PRACTICE SET 12

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**

QUANTITATIVE APTITUDE

DIRECTIONS (Qs. 1-15): What will come in place of question mark (?) in the given question?

1. $4\frac{1}{2}+\left(1\div 2\frac{8}{9}\right)-3\frac{1}{13}=?$

(a) $1\frac{9}{26}$ (b) $2\frac{7}{13}$
(c) $1\frac{11}{26}$ (d) $2\frac{4}{13}$
(e) $1\frac{10}{13}$

2. $\frac{6\times 136\div 8+132}{628\div 16-26.25}=?$

(a) 15 (b) 24
(c) 18 (d) 12
(e) 28

3. $\{(441)^{1/2}\times 207\times(343)^{1/3}\}\div\{(14)^2\times(529)^{1/2}\}$

(a) $6\frac{1}{2}$ (b) $5\frac{1}{2}$
(c) $5\frac{3}{4}$ (d) $6\frac{3}{4}$
(e) $6\frac{1}{4}$

4. $\left\{\sqrt{7744}\times(11)^2\right\}\div(2)^3=(?)^3$

(a) 7 (b) 9
(c) 11 (d) 13
(e) 17

5. $(4356)^{1/2}\div\frac{11}{4}=\sqrt{?}\times 6$

(a) 2 (b) 4
(c) 8 (d) 6
(e) 16

6. $\frac{3}{8}$ of $\{4624\div(564-428)\}=?$

(a) $13\frac{1}{4}$ (b) $14\frac{1}{2}$
(c) $11\frac{5}{6}$ (d) $12\frac{3}{4}$
(e) $12\frac{1}{8}$

7. $456\div 24\times 38-958+364=?$

(a) 112 (b) 154
(c) 128 (d) 136
(e) 118

8. $(43)^2+841=(?)^2+1465$

(a) 41 (b) 35
(c) 38 (d) 33
(e) 30

9. $3\frac{3}{8}\times 6\frac{5}{12}-2\frac{3}{16}\times 3\frac{1}{2}=?$

(a) 21 (b) 18
(c) 14 (d) 15
(e) 16

10. $(34.5\times 14\times 42)+2.8=?$

(a) 7150 (b) 7365
(c) 7245 (d) 7575
(e) 7335

11. $(216)^4+(36)^4\times(6)^5=(6)^?$

(a) 13 (b) 11
(c) 7 (d) 9
(e) 10

12. $\frac{\sqrt{4356 \times \sqrt{?}}}{\sqrt{6084}} = 11$

(a) 144 (b) 196
(c) 169 (d) 81
(e) 121

13. $\left(3\frac{6}{17} \div 2\frac{7}{34} - 1\frac{9}{25}\right) = (?)^2$

(a) $\frac{2}{5}$ (b) $\frac{1}{3}$
(c) $\frac{4}{5}$ (d) $\frac{1}{5}$
(e) $\frac{3}{5}$

14. $(1097.63 + 2197.36 - 2607.24) \div 3.5 = ?$

(a) 211.5 (b) 196.5
(c) 209.5 (d) 192.5
(e) 189.5

15. $\frac{1}{11}$ of $[(17424)^{1/2} \div (66)^2 \times 3^3] = ?^2$

(a) $\frac{1}{11}$ (b) $\frac{3}{11}$
(c) $\frac{2}{11}$ (d) $\frac{4}{11}$
(e) $\frac{5}{11}$

DIRECTIONS (Qs. 16-20) : What approximate value should come in the following questions at the questions places.

(You are not required to calculate the exact value)

16. $(13.001)^3 = ?$

(a) 1900 (b) 2200
(c) 2000 (d) 1800
(e) 2100

17. $55.003 \times 54.998 + 5.001 = ?$

(a) 3500 (b) 3630
(c) 2540 (d) 3030
(e) 2750

18. 50.001% of $99.99 \div 49.999 = ?$

(a) 1 (b) 0.1
(c) 0.01 (d) 0.02
(e) None of these

19. $999.0001 + 899.999 - 349.88 = ?$

(a) 1549 (b) 1560
(c) 1449 (d) 1460
(e) None of these

20. $(2.0001)^3 \times (1.999)^{-2} \div (3.999)^{-4} = ?$

(a) 32 (b) 16
(c) 64 (d) 256
(e) 512

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 answer

(1) if $x > y$
(2) if $x \geq y$
(3) if $x < y$
(4) if $x \leq y$
(5) if $x = y$ or the relationship cannot be established

21. I. $x^2 - 11x + 24 = 0$
II. $2y^2 - 9y + 9 = 0$

22. I. $x^3 \times 13 - x^2 \times 247$
II. $y^{1/3} \times 14 = 294 \div y^{2/3}$

23. I. $\frac{12 \times 7}{x^{4/7}} - \frac{3 \times 4}{x^{4/7}} = x^{10/7}$
II. $y^3 + 783 = 999$

24. I. $\sqrt{500}x + \sqrt{402} = 0$
II. $\sqrt{360}\, y + (200)^{1/2} = 0$

25. I. $(17)^2 + 114 \div 18 = x$
II. $(26)^2 - 18 \times 21 = x$

26. 12 yr ago the ratio between the ages of A and B was 3 :4 respectively. The present age of A is $3\frac{3}{4}$ times of C's present age. If C's present age is 10 yr, then what is B's present age? (in years)

(a) 48 (b) 46
(c) 60 (d) 54
(e) 36

27. A certain number of capsules were purchased for ₹ 216,15 more capsules could have been purchased in the same amount if each capsule was cheaper by ₹ 10. What was the number of capsules purchased?

(a) 6 (b) 14
(c) 8 (d) 12
(e) 9

28. M, N, O and P divided ₹ 44352 among themselves. M took $\frac{3}{8}$th of the money, N took $\frac{1}{6}$th of the remaining amount and rest was divided among O and P in the ratio of 3 : 4 respectively. How much did O get as his share?

(a) ₹ 9600 (b) ₹ 10600
(c) ₹ 10300 (d) ₹ 8700
(e) ₹ 9900

29. Pure milk costs ₹ 16 per litre. After adding water the milkman sells the mixture ₹ 15 per litre and thereby makes a profit of 25%. In what respective ratio does he mix milk with water?

(a) 3:1 (b) 4 : 3
(c) 3 : 2 (d) 5 : 3
(e) 4 : 1

30. l/3rd the diagonal of a square is $3\sqrt{2}$ m. What is the measure of the side of the concerned square?

(a) 12 m (b) 9m
(c) 18 m (d) 6m
(e) 7m

DIRECTIONS (Qs. 31-35) : What will come in place of question mark (?) in the given number series?

31.. 37, ?, 103, 169, 257, 367

(a) 61 (b) 59
(c) 67 (d) 55
(e) 71

32. 4, 6, 34, ?, 504, 1234

(a) 194 (b) 160
(c) 186 (d) 156
(e) 172

33. 3, ?, 14, 55, 274, 1643

(a) 11 (b) 5
(c) 6 (d) 8
(e) 7

34. 960, 839, 758, 709, ?, 675
(a) 696 (b) 700
(c) 688 (d) 678
(e) 684

35. 61, 72, ?, 73, 59, 367, 74, 58
(a) 70 (b) 60
(c) 71 (d) 62
(e) 63

36. Two pipes can full a tank in 10 h and 16 h respectively. A third pipe can empty the tank in 32 h. If all the three pipes function simultaneously, then in how much time the tank will be full? (in hours)
(a) $7\frac{11}{21}$ (b) $7\frac{13}{21}$
(c) $8\frac{4}{21}$ (d) $6\frac{5}{14}$
(e) $8\frac{9}{14}$

37. A merchant bought some goods worth ₹ 6000 and sold half of them at 12% profit. At what profit per cent should he sell the remaining goods to make and overall profit of 18%?
(a) 24 (b) 28
(c) 18 (d) 20
(e) 26

38. A and B are two numbers. 6 times of square of B is 540 more than the square of A. If the respective ratio between A and B is 3 : 2, what is the value of B?
(a) 10 (b) 12
(c) 16 (d) 8
(e) 14

39. The perimeter of a rectangle whose length is 6 m more than its breadth is 84 m. What would be the area of a triangle whose base is equal to the diagonal of the rectangle and whose height is equal to the length of the rectangle? (in m^2)
(a) 324 (b) 372
(c) 360 (d) 364
(e) 348

40. 56 workers can finish a piece of work in 14 days. If the work is to be completed in 8 days, then how many extra workers are required?
(a) 36 (b) 48
(c) 44 (d) 42
(e) 32

DIRECTIONS (Qs. 41-45) : Study the table carefully and answer the given questions.

Number of Pages Printed by 6 Printers in 5 Different Weeks

Week \ Printer	A	B	C	D	E	F
1st	664	618	628	552	638	419
2nd	569	441	519	438	621	537
3rd	440	614	503	527	541	742
4th	256	563	347	651	412	321
5th	717	429	598	582	519	693

41. What is the respective ratio between the number of pages printed by Printer B in 2nd week and the number of pages printed by Printer F in 5th week?
(a) 4 : 9 (b) 11 : 13
(c) 9 : 13 (d) 7 : 11
(e) 9 : 11

42. What is the average number of pages printed by all the given printers in 4th week?
(a) 375 (b) 425
(c) 415 (d) 430
(e) 390

43. Which of the following printer printed maximum number of pages in all the given weeks together?
(a) Printer A (b) Printer E
(c) Printer D (d) Printer C
(e) Printer F

44. Number of pages printed by Printer A in 3rd week is what per cent of the total number of pages printed by Printed D in all the given weeks?
(a) 22 (b) 18
(c) 12 (d) 14
(e) 16

45. What is the difference between the total number of pages printed by Printer E in 1st, 2nd and 4th week together and total number of pages printed by Printer C in all the given weeks together?
(a) 952 (b) 878
(c) 924 (d) 934
(e) 918

REASONING ABILITY

46. Four of the following five are alike in a certain way and hence from a group. Which of the following **does not** belong to that group ?
(a) Walk (b) Cry
(c) Play (d) Study
(e) Alive

47. How many such pairs of letters are there in the word 'VIRTUAL', each of which has as many letters between them in the word (in both forward and backward direction) as they have between them in the English alphabetical series ?
(a) None (b) One
(c) Two (d) Three
(e) More than three

48. How many meaningful English words can be formed with the letters 'ILP' using all the letters only once in each word ?
(a) None (b) One
(c) Two (d) Three
(e) More than three

49. If each alternate letter in the word 'FLIPPER' starting with F is changed to the next letter in the English alphabetical series and each of the remaining letters is changed to the previous letters in the English alphabetical series then how many letters will appear more than once in the new arrangement ?
(a) None (b) One
(c) Two (d) Three
(e) Four

50. Pointing to a girl, Mr. Arun said. "She is the daughter of my mother's only child". How is the girl related to Mr. Arun ?
(a) Sister (b) Mother
(c) Cousin (d) Daughter
(e) Cannot be determined

DIRECTIONS (Qs. 51-55) : Study the following information to answer the given questions :

Eight friends A, B, C, D, E, F, G and H are sitting around a circle facing the centre, not necessarily in the same order. F sits fourth to the left of B. A and H are immediate neighbours of F. C sits third to the left of A. G sits third to the right of E.

51. What is D's position with respect to B ?
(a) Immediate left (b) Sixth to the right
(c) Second to the left (d) Seventh to the left
(e) Fifth to the right

52. What arc the immediate neighbours of G ?
(a) F and H (b) A and F
(c) C and H (d) A and B
(e) B and C

53. If C is related to E in a certain way and similarly F is related B in the same way, to whom is A related to ?
(a) H (b) D
(c) G (d) C
(e) Non of these

54. Four of the following five are alike in a certain way based on their seating positions in the above arrangement and so form a group. Which is the one that **does not** belong to the group ?
(a) FE (b) HA
(c) DG (d) BE
(e) CF

55. If all the eight friends are made to sit alphabetically in the clockwise direction starting from A, positions of how many will remain unchanged (excluding A) ?
(a) None (b) One
(c) Two (d) Three
(e) Four

DIRECTIONS (Qs. 46-50) : In each question below arc two statements followed by two conclusions numbered I and II. You have to take the two given statements to be true even if they seem to be at variance from commonly known facts and then decide which of the given conclusions logically follows from the given statements disregarding commonly known facts.

Give answer (a) if **only** conclusion 1 follows.
Give answer (b) if **only** conclusion II follows.
Give answer (c) if **either** conclusion I or conclusion II follows.
Give answer (d) if **neither** conclusion I nor conclusion II follows.
Give answer (e) if **both** conclusions I and II follow.

56. Statements :
Some windows arc grills.
All glasses are grills.
Conclusions :
I. All grills are windows.
II. At least some grills are glasses.

57. Statements :
Some painters are artists. Some dancers are painters.
Conclusions :
I. All artists are dancers.
II. All painters are dancers.

58. Statements :
All cabins are rooms.
All rooms are buildings.
Conclusions:
I. All buildings are rooms.
II. All cabins are buildings.

59. Statements :
All rings are necklaces.
No necklace is a bracelet.
Conclusions:
I. No ring is a bracelet.
II. All necklaces are rings.

60. Statements :
All hands are arms.
Some hands are muscles.
Conclusions:
I. Some muscles are arms.
II. All muscles are arms.

DIRECTIONS (Qs. 61-65) : Study the following information to answer the given questions :

Seven friends - L, M, N, O, P, Q and R are sitting in a straight line facing North, not necessarily in the same order. M sits fifth to the right of O. P sits third to the right of L. Both L and P do not sit at the extreme ends of the line. Q and R are immediate neighbours of each other. N sits third to the left of Q.

61. What is O's position with respect of R ?
(a) Second to the right (b) Third to the left
(c) Second to the left (d) Third to the right
(e) None of these

62. Which of the following represents the friends sitting at the extreme ends of the line?
(a) O, M (b) Q, O
(c) N, M (d) Q, N
(e) None of these

63. If all the seven friends are made to sit in alphabetical order from **left to right,** the positions of how many will remain unchanged ?
(a) Four (b) Three
(c) One (d) Two
(e) None

64. Who sits exactly in the middle of the row ?
(a) P (b) L
(c) Q (d) R
(e) None of these

65. Four of the following five are alike in a certain way based on their seating positions in the above arrangement and so form a group. Which is the one that **does not** belong to the group ?
(a) MP (b) RQ
(c) ON (d) LN
(e) QL

DIRECTIONS (Qs. 66-68) : In each question below is given a group of numbers/symbols followed by five combinations of letter codes numbered (a), (b), (c), (d) and (e). You have to find out which of the combinations correctly represents the group of numbers/ symbols based on the following coding system and the conditions and mark the number of that combination as your answer.

Number/ Symbols	9	4	&	5	%	3	#	7	6	@	8	+	2	$
Letter Codes	X	P	J	H	B	D	K	F	S	T	N	G	R	L

Conditions:
(i) If the first element is a symbol and the last element is a number, then the codes for both are to be interchanged.

(ii) If both the first and last elements are symbols, then the last element is to be coded as the code for the first element.
(iii) If the group of elements contains only one symbol, then that symbols is to be coded as A.

66. 28%956
(a) RNBXHS (b) RNAXSH
(c) RNBXSH (d) RNAXHS
(e) RNASHX

67. ©62+74
(a) PSRGFT (b) TSRFGP
(c) PSRFGT (d) PRSGFT
(e) TSRGFP

68. +5963%
(a) GHXSDG (b) GSHXDB
(c) GHXDSG (d) GHSXDB
(e) GXHSDG

DIRECTIONS (Qs. 69-72) : In these questions, relationships between different elements is shown in the statements. These statements are followed by two conclusions.

Give answer (a) if **only** conclusion I follows.
Give answer (b) if **only** conclusion II follows.
Give answer (c) if **either** conclusion I or conclusion II follows.
Give answer (d) if **neither** conclusion I nor conclusion II follows.
Give answer (e) if **both** conclusions I and II follow.

69. **Statement :** A < L < T < R ≤ H > K
Conclusions : I. H > L
II. K > T

70. **Statement :** P = N > D ≥ G < B = J
Conclusions : I. G < P
II. G < J

71. **Statement :** F ≤ C ≥ V = Z < X = U
Conclusions : I. V < U
II. Z < F

72. **Statement :** Q ≤ E = I > N ≥ R ≥ S
Conclusions: I. E = S
II. S ≤ N

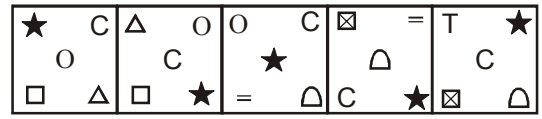
73. Which of the following symbols should replace question mark (?) in the given expression in order to make the expressions 'A > D' and 'F ≥ C' definitely true?
A > B ≥ C ? D ≤ E = F
(a) > (b) <
(c) ≤ (d) =
(e) Either = or ≥

74. Which of the following expressions is definitely true if the given expressions 'R < P' as well as 'S > Q' are definitely true?
(a) P > Q = R ≤ T < S (b) S > T ≥ R > Q < P
(c) Q > R ≤ T > P ≥ S (d) S > T ≥ R > Q > P
(e) None of these

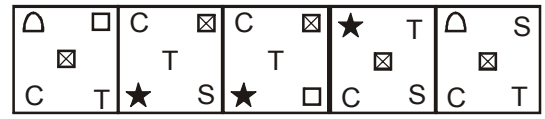
75. Read the following information carefully and answer the question which follows:
'A × B' means 'A is the father of B'.
'A + B' means 'A is the daughter of B'.
'A ÷ B' means 'A is the son of B'.
'A – B' means 'A is the sister of B'.
What will come in place of question mark to establish that P is the son-in-law of S in the following expression?
P × Q + R – T ? S
(a) + (b) ×
(c) – (d) ÷
(e) Either + or ÷

DIRECTIONS (Qs. 76-80) : In each of the questions given below which one of the five answer figures on the right should come after the problem figures on the left, if the sequence were continued?

76. **Problem figures**

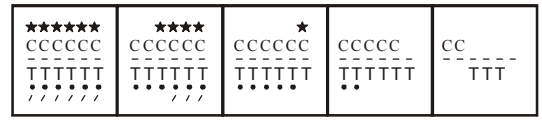


Answer figures

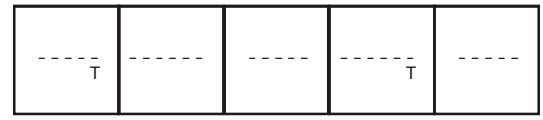


(a) (b) (c) (d) (e)

77. **Problem figures**

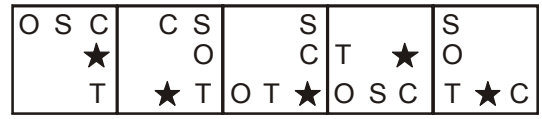


Answer figures

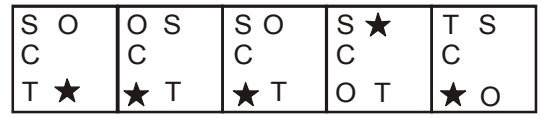


(a) (b) (c) (d) (e)

78. **Problem figures**

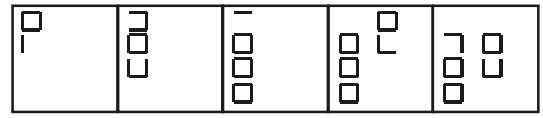


Answer figures

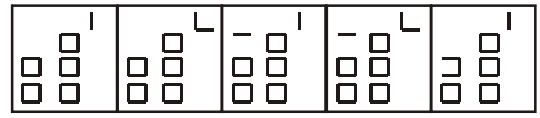


(a) (b) (c) (d) (e)

79. **Problem figures**

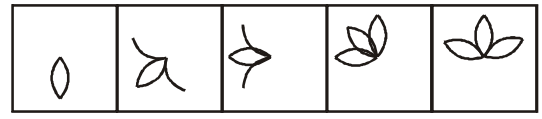


Answer figures

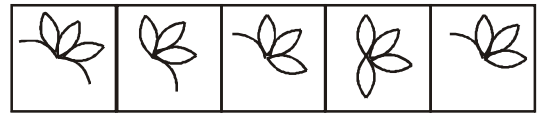


(a) (b) (c) (d) (e)

80. **Problem figures**



Answer figures



(a) (b) (c) (d) (e)

HINTS & EXPLANATIONS

1. (e) $4\frac{1}{2}+\left(1\div 2\frac{8}{9}\right)-3\frac{1}{13}=?$

$4+\frac{1}{2}+1\times\frac{9}{26}-\left(3+\frac{1}{13}\right)$

$4+\frac{1}{2}+\frac{9}{26}-3-\frac{1}{13}$

$1+\frac{1}{2}-\frac{1}{13}+\frac{9}{26}=\frac{26+13-2+9}{26}=1\frac{10}{13}$

2. (c) $\frac{6\times 136\div 8+132}{628\div 16-26.25}$

$=\frac{6\times 136\times\frac{1}{8}+132}{628\times\frac{1}{16}-26.25}$

$=\frac{102+132}{39.25-26.25}=\frac{234}{13}=18$

3. (d) $\{(441)^{1/2}\times 207\times(343)^{1/3}\}\div\{(14)^2\times(529)^{1/2}\}$
$\{(21^2)^{1/2}\times 207\times(7^3)^{1/3}\}\div\{(14)^2\times(23^2)^{1/2}\}$
$(21\times 207\times 7)\div((14)^2\times 23)$

$\frac{21\times 207\times 7}{14\times 14\times 23}=6\frac{3}{4}$

4. (c) $\left\{\sqrt{7744}\times(11)^2\right\}\div(2)^3=(?)^3$

$\left\{88\times(11)^2\right\}\div(2)^3$

$88\times(11)^2\times\frac{1}{8}=(11)^3$

5. (e) $(4356)^{1/2}\div\frac{11}{4}=\sqrt{?}\times 6$

$(66^2)^{1/2}\times\frac{4}{11}$

$66\times\frac{4}{11}=4\times 6=\sqrt{16}\times 6$

$?=16$

6. (d) $\frac{3}{8}\text{of}\left\{4624\div(564-428)\right\}=?$

$\frac{3}{8}\times\left\{4624\times\frac{1}{136}\right\}$

$\frac{3}{8}\times 34=12\frac{3}{4}$

7. (c) $456\div 24\times 38-958+364=?$

$=456\times\frac{1}{24}\times 38-958+364=722-958+364$

$=128$

8. (b) $(43)^2+841=(?)^2+1465$
$1849+841=(?)^2+1465$
$1225=(?)^2$
$?=35$

9. (c) $3\frac{3}{8}\times 6\frac{5}{12}-2\frac{3}{16}\times 3\frac{1}{2}$

$\left(3+\frac{3}{8}\right)\times\left(6+\frac{5}{12}\right)-\left(2+\frac{3}{16}\right)\times\left(3+\frac{1}{2}\right)$

$\frac{27}{8}\times\frac{77}{12}-\frac{35}{16}\times\frac{7}{2}$

$\frac{2079}{96}-\frac{245}{32}=\frac{2079-735}{96}=14$

10. (c) $(34.5\times 14\times 42)\div 2.8$

$=34.5\times 14\times 42\times\frac{1}{2.8}$

$=7245$

11. (d) $(216)^4\div(36)^4\times(6)^5=(6)^?$
$(6^3)^4\div(6^2)^4\times(6)^5$

$(6^3)^4\times\frac{1}{6^8}\times(6)^5$

$6^{12+5-8}=6^9$

12. (c) $\frac{\sqrt{4356}\times\sqrt{?}}{\sqrt{6084}}=11$

$\frac{\sqrt{66\times 66}\times\sqrt{?}}{\sqrt{78\times 78}}=11$

$\frac{66\times\sqrt{?}}{78}=11$

$\sqrt{?}=\frac{11\times 78}{66}$

$\sqrt{?}=13$

$?=169$

13. (a) $\left(3\frac{6}{17}\div 2\frac{7}{34}-1\frac{9}{25}\right)=(?)^2$

$\frac{57}{17}\times\frac{34}{75}-\frac{34}{25}$

$\frac{19\times 2}{25}-\frac{34}{25}=\frac{4}{25}=\left(\frac{2}{5}\right)^2$

$?=\frac{2}{5}$

14. (b) $(1097.63+2197.36-260.24)\div 3.5$

$(3294.99-2607.24)\times\frac{1}{3.5}$

$687.75\times\frac{1}{3.5}=196.5$

15. (b) $\frac{1}{11}\times\left[(17424)^{1/2}\times\frac{1}{(66)^2}\times 3^3\right]$

$\frac{1}{11}\times\left[(132^2)^{1/2}\times\frac{1}{(66)^2}\times 3^3\right]$

$\frac{1}{11}\times\frac{132}{(66)^2}\times 3^3=\frac{2\times 27}{11\times 66}=\left(\frac{3}{11}\right)^2$

11

16. (b) $? = (13.001)^3 = (13)^3$

$= 2197 = 2200$

17. (d) $? = 55\times 55 + 5$

$= 3025 + 5 = 3030$

18. (a) $? = \frac{100\times 50}{100} \div 50 = 1$

19. (a) $? = 999 + 900 - 350$

$= 1549$

20. (e) $? = 2^3\times(2)^{-2}\div(4)^{-4}$

$= \frac{2}{(4)^{-4}} = 2\times 2^8 = 2^9 = 512$

21. (b) I. $x^2 - 11x - 24 = 0$

$x^2 - 8x - 3x - 24 = 0$

$x(x-8) - 3(x-8) = 0$

$(x-8)(x-3) = 0$

$\therefore$ $x = 8$ or 3

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

$2y^2 - 6y - 3y + 9 = 0$

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

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

$\therefore$ $y = \frac{3}{2}$ or 3

So $x \geq y$

22. (c) I. $x^3\times 13 = x^2\times 247$

or $\frac{x^3}{x^2} = \frac{247}{13}$

$x = 19$

II. $y^{1/3}\times 14 = 294\div y^{2/3}$

or, $(y)^{1/3}\times(y)^{2/3} = \frac{294}{14}$

or, $(y)^{\frac{1}{3}+\frac{2}{3}} = 21$ $\therefore$ $y = 21$

So $y > x$

23. (d) I. $\frac{12\times 4}{(x)^{4/7}} - \frac{3\times 4}{(x)^{4/7}} = (x)^{10/7}$

or, $48 - 12 = (x)^{10/7}\times(x)^{4/7}$

or, $36 = (x)^{\frac{10+4}{7}} = (x)^2$

$x = \pm 6$

II. $y^3 + 783 = 999$

$y^3 = 999 - 783$

$y^3 = 216$

$y = \pm 6$ $\therefore$ $y \geq x$

24. (e) I. $\sqrt{500}\,x + \sqrt{402} = 0$

or, $\sqrt{500}\,x = -\sqrt{402}$

By squaring both sides, we get

$500x^2 = 402$

$x = \sqrt{\frac{402}{500}} = \pm 0.897$

II. $\sqrt{360}\,y + (200)^{\frac{1}{2}} = 0$

or, $(200)^{\frac{1}{2}} = -\sqrt{360}\,y$

By squaring both sides, we get

$\left((200)^{\frac{1}{2}}\right)^2 = (-\sqrt{360}\,y)$

$200 = 360\,y^2$

$y = \sqrt{\frac{200}{360}} = \pm 0.75$

Relationship cannot established.

25. (c) I. $(17)^2 + 144 + 18 = x$

$289 + 8 = x$

$\therefore$ $x = 297$

II. $(26)^2 - 18\times 21 = y$

$676 - 378 = y$

$\therefore$ $298 = y$

So, $y > x$.

26. (d) $\frac{A+12}{B+12} = \frac{3}{4}$

$A = \frac{15}{4}C$

$A = \frac{15}{4}\times 10 = 37.5$

$\frac{37.5+12}{B+12} = \frac{3}{4}$

$B = 54$

27. (d) Let x be the price of one capsule

y be the total number of capsule.

$xy = 216$ ...(1)

$(x-10)(y+15) = 216$ ...(2)

From eqs (1) and (2)

$\left(\frac{216}{y} - 10\right)(y+15) = 216$

$(216 - 10y)(y+15) = 216y$

$216y + 216\times 15 - 10y^2 - 150y = 216y$

$216y + 3240 - 10y^2 - 150y = 216y$

$-10y^2 - 150y + 3240 = 0$

$y^2 + 15y - 324 = 0$

$y = 12$

28. (e) M's share $= 44352 \times \frac{3}{8} = 16632$

Remaining after M's share = 27720

N's share $= 27720 \times \frac{1}{6} = 4620$

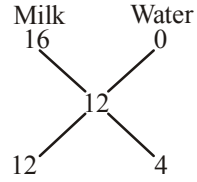
Remaining after M & N's share = 23100

$\frac{O}{P} = \frac{3}{4} \Rightarrow$ O's share $= 23100 \times \frac{3}{7} = 9900$

29.. (a) $\because$ SP of the mixture = ₹ 15

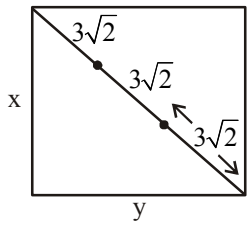
$\therefore$ CP of the mixture $= 15 \times \frac{100}{125} =$ ₹ 12

Now, by the rule of mixture,



$\therefore$ Ratio of milk and water in the mixture
= 12 : 4 = 3 : 1

30. (b)

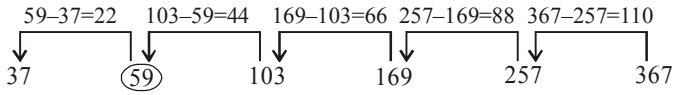


$x^2 + y^2 = (9\sqrt{2})^2$

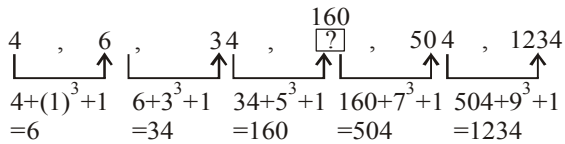
$2x^2 = 81 \times 9$

$x = 9$

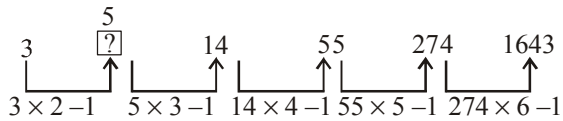
31. (b)



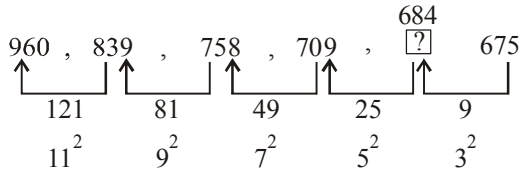
32. (b)



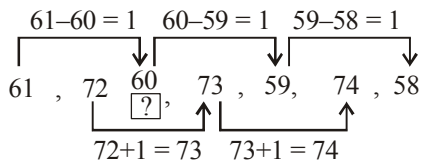
33. (b)



34. (e)



35. (b)



This is mixed series.

36. (b) 10 hr A pipe $\rightarrow$1
16 hr B pipe $\rightarrow$1
32 hr C pipe $\rightarrow$1

$\frac{1}{10} + \frac{1}{16} - \frac{1}{32} = \frac{21}{160}$

$\frac{160}{21} = 7\frac{13}{21}$ hr

37. (a) Profit on all the goods = 18% of 6000 = ₹ 1080
Profit on half of the goods = 12% of 3000 = ₹ 360
$\therefore$ Profit on remaining half of the objects
= 1080 – 360 = ₹ 720

Hence, required profit percentage $= \frac{720}{3000} \times 100\%$
= 24 %

38. (b) $6B^2 = A^2 + 540$

$\frac{A}{B} = \frac{3}{2}$

$A = \frac{3B}{2}$

$6B^2 = \frac{9B^2}{4} + 540$

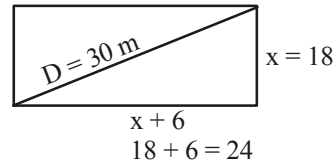
$3.75\,B^2 = 540$

$B = \sqrt{144} = 12$

39. (c) $x + x + x + 6 + x + 6 = 84$

$4x + 12 = 84$

$x = 18$ m



$D^2 = (x+6)^2 + x^2$

$D^2 = 24^2 + 18^2$

$D^2 = 576 + 324 = 900$

$D = 30$ m

Base of triangle = 30 m

Height of triangle = x + 6 = 24 m

Area of triangle $= \frac{1}{2} \times 30 \times 24 = 360$ m²

40. (d) Here, $M_1 = 56, D_1 = 14, M_2 = ?, D_2 = 8$
Using

$M_1D_1 = M_2D_2$,

$56 \times 14 = M_2 \times 8$

$\Rightarrow M_2 = 98$

Hence, extra workers to be required
= 98 – 56 = 42

41. (d) Ratio

$= \frac{\text{number of pages printed by printer B in 2nd week}}{\text{number of pages printed by printer F in } 5^{th} \text{ week}}$

42. (b) Average number of pages printed by all the printer =

$= \frac{256 + 563 + 347 + 651 + 412 + 321}{6} = 425$

43. (c)

Printer / Week	A	B	C	D	E	F
1st	664	618	628	552	638	419
2nd	569	441	519	438	621	537
3rd	440	614	503	527	541	742
4th	256	263	347	651	412	321
5th	717	429	598	582	519	693
Total up to 5th week	2646	2365	2595	2750	2731	2712

Printer D printed maximum pages.

44. (e) Required percentage (%) =

$$= \frac{\text{Pages printed by A in 3rd week}}{\text{Total page printed by D from 1st to 5th weeks}} \times 100$$

$$= \frac{440}{2750} \times 100 = 16\%$$

45. (c) Required difference = Total no. of pages printed by printer C in all given weeks – Total no. of pages by E in 1st, 2nd, 4th week
$= 2595 - (638 + 621 + 412) = 924$

46. (e) Alive is different from the other four words. Walk, Cry, Play and Study are various actions of human being. Alive means 'living', 'not dead', 'in existence', 'continuing' etc.

47. (b)

22	9	18	20	21	I	12
V	I	R	T	U	A	L

48. (b) Meaningful word ⇒ LIP

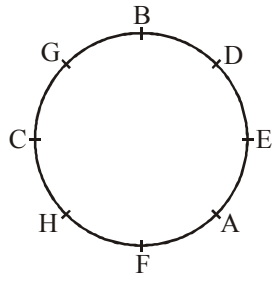
49. (a)

F	L	I	P	P	E	R
+1 ↓	–1 ↓	+1 ↓	–1 ↓	+1 ↓	–1 ↓	+1 ↓
G	K	J	O	Q	D	S

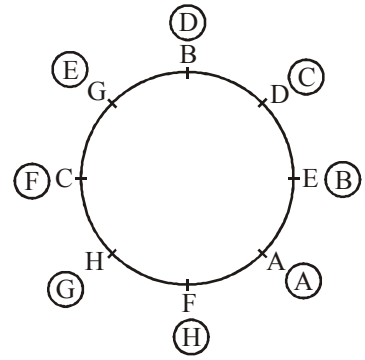
50. (d) Mother → only child
Arun (Himself) → daughter/She

Therefore, the girl is the daughter of Arun.

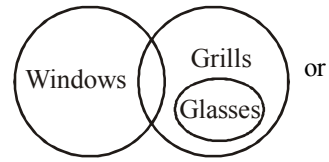
(51-55) :



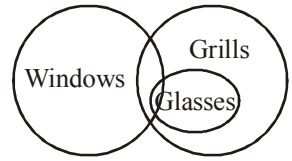
51. (a) D is to the immediate left of B.
52. (e) B and C are immediate neighbours of G.
53. (c) C is sitting just opposite to E. F is sitting just opposite to B. Similarly, A is sitting just opposite to G.
54. (d) Except in the pair BE, in all other pairs the first person is second to the left of the second person. B is second to the right of E.
55. (a)



56. (d)

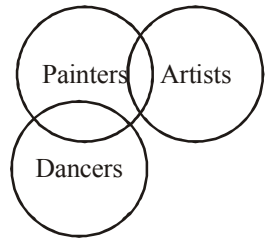


or

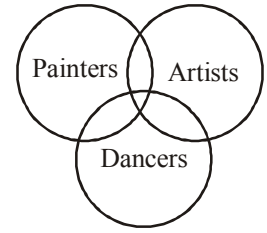


Conclusion: I. False
II. False

57. (d)

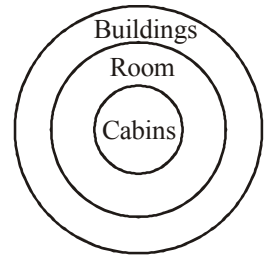


or



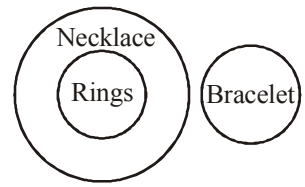
Conclusion: I. False
II. False

58. (b)



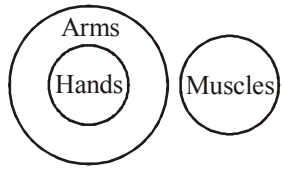
Conclusion: I. False
II. True

59. (a)



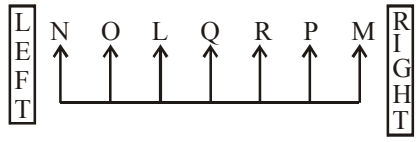
Conclusion: I. True
II. False

60. (a)

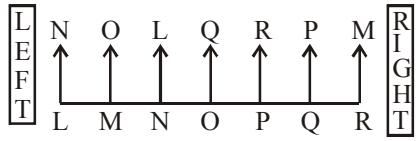


Conclusion : I. True
II. False

(61-65) :



61. (b) O is third to the left of R.
62. (c) N and M are sitting at the extreme ends of the line.
63. (e)



64. (c) Q is sitting exactly in the middle of the row.
65. (d) Except LN, in all others the first person is to immediate right of the second person. L is second to the right of N.
66. (d)

2	8	%	9	5	6
↓	↓	↓	↓	↓	↓
R	N	A	X	H	S

Condition (iii) is applicable.

67. (a)

@	6	2	+	7	4
↓	↓	↓	↓	↓	↓
P	S	R	G	F	T

Condition (i) is applicable.

68. (a)

+	5	9	6	3	%
↓	↓	↓	↓	↓	↓
G	H	X	S	D	G

Condition (ii) is applicable.

69. (a) $H > K \geq R > T > L$
Conclusions: I. $H > L$: True
II. $K > T$: Not True

70. (e) $P = N > D \geq G < B = J$
Conclusions: I. $G < P$: True
II. $G < J$: True

71. (d) $F \leq C \geq V = Z > X = U$
Conclusions: I. $V < U$: Not True
II. $Z < F$: Not True

72. (b) $Q \leq E = 1 > N \geq R \geq S$
Conclusions : I. $E = S$: Not True
II. $S \leq N$: True

73. (d) In the expression $A > B \geq C \boxed{=} D \leq E = F$ to make $A > D$ true and $F \geq C$ true.

74. (a) Trying option (a)

$P > Q = R \leq T < S$

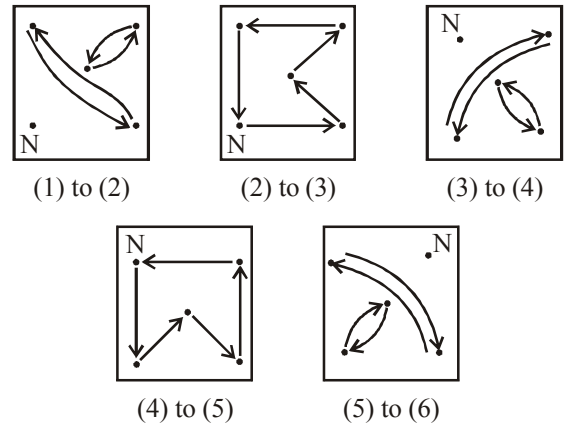
$P > R$

$R < S$ As $Q = R$ so $Q < S$

Both the expressions are true in option (a)

75. (e) $P \times Q$ means P is a father of Q.
$Q + P$ means Q is daughter of R
$R - T$ means R is sister of T.
It is clear that P is husband of R. If he establish that T is either son or daughter of S, then P would be son-in-law of S.
$T + S$ means T is daughter of S.
$T \div S$ means T is son of S.

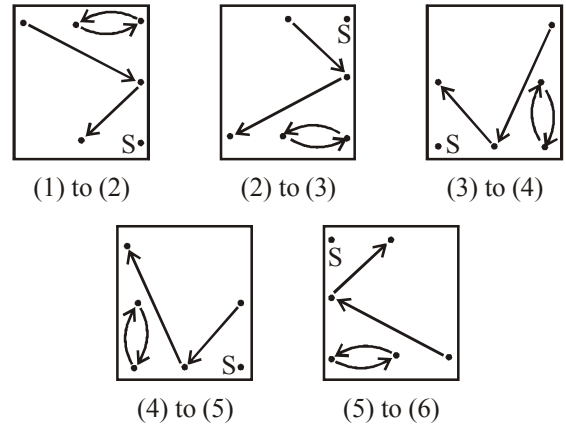
76. (e) Next figure of each question figure is changed by following way and N is replaced by a new design.



Similarly next figure is (e)

77. (d) In next figure of each question figure, there are two, three ..... design in upper part and three, four design in lower part is eliminate and hence next figure is (d).

78. (c) Next figure of earn question figure follows following ways



Accordingly next figure is (c)

79. (c) In next figure of each question figure there are 1, 2, 1, 2 ..... line in left upper part are eliminated in each figure and 6, 5, 6, 5, ... line are added in forward most direction, and a square is made by four lines. Hence accordingly option (c) is next figure.

80. (a) Next figure of each question figure is rotated clock-wise by 45° and one curve is added each side, hence accordingly next figure is (a).