of NPN compounds for ruminants.

Unit IV: Livestock Breeding and Genetics (20 Questions)

Important breeds of cattle, buffalo, sheep, goat, pig, and poultry with special reference to economic characters - Principles of Genetics, Cytogenetics, and Basis of Population Genetics, Genetic parameters - Nature of DNA and RNA, their models and functions - Selection of livestock for production, reproduction, and disease resistance traits – Response to selection - Mating systems including Nucleus Breeding Schemes - Current livestock and poultry breeding policies and programs in the state and country - Applications of Recombinant DNA technology, Cloning, Transgenesis, and Marker-Assisted Selection - Conservation of Animal Genetic Resources.

Unit V: Veterinary Anatomy, Physiology, and Biochemistry (15 Questions)

Gross study of bones of Ox and differences in Horse, Dog, Pig and Fowl, Joints and Muscles of Skeleton of Ox, Gross study of Heart and Conduction system, General plan of Pulmonary and systemic circulation, Gross anatomy of Brain and Spinal cord, the Gross study of organs of the digestive, respiratory, urinary and reproductive system of Ox, Horse, Dog, Pig and Fowl, Systemic histology. Mechanism of respiration. General functions of blood (blood cells, plasma & serum) coagulation, cardiac cycle, Blood circulation, Blood pressure, renal function Hormonal control of Lactogenesis. Environmental factors affecting animal production – Environmental stress on animal performance – Green Houses Gases – Role of ruminants. Endocrine System-Functional aspects of hormones in Systemic Physiology. Renal system-Counter Current Mechanism-Acid Base Balance. Enzymes: Definition and classification. Clinical Enzymology - Diagnostic importance of non-functional plasma enzymes and Isoenzymes; Carbohydrate metabolism and its disorders: Glycolysis, Krebs' cycle, Carbohydrate fermentation pathway. Disorders - Diabetes mellitus, Bovine Ketosis, Pregnancy toxemia, Lactic acidosis and Bloat in ruminants; Lipid metabolism and its disorders: Beta oxidation of fatty acids, ketone body formation, Disorders- Bovine Ketosis, Pregnancy toxemia; Lipid Profile in disease diagnosis; Protein metabolism and its disorders: Urea cycle and Urea poisoning in ruminants. Utilization of NPN compounds by ruminants; Organ Function tests: Liver function and Renal function tests - Biochemical tests for differential diagnosis.

Unit VI: Veterinary Microbiology, Public Health, and Preventive Medicine (30 Questions)

General and Systematic Veterinary Bacteriology – Bacterial Diseases of Veterinary Importance in relation to Isolation, Culture, Morphology, Biochemical and Antigenic Characteristics, Pathogenesis, Diagnosis, and control. Veterinary Mycology – Important Pathogenic Fungi in relation to Isolation, Culture, Morphology, Biochemical and Antigenic Characteristics, Pathogenesis, Diagnosis, Prevention, and Control. General and Systematic Veterinary Virology – Structure, Viral Replication, Viral Pathogenesis, Viral Interaction, and Oncogenesis – Important Veterinary Viral Diseases – RNA and DNA Viruses, Cultivation, Pathogenesis, Clinical Sciences, and Diagnosis. Veterinary Immunology – Antigen – Types of Immunity, Antigen and Antibody, Concepts of Immunity and Microbes, Vaccine and other Biologicals – Antigen and Antibody-based Diagnostic Test and Microbial Biotechnology. Epidemiology – definitions, terms, triad, concept, scope, objectives, and uses. Monitoring and surveillance, epidemiological disciplines, methods, mode and route of disease transmission, rates, ratios, the occurrence of disease, properties of diagnostic tests, the gradient of infection, and pattern of

diseases. Epidemiology, treatment, prevention, and control of common bacterial, viral, fungal, rickettsial, protozoan, ectoparasitic and endoparasitic diseases of livestock, poultry, companion animals, and wildlife species, regional - emerging and re-emerging important diseases. Allergic skin tests, modern diagnostic techniques, and vaccination protocol for infectious diseases.

Role of Veterinarians in public health, one health concept - Milk Hygiene, Meat Hygiene - Foodborne diseases and Food Safety, Zoonoses - Classification, Zoonotic diseases of bacterial, viral, fungal, parasitic and rickettsial origin - Prevention and control of Zoonotic Diseases - Emerging and Re-Emerging Zoonoses - Biodiversity - Environmental contaminants in the food chain - Air, water, Thermal, radiation and land pollution - water purification, Chlorination - Sanitation and disinfection of farm and hospital - Management of waste from animal industries - Role of Pollution Control Board in India - Disaster Management - Vector control and reservoir control.

Unit VII: Pathology, Parasitology and Pharmacology (20 Questions)

General concepts and etiology of diseases in animals; Common pathological conditions seen in domestic, wild, zoo, and laboratory animals and birds. Veterinary clinical pathology methods (with special reference to hematology, urinalysis, biopsy, and cytology) as rapid diagnostic methods. General oncology and pathology of various types of tumors in domestic animals. General principles and procedures of necropsy; Collection, preservation, and dispatch of morbid materials for laboratory diagnosis; Vetero-legal necropsy procedures.

Classification of Parasites – Parasite and parasitism in animals; important morphological features, life-cycles, mode of transmission, pathogenesis, diagnosis, chemotherapy, prophylaxis, and general control measures of parasites associated with disease in animals, birds, captive and free range wild animals.

Drug action – Pharmacokinetics (absorption, distribution, metabolism, and excretion), Pharmacodynamics – (types and structure of receptors. Dose-response curve)- Anaesthetics (local and general), analgesics, sedatives – drugs for euthanasia of animals - Chemotherapy (general principles including resistance, antibacterials, anthelmintics, antiprotozoals) – Toxicology (toxicity of pesticides, herbs, venoms, and toxins) – pharmacy (pharmaceutical calculations, prescription writing) – useful herbal preparations.

Unit VIII: Extension Education (10 Questions)

Farming and types of farming in India. Early extension efforts in India. Extension Education – Principles, philosophy, objectives, dimensions. Extension Educational Process. Teaching and learning process. Rural development programs. Panchayati Raj. Sociology and Rural sociology in animal husbandry extension – culture, tribal, rural and urban communities, social control, social stratification, social institutions, social change, leadership. Adoption and diffusion of innovations – innovation-decision process, attributes of innovations, adopter categories, factors affecting adoption and diffusion process, and the role of change agents. Extension program planning and evaluation. Livestock and poultry development programs in India. TOT Projects of ICAR. Communication – Process, elements, theories, and methods. ICTs and their application in the livestock sector. Gender and animal husbandry. Sustainable livestock production.

Unit IX: Veterinary Clinical Medicine, Veterinary Gynaecology and Obstetrics and Veterinary Surgery and Radiology (30 Questions)

General and special clinical examination - General systemic state - etiology, clinical signs, pathogenesis, diagnosis and differential diagnosis, treatment and management of diseases of the digestive system, cardiovascular, respiratory, urinary, nervous, musculoskeletal, hemopoietic, Mammary gland, skin and sense organs - zoo and wild animal diseases - etiology, clinical signs, pathogenesis, diagnosis, prevention and control of metabolic, deficiency diseases - Ethics and jurisprudence and animal welfare in domestic and wild animals.

Female reproductive physiology, Puberty and sexual maturity, Aberrations of estrus and their clinical management, Problems in estrus detection and estrus detection aids, Follicular dynamics, Ovulation and its aberrations, Fertilization, Embryonic mortality, Anoestrus and repeat breeding syndrome, Diagnostic procedures in infertility investigation in female animals, Clinical uses of hormones and drugs in the management of infertility, Assisted reproductive techniques – Synchronization of estrus and ovulation, Multiple ovulation and embryo transfer technology in livestock and zoo animals, *In vitro* fertilization, Maternal recognition of pregnancy, Pregnancy diagnosis and factors affecting gestation length,

Implantation, Placentation and its classification, Abortion, Accidents of gestation, Pre, peri and postpartum complications, Parturition and its stages, Dystocia and obstetrical interventions, Obstetrical anesthesia, Male sexual behavior and libido, semen collection techniques, semen evaluation, semen extenders and cryopreservation, Artificial insemination techniques in farm and pet animals, Forms of male infertility, Breeding soundness evaluation of bull, Medical and surgical procedures for population control of the reproduction.

Reproductive physiology; hormones and reproduction; Accidents of gestation, livestock fertility and infertility; artificial insemination; semen characteristics of different species of livestock and cryopreservation. Multiple ovulation and embryo transfer technology in livestock and zoo animals Reproductive disorders and their management.

General surgical principles – pre-and post-operative considerations, anesthesia, asepsis and anti-sepsis and sterilization; scope, history and development of veterinary radiology; Imaging pathology of different parts of body-surgical emergencies – Intensive care– Physiotherapy – Diathermy. Aural Hematoma in dogs-Small Animal GI tract surgical affections- Esophageal foreign Body- GDV- Intussusception - Foreign body syndrome- Megacolon-Ophthalmic affections in small animals - Amputation of tail-Large Animal GI tract affections-Choke-Rumenotomy - Abomasal Affections-Cecal Dilation and Torsion - Atresia Ani-Urogenital affections in small and large animals – Cystotomy – Urethrotomy - Pernieal Urethrostomy - Tube Cystotomy. Orthopaedic Examination of Small Animals - Principles of Internal Fixation - Osteoarthritis and Hip Dysplasia-Patellar luxation in small animals. Conformation of Horses - Lameness examination in large animals-Hoof affections on horses and cattle - musculoskeletal diseases.

Unit X: Livestock Products Technology (15 Questions)

Layout and management of rural, urban, and modern abattoirs. HACCP concepts in abattoir management. Animal welfare and pre-slaughter care of meat animals. Significance of Meat Inspection in Wholesome Meat Production Procedures of antemortem and post-mortem examination of meat animals. Slaughtering and dressing of meat animals and birds. Importance of evaluation of meat animals and grading their carcasses. Utilization of abattoir byproducts, rendering, and treatment of condemned meat and carcasses. Management of effluent emanating from abattoir. The prospect of the meat industry in India. Structure and composition of muscle. Conversion of muscle to meat. Nutritive value of meat. Fraudulent substitution of meat. Preservation of meat and poultry; drying, salting, curing, smoking, chilling, freezing, canning, irradiation, and chemicals. Aging of meat. Modern processing technologies of meat and meat products. Concept of value addition – Importance of value addition in the meat industry. Physico-chemical and microbiological quality of meat and its products. Nutritive value of egg. FSSAI, Codex Alimentarius Commission rules, and regulations pertaining to meat.

Retrospect and prospects of milk industry in India - Layout of milk processing plant and its management - Composition and nutritive value of milk - factors affecting milk composition. Physico-chemical properties of milk. Collection, chilling, standardization, pasteurization, UHT treatment, homogenization, and bactofugation. Preparation of cream, butter, ghee, channa, paneer, khoa, ice cream, dahi, lassi, mozzarella cheese, and dairy by-products - Dried, dehydrated and fermented milk - Introduction to functional milk products - Organic milk products. Common defects of milk products and their remedial measures - Microbiological deterioration of milk and milk products - Packaging, transportation, storage and distribution of milk and milk products - Good manufacturing practices and implementation of HACCP in milk plant - Food safety standards for milk and milk products - Cleaning and sanitation in milk plant - Dairy effluent management - Sampling of milk - Platform tests - Estimation of fat, solid not fat (SNF) and total solids - Cream separation - Detection of adulteration of milk - Determination of efficiency of pasteurization.

3. Associate Company Secretaryship (Final)

Code: 473

Unit I: Companies Act, 2013 – Part I (30 Questions)

Incorporation of different types of companies – Charter documents – shares and debentures including various modes of issue, buyback, sweat equity etc. – differential voting rights Charges – accounts and audit, including CAG audit – board's report – dividend – corporate social responsibility and its rules

Unit II: Companies Act, 2013 – Part II (30 Questions)

Directors and KMP – Composition of Board and Committees – Board and Committee meetings – Secretarial standards on Board and General Meetings – Management and administration including general meetings and postal ballot – rights of shareholders including right to inspect documents

Unit III: Companies Act, 2013 – Part III (20 Questions)

Loans, Investments, Guarantees / Security – related party transactions – Borrowings

Unit IV: Corporate Restructuring and Dissolution (20 Questions)

Mergers and amalgamations – strike-off – vanishing companies – willful defaulter – winding up – valuation of shares and business – matters relating to joint venture agreements – shareholder agreements, including share subscription and share purchase agreements – due diligence exercises – arbitration clauses – non- is closure agreements

Unit V: Capital Markets and Securities Laws (20 Questions)

SEBI (Listing Obligations and Disclosure Requirements) Regulations, 2015, including compliance relating to related party transactions with knowledge on AS-18/Ind-AS 24 - SEBI (Substantial Acquisition of Shares and Takeover) Regulations, 2011 – SEBI (Prohibition of Insider Trading) Regulations, 2015 – SEBI (Issue of Capital and Disclosure Requirements) Regulations, 2018 – Basics of primary and secondary market, including compliance with stock exchanges

Unit VI: Other Laws – Part I (20 Questions)

Indian Contract Act, 1872 – Negotiable Instruments Act, 1881 – Specific Relief Act, 1963 – Arbitration and Conciliation Act, 1996 – Laws relating to intellectual property rights

Unit VII: Other Laws – Part II (30 Questions)

Transfer of Property Act, 1882 – Right to Information Act, 2005 – Tamil Nadu Transparency in Tenders Act, 1998 – Information Technology Act, 2000 – Prevention of Money Laundering Act, 2002 – Foreign Exchange Management Act, 1999 – Fugitive Economic Offender Act, 2018 – Environmental Laws – Sexual Harassment of Women at Workplace (Prevention, Prohibition and Redressal) Act, 2013 – Competition Act, 2002

Unit VIII: ESG and BRSR (10 Questions)

Sustainable development – ESG reporting – Business Responsibility and Sustainability Report – Social Stock Exchanges – Green Bonds – Carbon Rating / Green Rating.

Unit IX: Drafting and Compliance Management (10 Questions)

Drafting of resolutions, agreements etc. – compliance management – audit and due diligence – secretarial audit – forensic audit – fraud detection techniques.

Unit X: Strategic Management (10 Questions)

Strategic analysis – formulation of strategy – sources of corporate funding – project evaluation.

**4. Basics of Engineering
(Degree Standard)****Code: 422****UNIT I: Mathematics (20 Questions)**

Matrices: Eigen values – Eigen vectors of a real matrix - Cayley - Hamilton theorem - Similar and Orthogonal transformations - Reduction of a quadratic form to Canonical form by orthogonal transformation. Ordinary differential equations: Order and degree - Higher order linear ODE with constant coefficients - Method of undetermined coefficients - Method of variation of parameters - Cauchy's and Legendre's linear equations. Functions of several variables: Partial derivatives - Total derivatives - Euler's theorem - Implicit functions - Jacobians - Taylor's theorem - Maxima and Minima. Integration: Definite and indefinite Integrals - Techniques of integration using integration by parts and Trigonometric Integrals - Double Integrals - Change of order of integration - Volume Integrals. Vector Calculus: Vectors and

scalars - Gradient and Directional derivatives - Divergence and Curl - Applications of Green's theorem, Gauss divergence theorem and Stoke's theorem. Complex variables: Analytic functions - Verification of Analyticity - Construction of Analytic functions - Conformal Mappings - Bilinear transformations. Complex Integration: Cauchy's integral theorem - Cauchy's fundamental theorem - Cauchy's residue theorem - Taylor's and Laurent's series - Contour integration (excluding poles on the real axis). Laplace transform: Existence of Laplace transform - Laplace transform of elementary functions- Properties - Laplace transform of Periodic functions - Inverse Laplace transform - Convolution theorem - Solution of linear second order ODE by Laplace transform technique.

UNIT II: Engineering Physics (25 Questions)

Mechanics: Newton's laws of motion – gravitation – work, energy and power - Properties of matter : Elasticity – moduli of elasticity - Sound : intensity level – reverberation – Ultrasonics : production, detection and applications - Thermal Physics : Thermal expansion - thermal stress - expansion joints - bimetallic strips - thermal conductivity- heat conductions in solids – flow of heat through compound media – Thermodynamics – Laws of thermodynamics – Carnot engine - Applied Optics : Interference – Young's double slit experiment - anti-reflection coatings - Diffraction - Lasers – principle and applications – CO₂ and Nd:YAG laser - semiconductor lasers – applications of Lasers – Optical fibres: classification (index & mode based) - principle and propagation of light in optical fibres - acceptance angle and numerical aperture - fibre optic communication system - Quantum Physics : Photoelectric effect– dual nature of matter and radiation – Heisenberg's uncertainty principle - Schrödinger's wave equation - Physics of Materials : Crystal structures – unit cell – packing factor – Superconductivity : Properties and applications - Magnetisation of matter: Magnetic dipole moment – atomic magnetic moments- magnetic permeability and susceptibility - Magnetic material classification : diamagnetism – paramagnetism – ferromagnetism – Semiconductors : Intrinsic Semiconductors – Energy band diagram – direct and indirect band gap - extrinsic semiconductors – Dielectric materials: Matter polarization and relative permittivity - dipole moment and polarization vector -polarization mechanisms: electronic, ionic, orientational, interfacial and total polarization- frequency dependence - dielectric strength and break-down in gases, liquids and solids.

UNIT III: Engineering Chemistry (25 Questions)

Fuel -Classification of fuels - Calorific value - Solid fuel - Liquid fuel - Gaseous fuel - Octane number - Cetane Number -Lubricants - Classification - Greases - Solid Lubricants. Water - Sources - Classifications - Softening process - Desalination - RO Method - Internal treatment - Treatment of Water for Municipal purposes. Plastics - High polymer - classification - Polymerization techniques - Thermoplastics - Thermosetting resins - examples. Rubber -"Types of Rubber - Vulcanisation - Properties- Unvulcanised and Vulcanised. Natural Rubber - Synthetic Rubber - examples. Refractories - Classification - Manufacture of Refractories - Magnesite - Silica - Zirconia -Chromite. Abrasives - Natural - Artificial-Abrasive paper & cloth. Corrosion: Dry and Wet corrosion - Factors affecting corrosion-Different types of corrosion. Productive coating - Hot dipping- metal cladding, electro deposition - Organic Coatings - Paints - Varnishes. Cement and lime- setting and hardening. Explosives- classifications - characteristics-requirements for good explosives- nitrocellulose- TNT- TNB-DNB-PETN-RDX. Alloys-purpose of making alloy- types of alloys- Ferrous alloys. Electrochemistry - conductors and non-conductors - Kohlrausch law - Electrochemical cell- reversible and irreversible cells - EMF - Concentration cell- polarization - over voltage, decomposition potential. Fuel Cells. Nano Chemistry-Basics- distinction between molecules, Nano materials and bulk materials. Size dependent properties and applications of Nano Materials.

UNIT IV: Basics of Computer Engineering (25 Questions)

Computer Organisation - CPU and Microprocessor [ALU, Control Unit and Bus Structure] - Data Storage [Primary, Secondary and Virtual] - Input and Output Devices. System Software - Assembler - Compiler - Loader - Linker - Operating Systems. Programming Languages - Classification of Programming Language, Algorithm, Flow chart, Pseudo code, High-Level Languages – Fundamental concepts of C Programming. Basic Computer Networking - Network Components [Routers, Bridges, Gateways] - ISO-OSI Reference Model - LAN - WAN - Client-Server Architecture - Internet - World Wide Web. Applications - Office Tools - Word processor - Spreadsheet - Power point - Introduction to Database concepts - E-mail - Browser. IT Enabled Services - E-Governance - E-Commerce - Multimedia.

UNIT V: Basics of Civil and Mechanical Engineering (30 Questions)

Introduction to Engineering mechanics - Units and Dimensions - Laws of Mechanics - Coplanar Forces - Static Equilibrium of Rigid body - Moment of force - free body diagram - friction - laws of friction - sliding friction - wedge friction - Rolling resistance - Ladder friction - Friction in screws - Screw jack -Belt friction - Properties of surfaces and solids - Centroids and centre of mass - line and areas - Rectangular, circular, triangular areas by integration - T-section, I- Section, Angle section, Hollow section - Area moment of inertia of plane areas - Parallel axis theorem – Perpendicular axis theorem, Polar moment of Inertia, Principle moment of Inertia Mass moment of inertia- Centroid of the simple solids - Dynamics of particle - Displacement, velocity and acceleration - Different types of motion - Rectilinear , Curvilinear and Projectile motions - Newton's II-law of motion - Work Energy equation - Impulse and momentum principles.

UNIT VI: Basics of Electrical and Electronics Engineering (30 Questions)

Ohm's law – Kirchoff's laws – Introduction to DC and AC circuits - single phase and three phase circuits – Power and Power factor, Unbalanced and Balanced loads, Operating principles of moving coil and moving iron instruments (voltmeters and ammeters) – wattmeters, multimeter, energy meters and megger, Construction and principle of operation: DC motors- DC generators-Transformers- Induction motors, Characteristics of PN junction diode - zener diode- half wave and full wave rectifiers - Bipolar junction transistor (CC,CE,CB configurations), SCR, Amplifiers- Operational amplifiers – Inverting and Non-inverting amplifiers, Binary number system- logic gates- Boolean algebra - Half and full adders- Flip-flops -registers and counters- A/D and D/A conversion, Types of analog and digital signals- Modulation and Demodulation(amplitude and frequency) Communication systems: Radio- TV- Fax- Microwave- Satellite and optical fibre.

UNIT VII: Principles of Management (15 Questions)

Management - Definition, Evolution of Management Philosophies, Types of Business, Environment Analysis - Planning- Types, Steps, Forecasting, MBO, MBE. Organizing – Departmentation, Line and Staff Authority, Delegation and Decentralization. Staffing - Manpower Planning, Recruitment and Selection, Training, Performance Appraisal. Directing – Theories of Motivation, Leadership Styles, Power and Politics, Change Management, Conflict Management, Communication in Business- Controlling Types, Control Techniques, Budgetary and Non-Budgetary Control.

UNIT VIII: Total Quality Management (15 Questions)

Quality – Definitions, Vision, Mission and Policy statements-Dimensions of Product and Service Quality- Contributions of Quality Gurus-Deming, Juran, Crosby, Masaaki Imai, Feigenbaum, Ishikawa. Costs of Quality- Continuous Process Improvement- PDCA, Quality Circle, 5S, Kaizen-Statistical Process Control (SPC), 7QC Tools, New Management Tools of Quality, Bench Marking, 6 sigma, Quality Function Deployment (QFD), POKAYOKE, Total Productive Maintenance (TPM), Business Process Reengineering (BPR), Quality Certifications.

UNIT IX: Environmental Science and Engineering (15 Questions)

Definition, scope and importance of environment – need for public awareness. Eco-system and Energy flow– ecological succession. Types of biodiversity: genetic, species and ecosystem diversity– values of biodiversity, India as a mega-diversity nation – hot-spots of biodiversity – threats to biodiversity: habitat loss, poaching of wildlife, man-wildlife conflicts – endangered and endemic species of India – conservation of biodiversity: In-situ and ex-situ. Environmental pollution: Causes, Effects and Preventive measures of Water, Soil, Air and Noise Pollutions. Solid, Hazardous and E-Waste management. Energy management and conservation, New Energy Sources - Need of new sources. Different types of new energy sources. Applications of- Hydrogen energy, Ocean energy resources, Tidal energy conversion. Concept, origin and power plants of geothermal energy. Sustainability and management - Development , GDP, Sustainability- concept, needs and challenges-economic, social and aspects of sustainability-from unsustainability to sustainability-millennium development goals, and protocols-Sustainable Development Goals-targets, indicators and intervention areas. Climate change- Global, Regional and local environmental issues and possible solutions. Concept of Carbon Credit - Carbon Footprint. Environmental management in industry- Material Life cycle assessment, Environmental Impact Assessment. Sustainable habitat: Green buildings, Green materials, Energy efficiency, Sustainable transports. Sustainable energy: Non-conventional Sources, Energy Cycles carbon cycle, emission and

sequestration, Green Engineering: Sustainable urbanization- Socio-economical and technological change.

5. Business Administration, Financial and Cost Accountancy (PG Degree Standard)

Code: 525

Unit I: Accounting (20 Questions)

- Accounting for non - profit organizations and incomplete records
- Branch and Departmental Accounts (including foreign branches)
- Accounting Standards (AS) – Generally Accepted Accounting Principles (GAAP) – AS - applicability, interpretation, scope and compliance – International Financial Reporting Standards (IFRS) - Ind AS 2, 10, 115, 16, 21, 20, 23, 37 & 38.
- Company Accounts - Presentation of Financial Statements as per Schedule III of Companies Act 2013 – Statement of Profit or Loss, Balance Sheet, Change in Equity.
- Accounting of Banking

Unit II: Auditing (15 Questions)

- Nature and scope and significance of auditing
- Audit Engagement, Audit Programme, Audit working papers, Audit note book audit evidence and audit report
- Internal check, internal control and internal audit - industry specific
- Reporting requirements of under companies act – report vs certificate, contents of the report and qualifications in the report.
- Cost audit and Secretarial audit
- Auditing of different types of undertaking - education, hospitals, cooperative societies, trusts.

Unit III: Financial Management and Business Evaluation (25 Questions)

- Meaning – objectives - Scope of Financial Management
- Sources of Funds - Introduction of Financial Markets - Capital & Money Markets
- Tools for Financial Analysis - Ratio, Funds flow analysis, Cash flow analysis
- Cost of Capital, Capital Structure and Leverages
- Working Capital Management – Financing - Cash, Inventory, Receivables and Payables
- Capital Budgeting - Valuation Methods - Non Discounted cash flow method-Discounted Cash Flow Method - Free Cash flow Method, Net Present Value Method (NPV) - Profitability Index Method (PI) - Internal Rate of Return Method (IRR) -Valuation of Inventory - Valuation of Investments - Valuation of Intangibles - Valuation of Human Resources - Valuation of Equity
- Risk Management - risk measurement - risk analysis - Value at Risk (VAR) - Capital Adequacy Norms & Income Recognition Norms (NPA) in NBFCs.

Unit IV: Taxation (20 Questions)

- Direct Taxation - Residential Status - Heads of Income - assessment of income of different persons – Tax Deducted at Source (TDS) / Tax Collected at Source (TCS) / Advance Tax - Income Computation and Disclosure standards (Basic Concepts only) - Taxation as applicable to Government undertaking and Cooperative Societies. Due dates and compliances. Effects of non-compliance and penalty. Tax audit provisions under Income Tax Act, 1961.
- Indirect Taxation - Canons of Taxation - Customs Law - Goods and Services Tax (GST) – Central GST (CGST) – State GST (SGST) – Integrated GST (IGST) - Cess - Registration – Supply - Time of Supply - Value of Supply - Place of Supply - E-Invoicing E-Way Bill, Input tax credit - Reverse Charge Mechanism (RCM) - Payment of Taxes, Penalties.

UNIT V: Laws and Regulations (25 Questions)

- Micro, Small and Medium Enterprises Development (MSMED) Act 2006.
- Factories Act 1948.

- Payment of Gratuity Act 1972.
- Employees Provident Fund Act 1952
- Employees State Insurance (ESI) Act 1948
- Payment of Bonus Act 1965
- Minimum Wages Act 1948
- Companies Act 2013 - Promotion - Formation and related procedures – Types – Appointment and duties of Directors, Loans and Deposits, Corporate Social Responsibilities (CSR), Salient features of Insolvency and Bankruptcy Code – Board – Annual General Meeting (AGM) – Extraordinary General Meeting (EGM).
- Competition Act, 2002.

Unit VI: Strategic Cost Management & Performance Evaluation & Improvement Tools (25 Questions)

- Life Cycle costing - Target Costing - Kaizen Costing - Value analysis and Engineering - Throughput Costing - Business Process Re - engineering - Back flush costing - Activity Based Costing (ABC) – Cost Sheet.
- Balanced Score Card - Supply Chain Management - Key Performance Indicators (KPI) like ROI (Return on Investment), Economic Value Added (EVA). - Bench Marking - Six sigma, Statistical Quality Control – Plan – Do - Check Action - SWOT analysis - Profitability Analysis.- Learning Curve - concepts and its application

Unit VII: Decision Making Techniques (25 Questions)

- Marginal Costing - CVP analysis - Profit Volume Graph - Decision involving alternative choices - Make or Buy; Evaluation of Orders; Multiple scarce: Product sales
- Pricing Decisions - New Product pricing - use of costs in pricing – sensitivity analysis - monopoly pricing - competitive pricing - Transfer pricing - Costing of Service Sectors.
- Variance Analysis and Reporting - Material, Labour, Overheads, Turnover and Profit.

Unit VIII: Managerial Economics (15 Questions)

- Nature and Scope of Managerial Economics – Significance in Decision - Making and Fundamental Concepts - Objectives of a Firm - Role of Economic Analysis in managerial decisions. The Concept of Profit Nature and Measurement of Profits - Profit Maximization - Profit Planning and control – Profit Policies – National Income – Definition, Concepts and Various Methods of its Measurement – Inflation, Types and Causes - National Income and Economic Welfare - Business Cycles and Business Forecasting – Measuring Business Cycles Using Trend Analysis

Unit IX: Operations Management (15 Questions)

Operations Management concept, objectives and types – Characteristics of Modern Operation Management – Differences between Services and Goods – Operation Strategy – Supply Chain Management – Warehousing and Supply Chain Strategies – Supply Chain Dynamics. Operations Planning - Work study: Objectives, Procedures – Method Study and Motion Study - Work Measurement and Productivity. Total Productive Maintenance - Materials management and Purchase Management - Project management

- Quality Control – Quality Movement – Continuous Improvement – Tools – Total Quality Management (TQM) concepts – ISO Quality Certification – Quality Assurance.

Unit X: Management Information System (15 Questions)

Role of MIS in Decision Making – Enterprise Resource Planning (ERP) – e-Tender (e-Procurement) – Tamil Nadu Transparency in Tender Rules Act 1998 – e-Commerce Concept and Models – B2B, B2C – Cyber Security and Data Privacy – Patents – e- Auditing of Project.

Note: This syllabus is available in English version only.

6. Chemical, Electrical, Electronics and Mechanical Engineering (Degree Standard)

Code:527

Unit I: Chemical Process Calculations, Thermodynamics, Mechanical Operation and Chemical Technology (20 Questions)

Properties of Solid Liquids and gases, liquids and solids, Humidity and saturation, Gas laws, steady state Material and Energy balance, use of tie components, Gibbs Phase rule and degree of freedom analysis. Laws of Thermodynamics and its applications- Thermodynamics functions - Chemical and Phase Equilibrium -Ideal and non-ideal gases and solutions – Equation of state and residual properties, compression of fluids, Second law of the thermodynamics, entropy, Chemical potentials properties of mixtures.

Characteristics of solids, laws of size reduction, free and hindered settling, centrifuge and cyclone, thickeners and classifiers, Mixing and agitation, Filtration, Sedimentation. Conveying of solids.

Acids, Fertilizers, marine Chemicals, Cement, Glass, Ceramic and Refractories, Petroleum Refining Products, Fermentation Products, Oils, Soaps and Detergents, Pulp and paper, Dyes, sugar, leather and rubber, polymer, pharmaceutical and food industries.

Unit II: Fluid Mechanics, Transfer Operations (20 Questions)

Fluid Statics, Newtonian and Non-Newtonian fluids, Types of Manometers, Equation of continuity, Equation of motion, Bernoulli equation, Friction Factor, Dimensional analysis and similitude, Flow through pipes, velocity profiles, flow through fixed and fluidized beds, flow meters, Fans, blowers, pumps and compressors, Energy Equations, Modes of Heat transfers, Heat transfer with phase change, thermal insulation, thermal boundary layer and heat transfer coefficient.

Fick's Law - Diffusion, Mass Transfer Coefficient and theories of Mass Transfer. Momentum, heat and mass transfer analogies, Inter - phase Mass transfer operations, Height Transfer Units (HTU), Number of Transfer Units (NTU) and Height Equivalent to a Theoretical Plate (HETP) concepts, Design of equipment - Distillation column, Extraction, Adsorption, Absorption, Drying, humidification and de-humidification. Crystallization, Membrane separation processes - Separations involving pervaporation and permeation techniques for solids, liquids and gases, supercritical fluid extraction.

Unit III: Chemical Reaction Engineering and Process Design (20 Questions)

Reaction rates - laws - theories and analysis, homogeneous and heterogeneous reactions, single and multiple reactions in ideal reactors. Non ideal reactors - Residence time distribution, Single parameter model - Design of reactors - Isothermal and adiabatic fixed bed reactors, non-isothermal and non-adiabatic fixed bed reactors, fluidized bed reactors.

Laplace transformation, application to solve Ordinary Differential Equations (ODEs). Open-loop systems, first order systems, first order systems in series, linearization and its application in process control, second order systems and their dynamics; transportation lag. Closed loop control systems, feed-back control systems, BODE diagram, stability criterion, frequency response, tuning of controller settings, cascade control, feed forward control, control of distillation towers and heat exchangers.

Unit IV: Electrical Circuits, Measurements and Control Systems (20 Questions)

Circuit elements – Kirchoff's Laws – Mesh and Nodal Analysis – Network Theorems and Applications for DC and AC circuits. Three Phase Circuits – Star - delta transformation – real and reactive power – power factor.

Measurement of Current, Voltage, Power, Power – factor and Energy – Indicating instruments – Measurement of Resistance, Inductance, Capacitance and Frequency – Bridge Measurements – Instrument Transformers – Electronic Measuring Instruments – Multi meters – Power Quality Analyser – Transducers and their applications to the Measurement of Non-Electrical Quantities like Temperature, Pressure, Flow-rate, Displacement, Acceleration, Noise level – Data Acquisition Systems – A/D and D/A Converters – Data Transmission Systems – Programmable Logic Controller (PLC) – smart meters.

Control Systems: Mathematical Modelling of Physical Systems – Transfer Function - Block Diagrams and Signal Flow Graphs and their Reduction using Mason's Rule. PI, PD and PID Controllers – State Variable formulation – state transition matrix.

Unit V: Electrical Machines and Power Systems (20 Questions)

D.C. Machines – Construction, Excitation methods – Characteristics and Performance Analysis – Generators and Motors – Starting, Speed Control and braking – Testing – Losses and Efficiency. Transformers – Types – Construction and Operation – Testing – Equivalent Circuits – Losses and Efficiency – All day efficiency – Regulation – Parallel Operation – Three Phase Transformers – Auto-transformer. Induction Machines – Construction, Principle of operation – Torque – Speed Characteristics, No-load and Blocked Rotor tests, Equivalent Circuit – Starting, Speed Control and braking – Single - Phase Induction Motors – Linear Induction Motors – Permanent magnet brushless dc motor – stepper motor.

Power Systems: Single Line Diagram of Power System – Per Unit Quantities – Different Types of Power Generation - Pumped storage plants – Co-generation –Modelling and performance characteristics of Power transmission lines and Cables – High Voltage Direct Current (HVDC) transmission – Mechanical Design of Transmission Lines - Sag – Insulators - Load flow studies – Power System Protection – Circuit Breakers – Relays classification of protection schemes - overcurrent, distance, differential and carrier – Equipment protection - transformer, generator, motor, busbars and transmission line – AC and DC Distribution – deregulation –energy conservation and energy auditing.

Unit VI: Renewable Energy Sources and Digital Communication (20 Questions)

Renewable Energy – Sources and Features – Solar Radiation Spectrum – Radiation Measurement – Solar Photovoltaic Cell – principle of operation – types – Maximum Power Point Tracking (MPPT) – Microhydel – Operating principle – Wind Energy – Components – Wind power turbine types – MPPT – Site Selection – Types of Wind Generators – smart grid – Electric vehicles –Vehicle to Grid (V2G) and Grid to Vehicle (G2V) – Fuel Cells – Batteries – Types and Characteristics – Super Capacitors. Embedded processors (ARM and PIC). Data Communication Network - 7-layered OSI Protocol – Internet of Things (IoT) concepts.

Unit VII: Mechanics of Solids and Design (20 Questions)

Statics of Particles, Equilibrium of Rigid bodies, Mechanism of Deformable Bodies, Properties of Surfaces and Solids, Centroid, Centre of Gravity, Dynamics of Particles, Elements of Rigid Body Dynamics, Basics of Mechanisms, Kinematics of mechanisms, gyroscope, Gears and Gear Trains, Fly Wheels and Governors, Balancing of Rotating and Reciprocating Masses, Friction in Machine Elements, Force Analysis, Balancing, Single Degree Free Vibration, Forced Vibration, mechanisms for Vibration Control, Effect of Damping, Vibration Isolation, Resonance, Critical Speed of Shaft. Stress, Strain and Deformation of Solids, Combined Stresses, Theories of Failures, Transverse Loading on Beams, Stresses in Beams, Torsion, Deflection of Beams, Energy Principles, Thin Cylinders and Thick Cylinders, Spherical Shells, Fundamentals of Design for Strength and Stiffness of Machine Members, Design of Shafts and Couplings, Design for Static and Dynamic Loading, Design of Fasteners and Welded Joints, Reverted Joints, Design of Springs, Design of Bearings, Design of Flywheels, Design of Transmission Systems for Flexible Elements, Spur Gears and Parallel Axis Helical Gears, Bevel Gears, Worm Gears and Crossed Helical Gears, Design of single and two stage speed reducers, Design of cam, Clutches and Brakes, Design of Piston and Connecting Rods

Unit VIII: Engineering Materials and Metallurgy (20 Questions)

Constitution of alloys and phase diagrams, Iron – Iron Carbide Phase Diagram - steels, cast iron, phase transformations – diffusion - TTT diagram, ferrous and nonferrous alloys, heat treatment of ferrous and non-ferrous alloys, surface modification techniques, powder metallurgy, non-metallic materials, mechanical properties and testing, crystal defects and strengthening mechanisms, conducting and semi conducting materials, magnetic and dielectric materials, Engineering ceramics, Engineering and commodity polymers, composites, nano-materials.

Unit IX: Production, Industrial Engineering and Management (20 Questions)

Foundry Technology - types of pattern, cores, moulding and casting methods, Solidification, design of castings, defects, Melting Furnaces, Hot and Cold working, Metal Forming Processes - Metal joining processes, Thermo Setting and Thermo Plastic Products, Metal cutting, Cutting Tool Nomenclature, Machine Tool Types and its machining operations - Unconventional machining processes, Micro Manufacturing, CNC machine tools. Limits, Fits and Tolerance, Linear and angular measurements, Interferometry, laser interferometers - Computer Aided Inspection, Coordinate Measuring Machine (CMM) – Types of CMM, Machine vision, Form measurement – Straightness - Flatness, Roundness,

Surface finish measurement, Measurement of power, flow and temperature. Statistical quality control, control charts, acceptance sampling, reliability, Total Quality Management (TQM), 5S, ISO standards.

Work study - Techniques, Method study and work measurements - objectives - basic procedure, machine loading and scheduling, product sequencing, inventory control – Economic Order Quantity (EOQ) - quantity discounts, ABC Analysis material handling systems, operations research, Linear Programming, simplex method, Transportation model, Assignment model Cost Per Mille (CPM) and Program Evaluation and Review Technique (PERT), Queuing Models. Management theory and practice, planning - Decision making, Organising, staffing, Motivation, Leadership, controlling, control techniques. Distributed operating systems – Logical clocks – Vector clocks – File System – Hadoop distributed file system - Shared memory – Distributed Algorithms. TQM Tools and Techniques – Quality Function Deployment (QFD) – Total Preventive Maintenance (TPM) concept – ISO standards - Industrial Safety – Occupation Safety and Health Assessment (OSHA).

Unit X: Industrial Safety (20 Questions)

Industrial hygiene, occupational safety and health in chemical industries, Industrial safety principles, site selection and plant layout, chemical hazards identification and classification, Safety in operations and processes, fire safety, hazard identification techniques, disposal of hazardous and toxic wastes, onsite and offsite emergency preparedness plan, safety audit, work permit system, roles and responsibilities of safety officers and welfare officers, occupational diseases, Safety and Risk – Assessment of Safety and Risk – Risk Benefit Analysis and Reducing Risk – Environmental Legislation, Act, Safety Act - Corporate Social Responsibility.

7. Computer Science, Information Technology, Electrical, Electronics and Communication Engineering (Degree Standard)

Code: 554

Unit I: Programming In C, Python and Object Oriented Programming (20 Questions)

C Programming:

Data Types – Expressions – Input / Output Operations – Decision Making and Branching Statements – Looping Statements – Arrays – Initialization – Declaration – One dimensional and Two dimensional arrays. String – string operations – String Arrays. Simple programs – sorting – searching – matrix operations – Function – Definition of function – Declaration of function – Pass by value – Pass by reference – Recursion – Pointers – Definition – Initialization – Pointers arithmetic - Pointers and arrays – structure data type – structure definition – Structure declaration – Structure within a structure – Union – Programs using structures and Unions – Storage classes, Pre-processor directives - File Handling

Python Programming:

Python Interpreter and Interactive Mode-Data types-Statements- Expressions-Boolean Values and Operators-Strings-Arrays of Numbers- Lists-Tuples-Dictionaries-Functions-File Reading and Writing

Object Oriented Programming:

C++ Programming features – Data Abstraction – Encapsulation – Class – Object – constructors – static members – constant members – member functions – pointers – references – Role of this pointer – Storage classes – function as arguments – String Handling – Copy Constructor – Polymorphism – compile time and run time polymorphisms – Function overloading – operators overloading – dynamic memory allocation – Nested classes – Inheritance – virtual functions. Abstract class – Exception handling – Standard libraries – Generic Programming – templates – class template – function template – STL - containers – iterators – function adaptors – allocators – Parameterizing the class – File handling concepts.

Unit II: Data Structures and Algorithms (20 Questions)

List ADT – array based implementation – linked list implementation – singly linked lists – circularly linked lists – doubly-linked lists – applications of lists – Polynomial Manipulation – All operation (Insertion, Deletion, Merge, Traversal) – Stack ADT – Evaluating arithmetic expressions – other applications – Queue ADT – circular queue implementation – Double ended Queues – Priority Queues - application of queues – Trees: Binary Tree - Binary Search Tree-Tree Traversals –Operations- AVL Tree-Splay Tree-Red Black Tree- Binary Heap-Skew Heap- Leftist Heap - Binomial Heap-Fibonacci Heap- Sorting

algorithms: Insertion sort – Selection sort – Shell sort – Bubble sort – Quick sort – Merge sort – Radix sort – Heap Sort - Searching: Linear search – Binary Search - Hashing: Hash Functions – Separate Chaining – Open Addressing – Rehashing – Extendible Hashing – Graph Algorithms: Minimum Spanning Tree – Shortest Path Algorithms - Graph Traversals -Directed Acyclic Graph-Topological Ordering-All Pair Shortest Path Algorithms- Floyd Warshall algorithm- Bellman Ford Algorithm-Network Flow Algorithms- Ford Fulkerson Algorithm-Amortized Analysis of Algorithms - Algorithm Analysis: Asymptotic Analysis-Solving Recurrence Equations-Algorithm Design Techniques-Greedy Algorithms-Dynamic Programming-Divide and Conquer.

Unit III: Digital Logic and Computer Architecture (20 Questions)

Boolean Algebra and Logic Gates – Combinational Logic – Sequential logic Functional Units of a Digital Computer - Arithmetic operations : Addition and Subtraction – Binary Multiplication – Binary Division – Floating Point Numbers – Addressing Modes - Instruction Set Architecture – RISC and CISC Architectures CPU Performance Metrics - Data path and Control – Hazards: Structural, Data and Control Hazards – Dynamic Scheduling – Speculation – ILP and Thread Level Parallelism – Memory Hierarchy – Cache Memories – Virtual Memory – Associative memories – Accessing I/O devices Interrupts - Direct Memory Access – Multicore Architectures – Open MP – MPI – Cache coherence policies – GPU architectures and programming.

Unit IV: Database Management Systems (20 Questions)

INTRODUCTION TO DBMS – File Systems Organization – Sequential, Pointer, Indexed, Direct Purpose of Database System – Database System Terminologies – Database Characteristics – Data models – Types of data models – Components of DBMS – Relational Algebra. LOGICAL DATABASE DESIGN: Relational DBMS – Codd's Rule – Entity – Relationship model – Extended ER Normalization – Functional Dependencies, Anomaly – 1 NF to 5 NF – Domain Key Normal Form – Denormalization. SQL & QUERY OPTIMIZATION – SQL Standards – Data types – Database Objects – DDL – DML – DCL – TCL – Embedded SQL – Static vs Dynamic SQL – QUERY OPTIMIZATION: Query Processing and Optimization – Heuristics and Cost Estimates in Query Optimization – TRANSACTION PROCESSING AND CONCURRENCY CONTROL – Introduction – Properties of Transaction – Serializability – Concurrency Control – Locking Mechanisms – Two Phase Commit Protocol – Dead lock – TRENDS IN DATABASE TECHNOLOGY – RAID – File Organization – Organization of Records in Files – Indexing and Hashing – Ordered Indices – B+ tree Index Files – B tree Index Files – Static Hashing – Dynamic Hashing – Object Oriented Database Management Systems-Object Oriented Relational Database management Systems

Unit V: Operating Systems and Cloud Technologies (20 Questions)

OPERATING SYSTEMS OVERVIEW – Computer System Overview – Basic Elements, Instruction Execution, Interrupts, Memory Hierarchy, Cache Memory, Direct Memory Access, Multiprocessor and Multicore Organization. Operating system overview – objectives and functions, Evolution of Operating System – Computer System Organization – Operating System Structure and Operations –System Calls, System Programs, OS Generation and System Boot – PROCESS MANAGEMENT – Processes – Process Concepts, Process Scheduling, Operations on Processes, Interprocess Communication; Threads – Overview, Multicore Programming, Multithreading Models; Windows 7 – Thread and SMP Management. Process Synchronization – Critical Section Problem, Mutex Locks, Semaphores, Monitors; CPU Scheduling and Deadlocks – STORAGE MANAGEMENT – Main Memory – Contiguous Memory – Allocation, Segmentation, Paging, 32 and 64 bit architecture Examples; Virtual Memory – Demand Paging, Page Replacement, Allocation, Thrashing; Allocating Kernel Memory, OS Examples – I/O SYSTEMS – Mass Storage Structure – Overview, Disk Scheduling and Management; File System Storage – File Concepts, Directory and Disk Structure, Sharing and Protection; File System Implementation – File System Structure, Directory Structure, Allocation Methods, Free space Management; I/O Systems.

Cloud Technologies: Cloud Characteristics-Cloud Service and Deployment Models-Virtualization-Virtual Machines-Server, Network and Storage Virtualization-Hypervisor-Cloud Security Requirements-Threats: Malicious Attacks-Events and Alerts- Security Information and Event Management - Hadoop –Map Reduce Technique.

Unit VI: Software Engineering (20 Questions)

Software Process and Project Management:

Introduction to Software Engineering, Software Process, Perspective and Specialized Process Models - Software Project Management: Estimation – LOC and FP Based Estimation, COCOMO Model – Project Scheduling – Scheduling, Earned Value Analysis – Risk Management – Introduction to Agility - Agile Process - Extreme Programming - XP Process - REQUIREMENTS ANALYSIS AND SPECIFICATION – Software Requirement: Functional and Non – functional, User requirements, System requirement, Software Requirements - Document – Requirement Engineering Process : feasibility Studies, Requirements elicitation and analysis, requirements validation, requirements management – Classical analysis: Structured system Analysis, Petri Nets – Data Dictionary - SOFTWARE DESIGN –Design process design Concepts – Design Model – Design Heuristic –Architectural Design – Architectural styles, architectural Design, Architectural mapping using dataflow – User Interface Design: Interface Analysis, Interface design – Component level Design: Designing Class based components, Traditional Components –TESTING AND IMPLEMENTATION –Software testing fundamental – Internal and external views of Testing – white box testing – basis path testing - control structure testing – black box testing – Regression Testing – Unit Testing – Integration Testing – Validation Testing – System Testing and Debugging – Software Implementation Techniques : Coding practices – Refactoring –PROJECT MANAGEMENT –Cost Estimation – FP Based, LOC Based, Make /Buy Decision, COCOMO II – Planning – Project Plan, Planning Process, RFP Risk Management – Identification, Projection, RMMM – Scheduling and Tracking – Relationship between people and effort, Task Set & Network, Scheduling, EVA – Process and Project Metrics - DEVOPS Essentials - Build Model Using MAVEN - Building DEVOPS using Azure.

Unit VII: Web Technology (20 Questions)

SCRIPTING LANGUAGES –Web page designing using HTML, Scripting basics – Client side and server side scripting. Java Script – Object, names, literals, operators and expressions – statements and features – events – windows –documents – frames –date types –built-in functions – Browser object model – Verifying forms – HTML5 – CSS3 – HTML 5 canvas – Web site creation using tools – Event Handling- PHP Scripting - JAVA PROGRAMMING – Features of java – Data types, variables and arrays – Operators – Control statements – Classes and Methods – Inheritance. Packages and Interfaces – Exception Handling – Multithreaded Programming – Input / Output – files – Utility Classes – Strong Handling – JDBC – JDBC Overview –JDBC implementation – Connection class – Statements – Catching Database Results, handling database Queries. Networking –Inet Address class – URL class – TCP sockets – UDP sockets, Java Beans –RMI – APPLETs – Java applets – Life Cycle of an Applet – Adding Images to an Applet – Adding Sound to an Applet – Passing Parameters to an Applet - Event Handling. Introducing AWT: Working with Windows Graphics and Text. Using AWT Controls, Layout Managers and Menus. Servlet – life cycle of a servlet. The Servlet API, Handling HTTP Request and Response, Using Cookies, Session Tracking - MVC Architecture – Nodejs - Events – Listeners – Timers - Callbacks – Handling Data - Implementing HTTP Service in Nodejs – NOSQL – MongoDB – Frameworks – SPRING – MERN – MEAN - Flutter

Unit VIII: Computer Networks and Security (20 Questions)

NETWORKING FUNDAMENTALS & LINK LAYER –Building a network- requirements – Layering and protocols – Internet Architecture – Network software – Performance; Link layer Services – Framing – Error Detection – Flow control – MEDIA ACCESS & INTERNETWORKING – Media access control-Ethernet (802.3) – wireless LANs -802.11 – Bluetooth – switching and bridging – Basic Internetworking (IP, CIDR, ARP, DHCP, ICMP)- ROUTING – Routing (RIP, OSPF, metrics) – Switch basics – Global Internet (Areas, BGP, IPv6), Multicast – addresses – multicast routing (DVMRP, PIM) - TRANSPORT LAYER – Overview of Transport layer – UDP-Reliable byte stream (TCP) – Connection management – Flow control – Retransmission – TCP Congestion control – Congestion avoidance (DECbit, RED) – QoS – Application requirements – APPLICATION LAYER - Traditional applications - Electronic Mail (SMTP, POP3, IMAP,MIME) HTTP –Web Services - DNS –SNMP – Mobile Computing – Mobile Computing Vs. wireless Networking – Mobile Computing Application – Characteristics of Mobile Computing – Structure of Mobile Computing Applications. MAC Protocols – Wireless MAC Issues – Fixed Assignment Schemes – Random Assignment Schemes – Reservation Based Schemes – MOBILE INTERNET PROTOCOL AND TRANSPORT LAYER – Overview of Mobile IP- Features of Mobile IP- Key Mechanism in Mobile IP – Route Optimization. Overview of TCP/ IP – Architecture of TCP/ IP – adaptation of TCP Window –

Improvement in TCP Performance – MOBILE AD-HOC NETWORKS – Ad- Hoc Basic Concepts – Characteristics – Applications – Design Issues – Routing – Essential of Traditional Routing Protocols – Popular Routing Protocols – Vehicular AdHoc networks (VANET)- MANET Vs VANET – Security – Cryptographic Algorithms – Caesar Cipher – Hill Cipher – Vignere cipher – LFSR Sequences – Number Theory –GCD –Chinese Remainder Theorem – Fermat’s Theorem and Euler’s Theorem – Symmetric key Cryptography – DES – AES Algorithms – Public key algorithms – RSA – Diffe–Hellman Algorithm – ElGamal System – Elliptic Key Cryptography – Digital Signatures – Digital Certificates – Hashing – MD5 – SHA1 – Key Management – Kerberos –PKI –IP Security – Email Security – SSL – SET –OS Security – Database Security.

Unit IX: Microprocessor and Embedded Systems (20 Questions)

8085 Architecture, Instruction set, addressing modes, Assembly language programming, Interrupts, timing diagrams, memory and I/O interfacing; 8086 Architecture, Instruction set, addressing modes, minimum and maximum mode configuration, assembler directives, assembly language programming, interrupts; 8051 Architecture, Special Function Registers (SFRs) instruction set, addressing modes, assembly language programming, I/O ports, Timers/counters, interrupts and serial communication. Embedded System design process, Embedded processors – ARM Processor – Architecture, ARM Instruction sets – Addressing Modes – Pipelining – Embedded C Programming – Looping Structures – Register Allocation – Function calls – Pointer aliasing – Structure arrangement – bit fields – unaligned data and endianness – inline functions and inline assembly – portability issues. Profiling and cycle counting – instruction scheduling – optimized primitives. Multiple tasks and processes – Context switching – Scheduling policies – Interprocess communication mechanisms – Exception and interrupt handling – Performance issues. Meeting real time constraints – Multi-state systems and function sequences – Embedded software development tools – Emulators and debuggers.

Unit X: Electrical, Electronics and its Applications (20 Questions)

Ohm’s Law - Kirchhoff’s Laws – Solution of DC circuits with Independent sources only (Steady state), AC Fundamentals: Waveforms, Average value, RMS Value, Impedance, Instantaneous Power, Real Power, Reactive Power and Apparent Power, Power Factor – Steady State Analysis of RL, RC and RLC Circuits- three phase circuits.

Magnetic Circuits– DC Machines: Construction, Working Principle, Types and Applications of DC Generator and Motor, EMF and Torque equation. AC Machines: Construction, Working and Applications of Transformer, Three phase Alternator, Synchronous motor, Single and Three Phase Induction Motor, stepper motor, servo motor and BLDC motor.

Operation and Characteristics of electronic devices: PN Junction Diodes, Zener Diode, BJT, JFET, IGBT and MOSFET– Voltage regulators - Operational Amplifiers - 555 timer IC based astable and monostable multivibrator.

Solenoids, electro-pneumatic systems, proximity sensors, limit switches, piezoelectric, Hall Effect, photo sensors, Strain gauge, LVDT, piezo electric crystals, differential pressure transducer, optical and digital transducers, Smart sensors, Thermal Imagers.

Moving Coil and Moving Iron Instruments, Power Measurement, Energy Meter, Instrument Transformers - CT and PT, Multimeter- DSO- Data Acquisition Systems – A/D and D/A Converters –Data Transmission Systems – smart meters.

Single and Three Phase AC to DC Converters – uncontrolled and controlled rectifiers– Switched Mode Power Supplies – buck, boost and buck-boost converter topologies –switching losses – Inverters – Single and Three Phase Inverters – Voltage control –Pulse Width Modulation techniques – harmonic elimination techniques – Uninterrupted Power Supplies- Batteries – types and characteristics.

8. Computer Science, Information Technology, Electrical, Electronics and Communication and Mechanical Engineering (Degree Standard)

Code: 566

Unit I: Programming In C, Python and Object Oriented Programming (20 Questions)

C Programming:

Data Types – Expressions – Input / Output Operations – Decision Making and Branching Statements – Looping Statements – Arrays – Initialization – Declaration – One dimensional and Two dimensional

arrays. String – string operations – String Arrays. Simple programs – sorting – searching – matrix operations – Function – Definition of function – Declaration of function – Pass by value – Pass by reference – Recursion – Pointers – Definition – Initialization – Pointers arithmetic - Pointers and arrays – structure data type – structure definition – Structure declaration – Structure within a structure – Union – Programs using structures and Unions – Storage classes, Pre-processor directives - File Handling.

Python Programming:

Python Interpreter and Interactive Mode-Data types-Statements- Expressions-Boolean Values and Operators-Strings-Arrays of Numbers- Lists-Tuples-Dictionaries-Functions-File Reading and Writing

Object Oriented Programming:

C++ Programming features – Data Abstraction – Encapsulation – Class – Object – constructors – static members – constant members – member functions – pointers – references – Role of this pointer – Storage classes – function as arguments – String Handling – Copy Constructor – Polymorphism – compile time and run time polymorphisms – Function overloading – operators overloading – dynamic memory allocation – Nested classes – Inheritance – virtual functions. Abstract class – Exception handling – File handling concepts.

Unit II: Data Structures and Algorithms (20 Questions)

List ADT – array based implementation – linked list implementation – singly linked lists – circularly linked lists – doubly-linked lists – applications of lists – Polynomial Manipulation – All operation (Insertion, Deletion, Merge, Traversal) – Stack ADT – Evaluating arithmetic expressions – other applications – Queue ADT – circular queue implementation – Double ended Queues – Priority Queues - application of queues – Trees: Binary Tree - Binary Search Tree-Tree Traversals – Sorting algorithms: Insertion sort – Selection sort – Shell sort – Bubble sort – Quick sort – Merge sort – Radix sort – Heap Sort - Searching: Linear search – Binary Search - Hashing: Hash Functions – Separate Chaining – Open Addressing – Rehashing – Extendible Hashing – Graph Algorithms: Minimum Spanning Tree – Shortest Path Algorithms - Graph Traversals -Directed Acyclic Graph- Topological Ordering-All Pair Shortest Path Algorithms- Floyd Warshall algorithm- Bellman Ford Algorithm-Network Flow Algorithms- Ford Fulkerson Algorithm- Algorithm Analysis: Asymptotic Analysis-Solving Recurrence Equations-Algorithm Design Techniques-Greedy Algorithms-Dynamic Programming-Divide and Conquer.

Unit III: Database Management Systems (10 Questions)

INTRODUCTION TO DBMS – File Systems Organization – Purpose of Database System – Database System Terminologies – Database Characteristics – Data models – Types of data models – Components of DBMS. LOGICAL DATABASE DESIGN: Relational DBMS – Codd's Rule – Entity – Relationship model – Extended ER Normalization – Functional Dependencies, Anomaly – 1 NF to 5 NF - SQL– SQL Standards – Data types – Database Objects – DDL – DML – File Organization – Organization of Records in Files – Indexing and Hashing – Ordered Indices.

Unit IV: Operating Systems and Computer Networks (30 Questions)

OPERATING SYSTEMS OVERVIEW – Computer System Overview – Basic Elements, Instruction Execution, Interrupts, Memory Hierarchy, Cache Memory, Direct Memory Access, Multiprocessor and Multicore Organization. Operating system overview – objectives and functions, Evolution of Operating System – Computer System Organization – Operating System Structure and Operations –System Calls, System Programs, OS Generation and System Boot – PROCESS MANAGEMENT – Processes – Process Concepts, Process Scheduling, Operations on Processes, Interprocess Communication; Threads – Overview, Multicore Programming, Multithreading Models; CPU Scheduling and Deadlocks – STORAGE MANAGEMENT – Main Memory – Contiguous Memory – Allocation, Segmentation, Paging, 32 and 64 bit architecture Examples; Virtual Memory – Demand Paging, Page Replacement, Allocation, Thrashing; I/O SYSTEMS – Mass Storage Structure – Overview, Disk Scheduling and Management; File System Storage – File Concepts, Directory and Disk Structure, Sharing and Protection; File System Implementation – File System Structure, Directory Structure, Allocation Methods, Free space Management; I/O Systems.

NETWORKING FUNDAMENTALS –Building a network- requirements – Layering and protocols – Internet Architecture - Performance; Link layer Services – Framing – Error Detection – Flow control – Media

access control- Ethernet (802.3) – wireless LANs -802.11 – Bluetooth – switching and bridging – Basic Internetworking (IP, CIDR, ARP, DHCP, ICMP)- ROUTING – Routing (RIP, OSPF, metrics) – Switch basics – Global Internet (Areas, BGP, IPv6), TRANSPORT LAYER – Overview of Transport layer – UDP- Reliable byte stream (TCP) – Connection management – Flow control – Retransmission – TCP Congestion control, APPLICATION LAYER - Electronic Mail (SMTP, POP3, IMAP,MIME) – HTTP – Web Services - DNS –SNMP.

Cloud Technologies: Cloud Characteristics-Cloud Service and Deployment Models-Virtualization-Virtual Machines-Server, Network and Storage Virtualization-Hypervisor.

Unit V: Signal Processing and communication systems (20 Marks)

Characteristics and classifications of Continuous and Discrete Time signals – CT signal analysis – Fourier Series, Fourier Transform and Laplace Transform. Sampling theorem, Discrete Time signal analysis – DTFT and Z-Transform. CT and DT systems – Impulse response and convolution, Frequency response, Transform domain analysis using FT, LT, DTFT, DFT, FFT and ZT – IIR filters: Butterworth and Chebyshev filters, Impulse invariant and Bilinear transformation methods, FIR filter: Linear phase design, Windowing techniques: Rectangular, Bartlett, Hanning and Hamming, Digital Filter realization structures, Finite word length effects in IIR and FIR filters, Scaling, Decimation and interpolation.

Random Processes: Auto correlation, Power spectral density, White noise, Filtering of random signals through LTI systems. Analog Communication: Amplitude and angle modulation / demodulation, Spectral characteristics. Noise: Thermal noise, Noise figure and Noise temperature. Digital Communication: PCM, DPCM, ADPCM, DM, ADM, LPC. Line coding schemes, Bandpass signaling: Binary and M-ary versions of ASK, PSK, FSK, BER and spectral characteristics. Principles of QAM, OQPSK, MSK, GMSK. Link budget calculations, Eye diagram, ISI, Symbol and carrier synchronization, Frame synchronization. Information Theory and coding: Entropy, Mutual information, Channel capacity (AWGN), Source coding and Channel coding techniques.

Unit VI: Analog and Digital Electronics (20 Questions)

Operation and Characteristics of electronic devices: PN Junction Diodes, Zener Diode, BJT, JFET, IGBT and MOSFET, Biasing circuits - BJT and MOSFET amplifiers - Small signal analysis and frequency response, Differential, Darlington, Cascade, Cascode amplifiers, Feedback amplifiers, Tuned amplifiers, RC and LC oscillators, Power amplifiers. Rectifiers and wave-shaping circuits, Operational amplifier characteristics and applications, CMRR, slew rate, waveform generators, active filters, timers, PLL, VCO, ADC, DAC, Regulators and Converters.

Number representations: Binary, Integer and Floating point numbers, Boolean Algebra and Logic Gates – Combinational logic circuits, Boolean algebra, Minimization of functions using Boolean identities and Karnaugh map, Logic gates and their static CMOS implementations, Arithmetic circuits, Code converters, Multiplexers, Decoders, Functional Units of a Digital Computer - Arithmetic operations : Addition and Subtraction – Binary Multiplication – Binary Division. Sequential logic circuits: Latches and flip-flops, Counters, Shift registers, Finite state machines, Propagation delay, Setup and hold time, Critical path delay. Data converters: Sample and hold circuit, ADC and DAC. Semiconductor memories: ROM, SRAM, DRAM.

Unit VII: Electrical Circuits, Machines and Measurements (20 Questions)

Ohm's Law - Kirchhoff's Laws – Solution of DC circuits with Independent sources only (Steady state), AC Fundamentals: Waveforms, Average value, RMS Value, Impedance, Instantaneous Power, Real Power, Reactive Power and Apparent Power, Power Factor – Steady State Analysis of RL, RC and RLC Circuits- three phase circuits.

Magnetic Circuits– DC Machines: Construction, Working Principle, Types and Applications of DC Generator and Motor, EMF and Torque equation. AC Machines: Construction, Working and Applications of Transformer, Three phase Alternator, Synchronous motor, Single and Three Phase Induction Motor, stepper motor, servo motor and BLDC motor.

Solenoids, electro-pneumatic systems, proximity sensors, limit switches, piezoelectric, Hall Effect, photo sensors, Strain gauge, LVDT, piezo electric crystals, differential pressure transducer, optical and digital transducers, Smart sensors, Thermal Imagers.

Moving Coil and Moving Iron Instruments, Power Measurement, Energy Meter, Instrument Transformers

- CT and PT, Multimeter- DSO- Data Acquisition Systems – A/D and D/A Converters –Data Transmission Systems – smart meters.

Single and Three Phase AC to DC Converters – uncontrolled and controlled rectifiers– Switched Mode Power Supplies – buck, boost and buck-boost converter topologies –switching losses – Inverters – Single and Three Phase Inverters – Voltage control –Pulse Width Modulation techniques – harmonic elimination techniques – Uninterrupted Power Supplies- Batteries – types and characteristics.

Unit VIII: Microprocessor and Embedded Systems (20 Questions)

8085 Architecture, Instruction set, addressing modes, Assembly language programming, Interrupts, timing diagrams, memory and I/O interfacing; 8086 Architecture, Instruction set, addressing modes, minimum and maximum mode configuration, assembler directives, assembly language programming, interrupts; 8051 Architecture, Special Function Registers (SFRs) instruction set, addressing modes, assembly language programming, I/O ports, Timers/counters, interrupts and serial communication.

Embedded System design process, Embedded processors – ARM Processor – Architecture, ARM Instruction sets – Addressing Modes – Pipelining – Embedded C Programming – Looping Structures – Register Allocation – Function calls – Pointer aliasing – Structure arrangement – bit fields – unaligned data and endianness – inline functions and inline assembly – portability issues. Profiling and cycle counting – instruction scheduling – optimized primitives. Multiple tasks and processes – Context switching – Scheduling policies – Interprocess communication mechanisms – Exception and interrupt handling – Performance issues. Meeting real time constraints – Multi-state systems and function sequences – Embedded software development tools – Emulators and debuggers.

Unit IX: Mechanic of Materials and Material Science (20 Questions)

Basics of Mechanisms, Kinematics of Mechanisms, Gyroscope, Gears and Gear Trains, Fly Wheels, Friction in Machine Elements, Stress, Strain and Deformation of Solids, Design of Shafts and Couplings, Design of Bearings, Constitution of alloys and phase diagrams, Iron Carbide Phase Diagram, steels, cast iron, phase transformations- diffusion-TTT diagram, ferrous and nonferrous alloys, heat treatment of ferrous and non-ferrous metal, surface modification techniques, powder metallurgy, non-metallic materials, mechanical properties and testing, semi conducting materials, magnetic and dielectric materials, Engineering ceramics, Engineering and commodity polymers, composites, nano-materials.

Unit X: Manufacturing Process and Industrial Engineering (20 Questions)

Foundry Technology, Metal Forming Processes –Manufacturing of Thermo Setting and Thermo Plastic Products, Machinability machine tools - center lathe, drilling, milling, grinding, gear cutting and broaching, Machining Time Calculation, unconventional machining processes, CNC machine tools, Manual Part Programming - Machining and Turning Centre, Non Destructive Testing (NDT), Production Planning and Control, Cellular Manufacturing, Flexible Manufacturing System and Automated Guided Vehicle System, Additive Manufacturing, inventory control, ABC Analysis material handling systems, operations research, Linear Programming, simplex method, Transportation model, Assignment model Critical Path Method (CPM) and Program Evaluation Review Technique (PERT), Queuing Models.

9. Electronics and Instrumentation Engineering (Degree Standard)

Code: 402

Unit I: Analog Electronics (20 Questions)

Characteristics and Applications of Diode, BJT, JFET, SCR, UJT, MOSFET –Small Signal Analysis of BJT and JFET amplifiers, Feedback Amplifiers, RC and LC Oscillators –Characteristics and Applications of Operational Amplifier, Differentiator, Integrator, Instrumentation Amplifier, Precision Rectifier, V to I and I to V Converter, Active Filters, Oscillators and Signal Generators.

Unit II: Digital Electronics (20 Questions)

Digital Logic Theory:

Number Systems – Combinational Logic Circuits–Minimization of Boolean Functions – ICFamilies: TTL and CMOS – Arithmetic Circuits, Multiplexer & Decoders – Sequential Circuits: Flipflops, Counters, Shift

Registers, Schmitt Trigger, Timers, Multi vibrators, S/H Circuit –Analog to Digital Converter (Successive approximation, Integrating and Sigma Delta) –Digital to Analog Converters (Binary Weighted Resistor, R-2R, Inverted R-2R) – Characteristics of ADC and DAC.

Embedded Systems:

Microprocessor and Micro controller Applications, RISC and CISC Processors, Memory and Input – Output Interfacing, Embedded C Programming, Multiprocessors, Scheduling, Power Optimization Strategies, I²C and CAN Buses.

Unit III: Digital Signal Processing and Communication Engineering (20 Questions)

Discrete Time Signals and Systems:

Sampling Theorem, Characteristics and Classifications of DT Signals and Systems – LTI System Characteristics, Convolution and Correlation, Time Domain and Frequency Domain Analysis – ZT, DTFT, DFT – FFT Algorithms – IIR and FIR Filters.

Communication Engineering:

Amplitude and Frequency Modulation and Demodulation –Shannon's Sampling Theorem, Pulse Code Modulation, Frequency and Time Division Multiplexing. Digital Communication System (ASK, FSK, PSK and QAM) –Digital Communication Concepts – Network Protocols –ISO/OSI reference model – Fiber Optic Communication.

Unit IV: Transducer Engineering (20 Questions)

Units and Standards – Calibration Methods –Errors in Measurement and Uncertainty analysis – Static and Dynamic Characteristics of First and Second Order Transducers -Resistive, Capacitive, Inductive, Piezoelectric, Magnetostrictive, Hall Effect and Smart Sensors and Associated Signal Conditioning Circuits.

Unit V: Electrical and Electronic Measurements (15 Questions)

Measurement of Resistance, Capacitance, Inductance and Frequency using Bridges (Wheatstone, Kelvin, Megohm, Maxwell, Anderson, Schering and Wien Bridge)- Q-meter – Galvanometer, Measurement of Voltage and Current – Power and Energy Measurements – Potentiometers, and Instrument Transformers – Digital Voltmeter, Digital Multimeter, Time, Phase and Frequency Measurements – Oscilloscopes –Digital and Recording Devices.

Unit VI: Industrial Instrumentation (30 Questions)

Measurement of Displacement (Linear and Angular), Force, Torque, Velocity, Acceleration, Vibration, Density, Viscosity, Humidity and Moisture, Measurement of Flow (Variable Head, Variable Area, Mass, Electromagnetic, Ultrasonic, Turbine and Open Channel Flow Meters) –Measurement of Level, pH, Temperature (Thermocouple, Bolometer, RTD, Thermistor, Pyrometer and Semi conductor) and Pressure – Universal Smart Transmitter.

Unit VII: Analytical and Bio-Medical Instrumentation (15 Questions)

Analytical Instruments: Spectrophotometers –Spectral Methods of Analysis – Source, Detectors and Applications –Ion Conductivity: Sampling System, Ion Selective Electrodes, Conductivity and pH meters – Gas Analyzers – Chromatography – NMR Spectroscopy – Mass Spectrometers – Dust and Smoke Measurements –Water Quality Analyzer.

Biomedical Instruments: Bio-potentials and their Measurement Techniques & Signal Conditioning Circuits – ECG, EEG, EMG and ERG-Medical Imaging Systems: X-Ray, Computed Tomography (CT), Magnetic Resonance Imaging (MRI), Positron Emission Tomography (PET),Ultrasound.

Unit VIII: Control Systems (20 Questions)

Modeling of Mechanical and Electrical Systems (First Principle, Transfer Function and State Space Models) – Block Diagram Reduction – Signal Flow Graphs – Time and Frequency Domain Analysis – Stability Analysis (Root Locus, Routh Hurwitz Criterion, Nyquist Stability Criterion) - Lead/Lag Compensators – Controllability and Observability.

Unit IX: Process Control (15 Questions)

Process Modeling: Level and Thermal Processes – Interacting and Non-Interacting Systems – Self regulation – Degrees of freedom –Characteristics of ON/OFF, PID Control Modes – PID Controller Tuning

(Z-N, Cohen-Coon and Continuous Cycling) –PID Implementation Issues (Bumpless Transfer and Anti-reset Windup) –Control Valve Characteristics and Sizing – Control Schemes: Cascade, Feed - Forward, Ratio, Adaptive, Internal Model Controller and Model Predictive Control.

Unit X: PLC, SCADA AND DCS (25 Questions)

PLC: Architecture, I/O Modules, Programming Languages (Ladder Logic, Instruction List and Functional Block Diagram) – Internet of Things.

SCADA: RTU, Master Station and Communication Architectures.

DCS: Architecture, Local Control Unit, Field Control Unit, Operator and Engineering Human Interface Station, Displays–HART and Field Bus Communication Protocols.

10. Engineering (UG Degree Standard) and Business Administration (PG Degree Standard)

Code: 475

Unit I: Engineering Physics and Chemistry (20 Questions)

Mechanics: Newton's laws of motion – gravitation – work, energy and power – Properties of matter: Elasticity – moduli of elasticity – Sound: intensity level – reverberation – Ultrasonics: production, detection and applications – Quantum Physics : Photoelectric effect– dual nature of matter and radiation – Heisenberg's uncertainty principle – Schrödinger's wave equation.

Water – Sources – Classifications – Softening process – Desalination – RO Method – Internal treatment – Treatment of Water for Municipal purposes. Plastics – High polymer – classification – Polymerization techniques – Thermoplastics – Thermosetting resins – examples. Rubber –Types of Rubber – Vulcanisation – Properties – Unvulcanised and Vulcanised. Natural Rubber – Synthetic Rubber – examples. Refractories – Classification – Manufacture of Refractories – Magnesite – Silica – Zirconia – Chromite. Abrasives – Natural – Artificial–Abrasive paper & cloth. Corrosion: Dry and Wet corrosion – Factors affecting corrosion– Different types of corrosion. Productive coating – Hot dipping– metal cladding, electro deposition – Organic Coatings – Paints – Varnishes. Cement and lime – setting and hardening.

Unit II: Basics of Computer Engineering (20 Questions)

Computer Organization – CPU and Microprocessor [ALU, Control Unit and Bus Structure]–Data Storage [Primary, Secondary and Virtual] – Input and Output Devices. System Software – Assembler – Compiler – Loader – Linker – Operating Systems. Programming Languages – Classification of Programming Language, Algorithm, Flow chart, Pseudo code, High-Level Languages – Fundamental concepts of C Programming. Basic Computer Networking – Network Components [Routers, Bridges, Gateways] – ISO–OSI Reference Model – LAN – WAN – Client–Server Architecture – Internet – World Wide Web. Applications – Office Tools – Word processor – Spreadsheet – Power point – Introduction to Database concepts – E–mail – Browser. IT Enabled Services –E–Governance – Multimedia.

Unit III: Basics of Civil and Mechanical Engineering (20 Questions)

Introduction to Engineering mechanics – Units and Dimensions – Laws of Mechanics – Coplanar Forces – Static Equilibrium of Rigid body – Moment of force – free body diagram – friction–laws of friction – sliding friction – wedge friction – Rolling resistance – Lader friction– Friction in screws – Screw jack – Belt friction – Properties of surfaces and solids – Centroids and centre of mass – line and areas – Rectangular, circular, triangular areas by integration – T–section, I–Section, Angle section, Hollow section – Area moment of inertia of plane areas – Parallel axis theorem – Perpendicular axis theorem, Polar moment of Inertia, Principle moment of Inertia, Mass moment of inertia – Centroid of simple solids – Dynamics of particle – Displacement, velocity and acceleration – Different types of motion – Rectilinear, Curvilinear and Projectile motions.

Unit IV: Basics of Electrical and Electronics Engineering (20 Questions)

Ohm's law – Kirchoff's laws – Introduction to DC and AC circuits – single phase and three phase circuits – Power and Power factor, Unbalanced and Balanced loads, Operating principles of moving coil and

moving iron instruments (voltmeters and ammeters) – wattmeters, multimeter, energy meters and megger, Construction and principle of operation: DC motors – DC generators – Transformers – Induction motors, Characteristics of PN junction diode – zener diode – half wave and full wave rectifiers – Bipolar junction transistor (CC,CE,CB configurations), SCR, Amplifiers–Operational amplifiers – Inverting and Non-inverting amplifiers, Binary number system – logic gates –Boolean algebra – Half and full adders – Flip-flops–registers and counters –A/D and D/A conversion, Types of analog and digital signals – Modulation and Demodulation (amplitude and frequency). Communication systems: Radio – TV – Fax – Microwave – Satellite and optical fibre.

Unit V: Environmental Science and Engineering (20 Questions)

Environmental pollution: Causes, Effects and Preventive measures of Water, Soil, Air and Noise Pollutions. Solid, Hazardous and E-Waste management. Sustainability and management – Development, GDP. Sustainability – concept, needs and challenges – economic, social and aspects of sustainability–from unsustainability to sustainability – millennium development goals, and protocols – Sustainable Development Goals – targets, indicators and intervention areas. Climate change– Global, Regional and local environmental issues and possible solutions. Concept of Carbon Credit, Carbon Footprint. Environmental management in industry – Material Life cycle assessment, Environmental Impact Assessment. Sustainable habitat: Green materials, Energy efficiency, Sustainable transports. Sustainable energy: Non-conventional Sources, energy cycles, carbon cycle, emission and sequestration. Green Engineering: Sustainable urbanization– Socio-economical and technological change.

Unit VI: Project Management (20 Questions)

Types of Project – Project Life Cycle – Project Planning – Feasibility Analysis – Project Proposal – Project Designing and Design Review – Project Scheduling Techniques – PERT – CPM – Resource Allocation and Management – Cost and Quality Control – Project implementation –Contracts –Types of Contracts – Partnering Private Public Partnership (PPP) and Innovative Concepts and Practices in Project Management – Project Reporting and Evaluations – Legal Implications of Contracting and Partnering – Project uncertainty and Risk Management – GANTT Chart – Expediting a project

Unit VII: Managerial Economics (20 Questions)

Nature and Scope of Managerial Economics – Role of Economic Analysis in Managerial Decision – Demand Analysis of Estimation – Determination of Demand – Demand Forecasting – Forecasting Techniques – Supply and Demand analysis – Long and Short Run Production Functions – Long and Short Cost Functions – Pricing Strategies – Price Discriminations – Concept of Profit – Profit Planning and Control Cost Volume Analysis – Macro Economic Indicators – Macro Economic Aggregate – National Income and Economic Welfare – Multiplier Effect – Fiscal Policy – Economic Indicator and Business Decision Making – Business Strategy Development – Market Structure.

Unit VIII: Operations and Facility Management (20 Questions)

Operations Management – Objectives and Types – Characteristics of Modern Operation Management – Operation Strategy – Supply Chain Management – Warehousing and Supply Chain Strategies – Supply Chain Dynamics – Operation Planning – Work Measurements and Productivity –Total Productive Maintenance – Materials Management and Purchase Management – Total Quality Management (TQM) – Concept – Quality Standards and Certification – Quality Assurance.

Facility Management as Business Function – Facility Planning and Budgeting – Space Forecasting and Planning – Space Management Lease Administrations and Property Management – Facility Security Planning and Implementation.

Unit IX: Project Information System (20 Questions)

Role of MIS in Decision Making – Enterprise Resource Planning (ERP) – e-Tender (e-Procurement) – Tamil Nadu Transparency in Tender Rules Act 1998 – e-Commerce Concept and Models – B2B, B2C – Cyber Security and Data Privacy – Patents – e-Auditing of Project.

Unit X: Project Financial Management (20 Questions)

Financial Statements – Elements of Costs – Methods and types of Costing – ABC Costing – Marginal Costing and CVP Analysis – Standard Costing – Modern techniques of Performance Measurement –

Financial Statement Analysis – Ratio Analysis – Cash Flow and Fund Flow Analysis – Working Capital Management – Capital Budgeting – Risk and Uncertainty in decision making – Inflation adjusted Capital Budgeting.

11. Engineering (UG Degree Standard) and Business Administration (PG Degree Standard)

Code: 474

Unit I: Engineering Physics and Chemistry (20 Questions)

Mechanics: Newton's laws of motion – gravitation – work, energy and power – Properties of matter: Elasticity – moduli of elasticity – Sound: intensity level – reverberation – Ultrasonics : production, detection and applications – Quantum Physics : Photoelectric effect – dual nature of matter and radiation – Heisenberg's uncertainty principle – Schrödinger's wave equation.

Water – Sources – Classifications – Softening process – Desalination – RO Method – Internal treatment – Treatment of Water for Municipal purposes. Plastics – High polymer – classification – Polymerization techniques – Thermoplastics – Thermosetting resins – examples. Rubber –Types of Rubber – Vulcanisation – Properties – Unvulcanised and Vulcanised. Natural Rubber – Synthetic Rubber – examples. Refractories – Classification – Manufacture of Refractories – Magnesite – Silica – Zirconia – Chromite. Abrasives – Natural – Artificial–Abrasive paper & cloth. Corrosion: Dry and Wet corrosion – Factors affecting corrosion – Different types of corrosion. Productive coating – Hot dipping– metal cladding, electro deposition – Organic Coatings – Paints – Varnishes. Cement and lime – setting and hardening.

Unit II: Environmental Science and Engineering (20 Questions)

Environmental Pollution: Causes, Effects and Preventive measures of Water, Soil, Air and Noise Pollutions. Solid, Hazardous and E-Waste management. Sustainability and management – Development, GDP. Sustainability – concept, needs and challenges – economic, social and aspects of sustainability–from unsustainability to sustainability – millennium development goals, and protocols– Sustainable Development Goals – targets, indicators and intervention areas. Climate change –Global, Regional and local environmental issues and possible solutions. Concept of Carbon Credit – Carbon Footprint. Environmental management in industry – Material Life cycle assessment, Environmental Impact Assessment. Sustainable habitat: Energy efficiency, Sustainable transports. Sustainable energy: Non-conventional Sources, Energy Cycles, carbon cycle, emission and sequestration: Sustainable urbanization – Socio-economical and technological change.

Unit III: Civil Engineering (20 Questions)

Properties and Classification of cement, lime, bricks, stone and timber – Uses and Tests – materials for acoustics and insulation – Simple stress and strain – elastic constants – relationship – stress and strain in two dimensions, compound stresses– principal stresses – Bending moments and shear forces in statically determinate beams– simple bending theory – Green Building Concept – Types of concrete – testing of fresh and hardened concrete – mix design – quality control – special concreting techniques – concreting equipment – centering and shuttering – slip and moving forms – construction joints – Design of tension and compression members, beams and beam-columns, column bases – Design of bolted and welded connections – Construction management – Construction planning and scheduling – preparation of different types of schedules – methods of scheduling – resource planning– Construction Contracts – Types of estimates – Detailed estimates for different types of buildings –methods of valuation – depreciation – fixation of rent– rate analysis– Quantity estimation.

Unit IV: Town / Urban Planning (20 Questions)

Planning System in India, Regional Plan, Master Plan, Structure Plan, Detailed Development Plans, City Corporate Plan and Smart City Plan – Principles of Planning – Type of planning surveys, data identification for various plan preparation – Urban infrastructure – Water Supply, Sewage / Drainage services, Solid Waste Management, Roads and Street Lighting – Basics of Remote Sensing and GIS– Classification of spatial and non-spatial data, application of spatial data in urban and regional planning – Concepts of sustainable urban development, sustainable transportation – Land Pooling concept, Transfer of Development Right, Formulation of Re-development and Urban Expansion Plans – Local Area

Plans, Town Planning Schemes – Special Economic Zone, Industrial Corridor, Coastal Zone Management Plan.

Unit V: Architecture, Building Systems and Services (20 Questions)

Elements of Architecture – Form, Space, light, colour etc., Principles of Architecture – Proportion, Scale, balance, rhythm, symmetry, hierarchy, pattern and axis. Understanding of organization of form and space, volumetric study, architectural characteristics & style of buildings with examples. Understanding user circulation and spatial requirement for all types of buildings. Universal design principles and Barrier free environment. Computer application in Architecture – Architectural graphics – Drawing & visualization tools – image editing, 2D & 3D modelling, 3D visualization. Water harvesting system, storm water drainage system, solid waste management, building management system, lighting, Air-conditioning, Vertical transportation system, fire safety and fire fighting systems.

Unit VI: Project Management (20 Questions)

Types of Project – Project Life Cycle – Project Planning– Feasibility Analysis– Project Proposal – Project Designing and Design Review – Project Scheduling Techniques – PERT–CPM – Resource Allocation and Management – Cost and Quality Control – Project implementation – Contracts –Types of Contracts – Partnering Private Public Partnership (PPP) and Innovative Concepts and Practices in Project Management – Project Reporting and Evaluations – Legal Implications of Contracting and Partnering – Project uncertainty and Risk Management – GANTT Chart – Expediting a project.

Unit VII: Managerial Economics (20 Questions)

Nature and Scope of Managerial Economics – Role of Economic Analysis in Managerial Decision – Demand Analysis of Estimation – Determination of Demand – Demand Forecasting – Forecasting Techniques – Supply and Demand analysis – Long and Short Run Production Functions – Long and Short Cost Functions – Pricing Strategies – Price Discriminations – Concept of Profit – Profit Planning and Control Cost Volume Analysis – Macro Economic Indicators – Macro Economic Aggregate – National Income and Economic Welfare – Multiplier Effect – Fiscal Policy – Economic Indicator and Business Decision Making – Business Strategy Development – Market Structure.

Unit VIII: Operations and Facility Management (20 Questions)

Operations Management – Objectives and Types – Characteristics of Modern Operation Management – Operation Strategy – Supply Chain Management – Warehousing and Supply Chain Strategies – Supply Chain Dynamics – Operation Planning – Work Measurements and Productivity –Total Productive Maintenance – Materials Management and Purchase Management – Total Quality Management(TQM) – Concept – Quality Standards and Certification – Quality Assurance.

Facility Management as Business Function – Facility Planning and Budgeting – Space Forecasting and Planning – Space Management Lease Administrations and Property Management – Facility Security Planning and Implementation.

Unit IX: Project Information System (20 Questions)

Role of MIS in Decision Making – Enterprise Resource Planning (ERP)– e-Tender (e-Procurement) – Tamil Nadu Transparency in Tender Rules Act 1998 – e-Commerce Concept and Models – B2B, B2C – Cyber Security and Data Privacy– Patents – e-Auditing of Project.

Unit X: Project Financial Management (20 Questions)

Financial Statements – Elements of Costs – Methods and types of Costing – ABC Costing – Marginal Costing and CVP Analysis – Standard Costing – Modern techniques of Performance Measurement – Financial Statement Analysis – Ratio Analysis – Cash Flow and Fund Flow Analysis – Working Capital Management – Capital Budgeting – Risk and Uncertainty in decision making – Inflation adjusted Capital Budgeting.

12. Financial and Cost Accountancy (Final)

Code: 434

Unit I: Accounting (30 Questions)

- Accounting Standards–GAAP-AS-applicability, interpretation, scope and compliance- IFRS- Ind AS 2, 10, 115, 16, 21, 20, 23, 37 & 38.
- Company Accounts - Presentation of Financial Statements as per Schedule III of Companies Act 2013- Statement of Profit or Loss, Balance Sheet, Change in Equity, Cash flow statement
- Accounting of Banking, Electricity and Insurance Companies
- Accounting for Cooperative Societies
- Branch and Departmental Accounts(including foreign branches)
- Accounting for non-profit organizations and incomplete records
- Computerized Accounting System(ERP features and advantages)

Unit II: Auditing (30 Questions)

- Nature and scope and significance of auditing
- Audit Engagement, Audit Programme, Audit working papers, Audit note book audit evidence and audit report
- Internal check, internal control and internal audit-industry specific
- Reporting requirements of under companies act-report vs certificate, contents of the report and qualifications in the report.
- Cost audit and Secretarial audit
- Auditing of different types of undertaking-education, hospitals, cooperative societies, trusts.

Unit III: Financial Management (25 Questions)

- Meaning-objectives-scope of financial management
- Sources of Funds-Introduction of Financial Markets-Capital & Money Markets
- Tools for Financial Analysis- Ratio, Funds flow analysis, Cash flow analysis
- Cost of Capital, Capital Structure and Leverages
- Working Capital Management-Financing-Cash, Inventory, Receivables and Payables
- Capital Budgeting.
- Risk Management-risk measurement-risk analysis-Value at Risk (VAR)- Capital Adequacy Norms & Income Recognition Norms (NPA) in NBFCs.

Unit IV: Taxation (30 Questions)

- Direct Taxation-Residential Status-Heads of Income and Computation of Total Income under various heads- assessment of income of different persons - TDS/TCS/Advance Tax- Income Computation and Disclosure standards (Basic Concepts only) - Taxation as applicable to Government undertaking and Cooperative Societies. Due dates and compliances. Effects of non compliance and penalty. Tax audit provisions under I.T. Act
- Indirect Taxation- Canons of Taxation- Customs Law - Goods and Services Tax (GST) - CGST-SGST-IGST- Cess- Registration - Supply- Time of Supply-Value of Supply- Place of Supply-E-Invoicing, E-Way Bill, Input tax credit- Reverse Charge Mechanism (RCM) - Payment of Taxes, Penalties.

Unit V: Commercial Law, Industrial Law & Company Law (20 Questions)

- MSMED Act 2006.
- Laws and Regulations relating to Cyber Security and Data Protection.
- Factories Act
- Payment of Gratuity Act
- Employees Provident Fund Act 1952
- Employees State Insurance Act 1948
- Payment of Bonus Act 1965
- Minimum Wages Act 1948
- Companies Act 2013-Promotion - Formation and related procedures – Types– Appointment and duties of Directors, Loans and Deposits, CSR, Salient features of Insolvency and Bankruptcy Code.

Unit VI: Management Accounting (15 Questions)

- Introduction to Management Accounting - Relationship between Management accounting and cost accounting-Decision Making tools
- Analysis and Interpretation of Financial Statements
- Learning Curve- concepts and its application

Unit VII: Cost Management (10 Questions)

- Life Cycle costing
- Target Costing
- Kaizen Costing
- Value analysis and Engineering
- Throughput Costing
- Business Process Re-engineering
- Back flush costing
- Activity Based Costing (ABC).

Unit VIII: Decision Making Techniques (15 Questions)

- Marginal Costing-CVP analysis-Profit Volume Graph-Decision involving alternative choices - Make or Buy; Evaluation of Orders; Multiple scarce: Product sales
- Pricing Decisions - New Product pricing- use of costs in pricing – sensitivity analysis- monopoly pricing-competitive pricing-Transfer pricing - Costing of Service Sectors
- Variance Analysis and Reporting-Material, Labour, Overheads, Turnover and Profit.

Unit IX: Performance Evaluation & Improvement Tools (15 Questions)

- Balanced Score Card
- Supply Chain Management
- Key Performance Indicators (KPI) like ROI, Economic Value Added (EVA).
- Bench Marking
- Six sigma, Statistical Quality Control
- Plan-Do-Check Action
- Management Information Systems(MIS)
- Total Productivity Management(TPM)and Total Quality Management (TQM)
- SWOT analysis
- Profitability Analysis.

Unit X: Business Valuation (10 Questions)

- Meaning of Value, Valuation and Business Valuation
- Valuation Methods-Non Discounted cash flow method-Discounted Cash Flow Method- Free Cash flow Method, Net Present Value Method (NPV)- Profitability Index Method(PI) - Internal Rate of Return Method(IRR)
- Valuation of Inventory
- Valuation of Investments
- Valuation of Intangibles
- Valuation of Human Resources
- Valuation of Equity

**13. Library and Information Science
(PG Degree Standard)****Code: 595****Unit I: Information and Communication (20 Questions)**

- (i) Data, Information and Knowledge; Information–Notions; Information Theories
- (ii) Library– Social relevance; Types; Functions, Legislation.
- (iii) Information Transfer Cycle; Diffusion pattern; Communication–Theories and Models; Channels and Barriers to Communication
- (iv) Information / Memory institution of different kinds: Libraries, Archives, Documentation Centers, Information Analysis Centers, Museums and respective roles and functions.

- (v) Library Legislation and Library Acts in Indian States; The Press and Registration of Books Act; The Delivery of Books and Newspapers (Public Libraries) Act.
- (vi) Professional bodies and Association- National – Indian Library Association (ILA), Indian Association of Special Libraries and Information Centres (IASLIC), Indian Association of Teachers of Library and Information Science (IATLIS); International-United Nations Educational, Scientific and Cultural Organization (UNESCO), International Federation of Library Associations and Institutions (IFLA), American Library Association (ALA), Chartered Institute of Library and Information Professionals (CILIP) etc.
- (vii) Intellectual Property Rights (IPR) and legal issues- categories, conventions, Treaties, Laws, copyright, Plagiarism: concept and types; Right to information Act (RTI); Information Technology Act, National knowledge Commission: National mission on Libraries

Unit II: Management of Information Centres (20 Questions)

- (i) Management- Concept, Definition; Schools of Management Thought, functions of Management, Planning, Organizing, Staffing, Directing, Coordinating, Reporting, and Budgeting (POSDCORB).
- (ii) Human Resource Management – Organisation models; job description and job Analysis; selection, recruitment, training
- (iii) Financial Management: Planning and Control; Resource generation; Budget and Budgeting; Budgetary control techniques; Cost Benefit, Cost Effective analysis
- (iv) Materials Management: Collection development Policy; Issues – selection, acquisition; Library routines, Circulation, Preservation and conservation, Physical facilities - Library Building, Furniture and Equipments: Green Library building, Information Commons; Makers Space; Security and Safety.
- (v) Planning – Concept, Definition Types; Systems Analysis and Design; Knowledge Management, Total Quality Management (TQM); Project management- Strengths, Weaknesses, Opportunities and Threats analysis (SWOT), Political, Economic, Social and Technological analysis (PEST), Project Evaluation and Review Technique / Critical Path Method (PERT/CPM).
- (vi) Marketing of information: Marketing of Library Products and Services – Plan, Research, Strategies, Mix, Segmentation, Pricing and Advertising; Management Consultancy.
- (vii) Management Information System (MIS), Management By Objectives (MBO), Change Management, Disaster Management, Crisis Management

Unit III: Knowledge Organisation (25 Questions)

- (i) Universe of Subjects; Modes of formation of Subjects; Knowledge Organization
- (ii) Classification - Various Schemes of Classification – Colon Classification (CC), Universal Decimal Classification (UDC), Library of Congress Classification (LC) and Dewey Decimal Classification (DDC) – Overview; Broad System of Ordering (BSO); General theory of classification; Classification Research Group (CRG);
- (iii) Notation – types; Devices – types; Cannons and Principles - Idea, Verbal and Notation planes; Facet analysis; Principles of helpful sequence; Zone analysis
- (iv) Cataloguing - Purpose, Structure, Types – Inner and Physical forms; Normative Principles, Canons & Laws; Standards – International Standard Bibliographic Description (ISBD), Classified Catalogue Code (CCC), Anglo American Cataloguing Rules (AACR), Resource Description and Access (RDA); Functional Requirements for Bibliographic Records (FRBR)
- (v) Subject Cataloguing – Principles; Subject heading lists – Sear's List of Subject Headings (SLSH), Library of Congress Subject Headings (LCSH); Thesauri and Vocabulary control
- (vi) Bibliographic formats – International Standards – International Organization for Standardization (ISO-2709), Machine Readable Cataloging (MARC-21), Universal Machine Readable Cataloging (UNIMARC), Common Communication Format (CCF), and National formats .Metadata – Standards: Dublin Core, Metadata Encoding and Transmission Standard (METS), Metadata Object Description Schema (MODS), Encoded Archival Description (EAD) Mark up languages – Hyper Text Markup Language (HTML), Extensible Markup Language (XML), Resource Description Framework (RDF)
- (vii) Standards for Bibliographic Information Interchange & Communication – International Organization for Standardization (ISO-2709), Z39.50 Application Service Definition and Protocol Specification ANSI/NISO Z39, Z39.71.

Unit IV: Information Sources (20 Questions)

- (i) Information Sources – Types – Documentary and Non documentary; Primary, Secondary and Tertiary; Electronic Sources of Information; Human and Institutional Sources; Invisible Colleges; Technological Gatekeepers
- (ii) Reference Sources - Ready Reference Sources – Types - Dictionaries, Encyclopedias, Annuals, and Biographical sources, Handbooks and Manuals, Geographical Sources.
- (iii) Bibliographical Sources – Bibliographies; Union Catalogues; Indexing and Abstracting sources; News summaries;
- (iv) Web Resources-Subject Gateways and Portals; Databases–Bibliographical, Abstracting and Indexing; Full-text databases; Citation Databases
- (v) Evaluation of Information sources - Print and Web Resources; Multimedia; Open Access Resources; One Nation One Subscriptions (ONOS)
- (vi) Open Educational Resources: Definition and concept; Types of Open Educational Resources (OER), Policies, Licensing, difference between Proprietary and Open source, Open Vs Free resources
- (vii) Development of Open educational resources in India- National Digital Library of India, National Council of Educational Research and Training (NCERT), Indira Gandhi National Open University (IGNOU), National Securities Depository Limited (NSDL), Tamil Nadu Digital Library, Traditional Knowledge Digital Library (TKDL).

Unit V: Information System, Products and Services (20 Questions)

- (i) Information Systems - Concept, Purpose, and Types; Global & National Information Systems; Medical Literature Analysis and Retrieval System (MEDLARS), International Nuclear Information System (INIS), International System for Agricultural Science and Technology (AGRIS), Information Service in Physics, Electrotechnology and Control (INSPEC), Online Computer Library Center (OCLC), National Institute of Science Communication and Information Resources / National Institute of Science Communication and Policy Research (NISCAIR/NIScPR), National Social Science Documentation Centre (NASSDOC), Library Networks: Information and Library Network (INFLIBNET), Developing Library Network (DELNET), National Informatics Centre Network (NICNET), Education and Research Network of India (ERNET), National Knowledge Network (NKN), Biotechnology Information System Network (BTIS) etc.
- (ii) Information Services - Users Education and Information Literacy; Documents Delivery, Translation; Current Awareness Service (CAS), Selective Dissemination of Information (SDI), E-Alert & Web-based Services
- (iii) Users of Information - Understanding the users; Categories of users and their needs; Information use contexts; Information seeking behaviour of users; Theories of Information seeking behaviour.
- (iv) Information Analysis and Consolidation Products and Services.
- (v) Use Studies; Methods of Users studies; Major information users and use studies and their findings
- (vi) Web 2.0 and 3.0 - Library 2.0, 3.0 - Concept, Characteristics, Components; Instant Messaging, Really Simple Syndication (RSS Feeds), Podcasts, Vodcasts, Ask a Librarian; Collaborative Services- Social Networks, Academics Social Networks, Social Tagging, Social Bookmarking.
- (vii) Web – Scale Discovery Services; Library Resource Sharing and Library Consortia – National and International level.

Unit VI: Information Storage and Retrieval (25 Questions)

- (i) Information Retrieval System–Concept, Definition, and Components
- (ii) Indexing systems – Pre-coordinate and Post-coordinate; Vocabulary Control, Thesaurus, General Theory of Subject Indexing; Keyword Indexing; Citation Indexing
- (iii) Information Retrieval Models – Boolean, Probabilistic, Cognitive and Vector Models; Alternative IR Models: algebraic and probabilistic models (Bayesian networks)
- (iv) Search and Searching-Search Process; Search strategies; Search engines
- (v) Evaluation of Information Retrieval Systems -Purpose, Criteria – Recall and Precision; Major Evaluation Studies – Medical Literature Analysis and Retrieval System (MEDLARS), System for the Mechanical Analysis and Retrieval of Text (SMART Retrieval), IBM Storage and Information Retrieval System (STAIRS), Text Retrieval Conference (Project TREC).

Unit VII: Research Methods (15 Questions)

- (i) Research-Concept, Definition, Objectives and Significance; Types; Research Problems
- (ii) Research Design–Definition, Need; Sampling; Hypothesis–Types and Testing
- (iii) Methods and Tools - Data collection - Survey, Experimental, Case-study, Observation, Questionnaire, Interview schedules.
- (iv) Introduction to Statistics; definition of statistical terms - population, sample, data and variables; frequency distributions; scales of measurement; presentation of data - graphical and tabular; frequency tables, histogram, frequency curves; correlation and regression analysis; measures of central tendency; Statistical Packages – Spreadsheet, Statistical Package for the Social Science (SPSS), Bibexcel, 'R' Statistics.
- (v) Report Writing – Components of a Research Report; Style manuals – Modern Language Association (MLA), American Psychological Association (APA), Chicago, Turabian.

Unit VIII: Information Technology (IT) and Library Automation (20 Questions)

- (i) Information Technology – Concept – Definition - Evolution of Digital Computers; Introduction to Telecommunications; Number Systems: Binary, Octal, Hexadecimal, Representation of Numbers in Computers; Character Representation: American Standard Code for Information Interchange (ASCII), Indian Standard Code for Information Interchange (ISCII) and Universal Character Encoding Standard (UNICODE); File formats
- (ii) Basic components of a Computer–Arithmetic Logic Unit; Control Unit; Memory Unit – Static and Dynamic Random Access Memory (RAM), Read-Only Memory (ROM), Cache memory; Input/Output devices
- (iii) Operating System -Linux, Windows; Fundamentals of Programming; Introduction to C Programming; Object Oriented programming; Java, PHP
- (iv) Computer Networks - Topologies, Types of Networks – Local Area Network (LAN), Metropolitan Area Network (MAN), Wide Area Network (WAN), Intranet, Internet - Web browsers, World Wide Web (WWW), E-mail; Search Engines, Meta and Entity Search engines. Internet Protocols and Standards – Hyper Text Transfer Protocol (HTTP), Secure Hypertext Transfer Protocol (SHTTP), File Transfer Protocol (FTP), Simple Mail Transfer Protocol (SMTP), Transmission Control Protocol / Internet Protocol (TCP/IP), Uniform Resource Identifier (URI), Uniform Resource Locator (URL).
- (v) Database Management System – Concepts, Functions; Integrity and Security issues
- (vi) Library Automation - Overview of library automation software; Criteria for selection of software; and Hardware (including differently-able); Open and Commercial Learning Management System (LMS).

Unit IX: Digital Libraries (15 Questions)

- (i) Digital Libraries – Concept and Definition; Historical development of Digital Libraries. Copyright and license issues.
- (ii) Digitization Process-Software ,Hardware and Best practices; Scanners and Scanner types; Optical Character Recognition (OCR) and Optical Character Recognition (OCR software)
- (iii) Technology for Digital Libraries (DLs) – Open source software – Open Standards and File formats; Harvesting metadata, Open Archives Initiative Protocol for Metadata Harvesting (OAI-PMH) and Digital Library (DL) Interoperability;
- (iv) Digital Library Architecture–Grid architecture; Open URL integration;
- (v) Digital Resources Management–Digital Preservation–Persistent identifiers–DOI and CNRI Handles; Multilingual digital repositories and Cross- language information retrieval
- (vi) Institutional Repositories - Need, Purpose, Types and Tools; Institutional Repositories in India; Registry of Open Access Repositories (ROAR), Directory of Open Access Repositories (DOAR), Securing a Hybrid Environment for Research Preservation and Access - Rights METadata for Open archiving (SHERPA-RoMEO), Content Management Systems – Architecture, Data Integration, CMS Software – Selection, Implementation and Evaluation.
- (vii) Application of Artificial Intelligence, Expert Systems and Robotics in Libraries; Social Mobile Analytics Cloud (SMAC); Cloud Computing. Ontology – Tools, Resource Description Framework (RDF), Resource Description Framework Schema (RDFS), Potege; Semantic Web, Linked Data, Big Data, Data Mining, Data Harvesting.

Unit X: Quantitative & Qualitative Techniques and Informetrics (20 Questions)

- (i) Informetrics - Genesis, Scope and Definition; Librametrics, Bibliometrics, Scientometrics, Cybermetrics, Webometrics and Altmetrics.
- (ii) Classical Bibliometrics laws - Zip's Law, Lotka's Law, Bradford's Law of Scattering; Generalized Bibliometrics distributions. 80-20 rule, Price's Law relating to scientific productivity; Analysis of use statistics.
- (iii) Quantitative Techniques – Types, Multidimensional Scaling, cluster analysis, correspondence analysis, Co-word analysis, Media and Audience analysis
- (iv) Growth and Obsolescence of literature - Various growth models; Aging factor and half- life: real vs. apparent; synchronous vs. diachronous.
- (v) Citation analysis–Bibliographic Coupling and Co-citation Analysis
- (vi) Bibliometric indicators: Impact factor, h-index, g-index, i-10 index, h-b index, p-index, Energy – Exergy Index, Mapping of Science; Citation Index.

14. Nautical Science (Degree Standard)

Code:596

Unit I: Merchant Shipping Act 2025 as amended (25 Questions)

Preliminary – Definitions, applicability, scope, Registration of Indian Ships – Vessel registration, ownership, tonnage, Safety of Navigation – Safety of Life at Sea (SOLAS) compliance, equipment, emergency drills, Crew and Seafarer Welfare – Recruitment, wages, repatriation, grievances, Training and Certification – Standards of Training, Certification and Watch keeping (STCW) standards, Certificate of Competency, Continuous Discharge Certificate issuance, Marine Environment Protection – Marine Pollution (MARPOL) compliance, pollution control, Maritime Labour Standards – Maritime Labour Convention 2006 integration, working conditions, Liabilities and Insurance – Shipowner liability, insurance mandates, Investigation and Casualty Reporting – Marine accidents, inquiry procedures, Foreign Vessels and Coastal Trade – Cabotage, foreign vessel operations in India, Port State Control and Inspections – Vessel inspections, compliance checks, Digital Records and Transparency – Electronic documentation, Clause 317 on freight disclosure, Maritime Administration – Directorate General (DG) Shipping, Mercantile Marine Departments, National Shipping Board – Governance, stakeholder representation, Penalties and Enforcement – Violations, fines, blacklisting, Miscellaneous and Transitional Provisions – Repeals, transitional clauses, rule-making powers.

Unit II: Indian Ports Act, 2025 as amended, and Major Port Authority Act 2021, as amended (20 Questions)

Indian Ports Act – Preliminary (Short title, definitions) – Maritime State Development Council – Port operations and port limits – State Maritime Boards – Dispute resolution framework – Appointment and Powers of Port Officers – Safety and Conservation of Port Infrastructure – Pollution Prevention and Response Mechanisms – Administrative Clauses and Schedules – Major Port Authority Act – Preliminary – Short Title, Date of Commencement, Scope and Key Definitions – Board of Major Port Authority – Management and Administration – Powers of Boards of Major Port Authorities in Respect of Loans and Securities – Supervision of Central Government – Constitution of Adjudicatory Board – Penalties – Miscellaneous.

Unit III: Tamil Nadu Maritime Board Act, 1995 and Tamil Nadu State Ports Development Policy, 2023 (25 Questions)

Preliminarily – Establishment of Maritime Board – Staff of the Board – Property and Contracts – Works and Services to be provided at the Ports by the Board – Imposition and Recovery of Rates at Ports – Borrowing Powers of Board – Revenue and Expenditure – Supervision and Control of Government – Penalties – Miscellaneous – Tamil Nadu State Ports Development Policy, 2023 – Short Title – Introduction – Definition – Present Status of Tamil Nadu Ports – Objectives – Policy and Operational Strategy – Development of New Ports – Industrialisation – Infrastructure Development – Adventure Water Sports – Coastal Shipping – Passenger Services – Maritime Sector Skill Development – Sustainable Maritime Development.

Unit IV: Safety of Life at Sea (SOLAS), Marine Pollution (MARPOL), Standards of Training, Certification and Watch keeping (STCW) 2010, Maritime Labour Convention (MLC) 2006 and Load line Convention (30 Questions)

SOLAS:

General Provisions, Construction – Structure, Subdivision and Stability, Machinery and Electrical, Construction – Fire Protection, Fire Detection and Fire Extinction, Life-Saving Appliances and Arrangements, Radio communications, Safety of Navigation, Carriage of Cargoes and Oil Fuels, Carriage of Dangerous Goods, Nuclear Ships, Management for the Safe Operation of Ships, Safety Measures for High-Speed Craft, Special Measures to Enhance Maritime Safety, Special Measures to Enhance Maritime Security, Additional Safety Measures for Bulk Carriers, Verification of Compliance, Safety Measures for Ships Operating in Polar Waters.

MARPOL:

Annex I: Regulations for the Prevention of Pollution by Oil – Annex II: Control of Pollution by Noxious Liquid Substances in Bulk, Annex III: Prevention of Pollution by Harmful Substances in Packaged Form Annex IV: Prevention of Pollution by Sewage from Ships, Annex V: Prevention of Pollution by Garbage from Ships, Annex VI: Prevention of Air Pollution from Ships

Standards of Training Certification and Watchkeeping (STCW) 2010:

General Provisions, Master and Deck Department, Engine Department, Radio Communication, Special Training Requirements, Emergency, Occupational Safety, Medical Care, and Survival Functions, Alternative Certification, Watchkeeping, STCW Code: Parts A & B

Maritime Labour Convention (MLC) 2006:

Minimum Requirements for Seafarers to Work on a Ship, Conditions of Employment, Accommodation, Recreational Facilities, Food and Catering, Health Protection, Medical Care, Welfare and Social Security Protection, Compliance and Enforcement

Load line Convention:

General – Definitions, scope, and basic principles of assigning load lines, Conditions of Assignment of Freeboard – Structural and design requirements for assigning freeboard, Freeboards – Rules for calculating freeboards based on ship type and dimensions, Special Requirements for Ships Assigned Timber Freeboards – Additional criteria for ships carrying timber deck cargo

Unit V: Directorate General of Shipping Orders and Circulars, Port State Control (Indian Ocean Region) and Flag State Inspections (20 Questions)

Crew branch – Port State Control – International Ship and Port Facility Security (ISPS) and Maritime Security – Nautical and Engineering Circulars – Salient inspection areas – Port State Control (PSC) inspection process – Critical deficiency areas – Legal background – Action codes – Organizational structure – Guidance on inspections under the Maritime Labour Convention (MLC, 2006) and International Labour Organisation (ILO) instruments – Flag State Inspections – Validity of statutory and security documentation – Crew compliance, certification, work/rest, training – Navigation Functionality of critical navigational and safety systems – Availability of navigational publications and emergency manuals

Unit VI: Inland Vessels Act, 2021 as amended and Coastal Shipping Act 2025 (15 Questions)

Inland Vessels Act, 2021 – Preliminary, Declaration of Inland Water Area into Zones, Administrative Provisions, Survey of Inland Vessels, Registration, Manning, Qualification, Training, Examination and Certification, Special Category Vessels, Navigation Safety and Signals, Prevention of Pollution Caused by Inland Vessel, Wreck and Salvage, Liability and Limitation of Liability, Insurance of Mechanically Propelled Vessels Plying in Inland Waters, Inquiry into Casualty, Accident or Wreck, Regulation of Trade Practices, Pilotage, Vessel Detention and Development Fund, Offences and Penalties, Miscellaneous (rule-making powers, repeal of 1917 Act)

Coastal Shipping Act 2025 – Preliminary – Prohibition and Licence for Coasting Trade – National Coastal and Inland Shipping Strategic Plan and National Database of Coastal Shipping – Licencing of Chartered Vessels Other than for Coasting Trade – Offences and Penalties – Miscellaneous

Unit VII: Marine Aids to Navigation Act 2021 and The Indian port Health Rules 1955 (20 Questions)

Marine Aids to Navigation Act 2021 – Preliminary – Designation of General Aid to Navigation – Director General of Aids to Navigation – Management of General Aids to Navigation – Management of Vessel Traffic Services – Inspection and Management of Local Aids to Navigation – Obstruction to Functioning of Aids to Navigation – Training and Certification – Marking of Wrecks – Development of Heritage Lighthouses – Marine Aids to Navigation Dues – Finance, Accounts and Audit – Offences and Penalties – Miscellaneous – Indian Port Health Rules 1955 – Introductory — definitions and foundational provisions –Vessels arriving at Indian ports (messaging, signaling, pratique) – Procedures for infected or suspected vessels arriving at port – Rodent control measures and certification (deratting)

Unit VIII: International Ship and Port Facility Security (ISPS) Code and its amendments (20 Questions)

ISPS code – Application (types of ships, ports, facilities covered) – Responsibilities of Contracting Governments – Declaration of Security (DoS) – Ship Security Requirements – Ship Security Assessment (SSA) – Ship Security Plan (SSP) – Company Security Officer (CSO) – Ship Security Officer (SSO) – Records, drills, and training – Port Facility Security Requirements – Port Facility Security Assessment (PFSA) – Port Facility Security Plan (PFSP) – Port Facility Security Officer (PFSO) – Access control, monitoring, restricted areas – Security Levels (1, 2, 3) and corresponding measures – Certification – International Ship Security Certificate (ISSC)

Unit IX: Code of storm warning signals for use at Indian Ports and Notices to mariners issued by National Hydrographic Office, Dehradun (10 Questions)

Code of storm warning signals for use at Indian ports – Structure of Storm Warning Systems – Meanings of Signals – Detailed meanings of each signal – Visual signal specifications for both day (flag symbols) and night (lamp signals) – Notice to Mariners (issued by the National Hydrographic Office, Dehradun) – List of Charts Affected – Permanent Notices – Temporary and Preliminary Notices – Marine Information – NAVAREA VIII Warnings in Force – Corrections to Sailing Directions – Corrections to List of Lights – Corrections to List of Radio Signals – Corrections to Miscellaneous Nautical Publications –Reporting of Navigational Dangers

Unit X: The Right to Information Act 2005 and Tamil Nadu Transparency in Tenders Act 1998 as amended (15 Questions)

Right to Information Act, 2005 – Preliminary – extent, commencement, and definitions – Right to Information and Obligations of Public Authorities – Lays down the right to information, obligations of public authorities, publication of information, and procedure for requesting information – The Central Information Commission – Establishment, composition, powers, and functions of the Central Information Commission – The State Information Commission – Establishment, composition, powers, and functions of the State Information Commissions – Powers and Functions of the Information Commissions, Appeal and Penalties – Complaint and appeal mechanisms, powers of the Commissions, and penalties for non-compliance – Miscellaneous – Protection of action taken in good faith, bar of jurisdiction of courts, rule-making powers, and repeal/saving provisions – Transparency in Tenders Act – Core operative provisions: definitions, tender processes, exclusions – Appeal procedure – Grounds and power to reject tenders – Government's power to seek information and records – Procedure override for internationally funded projects – Administrative/legal provisions, rule-making, overrides, indemnity, schedule

15. Psychology (PG Degree Standard)

Code: 372

Unit I: Developmental Psychology (20Questions)

Prenatal, Infancy, Childhood – Characteristics, Periods, Hazards, Developmental Tasks. Physical, Cognitive, Social, Emotional, Moral Development.

Adolescences - Characteristics, Hazards, Developmental Tasks, Physical, Cognitive, Social, Emotional, Moral Development

Adulthood - Characteristics, Developmental Tasks, Vocational & Marital Adjustment, Hazards, Physical, Emotional and Social Changes.

Middle age - Characteristics, Developmental Tasks, Vocational & Marital Adjustment, Hazards, Physical, Emotional and Social Changes.

Old age - Characteristics, Developmental Tasks, Hazards, Physical, Emotional and Social Changes, Graceful Aging and Death and Adjustments.

Unit II: Personality: Theories and Applications (20Questions)

Personality - Definition, Levels of Personality Analysis, Sources of Personality Data, Role of Personality Theory, Personality Assessments

Approaches - Psychodynamic, Dispositional, Biological, Intra-psychic, Cognitive, Experiential, Social and Cultural. Eastern Perspective – Yoga and Hindu Tradition, Zen Buddhism, Sufism and Islamic Tradition. Applications of Various approaches of Personality.

Unit III: Bio Psychology(10Questions)

Introduction to Neuron and Nervous System – Brain and its functions – Endocrine Glands – Characteristics, Major Endocrine glands, Hormone Characteristics and Functions. State of Consciousness. Physiology of Motivation and Emotions. Research Methods in Bio Psychology.

Unit IV: Cognitive Psychology (20Questions)

Cognitive Psychology - Nature, History, Cognitive Neuro Science and Applications – Perception - Definition, Nature & Theories. Attention – Processing Capacity in Selective Attention, Models of Selective attention. Pattern Recognition and Consciousness. Memory Structure and Processes – Types and Process of Memory, Theories of neurocognition. Mental Representation – Models, Mental Imagery - and Cognitive Psychology, Cognitive maps, Storing and Retrieval, Theories of retrieval, Forgetting, Cognitive Development - Life Span Development and Theories.

Unit V: Advanced Social Psychology (20Questions)

Social Psychology – Definition, Perspectives, Social Perception, Social Cognition, Attitudes, Social Identity, Prejudice - Causes and Effects. Interpersonal Attraction - Close relationships, Social Influence, Pro Social Behaviour, Aggression – Nature, cause and control, Groups and Individual behaviour. Social Psychology in Action.

Unit VI: Health Psychology (20Questions)

Health Psychology – Definition & Scope. Historical Perspective on health & healing. Factors influencing Health. General approaches to health – Models and theories of health, Psychological approaches to health. Health enhancing behaviour – Eating behaviour & health, Maintaining healthy weight, Healthy relationships – Sexuality, Intimacy, Communication, Anger.

Health compromising behaviour- Smoking – Tobacco and its biological & psychological effects, Tobacco related damage to health, quitting smoking and related therapies.

Alcohol – biological and social effect, Use and abuse, Interventions for alcoholism. Stress and Coping – Types of stressors, Theories of stress, types of coping, stress management techniques. Cardiovascular Disease , Psychoneuroimmunology.

Unit VII: Psychopathology (30Questions)

Mental disorders – Models, Diagnostic classification system. Theoretical approaches of Psychopathology. Assessment – Clinical interviews, MSE, MMSE, Case history, Clinical observations. Tests- Intelligence, Neuropsychological testing, Developmental and Educational testing – Organic disorders – Disorders of childhood and adolescence, Anxiety, Trauma, Stress related and Somatoform disorders, Disorders of adult personality, gender and behaviour - Impulse control disorder, Substance use and addictive disorder, Sexual dysfunctions, Mood- Disorder, Schizophrenia and other psychotic disorder. Ethics in clinical practice.

Unit VIII: Organizational Behaviour and Human Resource Management (10Questions)

Organizational Behaviour- Definition, Nature & scope, Approaches. Perception, Attitude, Learning, Attribution, Motivation – Definition, theories and applications in organizations. Communication, Leadership and theories, Change process. Group and Teams, Conflict process, Power and politics.

Human Resource Management – Definition, Nature and Scope, Human Resource Planning, Job

Analysis, Recruitment, Selection and Placement Compensation, Performance and Management, Training and Development, Grievance, Discipline and Risk Management, Recent Trends in Human Resource Practices.

Unit IX: Counselling and Therapy (30Questions)

Counselling – Origin, Scope and Structure – Steps in Counselling - Factors affecting counselling process, Skills for an effective counsellor –Factors of Counsellee – Early Theories of Counselling - Contemporary Theories of Counselling, Individual Counselling - Nature, Process and Benefits, Group Counselling – Nature, Scope and Limitations – School Counselling - Nature Role of Teacher, School Counsellor, Counselling and School Curriculum, Vocational Counselling - Theories, Process, Counselling in Specific areas – Family, Marriage, Women, Weaker Section, drug addicts, Delinquents – Review of Counselling - Counselling Evaluation, Monitoring, Evaluation - Approaches, Types, Techniques.

Unit X: Research Methodology (20Questions)

Research-Objectives, Types, Significance, Steps in research process, Ethics in Research. Research problem – Review of literature, Measurement, Variables and Hypothesis ,Sampling techniques – Non experimental Method – Observational Research, Interviewing, Focus groups, Survey, Case study. Experimental Method – Single factor design, Factorial Design, Standardization of psychological test. Parametric and Non-Parametric statistics. Qualitative Research Methods and analysis. Reporting research in Psychology.

16. Public Administration and Business Administration (PG Degree Standard)

Code:524

Unit I: Introduction to Administration and Management (25 Questions)

Meaning, nature, scope and importance of Administration and Management – Evolution of Public Administration and Management – its Present Status – New Public Administration - Public Management – Good Governance – Public, Private Partnership - Control over Public Administration (Legislative, Executive, Judicial, Public and Media).

Organization and Management: Principles of Organisation - Hierarchy, Span of Control, Unity of Command, Centralization Vs. Decentralization, Delegation - Functions of Administration and Management - Organizational Change and Development - Organizational Control – Principles of Management – Management by Objectives – Management by Exception - Participative Management - Organizational Behaviour - Management of Conflict – Organisational Citizenship Behaviour.

Unit II: Human Resource Management – Personnel Administration (20 Questions)

Meaning, nature, scope and importance of Personnel Administration - Types of personnel – Functions of Human Resource Management – Organisation of the Department – e HRM – Human Resource Policies - Manpower Planning – Recruitment - Performance Appraisal – Training and Development – Promotion – Pay Commission – Skill Development – Bureaucracy and Civil Services – Civil Service Associations – Retirement – Administrative Ethics and Code of Conduct - Employees Counselling – Public Grievances – Grievances Redressal Mechanism – Centralised Public Grievance Redressal Monitoring System (CPGRAMS) – Department of Administrative Reforms and Public Grievance (DARPG).

Unit III: Comparative Public Administration and Development Administration (20 Questions)

Meaning, nature, scope and importance of Comparative public Administration - Approaches to the study of comparative public administration – Ecological and systems approaches – Prismatic Society - Industria Agraria model - Comparative Administrative Systems: UK – USA - France and Switzerland – Sustainable Development and Goals - Sustainable Governance - Planning Commission - Five Year Plans in India - National Institution for Transforming India (NITI) Aayog – Corporate Social Responsibility - Development Indicators.

Unit IV: Indian Administration (25 Questions)

Evolution of Indian Administration: (Ancient, Medieval and Modern Pre and Post - Independence) – Constitutional Frame work of Indian Administration (Preamble, Fundamental Rights, Directive Principles

of State Policy, Fundamental Duties and Parliamentary Democracy Union Government: President - Vice-President - Prime Minister and Council of Ministers – Parliament – Central Secretariat – Cabinet Secretariat – Union - State Relations (Legislative, Administrative, Financial and Judicial) State Government: Governor - Chief Minister and State Council of Ministers - State Legislature - State Secretariat - District Administration-Administration of Law and Order Local Government and Administration: Evolution of Local Government in India - 73rd and 74th Constitutional Amendment Acts – Types of Local Governments (Rural and Urban) - Tamil Nadu Panchayat Act 1994 – Panchayat Extension to Schedule Areas (PESA) Act of 1996 - Judiciary: Supreme Court - High Courts and Subordinate Courts – Judicial Activism - Public Services: All India Services - UPSC - Central Services - State Services in India - State Public Service Commissions.

Unit V: Financial Administration and Management (20 Questions)

Meaning, nature, scope and significance of Financial Administration and Management – Budget - Types of Budget – Planning, Programming Budgeting System (PPBS), Zero Based Budgeting (ZBB) and Performance – Budgetary process – Preparation – enactment and execution - Ministry of Finance - Finance Commission - Resource mobilization – The Management of Working Capital – Cash Management Strategies – Risk Management – Return on Investment - Tax Administration in India - Public Debt Management - Control over Public Expenditure (Parliamentary, Executive and Audit) - Accounting and Auditing Comptroller and Auditor General of India (CAG) – Local finances - Types of errors - Rectification of errors – Bank reconciliation statement – Trading - Profit & Loss Account - Balance sheet – Accounting for non-trading Institutions - Income & Expenditure Account - Receipts and Payment Accounts - Electronic Auditing.

Unit VI: Management Information System & E-commerce (20 Questions)

Data, Information, Intelligence, Information Technology, Information System, Functional Information Systems, Decision Support System (DSS), Employee Information System (EIS), Key Management System (KMS), Geographic Information System (GIS), International Information System - Data Base Management System - Role of information management in Enterprise Resource Planning (ERP), e-governance, Data Mining, Business Intelligence, Pervasive Computing, Cloud computing. Electronic Commerce: Technical Components of E-Commerce Functions of E-Commerce - Advantages and disadvantages of E-Commerce - Electronic Commerce and Electronic Business - Electronic Commerce Technology - Building the E-Business application - Avoiding legal issues - Web strategy: Attracting and retaining visitors - Search Engines and Portals - Cyber service - Online Banking.

Unit VII: Social Welfare Administration (15 Questions)

Concept of Social Welfare - Social Justice and Social Change - Institutional arrangement for Social Welfare & Social Justice Administration – Non Government Organizations (NGOs), Civil Societies and Voluntary Agencies - Social Welfare Policies, Programmes and Institutional Framework for the Protection and Welfare of SCs / STs / BCs / Women / Children, Aged, Differently - abled and Minorities Commissions – Women, SC/ST, Minority - Social Welfare Schemes in India and Tamil Nadu.

Unit VIII: Research Methodology (15 Questions)

Research – Meaning – Types – Nature and scope of research – Types of Research - Research process – Hypothesis – Formulation of Hypothesis – Types of Hypothesis - Research designs - Experimental Research. Methods of data collection - Sampling – Measure of Central Tendency - Measure of Dispersion – Correlations – Regression - Multivariate Analysis - Research Report.

Unit IX: Public Policy and Administrative Law (20 Questions)

Meaning, nature and importance of public policy - Theories and models of public policy making: Harold Lasswell - Charles Lindblom - Y.Dror – Policy Making Process: Formulation – implementation – Evaluation – Policy making Institutions: Legislature – Executive – Judiciary - Higher Educational Institutions and Non Government Organizations (NGOs) Role of media, Civil society and pressure groups in policy making.

Administrative Law: Meaning, nature and scope of Administrative Law – Rule of Law - Administrative Law and Constitutional Law - Delegated Legislation – Judicial Remedies and Judicial Review – Administrative Tribunals – Public Interest Litigation - National Green Tribunal - Ombudsman (Lokpal, Lokayuktas) - Consumer Forum.

Unit X: Issues in Public Administration and Management (20 Questions)

Political and Permanent Executive – Generalists VS Specialists – Integrity in Public Administration - People's participation in administration – Administrative Reforms in India: First Administrative Reforms Commission – Second Administrative Reforms Commission – Right to Information Act – Central Information Commission and State Information Commission
- Citizen Charter - Human Rights – National Human Rights Commission – State Human Rights Commission - Disaster Management - Nature and Types of Disaster - Institutional Arrangements for Disaster Management.

17. Statistics and Economics (PG Degree Standard)

Code: 564

Unit I: Probability, Random Variables and Distribution Theory (25 Questions)

Introductory concepts of Probability, Definition, Axioms, Basic Theorems and Baye's Theorem. Random Variables – Mathematical Expectation and Conditional Expectation. Chebechev's inequality – Convergence in Probability – Weak and Strong laws of large numbers – CLT (Lindberg-Levy and Lyapunov's). Marginal and Conditional distributions, MGF, PGF and CGF. Univariate Distributions: Negative Binomial, Hyper geometric, Geometric, Cauchy, Beta, Gamma, Weibull, Log-Normal. t, F and Chi-square distributions. Bivariate Binomial, Bivariate Poisson, Multinomial, Bivariate Normal distributions.

Unit II: Estimation Theory, Testing of Hypothesis and Non-Parametric Tests (20 Questions)

Properties of Estimators, Cramer – Rao inequality, Rao-Blackwell, Lehman-Scheffe and Factorization theorems and applications. Methods of Estimation – MLE, Moments and Least squares. Confidence intervals for mean and variance in large and small samples.

Elements of Testing of Hypothesis – Definitions, Types of errors – Critical region, size and level of a test – Power function. Most powerful test, NP Lemma, UMP and Unbiased tests. MLR property and simple applications.

Non-Parametric Tests: Run, median, Sign, Mann-Whitney, Wilcoxon, K-S (one and two samples) and Kruskal-wallis tests

Unit III: Sampling Theory, Design of Experiments and Index numbers and Time series (25 Questions)

Sampling Designs: SRSWR, SRSWOR, Stratified, Systematic, Cluster and Multistage sampling methods – Estimation procedures and properties of estimators. Ratio and Regression estimators (under SRSWOR and Stratified], CSO and NSO.

Linear models - Fixed, Random and Mixed effect models. Construction and analysis of 2^n and 3^n Factorial experiments including partial and complete confounding. Incomplete block designs – BIBD, PBIBD. Split plot design and Youden square design.

Index Numbers: Introduction – Construction of simple and weighted index numbers, Tests of Ideal index number, Cost of living and Whole Sale Price Index numbers.

Time series: Introduction, Models and their components. Determination of trend by the method of moving averages and fitting of linear, quadratic and exponential curves. Determination of Seasonal indices by Ratio-to- Trend and Ratio to moving averages. Estimation of variance for random components by Autoregressive (AR) and Moving Averages (MA) and ARIMA models.

Unit IV: Correlation, Regression and Machines Learning Techniques using Python (15 Questions)

Correlation Analysis – Simple, Partial and Multiple correlations. Regression Analysis – Simple and Multiple Linear regression models, description, estimation and Testing of hypothesis of regression coefficients. Model Adequacy measures – Multicollinearity Analysis and selection of variables by step-wise method.

Generalized linear models – Introduction, Components of GLM, Logistic regression – Fitting and interpretation.

Introduction to Python – Character set, Data types, Operators expressions, Control and Loop statements, Arrays, Lists, Dictionaries. Libraries - numpy, scipy, matplotlib and Pandas. Machine Learning Techniques - Supervised learning – Classification using KNN, and Regression (Linear and Logistic) techniques. Unsupervised learning - Linkage methods, k-means and k-Medoids methods.

Unit V: Multivariate Statistical Analysis (15 Questions)

Normal distribution, Inference concerning single mean vector and two mean vectors using Hotelling's T² Statistic – Mahalanobis D² statistic and its distribution - Relation between T² and D² statistic. Principal Component Analysis and its uses - Factor Analysis and its applications – Classification problems – Fisher method for two populations, linear discriminant function and its applications

Unit VI: Micro Economics (20 Questions)

Theory of Consumer Behaviour – Indifference curve analysis – Revealed Preference theory – Choices under uncertainty – Neumann – Morgenstern hypothesis – utility functions under uncertainty Asymmetric information – Adverse selection and moral hazards – Asymmetric information in the Labour market – Market structure – oligopoly Market – cartel and Price leadership – Theory of distribution in imperfect product and factor market.

Unit VII: Macro Economics (20 Questions)

General equilibrium – IS-LM –BP model for an open economy – Welfare criteria – Arrow's impossibility theorem – Second Best solution – Calculation of National income, GNP, GNP Green GDP, Mundell – Fleming model – Effect of monetary and Fiscal Policies – Business cycle- Real Business cycle theory and New Keynesian approach

Unit VIII: Growth and Development (15 Questions)

Steady state growth – Harrod – Domar model, Balanced and unbalanced growth theories – Rostow's growth model – New Growth theory – Theories of dualism – Regional, national and international dualism models – Composition and Direction of foreign trade – BOP disequilibrium – Methods to correct disequilibrium – New International Economic order – Functions of IMF, IBRD and ADB.

Unit IX: Stabilisation Policies (15 Questions)

Monetary Policy instruments – Creation of Money and Creation of credit – Role of Banks and NBFIs – Money multiplier – Fiscal Policy instruments – Taxes – Government expenditure – Government debts – Deficits – Budget – FRBM – Fiscal federalism – Fiscal multiplier

Unit X: Indian Economy (30 questions)

Leading issues in India and in Tamil Nadu – Human Development Index – Program in Human Development in India – Multi Dimensional Poverty – Poverty and Growth – Reforms on Poverty – India's demographic transition – Population policy in India – Unemployment and employment perspective Characteristics of Indian Labour Market – Employment policy in India – Migrant labourers – Agriculture prospects and problems – Trends in Agricultural productivity – Land reforms and effects – Second Green Revolution – Industrialisation in India – Performance of MSMEs – Large Scale industries in India – New Industrial Policy of 1991 – New Direction of policy on Public Sector- Planning Objectives and achievements at national and State level – Development strategy in India – Failures of Five Year Plans in India – NITI AAYOG – Liberalisation and Privatisation – Globalisation in India – MNC's – Global Financial Crisis and its impact on Indian Economy – Environmental degradation and sustainable development – Issues and Challenges.

18. Statistics, Mathematics and Economics (Degree Standard)

Code: 504

Unit I: Algebra and Differential Calculus (20 Questions)

Theory of Equations: Relations between roots and Coefficients – Complex roots – Irrational roots – Related roots – Transformations of equations – Reciprocal equations.

Matrix Theory: Symmetric – Skew Symmetric – Hermitian – Skew Hermitian – Orthogonal and Unitary Matrices – Rank of a matrix – Consistency and solutions of Linear Equations – Cayley Hamilton Theorem

– Eigen values and Eigen Vectors.

Differential Calculus: nth derivative – Leibnitz's theorem and its applications – Partial differentiation – Maxima and Minima of functions of two independent variables.

Unit II: Integral Calculus and Differential Equations (20 Questions)

Integral Calculus: Methods of integration – Properties of definite integrals – Reduction formulae – Double Integrals – triple integrals – Applications to area, surface and volume – simple problems.

First order but of higher degree equations – solvable for p, solvable for x, solvable for y – simple problems.

Second order differential equations with constant coefficients with particular integrals for e^{ax} , x^m , $\cos mx$, $\sin mx$, $e^{ax} \cos mx$, $e^{ax} \sin mx$ – simple problems.

Partial Differential equations: Formation of partial differential equations by eliminating arbitrary constants and arbitrary functions – First order P.D.E. – complete integral – Singular integral – general integral – standard types $f(p,q) = 0$, $f(z,p,q) = 0$, $f(x,y,p,q)=0$, Clairaut's form and Lagrange's equations – simple problems.

Unit III: Vector Calculus and Operations Research (25 Questions)

Vector Differentiation: Gradient, divergence, curl, directional derivative, unit normal to a surface.

Vector Integration: line, surface and volume integrals – Applications of Gauss, Stokes and Green's Theorems – simple problems.

Linear programming: Formulation – graphical solution – simplex method – Big-M method – Transportation problem – Assignment problem.

PERT and CPM: project network diagram – Critical path – PERT computations.

Inventory models: Basic concepts – EOQ models (i) Uniform demand rate infinite production rate with no shortages models (ii) Uniform demand rate with finite production rate with no shortages models.

Unit IV: Descriptive Statistics and Fitting of Simple equations (20 questions)

Introduction to Statistics, Uses, scope and limitations - Collection, Classification and Tabulation of data - Diagrammatic and Graphical representations of Data – Measures of location, dispersion, skewness and kurtosis – Bivariate data- Scatter diagram – Correlation, Partial correlation and regression – Fitting of Linear and quadratic equations by the method of least squares.

Unit V: Probability and Statistical Inference (25 questions)

Introduction to Probability - Addition, Multiplication and Baye's Theorems and simple applications. Random variables and Expectation– Univariate Probability distributions – Binomial, Poisson, Geometric, exponential and normal distributions (Mean & Variance). Sampling Techniques – Simple Random Sampling – Stratified and Cluster (Single Stage) - Estimation – Properties, Point Estimation by the method MLE. Tests of Hypothesis – Important terminology – Test procedures for large and small samples (z, t, Chi-square, F).

Unit VI: Time Series, Index Numbers and Statistical computing using MS-Excel (20 Questions)

Time series – Components – Determination of Trend (Moving Average, Linear Trend by LSE) - Index Numbers – Construction of Simple, weighted Cost of living index numbers.

Statistical Computing using MS-Excel: Introduction to MS-Excel – MS-Excel Options using Excel Shortcuts – Link the Data in Rows, Columns and Sheet - Functions: Logical Functions -Math and Statistical Functions – Regular Charts-Plotting Density Function and Distribution Function.

Unit VII: Micro Economics (15 Questions)

(a) Definition, Scope and Importance of Micro Economics – Law of Demand – Elasticity of Demand – Utility Analysis – Consumer Surplus.

(b) Production Function – Factors of Production – Producer's Surplus – Economies of scale – Cost and Revenue curves in the Short-run and Long-run – Welfare Criteria – Adam Smith, Bentham, Marshall, Pigou and Kaldor.

Unit VIII: Macro Economics (15 Questions)

Definition, Nature and Scope of Macro Economics – Circular flow of Income in an Open Economy – National Income Accounting – Definition – Concepts: GNP, NNP, GDP, NDP, Personal Income, Per Disposable Income & Personal Savings, Per Capita Income – Keynesian Psychological Law of

Consumption – Investment function – Marginal Efficiency of Capital – Multiplier – Accelerator.
Inflation – Deflation – CPI – WPI – Phases of Trade cycle.

Unit IX: Stabilisation Policies (20 Questions)

(a) Monetary Policy: Barter System – Demand for and supply of money – Functions of money, Functions of Central and Commercial Banks – Money Multiplier – Monetary Policy Instruments – SLR, CRR, OMO & LAF – Functions of Money Market – Capital Market.

(b) Fiscal Policy: Taxation – Types of Taxes – Canons of Taxation – Public Expenditure – Causes and Growth – Types of Public Expenditure – Public Debt – Internal and External Public Debt - Budget – Deficit and deficit financing – FRBM (Fiscal Regulation and Budgetary Management) – Fiscal Federalism.

Unit X: Indian Economy: (20 Questions)

(a) Agriculture: Contribution of the Agriculture sector to National Income and Employment – Agriculture Price Policies – Agriculture Statistics – Modern Technology in Agriculture Statistics – Agriculture Finance and Marketing.

(b) Industry: Contribution of the Industrial Sector to National Income and Employment – MSME and Large Scale Industries – Industrial Policy Resolutions – Industrial finance.

(c) Service Sector: Contribution of the Services Sector to National Income and Employment –Transport, Communication and IT Sectors.

(d) Economics of Planning: Five Year Plans – Planning Commission – Finance Commission – NITI Aayog – Government Welfare and Employment Generation Programmes.

(e) Population: Demographic transition and Demographic Statistics – Poverty Alleviation Programmes.

19. Stenography in English (Diploma Standard)

Code:378

Unit I:(30 Questions)

1. Importance of Stenography
2. Consonants
3. Grammalogues
4. Phraseography
5. Circles and Loops
6. Initial and Final Hooks

Unit II: (20 Questions)

1. Compound Consonants
2. The Halving Principle
3. The Doubling Principle
4. Medial Semicircle

Unit III:(20 Questions)

1. Prefixes and Negative words
2. Suffixes and Terminations
3. Contractions
4. Special Contractions

Unit IV:(20Questions)

1. Advanced Phraseography
2. Intersections
3. Usage of Political Phrases
4. Usage of Legal Phrases

Unit V:(10Questions)

1. Note-taking and Transcription
2. Legislature Reporting
3. Techniques for improving Speed

20. சுருக்கெழுத்து - தமிழ்
(பட்டயப்படிப்புத் தரம்)

குறியீடு: 383

அலகு I: (30 வினாக்கள்)

1. சுருக்கெழுத்தின் முக்கியத்துவம்
2. மெய்யெழுத்துக்கள்
3. தனிகுறிச் சொற்கள்
4. சொற்றொடரியல்
5. வட்டங்கள் மற்றும் சுழிகள்
6. ஆரம்ப மற்றும் இறுதி கொக்கிகள்

அலகு II: (20 வினாக்கள்)

1. கூட்டு மெய்கள்
2. பாதியாக்கும் முறை
3. இரட்டிப்பு முறை
4. நடு அரைவட்டம்

அலகு III: (20 வினாக்கள்)

1. முன்னொட்டுகள் மற்றும் எதிர்மறை சொற்கள்
2. பின்னொட்டுகள் மற்றும் இறுதி வார்த்தைகள்
3. சுருக்கங்கள்
4. சிறப்புச் சுருக்கங்கள்

அலகு IV: (20 வினாக்கள்)

1. மேம்பட்ட சொற்றொடரியல்
2. வெட்டும் முறை
3. அரசியல் சொற்றொடர்களின் பயன்பாடு
4. சட்ட சொற்றொடர்களின் பயன்பாடு

அலகு V: (10 வினாக்கள்)

1. குறிப்பெடுத்தல் மற்றும் விரிவாக்கம் செய்தல்
2. சட்டமன்றம் குறிப்பெடுத்தல்
3. வேகத்தை மேம்படுத்துவதற்கான நுட்பங்கள்

21. Town Planning, Civil Engineering and Architecture
(Degree Standard)

Code: 560

Unit I: Introduction to Planning - Theory and Techniques (20 Questions)

Planning System in India, Regional Plan, Master Plan, Structure Plan, Detailed Development Plans, City Corporate Plan and Smart City Plan - Concept of Region, Types of Region, Techniques of Regional Analysis. Multi-level Planning - Process of evolution of human settlement planning - Simulation models, Gravity analysis, Lowry model, Threshold analysis, Multivariate analysis – Optimization and economic analysis methods in project formulation and implementation.

Unit II: Urban Sociology, Economics, Geography and Environment - Theories and Applications (20 Questions)

Ecological processes and structures in Indian Cities - Social Change & Economic Development - Agglomeration economics - Economics of scale, Multiplier effect concept, scope, limitation - Basic and non-basic activities of economics base, methods of base identification - Land-use determinants, Locational Dynamics of urban Land-use - Spatial organization of Urban settlements - City-region, Urban Sprawl and Fringe - Urbanization in India and Tamil Nadu with reference to settlements and population distribution. Environmental Impact Assessment Practice in India - Types, Conceptual Approach and Phases of EIA – Environmental Concepts – Sustainable Planning – Eco Cities, Compact Cities, Smart growth, Sponge city.

Unit III: Remote Sensing, G.I.S. and Current Trends in Planning (20 Questions)

Basics of Remote Sensing and GIS. - Classification of spatial and non - spatial data application in planning - spatial data layers - Coding schemes – Digitization of spatial data – Editing spatial data usable for the given planning problem – Land use Suitability Analysis, Land use Modeling, Existing Land use Preparation using Mobiles, Satellite Imageries, Aerial Photographs, Drones in Physical Planning. Emerging Concepts of sustainable urban development, E – Governance, HRIDAY, Rurban Mission, AMRUT, Public private partnership, Local bodies and urban finance. Land Pooling concept, Transfer of Development Right, Accommodation Reservation, Formulation of Re-development and Urban Expansion Plans - Local Area Plans, Town Planning Schemes - Special Economic Zone, Value Capture Finance Policy Framework – Swiss Challenge Model, Industrial Corridor, Coastal Zone Management Plan, Planned Unit Development.

Unit IV: Physical Infrastructure and Legislation (20 Questions)

Implication of Urban Form and Size on Services Highway classification - Traffic and Transportation Survey - Para Transit modes – Private transport – Urban Transportation Planning Process – Trip Generation – Trip Distribution – Modal Split – Trip Assignment, Congestion pricing, Non Motorized Transport, Transit Oriented Development, Bus Rapid Transit System, Unified Transport Authority. Tamil Nadu Urban Local Bodies Act, 1996 and Tamil Nadu Urban Local Bodies Rules, 2023. 73rd and 74th Constitutional Amendment Act (CAA) and their implications on planning and development. Town and Country Planning Act of Tamil Nadu 1971, Tamil Nadu Combined Development and Building Rules 2019, Urban and Regional Development Plans Formulation and Implementation (URDPFI) and Rural Area Development Plans Formulation and Implementation (RADPFI).

Unit V: Design of Reinforced Concrete, Pre stressed Concrete And Steel Structures (20 Questions)

Design of concrete members - limit state and working stress design concepts - design of slabs - one way, two way and flat slabs - Design of singly and doubly reinforced sections and flanged sections - design of columns and footings – pre- stressing - systems and methods- post tensioning slabs - Design of pre-stressed members for flexure.

Design of tension and compression members - Design of bolted and welded connections design of members of truss - designs of columns and bases - design of beams, plate girders and gantry girder - design of liquid storage structures –elevated and underground- design of retaining wall.

Unit VI: Environmental Engineering and Pollution Control (20 Questions)

Sources of water - Water Demand -- Characteristics and analysis of water – hydraulics for conveyance and transmission - water borne diseases – Functional design of water treatment plant – desalination plant- water distribution system – pipe network analysis- characteristics and composition of sewage - Planning and design of sewerage system - sewer appurtenances - Pumping of sewage - sewage treatment and disposal - Design of storm water drain- plumbing system in high rise building - industrial waste treatment - solid waste management – Air and Noise pollution control – E-Waste management.

Unit VII: Urban and Transportation Engineering (20 Questions)

Urbanization trend and impact - Slum clearance and slum improvement programmes - Different modes of transport and their characteristics. Geometric design of highways. – Pavement materials and testing – alternate pavement materials- modified binders - Design and Construction of bituminous and concrete roads – pavement distress and evaluation - Maintenance of roads – Railways - Components of permanent way - Signalling, Interlocking and train control - drainage in roads and railways. Airport planning - Components of Airport - Site selection – Runways – Planning of terminal buildings Harbours & Ports - Layout of a harbour - Docks - Breakwaters.

Unit VIII: Introduction to Architecture (20 Questions)

Definition of Architecture - Integration of aesthetics and function. Elements of Architecture – Form, Space, light, colour, etc. Principles of Architecture – Proportion, Scale, balance, rhythm, symmetry, hierarchy, pattern and axis. Understanding of organization of form and space, volumetric study, architectural characteristics & style of buildings with examples. Understanding user circulation and spatial requirement for all types of buildings. Universal design principles and Barrier free environment. Functional aspects of architecture – site, structure, skin, circulation etc. Principles of composition and relationship between

human activities and anthropometrics. Modern Architecture - various philosophies, works of postmodern architects. Architecture of India under Colonial rule. Post-independence architecture in India - works of Indian Architects. Contemporary World Architecture & recent trends. Building Rules and Regulations, National Building Code.

Unit IX: Site Planning, Climatic Design and Energy Efficient Architecture (20 Questions)

Site Planning – Introduction to basic terminologies, Methods of surveying, Instruments & Application, Levelling, Site Drawings, Importance of Site Analysis – On-site & off-site factors, Study of micro climate, Site Diagramming, Site Context, Site planning & Site layout principles. Organization of spaces – circulation, built form and open spaces, site planning and micro climate, site planning for neighborhood parks, children's play area and campus development – Landscaping of Functional areas – Urban open spaces and principle of urban landscape – Street landscaping, landscape design for waterfront areas and functional areas in urban centers – green roofs and walls. Climate & Human comfort, Visual and Acoustical comfort in built environment. Solar Control, Heat flow through materials & building envelope design, Air movement patterns through natural & built forms, Design strategies for different climate types. Energy Efficiency – Importance & Significance, Passive Heating & Cooling techniques, case studies, day Lighting & Natural ventilation, Use of Renewable energy systems – Current & future trends. National and state level government organizations -initiatives, schemes and projects. Relevant National and state level legislations and guidelines.

Unit X: Human Settlements Planning and Urban Studies (20 Questions)

Origin of Human settlements In India & the rest of the world – River valley civilizations (Indus Valley, Mesopotamia, Egyptian & Chinese) – Traditional planning principles in India – approaches & concepts – Classical & Medieval planning in Europe and India - Evolution of modern planning theory, concepts and works of town planners; Contemporary Urban planning – Issues and Trends. Urban Design – need, aspects, scope & components of urban space – Indian Urbanism - Theorising & Reading urban space – Imageability & townscape elements, social aspects of urban space, gender & class. Urban Public spaces – Universal design, pedestrian friendly environment, streetscapes. Conservation in India – Understanding the need & purpose, definition, Adaptive re-use, International agencies & their role – Policies & legislations, case studies – Conservation practice and Planning.

22. மரபு கட்டிடக்கலை மரபு சிற்பக்கலை (Traditional Architecture and Traditional Sculpture) (பட்டப்படிப்புத் தரம்)

குறியீடு: 511

அலகு I: கோயில் கட்டிடக்கலை மற்றும் சிற்பக்கலை இலக்கணம்: (30 வினாக்கள்)

ஆயாதி - பதவின்யாசம் - மண்பரிசோதனை - அஸ்திவாரம் - அளவைகள் - சாந்தார - நிரந்தார விமானங்கள் - சாந்திகம் முதலான விமான உயர்நிர்ணயம், பிரகாரலட்சணம், பரிவாரலட்சணம், மண்டபலட்சணம், கோபுரலட்சணம் - மரபுசார்ந்த கட்டிடக்கலை நூல்கள் - சாதி சந்த விகல்ப ஆலயங்கள் - உபபீடம், அதிட்டானம், பாதம், பிரஸ்தரம், கண்டம், சிகரம், ஸ்தூபி கும்பலதா, விருத்தஸ்புடிதம், கோஷ்டபஞ்சரம் - தோரணம் - கருவறை - அர்தமண்டபம் - முகமண்டபம் - சுற்றுபிராகாரமண்டபம் - வாகனமண்டபம் - துவஜஸ்தம்பம் - பலிபீடம் - தேர் - குளம், விமானம் மற்றும் கோபுரங்களின் உயரநிர்ணய அளவீடுகள் (1 முதல் 13 தளங்கள் வரை) சிற்பத்துறை அளவைகள் - படிமவகைகள் - அறுவகைமானங்கள் - தாளமானங்கள் - தெய்வத்திருமேனி உயரநிர்ணயம் - பங்க இலக்கணம் - ஆடை ஆபரணங்கள் - தலைக்கோலங்கள் - கைமுத்திரைகள் - ஆசனங்கள் - ஆயுதங்கள் மற்றும் லிங்கத்திருமேனிகள், 32 கணபதிகள் - 16 சுப்ரமணியர்கள் - 16 சிவமூர்த்தங்கள் - சப்தமாதர்கள் சக்தித்திருமேனிகள் - சப்ததாண்டவம் - 63 நாயன்மார்கள் - அஷ்டதிக்பாலகர்கள் தச அவதாரப் படிமங்கள் விஷ்ணுவின் நின்ற, அமர்ந்த மற்றும் கிடந்த திருக்கோலங்கள் - யோகம், போகம், வீரம் ஆபிசாரிக வகைகள் - 12 ஆழ்வார்கள் - கருட மற்றும் ஆஞ்சநேயர் இலட்சணம். உலோகப் படிமங்களின் முக்கியத்துவம் - உற்சவப்பேரம் பலிபேரம், ஸ்நபனபேரம், கௌதுகபேரம் - செப்புத்திருமேனிகளின் அளவு முறைகள் - கருக்கட்டுதல் - உலோககலவை முறைகள் - வார்ப்பு செய்தல் - உலோகப் படிமங்களை பாதுகாத்தல் மற்றும் பராமரித்தல்.

அலகு II: கட்டுமான பொறியியல் (20 வினாக்கள்)

கட்டுமானப் பொருட்களின் தரம் மற்றும் உறுதித்தன்மை (Strength of Materials), கட்டமைப்பின் இயக்கவியல் (Mechanics of Structure), அழுக்கம் மற்றும் இழுவிசை (Simple stress and strain),

பொருண்மைத் தன்மைகளின் பொறியியல் தோற்றம் (geometrical properties of section), உத்திரங்கள் மற்றும் வளைவுகள் (Beams and bending), தூண்கள் மற்றும் கமாண்கள் (columns all Struts Arches) - கட்டுமான வரைவு மற்றும் வரைபடம் (Structural Design Drawing), கட்டுமான பொறியியல் (Structural Engineering), இருபுற சுவர் மேல்வருகின்ற வலுவூக்கிய சிமெண்ட்கற்காரை உத்திரம் (Simply supported reinforced beam), ஒருவழிபலகை (one way slab), Shear and bend, இருவழி வலுவூக்கிய சிமெண்ட்கற்காரை உத்திரம் (Doubly Reinforced Beam), இருவழிபலகை (Two way slabs), டி-வடிவ உத்திரம் (T beam), தூண்கீழ் அடுக்கு (Column footing), கட்டமைப்புகளின் கோட்பாடு (Theory of structures), மேன்மைப்படுத்தப்பட்ட சிமெண்ட்கற்காரை (Advanced RCC), ஒருங்கிணைந்த இணைப்பு மற்றும் நேரடியான அழுக்குவிசை (Combined Bonding and Direct Stress), முன் அழுத்தப்பட்ட சிமெண்ட்கற்காரை (Prestressed concrete) மறுவடிவமைக்கப்பட்ட கம்பிகள் (Deformed bars), அளக்கையியல் (Quantity survey), மதிப்பீடு மற்றும் விலைவிவரம் (Estimate and costing).

அலகு III: இந்திய சமயங்கள் மற்றும் தத்துவம் (10 வினாக்கள்)

இந்திய சமயங்களின் தோற்றம், வளர்ச்சி மற்றும் கொள்கைகள் - சைவம், வைணவம், சாக்தம், காணாபத்தியம், கௌமாரம், செளரம், ஜைனம் மற்றும் பௌத்தம் - சமயக் கொள்கைகள் - கிராமதேவதைகள். இந்தியத்தத்துவம் - வேதம் - சமயக் கொள்கை, சடங்குகள் மற்றும் தத்துவ விளக்கம் - உபநிடதங்களின் மையக்கருத்து, பிரம்மம், ஆத்மா மற்றும் பிரபஞ்சவிளக்கம் - கடவுள்கொள்கை - நியாய, வைசேசிக பிரமாணங்கள், சாங்கிய, யோகம், பிரகிருதி - புருஷன் - பிரபஞ்சத்தின் தோற்றக்கொள்கை - வேதாந்தம் - அத்வைதம், துவைதம், விசிஷ்டாத்வைதம் - சைவசித்தாந்த கொள்கை விளக்கம்.

அலகு IV : இந்திய கோயில் கட்டடக்கலை மற்றும் சிற்பக்கலை வரலாறு (15 வினாக்கள்)

பண்டையகால சிற்பங்கள் மற்றும் கட்டடங்களின் தோற்றம் - சிந்து சமவெளி நாகரிக கட்டுமானங்கள் மற்றும் சிற்பங்கள் - முத்திரைகள் - சித்திர எழுத்துக்கள் - வேதகால கட்டடக்கலை - மௌரியகால பௌத்த கட்டடக்கலை மற்றும் சிற்பக்கலை - சுங்க, சாதவாகனர்கால கலைகள் - குப்தர்கால கட்டுமானக் கோயில்கள் மற்றும் சிற்பங்கள் - சாளுக்கியர்கால குடைவரைக்கோயில் மற்றும் கட்டுமானக்கோயில்கள் - இராஷ்டிரசூடகால கோயில் மற்றும் சிற்பங்கள் - கலிங்க கட்டடக்கலை மற்றும் சிற்பக்கலையின் தனித்துவம் - ஒய்சாளர் வரலாறும், அவர்களது கலை பங்களிப்பும்.

அலகு V: தமிழக கோயில் கட்டடக்கலை மற்றும் சிற்பக்கலை வரலாறு (20 வினாக்கள்)

சங்ககால கட்டடக்கலை, பல்லவர்காலம், முற்காலபாண்டியர், சோழர் - விஜயநகரர் - நாயக்கர், 19ம் நூற்றாண்டு கோயில்கள் சங்ககால கட்டடக்கலை - (சாளுவாண்குப்பம்) - பல்லவர்கால குடைவரைகள் - ஒற்றைகல்தளிகள், கட்டுமானகோயில்கள், முற்கால பாண்டியர்களின் குடைவரைகள், வெட்டுத்தளி கட்டுத்தளிகள் - முத்தரையர், வேளிர், பழுவேட்டரையர் முற்காலசோழர் - சோழர்கள் - பிற்காலசோழர்கள் - பிற்கால பாண்டியர்கள்-மண்டபங்கள் - கோபுரங்கள் - விஜயநகரகாலம் - நாயக்கர்காலம். முக்கிய கோயில்களின் அடிப்படை அமைப்புகள் - மாமல்லபுரம் கடற்கரைக்கோயில், காஞ்சிகைலாசநாதர் கோயில், பனமலை தாளகிரீஸ்வரர் கோயில், நார்த்தாமலை விஜயாலயசோழீஸ்வரர் தஞ்சைபெரியகோயில், மதுரை மீனாட்சியம்மன் கோயில், திருவரங்கம், திருவண்ணாமலை, திருவில்லிபுத்தூர், தமிழர்களின் கட்டடக்கலையின் தனித்துவம் - நாகர, திராவிட, வேசரம் சார்ந்த கட்டடக்கலை ஒப்பீடு - பூம்புகார். சாலுவாண்குப்பம் கட்டுமானங்கள்.

தமிழர்களின் தொன்மை வழிபாடு - கிராம தேவதைகளின் தோற்றம் - நடுகல்சிற்பங்கள் - மாரியம்மன் - இசக்கி அம்மன், ஐய்யனார், கருப்பசாமி, மாடசாமி, பேச்சி அம்மன், முனீஸ்வரன், பெரியாண்டவர் - நாகவழிபாடு - புறுவழிபாடு, சப்தகன்னிகள் வழிபாடு, அண்ணன்மார் வழிபாடு

அலகு VI: தொல்லியல் - கல்வெட்டியல் மற்றும் பராமரிப்பு முறைகள் (15வினாக்கள்)

தொல்லியலின் உட்பிரிவுகள் - கல்வெட்டியல், நாணயவியல், மேற்பரப்புகள் ஆய்வு, அகழாய்வு, ஆழ்கடல் அகழாய்வு, அருங்காட்சியங்கள், கலைச்சின்னங்கள் பராமரிப்பு முறைகள் மற்றும் சட்டங்கள் யுனெஸ்கோ பாரம்பரிய சின்னங்கள் - நெறிமுறைகள் - கல்வெட்டுகளின் வகைகள், செப்பேடுகள் - எழுத்துக்களின் வகைகள், தமிழி, வட்டெழுத்து, தமிழ், கிரந்தம் - நாகரி - எழுத்துக்கள் மற்றும் அவற்றின் காலம் மற்றும் வளர்ச்சி - கல்வெட்டுக்களின் முக்கியத்துவம் - படியெடுக்கும் முறை மற்றும் பாதுகாப்பு - புனரமைப்பின் போது கல்வெட்டுகளை பாதுகாப்பதின் நோக்கம் மற்றும் முக்கியத்துவம்.

அலகு VII: கோயில் நிர்வாகமும் இந்துசமய அறநிலையத்துறை சட்டங்களும் (20 வினாக்கள்)

சமயம், சமூகம், பொருளாதாரம், கலை, கல்வி, மருத்துவம், நீதி, நிர்வாகம் இவற்றுக்கான மையமாக திகழும் கோயில்கள் குறித்து விளக்கம் முற்காலத்தில் கோயில் நிர்வாகத்தை மேற்கொண்ட ஊர், சபை, வணிகக் குழுக்கள், சித்திரமேழி போன்ற நிர்வாக அமைப்புகள் ஸ்ரீகுதூர், ஸ்ரீமகேஸ்வரர், ஸ்ரீவைஷ்ணவர், தேவகன்மி, கணக்கர் இவர்கள் மேற்கொண்ட கோயில் நிர்வாகம் தானம் மற்றும் இதர ஆதாரங்கள் மூலமாக பெறும் வருவாய்கள் தானம் மூலமாக பெறப்படும் நிலங்கள் மற்றும் விலைக்கு வாங்குதல் - உரிமை மாற்றம் நிலவிற்பனைகள் கோயில்கள் கருவூலம் - வட்டிக்கு பணம் வழங்குதல் போன்ற வங்கி செயல்பாடுகள்,

கோயில்களுக்கு தானமாக வழங்கப்பட்ட கால்நடைகளை பராமரித்தல் மற்றும் அதன் மூலமாக பெறப்படும் வருவாய்கள் நெய், பால்பொருட்களை கோயில் நிர்வாகம் அபிவேஷகம் மற்றும் தீபத்திற்காக பயன்படுத்துதல் குற்றச்செயல்களுக்கு தானமாக பெறப்படும் பொருட்களை நிர்வகித்தல், கோயில் பணியாளர்களின் பணிகள் மற்றும் அவர்களின் ஊதியத்தை நிர்ணயித்தல், பாளையக்காரர்கள் மற்றும் பாடிக்காவலர்களின் நிர்வாகமுறை ஆங்கிலேயர் காலத்தில் கோயில்நிர்வாகம் - பரம்பரை மற்றும் தேர்ந்தெடுக்கப்பட்ட கோயில் நிர்வாகபணிகள் - தேவஸ்தானம், தேவசம் நிர்வாகம் - கோயில் நிர்வாகச் சட்டங்கள் - இந்துசமய அறநிலைய சட்டங்கள் மற்றும் சிறப்பு சட்டங்கள் - திருப்பதி தேவஸ்தானம் போன்றவை. அரசு நிர்வகிக்கும் இந்துசமய அறநிலையத்துறை நிர்வாகம்.

அலகு VIII: கட்டுமான நிர்வாகம் (20 வினாக்கள்)

திட்டமிடுதலும் நிர்வகித்தலும்

கட்டுமான திட்டமிடல்

கட்டுமான ஒப்பந்தம்

ஒப்பந்தபுள்ளியும் ஒப்பந்த அறிவிக்கையும்

கட்டுமான செயலாக்கம்

பணிக்கான தொகையை வழங்குதல்

இருப்பு கிடங்கு

பணியாளர் மற்றும் தொழிற்கூட நிர்வாகம்

வங்கி கணக்குகளை பராமரித்தல்

அலகு IX: கோயில் பராமரிப்பு (25 வினாக்கள்)

வரையறை - நோக்கம் - நெறிமுறைகள் - தொன்மைத்தன்மை மாறாமல் அதன் அசல் தன்மையோடு பாதுகாத்தலின் நெறிமுறைகள் - சீரமைப்பும், புனர்தீர்மானம் ஆகியவற்றின் நோக்கமும் தேவையும் கல்கட்டுமானங்களில் ஏற்படும் சிதைவுகள், விரிசல்கள் ஆகியவற்றினை சரிசெய்தல் - இதற்கான நுட்பங்கள் கட்டுமானபொருட்களின் அடிப்படையில் பாதுகாத்தல், சீரமைத்தல் மற்றும் புனர்தீர்மானம் (கல் - செங்கல் - மரம் - உலோகம்) இயற்கை மற்றும் பேரிடர்களால் அஸ்திவாரங்களில் ஏற்படும் பாதிப்புகளை சரிசெய்தல் - ஈரப்பதத்தினால் சுவர்களில் ஏற்படும் பாதிப்புகளை சரிசெய்தல் - இந்துசமய அறநிலையத் துறையின் பாதுகாப்பு நெறிமுறைகள் உப்பு அரிப்பு மற்றும் கட்டடங்களில் வளரும் செடிகளை அகற்றும் முறைகள்

அலகு X: ஆகமங்கள் மற்றும் தமிழ்இலக்கியங்களில் கோயில் கட்டடக்கலை குறித்த குறிப்புகள் (25 வினாக்கள்)

சைவாகமம் - 28 சைவாகமங்கள் தோற்றமும் வளர்ச்சியும் - வேதம் மற்றும் ஆகமம் - உபநிடதம் மற்றும் ஆகமம் - ஆகமம் மற்றும் சமய ஆச்சாரியார்கள் - ஆகமத்தின் உட்பிரிவுகள் - ஆகமத்தின் முக்கியத்துவம் - ஆகமம் மற்றும் சைவசிந்தாந்த விளக்கம் - ஆகமங்கள் கோயில்களை திட்டமிடுதலும் நடைமுறைப்படுத்துதலும் - காமிகாமத்தில் கட்டடக்கலை குறிப்புகள் - வாதுளாகமம், ரௌரத்ர ஆகமங்களில் கட்டடக்கலை வைணவ ஆகமங்கள் வைகாணச மற்றும் பாஞ்சராத்திர ஆகமங்களில் கோயில் கட்டடக்கலை குறித்த குறிப்புகள் - வைணவ ஆகமங்கள் தோற்றமும் வளர்ச்சியும் ஆகமத்தின் உட்பிரிவுகள் ஆகமங்கள் வைகாணச மற்றும் பாஞ்சராத்திர ஆகமங்களில் கோயில் கட்டடக்கலை குறித்த குறிப்புகள் - வைணவ ஆகமங்கள் தோற்றமும் வளர்ச்சியும் - ஆகமத்தின் உட்பிரிவுகள் - ஆகமங்களின் முக்கியத்துவம் - விஷ்ணுவின் 10 அவதாரங்களின் விளக்கம் - வைணவத்தில் குடமுழுக்கு - வைணவ ஆகமங்களில் கோயில் கட்டடக்கலை - மரீச்சிசம்ஹிதை - பாத்மசம்ஹிதை - அத்ரிசம்ஹிதை - பிரகத்சம்ஹிதை இவைகளில் கட்டடக்கலை மற்றும் சிற்பக்கலை விளக்கம் - சுப்பரேதாகமம் - விமானார்ச்சனகல்பம் - குமாரதந்திரம் ஆகியவற்றில் கட்டடக்கலை.

தமிழ் இலக்கியங்களில் கட்டடக்கலை

கம்பராமாயணம் - நகரப்படலம் (பாடல் எண். 7-13, 19, 23-30)

கலிங்கத்துபரணி - 4 கோயில் பாடியது (பாடல் எண் 1-11)

நெடுநல்வாடை (வரி 72-130)

மதுரைக்காஞ்சி (வரி 351-356)

பட்டினப்பாலை (வரி 142-145, 261-264, 285-287)

சிந்தாமணி - காந்தருவதத்தையார் இலம்பகம் (பாடல் 590-595)

தணிகைபுராணம் - அகத்தியர் அருள்பெறும் படலம் (பாடல் 64-79)

தேவாரத்தில் அப்பர் பாசுரங்கள்

பெரியபுராணம் - பூசலார்நாயனார்

பரிபாடல்

சிலப்பதிகாரம் - குன்றக்குரவை, வேட்டுவவரி, அரங்கேற்றக்காதை (அடியார்க்குநல்லார் உரை)

குறிப்பு: இப்பாடத்திட்டம் தமிழ்மொழியில் மட்டும் வடிவமைக்கப்பட்டுள்ளது.

23. Textile Technology and Handloom Technology (Degree Standard)

Code:628

Unit I: Fibre Properties and Manufacture (20 Questions)

- i) Requirements of fibre forming polymers
- ii) Classification of fibres, production of natural fibres - cotton, jute, silk, wool
- iii) Spinning of polymers – melt, wet, dry, dry-jet-wet and gel spinning
- iv) Post spinning operations – drawing, crimping, heat setting, tow-to-top conversion, texturing methods.
- v) Production, properties and application of aramid, carbon, glass, ultra high molecular weight polyethylene fibres
- vi) Identification of fibres, blend analysis
- vii) Characterization – density, crystallinity, crystalline / amorphous orientation, birefringence
- viii) Mechanical properties – tensile, elastic recovery, thermal transitions, thermal decomposition, sonic modulus, loss modulus, functional group identification, creep, stress relaxation, fatigue.
- ix) Moisture property, moisture content, regain, heat of sorption, conditioning
- x) Electrical properties – dielectric, static electricity, electrical resistance

Unit II: Yarn Manufacture, Yarn Structure and Properties (30 Questions)

- i) Pretreatments for ginning, ginning machines
- ii) Blow room machines; principles of opening, cleaning and mixing / blending of fibrous materials; cleaning efficiency; process control; calculations – production, performance
- iii) Carding machine; fundamentals of carding, card clothing, autoleveller; process control; calculations – draft, production, performance.
- iv) Comber lap preparation, comber - combing cycle, mechanisms; process control; calculations– production, performance
- v) Draw frame; theory of doubling and drafting, process control, autoleveller; calculations – production.
- vi) Roving frame; theory and mechanism of drafting, twisting; bobbin building; process control; calculations - production, performance
- vii) Ring frame; drafting, twisting; cop formation, forces acting on yarn and traveller; types of rings and traveller, compact yarn spinning; calculations – draft, twist, production.
- viii) Ring doubler and Two for One Twister – principle, machine; single and folded yarn twist
- ix) Alternate spinning systems – principle and working of rotor, two nozzle air-jet, air vortex, friction, core, wrap, twist-less spinning machines
- x) Helical geometry, packing density, yarn diameter, yarn contraction, yarn twist and relation to yarn strength - staple fibre yarn and filament; mass irregularity of yarn; structure - property relations of ring, rotor, air-jet and friction spun yarns
- xi) Yarn Numbering: direct & Indirect yarn numbering systems; single and plied yarns

Unit III: Fabric Manufacture, Structure and Properties (30 Questions)

- i) Reeling; drum and precision winding, winding parameters, process control; calculations
- ii) Yarn clearers and tensioners; yarn knotting, splicing
- iii) Beam and sectional warping; pirn winding process; process control; calculations
- iv) Size preparation for handlooms and powerloom warps, sizing of spun and filament yarns; drawing and denting; process control; calculations – production, performance.
- v) Shedding– mechanism and types; reversing motions; treadles and lam setting, design of tappets, principle of operations of dobby, jacquard; harness building
- vi) Principles of weft insertion in shuttle looms - handlooms, power looms; shuttleless looms - rapier, air-jet, projectile, water-jet, and multiphase.
- vii) Beatup - types, sley motion, eccentricity, beatup force
- viii) Design, draft and peg plan; fabric structure - plain, twill, satin and their derivatives; honeycomb, warp and weft figuring, warp and weft pile, backed fabrics, double cloth, triple cloth, multi-layer fabrics, damask, tappestry.
- ix) Pierce's geometry of plain woven fabrics; structure – property relationship;
- x) Calculation - preparatory and weaving machine production, reed count, reed width, heald calculation
- xi) Fabric structure of various traditional / contemporary handloom fabrics – Kanchipuram sarees, Banaras brocades, Jamdhani, Paithani, Seiko sarees, soft silk,
- xii) Traditional handloom weaving techniques; Petni, Jala, Adai, Kondi, Korvai, Ikats.

Unit IV: Knitting and Non-Woven Manufacture (10 Questions)

- i) Basic weft and warp knitted structures and their properties
- ii) Circular, flat and warp knitting machines -principles; calculations
- iii) Geometry of plain knitted fabrics
- iv) Nonwovens – needle punch, spun lace, spun bond, melt blown, thermal bond, methods of formation and applications
- v) Finishing of nonwovens - mechanical, chemical

Unit V: Preparatory and Colouration (20 Questions)

- i) Action of chemicals on various fibres
- ii) Preparatory process for textile materials – degumming, carbonizing, singeing, bio-polishing, desizing scouring, mercerizing and bleaching
- iii) Classification of dyes, auxiliaries and their properties
- iv) Preparatory and dyeing machines – fibres, yarns and fabrics
- v) Dyeing of fabrics using various dye classes.
- vi) Styles and methods of printing, print paste formulation, fixation and after treatment process
- vii) Colour parameters measurement, colour difference calculation of dyed fabrics, colour measurement for dye liquor
- viii) Fastness to wash, perspiration, light and rub

Unit VI: Finishing and Sustainable Processing (15 Questions)

- i) Mechanical finishing of textiles – shrink proof, raising and calendaring
- ii) Heat setting of synthetic and blended fabrics
- iii) Chemical finishes - crease resistant, water proof, water repellent, flame retardant, soil release, UV resistant, anti-microbial, anti-static, softening, stiffening, elastomeric, self-cleaning
- iv) Processing of denim fabrics and garments
- v) Eco-friendly processing; eco standards and eco-labels
- vi) Minimum application technique, waterless dyeing
- vii) Characteristics of effluent and effluent treatment method; Zero Liquid Discharge (ZLD) system; sludge management
- viii) Sustainability concepts – Life Cycle Assessment (LCA), carbon, water footprints, Reduce, Reuse Recycle (3R)

Unit VII: Quality Evaluation of Textiles (25 Questions)

- i) Statistics – mean, median and mode; standard deviation, variance, coefficient of variation
- ii) Hypothesis testing, regression and correlation
- iii) Measurement of fibre properties - length, strength, fineness, maturity and trash, neps; High Volume Instrument (HVI); Advanced Fibre Information System (AFIS)
- iv) Determination of yarn properties - count, twist, strength and elongation, unevenness and hairiness
- v) Determination of fabric properties - construction parameters, tear, bursting strength, tensile strength and elongation, modulus, work of rupture; air permeability, drape, bending, crease and wrinkle recovery, thickness, pilling, abrasion, shrinkage
- vi) Low stress mechanical properties of fabrics
- vii) Yarn - imperfection, classified faults; diagram, spectrogram, Variance Length (VL) curve, calculations – Index of irregularity
- viii) Fabric defects analysis and testing of nonwovens

Unit VIII: Garment Manufacture and Special Finishes (10 Questions)

- i) Pattern making, grading, marker planning, spreading and cutting – methods and machinery
- ii) Stitches and seams - classes
- iii) Types of sewing machines; mechanisms and accessories
- iv) Sewing threads – manufacturing and numbering, trims and accessories
- v) Pressing, packing, care labels
- vi) Garment defects - causes; inspection system

Unit IX: Technical Textiles (15 Questions)

Fibre, yarn and fabric requirement for

- i) Industrial textiles - belts, ropes, tyre-cords, coated abrasives
- ii) Automotive textiles – filter fabrics, airbags, seatbelts
- iii) Geotextiles – geo nets, geo grids, geo membranes
- iv) Agriculture textiles – crop covers, birdnets, soil mats and sacks
- v) Medical textiles – non-implantable, implantable, hygiene products
- vi) Protective textiles - ballistic textiles, thermal protective clothing, UV protection, clean room garments
- vii) Sports textiles
- viii) Testing of technical textile products

Unit X: Management of Textile Industry (25 Questions)

- i) Spinning – machine and labour productivity, spin plan; lighting, humidification, material handling, machine maintenance and safety measures
- ii) Fabric manufacture – production plan, material handling, safety measures
- iii) Garment manufacture – productivity concepts, Industrial engineering applications – method study, motion study, work measurement; line balancing; ergonomics
- iv) Costing of yarn, fabric and garment; cost sheet; balance sheet, profit and loss account, ratio analysis
- v) Depreciation, investment appraisal techniques
- vi) Management Tools – Lean, Total Quality Management (TQM) tools, Total Productive Maintenance (TPM), 5S, Kaizen, six sigma, Failure Mode Effects Analysis (FMEA)
- vii) Energy conservation in textile industry
- viii) Compliance and certifications in textile industry
- ix) Intellectual Property Rights (IPR)

24. Zoology and Medical Entomology (PG Degree Standard)

Code: 567

Unit I (20 Questions)

General Organization of Non-Chordate and Chordate - Classification upto Class Level - Structure of Cell - Cellular Organization - Membrane, Intercellular - Structure and Function - Cellular organelles. Chromosomes - Types and Organization of Genes. Cell Division, Cell Cycle and Regulation. Cell Communication and Cell Signaling. Structure of DNA and RNA. Genetic Code, Replication and Protein Synthesis.

Bio-Chemistry: Structure of Carbohydrates, Amino Acids, Proteins, Lipids - Glycolysis and Krebs's cycle - Oxidation, Reduction - Oxidative Phosphorylation - Energy conservation and release - Cyclic AMP - ATP - Saturated and Unsaturated Fatty acids - Cholesterol - Enzymes, Mechanism, Action and Kinetics. Vitamins, Trace elements and Micronutrients and Co-enzymes. Antioxidant enzymes, Hormones - Classification, Biosynthesis and functions.

Unit II (20 Questions)

Physiology: With reference to Mammals digestion, Role of Salivary gland, Liver, Pancreas and Intestinal Glands in Digestion, Nutrition, Balanced Diet in Man-Assimilation, Intermediary Metabolism. Composition of Blood - Coagulation - Mechanism of Respiration. Muscles - Mechanism of Muscle Contraction, Temperature Regulation, Acid, Base Balance and Homeostasis. Nerve Impulse Conduction, Neurotransmitters - Receptors, Photo, Phono and Chemo Reception. Nephron and Urine formation. Endocrine glands - Testis, Ovary and Hypothalamus - Hypophyseal gonadal relationship. Pheromones and Reproduction. Bioluminescence.

Unit III (20 Questions)

Immunology: Immune responses - Primary, Secondary and Theories. Immunity types - Innate -Acquired - Cell mediated and Humoral immunity - Autoimmunity, Types of Antigens and Immunoglobulins. Vaccinations - ELISA, RIA Techniques. Developmental Biology: Gametogenesis, Fertilization:

Significance, Polyspermy Gynogenesis, Androgenesis, Parthenogenesis, Differentiation - Nuclear and Chemical factors, Inductors and Organizers. ART - Stem cell biology - Sources, Types and Applications.

Unit IV (20 Questions)

Resource Ecology and Management, Renewable and Non-Renewable natural resources. Energy resources - Conventional and Non-Conventional. Bioremediation. Habitat Ecology. Wild Life conservation, Management and Acts. Air, Water, Soil, Sound pollutions. Laws related to Environment and Environmental Protection Act. Space Ecology and Radiation Ecology. Climate Changes and Global Warming.

Unit V (20 Questions)

Medical Entomology - Scope and Definition

Vectors of Medical Importance - Classification, Types of vectors (Mosquitoes, Sand fly, House fly, Bed bug, Human lice, Fleas) and their Identification, Epidemiology, Life cycle, Bionomics, Mechanism of diseases transmission. Protozoan Parasites and Diseases - Helminths, Parasites and Diseases on Man and Domestic Animals.

Unit VI (20 Questions)

Vector Borne Diseases spread through Mosquitoes - Malaria, Filaria, Viral Encephalitis (Japanese Encephalitis, West Nile) Dengue, Chikungunya, Zika and Yellow fever.

Unit VII (20 Questions)

Vectors from class Arachnida and Crustacea (Ticks, Mites, Cyclops) and their Identification, Epidemiology, Life cycle and Diseases transmitted.

Vector borne diseases spread through Houseflies - Typhoid, Paratyphoid, Dysentery, Cholera and Amoebiasis.

Vector borne diseases spread through Sandfly - Kala azar, Oriental sore and Sleeping sickness.

Vector borne diseases spread through Louse - Epidemic typhus, Relapsing fever and Trench fever.

Vector borne diseases spread through Rat flea - Bubonic Plague and Endemic typhus.

Vector borne diseases spread through Hard and Soft ticks, Trombiculid Mite and Cyclops.

Unit VIII (20 Questions)

Classification of Insecticides of Public Health Importance (Larvicides and Adulticides) Mode of Action, Medical problems associated with Insecticides use. Occupational and accidental Poisoning of various Insecticides and their antidotes.

National Health Programmes related to vector control and prevention of diseases – National Vector Borne Disease Control Programme (NVBDCP).

Unit IX (20 Questions)

Bio-Physics: Microscopy-Principles of Phase, Electron Microscope, Polarising, Fluorescent, Interference Microscope. Photo - Electric Calorimetry, Freeze drying - Freezing, Microtome, Fixation, Staining techniques. X-ray - Diffraction, Ultra - Violet and Infra Red, Spectroscopy and Autoradiography. Instrumentation methods: Centrifugation, Electrophoretic and Chromatographic Techniques. PCR, DNA Finger Printing, RFLP, RAPD, AFLP, FISH and GISH.

Unit X (20 Questions)

Bio-Statistics: Collection of data. Primary and Secondary - Compiling and Sampling Methods -Frequency Distribution, Frequency Tables - Diagrammatic Representation - Variables - Measures of Central tendency. Standard deviation, Standard error - Correlation, Regression, Regression Analysis - Student's "t" Test and Chi-square Test. Bio-informatics: DNA and Protein Sequence Analysis, Prediction Functional Structure, Protein Folding, Molecular Docking, Metabolic and Regulatory Networks, General Challenges and Applications. SwissProt, NCBI: GENBANK, BLAST: Multiple Sequence Alignments.

Annexure IV

Instructions to be followed by the candidates

1. Written Examination

1.1. Reporting Time at the Examination Venue

1.1.1. To facilitate verification of the identity of the candidates and explanation of the procedures related to the examination, the candidates shall present themselves at the examination venue one hour before the time scheduled for the commencement of the examination.

1.1.2. All gates serving as entry into the examination venue shall be closed thirty minutes before the commencement of the examination. After that, no candidate shall be permitted to enter the premises of the examination venue.

1.1.3. In case of examinations to be held in both forenoon and afternoon sessions, the reporting time for the afternoon session shall also be thirty minutes before the commencement of the examination and no one shall be allowed into the venue thereafter.

1.2. Entry into the Examination Venue

1.2.1. Candidates shall present themselves at the examination venue with the memorandum of admission (hall ticket) downloaded from the Commission's website, failing which, they shall not be allowed to write the examination. Candidates shall also bring with them, a photocopy of their Aadhaar card / Passport / Driving Licence / Permanent Account Number (PAN) card / Voter ID card as identity proof.

1.2.2. Candidates must appear for the examination at the venue they have been allotted, as mentioned in the memorandum of admission (hall ticket). Change of venue will not be permitted. No candidate, without prior approval, shall be allowed to appear for the examination at a venue other than the one originally allotted.

1.2.3. Candidates may be subjected to frisking at the examination venue, if required, with the assistance of male/female police personnel or any authorized persons, as the case may be.

1.2.4. Parents and others who accompany the candidates will not be permitted inside the examination venue.

1.3. Memorandum of Admission (Hall Ticket)

1.3.1. If the photograph of the candidate in the memorandum of admission is not printed or not clear or does not match with candidate's appearance, he/she should furnish a separate photograph affixed on a plain paper, along with his name, address, register number and signature along with a copy of the memorandum of admission (hall ticket) and a copy of Aadhaar card / Passport / Driving Licence / Permanent Account Number (PAN) card / Voter ID card, to the Chief Invigilator, who shall countersign it. The identity proof in original, should also be shown to the room invigilator for verification. The room invigilator upon verification of the identity of the candidate, shall obtain an undertaking as to the genuineness of the candidate and to the effect that he/she is aware that he/she is liable to any criminal/penal action initiated by the Commission, if the information furnished is found to be incorrect at a later date. The undertaking shall then be handed over to the Chief Invigilator.

1.3.2. Candidates must show the memorandum of admission to the Invigilator / Chief Invigilator / inspection authorities / any authorized persons of the examination hall, on demand for verification.

1.3.3. The memorandum of admission should be preserved carefully and retained permanently. The memorandum of admission should be produced if shortlisted for the next stage of selection / whenever sought by the Commission. The memorandum of admission may also be photocopied, as a precaution, after the examination is over. No duplicate memorandum of admission will be issued later.

1.4. Examination Room

1.4.1. The candidates shall compulsorily be seated in the examination room thirty minutes before the time scheduled for the commencement of the examination.

1.4.2. Water, tea, coffee, snacks, soft drinks, etc., will not be allowed inside the examination room.

1.4.3. Candidates should maintain strict discipline not only in the examination room but also inside the campus of the examination venue. Candidates found smoking / intoxicated or found to have entered into a quarrel of any kind, or to have misbehaved with the Chief Invigilator or with the inspection authorities or with the invigilator or with any other candidate either in the examination hall or inside the campus of the examination venue, either before, during or after the examination, are liable to invalidation of answer sheet and debarment for any period the Commission may deem fit, as well as appropriate criminal action.

1.4.4. Candidates suffering from serious health issues, may, with the consent of the Chief Invigilator, deposit medication or other medical requirements on the room invigilator's table for use if needed.

1.4.5. In case of extraordinary circumstances, like pandemic conditions, etc., the procedures / precautions prescribed (e.g., use of sanitizer and face mask, practicing social distancing) shall be adhered to.

1.5. Computer Based Test (CBT)

1.5.1. The Registration for the examination shall start one hour before the time scheduled for the commencement of the examination.

1.5.2. Each candidate will be assigned a Computer to take up the examination.

1.5.3. No computer knowledge is required to take up the Computer Based Test. Knowledge in Mouse operation would suffice to take up the Computer Based Test.

1.5.4. Candidates will be provided with a user name and password to login the system.

1.5.5. Use the keyboard only to key-in the Register Number, User id (registration id) and password.

1.5.6. Necessary instructions will be displayed on the screen. Kindly read all the instructions carefully and follow the instructions without fail.

1.5.7. Questions with five options each will be displayed in the computer screen.

1.5.8. One question will be displayed on the screen at a time.

1.5.9. The questions will appear on the screen in ascending order, which can be answered one by one.

1.5.10. Candidate can use only the mouse to select the correct answers and proceed with answering the questions.

1.5.11. To select your answer of a question, click on the button of one of the options.

1.5.12. Click on Save and Next button after answering every question to save your answer. Otherwise your answer will not be saved.

1.5.13. To deselect your chosen answer, click on the button of the chosen option again or click on the Clear Response button.

1.5.14. Candidates can proceed to the next question by clicking next button or previous question by clicking previous button.

1.5.15. Candidates can recheck his / her answers and if he / she feels to correct the answers, it can be done at any time before the closure of examination. They can skip the questions also, if they desire so.

1.5.16. Candidate can submit their answers at any time during the examination.

1.5.17. Once the entire answers are submitted, the candidates have no option to proceed further.

1.5.18. If the candidates fail to submit their answers, the system will automatically submit the answers to the server, at the closure of the examination.

1.5.19. The question and answers can be zoomed to the required level for the candidates with visual impairment.

1.5.20. Instruction for enlarging images, to view the image provided in the question in a bigger size, click on the image and rotate the scrolling wheel on the mouse.

1.5.21. Question Number Box: Question Number Box displayed on the right side of the screen will show the status of each question using one of the following symbols:

 1 You have not visited the question yet.

 2 You have not answered the question.

 3 You have answered the question.

 4 You have NOT answered the question, but have marked the question for review.

 5 You have answered the question and marked for review. This will be considered for evaluation.

The 'Marked for Review' status for a question simply indicates that you would like to look at that question again.

You can click on the ">" arrow which appears to the left of question number box to minimize the question number box. This will enable you to view the question on a bigger area of the screen. To view the question number box again, you can click on "<" arrow which appears on the right side of the screen.

You can click on  to navigate to the bottom and  to navigate to the top of the question area, without scrolling. The summary of number of questions answered, not answered, not visited, marked for review and answered and marked for review will be displayed above the question number box.

1.5.22. Time available for the candidate to complete the examination will be displayed through a countdown timer in the top right-hand corner of the screen. It will display the remaining time as Time Left. (For example: if duration of examination is 3 hours, at the beginning of exam, timer will show 180 minutes and for Differently Abled candidates with scribe / without scribe 240 minutes, which will reduce gradually with passage of time). When the timer reaches zero, the examination will end by itself and the examination will be submitted by the system automatically.

1.5.23. Candidates will be provided with a paper for doing rough work. After closure of the examination, rough sheet will be collected.

1.5.24. Candidates have to sign the attendance sheet and affix thumb impression for verification of his / her identity.

1.5.25. The Examination Hall will be under camera surveillance.

1.5.26. Any attempt of malpractice found, will render you liable to such penal action as the Commission may decide.

1.5.27. In case of doubt in the questions and answers, English version is the final.

1.5.28. To acquaint with the operation of Mouse and the CBT, the candidates can take up the mock test available in the Commission's website (www.tnpsc.gov.in) and they can practice the usage of mouse in the mock test. Mock test is similar to the CBT to be held on the day of examination. In the Mock test, all the steps are given similar to the CBT. Candidates can practice the mock test as many times as he / she likes.

1.6. Other Instructions

1.6.1. No candidate will be allowed to leave the examination hall until the closure of the examination.

1.6.2. Requests from candidates for furnishing of their marks before the completion of the entire selection process, will not be entertained by the Commission.

1.7. Instructions for Usage of scribe and Compensatory Time

1.7.1. Candidates with Disability

1.7.1.1. Candidates with disability, shall be permitted to utilize the services of a scribe upon making such request in the online application subject to the following conditions. Request for scribe made after the submission of application or on the date of examination will receive no attention.

1.7.1.2. For the candidate with disability as defined under section 2(s) of the Rights of Persons with Disability Act, 2016, the facility of scribe and/or compensatory time shall be granted solely to those having difficulty in writing subject to uploading of a certificate to the effect that person concerned has limitation to write, including that of speed and that scribe is essential to write examination on his/her behalf from the Medical Board as per the format available in Annexure II . Compensatory time of not less than 20 minutes per hour of examination will be allowed to candidates with disability, who have physical limitation to write including that of speed and who are utilizing the services of a scribe. The candidate with disability should upload the Certificate of Disability in the format prescribed in Annexure II and the Certificate from the Medical Board in the format available in Annexure VI at the time of submission of online application.

1.7.2. Candidates with Benchmark Disability

1.7.2.1. Candidates with benchmark disability, shall be permitted to utilize the services of a scribe / compensatory time upon making such request in the online application subject to the following conditions. Request for scribe / compensatory time made after the submission of application or on the date of examination will receive no attention.

1.7.2.2. Candidate with benchmark disability as defined under section 2(r) of the Rights of Persons with Disability Act, 2016, in the category of blindness, locomotor disability (both arm affected) and cerebral palsy, the facility of scribe shall be given, if so desired by the candidate. Compensatory time of not less than 20 minutes per hour of examination will be allowed to candidates with blindness, locomotor disability (both arm affected) and cerebral palsy and who are utilizing /not utilizing the services of a scribe. The candidates with benchmark disability in the category of blindness, locomotor disability (both arm affected) and cerebral palsy should upload the Certificate of Disability in the format prescribed in Annexure II, at the time of submission of online application.

1.7.2.3. In case of other category of benchmark disability, the provision of scribe can be allowed on uploading of a certificate from the Chief Medical Officer / Civil Surgeon / Medical Superintendent of a Government Health care institution, to the effect that person concerned has limitation to write, including that of speed and that scribe is essential to write examination on his/her behalf. Compensatory time of not less than 20 minutes per hour of examination will be allowed to candidates with other category of

benchmark disability and who are utilizing the services of a scribe. The format of the certificate is available in Annexure II. The candidates with other category of benchmark disability should upload the Certificate of Disability in the format prescribed in Annexure II and the Certificate from the Chief Medical Officer / Civil Surgeon / Medical Superintendent of a Government Health care institution in the format available in the Annexure VI, at the time of submission of online application.

1.7.2.4. All candidates with benchmark disability who have physical limitation with regard to writing including that of speed and not availing the services of a scribe will be allowed additional time of a minimum of one hour for an examination of three hours duration, on production of a certificate from the Chief Medical Officer / Civil Surgeon / Medical Superintendent of a Government Health care institution, to the effect that person concerned has limitation to write and compensatory time is recommended. Such candidates with benchmark disability should upload the Certificate of Disability in the format prescribed in Annexure II and the Certificate from the Chief Medical Officer / Civil Surgeon / Medical Superintendent of a Government Health care institution in the format available in Annexure VI at the time of submission of online application.

1.7.3. Failure to upload the certificates as mentioned above at the time of submission of online application shall result in rejection of claim after due process.

1.7.4. The Commission will arrange for scribes and the fee amount to be paid to the scribes will be met by the Commission. Candidates availing of the services of the scribes need not pay any fee to them.

1.8. Special Instructions for the Candidates with Benchmark Disabilities

1.8.1. Candidates with locomotor disability and visual impairment who have been permitted to use scribe facility, who are unable to affix their signature, may affix their left hand thumb impression alone.

1.8.2. Candidates who are unable to use their left hand, must affix right hand thumb impression. Candidates who are unable to use both hands, and who have been permitted to use scribe, may leave the signature and thumb impression columns blank.

1.9. Penalty for Violation of Commission's Instructions

1.9.1. Invalidation of Answer sheet: Answer sheet answered other than the subject opted by the candidate in the online application / specified in the Hall Ticket will be invalidated.

1.9.2. Criminal Action: Criminal action will be initiated against the candidates for the following reasons.

1.9.2.1. Misbehaviour and indiscipline in the examination hall: Candidates should maintain strict discipline not only in the examination room, but also inside the campus of the examination venue. Candidates found smoking / intoxicated, or found to have entered into a quarrel of any kind, or to have misbehaved with the Chief Invigilator or with the inspection authorities or with the invigilator or with any other candidate either in the examination hall or inside the campus of the examination venue, either before, during or after the examination, are liable to invalidation of Answer sheet and debarment for any period the Commission may deem fit, as well as appropriate criminal action.

1.9.2.2. Indulging in any type of malpractice, including impersonation and resorting to unfair means within the examination hall or outside will lead to debarment for any period deemed fit by the Commission, besides initiation of criminal action.

- a. Consulting with / copying from another candidate in the examination hall.
- b. Permitting others to copy from his/her Answer Sheet.
- c. Seeking the help / assistance of any official / hall supervisor in answering questions in examination hall.
- d. Possession of electronic devices such as cellular phones, watches with inbuilt memory note, and rings with in-built memory notes, Bluetooth devices, communication chip, other electronic devices and non-electronic devices such as P&G design data book, books, notes, handbags, other non-permitted materials, etc.

1.9.3. Violation of any one or more of the instructions contained in the Commission's Instructions to Applicants, instructions mentioned in the Notification, instructions printed on the memorandum of admission (hall ticket) shall also make the candidate liable to debarment, either permanently or for such period as the Commission deems fit, and/or rejection of candidature after due process and /or any other penalty, as decided by the Commission.

1.9.4. Debarment

The period for which candidates shall be debarred from appearing for the examinations / participating in the recruitment processes conducted by the Commission, for the offences committed by the candidates are given below. Besides debarment, the candidate shall also be liable to rejection of candidature after due process, invalidation of answer sheet, as the case may be. Criminal action may also be initiated against such candidates wherever indicated.

S. No	Nature of Offence	Period of Debarment
1	Attempts to influence the Chairman, Members of the Commission, Secretary, Controller of Examinations or any officer or staff of the Commission, personally / by letter / through relatives, friends, patrons, officials or other persons.	Three Years
2	Production of bogus community / destitute widow / differently abled / ex-serviceman / transgender / person studied in Tamil medium certificates, etc. Tampering or alteration in the documents or certificates.	Permanent, Initiation of criminal action
3	Suppression of material information, at any stage of the selection process, regarding: i. Previous appearances or availing free chances. ii. Regular / temporary employment in other Recruiting Agencies or Authorities of in the state or Union Government or other States or Union Territories or National Capital Territory or Public Sector Undertakings or Universities or Cooperative Societies or Local Bodies or Quasi Government Organizations either State or Central. iii. Criminal cases except the cases filed below the age of 18 (Juvenile) irrespective of the outcome of cases, arrests, convictions, disciplinary proceedings etc., iv. Debarment or disqualification by Union Public Service Commission / State Public Service Commissions / other agencies	One Year
4	Possession of electronic devices such as cellular phones, watches and rings with in-built memory notes, Bluetooth devices, communication chip, any other electronic devices inside the examination room and also seeking the help of / assistance of any official / invigilator / any outsider in answering question	Permanent
5	Possession of non-electronic devices such as P&G Design Data Book, books, notes, guides, handbags, other non-permitted materials, etc. inside the examination room.	Three Years
6	Consulting with other candidates, copying from other candidates, permitting others to copy from his / her answer paper, copying from books or notes which are printed / typewritten / hand written, etc.	Three Years
7	In addition to the offences listed herein, the involvement of candidates in any indiscipline or irregular practices within / outside the examination room.	Three Years
8	Candidates found smoking / intoxicated, or found to have entered into a quarrel of any kind, or to have misbehaved with the Chief Invigilator or with the inspection authorities or with the invigilator or with any other candidate either in the examination hall or inside the campus of the examination venue, either before, during or after the examination.	Three Years

9	Indulging in grave malpractices, including impersonation, amounting to subversion of the conduct of examination.	Permanent, Initiation of criminal action
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2. Answer Key Challenge for Objective Type Examination

2.1. Tentative answer keys will be hosted in the Commission's website within fifteen working days from the date of conduct of examination. Instructions available in the Para 17 D (iv) of Instructions to Applicants are not applicable to this examination. Candidates can challenge the tentative answer keys through the 'Answer Key Challenge' window available in the Commission's Exam Dashboard [Recruitment → Exam Dashboard → Answer Keys]. Representations, if any, challenging the tentative answer keys shall be submitted only through online mode within seven days from the date of publication of tentative answer keys. Representations received by post or e-mail will receive no attention.

2.2. Detailed instructions, procedures to challenge the tentative answer keys have been made available in the Commission's website. Representations made online/offline after the closure of the window will also receive no attention.

2.3. The challenges submitted on time, through the online mode, shall be referred to a committee comprising of experts in each subject. The decision on the final answer key shall be made, based on the recommendations of the expert committee and answer sheet evaluation shall commence thereafter.

2.4. The Commission shall not publish the final answer key until the completion of the entire selection process.

3. Onscreen Certificate Verification

3.1. Onscreen Certificate Verification will be done based on the documents already uploaded by the candidate at the time of online application.

3.2. Based on the onscreen certificate verification, the candidates will be given 10 calendar days to upload the required document(s) / defective document(s) or certificate(s). Failure to re-upload the required document(s) / defective document(s) or certificate(s) as per the claim in the online application during onscreen certificate verification (OCV), shall result in rejection of candidate after due process.

4. Physical Certificate Verification

4.1. Candidates admitted to physical certificate verification shall produce all the original certificates uploaded / re-uploaded (if applicable) for physical certificate verification as claimed in the online application, without fail.

4.2. After verification of original certificates, the eligible candidates alone will be admitted for interview. If the candidate does not satisfy the eligibility criteria, his/her online application will be rejected and his/her provisional admission to physical certificate verification will be cancelled and will not be allowed to attend the interview.

4.3. If the candidate does not appear for the physical certificate verification on the scheduled date and time, the candidate will not be given any further chance to appear for the physical certificate verification and will not be allowed to attend the interview.

5. Interview

5.1. Candidates should appear for the interview on the date and time notified by the Commission. The request for the change of date and time of interview will not be entertained.

5.2. If the candidate does not appear for the interview on the scheduled date and time, the candidate will not be given any further chance to appear for the interview and will not be considered for selection.

6. Counselling

6.1. Candidates will be allowed to participate in the counselling based on his / her rank. If the candidate does not appear for the counselling on the scheduled date and time, the candidate will not be given any further chance to appear for the counselling.

6.2. The post chosen by the candidate during the counselling cannot be changed under any circumstances.

Annexure V

Forms for Experience Certificate

1. Experience Certificate for the post of Regional Sthapathi in Hindu Religious and Charitable Endowments Department (Post Code: 3526)

1.	Name of the Employee	
2.	Father / Spouse Name	
3.	Date of Birth	
4.	Designation of the Employee	
5.	Nature of the Work / Duty performed by the Employee (To be mentioned in brief)	
6.	Whether the person possesses the experience in the field of temple renovation	Yes / No
7.	Period of Experience in the field of temple renovation	From ____ (date) To ____ (date)
8.	Total Experience (YY/MM/DD)	____ years ____ months ____ days
9.	Whether Attendance Register / Attendance Rolls / Pay Register and other records available for this Employee	Yes / No
10.	Name of the Organisation/ Institution	
11.	Type of Organisation / Institution (Government / Quasi Government / Public Sector Undertaking / Private etc.)	
12.	Address of the Organisation/ Institution	
13.	Phone No. and Email ID of the Organisation/ Institution	

This is to certify that Thiru/Tmt./Selvi possesses said experience in the field of temple renovation as on the date of notification (i.e., 31.08.2026). The above particulars furnished by me are correct.

Affix photograph of the employee with the signature of the Certifying Authority on the Photograph

Seal of Office / Officer:

Place
Date:

Signature
Name & Designation of the
Head of Organisation/ Institution /
Competent Authority

Note:

1. A certificate in the format prescribed should be obtained from the Head of the Organisation/ Institution wherein the individual had served or the authority competent to issue such certificate.
2. The competent authority who issues the certificate is cautioned that issuing of any certificate containing false details will lead to legal /penal action on them.

2. Experience Certificate for the post of Assistant General Manager (Finance) in the State Industries Promotion Corporation of Tamil Nadu Limited (Post Code :3373)

1.	Name of the Employee	
2.	Father / Spouse Name	
3.	Date of Birth	
4.	Qualification possessed by the Employee on the date of joining service	
5.	Designation of the Employee	
6.	Nature of the Work / Duty performed by the Employee (To be mentioned in brief)	
7.	Whether the employee possesses experience in independent senior capacity	Yes / No
8.	Period of Experience in independent senior capacity	From ____ (date) To ____ (date)
9.	Total Experience (YY/MM/DD) in independent senior capacity	__ years __ months __ days
10.	Whether Attendance Register / Attendance Rolls / Pay Register and other records available for this Employee	Yes / No
11.	Name of the Organisation / Institution	
12.	Type of Organisation / Institution [Reputed Industrial or Commercial concern/Financial Institution]	
13.	Address of the Organisation / Institution	
14.	Phone No. and Email ID of the Organisation / Institution	

This is to certify that Thiru/Tmt./Selvi possesses the experience in independent senior capacity as stated above in this Bank / Financial Institution / Reputed industrial / Commercial concern as on the date of notification (i.e., 31.08.2026). The above particulars furnished by me are correct.

Affix photograph of the employee with the signature of the Certifying Authority on the Photograph

Seal of Office / Officer:

Place
Date:

Signature
Name & Designation of the
Head of Organisation / Institution /
Competent Authority

Note:

1. A certificate in the format prescribed should be obtained from the Head of the Organisation/ Institution wherein the individual had served or the authority competent to issue such certificate.
2. The Competent authority who issues the certificate is cautioned that issuing of certificate which contains false or incorrect details will lead to legal / penal action against them.

3. Experience Certificate for the post of Accounts Officer, Tamil Nadu Industrial Development Corporation (Post Code : 3337)

1.	Name of the Employee	
2.	Father / Spouse Name	
3.	Date of Birth	
4.	Qualification possessed by the Employee on the date of joining service	
5.	Designation of the Employee	
6.	Nature of the Work / Duty performed by the Employee (To be mentioned in brief)	
7.	Period of Experience	From ____ (date) To ____ (date)
8.	Total Experience (YY/MM/DD)	____ years ____ months ____ days
9.	Whether Attendance Register / Attendance Rolls / Pay Register and other records available for this Employee	Yes / No
10.	Name of the Organisation/ Institution	
11.	Type of Organisation/ Institution	
12.	Address of the Organisation/ Institution	
13.	Phone No. and Email ID of the Organisation/ Institution	

This is to certify that Thiru/Tmt./Selvi possesses experience in handling finance and accounts as on the date of notification (i.e., 31.08.2026) in one/ more of the following areas[@]

(a)	Budget preparation, revised preparation, estimate preparation of books of accounts, voucher entry; understanding of taxation; understanding of audit processes; bill preparation; and BRS.
(b)	Handling Internal audits, statutory audit and AG audits.
(c)	Experience in handling RBI correspondence relating to NBFC compliance.

@ strike out whichever is not applicable.

The above particulars furnished by me are correct.

Affix photograph of the employee with the signature of the Certifying Authority on the Photograph

Seal of Office / Officer:

Place
Date:

Signature
Name & Designation of the
Head of Organisation/ Institution /
Competent Authority

Note:

1. A certificate in the format prescribed should be obtained from the Head of the Organisation/ Institution wherein the individual had served or the authority competent to issue such certificate.
2. The competent authority who issues the certificate is cautioned that issuing of any certificate containing false details will lead to legal /penal action on them.

4. Experience Certificate for the post of Financial Advisor cum Company Secretary in the Tamil Nadu Backward Classes Economic Development Corporation Limited (Post Code: 3750)

1.	Name of the Employee	
2.	Father / Spouse Name	
3.	Date of Birth	
4.	Qualification possessed by the Employee on the date of joining service	
5.	Designation of the Employee	
6.	Nature of the Work / Duty performed by the Employee (To be mentioned in brief)	
7.	Period of Experience in the Company Secretary	From ____ (date) To ____ (date)
8.	Total Experience (YY/MM/DD)	____ years ____ months ____ days
9.	Whether Attendance Register / Attendance Rolls / Pay Register and other records available for this Employee	Yes / No
10.	Name of the Organisation / Institution	
11.	Type of Organisation/ Institution [Factory / Industry / Government Department / Public Sector Undertaking]	
12.	Address of the Organisation / Institution	
13.	Phone No. and Email ID of the Organisation / Institution	

This is to certify that Thiru/Tmt./Selvi possesses said experience of Company Secretary in any reputed firm either in public or private sector as stated above, as on the date of notification (i.e., 31.08.2026). The above particulars furnished by me are correct.

Affix photograph of the employee with the signature of the Certifying Authority on the Photograph

Seal of Office / Officer:

Place
Date:

Signature
Name & Designation of the
Head of Organisation / Institution /
Competent Authority

Note:

1. A certificate in the format prescribed should be obtained from the Head of the Organisation/ Institution wherein the individual had served or the authority competent to issue such certificate.
2. The Competent authority who issues the certificate is cautioned that issuing of certificate which contains false or incorrect details will lead to legal / penal action against them.

5. Experience Certificate for the post of Assistant Secretary in the Tamil Nadu Industrial Development Corporation (Post Code: 3360)

1.	Name of the Employee	
2.	Father / Spouse Name	
3.	Date of Birth	
4.	Qualification possessed by the Employee on the date of joining service	
5.	Designation of the Employee	
6.	Nature of the Work / Duty performed by the Employee (To be mentioned in brief)	
7.	Whether the person possesses the experience in the field of Company or Secretarial Consultancy	Yes / No
8.	Period of Experience in a Company or Secretarial Consultancy	From ____ (date) To ____ (date)
9.	Total Experience (YY/MM/DD)	____ years ____ months ____ days
10.	Whether Attendance Register / Attendance Rolls / Pay Register and other records available for this Employee	Yes / No
11.	Name of the Organisation / Institution	
12.	Type of Organisation / Institution (Government / Quasi Government / Public Sector Undertaking / Private etc.)	
13.	Address of the Organisation / Institution	
14.	Phone No. and Email ID of the Organisation / Institution	

This is to certify that Thiru/Tmt./Selvi possesses said experience in a Company or Secretarial Consultancy as stated above, as on the date of notification (i.e., 31.08.2026). The above particulars furnished by me are correct.

Affix photograph of the employee with the signature of the Certifying Authority on the Photograph

Seal of Office / Officer:

Place
Date:

Signature
Name & Designation of the
Head of Organisation / Institution /
Competent Authority

Note:

1. A certificate in the format prescribed should be obtained from the Head of the Organisation/ Institution wherein the individual had served or the authority competent to issue such certificate.
2. The Competent authority who issues the certificate is cautioned that issuing of certificate which contains false or incorrect details will lead to legal / penal action against them.

6. Experience Certificate for the post of Assistant General Manager (Projects), Project Management Tamil Nadu Industrial Development Corporation (Post Code: 3344)

1.	Name of the Employee	
2.	Father / Spouse Name	
3.	Date of Birth	
4.	Qualification possessed by the Employee on the date of joining service	
5.	Designation of the Employee	
6.	Nature of the Work / Duty performed by the Employee (To be mentioned in brief)	
7.	Whether the person possesses the experience in the field of Project and Contract Management	Yes / No
8.	Whether the person possesses the experience in the field of Procurements, Bid Process Management	Yes / No
9.	Period of Experience in the field of Project and Contract Management	From ____ (date) To ____ (date)
10.	Total Experience (YY/MM/DD)	____ years ____ months ____ days
11.	Whether Attendance Register / Attendance Rolls / Pay Register and other records available for this Employee	Yes / No
12.	Name of the Organisation/ Institution	
13.	Type of Organisation / Institution (Government / Quasi Government / Public Sector Undertaking / Private etc.)	
14.	Address of the Organisation/ Institution	
15.	Phone No. and Email ID of the Organisation/ Institution	

This is to certify that Thiru/Tmt./Selvi possesses said experience in Project and Contract Management as on the date of notification (i.e., 31.08.2026). The above particulars furnished by me are correct.

Affix photograph of the employee with the signature of the Certifying Authority on the Photograph

Seal of Office / Officer:

Place
Date:

Signature
Name & Designation of the
Head of Organisation/ Institution /
Competent Authority

Note:

1. A certificate in the format prescribed should be obtained from the Head of the Organisation/ Institution wherein the individual had served or the authority competent to issue such certificate.
2. The competent authority who issues the certificate is cautioned that issuing of any certificate containing false details will lead to legal /penal action on them.

7. Experience Certificate for the post of Assistant General Manager (Projects) Infrastructure, in the Tamil Nadu Industrial Development Corporation (Post Code: 3345)

1.	Name of the Employee	
2.	Father / Spouse Name	
3.	Date of Birth	
4.	Qualification possessed by the Employee on the date of joining service	
5.	Designation of the Employee	
6.	Nature of the Work / Duty performed by the Employee (To be mentioned in brief)	
7.	Whether the person possesses the experience in the field of Infrastructure Sector	Yes / No
8.	Whether the person possesses the experience in the field of project management, procurements, Bid process management	Yes / No
9.	Period of Experience in the field of Infrastructure Sector	From ____ (date) To ____ (date)
10.	Total Experience (YY/MM/DD)	____ years ____ months ____ days
11.	Whether Attendance Register / Attendance Rolls / Pay Register and other records available for this Employee	Yes / No
12.	Name of the Organisation/ Institution	
13.	Type of Organisation / Institution (Government / Quasi Government / Public Sector Undertaking / Private etc.)	
14.	Address of the Organisation/ Institution	
15.	Phone No. and Email ID of the Organisation/ Institution	

This is to certify that Thiru/Tmt./Selvi possesses said experience in Infrastructure Sector as on the date of notification (i.e., 31.08.2026). The above particulars furnished by me are correct.

Affix photograph of the employee with the signature of the Certifying Authority on the Photograph

Seal of Office / Officer:

Place
Date:

Signature
Name & Designation of the
Head of Organisation/ Institution /
Competent Authority

Note:

1. A certificate in the format prescribed should be obtained from the Head of the Organisation/ Institution wherein the individual had served or the authority competent to issue such certificate.
2. The competent authority who issues the certificate is cautioned that issuing of any certificate containing false details will lead to legal /penal action on them.

8. Experience Certificate for the post of Assistant General Manager (Projects) Investment in the Tamil Nadu Industrial Development Corporation Limited (Post Code: 3343)

1.	Name of the Employee	
2.	Father / Spouse Name	
3.	Date of Birth	
4.	Qualification possessed by the Employee on the date of joining service	
5.	Designation of the Employee	
6.	Nature of the Work / Duty performed by the Employee (To be mentioned in brief)	
7.	Period of Experience in the evaluating financial models, business plans for infrastructure models	From ____ (date) To ____ (date)
8.	Total Experience (YY/MM/DD)	____ years ____ months ____ days
9.	Whether Attendance Register / Attendance Rolls / Pay Register and other records available for this Employee	Yes / No
10.	Name of the Organisation / Institution	
11.	Type of Organisation/ Institution [Factory / Industry / Government Department / Public Sector Undertaking]	
12.	Address of the Organisation / Institution	
13.	Phone No. and Email ID of the Organisation / Institution	

This is to certify that Thiru/Tmt./Selvi possesses said experience of evaluating financial models, business plans for infrastructure models as stated above, as on the date of notification (i.e., 31.08.2026). The above particulars furnished by me are correct.

Affix photograph of the employee with the signature of the Certifying Authority on the Photograph

Seal of Office / Officer:

Place
Date:

Signature
Name & Designation of the
Head of Organisation / Institution /
Competent Authority

Note:

1. A certificate in the format prescribed should be obtained from the Head of the Organisation/ Institution wherein the individual had served or the authority competent to issue such certificate.
2. The Competent authority who issues the certificate is cautioned that issuing of certificate which contains false or incorrect details will lead to legal / penal action against them.

**9. Experience Certificate for the post of Psychologist in Prisons and Correctional Services
(Post Code: 1942)**

1.	Name of the Employee	
2.	Father / Spouse Name	
3.	Date of Birth	
4.	Designation of the Employee	
5.	Nature of the Work / Duty performed by the Employee (To be mentioned in brief)	
6.	Whether the person possesses the experience in testing or clinical work in the field of Psychology	Yes / No
7.	Period of Experience in testing or clinical work in the field of Psychology	From ____ (date) To ____ (date)
8.	Total Experience (YY/MM/DD)	____ years ____ months ____ days
9.	Whether Attendance Register / Attendance Rolls / Pay Register and other records available for this Employee	Yes / No
10.	Name of the Organisation/ Institution	
11.	Type of Organisation / Institution (Government / Quasi Government / Public Sector Undertaking / Private etc.)	
12.	Address of the Organisation/ Institution	
13.	Phone No. and Email ID of the Organisation/ Institution	

This is to certify that Thiru/Tmt./Selvi possesses said experience in testing or clinical work in the field of Psychology as on the date of notification (i.e., 31.08.2026). The above particulars furnished by me are correct.

Affix photograph of the employee with the signature of the Certifying Authority on the Photograph

Seal of Office / Officer:

Place
Date:

Signature
Name & Designation of the
Head of Organisation/ Institution /
Competent Authority

Note:

1. A certificate in the format prescribed should be obtained from the Head of the Organisation/ Institution wherein the individual had served or the authority competent to issue such certificate.
2. The competent authority who issues the certificate is cautioned that issuing of any certificate containing false details will lead to legal /penal action on them.

10. Experience Certificate for the post of Deputy Manager (Instrumental) in the Tamil Nadu Cement Corporation Limited (Post Code: 3397)

1.	Name of the Employee	
2.	Father / Spouse Name	
3.	Date of Birth	
4.	Qualification possessed by the Employee on the date of joining service	
5.	Designation of the Employee	
6.	Nature of the Work / Duty performed by the Employee (To be mentioned in brief)	
7.	Period of Experience in one million ton capacity Cement Plant	From ____ (date) To ____ (date)
8.	Total Experience (YY/MM/DD)	____ years ____ months ____ days
9.	Whether Attendance Register / Attendance Rolls / Pay Register and other records available for this Employee	Yes / No
10.	Name of the Organisation / Institution	
11.	Address of the Organisation / Institution	
12.	Phone No. and Email ID of the Organisation / Institution	

This is to certify that Thiru/Tmt./Selvi possesses said experience in one million ton capacity Cement Plant as stated above, as on the date of notification (i.e., 31.08.2026). The above particulars furnished by me are correct.

Affix photograph of the employee with the signature of the Certifying Authority on the Photograph

Seal of Office / Officer:

Place
Date:

Signature
Name & Designation of the
Head of Organisation / Institution /
Competent Authority

Note:

1. A certificate in the format prescribed should be obtained from the Head of the Organisation/ Institution wherein the individual had served or the authority competent to issue such certificate.
2. The Competent authority who issues the certificate is cautioned that issuing of certificate which contains false or incorrect details will lead to legal / penal action against them.

11. Experience Certificate for the post of Deputy Manager (Safety) in the Tamil Nadu Cement Corporation Limited (Post Code: 3399)

1.	Name of the Employee	
2.	Father / Spouse Name	
3.	Date of Birth	
4.	Qualification possessed by the Employee on the date of joining service	
5.	Designation of the Employee	
6.	Nature of the Work / Duty performed by the Employee (To be mentioned in brief)	
7.	Period of Experience in the field of Industrial Safety	From ____ (date) To ____ (date)
8.	Total Experience (YY/MM/DD)	____ years ____ months ____ days
9.	Whether Attendance Register / Attendance Rolls / Pay Register and other records available for this Employee	Yes / No
10.	Name of the Organisation / Institution	
11.	Type of Organisation/ Institution [Factory / Industry / Government Department / Public Sector Undertaking]	
12.	Address of the Organisation / Institution	
13.	Phone No. and Email ID of the Organisation / Institution	

This is to certify that Thiru/Tmt./Selvi possesses said experience in the field of Industrial Safety as stated above, as on the date of notification (i.e., 31.08.2026). The above particulars furnished by me are correct.

Affix photograph of the employee with the signature of the Certifying Authority on the Photograph

Seal of Office / Officer:

Place
Date:

Signature
Name & Designation of the
Head of Organisation / Institution /
Competent Authority

Note:

1. A certificate in the format prescribed should be obtained from the Head of the Organisation/ Institution wherein the individual had served or the authority competent to issue such certificate.
2. The Competent authority who issues the certificate is cautioned that issuing of certificate which contains false or incorrect details will lead to legal / penal action against them.

12. Experience Certificate for the post of Unit Head - Deputy General Manager Cadre in the Tamil Nadu Cement Corporation Limited (Post Code: 3389)

1.	Name of the Employee	
2.	Father / Spouse Name	
3.	Date of Birth	
4.	Qualification possessed by the Employee on the date of joining service	
5.	Designation of the Employee	
6.	Nature of the Work / Duty performed by the Employee (To be mentioned in brief)	
7.	Period of Experience in one million ton capacity Cement Plant	From ____ (date) To ____ (date)
8.	a) Total Experience (YY/MM/DD)	____ years ____ months ____ days
	b) Experience in Senior position	____ years ____ months ____ days
9.	Whether Attendance Register / Attendance Rolls / Pay Register and other records available for this Employee	Yes / No
10.	Name of the Organisation / Institution	
11.	Address of the Organisation / Institution	
12.	Phone No. and Email ID of the Organisation / Institution	

This is to certify that Thiru/Tmt./Selvi possesses the said total experience in one million ton capacity cement plant of which ____ years of experience in senior position as stated above, as on the date of notification (i.e., 31.08.2026). The above particulars furnished by me are correct.

Affix photograph of the employee with the signature of the Certifying Authority on the Photograph

Seal of Office / Officer:

Place
Date:

Signature
Name & Designation of the
Head of Organisation / Institution /
Competent Authority

Note:

1. A certificate in the format prescribed should be obtained from the Head of the Organisation/ Institution wherein the individual had served or the authority competent to issue such certificate.
2. The Competent authority who issues the certificate is cautioned that issuing of certificate which contains false or incorrect details will lead to legal / penal action against them.

13. Experience Certificate for the post of Senior Entomologist in Public Health and Preventive Medicine (Post Code: 2032)

1.	Name of the Employee	
2.	Father / Spouse Name	
3.	Date of Birth	
4.	Qualification possessed by the Employee on the date of joining service	
5.	Designation of the Employee	
6.	Nature of the Work / Duty performed by the Employee (To be mentioned in brief)	
7.	Whether the person possesses Laboratory / Research experience in the relevant field / subject	Yes / No
8.	Period of Experience	From ____ (date) To ____ (date)
9.	Total Experience (YY/MM/DD)	____ years ____ months ____ days
10.	Whether Attendance Register / Attendance Rolls / Pay Register and other records available for this Employee	Yes / No
11.	Name of the Organisation/ Institution	
12.	Type of Organisation/ Institution / Firm	
13.	Address of the Organisation/ Institution	
14.	Phone No. and Email ID of the Organisation/ Institution	

This is to certify that Thiru/Tmt./Selvi possesses the said Laboratory / Research experience relevant to the field of Zoology / Entomology for _____ years from _____ to _____ in _____ (name of the *Approved Institution), as on the date of notification (i.e., 31.08.2026). The above particulars furnished by me are correct.

*Approved Institution such as

- i) ICMR, MRC, NCVBDC, UGC, University, College
- ii) Approved by the Government of India / Government of Tamil Nadu
- iii) Research oriented lab / Any scientific lab related to disease diagnosis
- iv) Approved private lab / Government lab / Medical College lab.

Affix photograph of the employee with the signature of the Certifying Authority on the Photograph

Seal of Office / Officer:

Signature
Name & Designation of the
Head of Organisation/ Institution /
Competent Authority

Place

Date:

Note:

1. A certificate in the format prescribed should be obtained from the Head of the Organisation/ Institution wherein the individual had served or the authority competent to issue such certificate.
2. The competent authority who issues the certificate is cautioned that issuing of any certificate containing false details will lead to legal /penal action on them.

14. Experience Certificate for the post of Bursar in the Collegiate Education Department (Post Code: 3010)

1.	Name of the Employee	
2.	Father / Spouse Name	
3.	Date of Birth	
4.	Qualification possessed by the Employee on the date of joining service	
5.	Designation of the Employee	
6.	Nature of the Work / Duty performed by the Employee (To be mentioned in brief)	
7.	Whether the employee possesses experience in Finance or Administration matters in Managerial Cadre / Officer Cadre	Yes / No
8.	Period of Experience	From ____ (date) To ____ (date)
9.	Total Experience (YY/MM/DD)	____ years ____ months ____ days
10.	Whether Attendance Register / Attendance Rolls / Pay Register and other records available for this Employee	Yes / No
11.	Name of the Organisation / Institution	
12.	Type of Organisation/ Institution [Government / University / Quasi Government Organisation / Public Sector Institution / Private Limited registered under Companies Act]	
13.	Address of the Organisation / Institution	
14.	Phone No. and Email ID of the Organisation / Institution	

This is to certify that Thiru/Tmt./Selvi possesses the experience in Finance or Administration matters@ as stated above, as on the date of notification (i.e., 31.08.2026). The above particulars furnished by me are correct.

@ strike out whichever is not applicable.

Affix photograph of the employee with the signature of the Certifying Authority on the Photograph

Seal of Office / Officer:

Place
Date:

Signature
Name & Designation of the
Head of Organisation / Institution /
Competent Authority

Note:

1. A certificate in the format prescribed should be obtained from the Head of the Organisation/ Institution wherein the individual had served or the authority competent to issue such certificate.
2. The Competent authority who issues the certificate is cautioned that issuing of certificate which contains false or incorrect details will lead to legal / penal action against them.

15. Experience Certificate for the post of Assistant Director of Town and Country Planning in the Housing and Urban Development Department (Post Code: 1778)

1.	Name of the Employee	
2.	Father / Spouse Name	
3.	Date of Birth	
4.	Designation of the Employee	
5.	Nature of the Work / Duty performed by the Employee (To be mentioned in brief)	
6.	Period of Experience	From ____ (date) To ____ (date)
7.	Total Experience (YY/MM/DD) in the Town Planning Works	____ years ____ months ____ days
8.	Whether Attendance Register / Attendance Rolls / Pay Register and other records available for this Employee	Yes / No
9.	Name of the Organisation/ Institution	
10.	Type of Organisation/ Institution [Town Planning Department of Government / Statutory Board / Urban Authority / University / Recognized Research Institution / Public Sector Undertaking / Semi-Government / Statutory / Autonomous Organization / Local Body]	
11.	Address of the Organisation / Institution	
12.	Phone No. and Email ID of the Organisation / Institution	

(a) **Other than Under Graduates in Planning@**

This is to certify that Thiru/Tmt./Selvi possess experience in Town Planning works in the Town Planning Department of Government/ Statutory Board / Urban Authority / University or Recognized Research Institution / Public Sector Undertaking / Semi-Government / Statutory / Autonomous Organization / Local Body as stated above, as on the date of notification (i.e., 31.08.2026). The above particulars furnished by me are correct.

(b) **Under Graduates in Planning@**

This is to certify that Thiru/Tmt./Selvi possess experience in the field of Urban or Regional Planning in the State Government / Statutory Board / Urban Authority / University / Recognized Research Institution / Public Sector Undertaking / Semi-Government / Statutory / Autonomous Organization / Local Body as stated above, as on the date of notification (i.e., 31.08.2026). The above particulars furnished by me are correct.

@ strike out whichever is not applicable.

Affix photograph of the employee with the signature of the Certifying Authority on the Photograph

Seal of Office / Officer:

Place
Date:

Signature
Name & Designation of the
Head of Organisation/ Institution /
Competent Authority

Note:

1. A certificate in the format prescribed should be obtained from the Head of the Organisation / Institution wherein the individual had served or the authority competent to issue such certificate.
2. The competent authority who issues the certificate is cautioned that issuing of any certificate containing false details will lead to legal / penal action on them.

16. Experience Certificate for the post of System Analyst in the Adi Dravidar Welfare (Post Code: 3833)

1.	Name of the Employee	
2.	Father / Spouse Name	
3.	Date of Birth	
4.	Qualification possessed by the Employee on the date of joining service	
5.	Designation of the Employee	
6.	Nature of the Work / Duty performed by the Employee (To be mentioned in brief)	
7.	Period of Experience in programming	From ____ (date) To ____ (date)
8.	Total Experience (YY/MM/DD)	____ years ____ months ____ days
9.	Whether Attendance Register / Attendance Rolls / Pay Register and other records available for this Employee	Yes / No
10.	Name of the Organisation / Institution	
11.	Type of Organisation/ Institution [Government / Quasi Government / Public Sector Undertaking / Private etc.]	
12.	Address of the Organisation / Institution	
13.	Phone No. and Email ID of the Organisation / Institution	

This is to certify that Thiru/Tmt./Selvi possesses said experience in programming in any reputed firm either in public or private sector as stated above, as on the date of notification (i.e., 31.08.2026). The above particulars furnished by me are correct.

Affix photograph of the employee with the signature of the Certifying Authority on the Photograph

Seal of Office / Officer:

Place
Date:

Signature
Name & Designation of the
Head of Organisation / Institution /
Competent Authority

Note:

1. A certificate in the format prescribed should be obtained from the Head of the Organisation / Institution wherein the individual had served or the authority competent to issue such certificate.
2. The Competent authority who issues the certificate is cautioned that issuing of certificate which contains false or incorrect details will lead to legal / penal action against them.

Annexure VI

1. Form for Certificate for Allocation of Scribe / Compensatory Time

This is to certify that I have examined Mr/Ms/Mrs. _____ (Name of the candidate with disability) a person with _____ (Nature and percentage of disability as mentioned in the certificate of disability), S/o/D/o _____ a resident of _____ (Village / District / State and to state that He / She has physical limitation which hampers his / her writing capabilities owing to his / her disability).

Due to the above mentioned disability following concession may be given:- *

1. Allocation of a scribe.
2. Compensatory time for writing the examination.

*strike out the non applicable.

Signature

(Name of Government Hospital / Civil Surgeon / Medical Superintendent / Signature of the notified Medical Authority of a Government Health Care Institution / Medical Board)

Name & Designation

Name of Government Hospital / Health Care Centre / The notified Medical Authority/ Medical Board

Place:

Date:

Signature / Thumb impression
of the Differently Abled Person

(Photo of the
Differently
Able Person
and Stamp to
be fixed here)

Note:

Certificate should be given by a specialist of the relevant stream / disability

(e.g. Visual Impairment – Ophthalmologist, Locomotor disability – Orthopedic Specialist / PMR etc.,)

2. Certificate from the Head of Institution/ University

This is to certify that Thiru/Tmt/Selvi. _____ son / daughter of Thiru/Tmt. _____ bearing Register no. _____, completed the _____ course during the academic year _____ to _____ in our Institution / University. He / she has successfully completed all the requirements of the course / program and results for all subjects were declared on _____

Photograph of the
candidate with the
signature of the
authorised
signatory

Office Seal:

Date: _____

Signature (with Seal) of the
Authorised Signatory of the Institution /
University (Controller of Examinations /
Principal / Registrar)

3. Undertaking for spelling mistake in the Name/Mistake in the initial of the candidate in the certificate

I, _____, son/daughter of _____, hereby declare that spelling of my name/initial* has been wrongly mentioned as _____ in the _____ Certificate uploaded by me.

My correct name is _____, and both names refer to one and the same.

* Strike out whichever is not applicable

Date: _____

Place: _____

Signature of Candidate: _____

Name: _____

Notification No. & Date. _____

4. Undertaking for spelling mistake in the Name/Mistake in the initial of the Father/Mother's name in the certificate

I, _____, son/daughter of _____, residing at _____ do hereby declare that in the Community Certificate uploaded by me, my Father's/Mother's Name /initial* has been wrongly mentioned as _____ instead of _____.

Both the above names refer to one and the same.

* Strike out whichever is not applicable

Date: _____

Place: _____

Signature of Candidate: _____

Name: _____

Notification No. & Date. _____

5. Form for Eye Fitness Certificate

1. Name		
2. Father's Name		
3. Visual standard without glasses	Right Eye	Left Eye
a. Distant Vision (without glasses)		
b. Near Vision (without glasses)		
4. Field Vision		
5. Color Vision		
6. Fundus appearance		
7. Whether suffering from colour blindness (Yes / No)		
8. Whether suffering from night blindness? (Yes / No)		
9. Standard of Vision (I or II or III)		
Signature of the Specialist in Ophthalmology		
Name		
Name of the Speciality		
Designation		
Date of Issue		
Name of the Institution with Seal		
Note: Colour blindness/Night blindness is a disqualification for the posts of Senior Entomologist (Post Code.2032), Assistant Director of Textiles (Post Code.3594) and Manager (Accounts) (Post Code.3809)		

6. Sight Test Certificate for the post of Port Officer

Rotation No.

Full Name :

Date of Birth :

Place of Birth :

Rank :

Height :

Colour of Eyes:

Hair :

Complexion :

Personal Marks:

I hereby certify that the result of examination is as follows*:

Aids to Vision		From	Colour	Results
Standard	With / Without			
Newly Entry	Without			

1. He may be examined at any time with aids to vision.
2. He may be examined after a lapse of one month.
3. He may not be re-examined again without prior approval of the Chief Examiner.

Dated at this day

Examiner's Signature _____

District _____

Mercantile Marine Department

Candidate's Signature _____

Note: * Where not examined indicate by starting N.E.,

Delete if not applicable

This certificate is valid for twelve months from the above date.