

IBPS RRB PO Prelims 2018 | Memory Based Paper | For Practice

REASONING ABILITY

Direction (1-5): Study the following information carefully and answer the given questions:

Eleven boxes A, B, C, D, E, F, G, H, I, J, K are kept one above the other. Box G is kept at fifth position from the top. Two boxes are kept between G and H. Box D is kept just above box H. There are as many boxes above box D as below box B. Five boxes are kept between box F and box K, which is kept at one of the positions below box G. Box A is kept at one of the positions above box F. Only one box is kept between Box G and Box C. Box I is kept above box E but not just above. Box E is not kept immediately above or immediately below box C.

1. What is the position of box I?
(a) 8th from the bottom
(b) 7th from the top
(c) 3rd from the top
(d) 6th from the bottom
(e) none of these
2. How many boxes are kept between box E and Box H?
(a) seven (b) six (c) five
(d) four (e) eight
3. Which among the following statement is true regarding box J?
(a) it is 7th from the bottom
(b) Box K is placed above box J
(c) only two boxes are kept between box B and box J
(d) It is kept just below box H
(e) All are true
4. Which of the following represents the boxes kept between boxes A and I?
(a) C, B (b) A, K (c) F, G
(d) J, D (e) none of these
5. Which of the following box is kept just above box B?
(a) C (b) K (c) F
(d) D (e) none of these

Direction (6-8): Study the following information carefully and answer the given questions

Point B is 14m east of point A. Point C is 9m north of point B. Point D is 12m east of point C. Point E is 15m south of point D. Point F is 30m west of point E. Point G is 10m north of point F. Point H is 18 m east of point G.

6. If point X is 6m south of point A then which point is at shortest distance from point X?
(a) E (b) A (c) F
(d) B (e) G
7. What is the distance of point C from point H?
(a) 9m (b) 5m (c) 4m
(d) 6m (e) 7m
8. Point B is in which direction with respect to point F?
(a) South (b) South-east (c) North
(d) North-east (e) North-west

Direction (9-13): Study the following information carefully and answer the given questions

Eight persons A, B, C, D, E, F, G, H are sitting around a circular table such that five of them are facing towards the center and the rest are facing away from the center. Three persons are sitting between F and H, who is facing center. C is 2nd to the right of F and faces opposite direction to F. A sits 3rd to the left of C. G is one of the neighbor of E. Two persons sit between G and B, who is not neighbor of H. G does not face C. G and A face same direction but opposite to F.

9. What is the position of E with respect to A?
(a) immediate right (b) 5th to the left
(c) 2nd to the right (d) 2nd to the left
(e) none of these
10. How many persons are sitting between C and H, when counted from the left of C?
(a) one (b) two (c) three
(d) four (e) none

11. Four of the five are alike in a certain way, which among the following does not belongs to that group?
(a) C (b) B (c) F
(d) D (e) E

12. Which of the following represents the immediate neighbor of G?
(a) C (b) B (c) F
(d) D (e) A

13. Which of the following is not true regarding F?
(a) it faces towards the center
(b) E is immediate left to F
(c) Two persons sit between F and D, when counted from the right to D
(d) All are true
(e) no one sits between F and B

Direction (14-18): Study the following information carefully and answer the given questions.

Certain number of persons are sitting in a row facing north. M sits 4th to the right of S. Five persons sit between M and X. T sits at one of the positions left to S. The number of persons sitting between M and U are same as between S and T. Q is 2nd from one of the extreme ends. Four persons sit between S and U. No one sits to the right of N, who is immediate right to P. X is 3rd left to P. Not more than two persons sit between Q and U.

14. How many persons are sitting in the row?
(a) 17 (b) 20 (c) 24
(d) 26 (e) 27

15. How many persons are sitting between S and T?
(a) seven (b) six (c) five
(d) four (e) eight

16. What is the position of U from the left end?
(a) 6th (b) 5th (c) 4th
(d) 2nd (e) 3rd

17. How many persons are sitting between Q and M?
(a) seven (b) eleven (c) ten
(d) nine (e) eight

18. Which of the following represents the person sitting at extreme end?
(a) M (b) U (c) X
(d) P (e) T

19. If the second, forth, seventh and eighth letter of the word "FRACTION" are combined to form a meaningful word, then what will be the 3rd letter from the left in the so formed word. If more than one meaningful word is formed then the answer is X, if no such word is formed then answer is Z?
(a) O (b) X (c) R
(d) Z (e) C

20. How many pair of digits have same number of digits between them in the number "573814269" as in the numeric series?
(a) five (b) four (c) six
(d) three (e) more than six

Direction (21-25): Study the following information carefully and answer the given questions:

Movies of different duration released on different days starting from Monday to Friday (starting from Monday). Movie A was released On Tuesday. No movie released between A and the one which is of 75-minute duration. Only one movie is released between the one which is of 75-minute duration and the one which is of 100-minute duration. No movie released between the one which is of 100 minute and B. Only one movie released after B. B released immediately after 100-minute duration movie. Movie C released immediately after the one which is of 130-minute duration. More than two movies released in between C and D. The movie which is of 90-minute duration released before E. One of movie was of 20 minutes more duration than E.

21. How many movies were released after E?
(a) One (b) Two (c) None
(d) Three (e) More than three

22. Which of the following movie was of 150-minute duration?
(a) E
(b) A
(c) There is no such movie
(d) C
(e) D

23. What is the total duration of movie D and E together?
(a) 135 (b) 225 (c) 165
(d) 175 (e) 190

24. Which of the following statement is true regarding B?
(a) The movie released after B is of 120-minute duration
(b) Two movies released in between A and B
(c) Movie B is of 100-minute duration
(d) Total duration of movie B and A is 225 minutes
(e) Movie A released after B.

25. Which of the following statement is true?
(a) The movie released before A is of 130-minute duration
(b) Three movies released in between A and E
(c) No movie released in between A and E
(d) Total duration of movie C and A is 230 minutes
(e) Movie C released immediately after E.

Direction (26-28): Study the following information carefully and answer the given questions:

F is the husband of G. K is the mother-in-law of G. H is the Father of F. M is the mother of H, P is the mother of K and B.

26. If Y is the father of H then how is Y related to M?

- (a) Mother (b) Father (c) Sister
(d) Brother (e) Husband

27. How is P related to F?

- (a) Grandfather (b) Aunt (c) Mother
(d) Grandmother (e) Wife

28. How is B related to H?

- (a) Sister (b) Brother (c) Husband
(d) Can't be determine (e) Wife

Direction (29-31): Study the following information carefully and answer the given questions: There are six persons M, N, O, P, Q, R of different heights. N is shorter than M but taller than Q. Only two person are taller than M. R is taller than Q and O. Q is not the shortest. The one who is second shortest is 154m. P is not the shortest person.

29. If M is 19m taller than Q then what is the height of M?

- (a) 190m (b) 181m (c) 175m
(d) 130m (e) 173m

30. If P is 181m than which of the following is true?

- I.** Only one person is taller than P.
II. The difference between the heights of P and Q is 27m
III. O is the shortest person.
(a) Only I (b) Only II and I
(c) All are true (d) Only III and II
(e) Only III and I

31. How many persons are shorter than N?

- (a) One (b) Two (c) None
(d) Three (e) More than three

Directions (32-35): Question consists of Some statements followed by two conclusions. Consider 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 follow from the given statements using all statements together.

32. Statements: All Grills are Arrow.
Some Hat are Grills.
Some Cell are Arrow.

Conclusions: I. Some Cell are definitely not Grills.
II. Some Hat can never be Arrow.

- (a) Only I follows
(b) Only II follows
(c) Neither I nor II follow
(d) Both I and II follow
(e) Either I or II follow

33. Statements: All Grills are Arrow.
Some Hat are Grills.
Some Cell are Arrow.

Conclusions: I. Some Hat are Arrow.
II. Some Grills are Cell.

- (a) Only II follows
(b) Only I follows
(c) Either I nor II follow
(d) Both I and II follow
(e) Neither I or II follow

34. Statements: Some Door are Fan.
No Door is Rose.
No Fan is Shelf.

Conclusions: I. Some Fan can never be Rose.
II. Some Rose are Shelf is a possibility.

- (a) Neither I nor II follows
(b) Only I follows
(c) Either I or II follow
(d) Both I and II follow
(e) Only II follows

35. Statements: Some Door are Fan.
No Door is Rose.
No Fan is Shelf.

Conclusions: I. All Door are Shelf is a possibility.
II. All Shelf can be Doors.

- (a) Either I or II follows
(b) Only II follows
(c) Neither I nor II follow
(d) Both I and II follow
(e) Only I follows

Direction (36-40): Study the following information carefully and answer the given questions:

Fourteen persons are sitting in two parallel rows such that seven persons are sitting in each row. A, B, C, D, E, F, G are sitting in row-1 facing north while P, Q, R, S, T, U, V are sitting in row-2 facing south. G sits third to the left of A and neither of them sits at an extreme end of the row. The one faces A sits immediate right to T. Only one person sits between T and Q. The one who faces Q sits third to the right of E. S sits to the immediate left of V. S neither faces G nor E. D is an immediate neighbour of the one who faces S. The one who faces C sits fifth to the left of P. B sits third to the left of F. U sits at one of position to the right of R.

36. Four of the following are alike in a certain way so form a group which of the following does not belong to that group?

- (a) U (b) B (c) T
(d) C (e) P

37. How many persons sits between F and C?

- (a) One (b) Two (c) None
(d) Three (e) More than three

38. Which of the following is not true regarding U?
 (a) No one sits to the right of U
 (b) U sits third to the right of Q,
 (c) P is an immediate neighbour of U.
 (d) E is an immediate neighbour of the one who faces U,
 (e) Only two persons sit between U and S
39. What is the position of C with respect to A?
 (a) Second to the left
 (b) Third to the right
 (c) Immediate right
 (d) Immediate left
 (e) Second to the right
40. What is the position of B with respect to D?
 (a) Third to the left
 (b) Second to the left
 (c) Forth to the left
 (d) Third to the right
 (e) Fifth to the right

QUANTITATIVE APTITUDE

Directions (41-45): Find the wrong number in the following number series ?

41. 1, 3, 7, 15, 31, 64, 127

- (a) 1 (b) 3 (c) 15
 (d) 64 (e) 127

42. 1, 15, 119, 475, 949, 947, 473

- (a) 947 (b) 475 (c) 15
 (d) 473 (e) 1

43. 250, 260, 291, 314, 340, 370, 405

- (a) 370 (b) 314 (c) 260
 (d) 405 (e) 250

44. 750, 535, 411, 348, 322, 314, 315

- (a) 315 (b) 750 (c) 411
 (d) 348 (e) 314

45. 2, 7, 27, 107, 427, 1708, 6827

- (a) 107 (b) 1708 (c) 2
 (d) 6827 (e) 7

Directions (46-50): Study the line-graph carefully & answer the question given below.

Line-graph given below shows the total no. of products for (kid + adult) in two different stores P & Q in five different years.



46. What is the difference between total no. of products in store P in year 2003 & 2004 together and total no. of products in year 2000?

- (a) None of these (b) 10 (c) 20
 (d) 15 (e) 5

47. If total products in both the stores in year 2006 is increased by 20% as compared to year 2004. Then find total no. of products in year 2006?

- (a) 102 (b) None of these
 (c) 96 (d) 108 (e) 92

48. What is the ratio of total products in store Q in year 2002 & 2003 together to total products in store Q in year 2000?
 (a) 23 : 12 (b) 23 : 11 (c) 28 : 11
 (d) None of these (e) 27 : 13
49. What is the average no. of products in all the years together in store P?
 (a) 48 (b) 43 (c) 57
 (d) None of these (e) 53
50. Total no. of products in store P in year 2003 and in store Q in year 2004 together is what percent more/less than total no. of products in store Q in year 2000?
 (a) 150% (b) 40% (c) 125%
 (d) 100% (e) 50%

Directions (51-55): Solve the given quadratic equations and mark the correct option based on your answer—

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

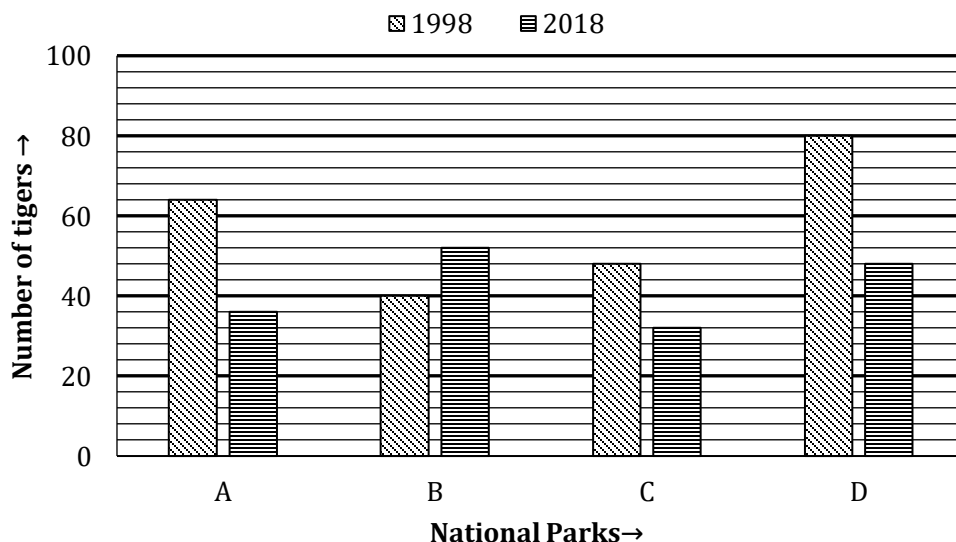
51. (i) $x^2 - 20x + 96 = 0$ (ii) $y^2 = 64$
 52. (i) $4x^2 - 21x + 20 = 0$ (ii) $3y^2 - 19y + 30 = 0$
 53. (i) $x^2 - 11x + 24 = 0$ (ii) $y^2 - 12y + 27 = 0$
 54. (i) $x^2 + 12x + 35 = 0$ (ii) $5y^2 + 33y + 40 = 0$
 55. (i) $4x^2 + 9x + 5 = 0$ (ii) $3y^2 + 5y + 2 = 0$

Directions (56-60): Study the following paragraph carefully & answer the question given below.

There are 1000 students in a college. Out of 1000 students some appeared in exams 'X', 'Y' and 'Z' while some not. Number of student not appeared in any exam is equal to number of students appeared in exam 'Z' only. Number of students appeared in exam 'Y' is 360. Ratio of number of students appeared in exam 'X' and 'Y' only to number of students appeared in exam 'Y' and 'Z' only is 2 : 3. Number of student appeared in exam 'X' and 'Z' both is half of number of students appeared in only exam 'Z'. Number of students appeared in exam 'X' only is 50% more than number of students appeared in 'Y' only. Number of students appeared in all the three exam is 4% of the total number of students in the college. Number of students appeared in 'Y' exam only is same as number of students appeared in 'Y' and 'Z' only.

56. How many students appeared in at least two exams?
 (a) 240 (b) 260 (c) 300
 (d) 360 (e) 500
57. How many students appeared in two exams only?
 (a) 280 (b) 220 (c) 340
 (d) 300 (e) 260
58. How many students appeared in at most two exams?
 (a) 240 (b) 260 (c) 300
 (d) 500 (e) 960
59. How many students not appeared in exam Y?
 (a) 440 (b) 360 (c) 540
 (d) 640 (e) None of these
60. How many students appeared in exam X or in exam Z?
 (a) 240 (b) 360 (c) 500
 (d) 680 (e) 760

Direction (61-65): Bar chart given below shows Number of tigers in different National Parks i.e. A to D of a country in two different years. Study the data carefully and answer the following questions



- 61.** Number of tigers in National Park B and C together in 2018 is how much less more/less than Number of tigers in National Park A and D together in 1998?
 (a) 40 (b) 44 (c) 52
 (d) 60 (e) 72
- 62.** Number of tigers in National Park 'D' in both years together is what percent of the Number of tigers in National Park 'C' in both years together?
 (a) 60% (b) 160% (c) 140%
 (d) 120% (e) 180%
- 63.** Find the ratio between number of tigers in National Park 'A' in 2018 to number of tigers in National Park 'B' in 1998?
 (a) 9 : 10 (b) 10 : 9 (c) 16 : 13
 (d) 13 : 16 (e) 3 : 4
- 64.** Number of tigers in National Park 'E' in 2018 is 40% more than number of tigers in National Park 'D' in 1998 while number of tigers in National park 'E' in 1998 is 25% less than number of tigers in National Park 'C' in 2018. Find total number of tigers in National park 'E' in 1998 and 2018 together?
 (a) 148 (b) 84 (c) 172
 (d) 160 (e) 136
- 65.** Average number of tigers in all National park in 2018 is how much less/more than average number of tigers in all National park in 1998?
 (a) 14 (b) 16 (c) 18
 (d) 20 (e) 22
- 66.** The difference between downstream speed and upstream speed of boat is 6 km/hr and boat travels 72 km from P to Q (downstream) in 4 hours. Then find the speed of boat in still water?
 (a) 15 km/hr (b) 18 km/hr (c) 20 km/hr
 (d) 16 km/hr (e) 24 km/hr
- 67.** In a vessel, there are two types of liquids A and B in the ratio of 5 : 9. 28 lit of the mixture is taken out and 2 lit of type B liquid is poured into it, the new ratio(A:B) thus formed is 1 : 2. Find the initial quantity of mixture in the vessel?
 (a) 84 lit (b) 42 lit (c) 50 lit
 (d) 56 lit (e) 70 lit
- 68.** The average weight of 5 students in a class is 25.8 kg. When a new student joined them, the average weight is increased by 3.9 kg. Then find the approximate weight of the new student.
 (a) 55 kg (b) 49 kg (c) 42 kg
 (d) 44 kg (e) 58 kg
- 69.** A person has purchased two adjacent plots, one is in rectangular shape and other is in square shape and combined them to make a single new plot. The breadth of the rectangular plot is equal to the side of the square plot and the cost of fencing the new plot is Rs. 390 (Rs. 5/m). Find the side of square if the length of the rectangular plot is 15 m.
 (a) 10 m (b) 8 m (c) 12 m
 (d) 9 m (e) 6 m
- 70.** A shopkeeper marked his article 50% above the cost price and gives a discount of 20% on it. If he had marked his article 75% above the cost price and gives a discount of 20% on it then find the earlier profit is what percent of the profit earned latter?
 (a) 50% (b) 60% (c) $33\frac{1}{3}\%$
 (d) 40% (e) 75%
- 71.** A person invested two equal amounts in two different schemes. In first scheme, amount is invested at 8% p.a. on SI for T years and SI received is Rs 2000 while in second scheme, amount is invested at 10% p.a. for 2 years at CI and the compound interest received is Rs. 1050. Find the value of T.
 (a) 4 yr (b) 8 yr (c) 6 yr
 (d) 5 yr (e) 3 yr
- 72.** Satish saves 20% of his monthly salary. And of the remaining salary $\frac{1}{4}$ th and $\frac{1}{2}$ th he gives to his mother and sister respectively and the remaining salary he submits as his EMI for the payment of his car. If his annual EMI was Rs. 60,000, then find his monthly salary?
 (a) Rs. 40,000 (b) Rs. 35,000
 (c) Rs. 32,000 (d) Rs. 30,000
 (e) Rs. 25,000
- 73.** The sum of four times of an amount 'x' and (x - 9.75) is Rs. 442. Find the approximate value of x.
 (a) Rs. 85 (b) Rs. 90 (c) Rs. 100
 (d) Rs. 1100 (e) Rs. 75
- 74.** A and B entered into a partnership by investing some amounts. The investment of A is twice of the investment of B. Another person C joined them after 4 months. At the end of a year, the profit share of A and C is equal. Then find the profit share of B is what percent of the profit share of C.
 (a) 50% (b) $33\frac{1}{3}\%$ (c) 40%
 (d) 60% (e) 75%

75. The ratio of age of Ishu 8 years hence and that of Ahana 6 years hence is 5 : 6. The age of Ishu 10 years hence is equal to the age of Ahana 6 years hence. Then, find the present age of Ishu.
 (a) 1.5 yr (b) 2 yr (c) 3 yr
 (d) 4 yr (e) 5 yr
76. What is the difference between 20% of P and 20% of (P + 5000).
 (a) 1500 (b) 1200 (c) 1000
 (d) 2000 (e) 1600
77. The ratio of the diameter of base and height of a cylinder is 2 : 3. Find the radius of the cylinder if the approximate volume of cylinder is 3234.01 cm^3 ?
 (a) $\frac{21}{2}$ cm (b) $\frac{7}{2}$ cm (c) 21 cm
 (d) 7 cm (e) 14 cm
78. A train of some length passes the platform of length 524 m in 55 seconds. Find the length of train if the speed of train is 72 km/hr.

- (a) 476 m (b) None of these
 (c) 428 m (d) 526 m
 (e) 576 m

79. Efficiency of B is two times more than efficiency of A. Both started working alternatively, starting with B and completed the work in total 37 days. If C alone complete the same work in 50 days then find in how many days A and C together will complete the work?
 (a) 24 days (b) 30 days (c) 36 days
 (d) 48 days (e) 18 days
80. 7 men and 6 women together can complete a piece of work in 8 days and work done by a women in one day is half the work done by a man in one day. If 8 men and 4 women started working and after 3 days 4 men left the work and 4 new women joined then, in how many more days will the work be completed
 (a) 7 days (b) 6 days (c) 5.25 days
 (d) 6.25 days (e) 8.14 days

Solutions

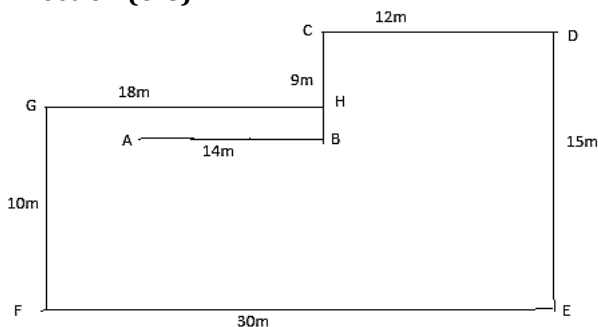
REASONING ABILITY

Direction (1-5):

BOX
D
H
A
F
G
I
C
J
E
K
B

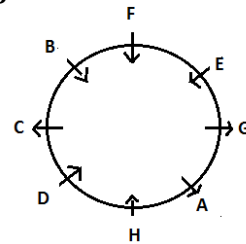
1. (d); 2. (b); 3. (c);
 4. (c); 5. (b);

Direction (6-8):



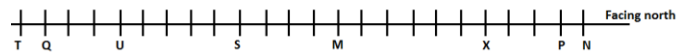
6. (c); 7. (b); 8. (d);

Direction (9-13):



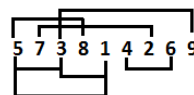
9. (d); 10. (a); 11. (a);
 12. (e); 13. (c);

Direction (14-18):



14. (c); 15. (e); 16. (b);
 17. (b); 18. (e);
 19. (c); 2nd, 4th, 7th and 8th letters are R, C, O, N
 The meaningful word formed is CORN

20. (e);

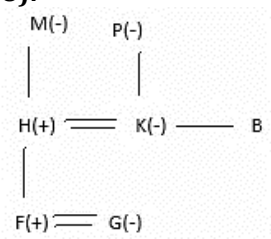


Direction (21-25):

Days	Movies	Duration
Monday	D	75
Tuesday	A	90
Wednesday	E	100
Thursday	B	130
Friday	C	120

21. (b); 22. (c); 23. (d);
 24. (a); 25. (c);

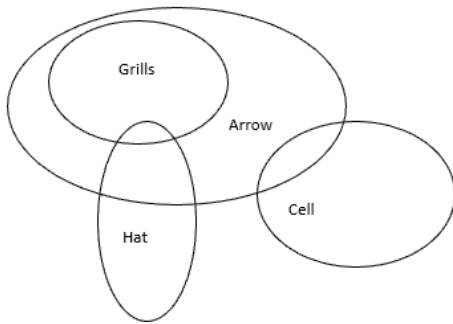
Direction (26-28):



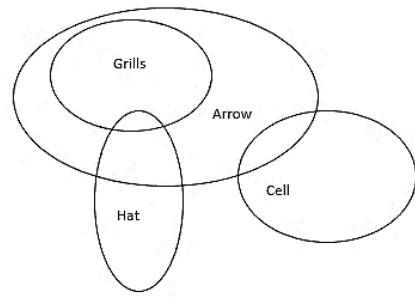
26. (e); 27. (d); 28. (d);

Direction (29-31): R/P > R/P > M > N > Q > O

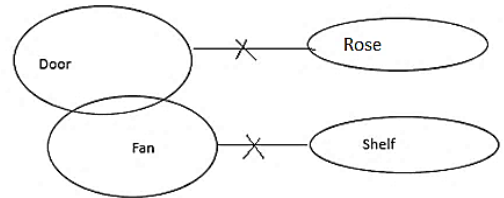
29. (e); 30. (d); 31. (b);
 32. (c);



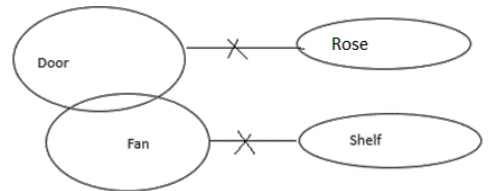
33. (b);



34. (d);



35. (b);



Direction (36-40):

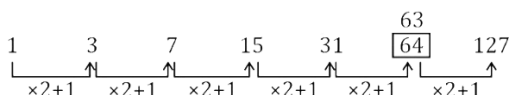
U P V S Q R T Row-2

B E G F D A C Row-1

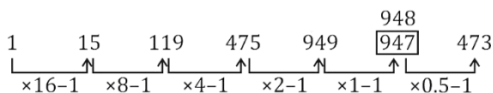
36. (e); 37. (b); 38. (b);
 39. (c); 40. (c);

QUANTITATIVE APTITUDE

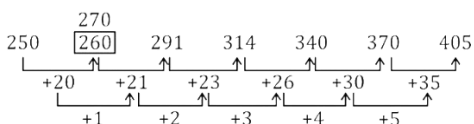
41. (d);



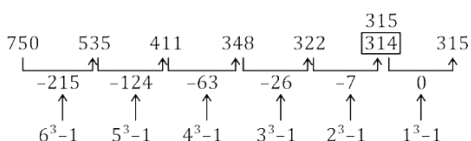
42. (a);



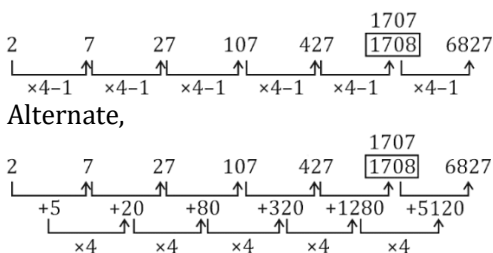
43. (c);



44. (e);



45. (b);



46. (e); Required difference
 $= (55 + 30) - (55 + 25) = 5$

47. (a); Total no. of products in year 2006
 $= (55 + 30) \times \frac{120}{100} = 102.0$

48. (c); Required ratio
 $= \frac{80+60}{55} = \frac{140}{55} = 28 : 11$

49. (b); Required Average
 $= \frac{25+40+65+55+30}{5} = \frac{215}{5} = 43$

50. (d); Required percentage
 $= \frac{(55 + 55) - 55}{55} \times 100$
 $= \frac{55}{55} \times 100 = 100\%$

51. (a); (i) $x^2 - 20x + 96 = 0$
 $x^2 - 12x - 8x + 96 = 0$
 $x(x - 12) - 8(x - 12) = 0$
 $(x - 12)(x - 8) = 0$
 $x = 12, 8$

(ii) $y^2 = 64$
 $y = \pm 8$
 $\therefore x \geq y$

52. (d); (i) $4x^2 - 21x + 20 = 0$
 $4x^2 - 16x - 5x + 20 = 0$
 $4x(x - 4) - 5(x - 4) = 0$
 $(4x - 5)(x - 4) = 0$

$$x = \frac{5}{4}, 4$$

(ii) $3y^2 - 19y + 30 = 0$
 $3y^2 - 9y - 10y + 30 = 0$
 $3y(y - 3) - 10(y - 3) = 0$
 $(3y - 10)(y - 3) = 0$

$$y = \frac{10}{3}, 3$$

\therefore No relation can be established between x and y

53. (d); (i) $x^2 - 11x + 24 = 0$
 $x^2 - 8x - 3x + 24 = 0$
 $x(x - 8) - 3(x - 8) = 0$
 $(x - 3)(x - 8) = 0$

$$x = 3, 8$$

(ii) $y^2 - 12y + 27 = 0$
 $y^2 - 9y - 3y + 27 = 0$
 $y(y - 9) - 3(y - 9) = 0$
 $(y - 9)(y - 3) = 0$

$$y = 9, 3$$

\therefore No relation can be established between x and y

54. (b); (i) $x^2 + 12x + 35 = 0$
 $x^2 + 7x + 5x + 35 = 0$
 $x(x + 7) + 5(x + 7) = 0$
 $(x + 7)(x + 5) = 0$

$$x = -7, -5$$

(ii) $5y^2 + 33y + 40 = 0$
 $5y^2 + 25y + 8y + 40 = 0$
 $5y(y + 5) + 8(y + 5) = 0$
 $(y + 5)(5y + 8) = 0$

$$y = -\frac{8}{5}, -5$$

$$\therefore y \geq x$$

55. (b); (i) $4x^2 + 9x + 5 = 0$
 $4x^2 + 4x + 5x + 5 = 0$
 $4x(x + 1) + 5(x + 1) = 0$
 $(4x + 5)(x + 1) = 0$

$$x = -1, -\frac{5}{4}$$

(ii) $3y^2 + 5y + 2 = 0$
 $3y^2 + 3y + 2y + 2 = 0$
 $3y(y + 1) + 2(y + 1) = 0$
 $(3y + 2)(y + 1) = 0$

$$y = -\frac{2}{3}, -1$$

$$\therefore y \geq x$$

Solutions (56-60):

Total students = 1000

Let, students appear in exam Z only = a

Total students appeared in exam Y = 360

Ratio of number of students appeared in exam X and Y

only to students appeared in exam Y and Z only

= 2 : 3

Students appeared in exam X and Z both

= a/2

Number of students appeared in all three exams

$$= \frac{4}{100} \times 1000 = 40$$

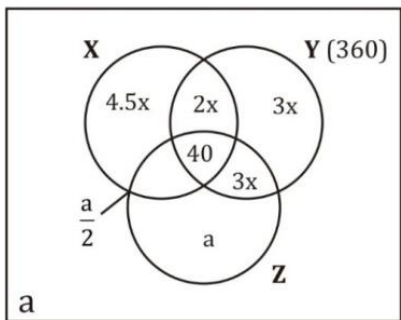
Number of students appeared in Y exam only

= No. of students appeared in Y and Z only = 3x

Number of students appeared in exam X and Y only

$$= \frac{2}{3} \times 3x = 2x$$

1000



Now, $2x + 3x + 3x + 40 = 360$

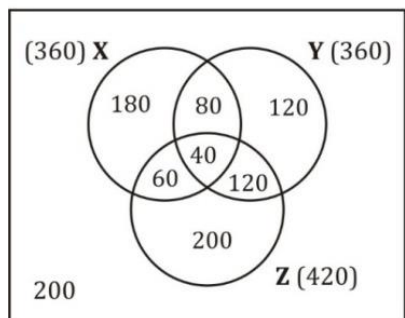
$$\Rightarrow x = 40$$

and, $12.5x + a + \frac{a}{2} + a = 1000$

$$\frac{5a}{2} = 500$$

$$\Rightarrow a = 200$$

1000



56. (c); Students appeared in atleast two exams

$$= 80 + 60 + 40 + 120 = 300$$

57. (e); Students appeared in two exams only = 80 + 60

$$+ 120 = 260$$

58. (e); Students appeared in atleast two exams

$$= 180 + 120 + 200 + 60 + 80 + 120 + 200 = 960$$

59. (d); Student not appeared in exam Y

$$= 1000 - 360 = 640$$

60. (d); Students appeared in exam X or in exam Z

$$= 180 + 60 + 40 + 80 + 200 + 120 = 680$$

61. (d); Number of tigers in National Park B and C together in 2018 = 52 + 32 = 84

Number of tigers in National Park A and D together in 1998

$$= 64 + 80 = 144$$

$$\text{Required difference} = 144 - 84 = 60$$

62. (b); Number of tigers in National Park D in 1998 and 2018 together = 80 + 48 = 128

Number of tigers in National Park C in 1998 and 2018 together = 48 + 32 = 80

$$\text{Required \%} = \frac{128}{80} \times 100 = 160\%$$

63. (a); Required Ratio = $\frac{36}{40} = \frac{9}{10}$

64. (e); Number of tigers in National Park E in 2018

$$= \frac{140}{100} \times 80 = 112$$

Number of tigers in National Park E in 1998

$$= \frac{75}{100} \times 32 = 24$$

Number of tigers in National Park E in 1998 and 2018 together

$$= 112 + 24 = 136$$

65. (b); Total number of tigers in 2018

$$= 36 + 52 + 32 + 48 = 168$$

Total number of tigers in 1998

$$= 64 + 40 + 48 + 80 = 232$$

$$\text{Required difference} = \frac{232}{4} - \frac{168}{4}$$

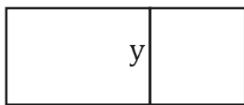
$$= \frac{64}{4} = 16$$

66. (a); Let the speed of boat in still water be x km/hr and that of stream be y km/hr
 ATQ,
 $(x + y) - (x - y) = 6$
 $\Rightarrow 2y = 6 \Rightarrow y = 3$ km/hr
 Downstream stream = $(x + y) = \frac{72}{4} = 18$ km/hr
 $\Rightarrow x = 15$ km/hr

67. (d); Let the initial quantity of mixture in vessel be x lit
 ATQ,
 $\frac{x \times \frac{5}{14} - 10}{x \times \frac{9}{14} - 18 + 2} = \frac{1}{2}$
 $\Rightarrow \frac{5x - 140}{9x - 224} = \frac{1}{2}$
 $\Rightarrow 10x - 280 = 9x - 224$
 $\Rightarrow x = 56$ lit

68. (b); Weight of new student
 $= 6 \times (25.8 + 3.9) - 5 \times 25.8 \approx 49$ kg

69. (c);



rectangular plot square plot
 plot

Let the breadth of rectangular plot be y m and length = 15 m

ATQ,
 $30 + y + 3y = 390/5$
 $\Rightarrow 30 + 4y = 78$
 $\Rightarrow 4y = 48 \Rightarrow y = 12$ m

70. (a); Let the CP be Rs. $100x$
 Then, MP = Rs. $150x$
 $SP = 150x \times \frac{80}{100} = \text{Rs. } 120x$
 Profits = Rs. $20x$
 New MP = Rs. $175x$
 New SP = $175x \times \frac{80}{100} = \text{Rs. } 140x$
 New Profit = Rs. $40x$
 Required % = $\frac{20x}{40x} \times 100 = 50\%$

71. (d); Let the amount be Rs. x
 CI at 10% in 2 years = $10 + 10 + \frac{10 \times 10}{100} = 21\%$.
 ATQ,
 $\frac{x \times 21}{100} = 1050 \Rightarrow x = \text{Rs. } 5000$
 And,
 $\frac{5000 \times 8 \times T}{100} = 2000 \Rightarrow T = 5$ years.

72. (e); Let the monthly salary be Rs. $100x$.
 EMI per month
 $= 100x - \left(20x + 80x \times \frac{1}{4} + 80x \times \frac{1}{2}\right) = \text{Rs. } 20x$
 ATQ,
 $20x \times 12 = 60,000$
 $\Rightarrow x = 250$
 Monthly Salary = Rs. 25,000

73. (b); ATQ,
 $4x + x - 9.75 = 442$
 $5x = 451.75$
 $x = \text{Rs. } 90$

74. (a); Let the investment of B be Rs. x
 \therefore investment of A = Rs $2x$
 Ratio of profit,
 A : B : C
 $12 \times 2x : 12 \times x : 8 \times y$
 ATQ,
 $24x = 8y$
 $y = 3x$
 \therefore Required percentage = $\frac{12 \times x}{8 \times 3x} \times 100$
 $= 50\%$

75. (b); Let present age of Ishu & Ahana be x year & y year respectively
 \therefore ATQ,
 $\frac{x + 8}{y + 6} = \frac{5}{6}$
 $6x + 48 = 5y + 30$
 $6x - 5y = -18 \quad \dots (i)$
 $x + 10 = y + 6$
 $x - y = -4 \quad \dots (ii)$
 $\therefore x = 2$ years
 \therefore present age of Ishu is 2 years.

76. (c); quired difference = $\frac{20}{100} (P + 5000) - \frac{20}{100} \times P$
 $= 1000$

77. (d); Let diameter of base be $2x$ cm & height of cylinder be $3x$ cm
 \therefore radius = $\frac{2x}{2} = x$ cm
 We know,
 Volume of cylinder = $\pi r^2 h$ ($r \rightarrow$ radius, $h \rightarrow$ height)
 ATQ,
 $\pi r^2 h = 3234$
 $\frac{22}{7} \times x^2 \times 3x = 3234$
 $x = 7$ cm
 Radius = 7 cm

78. (e); Speed of train in m/s. = $72 \times \frac{5}{18} = 20$ m/s

Let length of train be x m

ATQ,

$$\frac{524 + x}{55} = 20$$

$$x = 1100 - 524 = 576\text{m}$$

79. (b); Lets efficiency of A is x unit/day and B's efficiency is $3x$ unit/day

So, B work for 19 days and A work for 18 days

ATQ—

$$\text{Total work} = 19 \times 3x + 18 \times x = 75x$$

$$\text{Efficiency of C} = \frac{75x}{50}$$

$$= 1.5x \text{ unit/day}$$

$$(A + C) \text{ together} = \frac{75x}{(x+1.5x)} = 30 \text{ days}$$

80. (d); One day work of women = half of work done by men in one day

Let efficiency of one women = w unit/day

Man's efficiency = $2w$ unit/day

$$\text{Total work} = (7 \times 2w + 6 \times w) \times 8 = 160w \text{ unit}$$

8 men and 4 women start work for 3 days

$$\text{Total work done} = (8 \times 2w + 4 \times w) \times 3 = 60w$$

4 women replace 4 man

$$= (4 \times 2w + 8 \times w) = 16w$$

$$\text{Days required} = \frac{100w}{16w} = 6.25 \text{ days}$$

