

IBPS RRB PO Pre 2025 Memory Based Paper Based on 22nd November 1st Shift

Directions (1-5): Read the given information carefully and answer the related questions:

Nine persons A, B, C, D, E, F, G, H and I sit in a row facing north but not in the same order as given. Three persons sit between B and G. C sits second to the right of G. H sits third to the left of C. E and H sit adjacent to each other. One person sits between E and A. F sits second to the left of D.

Q1. What is the position of I with respect to G?

- (a) Immediate right
- (b) Fifth to the left
- (c) Second to the left
- (d) Third to the left
- (e) Third to the right

Q2. How many persons sit between A and H?

- (a) One
- (b) Four
- (c) Five
- (d) Two
- (e) Three

Q3. Number of persons sitting between A and H is same as _____

- (a) Between A and B
- (b) To the left of A
- (c) Between A and C
- (d) Between A and D
- (e) To the right of A

Q4. Who among the following sits fourth to the left of C?

- (a) E
- (b) A
- (c) I
- (d) B
- (e) F

Q5. Which of the following statement is correct?

- I. A sits at one of the extreme ends
 - II. G sits exactly middle of the row
 - III. C and F are not immediate neighbors to each other
- (a) Only I and III
 - (b) Only II
 - (c) Only I and II
 - (d) Only II and III
 - (e) Only I

Directions (6-8): Read the given information carefully and answer the related questions:

Six persons A, B, C, D, E and F – of a group, and each have different height.

A's height is more than B but less than C. Two persons are in between C and D. Number of persons smaller to A is same as the number of persons taller to E. Less than two persons are junior to F.

Q6. How many persons are in between A and F?

- (a) None
- (b) One
- (c) Two
- (d) Three
- (e) Four

Q7. Who are shorter than A?

- (a) A
- (b) F
- (c) B
- (d) C
- (e) D

Q8. Who are taller than A?

- (a) A
- (b) C
- (c) D
- (d) B
- (e) F

Q9. In the middle of the group, who are the tallest?

- (a) Four
- (b) Two
- (c) One
- (d) Three
- (e) More than three

Directions (9-10): Read the given information carefully and answer the related questions:

Statements:

Given statement and select the appropriate answer.

Q10. Statements:

$W > T > K \geq J$; $S \geq M > K < D$

Conclusions:

I. $J < S$

II. $D > W$

- (a) If only conclusion I is true
- (b) If only conclusion II is true
- (c) If either conclusion I or II is true
- (d) If neither conclusion I nor II is true
- (e) If both conclusions I and II are true

Q11. Statements: $G > R \geq N < A = O \geq X = C > P \geq U$

Conclusions:

I. $A \geq U$

II. $X < G$

(a) If only conclusion I is true

(b) If only conclusion II is true

(c) If either conclusion I or II is true

(d) If neither conclusion I nor II is true

(e) If both conclusions I and II are true

Q12. Statement

Conclusion

I. $X > T$

II. $Y \leq G$

(a) If only conclusion I is true

(b) If only conclusion II is true

(c) If either conclusion I or II is true

(d) If neither conclusion I nor II is true

(e) If both conclusions I and II are true

Directions

Read the following information carefully and answer the questions:
Nine boxes A through I are placed one above and one below the other in the same order as given.

Box A is placed at the top. Box B is placed immediately above box C but below box D. More than four boxes are placed above box E. Box F is placed immediately above box G but below box H. Box I is placed immediately above box J but below box K.

Q13. If box A is related to box G, in the similar way box B is related to box D, then which box is related to box H?

(a) Box E

(b) Box C

(c) Box I

(d) Box F

(e) Box B

Q14. If all boxes are arranged as per alphabetical order from top to bottom, then how many boxes will remain unchanged at their position?

(a) None

(b) One

(c) Three

(d) More than three

(e) Two

Q15. Which of the following box is placed just below box H?

- (a) Box B
- (b) Box E
- (c) Box A
- (d) Box C
- (e) Box F

Q16. How many boxes are placed between box I and box A?

- (a) One
- (b) Five
- (c) Two
- (d) Four
- (e) Three

Q17. What is the designation of the person who likes paper?

- (a) Four box
- (b) Five box
- (c) Two box
- (d) Three box
- (e) Immediate

Directions:

Seven persons are working on different designations. Their designations are CEO, COO, AGM, Clerk, Manager, AM and Junior most. The information is as follows: P is four designations junior to the one who likes paper. K is senior to M but not like brush. Two persons are designated between K and Q. Number of persons senior to Q is same as the number of persons junior to the one who likes pencil. M is immediately junior to the one who likes cutlery but M is not clerk. Two persons are designated between N and the one who likes brush. The one who likes cutlery is immediately senior to the one who likes pencil.

Q18. What is the designation of the person who likes pencil?

- (a) Manager
- (b) AGM
- (c) Clerk
- (d) AM
- (e) COO

Q19. The one who is designated as CEO likes which item?

- (a) Brush
- (b) Rubber
- (c) Cutlery
- (d) Fruit
- (e) Pencil

Q20. Which of the following combination is correct?

- (a) AGM - P
- (b) K - brush
- (c) AM - fruit
- (d) COO - Q
- (e) M - paper

Q21. Who among the following is three persons senior to the one who likes color?

- (a) The one who likes cutlery
- (b) The one who is COO
- (c) M
- (d) Q
- (e) The one

Q22. How many

- (a) Two
- (b) None
- (c) Three
- (d) Four
- (e) One

Directions

below:

A person starts from Point S and walks 7m to the east direction and reaches Point P. From point P, he takes a right turn and walks 10m to reach point Q. From point Q, he takes a right turn and walks 7m to reach point R. From point R, he turns left and walks 2m to reach point S. Finally, from point S, he takes a right turn and walks 10m to reach point H.

Q23. What is the direction of Point H from Point S?

- (a) South-east
- (b) North-west
- (c) South-west
- (d) South
- (e) West

Q24. If Point G is 31m west of Point R, then what will be the shortest distance between point P and point G?

- (a) $\sqrt{686}$ m
- (b) $\sqrt{566}$ m
- (c) 26m
- (d) 24m
- (e) None of these

Q25. If office is 10m north of Point M then in which direction is Point S with respect to Point M?

- (a) North-east
- (b) South-east
- (c) North-west
- (d) West
- (e) South-west

Directions (26-29): In each 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 is/are commonly known fact.

- (a) If only conclusion I is correct
- (b) If only conclusion II is correct
- (c) If either conclusion I or II is correct
- (d) If neither conclusion I nor II is correct
- (e) If both conclusions I and II are correct

Q26. Statement:

Only project is difficult
Some project are easy
All difficult are project

Conclusion:

- I. Some common project is no possibility
- II. All easy being project is possibility

Q27. Statement:

Only a few hut are cement
Some house are cement
No bricks are cement

Conclusion:

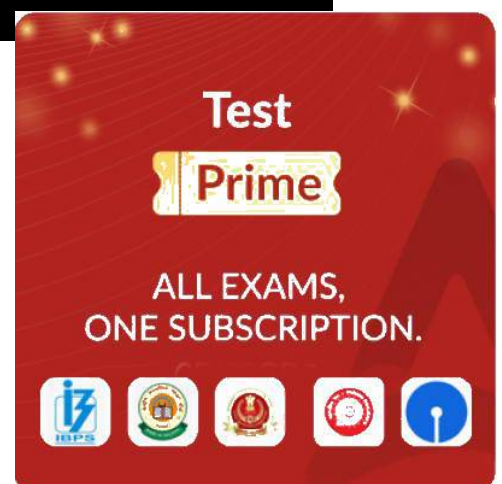
- I. No Hut is cement
- II. Some house are not cement

Q28. Statements:

Only a few digital are network.
All network is growth.
All growth is reward.

Conclusions:

- I. Some digital is growth
- II. All digital being network is a possibility



Q29. Statements:

Some glue is not paper
Only a few paper is pencil
All pencil is sharpener

Conclusions:

- I. No glue is sharpener
- II. Some glue is sharpener

Directions (30-32): Study the information carefully and answer the questions given below.

There are eight members in a three-generation family. No single parent is there in the family. S is the sister of W. K is the son of W who is not married. U is the daughter of W and K. R is the father of Q.

Q30. How is U related to M?

- (a) Mother
- (b) Daughter
- (c) Sister
- (d) Son-in-law
- (e) Daughter-in-law

Q31. If K is related to M?

- (a) Sister-in-law
- (b) Brother-in-law
- (c) Sister
- (d) Nephew
- (e) Can't be determined

Q32. If the relation of U to K?

- (a) Brother
- (b) Daughter
- (c) Nephew
- (d) Neice
- (e) Can't be determined

Q33. Find the odd-one out.

- (a) DFI
- (b) MOR
- (c) SUX
- (d) HJL
- (e) EGJ



is Q related

Q34. In the number '478732359', if all the odd places digit are subtracted by 1 and all the even places are added by 1 from left end, then how many digits are not repeated in the new number formed after rearrangement?

- (a) 8
- (b) 6, 7 and 8
- (c) 7 and 8
- (d) 6
- (e) 6 and 7

Directions (35-39): Read the given information carefully and answer the related questions:

Eight persons A, B, C, D, E, F, G and H sit around a circular table but not in the same order as given. Some of them face towards the centre and some face towards the outer side. One person sits between A and B. One person sits between A and D. D sits immediately left of E. Two persons sit between G and A. Two persons sit between E and H. More than three persons face towards the centre.

Q35. What is the position of F?

- (a) 2nd to the left of A
- (b) 3rd to the left of A
- (c) 2nd to the right of A
- (d) 4th to the right of A
- (e) 3rd to the right of A

Q36. Four of the following are facing towards the centre. Who among the following is not facing towards the centre?

- (a) F
- (b) H
- (c) G
- (d) D
- (e) B

Q37. How many persons are facing towards the outer side?

- (a) Four
- (b) Three
- (c) One
- (d) Two
- (e) Five

Q38. Who among the following sits immediately left of H?

- (a) D
- (b) B
- (c) E
- (d) F
- (e) G



Q39. Which of the following statement is/are correct?

- (a) H and C face the same direction
- (b) D face inside
- (c) All options are correct
- (d) F sits opposite to B
- (e) E sits immediate right of C

Q40. If we form a four-letter meaningful word using the 3rd, 4th, 5th, and 7th letters from the left end of the word "HIERACHY" then what would be the second letter from the left end of that meaningful word? If no meaningful word is formed, mark the answer as X. If more than one meaningful word is formed, mark the answer as Z.

- (a) Z
- (b) H
- (c) A
- (d) X
- (e) E

Directions (Q41-Q42): Read the following information carefully and answer the questions given below. The following table shows the number of mangoes sold and the percentage of mangoes sold to females by four shops.

Shops	Total mangoes sold	Percentage of mangoes sold to females
A	400	75%
B	500	60%
C	300	80%
D	700	50%

Q41. Find the difference between the total number of mangoes sold to males in shops A and C together and the total number of mangoes sold to females by shops D and B together.

- (a) 660
- (b) 640
- (c) 650
- (d) 610
- (e) 630

Q42. The total number of mangoes sold by shop E is 25% more than that of shop C. If the number of mangoes sold to males by shop E is $\frac{3}{4}$ of the total number of mangoes sold to males by shop B, then find the number of mangoes sold to females by shop E.

- (a) 232
- (b) 239
- (c) 243
- (d) 227
- (e) 210

Q43. The total number of mangoes sold to males by shop D is what percentage more or less than the total number of mangoes sold to females by shop A?

- (a) 125%
- (b) 175%
- (c) 150%
- (d) 120%
- (e) 140%

Q44. The number of mangoes sold by shop C to males and females at 25% and 50% profit, respectively. If the cost price of each mango sold by shop C is Rs 20, then find the overall profit earned by shop C.

- (a) 3120
- (b) 4450
- (c) 2320
- (d) 3390
- (e) 3450

Q45. $\frac{5}{8}$ of the number of mangoes sold to females by shop A is equal to the total number of rotten mangoes sold by shop B. Find the number of rotten mangoes sold by shop B.

- (a) 104
- (b) 123
- (c) 119
- (d) 113
- (e) 134

Q46. The total number of apples sold by shop D is 20% more than the average number of mangoes sold by shop A and B. The total number of apples sold to males by shop D and the total number of mangoes sold to females by shop B are in the ratio of 9:16, respectively. Find the total number of apples sold by shop D.

- (a) 114
- (b) 153
- (c) 109
- (d) 123
- (e) 163

Q47. A man invested Rs P in simple interest at 10% p.a. for two years and received interest of Rs 525. If he invested Rs 500 more in compound interest at the same rate for the same period, then find the compound interest he received (in Rs).

- (a) 656.25
- (b) 666.26
- (c) 655.25
- (d) 635.25
- (e) 645.25

Q48. The speed of a boat in still water is 14.4 km/hr and the ratio of downstream to upstream speed of the boat is 3:1 respectively. Find the time taken by the boat to cover 216 km downstream (in hours).

- (a) 8
- (b) 10
- (c) 7
- (d) 5.5
- (e) 12

Q49. A vessel contains milk and water in the ratio of 4:1, respectively. If 20 liters of mixture are taken out and replaced with 20 liters of water, the ratio of milk and water in the vessel becomes 13:2, respectively.

- (a) 12
- (b) 9
- (c) 5
- (d) 6
- (e) 7

Q50. A and B can do a piece of work in 10 days. A alone can do it in 15 days. If they work together for 5 days and then B leaves, the work will be completed in 45 days.

- (a) 10
- (b) 8
- (c) 6
- (d) 4
- (e) 5

Q51. The ratio of the cost price to the selling price of an article is 10:11. If the article is sold after allowing a discount of 20% on the marked price, the profit is Rs. 100.

- (a) 925
- (b) 900
- (c) 875
- (d) 775
- (e) 1090

Q52. A square is cut into four equal smaller squares. The total perimeter of the original square is 168 cm. A circle is drawn whose radius is equal to the side of one smaller square. Find the area of the circle (in cm^2).

- (a) 1386
- (b) 1674
- (c) 1342
- (d) 1459
- (e) 1214

Q53. A started a business with an investment of Rs 4500. After a few months, B joined the partnership with an investment of Rs 6000. At the end of the year, the total profit was Rs 2600, out of which B's share was Rs 800. Find the time period (in months) for which B invested his money in the business.

- (a) 6
- (b) 4
- (c) 3
- (d) 5
- (e) 9

Q54. In a college, total non-technical girls' students are 20% less than total technical girls' students and total non-technical boys' students are 10% less than total technical boys' students?

- (a) 35%
- (b) 40%
- (c) 50%
- (d) 30%
- (e) 25%

Q55. Length of train A crosses a pole in 10 seconds and train B crosses a pole in 15 seconds. If train A crosses train B to cross a pole in 18 seconds, find the length of train B.

- (a) 10 seconds
- (b) 12 seconds
- (c) 15 seconds
- (d) 16 seconds
- (e) 18 seconds

Q56. Age of Akash in one year hence will be half of the present age of Ayush. If present age of Akash is 25 years less than the present age of Adarsh. If Adarsh is 40 years younger than Ayush, then find age of Adarsh.

- (a) 15 years
- (b) 25 years
- (c) 20 years
- (d) 18 years
- (e) 12 years

Direction (57-62): Find the approximate value of question mark (?) in the following questions.

Q57. $\frac{2079.001}{?} = \sqrt[3]{1331.01} - 35.01 \times 11.99 + 639.99$

- (a) 9
- (b) 13
- (c) 7
- (d) 15
- (e) 12

Q58. $? + 247.01 - 156.09 = (17.01)^2 + 15.01\% \text{ of } 79.99$

- (a) 200
- (b) 275
- (c) 250
- (d) 210
- (e) 260

Q59. $\sqrt{1443.98} + (16.02)^2 = 6 \times (?)^2$

- (a) 12
- (b) 8
- (c) 7
- (d) 11
- (e) 14

Q60. $32.049 \times 2.9 = ?$

- (a) 5
- (b) 14
- (c) 7
- (d) 11
- (e) 9

Q61. $\frac{?}{3} + 17 = 49.01$

- (a) 468
- (b) 432
- (c) 420
- (d) 480
- (e) 456

Q62. $59.99\% \text{ of } 49.01 = ?$

- (a) 461
- (b) 320
- (c) 142
- (d) 280
- (e) 456



Direction (63-65): Read the data carefully and answer the following questions.

There are two buses A and B. Total number of seats in A is 40 and out of that 6 seats are vacant. The number of males occupied the seat in A is 6 more than that of females occupied the seats. The vacant seats in B is 50% less than that of A. The ratio of male occupied to females occupied the seats in bus B is 10:7. Total occupied seats in B is 50% more than A.

Q63. Find the difference between total seats in A and B.

- (a) 94
- (b) 92
- (c) 96
- (d) 100
- (e) 95

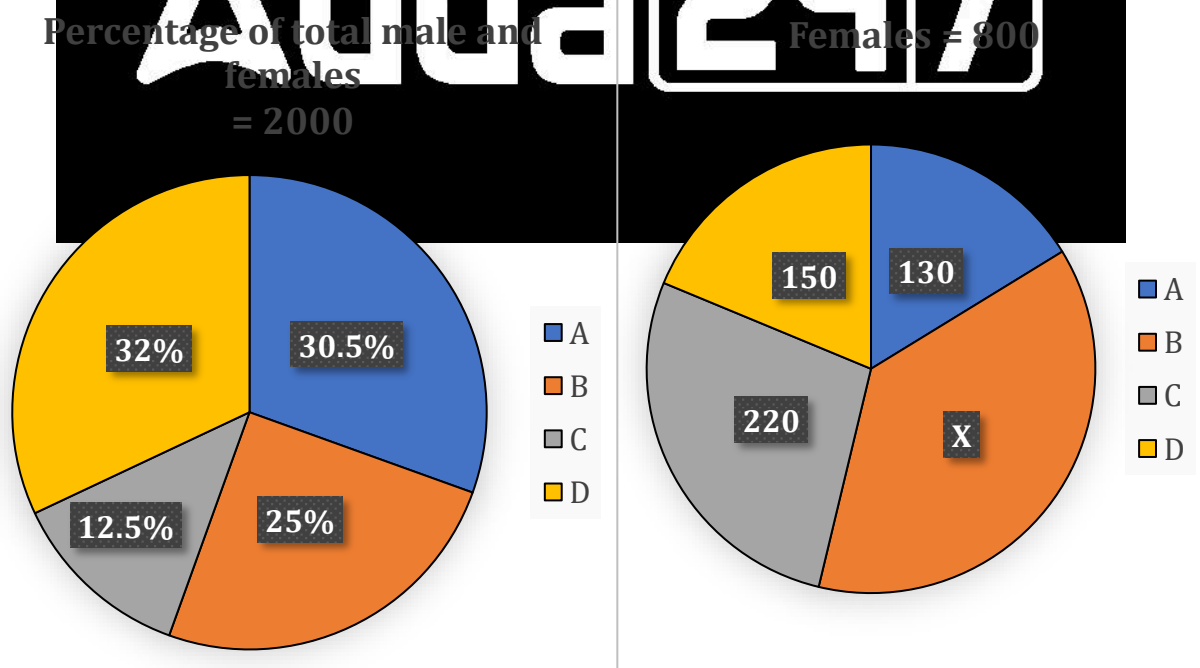
Q64. Find the total seats occupied by females in both the buses is what percentage of total seats in A.

- (a) 84.25%
- (b) 82%
- (c) 81.25%
- (d) 87.5%
- (e) 81.2%

Q65. Find the ratio of vacant seats in A to vacant seats in B.

- (a) 4:5
- (b) 2:5
- (c) 5:6
- (d) 7:10
- (e) 17:3

Direction (Q63-Q65): The following pie charts show the distribution of seats in two buses, A and B. The pie chart shows the percentage of total seats occupied by males and females in bus A. The other pie chart shows the number of seats occupied by males and females in bus B.



Q66. Find the average number of males in B, C & D.

- (a) 240
- (b) 120
- (c) 360
- (d) 100
- (e) 150

Q67. Find the ratio of males in college C and D together to females in A and C together.

- (a) 24:25
- (b) 52:35
- (c) 35:36
- (d) 9:10
- (e) 15:14

Q68. Find the percentage of males in college D.

- (a) 84.25%
- (b) 82%
- (c) 81.25%
- (d) 100%
- (e) 81.2%

Q69. In college A, the number of students is 3X, out of which 2X are females. The males in college D is what percentage of the males in college A?

- (a) 15%
- (b) 12%
- (c) 16%
- (d) 10%
- (e) 17%

Q70. Find the number of females in college B.

- (a) 740
- (b) 720
- (c) 760
- (d) 710
- (e) 750

Directions (71-75): What will come in the question (?) mark in the following number series.

Q71. 1.8, 9, 36, 108, ?, 216,

- (a) 180
- (b) 280
- (c) 192
- (d) 216
- (e) 264

Q72. 157, ?, 171, 150, 185, 164

- (a) 126
- (b) 136
- (c) 148
- (d) 154
- (e) 140

Q73. 224, 207, 188, 165, 136, ?

- (a) 115
- (b) 102
- (c) 104
- (d) 103
- (e) 105

Q74. 4, ?

- (a) 9
- (b) 10
- (c) 16
- (d) 8
- (e) 12

Q75. 6, 2

- (a) 970
- (b) 845
- (c) 1085
- (d) 985
- (e) 1045

Directions (Q76-Q77): In each of these questions, two equations (I) and (II) are given. You have to solve both equations and give answers.

Q76. I. $x^2 + 1$

II. $y^2 + 7y + 10$

- (a) $x \geq y$
- (b) $x \leq y$
- (c) $x > y$
- (d) $x < y$
- (e) $x = y$ or no relation.

Q77. I. $x^2 - 7x - 60 = 0$

II. $y^2 + 13y + 40 = 0$

- (a) $x \geq y$
- (b) $x \leq y$
- (c) $x > y$
- (d) $x < y$
- (e) $x = y$ or no relation.



Q78. I. $x^2 + x - 12 = 0$

II. $y^2 + 2y - 15 = 0$

- (a) $x > y$
- (b) $x \geq y$
- (c) $x < y$
- (d) $x \leq y$
- (e) $x = y$ or no relation can be established between x and y .

Q79. I. $x^2 + 11x + 24 = 0$

II. $4y^2 + 13y + 10 = 0$

- (a) $x > y$
- (b) $x \geq y$
- (c) $x < y$
- (d) $x \leq y$
- (e) $x = y$ or no relation can be established between x and y .

Q80. I. $2x^2 - 9x + 4 = 0$

II. $y^2 + 6y + 8 = 0$

- (a) $x > y$
- (b) $x \geq y$
- (c) $x < y$
- (d) $x \leq y$
- (e) $x = y$ or no relation can be established between x and y .

Solutions

Solutions (1-5):

A I E H G F C D B



S1. Ans.(d)

S2. Ans.(c)

S3. Ans.(e)

S4. Ans.(a)

S5. Ans.(c)

Solutions (6-8):

Sol. $C > A > B > D > E > F$

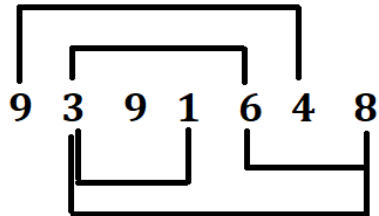
S6. Ans.(b)

S7. Ans.(c)

S8. Ans.(e)

S9. Ans.(e)

Sol.



S10. Ans.(a)

Sol. I. $J < S$ (True)

II. $D > W$ (False)

S11. Ans.(d)

Sol. I. $A \geq U$ (True)

II. $X < G$ (False)

S12. Ans.(e)

Sol. I. $X > T$ (True)

II. $Y \leq G$ (True)

Solutions (1-10)

Boxes
I
D
F
G
A
E
B
H
C

S13. Ans.(a)

S14. Ans.(b)

S15. Ans.(d)

S16. Ans.(e)

S17. Ans.(c)

Solutions (18-22):

Designations	Persons	Items
CEO	K	Fruit
COO	N	Cutlery
AM	M	Paper
GM	Q	Pencil
AGM	O	Brush
Manager	L	Color
Clerk	P	Rubber

S18. Ans.(a)

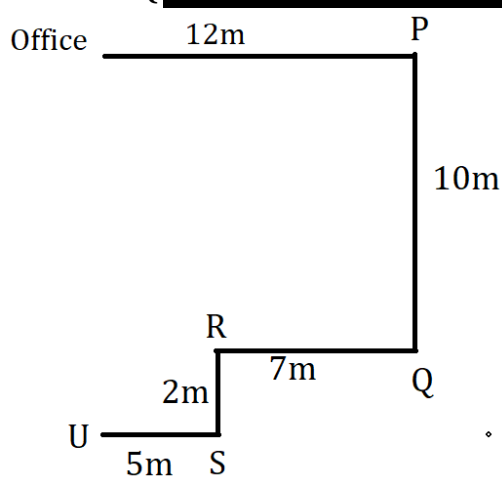
S19. Ans.(d)

S20. Ans.(e)

S21. Ans.(c)

S22. Ans.(d)

Solutions (23-25):



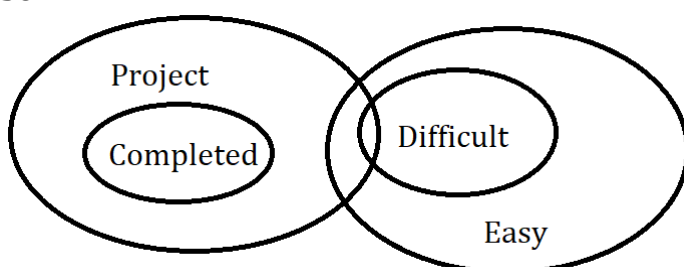
S23. Ans.(d)

S24. Ans.(c)

S25. Ans.(b)

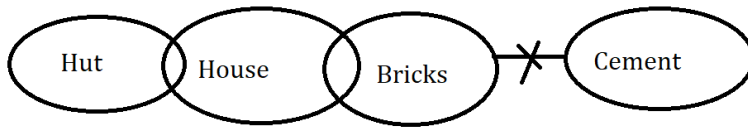
S26. Ans.(e)

Sol.



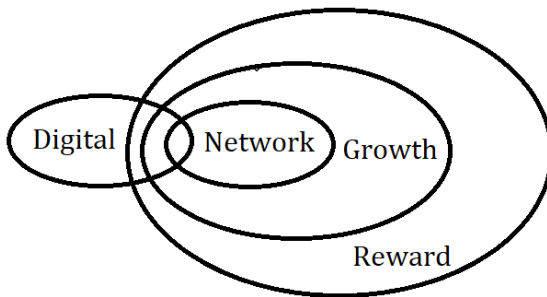
S27. Ans.(b)

Sol.



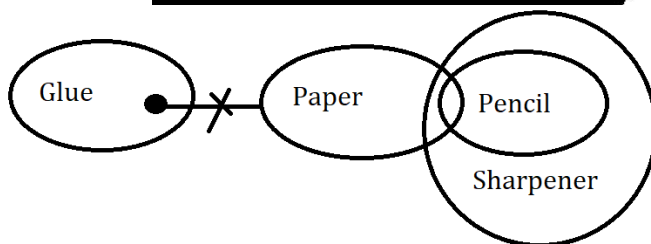
S28. Ans.(a)

Sol.



S29. Ans.(c)

Sol.



Solutions (3)

Sol.

$$\begin{array}{c}
 S (-) \text{ --- } W (-) = P (+) \\
 | \\
 K (-) \text{ --- } R (+) = J (-) \\
 | \\
 Q (-/+) \text{ --- } U (+)
 \end{array}$$

S30. Ans.(e)

S31. Ans.(b)

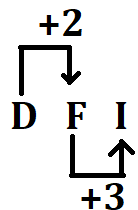
Sol.

$$\begin{array}{c}
 S (-) \text{ --- } W (-) = P (+) \\
 | \\
 M (+) = K (-) \text{ --- } R (+) = J (-) \\
 | \\
 Q (-/+) \text{ --- } U (+)
 \end{array}$$

S32. Ans.(c)

S33. Ans.(d)

Sol. Logic here is:

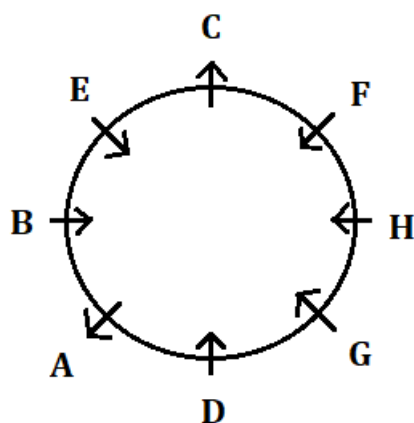


S34. Ans.(e)

Sol. 478732

387823268

Solutions (3)



S35. Ans.(b)

S36. Ans.(a)

S37. Ans.(d)

S38. Ans.(e)

S39. Ans.(b)

S40. Ans.(a)

Sol. Meaningful words formed – HARE, HEAR.

Solutions (41-46)

For shop A

Total number of mangoes sold = 480

Number of mangoes sold to females = $480 \times \frac{75}{100} = 360$

Number of mangoes sold to males = $480 - 360 = 120$

Shops	Total number of mangoes sold	Number of mangoes sold to females	Number of mangoes sold to males
A	480	360	120
B	560	336	224
C	320	144	176
D	750	600	150

S41. Ans.(b)

Sol. Total number of mangoes sold to males by shops A and C together = $120 + 176$

= 296

Total number of mangoes sold to females by shops B and D together = $336 + 600$

= 936

Required difference

S42. Ans.(a)

Sol. The total

The number

The number

S43. Ans.(e)

Sol. Required

S44. Ans.(c)

Sol. The number of mangoes sold by shop C to males = 176

Total Profit from males = $176 \times 2 \times \frac{2}{100} = 880$ Rs

The number of mangoes sold by shop C to females = 144

Total Profit

Required sum

S45. Ans.(c)

Sol. The number of rotten mangoes sold to females by shop B = $336 \times \frac{5}{8} = 210$

The number of rotten mangoes sold to males by shop B = $315 - 210 = 105$

The number of fresh mangoes sold to males by shop B = $224 - 105 = 119$

S46. Ans.(e)

Sol. The total number of apples sold by shop D = $\frac{80}{100} \times \frac{560+320}{2} = 352$

The total number of apples sold to males by shop D = $336 \times \frac{9}{16} = 189$

The total number of apples sold to females by shop D = $352 - 189 = 163$

S47. Ans.(a)

Sol. Information Given in the Question:

Simple Interest Rate = 10% p.a.

Time = 2 years

Simple Interest (SI) = Rs 525

Additional investment = Rs 500

Compound Interest (CI) for same rate and period to be calculated on (P + 500)

Concept/Formula Used in the Question:

Simple Interest = (Principal × rate × Time) / 100

Cumulative Interest = $(P + P \times \frac{(R \times T)}{100})\%$

R = Rate

Detailed Ex

Given,

$P \times R \times T$

$\frac{100}{P \times 10 \times 2}$

$= \frac{100}{100}$

$\frac{20P}{100} = 525$

$P = \frac{525 \times 100}{20}$

$P = 2625$

Cumulative

$= 21\%$

Required in

$= Rs 656.25$

S48. Ans.(b)

Sol. Inform

Speed of boat

Ratio of down

Distance to

Concept/Formula Used in the Question:

Let downstream speed = 3x, upstream speed = x

Boat speed in still water = (downstream + upstream) / 2 = 14.4 km/hr

Use:

Speed = $\frac{\text{Distance}}{\text{Time}}$

$\Rightarrow \text{Time} = \frac{\text{Distance}}{\text{Speed}}$

Detailed Explanation:

Let the downstream speed = 3x km/hr

Then, upstream speed = x km/hr



So, boat speed in still water = $(3x + x)/2 = 2x$

Given:

$$2x = 14.4$$

$$\Rightarrow x = 7.2 \text{ km/hr}$$

Now, downstream speed = $3x = 3 \times 7.2 = 21.6 \text{ km/hr}$

$$\begin{aligned}\text{Time taken to cover 216 km downstream} &= \text{Distance} / \text{Speed} \\ &= 216 / 21.6 = 10 \text{ hours}\end{aligned}$$

S49. Ans.(d)

Sol. Information Given in the Question:

A vessel contains milk and water in the ratio of 4:1 respectively.

20 liters of milk is added to it. The ratio of milk to water becomes 5:1.

Detailed Explanation:

Let initial quantity of milk be $4x$ and water be x .

Then:

Quantity of milk = $4x$

Quantity of water = x

ATQ,

$$\frac{4x}{x} = \frac{4x + 20}{x}$$

$$\frac{4x}{x} = \frac{4x + 20}{x}$$

$$\frac{4x}{x} = \frac{4x + 20}{x}$$

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$$\frac{4x}{x} = \frac{4x + 20}{x}$$

S50. Ans.(e)

Sol. Information Given in the Question:

A and B together complete the work in 18 days.

B alone completes the work in 45 days.

A alone completes 50% of the work in $(X + 10)$ days.

Concept/Formula Used in the Question:

Work done = Efficiency $\times$ Time

Detailed Explanation:

Let the total work (LCM of 18 and 45) = 90 units

Efficiency of A and B together = $90/18 = 5$ units/day

Efficiency of B = $90/45 = 2$ units/day

Efficiency of A = $5 - 2 = 3$ units/day

50% of the work done by A = $\frac{90 \times \frac{50}{100}}{3} = \frac{45}{3} = 15$ days

ATQ,

$$15 = X + 10$$

$$5 = X$$

S51. Ans.(c)

Sol. Information Given in the Question:

Ratio of Cost

Marked Price

Discount = 2

Concept/Formula

$$SP = MP \times (1 - \frac{D}{100})$$

$$\text{Profit \%} = \left[\frac{SP - CP}{CP} \right] \times 100$$

Detailed Explanation:

Selling price

Cost price =

Profit = 337

S52. Ans.(a)

Sol. Information

The perimeter of original square = 168 cm

The square is divided into 4 equal smaller squares

A circle is drawn whose radius = side of one smaller square

We are to find

Concept/Formula

Perimeter of

Area of circle

When a square is divided into 4 equal smaller squares, each smaller square's side = (original side) / 2

Detailed Explanation:

Let the side of the original square be S

Given:

$$4 \times S = 168 \Rightarrow S = 168 / 4 = 42 \text{ cm}$$

Since the square is divided into 4 equal smaller squares,

Each smaller square has side = $42 / 2 = 21$ cm

The circle is drawn with radius = 21 cm

$$\text{Area of the circle} = \pi \times r^2 = (22/7) \times 21 \times 21 =$$

$$= (22/7) \times 441 = 1386 \text{ cm}^2$$

S53. Ans.(b)

Sol. Information Given in the Question:

A's investment = Rs 4500 (for 12 months)

B's investment = Rs 6000 (for unknown time period)

B's share of profit = Rs 800

Total profit = Rs 2600

Concept/Formula Used in the Question:

Profit is divided in the ratio of (Investment $\times$ Time)

Let B's investment time = x months

Then,

A's share : B's share

Detailed Explanation:

A's capital $\times$ time

B's capital $\times$ time

Profit ratio =

$$= 9 : x$$

Total profit = Rs 2600

B's share = Rs 800

$\Rightarrow$ A's share = Rs 1800

ATQ,

$$\frac{9}{x} = \frac{1800}{800}$$

$$x = 4$$

S54. Ans.(b)

Sol. Information Given in the Question:

Non-technical girls = 2% less than technical girls

Girls = 36% of total students

Technical girls = 20a

Required: % of technical girls

Detailed Explanation:

Let total students = 100a

$$\text{Total boys} = 100a \times \frac{(100-36)}{100} = 64a$$

$$\text{Total girls} = 100a \times \frac{36}{100} = 36a$$

Let us assume that technical girl student = b

So, nontechnical girl student = 0.8b

So, total girl students = 1.8b = 36a

$$\text{Technical girls' students (b)} = 36a \times \frac{1}{1.8} = 20a$$

Total technical boys' students = 20a $\times$ 2 = 40a

Total non - technical boys' students = (64a - 40a) = 24a

$$\text{Required percentage} = \frac{40a-24a}{40a} \times 100 = 40\%$$

S55. Ans.(d)

Sol. Information Given in the Question:

Speed of train A = 90 km/hr

Train A crosses a pole in 12 seconds

Length of train A = 25% more than train B

Train B crosses train A in 36 seconds (same direction)

Required: Time taken by train B to cross a 400-meter platform

Concept/Formula Used in the Question:

Speed (in m/s) = (Speed in km/hr $\times$ 5)/18

Distance = Speed $\times$ Time

Relative speed

Total distance

Detailed Ex

Let the length

So, length of

ATQ –

$$\frac{125x}{12} = 90 \times$$

$$x = 2.4$$

So, length of

And, length

Now, the speed

$$= 40 \text{ m/sec}$$

Required time

$$= 16 \text{ seconds}$$

S56. Ans.(d)

Sol. Information Given in the Question:

Akash's age

Akash's current

Adarsh = Ayush

Required: Akash's age 6 years ago

Detailed Explanation:

Let present age of Adarsh be $4y$ years.

$$\text{So, present age of Akash} = 4y \times \frac{75}{100}$$

$$= 3y \text{ years}$$

$$\text{And, present age of Ayush} = (3y + 1) \times 2$$

$$= (6y + 2) \text{ years}$$

ATQ,

$$6y + 2 - 4y = 18$$

$$y = 8 \text{ years}$$

$$\text{Hence, age of Akash 6 years ago} = 3y - 6 = 18 \text{ years}$$

S57. Ans.(a)

Sol. $\frac{2079}{?} = 11 - 420 + 640$

$\frac{2079}{?} = 231$

$? = 9$

S58. Ans.(d)

Sol. $? + 247 - 156 = 289 + \frac{15}{100} \times 80$

$? + 91 = 289 + 12$

$? = 210$

S59. Ans.(c)

Sol. $38 + 25$

$(?)^2 = \frac{294}{6}$

$? = 7$

S60. Ans.(e)

Sol. $\frac{32}{100} \times 15$

$(?)^2 = 480$

$(?)^2 = 81$

$? = 9$

S61. Ans.(b)

Sol. $\frac{?}{3} = 321$

$\frac{?}{3} = 144$

$? = 432$

S62. Ans.(b)

Sol. 60% of

$480 - 108 = ? + 52$

$320 = ?$

Solutions (63-65):

Total seats in A = 40

Vacant seats in A = 6

Occupied seats in A = 40-6=34

Male +female=34

Male =6+female

Solving above two equation



Seats occupied by males = 20

Seats occupied by females = 14

Vacant seats in B = 50% of 6 = 3

Male occupied and females occupied the seats in bus B is 10x and 7x.

Occupied seats in B = 150% of 34 = 51

$17x = 51$

$3 = x$

Buses	Total seats	Vacant seats	Occupied seats	Occupied by males	Occupied by females
A	40	6	34	20	14
B	54	3	51	30	21

S63. Ans.(a)

Sol. Required

S64. Ans.(d)

Sol. Required

S65. Ans.(e)

Sol. Required

Solutions (C)

Total female

Colleges	
A	
B	
C	
D	

S66. Ans.(a)

Sol. Required

S67. Ans.(b)

Sol. Required ratio = $30+490: 130+220 = 520:350 = 52:35$

S68. Ans.(c)

Sol. Required answer = $\frac{300+220}{640} \times 100 = 81.25\%$

S69. Ans.(e)

Sol. Total students in D = $3X = 3 \times 300 = 900$

Females = 35% of 900 = 315

Males = $900 - 315 = 585$

Required answer = $\frac{585-500}{500} \times 100 = 17\%$

S70. Ans.(d)

Sol. Required difference = $(610+500) - 2 \times 200 = 710$

S71. Ans.(d)

Sol. Pattern of series -

$$1.8 \times 5 = 9$$

$$9 \times 4 = 36$$

$$36 \times 3 = 108$$

$$? = 108 \times 2 = \mathbf{216}$$

$$216 \times 1 = 216$$

S72. Ans.(b)

Sol. Pattern

$$? = 157 - 21$$

$$136 + 35 = 171$$

$$171 - 21 = 150$$

$$150 + 35 = 185$$

$$185 - 21 = 164$$

S73. Ans.(e)

Sol. Pattern

Subtraction

$$224 - 17 = 207$$

$$207 - 19 = 188$$

$$188 - 23 = 165$$

$$165 - 29 = 136$$

$$? = 136 - 31$$

S74. Ans.(e)

Sol. Pattern

$$? = 4 + 2^3 = 12$$

$$12 + 27 = 39$$

$$39 + 64 = 103$$

$$103 + 125 = 228$$

$$228 + 216 = 444$$

S75. Ans.(e)

Sol. Pattern of series -

$$6 \times 1 + 1 = 7$$

$$7 \times 2 + 2 = 16$$

$$16 \times 3 + 3 = 51$$

$$51 \times 4 + 4 = 208$$

$$? = 208 \times 5 + 5 = \mathbf{1045}$$



S76. Ans.(b)

Sol. I. $x^2 + 5x + 7x + 35 = 0$

$x(x + 5) + 7(x + 5) = 0$

$(x + 5)(x + 7) = 0$

$x = -5, -7$

II. $y^2 + 7y + 10 = 0$

$y^2 + 2y + 5y + 10 = 0$

$y(y + 2) + 5(y + 2) = 0$

$(y + 2)(y + 5) = 0$

$y = -2, -5$

$\text{So, } x \leq y.$

S77. Ans.(a)

Sol. I. $x^2 - 12x + 5 = 0$

$x(x - 12) + 5 = 0$

$(x - 12)(x + 5) = 0$

$x = 12, -5$

II. $y^2 + 8y + 15 = 0$

$y(y + 8) + 15 = 0$

$(y + 8)(y + 3) = 0$

$y = -8, -3$

$x \geq y$

S78. Ans.(e)

Sol. I. $x^2 + 4x - 3 = 0$

$(x + 4)(x - 3) = 0$

$x = 3, -4$

II. $y^2 + 5y - 3 = 0$

$(y + 5)(y - 3) = 0$

$y = -5, 3$

No relation

S79. Ans.(c)

Sol. I. $x^2 + 11x + 24 = 0$

$\Rightarrow x^2 + 8x + 3x + 24 = 0$

$\Rightarrow (x + 8)(x + 3) = 0$

$\Rightarrow x = -8, -3$

II. $4y^2 + 13y + 10 = 0$

$\Rightarrow 4y^2 + 8y + 5y + 10 = 0$

$\Rightarrow (y + 2)(4y + 5) = 0$

$\Rightarrow y = -2, -\frac{5}{4}$

$x < y$



S80. Ans.(d)

Sol. I. $2x^2 + 13x + 21 = 0$

$$\Rightarrow 2x^2 + 7x + 6x + 21 = 0$$

$$\Rightarrow x(2x + 7) + 3(2x + 7) = 0$$

$$\Rightarrow (x + 3)(2x + 7) = 0$$

$$\Rightarrow x = -3, -\frac{7}{2}$$

II. $y^2 + 6y + 9 = 0$

$$\Rightarrow y^2 + 3y + 3y + 9 = 0$$

$$\Rightarrow y(y + 3) + 3(y + 3) = 0$$

$$\Rightarrow (y + 3)(y + 3) = 0$$

$$\Rightarrow y = -3, -3$$

$$\therefore y \geq x$$

