IBPS RRB PO Pre 2025 Memory Based Paper
Based on 22nd November 2nd Shift

Directions (1-5): Study the following information carefully and answer the questions given below.
"True wishes brings joy" is coded as "os ut yn kf"
"Aim true adventurous path" is coded as "kf rn sk ed"
"Strong aim brings courage" is coded as "ed ts yn kv"
"Path wishes comes true" is coded as "kf sk vb os"

Q1. What is the code for 'Joy comes adventurous'?
(a) vb rn sk
(b) ts kv rn
(c) vb ed rn
(d) ut rn vb
(e) os vb rn

Q2. Which word is coded as 'os sk'?
(a) Aim wishes
(b) True wishes
(c) Aim true
(d) Strong Path
(e) Wishes Path

Q3. Which statement is/are definitely correct?
(a) Brings - ut
(b) Comes - vb
(c) Courage - kv
(d) Strong – ts
(e) None is correct

Q4. What is the code for 'strong aim'?
(a) kv ed
(b) sk kv
(c) ts ed
(d) vb kb
(e) Either "kv ed" or "ts ed"

Q5. Which among the following statements is/are false?
I. Joy is not coded as "ut"
II. Adventurous is coded as "rn"
III. 'True courage' is definitely coded as "ts kf"
(a) Only II
(b) Both II and III
(c) Both I and III
(d) Only I
(e) All I, II and III

Directions (6-10): Read the given information carefully and answer the related questions:
Nine persons A, B, C, D, E, F, G, H and I sit around a circular table facing inside but not in the same order as given.
G sits fourth to the right of B. Two persons sit between G and E. H sits fifth to the left of E. One person sits between H and A. D sits immediate right of F who sits third to the right of C.

Q6. What is the position of F with respect to H?
(a) Second to the left
(b) Third to the left
(c) Immediate right
(d) Fourth to the right
(e) Immediate left

Q7. Four of the following five are similar in a certain way and related to a group. Which of the following is not related to the group?
(a) B - F
(b) D - H
(c) I - C
(d) G - I
(e) A - E

Q8. Who among the following sits second to the left of the one who sits fifth to the right of D?
(a) G
(b) H
(c) I
(d) A
(e) E

Q9. How many persons sit between F and A when counted from the left of F?
(a) Five
(b) Two
(c) Four
(d) Three
(e) One

Q10. Who among the following sits immediate left of E?
(a) A
(b) I
(c) F
(d) C
(e) B

Directions (11-14): In the question below, some statements are given followed by two conclusions numbered I and II. You have to take the given statements to be true even if they seem to be at variance with commonly known facts. Read all the conclusions and then decide which of the given conclusions logically follows from the given statements, disregarding commonly known facts. Give answer-

Q11. Statements:
Only a few gadget are good
Some manual are memory
No memory is gadget
Conclusions:
I. All good being manual is a possibility
II. No gadget is manual
(a) If only conclusion I follows
(b) If only conclusion II follows
(c) If either conclusion I or II follows
(d) If neither conclusion I nor II follows
(e) If both conclusions I and II follow

Q12. Statements:
Only stadium are arena
Some match are stadium
All match are sport
Conclusions:
I. No arena being sport is a possibility
II. Some arena are not match
(a) If only conclusion I follows
(b) If only conclusion II follows
(c) If either conclusion I or II follows
(d) If neither conclusion I nor II follows
(e) If both conclusions I and II follow

Q13. Statements:
Only a few city are market
All market is trade
Some trade is not urban
Conclusions:
I. Some city are trade
II. All urban being trade is a possibility
(a) If only conclusion I follows
(b) If only conclusion II follows
(c) If either conclusion I or II follows
(d) If neither conclusion I nor II follows
(e) If both conclusions I and II follow

Q14. Statements:
Only a few building are tower.
All floors are building
No tower is garden
Conclusions:
I. All floors are garden
II. Some floors are not garden
(a) If only conclusion I follows
(b) If only conclusion II follows
(c) If either conclusion I or II follows
(d) If neither conclusion I nor II follows
(e) If both conclusions I and II follow

Directions (15-17): Study the information carefully and answer the questions given below.
In a family of eight members. A is the father of B. C is the daughter of F. G is the brother of H. B is the sister-in-law of F. H has two daughters. B is not married. D has two children. E is the male member of the family.

Q15. How is E related to F?
(a) Uncle
(b) Brother
(c) Son
(d) Grandfather
(e) Son-in-law

Q16. If S is married to G, then how is S related to H?
(a) Sister
(b) Daughter
(c) Brother
(d) Sister-in-law
(e) Can't be determined

Q17. How many female members are there in the family?
(a) Six
(b) Four
(c) Three
(d) Five
(e) Can't be determined

Q18. If in the given word "ERUPTION", all the even positioned letters (from left end) and consonants are changed to immediately succeeding letter, and remaining letters are changed to immediately preceding letter, then find how many letters are repeated in the new arrangement?
(a) One
(b) Three
(c) Two
(d) None
(e) Four

Directions (19-23): Read the given information carefully and answer the related questions:
Seven persons A, B, C, D, E, F and G give exam of different subjects in different days of a week starting from Monday. The subjects are Operation, History, Sociology, Urdu, Math, Zoology and Physics. The information of persons and subjects is not necessarily used in the same order as given.
F's exam is three days before the one who gives History exam. More than three days gap between F's exam and C's exam. C's exam is just after the one who gives Sociology exam. Urdu exam is given two days after B's exam but B did not give the exam on Friday. Number of days before B's exam is same as the number of days after A's exam. Three days gap between A's exam and the one who gives Math exam. D gives Zoology exam. E's exam is immediate after the one who gives Operation exam.

Q19. How many days gap between G's exam and F's exam?
(a) One
(b) Two
(c) None
(d) Three
(e) Four

Q20. Who among the following gives exam on Friday?
(a) A
(b) D
(c) F
(d) G
(e) C

Q21. If D is related to Math, in the similar way, E is related to operation, then G is related to which subject?
(a) Physics
(b) Sociology
(c) Urdu
(d) History
(e) Zoology

Q22. Who among the following gives the exam of Physics?
(a) E
(b) B
(c) F
(d) The one who gives exam on Sunday
(e) None of these

Q23. Which of the following pair is correct?
(a) Saturday – D - Zoology
(b) Friday – A - Urdu
(c) Sunday – C - History
(d) Monday – E - Math
(e) Thursday – G - Operation

Q24. In the number '648319572', if all the digits are arranged in ascending order from left end, then find the product of second digit from the left end and third digit from the right end in the new number formed after rearrangement?
(a) 15
(b) 21
(c) 14
(d) 18
(e) 24

Q25. If "NEAT" is written as "VPGC", and "CORN" is written as "LEMT", then how is "SALT" written, such that the code must also form a meaningful English word?
(a) UGNZ
(b) CUNV
(c) CMOZ
(d) ZUGN
(e) None of these

Directions (26-28): Study the following information carefully and answer the questions given below:
Six persons—A, B, C, D, E, and F—are of different weights, but not necessarily in the same order. The weight of second lightest person is 13kg. C is heavier than E. A is heavier than F. B is heavier than C but not immediately heavier. Not more than one person is lighter than A.

Q26. Who is the third lightest person?
(a) C
(b) A
(c) E
(d) D
(e) None of these

Q27. If D weighs 25kg, then what is the possible weight of C?
(a) 28 kg
(b) 55 kg
(c) 36 kg
(d) 19 kg
(e) 27 kg

Q28. Who is immediately heavier than C?
(a) D
(b) B
(c) E
(d) F
(e) None of these

Directions (29-33): Read the given information carefully and answer the related questions:
Eight persons A, B, C, D, E, F, G and H sit in a row but not in the same order as given. Some persons face north and some face south direction.
A sits second to the right of F and both face the same direction. B and F sit immediate left to each other. Number of persons sit between A and B is same as the number of persons sit to the right of A. Three persons sit between D and H and both face opposite direction to each other. G sits immediate right of D. Both the immediate neighbors of C face north which is opposite to C. Number of persons face north is more than the number of persons face south.

Q29. What is the position of B with respect to C?
(a) Second to the right
(b) Immediate left
(c) Fourth to the right
(d) Third to the left
(e) Fifth to the right

Q30. Four of the following five are similar in a certain way and related to a group. Who among the following is not related to the group?
(a) A
(b) H
(c) E
(d) G
(e) D

Q31. How many persons sit to the left of E?
(a) None
(b) One
(c) Two
(d) More than three
(e) Three

Q32. Which of the following statement is correct?
I. G faces south
II. C is not the immediate neighbor of A and E
III. F and H sit immediate right to each other
(a) Only I
(b) Only II
(c) Only III
(d) Only I and II
(e) Only II and III

Q33. Who among the following sits immediate left of E?
(a) D
(b) B
(c) H
(d) A
(e) C

Q34. In the word 'MAGNITUDE', how many pairs of the letters have the same number of letters between them (both forward and backward direction) as in the English alphabet?
(a) One
(b) None
(c) More than four
(d) Three
(e) Two

Q35. Find the odd-one out.
(a) MPS
(b) BDF
(c) TWZ
(d) RUX
(e) GJM

Directions (36-40): Read the information carefully and answer the questions given below:
Eight persons — P, Q, R, S, T, U, V and W — were born in eight different years: 1957, 1963, 1970, 1976, 1985, 1991, 2000 and 2010, on the same month and same date.
(Base year is considered as: 2025)
V is 9 years elder than P. The number of persons elder than P is two more than the number of persons younger than Q. Q is immediately elder than S. Three persons were born between S and W. R is elder than T but younger than U. U is not the eldest person

Q36. Who among the following was born in 1985?
(a) Q
(b) S
(c) P
(d) U
(e) V

Q37. How many persons were born between W and R?
(a) One
(b) Two
(c) Three
(d) Four
(e) Five

Q38. What is the difference between the age of Q and T?
(a) 23 years
(b) 32 years
(c) 11 years
(d) 34 years
(e) 9 years

Q39. Who among the following is the oldest person?
(a) V
(b) Q
(c) P
(d) S
(e) W

Q40. What is the age of T?
(a) 25 years
(b) 15 years
(c) 62 years
(d) 34 years
(e) 55 years

Directions (41-46): Read the information and answer the following question.
The table shows the total number of females and ratio of male to females in five different companies.

Companies	**Males: Females**	**Females**
A	7:5	25
B	3:4	64
C	6:11	88
D	3:7	70
E	9:13	65

Q41. In company F, total number of females are 20% more than females in A and males are 20% less than that of females. Find the difference between total employees in F and E.
(a) 56
(b) 48
(c) 29
(d) 40
(e) 57

Q42. Find the average number of males in D and B.
(a) 39
(b) 38
(c) 35
(d) 40
(e) 37

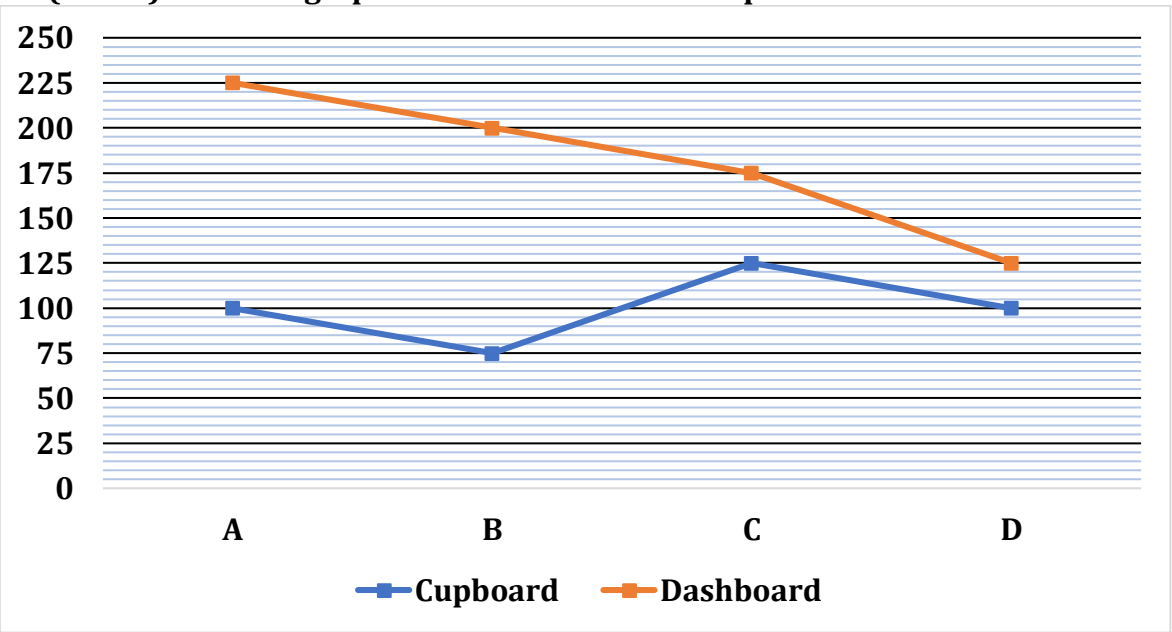
Q43. The ratio of promoted to non-promoted from total employees in D is 2:3. Total females who got promoted in D is 25. Find the females who got promoted in D is what percentage of non promoted females in D.
(a) 11.11
(b) 22.22
(c) 33.33
(d) 44.44
(e) 55.55

Q44. Find the ratio of total employees in A to males in B & D together.
(a) 5:6
(b) 4:9
(c) 10:13
(d) 14:13
(e) 5:7

Q45. Find the difference between total males and females in all the companies.
(a) 102
(b) 108
(c) 109
(d) 106
(e) 100

Q46. The ratio of intern to permanent employees in C is 1:1 and out of that 25 are female intern. Find the permanent male employees in C.
(a) 1
(b) 2
(c) 3
(d) 4
(e) 5

Directions (47-52): The line graph shows the number of cupboard and dashboard in four shops.



Q47. Find the average of cupboard in A, dashboard in B and (cupboard + dashboard) in C.
(a) 200
(b) 100
(c) 135
(d) 140
(e) 150

Q48. Find the ratio of (cupboard and dashboard) in A to dashboard in B and C together.
(a)6:5
(b) 13:15
(c) 3:5
(d) 14:15
(e) 15:16

Q49. Cupboard in all the shops is how many more than dashboard in A and B together.
(a)60
(b) 30
(c) 25
(d) 40
(e) 50

Q50. If 20% of the cupboard sold from total cupboard in A and 45 dashboard sold out of total dashboard in B. find the sum of unsold dashboard in B and unsold cupboard in A.
(a)260
(b) 230
(c) 245
(d) 240
(e) 235

Q51. The ratio of defective to non defective cupboard in C is 3:2, find the non-defective cupboard in C is what percentage more/less than total dashboard in B.
(a)60
(b) 50
(c) 55
(d) 75
(e) 100

Q52. Find the cupboard in B is what percentage of dashboard in D.
(a)60
(b) 30
(c) 35
(d) 40
(e) 50

Q53. A 40 liters mixture contains X liters of milk and rest is water. A person removed 10 liters of mixture and added 18 liters of water in the remaining mixture. If the ratio of milk to water in the final mixture is 7: 9, then find the quantity of water (in liters) in initial solution.
(a) 18
(b) 12
(c) 20
(d) 14
(e) 15

Q54. A spends $33\frac{1}{3}\%$ of his income on food and $14\frac{2}{7}\%$ of remaining in transport. If the sum of amounts spend on food and transport is Rs.9000, then find the income (In Rs.) of A.
(a) 21000
(b) 72000
(c) 18000
(d) 81000
(e) 66000

Q55. The average weight of 12 students in a class is 'y' kg. Two new students joined them with total weight of 72 kg and the average weight of the class is decreased by $\frac{y}{16}$ kg. If the weight of heavier student out of two students who joined is y – 24 kg, then find the difference between weight of two students who joined.
(a) 10 kg
(b) 4 kg
(c) 12 kg
(d) 8 kg
(e) 6 kg

Q56. Shivam marked up an article 80% above its cost price and allowed 30% discount on it. Had he allowed only 20% discount on the article, then he would have earned Rs.108 more. Find cost price of the article.
(a) Rs.900
(b) Rs.700
(c) Rs.800
(d) Rs.500
(e) Rs.600

Q57. The ratio of present age of A to B is 9:7 and present age of C is $\frac{100}{9}$% of the present age of A. If the average of present age of A, B and C is 22 years & 8 months, then find the present age of C.
(a) 8 years
(b) 1 year
(c) 7 years
(d) 4 years
(e) 5 years

Q58. A man invests Rs. X in a scheme, which offers simple interest at the rate of 24% p.a. for three years. Man received Rs.3600 as total interest from the scheme. If man invests Rs. X in a bank which offers compound interest at rate of 10% p.a. for two years, then find the total amount received by man from the bank after two years.
(a) $Rs.7200$
(b) $Rs.7400$
(c) $Rs.7700$
(d) $Rs.6050$
(e) $Rs.7550$

Q59. There are two empty vessel P and Q. If equal quantity of juice is poured into both the vessel, then this process makes vessel P $3/8^{th}$ full and vessel Q $2/5^{th}$ full, then find the capacity of vessel Q is what percent of vessel P's capacity?
(a) 90.25%
(b) 94.50%
(c) 92.75%
(d) 98.50%
(e) 93.75%

Q60. The efficiency of A is 25% more than that of B, and the efficiency of C is 20% more than that of A. If A, B, and C together can complete a piece of work in 12 days, then in how many days can B alone complete the same work?
(a) 40
(b) 45
(c) 35
(d) 30
(e) 50

Q61. A, B and C are three positive integers. The ratio of A to B is 4:5 respectively. C is 5 more than that of B. If the sum of A, B and C is 89, then find the value of C.
(a) 30
(b) 24
(c) 35
(d) 36
(e) 40

Q62. The time taken by a boat to cover 40 km upstream is equal to the time taken by the boat to cover 60 km downstream. If the speed of the stream is 2 km/h, find the downstream speed of the boat (in km/h).
(a) 8
(b) 10
(c) 12
(d) 14
(e) 18

Q63. A and B started a business with investments of Rs 5200 and Rs 8000. After four months, A added Rs 800 more, and B withdrew 33.33% of his initial investment. Find the profit-sharing ratio of A to B after one year.
(a) 132:137
(b) 135:139
(c) 133:140
(d) 131:140
(e) 129:140

Q64. Train A can cross a pole in 15 seconds and cross train B while running in the same direction in 72 seconds. The length of train A is 570 meters, and the speed of train B is 26 m/sec. Find the length of the train B (in meters).
(a) 294
(b) 280
(c) 288
(d) 274
(e) 262

Q65. The perimeter of a rectangle is 58 cm, and the length of the rectangle is 3 cm more than that of the breadth. Find the area of the rectangle (in cm^2).
(a) 210
(b) 208
(c) 224
(d) 215
(e) 228

Directions (66- 70): Find out the wrong number.

Q66. 8 , 17.5, 35, 105, 420, 2100, 12600
(a) 17.5
(b) 8
(c) 105
(d) 420
(e) 2100

Q67. 201, 205, 214, 230, 255, 290, 340
(a) 201
(b) 290
(c) 214
(d) 230
(e) 255

Q68. 24, 13, 14, 22, 45, 113, 341.5
(a) 45
(b) 14
(c) 13
(d) 24
(e) 113

Q69. 117, 136, 159, 188, 219, 256, 296
(a) 256
(b) 219
(c) 296
(d) 117
(e) 136

Q70. 28.5, 30, 63, 191, 766, 3832, 22994
(a) 30
(b) 28.5
(c) 63
(d) 191
(e) 766

Directions (71–75): Solve the given quadratic equations and mark the correct option based on your answer.
(a) if $x>y$
(b) if $x\geq y$
(c) if $x<y$
(d) if $x \leq y$
(e) if x = y or no relation can be established between x and y.

Q71. I. $3x^2 - x - 4 = 0$
II. $3y^2 + 16y + 13 = 0$

Q72. I. $2x^2 - x - 45 = 0$
II. $3y^2 + 16y + 21 = 0$

Q73. I. $2x^2 + 20x + 32 = 0$
II. $3y^2 + 7y + 4 = 0$

Q74. I. $2x^2 - 28x + 90 = 0$
II. $3y^2 + 8y + 4 = 0$

Q75. I. $x^2 + 31x + 108 = 0$
II. $y^2 - 21y + 98 = 0$

Directions (76-80): What approximate value will come in place of question mark (?) in the following questions (You are not expected to calculate the exact value).

Q76. $129\%\ of\ 399 + \frac{9}{17} of\ \sqrt{1150} = ?$
(a) 538
(b) 545
(c) 529
(d) 516
(e) 588

Q77. $(501 + 98) \div 8 = ? \times \sqrt[3]{122}$
(a) 30
(b) 25
(c) 20
(d) 15
(e) 5

Q78. $(309 \times 89) \div 31 + 59 = ?^2$
(a) 19
(b) 33
(c) 25
(d) 23
(e) 31

Q79. $12^2 + 8 + 59\%\ of\ 90 = ?\ \%of\ 40 + 5$
(a) 500
(b) 450
(c) 598
(d) 657
(e) 980

Q80. $\sqrt{670} - \frac{5}{7} of\ 20 + (24 - 5) = \sqrt{?}$
(a) 961
(b) 900
(c) 676
(d) 625
(e) 729

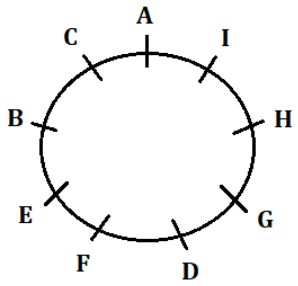
Solutions

Solutions (1-5):

Words	Codes
True	kf
Wishes	os
Brings	yn
Joy	ut
Aim	ed
Comes	vb
Adventurous	rn
Path	sk
Strong/Courage	ts/kv

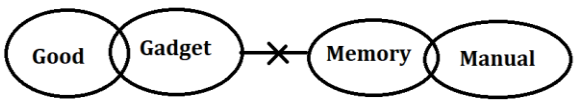
S1. Ans.(d)
S2. Ans.(e)
S3. Ans.(b)
S4. Ans.(e)
S5. Ans.(c)

Solutions (6-10):

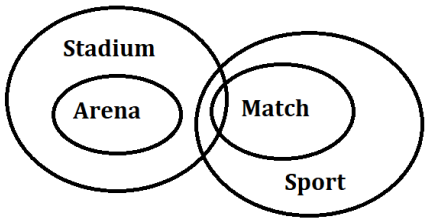


S6. Ans.(b)
S7. Ans.(e)
S8. Ans.(c)
S9. Ans.(d)
S10. Ans.(e)

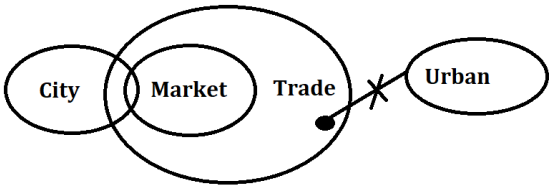
S11. Ans.(a)
Sol.



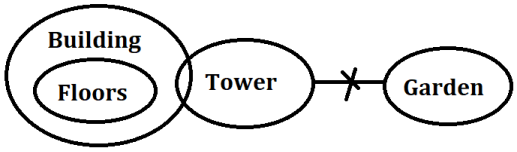
S12. Ans.(b)
Sol.



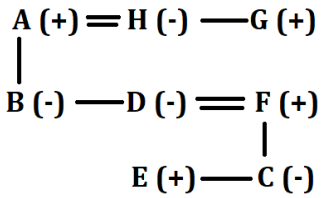
S13. Ans.(e)
Sol.



S14. Ans.(c)
Sol.



Solutions (15-17):



S15. Ans.(c)
S16. Ans.(d)
S17. Ans.(b)

S18. Ans.(d)
Sol. ERUPTION - DSTQUJNO

Solutions (19-23):

Days	Persons	Subjects
Monday	F	Math
Tuesday	D	Zoology
Wednesday	B	Operation
Thursday	E	History
Friday	A	Urdu
Saturday	G	Sociology
Sunday	C	Physics

S19. Ans.(e)
S20. Ans.(a)
S21. Ans.(c)
S22. Ans.(d)
S23. Ans.(b)

S24. Ans.(c)
Sol. 648319572 – 123456789
7×2 = 14

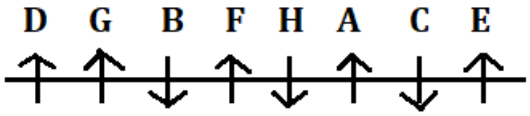
S25. Ans.(d)
Sol. Opposite of even positioned letters from left end (according to English alphabet order) and odd positioned letters are changed to its second succeeding letter.

Solutions (26-28):

B > D > C > E > A > F
13Kg

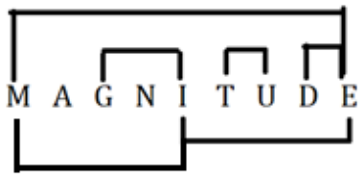
S26. Ans.(c)
S27. Ans.(d)
S28. Ans.(a)

Solutions (29-33):

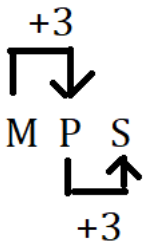


S29. Ans.(c)
S30. Ans.(b)
S31. Ans.(d)
S32. Ans.(c)
S33. Ans.(e)

S34. Ans.(c)
Sol.



S35. Ans.(b)
Sol. Logic here is:



Solutions (36-40):

Years	Ages	Persons
1957	68	W
1963	62	U
1970	55	R
1976	49	Q
1985	40	S
1991	34	V
2000	25	P
2010	15	T

S36. Ans.(b)
S37. Ans.(a)
S38. Ans.(d)
S39. Ans.(e)
S40. Ans.(b)

Solutions (41-46):
In A,
Males: females = 7:5
5x = 25
5 = x
7x =35 = males
Total = 12x = 60
Similarly,

Companies	Males	Females	Total
A	$\frac{7}{5} \times 25 = 35$	25	60
B	$\frac{3}{4} \times 64 = 48$	64	112
C	$\frac{6}{11} \times 88 = 48$	88	136
D	$\frac{3}{7} \times 70 = 30$	70	100
E	$\frac{9}{13} \times 65 = 45$	65	110
Total	206	312	518

S41. Ans.(a)
Sol. Females in F = 120% of 25 = 30
Males in F = 80% of 30 = 24
Required answer = 110 – (30 +24) = 56

S42. Ans.(a)
Sol. Required answer = $\frac{48+30}{2} = 39$

S43. Ans.(e)
Sol. Let the promoted and **non-promoted** employees be 2x and 3x respectively.
5x = 100
20 = x
Promoted employees = 40
non- promoted employees = 60
promoted females = 25
promoted males =40 – 25 = 15
non – promoted females = 70 – 25 = 45
non – promoted males = 60- 45 = 15
required answer $\frac{25}{45} \times 100 = 55.55\%$

S44. Ans.(c)
Sol. Required answer = 60:48+30 = 60:78 = 20:26 = 10:13

S45. Ans.(d)
Sol. Required answer = 312 – 206 = 106

S46. Ans.(e)
Sol. Intern : permanent = 1:1 = 1x and 1x
2x = 136
68 = x
Total Intern = 68
Females intern = 25
Males intern = 68 – 25 = 43
Permanent male employees = 48 – 43 = 5

S47. Ans.(a)
Sol. Required answer = $\frac{100+200+300}{3} = 200$

S48. Ans.(b)
Sol. Required ratio = 100 +225:200 +175 = 325:375 = 13:15

S49. Ans.(c)
Sol. Required answer = (225+200) - (100+75+125+100)= 425 – 400 = 25

S50. Ans.(e)
Sol. Total cupboard in A = 100
Cupboard sold in A = 20% of 100 = 20
Unsold Cupboard in A = 100 – 20 = 80
Total dashboard in B = 200
dashboard sold in B = 45
Unsold dashboard in B = 200 – 45 = 155
Required answer = 155 + 80 = 235

S51. Ans.(d)
Sol. defective and non-defective cupboard in C be 3x and 2x,
5x = 125
25 = x
non defective cupboard in C = 2x = 50
required answer $=\frac{200-50}{200}\times 100 = 75\%$

S52. An. (a)
Sol. Required answer = $\frac{75}{125}\times 100 = 60$

S53. Ans.(b)
Sol. Quantity of milk = X liters
Quantity of water = 40 – X liters
ATQ,
$$\frac{\left(X-10\times\frac{X}{40}\right)}{40-X-10\times\frac{40-X}{40}+18}=\frac{7}{9}$$
$$\frac{\frac{3X}{4}}{58-X-\frac{40-X}{4}}=\frac{7}{9}$$
27X = (192 – 3X) × 7
27X + 21X = 1344
48X = 1344
X = 28
Quantity of water in the initial mixture = 40 – 28 = 12 liters

S54. Ans.(a)
Sol. Let the income of A be 210x
Amount spend on food = $210x\times\frac{1}{3}=70x$
Amount spend on transport = $210x\times\frac{2}{3}\times\frac{1}{7}=20x$
$70x + 20x = 9000$
$x = 100$
Income of A $= Rs.21000$

S55. Ans.(d)

Sol. ATQ, $\frac{12y+72}{14}$ = y - $\frac{y}{16}$

96y + 576 = 105y

9y = 576

y = 64

Weight of heavier student out of two students who joined = (64 – 24) = 40 kg

Weight of lighter student out of two students who joined = 40 – (72−40)= 8 kg

S56. Ans.(e)

Sol. Information Given in the Question:

Marked up by 80% over cost price

Two discount scenarios:

Case 1: 30% discount

Case 2: 20% discount

Profit difference between Case 2 and Case 1 = ₹108

Concept/Formula Used in the Question:

Marked Price (MP) = Cost Price (CP) × (1 + Markup %)

Selling Price (SP) = MP × (1 - Discount %)

Profit = SP - CP

Detailed Explanation:

Let cost price of the article be Rs.100x

So, marked price of the article = Rs.180x

And, original selling price of the article = $180x \times \frac{7}{10}$ =Rs.126x

And, new selling price of the article = $180x \times \frac{4}{5} =$ Rs.144x

ATQ,

$144x - 126x = 108$

$x = 6$

Required cost price = Rs.100x = Rs.600

S57. Ans.(d)

Sol. Information Given in the Question:

Present age ratio of A : B = 9 : 7

Present age of C = (100/9)% of present age of A

Average present age of A, B, C = 22 years 8 months

Concept/Formula Used in the Question:

Percentage conversion: (100/9)% = 100/900 = 1/9

Average = (Sum of quantities) / Number of quantities

Detailed Explanation:

Let the present age of A & B be 9x years and 7x years respectively.

So, the present age of C = $\frac{1}{9} \times 9x = x$ years

$\frac{x+9x+7x}{3} = 22 + \frac{8}{12} = \frac{68}{3}$

$17x = 68$

$x = 4$

Present age of C = 4 years

S58. Ans.(d)

Sol. Information Given in the Question:

Principal (P) = Rs. X

Simple Interest Rate = 24% p.a.

Time = 3 years

Total Simple Interest = Rs. 3600

Same Principal invested at 10% p.a. compound interest for 2 years

We need to find the **total amount** received after 2 years (Principal + CI)

Concept/Formula Used in the Question:

Simple Interest (SI) Formula:

SI = (P × R × T)/100

Compound Interest (CI) Formula for 2 years:

Equivalent rate of interest = $\left(R + R + \frac{R \times R}{100}\right)\%$

Detailed Explanation:

ATQ,

$\frac{X \times 24 \times 3}{100} = 3600$

$X = \text{Rs.}\,5000$

Equivalent rate of interest$= 10 + 10 + \frac{10 \times 10}{100} = 21\%$

Required amount = $5000 \times \frac{21}{100} + 5000 = Rs.6050$

S59. Ans.(e)

Sol. Information Given in the Question:

Equal quantity of juice poured into both vessels

Vessel P becomes 3/8 full

Vessel Q becomes 2/5 full

Need to find: Capacity of Q as a percentage of capacity of P

Detailed Explanation:

Let the capacity of vessel P = P

ATQ.

$\frac{3}{8}$ of vessel P $= \frac{2}{5}$ of veseel Q

$\frac{\text{P}}{\text{Q}} = \frac{16}{15}$

Required % = $\frac{15}{16} \times 100 = 93.75\%$

S60. Ans.(b)

Sol. Information Given in the Question:

A is 25% more efficient than B.

C is 20% more efficient than A.

A + B + C together can complete the work in 12 days.

Concept/Formula Used in the Question:
Efficiency is inversely proportional to time taken.
Total work = Efficiency × Time
Time = Total Work / Efficiency
Detailed Explanation:
Let B's efficiency be 100 units.
Then,
A's efficiency = 100 + 25% of 100 = 125 units
C's efficiency = 125 + 20% of 125 = 150 units
Combined efficiency of A, B, and C = 125 + 100 + 150 = 375 units/day
Total work = Efficiency × Time = 375 × 12 = 4500 units
Now, B's efficiency = 100 units/day
So, time taken by B alone = 4500 / 100 = 45 days

S61. Ans.(c)
Sol. Information Given in the Question:
A : B = 4 : 5
C = B + 5
A + B + C = 89
Detailed Explanation:
Let:
A = 4x
B = 5x
C = 5x + 5
Then,
A + B + C = 4x + 5x + (5x + 5) = 14x + 5
Set equal to 89:
14x + 5 = 89
⇒ 14x = 84
⇒ x = 6
Now,
B = 5x = 30
C = 30 + 5 = 35

S62. Ans.(c)
Sol. Information Given in the Question:
Upstream distance = 40 km
Downstream distance = 60 km
Speed of stream = 2 km/h
Time for upstream = Time for downstream
Concept/Formula Used in the Question:
Let speed of boat in still water = x km/h
Upstream speed = (x - 2) km/h
Downstream speed = (x + 2) km/h
Time = Distance / Speed

Detailed Explanation:

Time taken upstream = $\frac{40}{x-2}$

Time taken downstream = $\frac{60}{x+2}$

Equating both:

$\frac{40}{x-2} = \frac{60}{x+2}$

40(x + 2) = 60(x - 2)

40x + 80 = 60x - 120

80 + 120 = 60x - 40x

200 = 20x

x = 10 km/h (boat's speed in still water)

Downstream speed = x + 2 = 10 + 2 = 12 km/h

S63. Ans.(e)

Sol. Information Given in the Question:

A's initial investment = Rs 5200

B's initial investment = Rs 8000

After 4 months:

A added Rs 800 → becomes Rs 6000

B withdrew 33.33% of 8000 = 8000 × (1/3)

So B's new investment = 8000 × (2/3)

Total duration = 12 months

Concept/Formula Used in the Question:

Profit sharing = investment × time

Detailed Explanation:

The profit-sharing ratio of A to B

$= 5200 \times 4 + (5200 + 800) \times 8 : 8000 \times 4 + 8000 \times \frac{2}{3} \times 8$

$= 5200 \times 1 + 6000 \times 2 : 8000 \times 1 + 8000 \times \frac{2}{3} \times 2$

= 17200 : 56000/3

= 51600 : 56000

= 129:140

S64. Ans.(a)

Sol. Information Given in the Question:

Time taken by Train A to cross a pole = 15 seconds

Length of Train A = 570 meters

Time to cross Train B in same direction = 72 seconds

Speed of Train B = 26 m/s

Need to find: Length of Train B

Concept/Formula Used in the Question:

Speed = Distance / Time

When two trains move in the same direction, relative speed = Speed of faster train – Speed of slower train

Time to cross another train = (Sum of lengths) / (Relative speed)

Detailed Explanation:
Speed = Distance / Time = 570 / 15 = 38 m/s
Relative speed of A with respect to B
= 38 - 26 = 12 m/s
Let the length of Train B = x meters
Time to cross Train B = 72 seconds
Total distance to cross = 570 + x
(570 + x) / 12 = 72
570 + x = 72 × 12 = 864
x = 864 - 570 = 294 meters

S65. Ans.(b)
Sol. Information Given in the Question:
Perimeter = 58 cm
Length = Breadth + 3 cm
Need to find: Area of the rectangle
Concept/Formula Used in the Question:
Perimeter of rectangle = 2 × (Length + Breadth)
Area = Length × Breadth
Detailed Explanation:
Let breadth = x cm
Then, length = x + 3 cm
Perimeter = 2 × (x + x + 3) = 2 × (2x + 3) = 58
⇒ 2(2x + 3) = 58
⇒ 4x + 6 = 58
⇒ 4x = 52
⇒ x = 13 cm
So, breadth = 13 cm, length = 13 + 3 = 16 cm
Area = length × breadth = 16 × 13 = 208 cm^2

S66. Ans.(b)
Sol. The pattern of the series:

17.5,	17.5,	35,	105,	420,	2100,	12600
	× 1	× 2	× 3	× 4	× 5	× 6

S67. Ans.(b)
Sol. The pattern of the series:

201,	205,	214,	230,	255,	**291**,	340
	4	9	16	25	36	49

S68. Ans.(e)
Sol. The pattern of the series:

24,	13,	14,	22,	45,	**113.5**,	341.5
	× 0.5 + 1	× 1 + 1	× 1.5 + 1	× 2 + 1	× 2.5 + 1	× 3 + 1

S69. Ans.(c)
Sol. The pattern of the series:

117, 136, 159, 188, 219, 256, **297**

19 23 29 31 37 41

S70. Ans.(a)
Sol. The pattern of the series:

28.5, **30.5**, 63, 191, 766, 3832, 22994

$\times 1 + 2$ $\times 2 + 2$ $\times 3 + 2$ $\times 4 + 2$ $\times 5 + 2$ $\times 6 + 2$

S71. Ans.(b)
Sol. I. $3x^2 - x - 4 = 0$
$3x^2 - 4x + 3x - 4 = 0$
$x(3x-4) + 1(3x-4) = 0$
$x = -1, 4/3$
II. $3y^2 + 16y + 13 = 0$
$3y^2 + 13y + 3y + 13 = 0$
$y(3y+13) + 1(3y+13) = 0$
$y = -1, -13/3$
So, $x \geq y$

S72. Ans.(e)
Sol. I. $2x^2 - x - 45 = 0$
$2x^2 - 10x + 9x - 45 = 0$
$2x(x-5) + 9(x-5) = 0$
$x = 5, -4.5$
II. $3y^2 + 16y + 21 = 0$
$3y^2 + 9y + 7y + 21 = 0$
$3y(y+3) + 7(y+3) = 0$
$y = -3, -7/3$
So, no relation

S73. Ans.(c)
Sol. I. $2x^2 + 20x + 32 = 0$
$2x^2 + 16x + 4x + 32 = 0$
$2x(x+8) + 4(x+8) = 0$
$x = -2, -8$
II. $3y^2 + 7y + 4 = 0$
$3y^2 + 3y + 4y + 4 = 0$
$3y(y+1) + 4(y+1) = 0$
$y = -1, -\frac{4}{3}$
$x < y$

S74. Ans.(a)

Sol. I. $2x^2 - 28x + 90 = 0$

$2x^2 - 18x - 10x + 90 = 0$

$2x(x-9) - 10(x-9) = 0$

$x = 5, 9$

II. $3y^2 + 8y + 4 = 0$

$3y^2 + 6y + 2y + 4 = 0$

$3y(y+2) + 2(y+2) = 0$

$y = -2, -\frac{2}{3}$

$x > y$

S75. Ans.(c)

Sol. I. $x^2 + 31x + 108 = 0$

$x^2 + 27x + 4x + 108 = 0$

$x(x+27) + 4(x+27) = 0$

$x = -4, -27$

II. $y^2 - 21y + 98 = 0$

$y^2 - 14y - 7y + 98 = 0$

$y(y-14) - 7(y-14) = 0$

$y = 7, 14$

$y > x$

S76. Ans.(a)

Sol. $130\%\ of\ 400 + \frac{9}{17}\ of\ \sqrt{1156} = ?$

$520 + \frac{9}{17} \times 34 = ?$

$520 + 18 = ?$

$538 = ?$

S77. Ans.(d)

Sol. $\frac{501+99}{8} = ? \times \sqrt[3]{125}$

$75 = ? \times 5$

$15 = ?$

S78. Ans.(e)

Sol. $(310 \times 90) \div 31 + 61 = ?^2$

$900 + 61 = ?^2$

$961 = ?^2$

$31 = ?$

S79. Ans.(a)

Sol. $12^2 + 8 + 59\%\ of\ 90 = ?\ \%of\ 40 + 5$

$144 + 8 + \frac{60}{100} \times 90 = \frac{?}{100} \times 40 + 6$

$200 = \frac{?}{100} \times 40$

$? = 500$

S80. Ans.(b)

Sol. $\sqrt{676} - \frac{5}{7} of\ 21 + (24 - 5) = \sqrt{?}$

$26 - 15 + 19 = \sqrt{?}$

$30 = \sqrt{?}$

$900 = ?$