PRACTICE SET 18

INSTRUCTIONS

- **This practice set consists of two sections. Quantitative Aptitude (Qs. 1-40) & Reasoning Ability (Qs. 41-80).**
- **All the questions are compulsory.**
- **Each question has five options, of which only one is correct. The candidates are advised to read all the options thoroughly.**
- **There is negative marking equivalent to $1/4^{th}$ of the mark allotted to the specific question for wrong answer.**

Time : 45 Min. **Max. Marks : 80**

NUMERICAL ABILITY

DIRECTIONS (Qs. 1–5) : What will come in place of the question mark : (?) in the following number series ?

1. 21 10.5 ? 15. 75 31.5 78.75
(a) 10.5 (b) 11.5
(c) 12.5 (d) 10.25
(e) None of these

2. 6 19 58 ? 214 331
(a) 113 (b) 123
(c) 133 (d) 143
(e) None of these

3. ? 16 28 58 114 204
(a) 7 (b) 9
(c) 14 (d) 6
(e) 10

4. 13.76 14.91 17.21 20.66 ? 31.01
(a) 25.66 (b) 24.36
(c) 24.26 (d) 25.26
(e) 25.36

5. 15 ? 24 33 97 122
(a) 20 (b) 19
(c) 17 (d) 18
(e) 16

6. A person *P* started a business with a capital of ₹ 2525 and another person *Q* joined *P* after some months with a capital of ₹ 1200. Out of the total annual profit of ₹ 1644, *P*'s share was ₹ 1212. When did *Q* join as partners ?
(a) After 2 months (b) After 3 months
(c) After 4 months (d) After 5 months
(e) None of these

7. 16 litres of a mixture contains milk and water in the ratio 5:3. If 4 litres of milk is added to this mixture, the ratio of milk to water in the new mixture would be
(a) 2 : 1 (b) 7 : 3
(c) 4 : 3 (d) 8 : 3
(e) None of these

8. Tickets numbered 1 to 20 are mixed up and then a ticket is drawn at random. What is the probability that the ticket drwan has a number which is a multiple of 3 or 5?
(a) $\frac{1}{2}$ (b) $\frac{2}{5}$
(c) $\frac{8}{15}$ (d) $\frac{9}{20}$
(e) None of these

9. The difference between the ages of two persons is 10 years. Fifteen years ago, the elder one was twice as old as the younger one. The present age of the elder person is:
(a) 25 years (b) 35years
(c) 45 years (d) 55 years
(e) None of these

10. A boy was asked to multiply a number by 25. Instead, he multiplied the number by 52 and got the answer 324 more than the correct answer. The number to be multiplied was
(a) 12 (b) 15
(c) 25 (d) 32
(e) None of these

11. 7 is added to a certain number, the sum is multiplied by 5; the product is divided by 9 and 3 is subtracted from the quotient. The remainder left is 12. What is the number ?
(a) 20 (b) 30
(c) 40 (d) 5
(e) None of these

12. In an election between two candidates, 70% of the voters cast their votes, out of which 2% of the votes were declared invalid. A candidate got 7203 votes which was 60% of the total valid votes. Find the total number of voters enrolled in that election.
(a) 18050 (b) 17500
(c) 17000 (d) 7203
(e) None of these

13. 'A' and 'B' can do a piece of work in 30 days while 'B' and 'C' can do the same work in 24 days and 'C' and 'A' in 20 days. They all work for 10 days and 'B' and 'C' leave. How many days more will 'A' take to finish the work ?
(a) 12 days (b) 18 days
(c) 20 days (d) 22 days
(e) None of these

14. A man can row $9\frac{1}{3}$ Kmph in still water and finds that it takes him thrice as much time to row up than as to row down the same distance in the river. The speed of the current is
(a) $3\frac{1}{3}$ Kmph (b) $3\frac{1}{9}$ Kmph
(c) $4\frac{2}{3}$ Kmph (d) $4\frac{1}{3}$ Kmph
(e) None of these

15. ₹ 800 becomes ₹ 956 in 3 years at a certain rate of interest. If the rate of interest is increased by 4% what amount will ₹ 800 become in 3 years ?
(a) ₹ 1020 (b) ₹ 1052
(c) ₹ 1282 (d) ₹ 1080
(e) None of these

DIRECTIONS (Qs. 16-20) : In the following number series, a wrong number is given. Find out the wrong number.

16. 29, 37, 21, 43 ,13, 53, 5
(a) 37 (b) 53
(c) 13 (d) 21
(e) 43

17. 600, 125, 30, 13, 7.2, 6.44, 6.288
(a) 6 (b) 10
(c) 15 (d) 12
(e) None of these

18. 80, 42, 24, 13.5, 8.75, 6.375, 5.1875
(a) 8.75 (b) 13.5
(c) 24 (d) 6.375
(e) 42

19. 10, 8, 13, 35, 135, 671, 4007
(a) 8 (b) 671
(c) 135 (d) 13
(e) 35

20. 150, 290, 560, 1120, 2140, 4230, 8400
(a) 2140 (b) 560
(c) 1120 (d) 4230
(e) 290

DIRECTIONS (Qs. 21-25) : In the following questions, two equations numbered I and II are given. You have to solve both the equations and give answers.

(a) if $x > y$ (b) if $x \geq y$
(c) if $x < y$ (d) if $x \leq y$
(e) if $x = y$ or the relationship cannot be established

21. I. $12x^2 + 11x + 12 = 10x^2 + 22x$
II. $13y^2 - 18y + 3 = 9y^2 - 10y$

22. I. $\frac{18}{x^2} + \frac{6}{x} - \frac{12}{x^2} = \frac{8}{x^2}$
II. $y^3 + 9.68 + 5.64 = 16.95$

23. I. $\sqrt{1225}x + \sqrt{4900} = 0$
II. $(81)^{1/4}\, y + (343)^{1/3} = 0$

24. I. $\frac{(2)^5 + (11)^3}{6} = x^3$
II. $4y^3 = -(589 \div 4) + 5y^3$

25. I. $(x^{7/5} \div 9) = 169 \div x^{3/5}$
II. $y^{1/4} \times y^{1/4} \times 7 = 273 \div y^{1/2}$

DIRECTIONS (Qs. 26-30) : What approximate value should come in place of the question mark (?) in the following questions? (Note : You are not expected to calculate the exact value.)

26. $8787 \div 343 \times \sqrt{50} = ?$
(a) 250 (b) 140
(c) 180 (d) 100
(e) 280

27. $\sqrt[3]{54821} \times (303 \div 8) = (?)^2$
(a) 48 (b) 38
(c) 28 (d) 18
(e) 58

28. $\frac{5}{8}$ of $4011.33 + \frac{7}{10}$ of $3411.22 = ?$
(a) 4810 (b) 4980
(c) 4890 (d) 4930
(e) 4850

29. 23% of 6783 + 57% of 8431 = ?
(a) 6460 (b) 6420
(c) 6320 (d) 6630
(e) 6360

30. $335.01 \times 244.99 \div 55 = ?$
(a) 1490 (b) 1550
(c) 1420 (d) 1590
(e) 1400

DIRECTIONS (Qs. 31-35) : These questions are based on the tables and information given below.

Mulayam Software Co., before selling a package to its clients, follows the given schedule :

Month	Stage	Cost (Rs.'000 per man-month)
1 - 2	Specification	40
3 - 4	Design	20
5 - 8	Coding	10
9 - 10	Testing	15
11 - 15	Maintenance	10

The number of people employed in each month is:

Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
No.of people employed	2	3	4	3	4	5	5	4	4	1	3	3	1	1	1

31. Due to overrun in "Design", the Design stage took 3 months, i.e. months 3, 4 and 5. The number of people working on Design in the fifth month was 5. Calculate the percentage change in the cost incurred in the fifth month.(Due to improvement in "Coding" technique, this stage was completed in months 6 - 8 only)
(a) 225% (b) 150%
(c) 275% (d) 240%
(e) None of these

32. With reference to the above question, what is the cost incurred in the new "coding" stage ? (Under the new technique, 4 people work in the sixth month and 5 in the eighth)
(a) ₹1,40,000 (b) ₹1,50,000
(c) ₹1,60,000 (d) ₹1, 80,000
(e) None of these

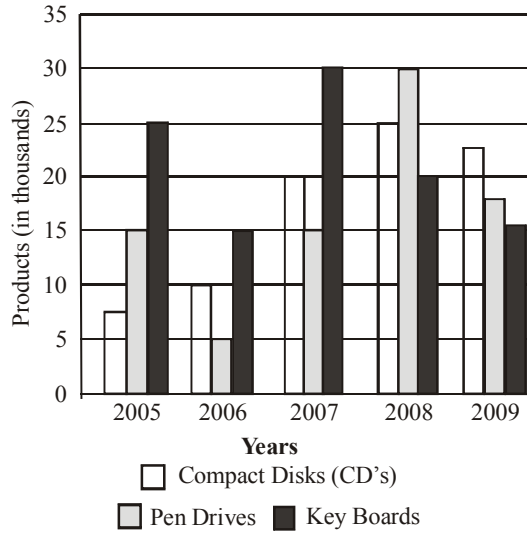
33. Under the new technique, which stage of Software development is most expensive for Mulayam Software company?
(a) Testing (b) Specification
(c) Coding (d) Design
(e) None of these

34. Which five consecutive months have the lowest average cost per man-month under the new technique?
(a) 1-5 (b) 9-13
(c) 11-15 (d) 5-8
(e) None of these

35. What is the difference in the cost between the old and the new techniques?
(a) ₹30,000 (b) ₹60,000
(c) ₹70,000 (d) ₹ 40,000
(e) None of these

DIRECTIONS (Qs. 36-40) : Study the following graph carefully and answer the questions that follow.

Three different products (in Thousands) produced by a company in five different years



36. What was the total number of all the products produced by the company in the year 2006 and 2008 together ?
(a) 105000 (b) 107 lacs
(c) 105700 (d) 10570
(e) None of these

37. What was the average number of Pen-drives produced by the company over all the years together ?
(a) 1700 (b) 16500
(c) 17000 (d) 85000
(e) None of these

38. What is the difference between the total number of Pen-drives and CDs produced by the company together in the year 2008 and the number of Key boards produced by the company in the year 2006 ?
(a) 40000 (b) 4000
(c) 35000 (d) 3500
(e) None of these

39. What was the respective ratio between the number of Key boards produced by the company in the year 2006, 2007 and 2009 ?
(a) 1 : 2 : 3 (b) 1 : 2 : 2
(c) 2 : 1 : 3 (d) 1 : 2 : 1
(e) None of these

40. What was the respective ratio between the number of CDs produced by the company in the year 2009 and the number of Keyboards produced by the company in the year 2005 ?
(a) 9 : 10 (b) 11 : 10
(c) 10 : 9 (d) 10 : 11
(e) None of these

REASONING ABILITY

DIRECTIONS (Qs. 41-45): In each of the questions below, two/three statements are given followed by conclusions/group of conclusions numbered I and II. You have to assume all the statements to be true even if they seem to be at variance from the commonly known facts and then decide which of the given two conclusions logically follows from the information given in the statements.

Give answer (a) if **only** conclusion I follows
Give answer (b) if **only** conclusion II follows
Give answer (c) if **either** I or II follows
Give answer (d) if **neither** I or II follows
Give answer (e) if **both** I and II follow

41-42. Statements: Some squares are circles.
No circle is a triangle.
No line is a square.

41. Conclusions: I. All squares can never be triangles.
II. Some lines are circles.

42. Conclusions: I. No triangle is a square.
II. No line is a circle.

43-44: Statements: All songs are poems.
All poems are rhymes.
No rhymes is a paragraph.

43. Conclusions: I. No song is a paragraph.
No poem is a paragraph.

44. Conclusions: I. All rhymes are poems.
All songs are rhymes.

45. Statements: Some dews are drops. All drops are stones.
Conclusions: I. Atleast some dews are stones.
II. Atleast some stones are drops.

DIRECTIONS (Qs. 46-50) : Study the following information carefully to answer the given questions :

Eight persons from different banks viz. UCO bank, Syndicate bank, Canara bank, PNB, Dena Bank, Oriental Bank of Commerce, Indian bank and Bank of Maharashtra are sitting in two parallel rows containing four people each, in such a way that there is an equal distance between adjacent persons. In row-1 A, B, C and D are seated and all of them are facing south. In row-2 P, Q, R and S are seated and all of them are facing north. Therefore, in the given seating arrangement each member seated in a row faces another member of the other row. (All the information given above does not necessarily represent the order of seating as in the final arrangement)

- C sits second to right of the person from Bank of Maharashtra. R is an immediate neighbour of the person who faces the person from Bank of Maharashtra.

- Only one person sits between R and the person for PNB. Immediate neighbour of the person from PNB faces the person from Canara Bank.
- The person from UCO bank faces the person from Oriental Bank of Commerce. R is not from Oriental Bank of Commerce. P is not from PNB. P does not face the person from Bank of Maharashtra.
- Q faces the person from Dena bank. The one who faces S sits to the immediate left of A.
- B does not sit at any of the extreme ends of the line. The person from Bank of Maharashtra does not face the person from Syndicate bank.

46. Which of the following is true regarding A ?
(a) The person from UCO bank faces A
(b) The person from Bank of Maharashtra is an immediate neighbour of A
(c) A faces the person who sits second to right of R
(d) A is from Oriental Bank of Commerce
(e) A sits at one of the extreme ends of the line

47. Who is seated between R and the person from PNB ?
(a) The person from Oriental Bank of Commerce
(b) P
(c) Q
(d) The person from Syndicate bank
(e) S

48. Who amongst the following sit at extreme ends of the rows?
(a) D and the person from PNB.
(b) The person from Indian bank and UCO bank.
(c) The person from Dena bank and P.
(d) The persons from Syndicate bank and D.
(e) C, Q

49. Who amongst the following faces the person from Bank of Maharashtra ?
(a) The person from Indian bank
(b) P
(c) R
(d) The person from Syndicate bank
(e) The person from Canara bank

50. P is related to Dena bank in the same way as B is related to PNB based on the given arrangement. To who amongst the following is D related to, following the same pattern ?
(a) Syndicate bank (b) Canara bank
(c) Bank of Maharashtra (d) Indian bank
(e) Oriental Bank of Commerce

DIRECTIONS (Qs.51-54): Study the following arrangement carefully and answer the questions given below.

R 3 A M % D 1 B U J 2 @ © F I K E δ W P 4 8 V Q 9 6 Y ★ 5

51. Four of the following five are alike in a certain way based on their positions in the above arrangement and so form a group. Which is the one that does not belong to that group?
(a) MDA (b) 6★9
(c) 4VP (d) FK@
(e) J@U

52. Which of the following is the twelfth to the right of the sixth from the left end of the above arrangement?
(a) E (b) δ
(c) @ (d) 2
(e) None of these

53. How many such numbers are there in the above arrangement, each of which is immediately preceded by a consonant and immediately followed by a symbol?
(a) None (b) One
(c) Two (d) Three
(e) More than three

54. If all the symbols are dropped from the above arrangement, which of the following will be the thirteenth from the left end?
(a) K (b) E
(c) I (d) F
(e) None of these

DIRECTION (Qs. 55-58): Study the following information to answer the given questions:

In a certain code 'colours of the sky' is written as 'ki la fa so', 'rainbow colours' is written as 'ro ki' and 'sky high rocket' is written as 'la pe jo' and 'the rocket world' is written as 'pe so ne'.

55. Which of the following is the code for 'colours sky high'?
(a) ro jo la (b) fa la jo
(c) la ki so (d) ki jo la
(e) fa ki jo

56. Which of the following will/may represent 'the'?
(a) Only 'fa' (b) Either 'fa' 'la'
(c) Only 'so' (d) Only 'la'
(e) Either 'so' or 'fa'

57. What does 'pe' represent in the code?
(a) colours (b) sky
(c) nigh (d) rainbow
(e) rocket

58. How can 'bird of the rainbow sky' be written in this code?
(a) fa la tu ki jo (b) fa so pe la ro
(c) jo fa ro la tu (d) so ro fa tu la
(e) ki la fa tu ro

DIRECTIONS (Qs.59-62): Study the following information carefully and answer the given questions.

Seven members A, B, C, D, F and G represent seven different states Madhya Pradesh, Uttar Pardesh, Bihar, Kerala, Tamil Nadu, Odisha and Maharashtra in seven different games Hockey, Chess, Cricket, Badminton, Table Tennis, Golf and Billiards. The order of persons, states and games is not necessarily the same.

D represents Kerala in Chess. E represents Golf team but not from Maharashra or Uttar Pradesh. A represents Madhya Pradesh for Badminton. C represents Odisha but not for Cricket or Table Tennis. The one who represents Bihar, represents Table Tennis. The one who represents Hockey represents Uttar Pradesh. F represents Maharashtra for Cricket. G does not represent Bihar.

59. Which of the following combinations of game and state is correct ?
(a) Odisha-Chess (b) Odisha-Billiards
(c) Tamil Nahu-Cricket (d) Maharashtra-Chess
(e) None of these

60. Who represents Billiards team ?
(a) G (b) F
(c) C (d) B
(e) None of these

61. Who represents Bihar?
(a) G (b) E
(c) B (d) B or E
(e) None of these

62. Who represents Uttar Pradesh?
(a) G (b) F
(c) B (d) Can't be determined
(e) None of these

DIRECTIONS (Qs. 63-67) : In the following questions, the symbols $, ★, #, $ and δ are used with the following meaning as illustrated below:

'P $ Q' means 'P is not smaller than Q'.
'P @ Q' means 'P is neither smaller than nor equal to Q'.
'P # Q' means 'P is neither greater than nor equal to Q'.

'P δ Q' means 'P is neither greater than nor smaller than Q'.
'P ★ Q' means 'P is not greater than Q'.
Now, in each of the following questions assuming the given statements to be true, find which of the four Conclusions I, II, III and IV given below them is/are definitely true and give your answer accordingly.

63. **Statements:** N δ B, B $ W, W # H, H ★ M
Conclusions: I. M @ W II. H @ N
III. W δ N IV. W # N
(a) Only I is true (b) Only III is true
(c) Only IV is true (d) Either III or IV is true
(e) Either III or IV and I are true

64. **Statements:** R ★ D, D $ J, J # M, M @ K
Conclusions: I. K $ J II. D @ M
III. R # M IV. D @ K
(a) None is true (b) Only I is true
(c) Only II is true (d) Only III is true
(e) Only IV is true

65. **Statements:** H @ T, T # F, F δ E, E ★ V
Conclusions: I. V $ F II. E @ T
III. H @ V IV. T # V
(a) I, II and III are true (b) I, II and IV are true
(c) II, III and IV are true (e) I, III and IV are true
(e) All are true

66. **Statements:** D # R, R ★ K, K @ F, F $ J
Conclusions: I. J # R II. J # K
III. R # F IV. K @ D
(a) I, II and III are true (b) II, III and IV are true
(c) I, III and IV are true (d) All are true
(e) None of these

67. **Statements:** M $ K, K @ N, N ★ R, R # W
Conclusions: I. W # K II. M @ R
III. K @ W IV. K @ D
(a) I and II are true (b) I, II and III are true
(c) III and IV are true (c) II, III and IV are true
(e) None of these

DIRECTIONS (Qs. 68-70): Read the information carefully and answer the questions given below :

(i) Seven students P, Q, R, S, T, U and V take a series of tests,
(ii) No two students get similar marks,
(iii) V always scores more than P.
(iv) P always scores more than Q.
(v) Each time either R scores the highest and T gets least, or alternatively S scores highest and U or Q scores least.

68. If S is ranked sixth and Q is ranked fifth, which of the following can be true ?
(a) V is ranked first or fourth
(b) R is ranked second or third
(c) P is ranked second or fifth
(d) U is ranked third or fourth
(e) None of these

69. If R is ranked second and Q is ranked fifth, which of the following must be true ?
(a) S is ranked third (b) T is ranked sixth
(c) P is ranked sixth (d) V is ranked fourth
(e) None of these

70. If S is ranked second, which of the following can be true?
(a) U gets more than V (b) V gets more than S
(c) P gets more than R (d) P gets more than V
(e) None of these

71. Vinay goes 30 m North, then turns right and walks 40 m, then again turns right and walks 20 m, then again turns right and walks 40 m. How many metres is he from his original position ?
(a) 0 (b) 10
(c) 20 (d) 40
(e) None of these

72. A man walks 1 km towards East and then turns towards South and walks 5 km. Again he turns to East and walks 2 km. After this he turns to North and walks 9 km. Now, how far is he from his starting point ?
(a) 3 km (b) 4 km
(c) 5 km (d) 7 km
(e) None of these

DIRECTION (Qs. 73-75): Read the following information carefully and answer the questions, which follow.

'P ÷ Q' means 'P is son of Q'.
'P × Q' means 'P is sister of Q'.
'P + Q' means 'P is brother of Q'.
'P – Q' means 'P is mother of Q'.

73. How is T related to S in the expression 'T × R + V ÷ S'?
(a) Sister (b) Mother
(c) Aunt (d) Uncle
(e) None of these

74. How is T related to S in the expression 'T × R ÷ V – S'?
(a) Father (b) Sister
(c) Daughter (d) Aunt
(e) None of these

75. How is S related to T in the expression 'T + R – V + S'?
(a) Uncle (b) Nephew
(c) Son (d) Can't be determined
(e) None of these

DIRECTIONS (Qs. 76-80) : ***Study the following information carefully and answer the questions given below:***

P, Q, R, S, T, V, W and Z are travelling to three destinations Delhi, Chennai and Hyderabad in three different vehicles – Honda City, Swift D'Zire and Ford Ikon. There are three females among them one in each car. There are at least two persons in each car.

R is not travelling with Q and W. T, a male, is travelling with only Z and they are not travelling to Chennai. P is travelling in Honda City to Hyderabad. S is sister of P and travels by Ford Ikon. V and R travel together. W does not travel to Chennai.

76. Who is travelling with W ?
(a) Only Q (b) Only P
(c) Both P and Q (d) Cannot be determined
(e) None of these

77. Members in which of the following combinations are travelling in Honda City ?
(a) PRS (b) PQW
(c) PWS (d) Data inadequate
(e) None of these

78. In which car are four members travelling?
(a) None (b) Honda City
(c) Swift D'zire (d) Ford Ikon
(e) Honda City or Ford Ikon

79. Which of the following combinations represents the three female members?
(a) QSZ (b) WSZ
(c) PSZ (d) Cannot be determined
(e) None of these

80. Members in which car are travelling to Chennai ?
(a) Honda City
(b) Swift D'Zire
(c) Ford Ikon
(d) Either Swift D'Zire or Ford Ikon
(e) None of these

HINTS & EXPLANATIONS

1. (a) Identifying the pattern of number series

$$21 \xrightarrow{\times 0.5} 10.5 \xrightarrow{\times 1} \boxed{10.5} \xrightarrow{\times 1.5} 15.75 \xrightarrow{\times 2.5} 31.50 \xrightarrow{\times 2.5} 78.75$$

2. (b) Identifying the pattern of number series

$$6 \xrightarrow{+(1\times 13)} 19 \xrightarrow{+(3\times 13)} 58 \xrightarrow{+(5\times 13)} \boxed{123} \xrightarrow{+(7\times 13)} 214 \xrightarrow{+(9\times 13)} 331$$

3. (c) Identifying the pattern of number series

$$\boxed{14} \xrightarrow{+(1\times 2)} 16 \xrightarrow{+(3\times 4)} 28 \xrightarrow{+(5\times 6)} 58 \xrightarrow{+(7\times 8)} 114 \xrightarrow{+(9\times 10)} 204$$

4. (d) Identifying the pattern of number series

$$13.76 \xrightarrow{+(1\times 1.15)} 14.91 \xrightarrow{+(2\times 1.15)} 17.21 \xrightarrow{+(3\times 1.15)} 20.66 \xrightarrow{+(4\times 1.15)} 25.26 \xrightarrow{+(5\times 1.15)} 31.01$$

5. (e) The pattern of the number series is :

$15 + 1^2 = \boxed{16}$

$16 + 2^3 = 16 + 8 = 24$

$24 + 3^2 = 24 + 9 = 33$

$33 + 4^3 = 33 + 64 = 97$

$97 + 5^2 = 97 + 25 = 122$

6. (b) Let Q join for x month.

$\therefore$ Ratio of capital $= 2525 \times 12 : 1200 \times x$

$= 2525 : 100x = 101 : 4x$

$\therefore$ P's profit $= \dfrac{101}{101+4x} \times 1644$

$\Rightarrow 1212 = \dfrac{101 \times 1644}{101+4x}$

$\Rightarrow \dfrac{1212}{101 \times 1644} = \dfrac{1}{101+4x}$

$\Rightarrow \dfrac{1}{137} = \dfrac{1}{101+4x}$

$\Rightarrow 101 + 4x = 137 \Rightarrow 4x = 36$

$\therefore x = 9$

Q joined for 9 months i.e., he joined after 3 months.

7. (b) 16 litres

10 l milk 6 l water

If 4l milk is added in mixture then

New ratio $= \dfrac{(10+4)}{6}$

$= \dfrac{14}{6} = \dfrac{7}{3} = 7:3$

8. (d) Here, S = {1, 2, 3, 4, ..., 19, 20}.

Let E = event of getting a multiple of 3 = {3, 6, 9, 12, 15, 18, 5, 10, 20}.

$\therefore P(E) = \dfrac{n(E)}{N(S)} = \dfrac{9}{20}$

9. (a) Let their age be x years and (x + 10) years respectively.

Then, (x + 10) – 15 = 2 (x – 15) $\Leftrightarrow$ x – 5 = 2x – 30 $\Leftrightarrow$ x = 25.

$\therefore$ Present age of the elder person = (x + 10) =35years.

10. (a) Let the number be x.

$25x + 324 = 52x$

$52x - 25x = 324$

$27x = 324$

$x = 12$

11. (a) Let the number be x

$\dfrac{5(7+x)}{9} - 3 = 12$

$\dfrac{5(7+x)}{9} = 15$

$7 + x = \dfrac{15 \times 9}{5} = 27$

$x = 27 - 7 = 20$

12. (b) Let the total number of votes enrolled be x. Then, number of votes cast = 70% of valid votes = 98% of (70% of x)

60% of [98% of 70% of x] = 7203

$\dfrac{70}{100} \times \dfrac{98}{100} \times \dfrac{60}{100} \times x = 7203$

$x = \dfrac{7203 \times 100 \times 100 \times 100}{70 \times 98 \times 60}$

x = 17500

13. (b) Let A,B and C individualy complete the work in x,y and z days respectively.

$\dfrac{1}{x} + \dfrac{1}{y} = \dfrac{1}{30}$ ...(1)

$\dfrac{1}{y} + \dfrac{1}{z} = \dfrac{1}{24}$ ...(2)

$\dfrac{1}{z} + \dfrac{1}{x} = \dfrac{1}{20}$ ...(3)

adding equ (1) , (2) and (3)

$$2\left(\frac{1}{x}+\frac{1}{y}+\frac{1}{z}\right)=\frac{1}{8}\Rightarrow\frac{1}{x}+\frac{1}{y}+\frac{1}{z}=\frac{1}{16} \quad ...(4)$$

A,B and C together complete the work in 16 days.

In 10 days they completed $\frac{10}{16}=\frac{5}{8}$ Part

Remaining work $=1-\frac{5}{8}=\frac{3}{8}$

Subtracting equ (2) from (4)

we get, $\frac{1}{x}=\frac{1}{48}$ or $x=48$

A alone can finish the Remaining work in

$\frac{3}{8}\times 48=18$ days

14. (c) Distance covered by man = D Km
Speed of Man in still water = x Kmph

Speed of current = $\frac{28}{3}$ Kmph

According to question,

$$\frac{D}{\frac{28}{3}-x}=3\left(\frac{D}{\frac{28}{3}+x}\right)$$

$$\Rightarrow \frac{28}{3}+x=3\left(\frac{28}{3}-x\right) \Rightarrow 4x=2\times\frac{28}{3}$$

$$\Rightarrow x=\frac{14}{3} \text{ or } 4\frac{2}{3} \text{ Kmph}$$

15. (b) S.I. = ₹ (956 – 800) = ₹ 156;
P = 800, T = 3 yrs.

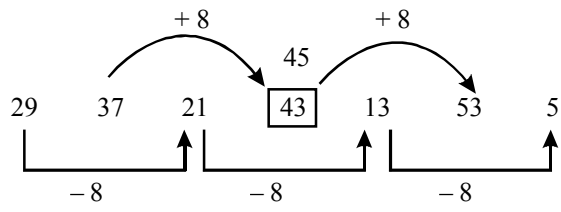
$$\because R=\left(\frac{100\times 156}{800\times 3}\right)\%=6.5\%$$

New rate = (6.5 + 4) = 10.5%

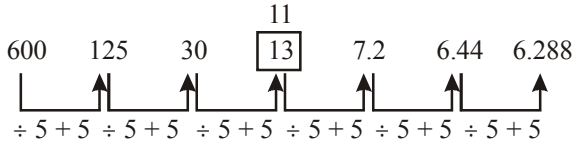
$$\text{New, S.I} = ₹\left(\frac{800\times 10.5\times 3}{100}\right)=₹ 252$$

∴ New amount = 800 + 252 = 1052

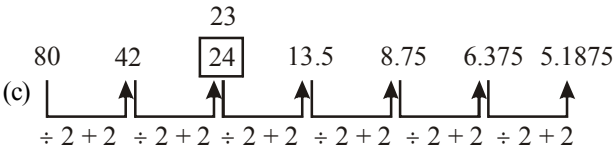
16. (e)



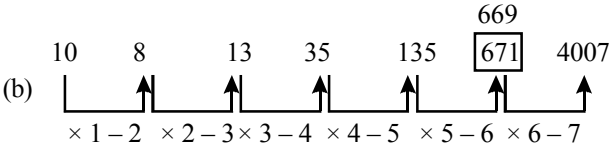
17. (e)



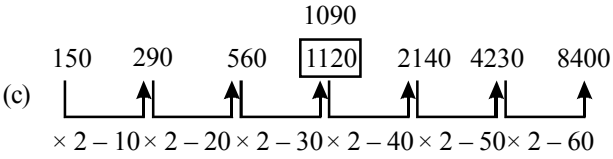
18. (c)



19. (b)



20. (c)



21. (b) I. $12x^2+11x+12=10x^2+22x$
$2x^2-11x+12=0$
$2x^2-8x-3x+12=0$
$(x-4)(2x-3)=0$
$x=4, x=3/2$

II. $13y^2-18y+3=9y^2-10y$
$4y^2-8y+3=0$
$4y^2-6y-2y+3=0$
$(2y-3)(2y-1)=0$

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

$\therefore x\geq y$

22. (c) $\frac{18}{x^2}+\frac{6}{x}-\frac{12}{x^2}=\frac{8}{x^2}$

$$\Rightarrow \frac{18+6x-12}{x^2}=\frac{8}{x^2}\Rightarrow 6x+6=8$$

$$\therefore \quad x=\frac{2}{6}=0.33$$

II. $y^3+9.68+5.64=16.95$
$\Rightarrow y^3=16.95-15.32$
$\Rightarrow y^3=1.63 = y=\sqrt[3]{1.63}$

$\therefore x<y$

23. (a) I. $35x+70=0$

$$\therefore x=\frac{-70}{35}=-2$$

II. $(81)^{1/4}y+(343)^{1/3}=0$
$\Rightarrow 3y+7=0\Rightarrow 3y=-7$

$$\therefore \quad y=-\frac{7}{3}=-233 \therefore x>y$$

24. (a) I. $\frac{(2)^5+(11)^3}{6}=x^3$

$\Rightarrow \frac{32+1331}{6}=x^3 \Rightarrow \frac{1363}{6}=x^3$

$\therefore x^3=227.167$

II. $4y^3=\frac{-589}{4}+5y^3 \Rightarrow \frac{589}{4}=y^3$

$\therefore y^3=147.25 \therefore x>y$

25. (d) I. $x^{7/5}\div 9=169\div x^{3/5}$

$\frac{x^{7/5}}{9}=\frac{169}{x^{3/5}}$

$\Rightarrow x^{10/5}=9\times 169 \Rightarrow x^2=9\times 169$

$x=\pm(3\times 13)=\pm 39$

II. $y^{1/4}\times y^{1/4}\times 7=\frac{273}{y^{1/2}}$

$y=\frac{273}{7}=39$

$x\le y$

26. (c) $8787\div 343\times\sqrt{50}=?$

$\Rightarrow 25\times 7=?$

$\therefore ?=175\approx 180$

27. (b) $\sqrt[3]{54821}\times(303\div 8)=(?)^2$

$\Rightarrow 38\times 37.5=(?)^2$

$?=\sqrt{38\times 38}$

$?=38$

28. (c) $\frac{5}{8}$ of $4011.33+\frac{7}{10}$ of $3411.22=?$

$\Rightarrow \frac{5}{8}\times 4010+\frac{7}{10}\times 3410 \Rightarrow 2506+2387$

$\Rightarrow 4893\approx 4890$

29. (e) 23% of $6783+57\%$ of $8431=?$

$\Rightarrow ?=1559+4805$

$\therefore ?=6364\approx 6360$

30. (a) $335.01\times 244.99\div 55$

$\Rightarrow ?=\frac{335\times 245}{55}$

$\therefore ?=1492\approx 1490$

31. (b) As per the plan, number of men working in 5th month was 4 and these 4 men were supposed to do coding.
Cost per man- month for coding = ₹10, 000.
Total cost in 5th month = $4\times 10{,}000$ = ₹40,000/-
Number of people actually working in 5th month is 5 & these 5 men are doing the design part of the project.
Cost per man - month for design = ₹20,000
Total cost in 5th month = $5\times 20{,}000$ = ₹1,00,000,

$\%\text{ change}=\frac{1{,}00{,}000-40{,}000}{40{,}000}\times 100=150\%$

32. (a) Total man months required for coding
$=(4+5+5)=14$
Cost per man month coding = ₹10,000
Total cost incurred in new coding stage
$=14\times 10{,}000$ = ₹1,40,000/-

33. (d) Total cost in a stage = (No. of man months) × (cost per man month in that stage)
Total cost in specification = $(2+3)40{,}000$ = ₹ 2,00,000
Total cost in design = $(4+3+5)20{,}000$ = ₹2,40,000
Total cost in coding = ₹ 1,40,000 (from previous Q.)
Total cost in testing = $=(4+1)15000$ = ₹75000
Hence design is the most expensive stage.

34. (c) Average cost/man month $=\frac{\text{total cost in that period}}{\text{No.of man months taken}}$
Average cost per man month will be minimum for 11-15 month = ₹10, 000.

35. (b)

Month	3	4	5	6	7	8
Old	4	3	4	5	5	4
New	4	3	5	4	5	5

The difference is in the 5th, 6th and the 8th month
Cost under old technique in these months
$=(4+5+4)\times 10{,}000=1{,}30{,}000$/-
Cost under new tehnique = $5\times 20{,}000+(4+5)\times 10{,}000$
= ₹ 1,90,000/-
Hence the difference = 1,90,000 – 1,30,000 = ₹60,000/-

36. (a) Required number of all products
$=(10+5+15+25+30+20)$ thousand
$=105000$

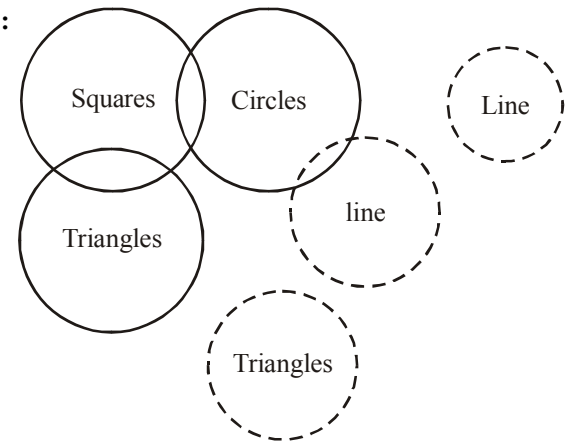
37. (b) Average number of produced pen-drives
$=\left(\frac{15+5+15+30+17.5}{5}\right)$ thousand $=16500$

38. (a) Required difference
$=(30+25-15)$ thousand $=40000$

39. (d) Required ratio = 15 : 30 : 15 = 1 : 2 : 1

40. (a) Required ratio = 22.5 : 25 = 225 : 250 = 9 : 10

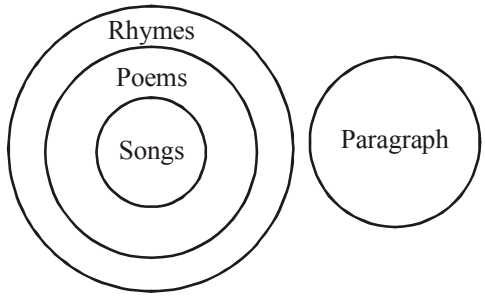
41-42:



41. (a) Conclusion I - True
Conclusion II - False

42. (d) Conclusion I - False
Conclusion II - False

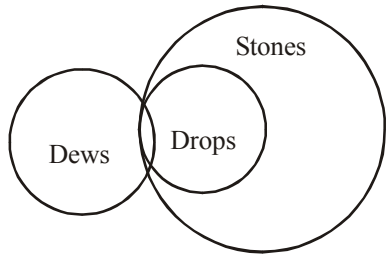
43-44:



43 (e) Conclusion I - True
Conclusion II - True

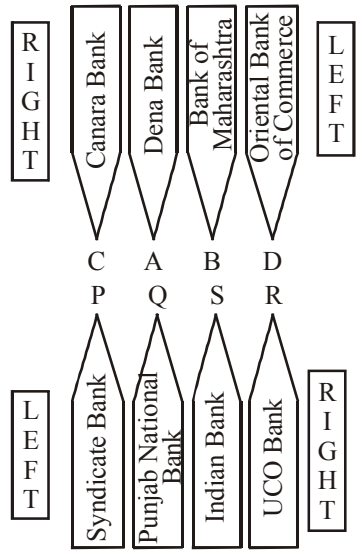
44. (b) Conclusion I - False
Conclusion II - True

45. (e)



Conclusion I - True
Conclusion II - True

46- 50.



46. (b) 47. (e) 48. (d) 49. (a) 50. (d)

51. (d) Except 'FK@', all other groups follow same nature in the given arrangements.

52. (b) According to the question, in the given arrangements 'δ' symbol is the twelfth to the right of the sixth from the left end.

53. (b) According to the questions, in the given arrangements only one '2' number is immediately preceded by a consonant and immediately followed by a symbol.

54. (a) After dropped all the symbols the given arrangements order is

R 3 A M D 1 B U J 2 F I [K] E W P 4 8 V Q 9 6 Y 5

Thirteenth from the left

So, 'K' letter is thirtieth from the left end.

Sol (Q. Nos (55-58)

Colours of the sky = ki la fa so ...(i)
rainbow colurs = ro ki ...(ii)
∴ colurs = ki ...[from Eqs. (i) and (ii)]
sky high rocket = la pe jo ...(iii)
From Eqs. (i) and (ii), sky = la
the rocket world = pe so ne ...(iv)
From Eqs. (i) and (iv), the = so
and from Eqs. (iii) and (iv) rocket = pe

55. (d) 56. (c) 57. (e) 58. (d)

Sol (Qs. Nos 59-62):

Members	States	Games
A	Madhya Pradesh	Badminton
B	Bihar	Table Tennis
C	Odisha	Billiards
D	Kerala	Chess
E	Tamil Nadu	Golf
F	Maharashtra	Cricket
G	UP	Hockey

59. (b) 60. (c) 61. (c) 62. (a)

(63 -68):

$P \$ Q \Rightarrow P \geq Q$
$P @ Q \Rightarrow P > Q$
$P \# Q \Rightarrow P < Q$
$P \delta Q \Rightarrow P = Q$
$P \bigstar Q \Rightarrow P \leq Q$

63. (e) **Statements** $N = B, B \geq W, W < H, H \leq M$
So, $N = B \geq W < H \leq M$
Conclusions :
I. $M > W$ (True)
II. $H > N$ (False)
III. $W = N$
IV. $W < N$] or
So, Either III or IV and I are true.

64. (a) **Statements** $R \leq D, D \geq J, J < M, M > K$
So, $R \leq D \geq J < M > K$
Conclusions:
I. $K < J$ (False)
II. $D > M$ (False)
III. $R < M$ (False)
IV. $D > K$ (False)
So, none is true.

65. (b) **Statements** $H > T, T < F, F = E, E \leq V$
So, $H > T < F = E \leq V$

Conclusions:

I. $V \geq F$ (True)
II. $E > T$ (True)
III. $H > V$ (False)
IV. $T < V$ (True)

So, I, II and IV are true.

66. (e) **Statements** $D < R$, $R \leq K$, $K > F$, $F \geq J$
So, $D < R \leq K > F \geq J$
Conclusions:
I. $J < R$ (False)
II. $J < K$ (True)
III. $R > F$ (False)
IV. $K > D$ (True)
So, II and IV are true.

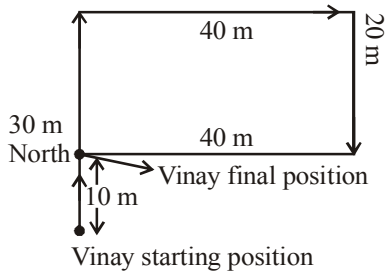
67. (e) **Statements** $M \geq K$, $K > N$, $N \leq R$, $R < W$
So, $M \geq K > N \leq R < W$
Conclusions:
I. $W < K$ (False)
II. $M \geq R$ (False)
III. $K > W$ (False)
IV. $M > N$ (True)
So, only IV is true.

68. (d) If S ranked sixth and Q ranked fifth we have the sequence ..... QS ..... . In this case R will be ranked highest and T the lowest, and we have the order R ..... QST. Also the order VPQ will stay. So V and P will have second, third or fourth place. So, the options *a*, *b* and *c* are wrong. Hence option (d) is correct answer.

69. (b) If R is second, S will rank first and Q and U lowest. But Q ranks fifth. So, U ranks least. Thus, in view of order VPQ, the arrangement will be SRVPQ – U. So, T will be ranked sixth.

70. (a) If S is second, R ranks first and T ranks least. So, the arrangement, in view of order VPQ, will be R, S, ... T. Thus, (b), (c) and (d) are not true. Hence, option (a) is correct.

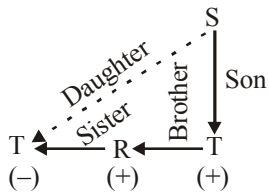
71. (b)



He is 10 m from his original position.

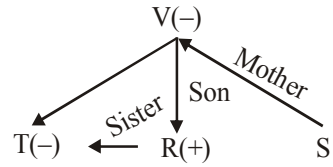
72. (c)

73. (e) Given Expression, $T \times R + V \div S$



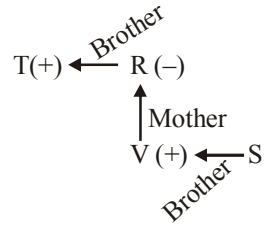
Clearly, T is sister of S's son V, hence T is daughter of S.

74. (b) Given expression, $T \times R \div V - S$



Hence, T is the sister in the given expression.

75. (d) Given expression, $T + R - V + S$



Hence, S is either the nephew or niece of T because six of S is not know.

(76-80) :

Given information can be tabulated as follows :

	Cars			Destination			Travelling with		Gender M/F
	HC	SD	FI	D	C	H	Yes	No	
P	✓					✓			
Q								R	
R							V	QW	
S			✓						F
T					×		only Z		M
V							R		
W					×			R	
Z					×		only T		

From above table we can conclude the following result

Group	Car	Destination
T^+Z^-	SD	Delhi
$S^-R^+V^+$	FI	Chennai
P^+QW	HC	Hyderabad

+ indicates male and – indicates for female

76. (c) **P** and **Q** are travelling with **W.**

77. (b) **P, Q** and **W** are travelling in Honda City.

78. (a) none

79. (d) cannot be determined

80. (c) members in Ford Ikon car are travelling to Chennai.