

BSTET

(Class 11-12)

Previous Year Paper
(Math)
02 Nov, 2025 Shift 2



बिहार विद्यालय परीक्षा समिति
BIHAR SCHOOL EXAMINATION BOARD

Exam Name	STET Exam 2025
Paper	Paper II
Roll No	
Participant Name	
Test Center Name	
Test Date	02/11/2025
Test Time	2:00 PM - 4:30 PM

Section : Part I Math(213)

Q.1 In a transportation problem with 4 supply points and 5 demand points, the number of constraints required in its formulation is

- Ans ☒ A. 0
☒ B. 1
☒ C. 9
☒ D. 20

Question Type : MCQ

Question ID : 4335765495

Option 1 ID : 43357621977

Option 2 ID : 43357621978

Option 3 ID : 43357621979

Option 4 ID : 43357621980

Status : Answered

Chosen Option : D

Q.2 A function f is defined on $[0,1]$ by

$$f(x) = 2rx, \frac{1}{r+1} < x < \frac{1}{r}, r = 1, 2, 3, \dots \dots \text{Then}$$

R-integral of f over $[0,1]$ is equal to

- Ans ☒ A. $\pi/6$
☒ B. $\pi/4$
☒ C. $\frac{\pi^2}{4}$
☒ D. $\frac{\pi^2}{6}$

Question Type : MCQ

Question ID : 4335765502

Option 1 ID : 43357622005

Option 2 ID : 43357622006

Option 3 ID : 43357622007

Option 4 ID : 43357622008

Status : Answered

Chosen Option : B

Q.3 In the simplex method if in pivot column all the entries are negative or zero when choosing leaving variables, then the solution is

- Ans
- A. Degenerate
 - B. Infeasible
 - C. Unbounded
 - D. optima

Question Type : MCQ
Question ID : 4335765547
Option 1 ID : 43357622185
Option 2 ID : 43357622186
Option 3 ID : 43357622187
Option 4 ID : 43357622188
Status : Answered
Chosen Option : B

Q.4 Which of the following is NOT a valid method to solve a non-homogeneous differential equation?

- Ans
- A. Method of undetermined coefficients
 - B. Variation of parameters
 - C. Separation of variables
 - D. Superposition principle

Question Type : MCQ
Question ID : 4335765670
Option 1 ID : 43357622677
Option 2 ID : 43357622678
Option 3 ID : 43357622679
Option 4 ID : 43357622680
Status : Answered
Chosen Option : D

Q.5 The value of $\int_C \frac{z^2-4}{z(z^2+9)}$, where C is the circle $|z| = 1$ is

- Ans
- A. $\frac{-2\pi i}{9}$
 - B. $\frac{-4\pi i}{9}$
 - C. $\frac{-8\pi i}{9}$
 - D. None of these

Question Type : MCQ
Question ID : 4335765601
Option 1 ID : 43357622401
Option 2 ID : 43357622402
Option 3 ID : 43357622403
Option 4 ID : 43357622404
Status : Answered
Chosen Option : C

Q.6 The feasible region of LPP is always a

- Ans A. Convex Polyhedron
- B. Polytope
- C. Hyperplane
- D. none of these

Question Type : MCQ
Question ID : 4335765623
Option 1 ID : 43357622489
Option 2 ID : 43357622490
Option 3 ID : 43357622491
Option 4 ID : 43357622492
Status : Answered
Chosen Option : C

Q.7 Let A and B be two connected subsets of a metric space (X, d). Then A ∪ B is connected if

- Ans A. Either A = ∅ or B = ∅
- B. A ≠ ∅ but B = ∅
- C. A = ∅ but B ≠ ∅
- D. A ∩ B ≠ ∅

Question Type : MCQ
Question ID : 4335765537
Option 1 ID : 43357622145
Option 2 ID : 43357622146
Option 3 ID : 43357622147
Option 4 ID : 43357622148
Status : Answered
Chosen Option : D

Q.8

The imaginary part of $\cot^{-1} \left(\frac{3-2i}{3+2i} \right)$ is?

- Ans A. log5
- B. $\log\sqrt{5}$
- C. log7
- D. $\log\sqrt{7}$

Question Type : MCQ
Question ID : 4335765558
Option 1 ID : 43357622229
Option 2 ID : 43357622230
Option 3 ID : 43357622231
Option 4 ID : 43357622232
Status : Answered
Chosen Option : D

Q.9

- Ans
- A. 1
 - B. 2
 - C. 3
 - D. None of these

Question Type : MCQ
Question ID : 4335765562
Option 1 ID : 43357622245
Option 2 ID : 43357622246
Option 3 ID : 43357622247
Option 4 ID : 43357622248
Status : Answered
Chosen Option : D

Q.10 The number of sylow subgroup(s) of order 3 of a given group of order 15 is

- Ans
- A. 5
 - B. 3
 - C. 1
 - D. 0

Question Type : MCQ
Question ID : 4335765515
Option 1 ID : 43357622057
Option 2 ID : 43357622058
Option 3 ID : 43357622059
Option 4 ID : 43357622060
Status : Answered
Chosen Option : A

Q.11

The characteristic polynomial of the matrix $A = \begin{bmatrix} 2 & -1 & 1 \\ -1 & 2 & -1 \\ 1 & -1 & 2 \end{bmatrix}$ is

- Ans
- A. $-\lambda^3 - 6\lambda^2 + 9\lambda - 4$
 - B. $\lambda^3 + 6\lambda^2 + 9\lambda - 4$
 - C. $\lambda^3 + 6\lambda^2 + 9\lambda + 4$
 - D. $-\lambda^3 + 6\lambda^2 - 9\lambda + 4$

Question Type : MCQ
Question ID : 4335765592
Option 1 ID : 43357622365
Option 2 ID : 43357622366
Option 3 ID : 43357622367
Option 4 ID : 43357622368
Status : Answered
Chosen Option : D

Q.12 The differential equation determining pressure P at a point of a fluid of density P is

- Ans A. $dp=P(Xdx+Ydy+Zdz)$
B. $dp=P(Xdx-Ydy+Zdz)$
C. $dp=P(Xdx+Ydy-Zdz)$
D. None of these

Question Type : MCQ
Question ID : 4335765627
Option 1 ID : 43357622505
Option 2 ID : 43357622506
Option 3 ID : 43357622507
Option 4 ID : 43357622508
Status : Answered
Chosen Option : A

Q.13 The value of the integral $\int_0^2 \frac{1}{1+x} dx$ when evaluated with Trapezoidal rule with four intervals is

- Ans A. 3.00
B. 0
C. 1.115
D. 2.1150000000000002

Question Type : MCQ
Question ID : 4335765545
Option 1 ID : 43357622177
Option 2 ID : 43357622178
Option 3 ID : 43357622179
Option 4 ID : 43357622180
Status : Answered
Chosen Option : B

Q.14 The directional derivative of $f(x,y,z) = 5x^2 - 2xy + y^2 - 4yz + z^2 + 3xz$ in the direction of $\vec{v} = -\hat{i} + 2\hat{j} + 2\hat{k}$ at $(1, -2, 3)$ is

- Ans A. 25/3
B. 8/3
C. (-21)/3
D. (-25)/3

Question Type : MCQ
Question ID : 4335765524
Option 1 ID : 43357622093
Option 2 ID : 43357622094
Option 3 ID : 43357622095
Option 4 ID : 43357622096
Status : Answered
Chosen Option : D

Q.15 Let C be the set of complex numbers and R . The set of real numbers. The map $f:C \rightarrow R$ defined by $f(z)=|z|^2$ is

- Ans
- A. one-one
 - B. Onto
 - C. Bijective
 - D. neither one-one nor onto.

Question Type : MCQ

Question ID : 4335765646

Option 1 ID : 43357622581

Option 2 ID : 43357622582

Option 3 ID : 43357622583

Option 4 ID : 43357622584

Status : Answered

Chosen Option : D

Q.16 The shortest distance between the straight lines given by $ax + z + d = 0 = ax + y + z + d'$ and the axis of z is?

- Ans
- A. $\left| \frac{d-d'}{\sqrt{1+a^2}} \right|$
 - B. 0
 - C. $|d - d'|$
 - D. $\left| \frac{d-d'}{a} \right|$

Question Type : MCQ

Question ID : 4335765568

Option 1 ID : 43357622269

Option 2 ID : 43357622270

Option 3 ID : 43357622271

Option 4 ID : 43357622272

Status : Answered

Chosen Option : A

Q.17 Let α, β ($\alpha > \beta$) be the roots of the quadratic equation

$x^2 - x - 4 = 0$. If $U_n = \alpha^n - \beta^n$, $n \in \mathbb{N}$, then

$\frac{U_{2024}U_{2025} - U_{2023}U_{2025} - U_{2024}^2 + U_{2023}U_{2024}}{U_{2022} \cdot U_{2023}}$ is equal to

- Ans
- A. 4
 - B. 8
 - C. 12
 - D. 16

Question Type : MCQ
Question ID : 4335765488
Option 1 ID : 43357621949
Option 2 ID : 43357621950
Option 3 ID : 43357621951
Option 4 ID : 43357621952
Status : Answered
Chosen Option : D

Q.18 Gauss theorem uses the operation

- Ans
- A. Gradient
 - B. Divergence
 - C. Curl
 - D. Laplacian

Question Type : MCQ
Question ID : 4335765657
Option 1 ID : 43357622625
Option 2 ID : 43357622626
Option 3 ID : 43357622627
Option 4 ID : 43357622628
Status : Answered
Chosen Option : A

Q.19 Let (X, d) be a metric space. Then X is disconnected if

- Ans
- A. There exists a continuous function on discrete two space
 - B. There exists a continuous function on indiscrete two space
 - C. There does not exist a continuous function on discrete two space
 - D. None of these

Question Type : MCQ
Question ID : 4335765534
Option 1 ID : 43357622133
Option 2 ID : 43357622134
Option 3 ID : 43357622135
Option 4 ID : 43357622136
Status : Answered
Chosen Option : A

Q.20 This distance travelled by a particle in time t is given by $x = 2 \cos at - \sin(2a-1)t$ ($a \neq 1$) if the motion is S.H.M then $a = \dots\dots$

Ans

A. $1/3$

B. $1/4$

C. $1/2$

D. $\sqrt{3}+1$

Question Type : MCQ

Question ID : 4335765614

Option 1 ID : 43357622453

Option 2 ID : 43357622454

Option 3 ID : 43357622455

Option 4 ID : 43357622456

Status : Answered

Chosen Option : D

Q.21 If $u = \frac{1}{2} \log(x^2 + y^2)$ is harmonic, then its harmonic conjugate is

Ans

A. $\tan^{-1}\left(\frac{y}{x}\right) + c$

B. $\cos^{-1}\left(\frac{y}{x}\right) + c$

C. $x^2 + y^2 + c$

D. $\sin^{-1}\left(\frac{y}{x}\right) + c$

Question Type : MCQ

Question ID : 4335765600

Option 1 ID : 43357622397

Option 2 ID : 43357622398

Option 3 ID : 43357622399

Option 4 ID : 43357622400

Status : Answered

Chosen Option : A

Q.22

The radius of convergence of the power series

$$\sum_{n=1}^{\infty} \left(1 + \frac{a}{n} + \frac{b}{n^2}\right) x^n \text{ is}$$

Ans

A. $1/e$

B. $\frac{1}{e^a}$

C. $\frac{1}{e^{\frac{a^2}{b}}}$

D. None

Question Type : MCQ

Question ID : 4335765501

Option 1 ID : 43357622001

Option 2 ID : 43357622002

Option 3 ID : 43357622003

Option 4 ID : 43357622004

Status : Answered

Chosen Option : A

Q.23 If the principal part of the Laurent's series is Zero, then the laurent's series reduces to

Ans

A. Maclaurin's series

B. Cauchy series

C. Taylor series

D. None of these

Question Type : MCQ

Question ID : 4335765603

Option 1 ID : 43357622409

Option 2 ID : 43357622410

Option 3 ID : 43357622411

Option 4 ID : 43357622412

Status : Answered

Chosen Option : B

Q.24 The constraint in general Lpp are?

Ans

A. linear Function

B. Non-linear function

C. constant function

D. None of these

Question Type : MCQ

Question ID : 4335765622

Option 1 ID : 43357622485

Option 2 ID : 43357622486

Option 3 ID : 43357622487

Option 4 ID : 43357622488

Status : Answered

Chosen Option : A

Q.25 Let C be the set of complex numbers and R . The set of real numbers. The map $f: C \rightarrow R$ defined by $f(z) = |z|$ is

- Ans
- A. one-one
 - B. Onto
 - C. Bijective
 - D. neither one-one nor onto.

Question Type : MCQ
Question ID : 4335765514
Option 1 ID : 43357622053
Option 2 ID : 43357622054
Option 3 ID : 43357622055
Option 4 ID : 43357622056
Status : Answered
Chosen Option : B

Q.26 The linear Diophantine equation $ax+by = c$ with $d = \gcd(a, b)$ has a solution in integers if and only if

- Ans
- A. d/c
 - B. c/d
 - C. $d/(ax+by)$
 - D. Both d/c and $d/(ax+by)$

Question Type : MCQ
Question ID : 4335765635
Option 1 ID : 43357622537
Option 2 ID : 43357622538
Option 3 ID : 43357622539
Option 4 ID : 43357622540
Status : Answered
Chosen Option : C

Q.27 On the set of real numbers, we define $x R y$ iff $xy \geq 0$, then the relation R is

- Ans
- A. Reflexive but not symmetric
 - B. Symmetric but not reflexive
 - C. Transitive but not reflexive
 - D. Reflexive and symmetric but not transitive

Question Type : MCQ
Question ID : 4335765560
Option 1 ID : 43357622237
Option 2 ID : 43357622238
Option 3 ID : 43357622239
Option 4 ID : 43357622240
Status : Answered
Chosen Option : D

Q.28

If $A = \begin{bmatrix} 3 & -3 & 4 \\ 2 & -3 & 4 \\ 0 & -1 & 1 \end{bmatrix}$, then A^{-1} is

Ans

A. $\begin{bmatrix} 1 & 1 & 0 \\ 2 & 3 & 4 \\ 2 & 3 & 3 \end{bmatrix}$

B. $\begin{bmatrix} 1 & 1 & 0 \\ 2 & 3 & 2 \\ 2 & 4 & 2 \end{bmatrix}$

C. $\begin{bmatrix} 1 & -1 & 0 \\ -2 & 3 & 4 \\ -2 & 3 & 3 \end{bmatrix}$

D. None of these

Question Type : MCQ

Question ID : 4335765591

Option 1 ID : 43357622361

Option 2 ID : 43357622362

Option 3 ID : 43357622363

Option 4 ID : 43357622364

Status : Answered

Chosen Option : D

Q.29 A metric space is compact iff it is

Ans A. Totally bounded only

B. Complete only

C. Totally bounded & complete

D. none of the above

Question Type : MCQ

Question ID : 4335765611

Option 1 ID : 43357622441

Option 2 ID : 43357622442

Option 3 ID : 43357622443

Option 4 ID : 43357622444

Status : Answered

Chosen Option : C

Q.30 If mass of sun is doubled, the time period of planet moving in the same orbit will

- Ans
- A. Remain same
 - B. become double
 - C. Become half
 - D. Decrease to almost 70 percent

Question Type : MCQ
Question ID : 4335765540
Option 1 ID : 43357622157
Option 2 ID : 43357622158
Option 3 ID : 43357622159
Option 4 ID : 43357622160
Status : Answered
Chosen Option : A

Q.31 In any vector space $V(F)$, the false result among the following is

- Ans
- A. $0 \cdot x = 0, \forall x \in V$
 - B. $\alpha \cdot 0 = 0, \forall \alpha \in F$
 - C. $(-\alpha)x = -(\alpha x) = \alpha(-x), \forall \alpha, x \in V$
 - D. $(\alpha - \beta)x = \alpha x - \beta x, \forall \alpha, \beta \in F, x \in V$

Question Type : MCQ
Question ID : 4335765520
Option 1 ID : 43357622077
Option 2 ID : 43357622078
Option 3 ID : 43357622079
Option 4 ID : 43357622080
Status : Answered
Chosen Option : D

Q.32 The equation $x^2(y-1)u_{xx} - x(y^2-1)u_{xy} + y(y-1)u_{yy} + u_x = 0$ is hyperbolic in the entire x-y plane except.

- Ans
- A. X-axis
 - B. Y-axis
 - C. A line parallel to Y-axis
 - D. None of these

Question Type : MCQ
Question ID : 4335765581
Option 1 ID : 43357622321
Option 2 ID : 43357622322
Option 3 ID : 43357622323
Option 4 ID : 43357622324
Status : Answered
Chosen Option : A

Q.33

The radius of convergence of the power

series $az + a^3z^3 + a^5z^5 + \dots$ where $|a| < 1$ $a \neq 0$ is

- Ans
- A. $1/|a|$
 - B. $|a|$
 - C. $|a|^2$
 - D. 0

Question Type : MCQ
Question ID : 4335765529
Option 1 ID : 43357622113
Option 2 ID : 43357622114
Option 3 ID : 43357622115
Option 4 ID : 43357622116
Status : Answered
Chosen Option : D

Q.34

If the D.E $(3a^2x^2 + by \cos x) dx + (2\sin x - 4ay^3) dy = 0$ is exact then $a^2 + b^2 = \dots$

- Ans
- A. 13
 - B. 25
 - C. 29
 - D. None of these

Question Type : MCQ
Question ID : 4335765580
Option 1 ID : 43357622317
Option 2 ID : 43357622318
Option 3 ID : 43357622319
Option 4 ID : 43357622320
Status : Answered
Chosen Option : D

Q.35

While solving the equation $x^2 - 3x + 1 = 0$ using the Newton-Raphson method with initial guess of a root as 1, then the value of root after one iteration is

- Ans
- A. 1.5
 - B. 1
 - C. 0.5
 - D. 0

Question Type : MCQ
Question ID : 4335765617
Option 1 ID : 43357622465
Option 2 ID : 43357622466
Option 3 ID : 43357622467
Option 4 ID : 43357622468
Status : Answered
Chosen Option : D

Q.36 The cross ratio of the four points $(z_1z_2z_3z_4)$ is real if and only if the four points lie on a

- Ans A. circle
 B. straight lines
 C. circle or on a straight line
 D. circle and on a straight line

Question Type : MCQ
Question ID : 4335765659
Option 1 ID : 43357622633
Option 2 ID : 43357622634
Option 3 ID : 43357622635
Option 4 ID : 43357622636
Status : Answered
Chosen Option : B

Q.37 Choose the incorrect statement

- Ans A. Rank of A $\neq$ Rank of AB
 B. Rank of (AB) $\leq$ min(Rank A, Rank B)
 C. Rank of (AB) = Rank of (BA)
 D. Rank of (A-B) $\leq$ Rank of A- Rank of B

Question Type : MCQ
Question ID : 4335765651
Option 1 ID : 43357622601
Option 2 ID : 43357622602
Option 3 ID : 43357622603
Option 4 ID : 43357622604
Status : Answered
Chosen Option : D

Q.38 A linear programming problem is as follows Maximize $z = 30x - 18y$ subject to the constraints $3x + 4y \leq 60$, $5x - 3y \geq 0$, $x, y \geq 0$. In the feasible region, the Maximum value of Z occurs at

- Ans A. One point
 B. Two point
 C. Three point
 D. Infinitely many points

Question Type : MCQ
Question ID : 4335765493
Option 1 ID : 43357621969
Option 2 ID : 43357621970
Option 3 ID : 43357621971
Option 4 ID : 43357621972
Status : Answered
Chosen Option : D

Q.39 The linear congruence $17x \equiv 9 \pmod{256}$ is equivalent to finding a solution for system of congruence...

- Ans
- A. $x \equiv 0 \pmod{3}, x \equiv 1 \pmod{4}, 17x \equiv 9 \pmod{23}$
 - B. $2x \equiv 0 \pmod{3}, 3x \equiv 2 \pmod{4}, 17x \equiv 9 \pmod{23}$
 - C. $x \equiv 1 \pmod{3}, x \equiv 2 \pmod{4}, 17x \equiv 9 \pmod{23}$
 - D. $17x \equiv 1 \pmod{3}, 17x \equiv 3 \pmod{4}, 17x \equiv 3 \pmod{23}$

Question Type : MCQ
Question ID : 4335765565
Option 1 ID : 43357622257
Option 2 ID : 43357622258
Option 3 ID : 43357622259
Option 4 ID : 43357622260
Status : Answered
Chosen Option : C

Q.40 The true statement(s) for correlation analysis is

- Ans
- A. It is a univariate analysis
 - B. It is a bivariate analysis
 - C. It is a multivariate analysis
 - D. Both (a) and (b)

Question Type : MCQ
Question ID : 4335765555
Option 1 ID : 43357622217
Option 2 ID : 43357622218
Option 3 ID : 43357622219
Option 4 ID : 43357622220
Status : Answered
Chosen Option : A

Q.41 Using Rolle's theorem, the equation $a_0 x^n + a_1 x^{n-1} + \dots + a_n = 0$ has at least one root between 0 and 1, if

- Ans
- A. $\frac{a_0}{n} + \frac{a_1}{n-1} + \dots + a_{n-1} = 0$
 - B. $\frac{a_0}{n-1} + \frac{a_1}{n-2} + \dots + a_{n-2} = 0$
 - C. $na_0 + (n-1)a_1 + \dots + a_{n-1} = 0$
 - D. $\frac{a_0}{n+1} + \frac{a_1}{n} + \dots + a_n = 0$

Question Type : MCQ
Question ID : 4335765575
Option 1 ID : 43357622297
Option 2 ID : 43357622298
Option 3 ID : 43357622299
Option 4 ID : 43357622300
Status : Answered
Chosen Option : D

Q.42 Let $f(x)$ be a cubic polynomial with real coefficients. Suppose that $f(x)$ has exactly one real root and that this root is simple. Which one of the following statements holds for ALL antideviratives $F(x)$ of $f(x)$?

- Ans A. $F(x)$ has exactly one real root.
 B. $F(x)$ has exactly four real roots.
 C. $F(x)$ has at most two real roots.
 D. $F(x)$ has at most one real root.

Question Type : MCQ
Question ID : 4335765507
Option 1 ID : 43357622025
Option 2 ID : 43357622026
Option 3 ID : 43357622027
Option 4 ID : 43357622028
Status : Answered
Chosen Option : A

Q.43 It optimal solution exists in Dual simplex Algorithm, then

- Ans A. $\text{Max } f = -\max(-g)$
 B. $\text{Max } f = -\text{Min } g$
 C. $\text{Max } f = -\max g$
 D. $\text{Max } f = -\text{Min }(-g)$

Question Type : MCQ
Question ID : 4335765645
Option 1 ID : 43357622577
Option 2 ID : 43357622578
Option 3 ID : 43357622579
Option 4 ID : 43357622580
Status : Answered
Chosen Option : C

Q.44 Let $F(x,y,z) = x^2+y^2+z^2-1$. According to the Implict Function Theorem, near the point $(0,0,1)$ which variable can be written as function of the others?

- Ans A. $x = g(y, z)$
 B. $y = g(x,z)$
 C. $z = g(x,y)$
 D. None of these

Question Type : MCQ
Question ID : 4335765526
Option 1 ID : 43357622101
Option 2 ID : 43357622102
Option 3 ID : 43357622103
Option 4 ID : 43357622104
Status : Answered
Chosen Option : C

Q.45 Let G be a group of order 49, then

- Ans
- A. G is abelian
 - B. G is cyclic
 - C. G is non – abelian
 - D. Centre of G has order 7

Question Type : MCQ
Question ID : 4335765587
Option 1 ID : 43357622345
Option 2 ID : 43357622346
Option 3 ID : 43357622347
Option 4 ID : 43357622348
Status : Answered
Chosen Option : A

Q.46 The roots of the equation $ax^3 + bx^2 + cx + d = 0$ are in Geometric Progression, then

- Ans
- A. $ac^3 = b^3d$
 - B. $a^3c = b^3d$
 - C. $ac^3 = bd^3$
 - D. $ac^2 = b^2d$

Question Type : MCQ
Question ID : 4335765486
Option 1 ID : 43357621941
Option 2 ID : 43357621942
Option 3 ID : 43357621943
Option 4 ID : 43357621944
Status : Answered
Chosen Option : A

Q.47 The singular solution of the D.E $y = px + p^3$, where $p = \frac{dy}{dx}$ is

- Ans
- A. $4y^2 + 27x^2 = 0$
 - B. $4x^3 + 27y^2 = 0$
 - C. $4x^2 + 27y^3 = 0$
 - D. $4y^2 + 27x^3 = 0$

Question Type : MCQ
Question ID : 4335765576
Option 1 ID : 43357622301
Option 2 ID : 43357622302
Option 3 ID : 43357622303
Option 4 ID : 43357622304
Status : Answered
Chosen Option : B

Q.48 The set of integers such that every integer is congruent modulo m to exactly one integer of the set is called _____ modulom

- Ans A. Reduced Residue System (RRS)
 B. Complete Residue System (CRS)
 C. Elementary Residue System (ERS)
 D. None of these

Question Type : MCQ
Question ID : 4335765637
Option 1 ID : 43357622545
Option 2 ID : 43357622546
Option 3 ID : 43357622547
Option 4 ID : 43357622548
Status : Answered
Chosen Option : C

Q.49 Which transformation is generally used to reduce a PDE with variable coefficients to one with constant coefficients?

- Ans A. Change of variables
 B. Fourier Transform
 C. Laplace Transform
 D. Integration by parts

Question Type : MCQ
Question ID : 4335765671
Option 1 ID : 43357622681
Option 2 ID : 43357622682
Option 3 ID : 43357622683
Option 4 ID : 43357622684
Status : Answered
Chosen Option : C

Q.50 If $\alpha, \beta, \gamma, \delta$, be the roots of the equation $x^4 - 7x^2 + 4x - 3 = 0$, then $\sum \alpha^5 = \dots$?

- Ans A. -56
 B. -84
 C. -120
 D. -140

Question Type : MCQ
Question ID : 4335765559
Option 1 ID : 43357622233
Option 2 ID : 43357622234
Option 3 ID : 43357622235
Option 4 ID : 43357622236
Status : Answered
Chosen Option : B

Q.51 The principle of virtual work can be applied to elastic system by considering the virtual work of

- Ans A. internal forces only
 B. external forces only
 C. internal as well as external forces
 D. None of these

Question Type : MCQ
Question ID : 4335765674
Option 1 ID : 43357622693
Option 2 ID : 43357622694
Option 3 ID : 43357622695
Option 4 ID : 43357622696
Status : Answered
Chosen Option : C

Q.52 For a floating body to be in a stable equilibrium where G is the centre of gravity, B is the centre of buoyancy and M is the metacentre

- Ans A. M and G coincide
 B. M is below G
 C. M is above G
 D. M and B coincide

Question Type : MCQ
Question ID : 4335765552
Option 1 ID : 43357622205
Option 2 ID : 43357622206
Option 3 ID : 43357622207
Option 4 ID : 43357622208
Status : Answered
Chosen Option : C

Q.53 The order of Bisection method is

- Ans A. 1
 B. 0
 C. 2
 D. None of these

Question Type : MCQ
Question ID : 4335765680
Option 1 ID : 43357622717
Option 2 ID : 43357622718
Option 3 ID : 43357622719
Option 4 ID : 43357622720
Status : Answered
Chosen Option : C

Q.54 If X have a Poisson distribution such that $P(X=1) = P(X=2)$. Then its mean is-

- Ans
- A. 1
 - B. 1.5
 - C. 2
 - D. none of these

Question Type : MCQ
Question ID : 4335765633
Option 1 ID : 43357622529
Option 2 ID : 43357622530
Option 3 ID : 43357622531
Option 4 ID : 43357622532
Status : Answered
Chosen Option : A

Q.55 Let S be the set of all natural numbers for which the line $\frac{x}{a} + \frac{y}{b} = 2$, touches the curve

$\left(\frac{x}{a}\right)^n + \left(\frac{y}{b}\right)^n = 2$ at the point (a, b) , $ab \neq 0$. Then

- Ans
- A. $S = \varphi$
 - B. $S = \mathbb{N}$
 - C. $n(S) = 1$
 - D. $S = \{2k : k \in \mathbb{N}\}$

Question Type : MCQ
Question ID : 4335765500
Option 1 ID : 43357621997
Option 2 ID : 43357621998
Option 3 ID : 43357621999
Option 4 ID : 43357622000
Status : Answered
Chosen Option : D

Q.56 If A is an $n \times n$ matrix over $\mathbb{R}$ with minimal polynomial $m_A(x) = (x - 1)^3(x + 2)^2$, what is the size of the largest Jordan block associated to the eigenvalue 1?

- Ans
- A. 1
 - B. 2
 - C. 3
 - D. 4

Question Type : MCQ
Question ID : 4335765521
Option 1 ID : 43357622081
Option 2 ID : 43357622082
Option 3 ID : 43357622083
Option 4 ID : 43357622084
Status : Answered
Chosen Option : B

Q.57 In a linear programming problem, the feasible region

- Ans
- A. Consists of only the boundary lines formed by the constraint
 - B. Is the set of all solutions that satisfy the constraint equations but not necessarily the non-negatively restrictions
 - C. Represents all possible values that satisfy the objective function
 - D. Is defined by the intersection of all the constraint inequalities and the non-negatively restrictions.

Question Type : MCQ
Question ID : 4335765546
Option 1 ID : 43357622181
Option 2 ID : 43357622182
Option 3 ID : 43357622183
Option 4 ID : 43357622184
Status : Answered
Chosen Option : C

Q.58 The radius of convergence of the series $\frac{z}{2} + \frac{1.3}{2.5} z^2 + \frac{1.3.5}{2.5.8} z^3 + \dots$ is

- Ans
- A. 1/3
 - B. 2/3
 - C. 1/4
 - D. 3/2

Question Type : MCQ
Question ID : 4335765604
Option 1 ID : 43357622413
Option 2 ID : 43357622414
Option 3 ID : 43357622415
Option 4 ID : 43357622416
Status : Answered
Chosen Option : B

Q.59 Linear combinations of solutions of an ordinary differential equation are also solutions if the differential equation is

- Ans
- A. Linear non homogeneous
 - B. Linear homogeneous
 - C. Non-linear homogeneous
 - D. Non-linear non-homogenous

Question Type : MCQ
Question ID : 4335765642
Option 1 ID : 43357622565
Option 2 ID : 43357622566
Option 3 ID : 43357622567
Option 4 ID : 43357622568
Status : Answered
Chosen Option : B

Q.60

Ans

- A. $\frac{n(n+1)(n+4)}{3}$
- B. $\frac{n(n+1)(n+4)(n+5)}{4}$
- C. $\frac{n(n-1)(n+4)}{4}$
- D. $\frac{n(n+1)(n+2)(n+3)}{4}$

Question Type : MCQ

Question ID : 4335765619

Option 1 ID : 43357622473

Option 2 ID : 43357622474

Option 3 ID : 43357622475

Option 4 ID : 43357622476

Status : Answered

Chosen Option : D

Q.61 Let a and b be relatively prime and $\phi(n)$ be the Euler phi function for positive integer n, then $\phi(ab)$ is equal to

Ans

- A. $\phi(a) + \phi(b)$
- B. $\phi(a) - \phi(b)$
- C. $\phi(a) \cdot \phi(b)$
- D. $\max(\phi(a), \phi(b))$

Question Type : MCQ

Question ID : 4335765640

Option 1 ID : 43357622557

Option 2 ID : 43357622558

Option 3 ID : 43357622559

Option 4 ID : 43357622560

Status : Answered

Chosen Option : C

Q.62 The wave equation is classified as:

Ans

- A. Hyperbolic
- B. Parabolic
- C. Elliptic
- D. None

Question Type : MCQ

Question ID : 4335765676

Option 1 ID : 43357622701

Option 2 ID : 43357622702

Option 3 ID : 43357622703

Option 4 ID : 43357622704

Status : Answered

Chosen Option : C

Q.63 Any convergent sequence in a metric space

- Ans A. is always bounded
- B. is Cauchy sequence
- C. Converges to unique value
- D. All of these

Question Type : MCQ
Question ID : 4335765668
Option 1 ID : 43357622669
Option 2 ID : 43357622670
Option 3 ID : 43357622671
Option 4 ID : 43357622672
Status : Answered
Chosen Option : B

Q.64 The rank correlation coefficient between two variables is 0.5. If the sum of the squares of the differences between rank is 42, then the number of observations is -

- Ans A. 5
- B. 6
- C. 8
- D. 10

Question Type : MCQ
Question ID : 4335765618
Option 1 ID : 43357622469
Option 2 ID : 43357622470
Option 3 ID : 43357622471
Option 4 ID : 43357622472
Status : Answered
Chosen Option : D

Q.65 If the Wronskian of two functions is non-zero on an interval, then the functions are:

- Ans A. Linearly dependent
- B. Linearly independent
- C. Periodic
- D. Continuous but not differentiable

Question Type : MCQ
Question ID : 4335765660
Option 1 ID : 43357622637
Option 2 ID : 43357622638
Option 3 ID : 43357622639
Option 4 ID : 43357622640
Status : Answered
Chosen Option : D

Q.66 The method of undetermined coefficients is used to solve:

- Ans A. Non-linear differential equations
- B. Linear non-homogeneous differential equations with constant coefficients
- C. Partial differential equations
- D. Homogeneous differential equations

Question Type : MCQ
Question ID : 4335765665
Option 1 ID : 43357622657
Option 2 ID : 43357622658
Option 3 ID : 43357622659
Option 4 ID : 43357622660
Status : Answered
Chosen Option : C

Q.67 Which of the following assertions is correct

Ans A.

$\limsup_n e^{\cos(\frac{n\pi+(-1)^n 2e}{2n})} > 1.$

B.

$\lim_n e^{\log_e(\frac{n\pi^2+(-1)^n e^2}{7n})}$ does not exist.

C.

$\liminf_n e^{\sin(\frac{n\pi+(-1)^n 2e}{2n})} < \pi.$

D.

$\lim_n e^{\tan(\frac{n\pi^2+(-1)^n e^2}{7n})}$ does not exist.

Question Type : MCQ
Question ID : 4335765482
Option 1 ID : 43357621925
Option 2 ID : 43357621926
Option 3 ID : 43357621927
Option 4 ID : 43357621928
Status : Answered
Chosen Option : A

Q.68 Consider the statements

(A) The series $\sum \sin\left(\frac{1}{n}\right)$ is divergent

(B) The Series $\frac{1}{3^2} \frac{2}{4^2} + \frac{3}{5^2} \frac{4}{6^2} + \frac{5}{7^2} \frac{6}{8^2} + \dots$ is Convergent Then

Ans A. Both the statement (A) and (B) are true

B. (A) is true but (B) is false

C. (A) is false but (B) is true

D. Neither (A) nor (B) is true

Question Type : MCQ

Question ID : 4335765573

Option 1 ID : 43357622289

Option 2 ID : 43357622290

Option 3 ID : 43357622291

Option 4 ID : 43357622292

Status : Answered

Chosen Option : A

Q.69 Let $f: \mathbb{R} \rightarrow \mathbb{R}$ be defined by

$$f(x) = \begin{cases} (1-x)^{2\sin(x^2)}, & x \in (0,1) \\ 0, & \text{otherwise,} \end{cases}$$

And f' be its derivative. Let

$$s = \{c \in \mathbb{R} : f'(x) \leq cf(x) \text{ for all } x \in \mathbb{R}\}.$$

Which one of the following is true?

Ans A. $s = \emptyset$

B. $s = \emptyset$ and s is a proper subset of $(1, \infty)$

C. $(2, \infty)$ is a proper subset of s

D. $s \cap (0,1) \neq \emptyset$

Question Type : MCQ

Question ID : 4335765508

Option 1 ID : 43357622029

Option 2 ID : 43357622030

Option 3 ID : 43357622031

Option 4 ID : 43357622032

Status : Answered

Chosen Option : B

Q.70 Euler's equation is also known as:

- Ans A. Legendre equation
- B. Cauchy-Euler equation
- C. Bessel equation
- D. Riccati equation

Question Type : MCQ
Question ID : 4335765663
Option 1 ID : 43357622649
Option 2 ID : 43357622650
Option 3 ID : 43357622651
Option 4 ID : 43357622652
Status : Answered
Chosen Option : B

Q.71 Let G be any finite group. Which one of the following is necessarily true?

- Ans A. G is a union of proper subgroups
- B. G is a union of proper subgroups if |G| has at least two distinct prime divisors.
- C. If G is abelian, then G is a union of proper subgroups.
- D. G is a union of proper subgroups if and only if G is not cyclic.

Question Type : MCQ
Question ID : 4335765648
Option 1 ID : 43357622589
Option 2 ID : 43357622590
Option 3 ID : 43357622591
Option 4 ID : 43357622592
Status : Answered
Chosen Option : C

Q.72 Let $x^2 \equiv a \pmod{p}$ where p does not divide a,
then by Euler's Creterion, $a^{\frac{p-1}{2}} \equiv 1 \pmod{p}$ indicates

- Ans A. No Solution
- B. Solution exists
- C. Solution may exist
- D. None of these

Question Type : MCQ
Question ID : 4335765492
Option 1 ID : 43357621965
Option 2 ID : 43357621966
Option 3 ID : 43357621967
Option 4 ID : 43357621968
Status : Answered
Chosen Option : B

Q.73 A rectangular tank 1m× 3m lies in a vertical plane in water. The total pressure on the plane surface is

- Ans A. 44145N
 B. 45150N
 C. 88290N
 D. 84950N

Question Type : MCQ
Question ID : 4335765551
Option 1 ID : 43357622201
Option 2 ID : 43357622202
Option 3 ID : 43357622203
Option 4 ID : 43357622204
Status : Answered
Chosen Option : A

Q.74 Let $f(x, y) = x^4 + y^4 - 4xy + 1$. What type of critical point is the origin?

- Ans A. Local minimum
 B. Local maximum
 C. Saddle point
 D. Not a critical point

Question Type : MCQ
Question ID : 4335765527
Option 1 ID : 43357622105
Option 2 ID : 43357622106
Option 3 ID : 43357622107
Option 4 ID : 43357622108
Status : Answered
Chosen Option : C

Q.75 If the order of integration $I = \int_0^a \int_{\sqrt{a^2-x^2}}^{x+2a} f(x, y) dx dy$ be changed, then I is the sum of Integrals

- Ans A. 2
 B. 3
 C. 4
 D. None of these

Question Type : MCQ
Question ID : 4335765598
Option 1 ID : 43357622389
Option 2 ID : 43357622390
Option 3 ID : 43357622391
Option 4 ID : 43357622392
Status : Answered
Chosen Option : A

Q.76

- Ans
- A. $\det(A) > 0$
 - B. $\det(A) = 0$
 - C. All eigenvalues of A are positive
 - D. A is invertible.

Question Type : MCQ
Question ID : 4335765523
Option 1 ID : 43357622089
Option 2 ID : 43357622090
Option 3 ID : 43357622091
Option 4 ID : 43357622092
Status : Answered
Chosen Option : A

Q.77 The first three moments of a distribution about a point 4 are respectively 1, 4 and 10. Which of the following regarding the mean, Variance and the third central moment of the distribution, is correct ?

- Ans
- A. Mean = 1, Variance = 3, Third Central Moment = 4
 - B. Mean = 4, Variance = 3, Third Central Moment = 0
 - C. Mean = 5, Variance = 2, Third Central Moment = - 4
 - D. Mean = 5, Variance = 3, Third Central Moment = 0

Question Type : MCQ
Question ID : 4335765632
Option 1 ID : 43357622525
Option 2 ID : 43357622526
Option 3 ID : 43357622527
Option 4 ID : 43357622528
Status : Answered
Chosen Option : D

Q.78 Potential due to a uniform thin circular plate of radius 'a' and thickness k, at a point on its axis distant p from the centre is

- Ans
- A. $2\pi r\rho v[\sqrt{a^2 + b^2} - b]$
 - B. $2\pi r\rho av$
 - C. $2\pi r\rho v[\sqrt{a^2 + b^2} - a]$
 - D. None of these

Question Type : MCQ
Question ID : 4335765626
Option 1 ID : 43357622501
Option 2 ID : 43357622502
Option 3 ID : 43357622503
Option 4 ID : 43357622504
Status : Answered
Chosen Option : B

Q.79 Let order of a group G be prime number p, then

- Ans
- A. G does not possess proper subgroups
 - B. G possesses proper subgroups
 - C. p is prime it is divisible by 2
 - D. None of these

Question Type : MCQ

Question ID : 4335765589

Option 1 ID : 43357622353

Option 2 ID : 43357622354

Option 3 ID : 43357622355

Option 4 ID : 43357622356

Status : Answered

Chosen Option : B

Q.80 The D.E of the family of circle of radius 'a' whose centres lie on the x-axis is.....

Ans

A. $y \frac{dy}{dx} = a^2 - y^2$

B. $y \left(\frac{dy}{dx} + 1 \right) = a^2$

C. $y^2 \left(\frac{dy}{dx} + 1 \right) = a^2$

D. $y^2 \left[1 + \left(\frac{dy}{dx} \right)^2 \right] = a^2$

Question Type : MCQ

Question ID : 4335765577

Option 1 ID : 43357622305

Option 2 ID : 43357622306

Option 3 ID : 43357622307

Option 4 ID : 43357622308

Status : Answered

Chosen Option : D

Q.81

For $a \in \mathbb{R}$, let $A_a = \begin{pmatrix} 2 & -1 & 0 \\ -1 & 2 & -1 \\ 0 & -1 & a \end{pmatrix}$.

Which one of the following statements is true?

Ans

- A. A_a is positive definite for all $a < 3$.
- B. A_a is positive definite for all $a > 3$.
- C. A_a is positive definite for all $a \geq -2$.
- D.

A_a is positive definite only for finitely many values of a .

Question Type : MCQ

Question ID : 4335765505

Option 1 ID : 43357622017

Option 2 ID : 43357622018

Option 3 ID : 43357622019

Option 4 ID : 43357622020

Status : Answered

Chosen Option : D

Q.82

Let $\vec{a} = 3\hat{i} + \hat{j}$ and $\vec{b} = \hat{i} + 2\hat{j} + \hat{k}$. Let $\vec{c}$ be a vector satisfying

$\vec{a} \times (\vec{b} \times \vec{c}) = \vec{b} + \lambda \vec{c}$. If $\vec{b}$ and $\vec{c}$ are non-parallel, then the value of λ is

Ans

- A. -5
- B. -1
- C. 1
- D. 5

Question Type : MCQ

Question ID : 4335765542

Option 1 ID : 43357622165

Option 2 ID : 43357622166

Option 3 ID : 43357622167

Option 4 ID : 43357622168

Status : Answered

Chosen Option : A

Q.83 Let $(-, -)$ be a symmetric bilinear form on $\mathbb{R}^2$ such that there exist nonzero $v, w \in \mathbb{R}^2$ such that $(v, v) > 0 > (w, w)$ and $(v, w) = 0$. Let A be the 2×2 real symmetric matrix representing this bilinear form with respect to the standard basis. Which one of the following statements is true?

- Ans
- A. $A^2 = 0$
 - B. Rank $A = 1$
 - C. Rank $A = 0$
 - D. There exists $u \in \mathbb{R}^2, u \neq 0$ such that $(u, u) = 0$

Question Type : MCQ
 Question ID : 4335765504
 Option 1 ID : 43357622013
 Option 2 ID : 43357622014
 Option 3 ID : 43357622015
 Option 4 ID : 43357622016
 Status : Answered
 Chosen Option : D

Q.84 A topological space X is such that there exists a continuous mapping of X onto the discrete two points space $Y = \{0, 1\}$, then X is

- Ans
- A. Connected
 - B. Disconnected
 - C. Separated
 - D. None of these

Question Type : MCQ
 Question ID : 4335765608
 Option 1 ID : 43357622429
 Option 2 ID : 43357622430
 Option 3 ID : 43357622431
 Option 4 ID : 43357622432
 Status : Answered
 Chosen Option : B

Q.85 If C be the circle $x^2 + y^2 = 1$ taken in the anticlockwise sense, then $\int_C [(x^{2015} y^{2016} + 2014y) dy + (x^{2016} y^{2015} + 2017x) dx]$ is

- Ans
- A. 0
 - B. π
 - C. 2π
 - D. 3π

Question Type : MCQ
 Question ID : 4335765595
 Option 1 ID : 43357622377
 Option 2 ID : 43357622378
 Option 3 ID : 43357622379
 Option 4 ID : 43357622380
 Status : Answered
 Chosen Option : D

Q.86 When a block of ice floating on water in a container melts, the level of water in the container

- Ans
- A. Rises
 - B. remains the same
 - C. first falls then rise
 - D. falls

Question Type : MCQ

Question ID : 4335765553

Option 1 ID : 43357622209

Option 2 ID : 43357622210

Option 3 ID : 43357622211

Option 4 ID : 43357622212

Status : Answered

Chosen Option : A

Q.87 The particular integral of the equation $(D^2 - D'^2 + D - D') Z = e^{2x+3y}$ is-

Ans

- A. $-\frac{1}{6} e^{2x+3y}$
- B. $-\frac{1}{5} e^{2x+3y}$
- C. $\frac{1}{6} e^{2x+3y}$
- D. $\frac{1}{5} e^{2x+3y}$

Question Type : MCQ

Question ID : 4335765582

Option 1 ID : 43357622325

Option 2 ID : 43357622326

Option 3 ID : 43357622327

Option 4 ID : 43357622328

Status : Answered

Chosen Option : A

Q.88

Ans

A. $ax + by + z = \sqrt{1 + a^2 + b^2}$

B. $ax - by + z = \pm \sqrt{1 + a^2 + b^2}$

C.

$$ax + by + cz = \pm \sqrt{a^2 + b^2 + c^2}$$

D. None of these

Question Type : MCQ

Question ID : 4335765585

Option 1 ID : 43357622337

Option 2 ID : 43357622338

Option 3 ID : 43357622339

Option 4 ID : 43357622340

Status : Answered

Chosen Option : C

Q.89 Darboux's Theorem is related to:

Ans

A. Continuity of function

B. Intermediate value property of derivatives

C. Integration

D. Differentiability of inverse functions

Question Type : MCQ

Question ID : 4335765678

Option 1 ID : 43357622709

Option 2 ID : 43357622710

Option 3 ID : 43357622711

Option 4 ID : 43357622712

Status : Answered

Chosen Option : A

Q.90

Let $f(z) = \frac{\sin z}{z^3(z-\pi)^2}$. How many poles and zeros (including multiplicity) does f have inside the disc $|z| < 4$?

Ans

A. 5 poles, 3 zeros

B. 3 poles, 5 zeros

C. 4 poles, 4 zeros

D. 5 poles, 5 zeros

Question Type : MCQ

Question ID : 4335765531

Option 1 ID : 43357622121

Option 2 ID : 43357622122

Option 3 ID : 43357622123

Option 4 ID : 43357622124

Status : Answered

Chosen Option : B

Q.91 The solution linear congruence $2x \equiv 4 \pmod{12}$ is

- Ans A. $x \equiv 2 \pmod{12}$
 B. $x \equiv 8 \pmod{12}$
 C. $x \equiv 6 \pmod{12}$
 D. $x \equiv 2 \pmod{12}$ and $x \equiv 8 \pmod{12}$

Question Type : MCQ
Question ID : 4335765638
Option 1 ID : 43357622549
Option 2 ID : 43357622550
Option 3 ID : 43357622551
Option 4 ID : 43357622552
Status : Answered
Chosen Option : B

Q.92 The potential on the surface of a thin spherical shell of radius 10 cm is 10v. The potential at a distance of 5 cm from the centre of the shell is

- Ans A. 0 V
 B. 5V
 C. 10V
 D. 20V

Question Type : MCQ
Question ID : 4335765655
Option 1 ID : 43357622617
Option 2 ID : 43357622618
Option 3 ID : 43357622619
Option 4 ID : 43357622620
Status : Answered
Chosen Option : B

Q.93 The relation o homomorphism divides the metric space into classes.

- Ans A. union of
 B. intersection of
 C. mutually disjoint
 D. None of these

Question Type : MCQ
Question ID : 4335765536
Option 1 ID : 43357622141
Option 2 ID : 43357622142
Option 3 ID : 43357622143
Option 4 ID : 43357622144
Status : Answered
Chosen Option : C

Q.94 If a right circular cone having maximum volume, is inscribed in a sphere of radius 3 cm², then the curved surface area in cm² of this cone is

- Ans
- A. $6\sqrt{3}\pi$
 - B. $8\sqrt{3}\pi$
 - C. $8\sqrt{2}\pi$
 - D. $6\sqrt{2}\pi$

Question Type : MCQ

Question ID : 4335765641

Option 1 ID : 43357622561

Option 2 ID : 43357622562

Option 3 ID : 43357622563

Option 4 ID : 43357622564

Status : Answered

Chosen Option : D

Q.95

When $0 < |z| < 4$, the expansion of $\frac{1}{4z - z^2}$ is

Ans

- A. $\sum_{n=0}^{\infty} \frac{z^{n+1}}{4^{n+1}}$
- B. $\sum_{n=0}^{\infty} \frac{(-1)^n z^{n+1}}{4^{n+1}}$
- C. $\sum_{n=0}^{\infty} \frac{z^{n-1}}{4^{n+1}}$
- D. None of these

Question Type : MCQ

Question ID : 4335765602

Option 1 ID : 43357622405

Option 2 ID : 43357622406

Option 3 ID : 43357622407

Option 4 ID : 43357622408

Status : Answered

Chosen Option : B

Q.96 A canonical tableau is a tableau having

- Ans
- A. unconstrained independent variables and no slack "variables" of 0.
 - B. No unconstrained independent variables and slack "variables" of 0.
 - C. No unconstrained independent variables and no slack "variables" of 0.
 - D. Unconstrained independent variables and slack "variables" of 0

Question Type : MCQ

Question ID : 4335765491

Option 1 ID : 43357621961

Option 2 ID : 43357621962

Option 3 ID : 43357621963

Option 4 ID : 43357621964

Status : Answered

Chosen Option : D

Q.97

Ans

- A. $\sum \alpha^5 = \sum \alpha^3 \cdot \sum \alpha^2$
- B. $5 \sum \alpha^5 = 6 \sum \alpha^3 \cdot \sum \alpha^2$
- C. $6 \sum \alpha^5 = 5 \sum \alpha^3 \cdot \sum \alpha^2$
- D. $3 \sum \alpha^5 = 2 \sum \alpha^3 \cdot \sum \alpha^2$

Question Type : MCQ

Question ID : 4335765487

Option 1 ID : 43357621945

Option 2 ID : 43357621946

Option 3 ID : 43357621947

Option 4 ID : 43357621948

Status : Answered

Chosen Option : A

Q.98 Let V be a finite vector space over R and $T:V \rightarrow V$ a linear such that $T^3=T$. Which of the following of the following must hold?

- Ans
- A. T is diagonalizable over R with eigenvalues in $\{0, \pm 1\}$
- B. T is nilpotent
- C. T has at most one eigenvalue
- D. $T^3=0$

Question Type : MCQ

Question ID : 4335765654

Option 1 ID : 43357622613

Option 2 ID : 43357622614

Option 3 ID : 43357622615

Option 4 ID : 43357622616

Status : Answered

Chosen Option : A

Q.99 A cylinder has generators parallel to the line $x=y=-z$ and it passes through the curve $f(x,y)=0, z=0$, then its equation is?

- Ans
- A. $f(x+z, y+z)=0$
- B. $f(x+z, y-z)=0$
- C. $f(x-z, y-z)=0$
- D. $f(x-z, y+z)=0$

Question Type : MCQ

Question ID : 4335765570

Option 1 ID : 43357622277

Option 2 ID : 43357622278

Option 3 ID : 43357622279

Option 4 ID : 43357622280

Status : Answered

Chosen Option : A

Q.10
0 Let $u(x, y)$ satisfy the PDE:

$$\frac{\partial^2 u}{\partial x^2} - 2 \frac{\partial^2 u}{\partial x \partial y} + \frac{\partial^2 u}{\partial y^2} = 0$$

Which of the following substitutions diagonalizes the PDE?

Ans

- A. $\xi = x + y, \eta = x - y$
- B. $\xi = x, \eta = y - x$
- C. $\xi = x - y, \eta = x + y$
- D. $\xi = x, \eta = y$

Question Type : MCQ

Question ID : 4335765512

Option 1 ID : 43357622045

Option 2 ID : 43357622046

Option 3 ID : 43357622047

Option 4 ID : 43357622048

Status : Answered

Chosen Option : D

Section : Part II

Q.10 Can a teacher suspend a student?
1

Ans

- A. Yes
- B. No
- C. Both
- D. Can't say

Question Type : MCQ

Question ID : 4335764326

Option 1 ID : 43357617301

Option 2 ID : 43357617302

Option 3 ID : 43357617303

Option 4 ID : 43357617304

Status : Answered

Chosen Option : B

Q.10 Students find/explore the information themselves in
2

Ans

- A. lecture method
- B. Discovery method
- C. Both
- D. none

Question Type : MCQ

Question ID : 4335763668

Option 1 ID : 43357614669

Option 2 ID : 43357614670

Option 3 ID : 43357614671

Option 4 ID : 43357614672

Status : Answered

Chosen Option : B

Q.10 The immediate goal of education through learning activities is realised by
3

- Ans A. Objective
 B. Aim
 C. Specification
 D. Evaluation

Question Type : MCQ
Question ID : 4335763497
Option 1 ID : 43357613985
Option 2 ID : 43357613986
Option 3 ID : 43357613987
Option 4 ID : 43357613988
Status : Answered
Chosen Option : D

Q.10 Which of the following is not a prescribed level of teaching ?
4

- Ans A. Memory
 B. Understanding
 C. Reflective
 D. Differentiation

Question Type : MCQ
Question ID : 4335763383
Option 1 ID : 43357613529
Option 2 ID : 43357613530
Option 3 ID : 43357613531
Option 4 ID : 43357613532
Status : Answered
Chosen Option : D

Q.10 In M.C.Q the incorrect options are:
5

- Ans A. Responses
 B. Answers
 C. Distractors
 D. None of these

Question Type : MCQ
Question ID : 4335764163
Option 1 ID : 43357616649
Option 2 ID : 43357616650
Option 3 ID : 43357616651
Option 4 ID : 43357616652
Status : Answered
Chosen Option : C

Q.10 In an Environmental Science class, explore how human actions impact ecosystems and
6 discuss responsible environmental practices is an example of

- Ans A. Creating
 B. Understanding
 C. Analysing
 D. Caring

Question Type : MCQ
Question ID : 4335763710
Option 1 ID : 43357614837
Option 2 ID : 43357614838
Option 3 ID : 43357614839
Option 4 ID : 43357614840
Status : Answered
Chosen Option : A

Q.10 Which of the following devices is suitable for classroom audio-visual?
7

- Ans A. TV
 B. Digital projector
 C. Cinema
 D. Film strip projector

Question Type : MCQ
Question ID : 4335764032
Option 1 ID : 43357616125
Option 2 ID : 43357616126
Option 3 ID : 43357616127
Option 4 ID : 43357616128
Status : Answered
Chosen Option : B

Q.10 Execution of plans and decisions is the part
8

- Ans A. Advancement of pupil welfare
 B. Proper utilization of school facilities
 C. Carrying out of the curriculum
 D. Achievement of success in examination

Question Type : MCQ
Question ID : 4335763877
Option 1 ID : 43357615505
Option 2 ID : 43357615506
Option 3 ID : 43357615507
Option 4 ID : 43357615508
Status : Answered
Chosen Option : B

Q.10 Which of the following is true about the ways of learning for students?
9

- Ans A. Speed of learning is same for all students
 B. Each child has a unique learning style
 C. Children follow the way other students learn
 D. All children immediately follow teacher's instruction

Question Type : MCQ
Question ID : 4335764291
Option 1 ID : 43357617161
Option 2 ID : 43357617162
Option 3 ID : 43357617163
Option 4 ID : 43357617164
Status : Answered
Chosen Option : B

Q.11 Which teaching-learning method was introduced by Dwight W. Allen?
0

- Ans A. Micro teaching
 B. Team teaching
 C. Brain storming
 D. Interactive teaching

Question Type : MCQ
Question ID : 4335763783
Option 1 ID : 43357615129
Option 2 ID : 43357615130
Option 3 ID : 43357615131
Option 4 ID : 43357615132
Status : Answered
Chosen Option : A

Q.11 _____ is a tool to measure some sample of behavior?
1

- Ans A. Test
 B. Measurement
 C. Assessment
 D. Evaluation

Question Type : MCQ
Question ID : 4335764104
Option 1 ID : 43357616413
Option 2 ID : 43357616414
Option 3 ID : 43357616415
Option 4 ID : 43357616416
Status : Answered
Chosen Option : A

Q.11 How can we teach art in the classroom?
2

- Ans A. Providing various activities and games that are related to them and their real-life experiences.
- B. Providing art forms that they can imitate.
- C. To give examples of different art forms.
- D. Showing Videos of performing arts.

Question Type : MCQ
Question ID : 4335763859
Option 1 ID : 43357615433
Option 2 ID : 43357615434
Option 3 ID : 43357615435
Option 4 ID : 43357615436
Status : Answered
Chosen Option : A

Q.11 A systematic science which provides rules, laws and principles for achieving
3 adjustment with self and the environmental is called

- Ans A. Motivation
- B. Mental hygiene
- C. Learning
- D. Conflict

Question Type : MCQ
Question ID : 4335764265
Option 1 ID : 43357617057
Option 2 ID : 43357617058
Option 3 ID : 43357617059
Option 4 ID : 43357617060
Status : Answered
Chosen Option : C

Q.11 Teachers emphasise interdisciplinary teaching and learning in their own classes
4 through

- Ans A. topics
- B. Examples
- C. teaching methods
- D. All of these

Question Type : MCQ
Question ID : 4335763588
Option 1 ID : 43357614349
Option 2 ID : 43357614350
Option 3 ID : 43357614351
Option 4 ID : 43357614352
Status : Answered
Chosen Option : D

Q.11 Evaluation is vital to a teacher's success. It is this role that allows the teacher to
5 discover

- Ans A. the social condition
- B. the expectations of parents
- C. the worth of his work
- D. the value of family

Question Type : **MCQ**
Question ID : **4335763972**
Option 1 ID : **43357615885**
Option 2 ID : **43357615886**
Option 3 ID : **43357615887**
Option 4 ID : **43357615888**
Status : **Answered**
Chosen Option : **C**

Q.11 When the learner is self-directed, it is termed as
6

- Ans A. Pedagogical learning
- B. Andragogical learning
- C. Distance education learning
- D. None of the above

Question Type : **MCQ**
Question ID : **4335763460**
Option 1 ID : **43357613837**
Option 2 ID : **43357613838**
Option 3 ID : **43357613839**
Option 4 ID : **43357613840**
Status : **Answered**
Chosen Option : **D**

Q.11 A good lecture provides
7

- Ans A. active participation for learners
- B. creative thinking
- C. better scope for clarification
- D. real experience

Question Type : **MCQ**
Question ID : **4335763564**
Option 1 ID : **43357614253**
Option 2 ID : **43357614254**
Option 3 ID : **43357614255**
Option 4 ID : **43357614256**
Status : **Answered**
Chosen Option : **A**

Q.11 Learning is a continuous process from-
8

- Ans
- A. Adolescence to death
 - B. Childhood to old age
 - C. Infancy to adulthood
 - D. Cradle to grave

Question Type : MCQ
Question ID : 4335764241
Option 1 ID : 43357616961
Option 2 ID : 43357616962
Option 3 ID : 43357616963
Option 4 ID : 43357616964
Status : Answered
Chosen Option : D

Q.11 The characteristics of team teaching is?
9

- Ans
- A. In team teaching, the whole responsibility is on all the teacher.
 - B. In team teaching, teachers need to decide their activities by themselves.
 - C. The requirements of pupils, schools and other things also considered.
 - D. All of them

Question Type : MCQ
Question ID : 4335763810
Option 1 ID : 43357615237
Option 2 ID : 43357615238
Option 3 ID : 43357615239
Option 4 ID : 43357615240
Status : Answered
Chosen Option : D

Q.12 Assessment.....is a factor of Bloom's Taxonomy
0

- Ans
- A. Template
 - B. Design
 - C. Both Template and Design
 - D. none of these

Question Type : MCQ
Question ID : 4335763560
Option 1 ID : 43357614237
Option 2 ID : 43357614238
Option 3 ID : 43357614239
Option 4 ID : 43357614240
Status : Answered
Chosen Option : B

Q.12 Teaching will attain the status of a recognized profession if a teacher is propelled by
1 his/her

- Ans
- A. physical condition
 - B. motive
 - C. covetousness
 - D. socio-economic condition

Question Type : MCQ
Question ID : 4335763978
Option 1 ID : 43357615909
Option 2 ID : 43357615910
Option 3 ID : 43357615911
Option 4 ID : 43357615912
Status : Answered
Chosen Option : B

Q.12 In the USA the most widely used format on standardized tests is:
2

- Ans
- A. Matching list
 - B. Short answers
 - C. Essays type
 - D. Multiple choice questions

Question Type : MCQ
Question ID : 4335764153
Option 1 ID : 43357616609
Option 2 ID : 43357616610
Option 3 ID : 43357616611
Option 4 ID : 43357616612
Status : Answered
Chosen Option : D

Q.12 Broad field curriculum is a modification of;
3

- Ans
- A. Activity centred curriculum
 - B. Learner centred curriculum
 - C. Subject centred curriculum
 - D. None of these

Question Type : MCQ
Question ID : 4335764215
Option 1 ID : 43357616857
Option 2 ID : 43357616858
Option 3 ID : 43357616859
Option 4 ID : 43357616860
Status : Answered
Chosen Option : A

Q.12 The most appropriate meaning of learning is
4

- Ans
- A. Acquisition of skills
 - B. Modification of behavior
 - C. Personal adjustment
 - D. Inculcation of knowledge

Question Type : MCQ
Question ID : 4335763387
Option 1 ID : 43357613545
Option 2 ID : 43357613546
Option 3 ID : 43357613547
Option 4 ID : 43357613548
Status : Answered
Chosen Option : B

Q.12 The theory of multiple intelligence says that-
5

- Ans
- A. intelligence can be rapidly accelerated
 - B. intelligence can be of several kinds
 - C. paper-pencil tests are not helpful
 - D. intelligence can be multiplied with effective pedagogy

Question Type : MCQ
Question ID : 4335763920
Option 1 ID : 43357615677
Option 2 ID : 43357615678
Option 3 ID : 43357615679
Option 4 ID : 43357615680
Status : Answered
Chosen Option : D

Q.12 Which types of test items are highly structured?
6

- Ans
- A. Oral test
 - B. Essay type test
 - C. Objective type test
 - D. None of these

Question Type : MCQ
Question ID : 4335764076
Option 1 ID : 43357616301
Option 2 ID : 43357616302
Option 3 ID : 43357616303
Option 4 ID : 43357616304
Status : Answered
Chosen Option : C

Q.12 To use previous learned material in new situation is
7

- Ans A. Comprehension
 B. Application
 C. Knowledge
 D. analysis

Question Type : MCQ
Question ID : 4335763536
Option 1 ID : 43357614141
Option 2 ID : 43357614142
Option 3 ID : 43357614143
Option 4 ID : 43357614144
Status : Answered
Chosen Option : B

Q.12 A good drama does not include
8

- Ans A. Interesting story
 B. Alive dialogues
 C. Very long play
 D. Subject full of feelings

Question Type : MCQ
Question ID : 4335763660
Option 1 ID : 43357614637
Option 2 ID : 43357614638
Option 3 ID : 43357614639
Option 4 ID : 43357614640
Status : Answered
Chosen Option : C

Q.12 Micro teaching is a
9

- Ans A. demonstration method
 B. teaching method
 C. training technique
 D. remedial teaching

Question Type : MCQ
Question ID : 4335763745
Option 1 ID : 43357614977
Option 2 ID : 43357614978
Option 3 ID : 43357614979
Option 4 ID : 43357614980
Status : Answered
Chosen Option : B

Q.13 The learning activities should be planned by the teacher in compliance with the-----
0

- Ans A. abilities and interests of students
 B. performance of students
 C. reaction of students
 D. assignments given by other teachers

Question Type : MCQ
Question ID : 4335763963
Option 1 ID : 43357615849
Option 2 ID : 43357615850
Option 3 ID : 43357615851
Option 4 ID : 43357615852
Status : Answered
Chosen Option : A

Section : Part III

Q.13 Seeing Sita, Mohan said " She is the wife of my mother's only grand son". How is
1 mohan related sita?

- Ans A. Son
 B. Father
 C. Father-in-Law
 D. Husband

Question Type : MCQ
Question ID : 4335764898
Option 1 ID : 43357619589
Option 2 ID : 43357619590
Option 3 ID : 43357619591
Option 4 ID : 43357619592
Status : Answered
Chosen Option : C

Q.13 The executive is given an advance grant to meet temporary and running requirements
2 of Government of India in the beginning of the new financial year until the demands are
voted by the legislature. This is known as :

- Ans A. Vote of Credit
 B. Vote on Account
 C. Appropriation Bill
 D. Advance Account

Question Type : MCQ
Question ID : 4335764436
Option 1 ID : 43357617741
Option 2 ID : 43357617742
Option 3 ID : 43357617743
Option 4 ID : 43357617744
Status : Answered
Chosen Option : B

Q.13 Which of the following statements is/are correct?
3 (1) First Law Commssion recommended Indian Penal Code, 1855.
(2) Bharatiya Nyaya Sanhita, 2023 received the assent of the President on the 25th December, 2023

- Ans A. 1 Only
 B. 2 Only
 C. Both 1 and 2
 D. Neither 1 nor 2

Question Type : MCQ
Question ID : 4335764463
Option 1 ID : 43357617849
Option 2 ID : 43357617850
Option 3 ID : 43357617851
Option 4 ID : 43357617852
Status : Answered
Chosen Option : C

Q.13 The main source of carbon monoxides, as air pollutants, is
4

- Ans A. Thermal decomposition of fats
 B. Dye-making
 C. Blast furnaces
 D. Gasoline motor exhausts

Question Type : MCQ
Question ID : 4335764390
Option 1 ID : 43357617557
Option 2 ID : 43357617558
Option 3 ID : 43357617559
Option 4 ID : 43357617560
Status : Answered
Chosen Option : D

Q.13 John has stamps from different countries. 1/3rd of them are India's stamps. If he has 36
5 Indian stamps, how many stamps does he have in total?

- Ans A. 12
 B. 36
 C. 48
 D. 108

Question Type : MCQ
Question ID : 4335764718
Option 1 ID : 43357618869
Option 2 ID : 43357618870
Option 3 ID : 43357618871
Option 4 ID : 43357618872
Status : Answered
Chosen Option : D

Q.13 Which of the following statements is/are correct?

- 6 (1) The Bakashali Manuscript written in the Gatha language (a refined version of old Prakrit) using the Sharada script deals with topics such as fractions, square roots, arithmetic and geometric progressions.
(2) In the field of geometry, Aryabhatta described the various properties of a circle giving a very accurate value for pi (π) correct to four decimal places at 3.1416.
(3) Sharangadhara Samhita is an important text on political system of ancient India.
Select the correct answer from the given options:

- Ans A. 1, 2 and 3
 B. 1 and 3 only
 C. 1 and 2 only
 D. 2 only

Question Type : MCQ
Question ID : 4335764473
Option 1 ID : 43357617889
Option 2 ID : 43357617890
Option 3 ID : 43357617891
Option 4 ID : 43357617892
Status : Answered
Chosen Option : A

Q.13 In three coloured boxes - Red, Green and Blue, 108 balls are placed. There are twice as
7 many balls in the green and red boxes combined as there are in the blue box and twice
as many in the blue box as there are in the red box. How many balls are there in the
green box?

- Ans A. 18
 B. 36
 C. 45
 D. none of these

Question Type : MCQ
Question ID : 4335764952
Option 1 ID : 43357619805
Option 2 ID : 43357619806
Option 3 ID : 43357619807
Option 4 ID : 43357619808
Status : Answered
Chosen Option : B

Q.13 The selling price and the cost price of an article are in a ratio 5: 4. If the profit is 2000
8 rupees, find the selling price.

- Ans A. 10,000 rupees
 B. 12,000 rupees
 C. 15,000 rupees
 D. 20,000 rupees

Question Type : MCQ
Question ID : 4335764767
Option 1 ID : 43357619065
Option 2 ID : 43357619066
Option 3 ID : 43357619067
Option 4 ID : 43357619068
Status : Answered
Chosen Option : A

Q.13 _____ is done when a force moves an object through some distance.
9

- Ans A. work
 B. force
 C. energy
 D. all of these

Question Type : MCQ
Question ID : 4335764540
Option 1 ID : 43357618157
Option 2 ID : 43357618158
Option 3 ID : 43357618159
Option 4 ID : 43357618160
Status : Answered
Chosen Option : A

Q.14 What is the number of official food groups on the USDA's Food Pyramid?
0

- Ans A. 4
 B. 5
 C. 6
 D. 10

Question Type : MCQ
Question ID : 4335764589
Option 1 ID : 43357618353
Option 2 ID : 43357618354
Option 3 ID : 43357618355
Option 4 ID : 43357618356
Status : Answered
Chosen Option : B

Q.14 Choose the correct option instead of the question mark in the given question.
1

Loksabha : Speaker :: Rajyasabha : ?

- Ans A. Prime Minister
 B. President
 C. Vice President
 D. MP

Question Type : MCQ
Question ID : 4335764828
Option 1 ID : 43357619309
Option 2 ID : 43357619310
Option 3 ID : 43357619311
Option 4 ID : 43357619312
Status : Answered
Chosen Option : C

Q.14 If in a certain code, 'POT' is written as ATOP and 'TRAP' is written as APART, then how
2 is 'ARENA' written in that code?

- Ans A. AARENA
 B. AANREA
 C. AANEAR
 D. AANERA

Question Type : MCQ
Question ID : 4335764819
Option 1 ID : 43357619273
Option 2 ID : 43357619274
Option 3 ID : 43357619275
Option 4 ID : 43357619276
Status : Answered
Chosen Option : D

Q.14 What is the correct sequence of hill stations in descending order according to height
3 above mean sea level?

- Ans A. Kodaikanal, Darjeeling, Shimla and Mahabaleshwar
 B. Shimla, Kodaikanal, Darjeeling and Mahabaleshwar
 C. Kodaikanal, Shimla, Mahabaleshwar and Darjeeling
 D. Mahabaleshwar, Shimla, Darjeeling and Kodaikanal

Question Type : MCQ
Question ID : 4335764606
Option 1 ID : 43357618421
Option 2 ID : 43357618422
Option 3 ID : 43357618423
Option 4 ID : 43357618424
Status : Answered
Chosen Option : B

Q.14 Which of the following order is correct, regarding the life cycle of the butterfly?
4

- Ans A. Egg, Larva , Pupa , Adult
 B. Larva, Egg, Pupa, Adult
 C. Pupa, Egg, Larva, Adult
 D. Larva, Pupa, Egg, Adult

Question Type : MCQ
Question ID : 4335764519
Option 1 ID : 43357618073
Option 2 ID : 43357618074
Option 3 ID : 43357618075
Option 4 ID : 43357618076
Status : Answered
Chosen Option : A

Q.14 Which of the following is a polyhedron
5

- Ans A. Prism
 B. cylinder
 C. cone
 D. None of these

Question Type : MCQ
Question ID : 4335764680
Option 1 ID : 43357618717
Option 2 ID : 43357618718
Option 3 ID : 43357618719
Option 4 ID : 43357618720
Status : Answered
Chosen Option : A

Q.14 A Wooden Box of Dimensions 8 m x 7 m x 6 m is to carry Rectangular Boxes of
6 dimensions 8 cm x 7 cm x 6 cm. What is the Maximum Number of Boxes that can be
carried in the Wooden box?

- Ans A. 9900000
 B. 1000000
 C. 1200000
 D. 9800000

Question Type : MCQ
Question ID : 4335764733
Option 1 ID : 43357618929
Option 2 ID : 43357618930
Option 3 ID : 43357618931
Option 4 ID : 43357618932
Status : Answered
Chosen Option : B

Q.14 In the alphabet, which Letter will be in Middle of 8th and 22nd Letter from the right end
7 ?

- Ans A. K
 B. L
 C. M
 D. N

Question Type : MCQ
Question ID : 4335764930
Option 1 ID : 43357619717
Option 2 ID : 43357619718
Option 3 ID : 43357619719
Option 4 ID : 43357619720
Status : Answered
Chosen Option : B

Q.14 Which of the following is mainly responsible for the causes of water pollution?
8

- Ans
- A. Afforestation
 - B. Oil refineries
 - C. Paper factories
 - D. Both Oil refineries and Paper factories

Question Type : MCQ
Question ID : 4335764644
Option 1 ID : 43357618573
Option 2 ID : 43357618574
Option 3 ID : 43357618575
Option 4 ID : 43357618576
Status : Answered
Chosen Option : D

Q.14 Which system was declared illegal in India by the India Act V of 1843 ?
9

- Ans
- A. Sati
 - B. Infanticide
 - C. Slavery
 - D. Dowry

Question Type : MCQ
Question ID : 4335764353
Option 1 ID : 43357617409
Option 2 ID : 43357617410
Option 3 ID : 43357617411
Option 4 ID : 43357617412
Status : Answered
Chosen Option : A

Q.15 In the given number series what number will come in place of the question mark
0 Symbol.

512, 256, 128, 64, ?

- Ans
- A. 28
 - B. 30
 - C. 32
 - D. 34

Question Type : MCQ
Question ID : 4335764859
Option 1 ID : 43357619433
Option 2 ID : 43357619434
Option 3 ID : 43357619435
Option 4 ID : 43357619436
Status : Answered
Chosen Option : C