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Nurturing Ambitions

20 Practice Sets Workbook

IBPS-CWE

RRB

Office Scale I

Preliminary Exam

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CONTENT

PRACTICE SET 1

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. 1-5): Find out the approximate value which should come in place of the question mark in the following questions. (You are not expected to find the exact value.)

1. $\sqrt{45689} = ?$

(a) 180 (b) 415
(c) 150 (d) 210
(e) 300

2. $\frac{(10008.99)^2}{10009.001} \times \sqrt{3589} \times 0.4987 = ?$

(a) 3000 (b) 300000
(c) 3000000 (d) 5000
(e) 9000000

3. $399.9 + 206 \times 11.009 = ?$

(a) 2800 (b) 6666
(c) 4666 (d) 2400
(e) 2670

4. $\frac{2}{5} + \frac{7}{8} \times \frac{17}{19} \div \frac{6}{5} = ?$

(a) 1 (b) $\frac{1}{2}$
(c) $2\frac{1}{2}$ (d) $\frac{3}{4}$
(e) $\frac{9}{11}$

5. $(299.99999)^3 = ?$

(a) 27000000 (b) 9000000000
(c) 180000 (d) 2.7×10^9
(e) 2700000

DIRECTIONS (Qs. 6-10) : What will come in place of the question mark (?) in the following equations ?

6. $\frac{117 \times 117 \times 117 - 98 \times 98 \times 98}{117 \times 117 + 117 \times 98 + 98 \times 98} = ?$

(a) 215 (b) 311 (c) 19 (d) 29
(e) None of these

7. If $\frac{a}{b} = \frac{4}{3}$, then $\frac{3a + 2b}{3a - 2b} = ?$

(a) 6 (b) 3 (c) 5 (d) –1
(e) None of these

8. $\frac{(3.537 - 0.948)^2 + (3.537 + 0.948)^2}{(3.537)^2 + (0.948)^2} = ?$

(a) 4.485 (b) 2.589 (c) 4 (d) 2
(e) None of these

9. $\frac{112}{\sqrt{196}} \times \frac{\sqrt{576}}{12} \times \frac{\sqrt{256}}{8} = ?$

(a) 8 (b) 12 (c) 16 (d) 32
(e) None of these

10. $\frac{\sqrt{5} - \sqrt{3}}{\sqrt{5} + \sqrt{3}} = ?$

(a) $4 + \sqrt{15}$ (b) $4 - \sqrt{15}$
(c) $\frac{1}{2}$ (d) 1
(e) None of these

DIRECTIONS (Qs. 11-15) : Identify which number is wrong in the given series.

11. 2, 3, 4, 4, 6, 8, 9, 12, 16.
(a) 3 (b) 9
(c) 6 (d) 12
(e) None of these

12. 3, 4, 10, 32, 136, 685, 41
(a) 136 (b) 10
(c) 4116 (d) 32
(e) None of these

13. 69, 55, 26, 13, 5
(a) 26 (b) 13
(c) 5 (d) 55
(e) None of these

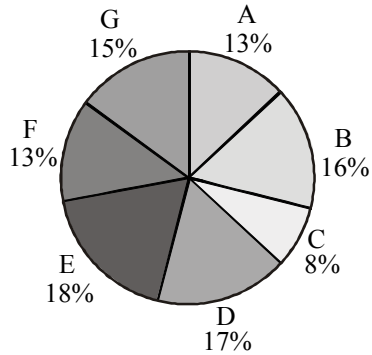
14. 24576, 6144, 1536, 386, 96, 4
(a) 386 (b) 6144
(c) 96 (d) 1536
(e) None of these

15. 11, 5, 20, 12, 40, 26, 74, 54
(a) 5 (b) 20
(c) 40 (d) 26
(e) None of these

DIRECTIONS (Qs. 16-20) : Study the following chart to answer the questions given below.

Villages	% population below poverty line
A	45
B	52
C	38
D	58
E	46
F	49
G	51

Proportion of population of seven villages in 2014



16. In 2015, the population of villages A as well as B is increased by 10% from the year 2014. If the population of village A in 2014 was 5000 and the percentage of population below poverty line in 2015 remains same as in 2014, find approximately the population of village B below poverty line in 2015.
(a) 4000 (b) 45000
(c) 2500 (d) 3500
(e) None of these

17. If in 2016 the population of village D is increased by 10% and the population of village G is reduced by 5% from 2014 and the population of village G in 2014 was 9000, what is the total population of villages D and G in 2016?
(a) 19770 (b) 19200
(c) 18770 (d) 19870
(e) None of these

18. If in 2014 the total population of the seven villages together was 55,000 approximately, what will be population of village F in that year below poverty line ?
(a) 3000 (b) 2500
(c) 4000 (d) 3500
(e) None of these

19. If the population of village C below poverty line in 2014 was 1520, what was the population of village F in 2014?
(a) 4000 (b) 6000
(c) 6500 (d) 4800
(e) None of these

20. The population of village C is 2000 in 2014. What will be the ratio of population of village C below poverty line to that of the village E below poverty line in that year ?
(a) 207 : 76 (b) 76 : 207
(c) 152 : 207 (d) Data inadequate
(e) None of these

DIRECTIONS (Qs. 21-25): These questions are based on the table and information given below.

There are 6 refineries, 7 depots and 9 districts. The refineries are BB, BC, BD, BE, BF and BG. The depots are AA, AB, AC, AD, AE, AF and AG. The districts are AAA, AAB, AAC, AAD, AAE, AAF, AAG, AAH ad AAI. Table A gives the cost of transporting one unit from refinery to depot. Table B gives the cost of transporting one unit from depot to a district.

Table A

	BB	BC	BD	BE	BF	BG
AA	928.2	537.2	567.8	589.9	589.9	800.1
AB	311.1	596.7	885.7	759.9	759.9	793.9
AC	451.1	0	320.1	780.1	720.7	1000
AD	371.1	150.1	350.1	750.1	650.4	980.1
AE	1137.3	314.5	0	1158	1158	1023
AF	617.1	516.8	756.5	1066	1066	406.3
AG	644.3	299.2	537.2	1093	1093	623.9

Table B

	AA	AB	AC	AD	AE	AF	AG
AAA	562.7	843.2	314.5	889.1	0	754.8	537.2
AAB	532.7	803.2	284.5	790.5	95.2	659.6	442
AAC	500.7	780.2	0	457.3	205.7	549.1	331.5
AAD	232.9	362.1	286.2	275.4	523.6	525.3	673.2
AAE	345.1	268.6	316.2	163.2	555.9	413.1	227.8
AAF	450.1	644.3	346.2	372.3	933.3	402.9	379.1
AAG	654.5	0	596.7	222.7	885.7	387.6	348.5
AAH	804.1	149.6	627.2	360.4	1035.3	537.2	498.1
AAI	646	255	433.5	137.7	698.7	112.2	161.5

21. What is the least cost of sending one unit from any refinery to any district?
(a) 95.2 (b) 0
(c) 205.7 (d) 284.5
(e) None of these

22. What is the least cost of sending one unit from any refinery to the district AAB?
(a) 0 (b) 284.5
(c) 95.2 (d) 294.8
(e) None of these

23. What is the least cost of sending one unit from refinery BB to any district?
(a) 284.5 (b) 311.1
(c) 451.1 (d) 297.5
(e) None of these

24. What is the least cost of sending petrol from refinery BB to district AAA?
(a) 765.6 (b) 1137.3
(c) 1154.3 (d) 1174.8
(e) None of these

25. How many possible ways are there for sending petrol from any refinery to any district?
(a) 63 (b) 42
(c) 54 (d) 378
(e) None of these

DIRECTIONS (Qs. 26-30) : In the following questions, two equations I and II are given. You have to solve both the equations and give answer.

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

26. I. $\sqrt{289x}+\sqrt{25}=0$
II. $\sqrt{676y}+10=0$

27. I. $8x^2-78x+169=0$
II. $20y^2-117y+169=0$

28. I. $\frac{15}{\sqrt{x}}+\frac{9}{\sqrt{x}}=11\sqrt{x}$
II. $\frac{\sqrt{y}}{4}+\frac{5\sqrt{y}}{12}=\frac{1}{\sqrt{y}}$

29. I. $\frac{8}{\sqrt{x}}+\frac{6}{\sqrt{x}}=\sqrt{x}$
II. $y^3-\frac{(14)^2}{\sqrt{y}}=0$

30. I. $x^2-208=233$
II. $y^2-47+371=0$

31. A reduction of 20% in the price of sugar enables a purchaser to obtain $2\frac{1}{2}$ kg more for ₹ 160. Find the original price per kg of sugar.
(a) ₹ 12 (b) ₹ 20 (c) ₹ 16 (d) ₹ 18
(e) None of these

32. Mrs. X spends ₹ 535 in purchasing some shirts and ties for her husband. If shirts cost ₹ 43 each and the ties cost ₹ 21 each, then what is the ratio of the shirts to the ties, that are purchased ?
(a) 1 : 2 (b) 2 : 1
(c) 2 : 3 (d) 3 : 4
(e) None of these

33. Anish spends 25% of his salary on house rent, 5% on food, 15% on travel, 10% on clothes and the remaining amount of ₹ 22,500 is saved. What is Anish's salary ?
(a) ₹ 40,000 (b) ₹ 40,500
(c) ₹ 45,500 (d) ₹ 50,000
(e) None of these

34. $\frac{2}{5}$ th of Anil's salary is equal to Bhuvan's salary and seven-ninth of Bhuvan's salary is equal to Chandra's salary. If the sum of the salary of all of them is ₹ 77,000, then, how much is Bhuvan's salary?
(a) ₹ 45,000 (b) ₹ 18,000
(c) ₹ 15,000 (d) ₹ 28,000
(e) None of these

35. A tap can fill an empty tank in 12 hours and a leakage can empty the whole tank in 20 hours. If the tap and the leakage are working simultaneously, how long will it take to fill the whole tank?
(a) 25 hours (b) 40 hours
(c) 30 hours (d) 35 hours
(e) None of these

36. A train is moving at a speed of 132 km/h. If the length of the train is 110 metres, how long will it take to cross a railway platform, 165 metres long ?
(a) 5s (b) 7.5 s
(c) 10 s (d) 15 s
(e) None of these

37. If 15 women or 10 men can complete a project in 55 days, in how many days will 5 women and 4 men working together complete the same project ?
(a) 75 (b) 8
(c) 9 (d) 85
(e) None of these

38. Ashu's mother was three times as old as Ashu, 5 years ago. After 5 years, she will be twice as old as Ashu. How old is Ashu at present?
(a) 15 (b) 20
(c) 10 (d) 5
(e) None of these

39. A conical flask has base radius 'a' cm and height 'h' cm. It is completely filled with milk. The milk is poured into a cylindrical thermos flask whose base radius is 'p' cm. What will be the height of the solution level in the flask ?
(a) $\frac{a^2h}{3p^2}$cm (b) $\frac{3hp^2}{a^2}$cm (c) $\frac{p^2}{3h^2}$cm (d) $\frac{3a^2}{hp^2}$cm
(e) None of these

40. A sum was put at simple interest at a certain rate for 2 years. Had it been put at 3% higher rate, it would have fetched ₹ 300 more. Find the sum.
(a) ₹ 6000 (b) ₹ 8230
(c) ₹ 5000 (d) ₹ 4600
(e) None of these

REASONING

41. Which is the third number to the left of the number which is exactly in the middle of the following sequence of numbers?
1 2 3 4 5 6 7 8 9 2 4 6 8 9 7 5 3 9 8 7 6 4 3 2 1
(a) 3 (b) 2
(c) 5 (d) 6
(e) None of these

42. In a certain code IDEAS is written as HEDBR and WOULD is written as VPTMC. How will RIGHT be written in the same code ?
(a) QJHIS (b) QJFGS
(c) SHHGU (d) QJFIU
(e) QJFIS

43. If the alphabet is written in the reverse order and every alternate letter starting with Y is dropped, which letter will be exactly in the middle of the remaining letters of the alphabet.
(a) M (b) N
(c) O (d) M or O
(e) None of these

44. In a row of girls, Rita and Monika occupy the ninth place from the right end and tenth place from the left end, respectively. If they interchange their places, then Rita and Monika occupy seventeenth place from the right and eighteenth place form the left respectively. How many girls are there in the row?
(a) 25 (b) 26
(c) 27 (d) Data inadequate
(e) None of these

45. In a certain code language 'Ka Bi Pu Ya' means 'You are very intelligent' 'Ya Lo Ka Wo' means 'They seem very intelligent' 'La Pu Le' means 'You can see' and 'Sun Pun Yun Ya' means 'how intelligent she is', In that language, which of the following words means 'are'?
(a) Ka (b) Bi
(c) Ya (d) Pu
(e) None of these

46. Ankit is related to Binny and Chinky, Daizy is Chinky's mother. Also Daizy is Binny's sister and Aruna is Binny's sister. How is Chinky related to Aruna?
(a) Niece (b) Sister
(c) Cousin (d) Aunt
(e) None of these

47. Rama remembers that she met her brother on Saturday, which was after the 20th day of a particular month. If the 1st day of that month was Tuesday, then on which date did Rama meet her brother ?
(a) 24th (b) 23rd
(c) 25th (d) 26th
(e) None of these

48. If it is possible to make only one such number with the first, the fourth and the sixth digits of the number 531697 which is the perfect square of a two digit even number, which of the following will be the second digit of the two digit even number. If no such number can be made, give '@' as the answer and if more than one such number can be made, give '©' as the answer.
(a) 4 (b) 2
(c) 6 (d) @
(e) ©

49. In a certain code JOURNEY is written as TNISZFO. How is MEDICAL written in that code?
(a) CDLJMBD (b) CDWDBM
(c) LDCJMBD (d) EFNJMBD
(e) None of these

50. If 'K' denotes '×', 'B' denotes '÷', 'T' denotes '–' and 'M' denotes '+', then –
40 B 8 T 6 M 3 K 4 = ?
(a) 19 (b) 11
(c) –31 (d) 23
(e) None of these

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

In a certain code 'support the other group' is written as 'ja pe la no' 'the mission gains support' is written as' ke ja zi la', 'gains other than money' is written as 'fu no ho zi' and 'more support and money' is written as ' re qi fuja' .

51. What is the code for 'group' ?
(a) ja (b) pe
(c) la (d) no
(e) Cannot be determined

52. What does 'zi' stand for ?
(a) mission (b) than
(c) other (d) the
(e) gains

53. Which of the following may represent 'more than the group'?
(a) la qi ho pe (b) re la qi ho
(c) re no la pe (d) pe ke qi la
(e) qi ho la fu

54. What is the code for 'mission'?
(a) la (b) zi
(c) ke (d) ja
(e) ke or la

55. Which of the following may represent 'money matters more'?
(a) fu bu (b) re bu qi
(c) zi qi yo (d) yo fu no
(e) la fu bu

DIRECTIONS (Qs. 56-60): In each question below are three statements followed by three conclusions numbered I, II and III. You have to take the three given statements to be true even if they seem to be at variance from commonly known facts and then decide which of the answers (a), (b), (c), (d) and (e) is the correct answer and indicate it on the answer sheet.

56. **Statements:** Some chairs are tables.
Some tables are drawers.
All drawers are shelves.
Conclusions: **I.** Some shelves are tables.
II. Some drawers are chairs.
III. Some shelves are drawers.
(a) Only I and III follow
(b) Only I and either II or III follow
(c) Only II and either I or III follow
(d) All I, II and III follow
(e) None of the above

57. **Statements:** All trees are flowers.
Some flowers are leaves.
No leaf is bud
Conclusions: **I.** No bud is a flower.
II. Some buds are flowers.
III. Some leaves are trees.

(a) Only II and III follow
(b) Only III follows
(c) Only either I or II follows
(d) Either I or II and III follow
(e) None of the above

58. **Statements:** All stones are rocks.
Some rocks are bricks.
Some bricks are cement.
Conclusions: **I.** Some cements are rocks.
II. Some bricks are stone
III. Some stones are cement.
(a) Only I and either II or III follow
(b) Only either II or III follows
(c) Only I and II follow
(d) All follow
(e) None of the above

59. **Statements:** All flats are buildings.
All buildings are bungalows.
All bungalows are apartments.
Conclusions: **I.** Some apartments are flats.
II. All flats are bungalows.
III. Some bungalows are flats.
(a) None follows
(b) Only I and II follow
(c) Only II and III follow
(d) Only I and III follow
(e) All I, II and III follow

60. **Statements:** Some spectacles are lenses.
Some lenses are frames.
All frames are metals.
Conclusions: **I.** Some lenses are metals
II. Some metals are spectacles.
III. Some frames are spectacles.
(a) Only III follows
(b) Only I follows
(c) Only I and either II or III follow
(d) Only I and II follow
(e) None of the above

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

Seven people—A, B, C, D, E, F and G are sitting in a circle. Five of them are facing the centre while two of them are facing opposite to the centre. C sits third to the left of D and both are facing the centre. E is neither on immediate neighbour of D nor of C. The one sitting exactly between D and F is facing opposite to centre. G sits third to the right of A and G is facing the centre. One of B's neighbour is facing opposite to the centre.

61. Which of the following pairs represents persons facing opposite to the centre?
(a) A and F (b) E and F
(c) A and E (d) Cannot be determined
(e) None of these

62. Who is sitting second to the left of A?
(a) C (b) G
(c) E (d) B
(e) None of these

63. Who is sitting to the immediate left of E?
(a) C (b) G
(c) B (d) A
(e) None of these

64. What is the position of F with respect to B?
(a) Fourth to the left (b) Second to the right
(c) Third to the right (d) Second to the left
(e) None of these

65. If all the persons are asked to sit in a clockwise direction in an alphabetical order starting from A, the position of how many will remain unchanged, excluding A?
(a) Three (b) One
(c) Two (d) None
(e) Four

DIRECTIONS (Qs. 66-70): In the questions given below, certain symbols are used with the following meanings:

A @ B means A is greater than B.
A * B means A is either greater than or equal to B.
A # B means A is equal to B.
A $ B means A is either smaller than or equal to B.
A + B means A is smaller than B.
Now in each of the following questions, assuming the given statements to be true, find which of the two conclusions I and II given below them is/are definitely true?
(a) If only conclusion I is true
(b) If only conclusion II is true
(c) If either conclusion I or II is true
(d) If neither conclusion I nor II is true
(e) If both conclusions I and II are true

66. **Statements** : B + D; E$T; T * P; P@B
Conclusions : **I.** P$D
II. P@D

67. **Statements** : E*F; G$H; H#E; G@K
Conclusions : **I.** H@K
II. H*F

68. **Statements** : P$Q; N#M; M@R; R*P
Conclusions : **I.** P + N
II. Q$M

69. **Statements** : D + T; E $V; F *T; E@D
Conclusions : **I.** D$ V
II. D + F

70. **Statements** : T*U; U$W; V @L; W + V
Conclusions : **I.** V@T
II. L #W

DIRECTIONS (Qs. 71-75) : In each question below, is given a group of letters followed by found combinations of digits/symbols numbered (a), (b), (c) and (d). You have to find out which of the four combinations correctly represents combination as your answer. If none of the combinations correctly represents the group of letters, mark (e) 'None of these', as your answer.

Letter	R	E	A	U	M	D	F	P	Q	I	O	H	N	W	Z	B
Digit/Symbol code	7	#	$	6	%	8	5	★	4	9	@	©	3	D	1	2

(i) If the first letter is a consonant and the third letter is a vowel, their codes are to be interchanged.
(ii) If the first letter is a vowel and the fourth letter is a consonant, both are to be coded as the code for the vowel.
(iii) If the second and the third letters are consonants, both are to be coded as the code for the third letter.

71. NABAQE
(a) 263$4# (b) 326$4#
(c) 362$4# (d) 362$3#
(e) None of these

72. FWZERA
(a) 5D#7$ (b) 5DD#7$
(c) D17#$ (d) 511#7$
(e) None of these

73. HUBDIN
(a) ©62893 (b) ©2689%
(c) ©6289© (d) ©62©9%
(e) None of these

74. EMIRDP
(a) #%978★ (b) #%9#8★
(c) 7%9#8★ (d) #9%78★
(e) None of these

75. OREDHM
(a) @7#8©% (b) #7#8©%
(c) @78#©% (d) @7#@©%
(e) None of these

DIRECTIONS (Qs. 76-80) : Study the following information carefully and answer the given quesions following it.

(i) Eleven students A, B, C, D, E, F, G, H, I, J and K are sitting in the first row of a class facing the teacher.
(ii) D, who is on the immediate left of F, is second to the right of C.
(iii) A is second to the right of E, who is at one of the ends.
(iv) J is the immediate neighbour of A and B and third to the left of G.
(v) H is on the immediate left of D and third to the right of I.

76. Who is sitting midway between E and H?
(a) J (b) B
(c) I (d) G
(e) None of these

77. Which of the following statements is not ture in the context of the above sitting arrangement?
(a) There are seen students sitting between K and D
(b) G is the immediate neighbour of I and C
(c) H is the immediate neighbour of D and F
(d) K is between E and A
(e) F is third to the right of C

78. To obtain the respective seats of all the persons which statement given above is not required?
(a) I (b) II
(c) III (d) IV
(e) None of these

79. Besides 'E', who among the following is at the extreme end?
(a) K (b) F
(c) B (d) Can't say
(e) None of these

80. Which of the following gropus is at the left of I?
(a) AJB (b) GCH
(c) HDF (d) GCH
(e) None of these

HINTS & EXPLANATIONS

1. (d) $? = \sqrt{45689} = 213.75 \approx 210$

2. (b) $? = \frac{(10008.99)^2}{10009.001} \times \sqrt{3589} \times 0.4987$

$= \frac{(10009)^2 \times \sqrt{3600}}{10009} \times 0.50 = 10009 \times 60 \times 0.50 \approx 300000$

3. (e) $? = 399.9 + 206 \times 11.009$
$= 400 + (200 + 6) \times 11 = 400 + 2200 + 66 = 2670$

4. (a) $? = \frac{2}{5} + \frac{7}{8} \times \frac{17}{19} \div \frac{6}{5} = \frac{2}{5} + \frac{7}{8} \times \frac{17}{19} \times \frac{5}{6}$

$= \frac{2}{5} + \frac{595}{912} = 0.40 + 0.65 \approx 1.05 \approx 1$

5. (a) $? = (299.99999)^3 \approx (300)^3 = 27000000$

6. (c) Given Expression $= \frac{(a^3 - b^3)}{(a^2 + ab + b^2)}$,

where $a = 117, b = 98$

$= \frac{(a-b)(a^2 + ab + b^2)}{(a^2 + ab + b^2)} = (a - b) = (117 - 98) = 19.$

7. (b) Dividing numerator as well as denominator by b, we get:

$$\frac{3a + 2b}{3a - 2b} = \frac{3 \times \frac{a}{b} + 2}{3 \times \frac{a}{b} - 2} = \frac{3 \times \frac{4}{3} + 2}{3 \times \frac{4}{3} - 2} = \frac{4 + 2}{4 - 2} = 3$$

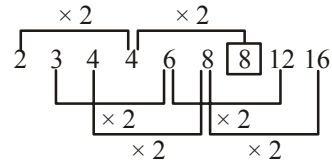
8. (d) Given Expression $= \frac{(a-b)^2 + (a+b)^2}{(a^2 + b^2)} = \frac{2(a^2 + b^2)}{(a^2 + b^2)} = 2$

9. (d) Given Expression $= \left(\frac{112}{14} \times \frac{24}{12} \times \frac{16}{8}\right) = 32$

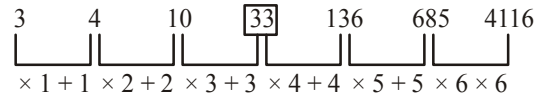
10. (b) $\frac{(\sqrt{5} - \sqrt{3})}{(\sqrt{5} + \sqrt{3})} = \frac{(\sqrt{5} - \sqrt{3})}{(\sqrt{5} + \sqrt{3})} \times \frac{(\sqrt{5} - \sqrt{3})}{(\sqrt{5} - \sqrt{3})} = \frac{(\sqrt{5} - \sqrt{3})^2}{(5 - 3)}$

$= \frac{5 + 3 - 2\sqrt{15}}{2} = \frac{2(4 - \sqrt{15})}{2} = (4 - \sqrt{15})$

11. (b)

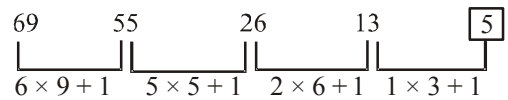


12. (d)



Thus, 32 is out of place and must be replaced by 33.

13. (c)



Thus, 5 does not fit in the series and should be replaced by 4.

14. (a) The succeeding numbers are obtained by dividing the preceding numbers by 4. Therefore, the number 386 does not fit in the series and must be replaced by 384.

15. (c) There are two series in the given series :

I. 5 12 26 54
$\times 2+2$ $\times 2+2$ $\times 2+2$

II. 11 20 [40] 74
$\times 2-2$ $\times 2-2$ $\times 2-2$

Hence the wrong term is 40.

16. (d) Population of village B in 2014 $= 5000 \times \frac{16}{13} \approx 6150$

Population of village B in 2015 $= 6150 \times \frac{110}{100} = 6750$

Population below poverty line = 52% of 6750 ≈ 3500

17. (a) Population of village D in 2014 $= 9{,}000 \times \frac{17}{15} = 10{,}200$

Population of village D in 2016 $= 10{,}200 \times \frac{110}{100}$

$= 11{,}220$

Population of village G in 2016 $= 9{,}000 \times \frac{95}{100} = 8{,}550$

$\therefore$ Total population of village D and G in 2016
$= 11{,}220 + 8{,}550 = 19{,}770$

18. (d) Population of village F below poverty line

$$= 55000 \times \frac{13}{100} \times \frac{49}{100} \approx 3500$$

19. (c) Population of village F in 2014

$$= 1520 \times \frac{100}{38} \times \frac{13}{8} = 6500$$

20. (b) Population of village C below poverty line

$$= 2000 \times \frac{38}{100} = 760$$

Population of village E below poverty line

$$= \frac{2000}{8} \times 18 \times \left(\frac{46}{100}\right) = 2070$$

$\therefore$ Required ratio $= \frac{760}{2070} = 76:207$

21. (b) The least cost of sending one unit is 0 as it is obvious from table A & B that

$$BC \xrightarrow[\text{cost}=0]{} AC \xrightarrow[\text{cost}=0]{} AAC$$

or $BD \xrightarrow[\text{cost}=0]{} AE \xrightarrow[\text{cost}=0]{} AAA$

22. (c) From table A & table B

$BC \rightarrow AC$, Cost = 0 which is minimum &

$AC \rightarrow AAB$, Cost = 284.5

$BC \rightarrow AAB$, Cost = 0 + 284.5 = 284.5

Also we have

$BD \rightarrow AE$, Cost = 0 which is minimum

$AE \rightarrow AAB$, Cost = 95.2 which is least

$BD \rightarrow AAB$, Cost = 0 + 95.2 = 95.2

Hence least cost from any refinery to AAB = 95.2

23. (b) Cost from $BB \rightarrow AB = 311.1$ which is least

Cost from $AB \rightarrow AAG = 0$ which is also least

so least cost from $BB \rightarrow AAG = 311.1 + 0 = 311.1$

24. (a) Least cost from BB to AAA would be on the route BB $\rightarrow AC \rightarrow AAA = 451.1 + 314.5 = 765.6$

25. (d) There are 6 refineries, 7 depot, 9 districts. So total ways from refinery to district $= 6 \times 7 \times 9 = 378$

26. (a) I. $\sqrt{289x} + \sqrt{25} = 0$

or, $\sqrt{289x} = -\sqrt{25}$

Squaring both sides, we get

$289x = 25$

$x = \frac{25}{289}$

II. $\sqrt{676y} + 10 = 0$

or, $\sqrt{676y} = -10$

Squaring both sides, we get

$676y = 100$

$y = \frac{100}{676}$ $\therefore$ $y > x$

27. (b) I. $8x^2 - 78x + 169 = 0$

$8x^2 - 52x - 26x + 169 = 0$

$4x(2x-13) - 13(2x-13) = 0$

$(2x-13)(4x-13) = 0$

$\therefore$ $x = \frac{13}{2}$ or $\frac{13}{4} = 6.5$ or 3.25

II. $20y^2 - 117y + 169 = 0$

$\Rightarrow 20y^2 - 152y - 65y + 169 = 0$

$\Rightarrow 4y(5y-3) - 13(5y-13) = 0$

$\Rightarrow (5y-13)(4y-13) = 0$

$\therefore$ $y = \frac{13}{5}$ or $\frac{13}{4} = 2.6$ or 3.25 $\therefore$ $x \geq y$

28. (a) I. $\frac{15}{\sqrt{x}} + \frac{9}{\sqrt{x}} = 11\sqrt{x}$

$\frac{15+9}{\sqrt{5}} = 11\sqrt{x}$

$24 = 11x$

$\therefore$ $x = \frac{24}{11}$

$= 2.18$

II. $\frac{\sqrt{y}}{4} + \frac{5\sqrt{y}}{12} = \frac{1}{\sqrt{y}}$

$\frac{3\sqrt{y} + 5\sqrt{y}}{12} = \frac{1}{\sqrt{y}}$

or, $8y = 12$

$y = 1.5 \therefore x > y$

29. (a) I. $\frac{8}{\sqrt{x}}+\frac{6}{\sqrt{x}}=\sqrt{x}$

$\frac{14}{\sqrt{x}}=\sqrt{x}$

$x=14$

II. $y^3-\frac{(14)^2}{\sqrt{y}}=0$

or, $y^3=\frac{(14)^2}{\sqrt{y}}$

$y^{3+\frac{1}{2}}=(14)^2$

$y^{7/2}=(14)^2 \therefore x>y$

30. (e) I. $x^2-208=233$

$x^2=233-208$

$x=\sqrt{25}$

$=\pm 5$

II. $y^2-47+371=0$

$y^2+324=0$

$y^2=-324$

$y=\sqrt{-324}$

Relationship cannot be established.

31. (c) Total amount used for purchasing = ₹ 160. A reduction of 20% in the price means, now a person gets 5/2 kg for ₹ 32 and this is the present price of the sugar.

$\therefore$ Present price per kg = $\frac{32}{5}\times 2 =$ ₹ 12.8

Let the original price be ₹ x. Then new price is arrived after reduction of 20% on it.

$\Rightarrow$ $x \times 0.8 = 12.8$ or $x =$ ₹ 16.

32. (b) Mrs. X spends = ₹ 535

$\therefore$ Total cost = 43 shirt + 21 ties = 535

By hit and trial, S = 10, T = 5

$\Rightarrow$ Total cost = $43 \times 10 + 21 \times 5 = 535$

Hence, Ratio of shirts to ties = 10 : 5 = 2 : 1

33. (d) Total expense percentage = (25 + 5 + 15 + 10)% = 55%

Savings % = 100 – 55 = 45%

$\because$ $45 \equiv 22500$

$\therefore$ $100\% \equiv \frac{22500}{45}\times 100 =$ ₹ 50000

34. (b) Let Anil's salary be ₹ x.

$\therefore$ Bhuvan's salary = ₹ $\frac{2x}{5}$

Chandra's salary = ₹ $\frac{2x}{5}\times\frac{7}{9}=\frac{14x}{45}$

$\therefore$ Anil : Bhuvan : Chandra = $x:\frac{2x}{5}:\frac{14x}{45}=45:18:14$

$\therefore$ Bhuvan's salary

$= ₹\left[\frac{18}{(45+18+14)}\times 77000\right] =$ ₹ 18000

35. (c) Part of the tank filled in an hour

$=\frac{1}{12}-\frac{1}{20}=\frac{5-3}{60}=\frac{1}{30}$

Hence, the tank will be filled in 30 hours

36. (b) Speed of the train = 132 km/h = $\frac{132\times 5}{18}$ m/s

Distance = (110 + 165) = 275 m

Time required to cross the railway platform

$=\frac{275\times 18}{132\times 5}=7.5$ s

37. (a) 15 W = 10 M

Now, $5W+4M=5W+\frac{4\times 15}{10}W=5W+6W=11$ W

Now, 15 women can complete the project in 55 days, then 11 women can complete the same project in

$\frac{55\times 15}{11}=75$ days

38. (a) Let the present ages of Ashu's mother and that of Ashu be x and y, respectively.

Then, $(x-5)=3(y-5)$ or $x-5=3y-15$

or $x-3y=-10$ ...(i)

and $(x+5)=2(y+5)$

And $x+5=2y+10$ or $x-2y=5$ ...(ii)

From (i) and (ii), we have $x = 35$ and $y = 15$

Hence, the present age of Ashu = 15 years

39. (a) Volume of the conical flask = Volume of the cylindrical flask upto the required height (x) cm

$\frac{1}{3}\pi a^2 h=\pi p^2\times x \Rightarrow x=\frac{ha^2}{3p^2}$ cm

40. (c) Let the sum = Rs. x and original rate = y % per annum then, New rate = $(y+3)$% per annum

$\therefore$ $\frac{x\times(y+3)\times 2}{100}-\frac{x\times y\times 2}{100}=300$

$xy+3x-xy=15000$

$\therefore$ $x=5000$ Thus, the sum = ₹ 5000

41. (b) There are 25 numbers in the given sequence.

So, middle number = 13^{th} number = 8.

Clearly, the third number to the left of this 8 is 2.

42. (e) Coding for:

I	D	E	A	S
–1↓	+1↓	–1↓	+1↓	–1↓
H	E	D	B	R

Coding for:

W	O	U	L	D
–1↓	+1↓	–1↓	+1↓	–1↓
V	P	T	M	C

Similarly,

R	I	G	H	T
–1↓	+1↓	–1↓	+1↓	–1↓
Q	J	F	I	S

43. (b) Cancelling every second letter after reversing the alphabet the series becomes.

Z X V T R P N L J H F D B

The middle letter is N.

44. (b) Total no. of girls = 17 + 10 – 1 or 18 + 9 – 1 = 26.

45. (b) From first 2 sentences 'Ka Ya' means 'very intelligent'.
From 1st and 3rd sentences 'Pu'means 'you'
∴ In first sentence 'are' means 'Bi'

46. (a) Daizy ← Sister — Binny → Aruna
(Binny's sister and Chinky's Mother) (Binny's sister)
↑
Chinky
It is cleraly shown from the above diagram that Chinky is niece to Aruna.

47. (d) 1st of month was Tuesday, hence the date on first Saturday was 5th.
Hence, the other Saturdays of the month are 12, 19, 26.
Rama met her brother on 26th.

48. (a) [5] 3 1 [6] 9 [7]
$576 = 24 \times 24$
∴ 4 will be the second digit of the two even number.

49. (a) As, J O U –1 T N I; R +1 S; N E Y +1 Z F O
Similarly, M E D –1 C D L; I +1 J; C A L +1 M B D

50. (b) 40 B 8 T 6 M 3 K 4 = ?
$\Rightarrow ? = 40 + 8 - 6 + 3 \times 4$
$\Rightarrow ? = 5 + 6 - 12 = 11$

(51-55) :

support the other group → ja pe la no
the mission gains support → ke ja zi la
gains other than money → fu no ho zi
more support and money → re qi fu ja

51. (b) The code for 'group' is 'pe'.
52. (e) 'zi' stands for 'gains'.
53. (a) more ⇒ re or qi
than ⇒ ho
the ⇒ la
group ⇒ pe
54. (c) The code for 'mission' is 'ke'.
55. (a) money ⇒ fu
more ⇒ re or ql
The code for 'matters' may be 'bu'.

56. (a) Chairs, Tables, Drawers, Shelves

Hence, conclusions I. ✓ II. ✗ III. ✓

57. (c) Trees, Flowers, Leaves, Buds

Hence, conclusions I. × II. × III. ×
But I and II are complementary pairs.

58. (e) Stones, Rocks, Bricks, Cement

Hence, conclusions I. ✗ II. ✗ III. ✗

59. (e) Flats, Buildings, Bunglows, Apartments

Hence conclusions I. ✓ II. ✓ III. ✓

60. (b) Spectacles, lenses, Frames, Metals

Hence, conclusions I. ✓ II. ✗ III. ✗

Solutions : (Qs. 61-65)

E, P, B, G, D, G, C, A, F, B

A and E is not facing centre. Rest of all facing centre.

61. (c) A and E person facing opposite to centre.
62. (d) B, because A is facing opposite to centre.
63. (b) G, because E is facing opposite to centre.
64. (e) It is either third to left or fourth to right.
65. (c) Two (C and E) will remain unchanged.
66. (c) $B < D$ ...(i), $E \le T$ ...(ii), $T \ge P$ ....(iii), $P > B$...(iv) From (i) and (iv), we get, $P > B < D \Rightarrow$ no conclusion. But the exhaustive possibilities are $P > D, P = D$ and $P < D$. Hence either I or II is true.
67. (e) $E \ge F$ ...(i), $G \le H$ ...(ii), $H = E$ ...(iii), $G > K$ ...(iv) From (ii) and (iv), we get, $H \ge G > K \Rightarrow H > K$. Hence I is true.
From (i) and (iii), we get, $H = E \ge F \Rightarrow H \ge F$. Hence, II is true.
68. (a) $P \le Q$ ...(i), $N = M$ ....(ii), $M > R$ ...(iii), $R \ge P$ ...(iv)
From (ii), (iii) and (iv), we get, $N = M > R \ge P$
$\Rightarrow N > P$ or $P < N$. Hence I is true.
From (ii), (iv) and (i), we get, $M > R \ge P \le Q \Rightarrow$ No conclusion about the relationship between M and Q can be established.

Sol. (69 and 70) :

69. (b) $D < T$ ...(i), $E \le V$ ...(ii), $F \ge T$ ... (iii), $E < D$ ...(iv)
Therefore, $V \ge E < D < T \le F$
From conclusion I. $D \le V$ ... (False)
From conclusion II. $D < F$ ... (True)
Hence, only conclusion II is true.
70. (d) $T \ge U$ ...(i), $U \le W$ ...(ii), $V < L$ ...(iii), $W < V$ ...(iv)
Therefore, $T \ge U \le W < V > L$
From conclusion I. $V > T$ ...(False)
From conclusion II. $L = W$ ... (False)
Hence, neither conclusion I nor II is true.
71. (e) Here, none of the condition is applied, so the coding is done as follows.

N	A	B	A	Q	E
↓	↓	↓	↓	↓	↓
3	$	2	$	4	#

∴ Code for NABAQE ⇒ 3$2$4#

72. (d) When no condition is applied, the coding is done as follows.

F	W	Z	E	R	A
↓	↓	↓	↓	↓	↓
5	D	1	#	7	$

But here the second and third letters are consonants, therefore condition (iii) is applied here. As condition (iii) is applied here, both the seond and third letters are to be coded as the code for the third letter.

F	W	Z	E	R	A
↓	↓	↓	↓	↓	↓
5	1	1	#	7	$

∴ Code for FWZERA ⇒ 511#7$

73. (a) Here, none of the condition is applied, so the coding is done as follows.

H	U	B	D	I	N
↓	↓	↓	↓	↓	↓
©	6	2	8	9	3

74. (b) When no condition is applied, the coding is done as follows.

E	M	I	R	D	P
↓	↓	↓	↓	↓	↓
#	%	9	7	8	★

But here the first letter is a vowel and the fourth letter is a consonant, therefore condition (ii) is applied.
As condition (ii) is applied here, both the first and the fourth letters are to be coded as the code for the vowel.

E	M	I	R	D	P
↓	↓	↓	↓	↓	↓
#	%	9	#	8	★

∴ Code for EMIRDP ⇒ #%9#8 ★

75. (d) When no condition is applied, the conding is done as follows.

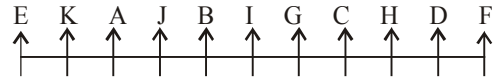
O	R	E	D	H	P
↓	↓	↓	↓	↓	↓
@	7	#	8	©	%

But here the first letter is a vowel and the fourth letter is a consonant, therefore condition (ii) is applied. As condition (ii) is applied here, both the first and fourth letters as to be coded as the code fr the vowel.

O	R	E	D	H	P
↓	↓	↓	↓	↓	↓
@	7	#	@	©	%

∴ Code for OREDHM ⇒ @7#@©%

(Qs. 76-80) : According to the given information the sitting arrangement of eleven students in a row of a class facing the teacher is as following :



76. (b) There are seven person which are sitting between E and H. B is in the midway of them.
77. (c) H is not the immediate neighbour of D and F.
78. (e) To get the final arrangement, we require all the statements.
79. (b) F is at the extreme end.
80. (a) A, J and B are at the left of I.

PRACTICE SET 2

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. 1-5): What will come in place of question mark (?) in the following questions?

1. $\left[\left(5\sqrt{7}+\sqrt{7}\right)+\left(4\sqrt{7}+8\sqrt{7}\right)\right]-(19)^2=?$

(a) 143 (b) $72\sqrt{7}$

(c) 134 (d) $70\sqrt{7}$

(e) None of these

2. $(4444\div 40)+(645\div 25)+(3991\div 26)=?$

(a) 280.4 (b) 290.4

(c) 295.4 (d) 285.4

(e) None of these

3. $\sqrt{33124}\times\sqrt{2601}-(83)^2=(?)^2+(37)^2$

(a) 37 (b) 33

(c) 34 (d) 28

(e) None of these

4. $5\frac{17}{37}\times 4\frac{51}{52}\times 11\frac{1}{7}+2\frac{3}{4}=?$

(a) 303.75 (b) 305.75

(c) $303\frac{3}{4}$ (d) $305\frac{1}{4}$

(e) None of these

5. $\frac{1}{\sqrt{9}-\sqrt{8}}=?$

(a) $\frac{1}{2}(3-2\sqrt{2})$ (b) $\frac{1}{3+2\sqrt{2}}$

(c) $3-2\sqrt{2}$ (d) $3+2\sqrt{2}$

(e) None of these

DIRECTIONS (Qs. 6-10) : In each of the following questions a number series is given. A number in the series is expressed by letter 'N'. You have to find out the number in the place of 'N' and use the number to find out the value in the place of the question mark in the equation following the series.

6. 68 68.5 69.5 71 N 75.5 78.5

$N\times 121+?=10000$

(a) 1160 (b) 1200

(c) 1150 (d) 1180

(e) None of these

7. 19 20 24 33 49 74 N 159

$N^2\div 10000=?$

(a) 121.0 (b) 12.1

(c) 1.21 (d) 0.121

(e) None of these

8. 51 43 N 30 25 21 18

$N^2-2N=?$

(a) 1155 (b) 1224

(c) 1295 (d) 1368

(e) None of these

9. 2 5 14 41 122 365 N

$N - 16\frac{2}{3}\%$ of $5670 - (?)^2 = 10^2$

(a) 7 (b) $\sqrt{149}$

(c) 49 (d) $\sqrt{7}$

(e) None of these

10. 510 254 N 62 30 14 6

$40\%\ N + ? = 9^2$

(a) 31.4 (b) 29.8

(c) 50.4 (d) 30.6

(e) None of these

DIRECTIONS (Qs. 11-15) : In each of the following questions two equations are given. Solve these equations and give answer:

(a) if $x \geq y$, i.e., x is greater than or equal to y.

(b) if $x > y$, i.e., x is greater than y.

(c) if $x \leq y$, i.e., x is less than or equal to y.

(d) if $x < y$, i.e., x is less than y.

(e) x = y or no relation can be established between x and y

11. I. $x^2 + 5x + 6 = 0$

II. $y^2 + 7y + 12 = 0$

12. I. $x^2 + 20 = 9x$

II. $y^2 + 42 = 13y$

13. I. $2x + 3y = 14$

II. $4x + 2y = 16$

14. I. $x = \sqrt{625}$

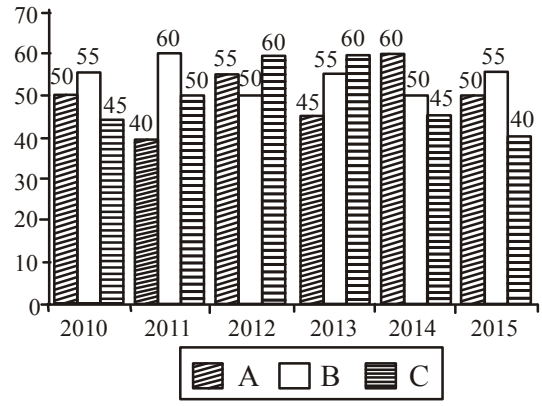
II. $y = \sqrt{676}$

15. I. $x^2 + 4x + 4 = 0$

II. $y^2 - 8y + 16 = 0$

DIRECTION (Qs. 16-20) : Study the following graph carefully to answer the question given below it.

Production of paper (in lakh tonnes) by 3 different companies A, B & C over the years



16. What is the difference between the production of company C in 2010 and the production of Company A in 2015?

(a) 50,000 tonnes (b) 5,00,00,000 tonnes

(c) 50,00,000 tonnes (d) 5,00,000 tonnes

(e) None of these

17. What is the percentage increase in production of Company A from 2011 to 2012?

(a) 37.5 (b) 38.25

(c) 35 (d) 36

(e) None of these

18. For which of the following years the percentage of rise/fall in production from the previous year the **maximum** for Company B?

(a) 2011 (b) 2012

(c) 2013 (d) 2014

(e) 2015

19. The total production of Company C in 2012 and 2013 is what percentage of the total production of Company A in 2010 and 2011?

(a) 95 (b) 90

(c) 110 (d) 115

(e) None of these

20. What is the difference between the average production per year of the company with highest average production and that of the company with lowest average production in lakh tonnes?

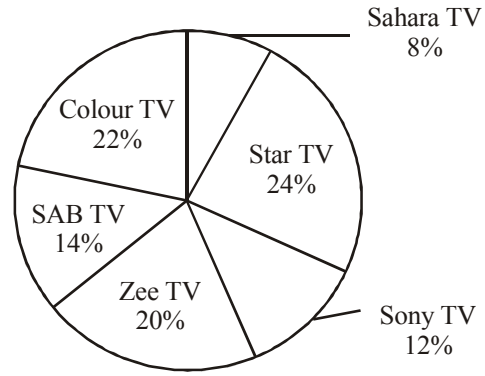
(a) 3.17 (b) 4.33

(c) 4.17 (d) 3.33

(e) None of these

DIRECTIONS (Qs. 21-25) : Study the given pie-chart and table and answer the following questions.

Percentage distribution of total TV viewers (in prime time) among different TV channels.



Percentage of urban TV viewers of these channels (Total number of TV viewers is 12 lakh)

Channel	% Urban Viewers
Star TV	70%
Sony TV	65%
Zee TV	68%
SAB TV	75%
Colors TV	60%
Sahara TV	72%

21. What is the total number of TV viewers from urban areas for all the channels?
(a) 721780 (b) 786486
(c) 811920 (d) 824864
(e) None of these

22. What is the average number of TV viewers from rural areas for all the channels?
(a) 62178 (b) 64680
(c) 66370 (d) 68484
(e) None of these

23. Total number of rural viewers of Sony TV is what percentage of the total number of urban viewers of the same channel?
(a) 51.68% (b) 52278%
(c) 53.846% (d) 54.272%
(e) None of these

24. Total number of Sahara TV viewers from urban areas is what percentage more than the total number of rural viewers of SAB TV?
(a) 61.24% (b) 62.83%
(c) 63.58% (d) 64.57%
(e) None of these

25. What is the ratio of the total number of rural viewers of Zee TV to the total number of urban viewers of Star TV?
(a) 7:23 (b) 8:21
(c) 9:25 (d) 11:32
(e) None of these

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. $12959.998 + 18.010 = ?$
(a) 840 (b) 990
(c) 570 (d) 680
(e) 720

27. 40.005% of $439.998 + ?\%$ of $600.020 = ?$
(a) 8 (b) 17
(c) 12 (d) 20
(e) 5

28. $6894.986 + 5025.005 + 600.020 = ?$
(a) 12170 (b) 13540
(c) 12950 (d) 11560
(e) 12520

29. $31.999 \times 12.001 \times 17.5001 = ?$
(a) 6600 (b) 6720
(c) 6480 (d) 6070
(e) 6270

30. $(10.998)^3 = ?$
(a) 1440 (b) 1730
(c) 1330 (d) 1640
(e) 1000

31. Average age of 36 children of the class is 15 years. 12 more children joined whose average age is 16 years. What is the average age of all the 48 children together ?
(a) 15.25 years (b) 15.5 years
(c) 15.3 years (d) 15.4 years
(e) None of these

32. Profit earned by selling an article of ₹ 1,450 is same as the loss incurred by selling the article for ₹ 1,280. What is the cost price of the article?
(a) ₹ 1,385 (b) ₹ 1,405
(c) ₹ 1,355 (d) ₹ 1,365
(e) None of these

33. If the compound interest on a certain sum of money for 3 years at 10% p.a. be ₹ 993, what would be the simple interest ?
(a) ₹ 800 (b) ₹ 950
(c) ₹ 900 (d) ₹ 1000
(e) None of these

34. In a class, 20 opted for Physics, 17 for Maths, 5 for both and 10 for other subjects. The class contains how many students?
(a) 35 (b) 42
(c) 52 (d) 60
(e) None of these

35. How much water must be added to 100 cc of 80% solution of boric acid to reduce it to a 50% solution ?
(a) 20 cc (b) 40 cc
(c) 80 cc (d) 60 cc
(e) None of these

36. Successive discounts of 20% and 15% are equivalent to a single discount of
(a) 35% (b) 32%
(c) 17.5% (d) 22.5%
(e) None of these

37. Two cars start together in the same direction from the same place. The first goes with a uniform speed of 10 km/h. The second goes at a speed of 8 km/h in the first hour and increases its speed by $\frac{1}{2}$ km with each succeeding hour. After how many hours will the second car overtake the first one, if both go non-stop?
(a) 9 hours (b) 5 hours
(c) 7 hours (d) 8 hours
(e) None of these

38. 24 men working 8 hours a day can finish a work in 10 days. Working at the rate of 10 hours a day, the number of men required to finish the same work in 6 days is
(a) 30 (b) 32
(c) 34 (d) 36
(e) None of these

39. The sum of digits of a two digit number is 15. If 9 be added to the number, then the digits are reversed. The number is
(a) 96. (b) 87
(c) 78 (d) 69
(e) None of these

40. Three cubes of a metal are of edges 3 cm, 4 cm and 5 cm. These are melted together and from the melted material, another cube is formed. The edge of this cube is :
(a) 8 cm (b) 10 cm
(c) 9 cm (d) 6 cm
(e) None of these

REASONING ABILITY

41. If the following series is written in the reverse order, which number will be fourth to the right of the seventh number from the left ?

7, 3, 9, 7, 0, 3, 8, 4, 6, 2, 1, 0, 5, 11, 13

(a) 0 (b) 5
(c) 9 (d) 11
(e) None of these

42. In a certain code language 'ne ri so' means 'good rainy day', 'si ne po' means 'day is wonderful' and 'ri jo' means 'good boy'. Which of the following means 'rainy' in the code?

(a) ne (b) si
(c) ri (d) so
(e) None of the above

43. If SMOOTH is coded as 135579, ROUGH as 97531 and HARD as 9498, then SOFT will be coded as

(a) 1527 (b) 1347
(c) 4998 (d) 8949
(e) 8994

44. Saroj is mother-in-law of Vani who is sister-in-law of Deepak. Rajesh is father of Ramesh, the only brother of Deepak. How is Saroj related to Deepak?

(a) Mother-in-law (b) Wife
(c) Aunt (d) Mother
(e) None of these

45. A directional post is erected on a crossing. In an accident, it was turned in such a way that the arrow which was first showing east is now showing south. A passerby went in a wrong direction thinking it is west. In which direction is he actually travelling now ?

(a) North (b) South
(c) East (d) West
(e) None of these

DIRECTIONS (Qs. 46-50) : In each question below, there are three statements followed by two conclusions numbered I and II. You have to take the three 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 three statements disregarding commonly known facts.

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 nor II follows.

Give answer (e) if both I and II follow.

46. **Statements:** All shoes are pens.
Some pens are razors.
Some razors are desks.
Conclusions :
I. Some desks are shoes.
II. Some razors are shoes.

47. **Statements:**
Some benches are windows.
Some windows are walls.
Some walls are trains.
Conclusions:
I. "Some trains are benches."
II. No train is bench.

48. **Statements :**
All brushes are chocolates.
All chocolates are mirrors.
All mirrors are tables.
Conclusions:
I. Some tables are brushes
II. Some mirrors are chocolates.

49. **Statements :**
Some pencils are knives.
All knives are papers.
Some papers are books.
Conclusions:
I. Some books are pencils.
II. Some papers are pencils.

50. **Statements:**
Some roofs are figures.
All figures are lions.
All lions are goats.
Conclusions:
I. Some goats are roofs.
II. All goats are figures

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

P, Q, R, S, T, V, X and Y are seated in a staright line facing North, P sits fourth to the left of V. V sits either sixth from the left end of the line or fourth from the right end of the line. S sits second to right of R. R is not an immediate neighbour of V. T and Q are immediate neighbours of each other but neither T nor Q sits at extreme ends of the line. Only one person sits between T and X. X does not sit at the extreme end of the line.

51. What is the position of Q with respect to P?
(a) Fifth to the right
(b) Immediate neighbour
(c) Second to right
(d) Third to left
(e) None of the above

52. Which of the following represents persons seated at the two extreme ends of the line?

(a) P, V (b) Y, S
(b) R, V (d) Y, P
(e) R, Y

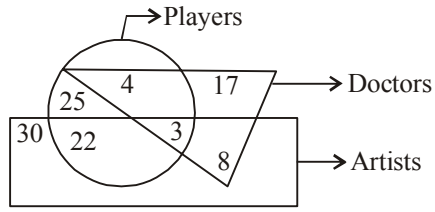
53. How many persons are seated between R and T ?

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

54. If P is related to Q and S is related to T in a certain way, to which of the following would V be related to following the same pattern ?
(a) Y (b) P
(c) R (d) S
(e) X

55. Who amongst the following sits exactly in the middle of the persons who sit second from the left and the person who sits fifth from the right?
(a) V (b) Q
(c) T (d) S
(e) P

DIRECTIONS (Qs. 56-60) : Each of the following questions is based on the diagram given below. Study the diagram carefully and answer the questions.



In the above diagram, rectangle represents 'artists', circle represents 'players' and triangle represents 'doctors'.

56. How many players are neither artists nor doctors?
(a) 25 (b) 22
(c) 4 (d) 29
(e) None of these

57. How many artists are players?
(a) 22 (b) 3
(c) 25 (d) 8
(e) None of these

58. How many artists are neither doctors nor players?
(a) 22 (b) 8
(c) 25 (d) 30
(e) None of these

59. How many doctors are neither players nor artists?
(a) 4 (b) 25
(c) 17 (d) 17
(e) None of these

60. How many doctors are players and artists both?
(a) 4 (b) 7
(c) 3 (d) 8
(e) None of these

DIRECTIONS (Qs. 61-65) : In these questions, relationship betwen different elements is shown in the statements.

These statements are followed by two conclusions.

Given answer

(a) if only Conclusion I follows
(b) if only Conclusion II follows
(c) if either Conclusion I or II follows
(d) if neither Conclusion I nor II follows
(e) if both Conclusion I and II follows

61. **Statements** L > M, M > N, N > P
Conclusions I. L > P **II.** M > P

62. **Statements** A > B, B B = H, H > G
Conclusions I. A > G **II.** A > H

63. **Statements** H < J, F < H, I ≤ J = K
Conclusions I. H > I **II.** I ≥ F

64. **Statements** A > B > C ≤ D = E
Conclusions I. B ≤ E **II.** B < P

65. **Statements** P > M > Q, Q > Z > N
Conclusions I. M ≥ Z **II.** N < P

DIRECTIONS (Qs. 66-70): Study the following sequence carefully and answer the questions given below:

M E 5 P B 2 A 7 K N 9 T R U 4 6 I J D F 1 Q 3 W 8 V I S Z

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

67. If the order of the first twenty letters/numbrs in the above sequence is reversed and the remaining letters/numbers are kept unchanged, which of the following will be the fourteenth letter/number from the right end after the rearrangement?
(a) B (b) 6
(c) 2 (d) 1
(e) None of these

68. Which of the follwing letter/number is the eighth to the left of the nineteenth letter/number from the left end?
(a) N (b) T
(c) 1 (d) D
(e) None of these

69. Four of the following five are alike in a certain way with regard to their position in the above sequence and so form a group. Which is the one that **does not** belong to that group?
(a) WIQ (b) PAE
(c) NR7 (d) 4JR
(e) D16

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

DIRECTIONS (Qs. 71-75) : Study the following information to answer the given questions.

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

71. Who amongst the following is sitting exactly between F and D ?
(a) C (b) E
(c) H (d) A
(e) None the these

72. Three of the following four are alike in a certain way based on the information given above and so from a group. Which is the one that does not belong to that group ?
(a) DC (b) AH
(c) EF (d) CB
(e) None the these

73. Who amongst the following is sitting second to the left of H?
(a) E (b) B
(c) A (d) Data inadequate
(e) None the these

74. Who amongst the following are immediate neighbours of G?
(a) CA (b) AF
(c) DC (d) DF
(e) None the these

75. Who amongst the following is sitting third to the right of A?
(a) F (b) B
(c) B (d) C
(e) None the these

DIRECTIONS (Qs. 76-80): Study the following information to answer the given questions.

In a certain code, 'always create new ideas' is written as 'ba ri sha gi', 'ideas and new thoughts' is written as 'fa gi ma ri', 'create thoughts and insights' is written as 'ma jo ba fa', and 'new and better solutions' is written as 'ki ri to fa'.

76. What is the code for 'ideas'?
(a) sha (b) ba
(c) gi (d) ma
(e) Cannot be determined

77. What does 'fa' stand for?
(a) thoughts (b) insights
(c) new (d) and
(e) solutions

78. 'fa lo ba' could be a code for which of the following?
(a) thoughts and action (b) create and innovate
(c) ideas and thoughts (d) create new solutions
(e) always better ideas

79. What is the code for 'new'?
(a) ki (b) ri
(c) to (d) fa
(e) ba

80. Which of the following may represent 'insights always better'?
(a) jo ki to (b) ki to ri
(c) sha jo ri (d) to sha jo
(e) sha to ba

HINTS & EXPLANATIONS

1. (a) $\left[\left(5\sqrt{7}+\sqrt{7}\right)\times\left(4\sqrt{7}+8\sqrt{7}\right)\right]-(19)^2=?$

$\Rightarrow (6\sqrt{7}\times 12\sqrt{7})-(361)=?$

$\Rightarrow 72\times\sqrt{7}\times\sqrt{7}-361=?$

$\therefore ?=504-361=143$

2. (b) $(4444\div 40)+(645\div 25)+(3991\div 26)=?$

$\Rightarrow ?=(111.1)+(25.8)+(153.5)\Rightarrow ?=290.4$

3. (e) $\sqrt{33124}\times\sqrt{2601}-(83)^2=(?)^2\,(37)^2$

$\Rightarrow (?)^2=\sqrt{33124}\times\sqrt{2601}-(83)^2-(37)^2$

$\Rightarrow (?)^2=182\times 51-6889-1369$

$\Rightarrow (?)^2=9282-6889-1369$

$\Rightarrow (?)^2=1024$

$\therefore ?=\sqrt{1024}=32$

4. (b) $5\frac{17}{37}\times 4\frac{51}{52}\times 11\frac{1}{7}+2\frac{3}{4}=?$

$\Rightarrow\left(\frac{202}{37}\times\frac{259}{52}\times\frac{78}{7}\right)+\left(\frac{11}{4}\right)=?$

$\Rightarrow 303+\frac{11}{4}=?$

$\therefore ?=\frac{1223}{4}=305.75$

5. (d) $\frac{1}{\sqrt{9}-\sqrt{8}}=\frac{1}{\sqrt{9}-\sqrt{8}}\times\frac{\sqrt{9}+\sqrt{8}}{\sqrt{9}+\sqrt{8}}=\frac{3+2\sqrt{2}}{9-8}=(3+2\sqrt{2}).$

6. (e) The series is $+0.5, +1, +1.5, +2,....$
7. (c) The series is $+1^2, +2^2, +3^2, +4^2,....$
8. (b) The series is $-8, -7, -6, -5, ...$
9. (a) The series is $\times 3-1$ in each term.
10. (d) The series is $\div 2-1$ in each term.

11. (a) I. $x^2+5x+6=0$

$\Rightarrow x^2+2x+3x+6=0$

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

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

$\Rightarrow x=-3$ or -2

II. $y^2+7y+12=0$

$\Rightarrow y^2+4y+3y+12=0$

$\Rightarrow y(y+4)+3(y+4)=0$

$\Rightarrow (y+3)(y+4)=0$

$\Rightarrow y=-3$ or -4

On comparing the value of equ.(i) and equ.(ii)

$x\geq y$

12. (d) I. $x^2-9x+20=0$

$\Rightarrow x^2-5x-4x+20=0$

$\Rightarrow x(x-5)-4(x-5)=0$

$=(x-4)(x-5)=0$

$x=4$ or 5

II. $y^2-13y+42=0$

$\Rightarrow y^2-7y-6y+42=0$

$\Rightarrow y(y-7)-6(y-7)=0$

$\Rightarrow (y-6)(y-7)=0$

$\Rightarrow y=6$ or 7

Here, $y>x$

13. (d) $2x+3y=14$ ...(I)

$4x+2y=16$ ...(II)

By equation (I) $\times 2$ – equation II.

$4x+6y-4x-2y=28-16$

$\Rightarrow 4y=12\Rightarrow y=3$

From equation I,

$2x+3\times 3=14$

$\Rightarrow 2x=14-9=5\Rightarrow x=\frac{5}{2}$

Here, $y>x$

14. (e) I. $x=\sqrt{625}=\pm 25$

II. $y=\sqrt{676}=\pm 26$

No relation can be established between x and y.

15. (d) I. $x^2+4x+4=0$

$(x+2)^2=0\Rightarrow x=-2$

II. $y^2-8y+16=0$

$\Rightarrow (y-4)^2=0$

$\Rightarrow y=4$

Here, $y>x$

16. (d) Difference of production of C in 2010 and A in 2015 = 5,00,000 tonnes
17. (a) Percentage increase of A from 2011 to 2012

$\frac{55-40}{40}\times 100=37.5\%$

18. (b) Percentage rise/fall in production for B

2011	2012	2013	2014	2015
9%	–16.6%	10%	– 9%	10%

Here, the maximum difference is from 2011 to 2012, which is 10. And the second nearest to it is fall or rise of 5. So, undoubtedly the answer is 2012.

19. (e) Percentage production $=\frac{120}{90}\times 100=133.3\%$

20. (c) Average production of A = 50
Average production of B = 54.17
Average production of C = 50
Difference of production = 54.17 – 50 = 4.17

21. (c)

22. (b) Total no. of rural viewers = 388080

$$\therefore \text{Avg} = \frac{388080}{6} = 64680$$

23. (c) $$\text{Rural viewers}_{\text{sony}} = 1200000 \times \frac{12}{100} \times \frac{35}{100} = 50400$$

$$\text{Urban viewer}_{\text{sony}} = 1200000 \times \frac{12}{100} \times \frac{65}{100} = 93600$$

$$\text{Reqd\%} = \frac{50400}{93600} \times 100 = 53.846\%$$

24. (d) $$\text{Urban}_{\text{sahara}}$$

$$= 1200000 \times \frac{8}{100} \times \frac{72}{100} = 69120$$

$$\text{Rural}_{\text{SAB}} = 1200000 \times \frac{14}{100} \times \frac{25}{100} = 42000$$

$$\therefore \text{Reqd\%} = \frac{69120 - 4200}{42000} \times 100 = 64.57\%$$

25. (b) $$\text{Ratio} = \frac{1200000 \times \frac{20}{100} \times \frac{32}{100}}{1200000 \times \frac{24}{100} \times \frac{70}{100}} = \frac{20 \times 32}{24 \times 70} = \frac{8}{21}$$

26. (e) $12959.998 \div 18.010 = ?$
$\approx 12960 \div 18 = ?$
$? = 720$

27. (a) 40.005% of $439.998 + ?\%$ of $655.011 = 228.5$

$$\approx \frac{40}{100} \times 440 + \frac{x}{100} \times 655 = 229$$

$$\approx 176 + \frac{655x}{100} = 229 \approx \frac{655x}{100} = 229 - 176$$

$$x = \frac{50 \times 100}{655} \approx 8$$

28. (e) $6894.986 + 5025.005 + 600.020 = ?$
$\approx 6895 + 5025 + 600 = ?$
$\approx 12520 = ?$

29. (b) $31.999 \times 12.001 \times 17.5001 = ?$
$\approx 32 \times 12 \times 17.5 = ?$
$\approx 6720 = ?$

30. (c) $(10.998)^3 = ?$
$\approx (11)^3 = ?$
$\approx 1330 = ?$

31. (a) Required average age

$$= \left(\frac{15 \times 36 + 12 \times 16}{36 + 12}\right) \text{years} = \left(\frac{540 + 192}{48}\right) \text{years}$$

$= 15.25$ years.

32. (d) Let the CP of the article be ₹ x.
According to the question,
$1450 - x = x - 1280$
$\Rightarrow 2x = 1450 + 1280 = 2730$

$$\Rightarrow x = \frac{2730}{2} = ₹1365$$

33. (c) Let Principal = ₹ P

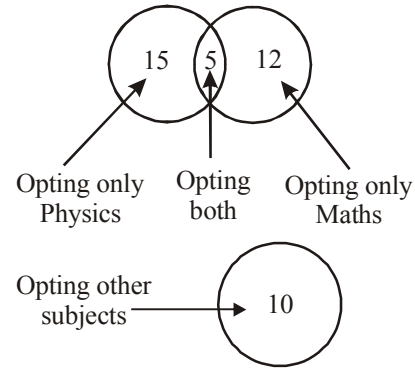
$$P\left(1 + \frac{10}{100}\right)^3 - P = 993 \Rightarrow \left(\frac{11}{10} \times \frac{11}{10} \times \frac{11}{10} - 1\right) P = 993$$

$$\Rightarrow \left(\frac{1331 - 1000}{1000}\right) P = 993 \text{ or,}$$

$$P = \frac{993 \times 1000}{331} = 3000$$

$$\therefore \text{Simple interest} = ₹\left(\frac{3000 \times 3 \times 10}{100}\right) = ₹900$$

34. (b)



Total no. of students = 15 + 5 + 12 + 10 = 42

35. (d) Concentration of boric acid = 80% = 80 cc
Quantity of water = 20 cc
Let x cc of water be added to get the concentration of 50%.

$$\Rightarrow \frac{80}{100 + x} = \frac{50}{100} \text{ or } \frac{80}{100 + x} = \frac{1}{2} \text{ or } x = 60 \text{ cc}$$

36. (b) Successive discounts of 20% and 15% on ₹ 100 yields to
$100 \times 0.8 \times 0.85 = ₹68$
$\therefore$ Single discount = $(100 - 68) = 32\%$

37. (a) Let the second car overtakes the first car after t hours.
Distance covered by the first car = Distance covered by the second car.

$$\Rightarrow 10\,t = 8 + \left(8 + \frac{1}{2}\right) + \left(8 + \frac{2}{2}\right) + ... + \left(8 + \frac{t-1}{2}\right)$$

$$\text{or } 10t = 8t + \frac{1}{2}[1 + 2 + ... + (t-1)]$$

$$\text{or } 10t = 8t + \frac{1}{2}\frac{t(t-1)}{2} \text{ or } 2t = \frac{1}{4}(t^2 - t)$$

$\Rightarrow t = 9$ hrs. $[t \neq 0]$

38. (b) $m_1 \times d_1 \times t_1 \times w_2 = m_2 \times d_2 \times t_2 \times w_1$
$24 \times 10 \times 8 \times 1 = m_2 \times 6 \times 10 \times 1$

$$\Rightarrow m_2 = \frac{24 \times 10 \times 8}{6 \times 10} = 32 \text{ men}$$

39. (c) Let the two digit number be $10x + y$
We have $x + y = 15$ ...(i)
and $(10x + y) + 9 = (10y + x)$ or $9x - 9y = -9$
or $x - y = -1$ ...(ii)
From (i) and (ii) $x = 7$ and $y = 8$
The number is $10 \times 7 + 8 = 78$

40. (d) Let edge of the new cube = x cm.
Volume of the newly formed figure (cube)
= Sum of volume of smaller cubes.
i.e. $(x)^3 = (3)^3 + (4)^3 + (5)^3 = 27 + 64 + 125 = 216 \Rightarrow x = 6$ cm

41. (a) The given series when written in the reverse order becomes.
13, 11, 5, 0, 1, 2, 6, 4, 8, 3, 0, 7, 9, 3, 7
The 7th number from the left is 6. The 4th number to the right of 6 is 0.

42. (d)

ne	ri	so	→ good	rainy	day
si	ne	po	→ day	is	wonderful
	ri	jo	→ good	boy	

So, the code for rainy is 'so'.

43. (a) As,

S	M	O	O	T	H	R	O	U	G	H
↓	↓	↓	↓	↓	↓	, ↓	↓	↓	↓	↓
1	3	5	5	7	9	9	7	5	3	1

and

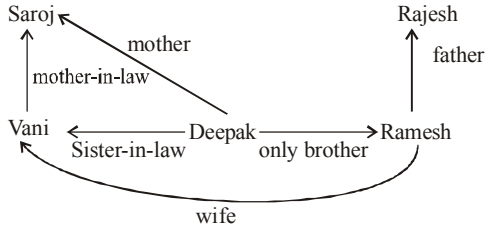
H	A	R	D
↓	↓	↓	↓
9	4	9	8

It clearly shown that only first option conatins 1527.
So,

S	O	F	T
↓	↓	↓	↓
1	5	2	7

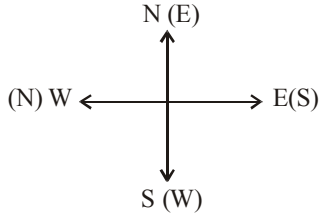
Thus, the correct code for soft will be 1527.

44. (d)



So, it is clear from the above family tree that saroj is Mother to Deepak.

45. (b)



When the arrow turns, East becomes South, North becomes East, West becomes North and South becomes West.
So, the traveller must be actually travelling in the South thinking it is West.

46. (d) All shoes are pens. (A-type)

Some pens are razors. (I-type)
A + I ⇒ No Conclusion

47. (c) All the three Premises are Particular Affirmative (I-type).
No Conclusion follows from Particular Premises.
Conclusion I and II from Complementary Pair.
Therefore, either I or II follows

48. (e) All brushes are chocolates. (A-type)

All chocolates are mirrors. (A-type)
A + A ⇒ A-type Conclusion
"All brushes are mirrors"
All biushes are mirrors. (A-type)

All mirrors are tables. (A-type)
"All brushes are tables"
Conclusion I is converse of this Conclusion.
Conclusion II is converse of the second Premise.

49. (b) Some pencils are knives. (I-type)

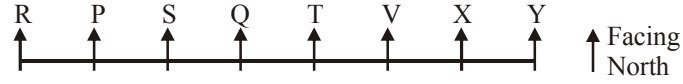
All knives are papers. (A-type
I + A ⇒ I-type Conclusion
"Some pencils are papers"
Conclusion II is converse of this Conclusion.

50. (a) Some roofs are figure. (I-type)

All figures are lions. (A-type)
I + A ⇒ I-type Conclusion
"Some roofs are lions."
Some roofs are lion. (I-type)

All lions are goats. (A-type)
I + A ⇒ I-(A-type) Conclusion
"Some roofs are goats"
Conclusion I is converse of this Conclusion..

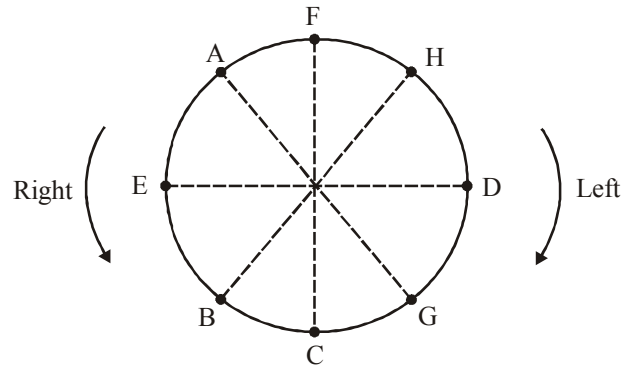
(Q. No. 51-55): On the basis of given information, the final sitting arrangment of eight persons in a straight line facing North is as following



51. (c) Q is second to the right of P.
52. (e) R and Y are sitting at the two extreme ends of the line.

53. (c) Three persons P, S and Q are seated between R and T.
54. (a) In the given pairs, second person is seated second to the right of first person.
So, V be related to Y as Y is sitting second to the right of V.
55. (d) Second from the left is P and fifth from the right is Q.S is sitting between P and Q.
56. (a) There are 25 players who are neither artists nor doctors because this is the only region of the circle which is not common with either rectangle or triangle.
57. (c) Required number = 22 + 3 = 25
58. (d) There are 30 artists who are neither doctors nor players because this is the only region of the rectangle which is not common with either circle or triangle.
59. (d) There are 17 doctors who are neither players nor artists because this is the only region of the triangle which is not common with either circle or rectangle.
60. (c) The region 3 is common to triangle, circle and rectangle and hence, represents doctors who are players as well as artists.
61. (e) Given that, $L > M$ ...(i)
$M > N$ ...(ii)
$N > P$ ...(iii)
On combining all the three statements, we get
$L > M > N > P$
Conclusions I. $L > P$ ...(true)
II. $M > P$ ...(true)
So, it is clear that both Conclusions I and II follow from that given statements.
62. (e) Given that, $A > B$ ...(i)
$B = H$ ...(ii)
$H > G$ ...(iii)
On combining the statements (i), (ii) and (iii), we get
$A > B = H > G$
Conclusions I. $A > G$ ...(true)
II. $A > H$ ...(true)
So, it is clear that both Conclusions I and II follow from the given statements.
63. (d) Given that, $H < J$ ...(i)
$F < H$ ...(ii)
$I \le J = K$ ...(iii)
On combining that statements (i), (ii) and (iii), we get
$F < H < J = K \ge I$
Conclusions I. $H > I$ ...(false)
II. $I \ge F$ ...(false)
So, it is clear that both Conclusions I and II follow from the given statements.
64. (d) Given that, $A < B < C \le D = E$
Here, statements are already combined.
Conclusions I. $B \le E$ ...(false)
II. $B < E$ ...(ture)
So, it is clear that only Conclusions II follow from the given statements.
65. (e) Given that, $P > M > Q$ ...(i)
$Q > Z > N$ ...(ii)
On combining that statements (i), and (ii) we get
$P > M > Q > Z > N$
Conclusions I. $M \ge Z$ ...(false)
II. $N < P$ ...(true)
So, it is clear that only Conclusions II follow from the given statements.
66. (e) Four members in the sequence.
ME5PB2A7K<u>N**9**</u>TRU46IJD<u>F**1**</u>Q**3**<u>W**8**</u>VISZ
67. (a) FDJI64URT9NK7A2 [B] P5EM1Q3W8VISZ
[B] 14th from right end.
68. (e) Eighth to the left of the nineteenth letter/number from the left $\Rightarrow$ (19 – 8 =) 11th letter/number from left. Hence, required element is 9.
69. (e) Except D16, second element in each group is third to the right of first element while third element of each group is second to the left of first element of the respective group.
70. (a) There are no such vowels.

(Q. Nos. 71-75) Arrangement according to the question is as follows



71. (c) Clearly, H is sitting exactly between F and D.
72. (d)

DGC	AFH	EAF	C None B
↑	↑	↑	↑
Skipped	Skipped	Skipped	No Member is skipped in between

So, CB does not belong to the group.
73. (e) Clearly, G is sitting second to the left of H.
74. (c) Clearly, D and C are immediate neighbours of G.
75. (d) Clearly, C is sitting third to the right of A.

(76-80) : 'always create new ideas' → 'ba ri sha gi' ... (1)
'ideas and new thoughts' → 'fa gi ma ri' ... (2)
'create thoughts and insights' → 'ma jo ba fa' ... (3)
'new and better solutions' → 'ki ri to fa' ... (4)
Using (1) and (4),
new → ri
Using (1), (2) and (4),
ideas → gi
and → fa
thoughts → ma
Using (1) and (3),
create → ba
always → sha
insights → jo
better solutions → ki to

76. (c) 77. (d) 78. (b) 79. (b) 80. (d)

PRACTICE SET 3

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. 1-10) : What should come in place of the question mark (?) in the following questions ?

1. $(786 \times 64) \div 48 = ?$

(a) 1050 (b) 1024
(c) 1048 (d) 1036
(e) None of these

2. $\sqrt[3]{13824} \times \sqrt{?} = 864$

(a) 1296 (b) 1156
(c) 1600 (d) 1024
(e) None of these

3. 60% of 20% of $\frac{3}{5}$ th of $? = 450$

(a) 6200 (b) 6,240
(c) 6150 (d) 6275
(e) None of these

4. $196 \times 948 \div 158 = ?$

(a) 1156 (b) 1200
(c) 1188 (d) 1176
(e) None of these

5. $3.5 + 11.25 \times 4.5 - 32.5 = ?$

(a) 18.275 (b) 21.625
(c) 32.375 (d) 25.45
(e) None of these

6. $\frac{\sqrt{4096} \times 56}{764 - 652} = ?$

(a) 36 (b) 48
(c) 32 (d) 44
(e) None of these

7. $(98360 + 25845 - 36540) \div 2500 = ?$

(a) 36.585 (b) 30.082
(c) 32.085 (d) 35.066
(e) None of these

8. $7414 + 3698 + 1257 + 1869 = ?$

(a) 14328 (b) 14438
(c) 13428 (d) 13248
(e) None of these

9. $(91)^2 + (41)^2 - \sqrt{?} = 9858$

(a) 11236 (b) 10816
(c) 10404 (d) 9604
(e) None of these

10. $(2640 \div 48) \times (2240 \div 35) = ?$

(a) 3520 (b) 3515
(c) 3495 (d) 3490
(e) None of these

DIRECTIONS (Qs. 11-15): What approximate value will come in place of the question mark (?) in the following questions ? (You are not required to find the exact value).

11. $2371 \div 6 + (43 \times 4.35) = ?$
(a) 582 (b) 590
(c) 600 (d) 570
(e) 595

12. $(4.989)^2 + (21.012)^3 + \sqrt{1090} = ?$
(a) 9219 (b) 9391
(c) 9319 (d) 9129
(e) None of these

13. 24.99% of 5001 – 65.01% of 2999 = ?
(a) 840 (b) 500
(c) 700 (d) –500
(e) –700

14. $(81)^{-\frac{1}{2}} - (64)^{-\frac{2}{3}} = ?$
(a) $\frac{3}{19}$ (b) $\frac{1}{16}$
(c) $\frac{7}{144}$ (d) $\frac{1}{9}$
(e) None of these

15. $\frac{\sqrt{29241}}{\sqrt{361}} \times 5\frac{2}{9} = ?$
(a) 47 (b) 49
(c) 46 (d) 45
(e) 61

DIRECTIONS (Qs. 16-20): What should come in place of question mark (?) in the following number series ?

16. 121 117 108 92 67 ?
(a) 31 (b) 29
(c) 41 (d) 37
(e) None of these

17. 50 26 14 ? 5 3.5
(a) 6 (b) 8
(c) 10 (d) 12
(e) None of these

18. 3 23 43 ? 83 103
(a) 33 (b) 53
(c) 63 (d) 73
(e) None of these

19. 748 737 715 682 638 ?
(a) 594 (b) 572
(c) 581 (d) 563
(e) None of these

20. 1 9 25 49 81 ? 169
(a) 100 (b) 64
(c) 81 (d) 121
(e) None of these

21. The ratio of ducks and frogs in a pond is 37 : 39 respectively. The average number of ducks and frogs in the pond is 152. What is the number of frogs in the pond ?
(a) 148 (b) 152
(c) 156 (d) 144
(e) None of these

22. The number of employees in Companies A, B and C are in a ratio of 4 : 5 : 6 respectively. If the number of employees in the Companies is increased by 25%, 30% and 50% respectively, what will be the new ratio of employees working in Companies A, B and C respectively ?
(a) 13 : 10 : 18 (b) 10 : 13 : 17
(c) 13 : 15 : 18 (d) Cannot be determined
(e) None of these

23. The average of five positive numbers is 213. The average of the first two numbers is 233.5 and the average of last two numbers is 271. What is the third number ?
(a) 64 (b) 56
(c) 106 (d) Cannot be determined
(e) None of these

24. Sonali invests 15% of her monthly salary in insurance policies. She spends 55% of her monthly salary in shopping and on household expenes. She saves the remaining amount of Rs. 12,750. What is Sonali's monthly income ?
(a) ₹. 42,500 (b) ₹38,800
(c) ₹40,000 (d) ₹35,500
(e) None of these

25. What **approximate** amount of compound interest can be obtained on an amount of ₹ 9, 650 at the rate of 6% p.a. at the end of 3 years ?
(a) ₹1,737 (b) ₹1,920
(c) ₹1,720 (d) ₹1, 860
(e) ₹1,843

26. A milkman sells 120 litres of milk for ₹ 3,360 and he sells 240 litres of milk for Rs. 6,120. How much concession does the trader give per litre of milk, when he sells 240 litres of milk ?
(a) ₹2 (b) ₹3.5
(c) ₹2.5 (d) ₹1.5
(e) None of these

27. When 3,626 is divided by the square of a number and the answer so obtained is multiplied by 32, the final answer obtained is 2,368. What is the number ?
(a) 7 (b) 36
(c) 49 (d) 6
(e) None of these

28. The sum of the digits of a two digit number is 14. The difference between the first digit and the second digit of the two digit number is 2. What is the product of the two digits of the two digit number ?
(a) 56 (b) 48
(c) 45 (d) Cannot be determined
(e) None of these

29. A car runs at the speed of 50 kmph when not serviced and runs at 60 kmph, when serviced. After servicing the car covers a certain distance in 6 hours. How much time will the car take to cover the same distance when not serviced ?
(a) 8.2 hours (b) 6.5 hours
(c) 8 hours (d) 7.2 hours
(e) None of these

30. Venkat has some ducks and some sheep. If the total number of animal heads is 81 and the total number of animal feet are 268, how many sheep does Venkat have?
(a) 28 (b) 53
(c) 44 (d) Cannot be determined
(e) None of these

31. The sum of the two digits of a two digit number is 13. The difference between the two digits of the number is 3. What is the two digit number?
(a) 85 (b) 49
(c) 57 (d) Cannot be determined
(e) None of these

32. 25 shirt pieces of 125 cms. each can be cut from a reel of cloth. After cutting these pieces 90 cms. of cloth remains. What is the length of the reel of cloth in metres?
(a) 3215 metres (b) 35.15 metres
(c) 32.15 metres (d) 3515 metres
(e) None of these

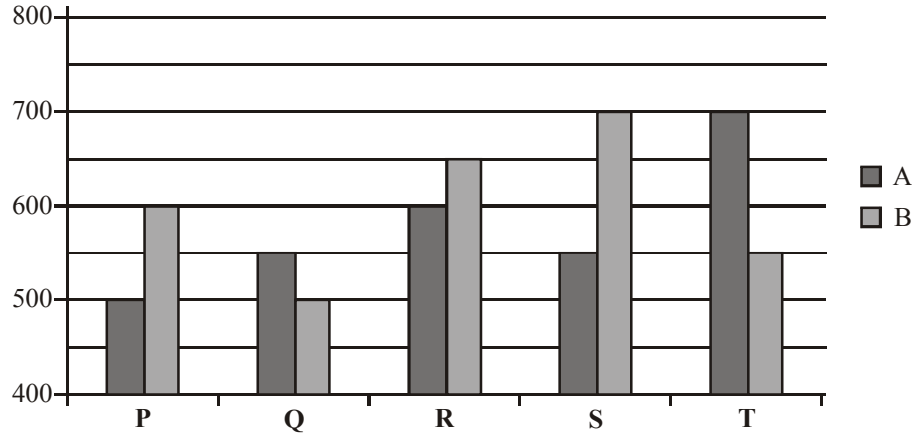
33. The sum of the squares of two consecutive positive odd numbers is 650. Which is the larger number?
(a) 17 (b) 21
(c) 23 (d) 15
(e) None of these

34. The profit earned after selling a pair of shoes for ₹ 2,033 is the same as loss incurred after selling the same pair of shoes for ₹ 1,063. What is the cost of the shoes?
(a) ₹ 1,650 (b) ₹ 1,548
(c) ₹ 1,532 (d) Cannot be determined
(e) None of these

35. When an amount of ₹ 1,58,965 is divided equally amongst 120 people, how much approximate amount would each person get?
(a) ₹ 1,330 (b) ₹ 1,315
(c) ₹ 1,335 (d) ₹ 1,320
(e) ₹ 1,325

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

The graph given below represents the number of users of two broadband services A and B across 5 cities P, Q, R, S and T.



36. What is the total number of users of brand B across all five cities together ?
(a) 2700 (b) 3000
(c) 3100 (d) 2900
(e) 3200

37. The number of users of brand A in city T is what percent of the number of users of brand B in City Q ?
(a) 150 (b) 110
(c) 140 (d) 160
(e) 120

38. What is the average number of users of brand A across all five cities together ?
(a) 560 (b) 570
(c) 580 (d) 590
(e) 550

39. What is the difference between the total number of users of Brand A and B together in city R and the total number of users of brand A and B together in city P ?
(a) 170 (b) 140
(c) 130 (d) 150
(e) 160

40. What is the respective ratio of the number of users of brand A in city P to the number of users of brand B in city S ?
(a) 5 : 7 (b) 4 : 7
(c) 2 : 5 (d) 3 : 4
(e) 5 : 6

REASONING ABILITY

DIRECTIONS (Qs. 41-45) : In each of the questions below are given three statements followed by four conclusions numbered I, II, III and IV. You have to take the given statements to be true even if they seem to be at variance with commonly known facts. Read all the conclusions and then decide which of the given conclusions logically follows from the given statements disregarding commonly known facts.

41. **Statements :** All books are notes.
Some notes are pencils.
No pencil is paper.
Conclusions : I. Some notes are books.
II. Some pencils are books.
III. Some books are papers.
IV. No book is a paper.

(a) Only I and either III or IV follow
(b) Either III or IV follows
(c) Only I and III follow
(d) Neither II nor III follows
(e) None of these

42. **Statements :** Some fruits are seeds.
All seeds are trees.
All plants are trees.
Conclusions : I. Some plants are seeds.
II. Some plants are fruits.
III. Some trees are fruits.
IV. No plant is a seed.
(a) Only III follow
(b) III and either I or IV follow
(c) II and either I or IV follow
(d) Either I or IV follow
(e) None of these

43. **Statements :** Some motors are books.
Some scooters are motors.
All girls are scooters.
Conclusions : I. Some girls are motors.
II. Some girls re books.
III. Some scooters are girls.
IV. No girl is a book
(a) I and III follow (b) II and III follow
(c) I and II follow (d) I, II and III follow
(e) Either II or IV and III follow

44. **Statements :** All dogs are rats.
All rats are crows.
All crows are parrots.
Conclusions : I. All dogs are parrots.
II. Some parrots are dogs.
III. Some crows are dogs.
IV. All rats are dogs.
(a) I and II follow (b) I, II and III follow
(c) Either II or IV follow (d) Either I or II and III follow
(e) None of these

45. **Statements :** All papers are books.
All bags are books.
Some purses are bags.
Conclusions : I. Some papers are bags.
II. Some books are papers.
III. Some books are purses.
IV. All books are purses.
(a) Only I follows
(b) Only II and III follow
(c) Only I and III follow
(d) Only I and II follow
(e) None of the above

DIRECTIONS (Qs. 46-50) : In the following questions, the symbols %, *, @, $ and # are used with the following meaning as illustrated below :

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

46. **Statements :** T$K, K#R, R*M
Conclusions : I. M*K
II . M % T
III. M$K
(a) All follows
(b) Only either I or III follows
(c) Only either I or II follows
(d) Only either II or III follows
(e) None of the above

47. **Statements :** M%R, R#T, T*N
Conclusions : I. N*R
II . N$R
III . N$M
(a) All follows
(b) Either I or II follows
(c) Either I or II and III follows
(d) Either I or III and II follows
(e) None of the above

48. **Statements :** V@M, A$M, R#V
Conclusions : I. R#A
II . V@A
III. R$M
(a) Only I follows (b) Only II follows
(c) Only III follows (d) None follows
(e) All follow

49. **Statements :** B*D, D@H, H%F
Conclusions : I. B*F
II . B$F
III. D$F
(a) None follows
(b) Only either I or II follows
(c) Only either I or II and III follows
(d) Only III follows
(e) All follow

50. **Statements :** J#N, K@N, T$K
Conclusions : I . J%T
II. T$N
III . N@J
(a) None follows
(b) Only I or II follow
(c) Only I and III follow
(d) Only II and III follow
(e) All follow

DIRECTIONS (Qs. 51-55) : Read the following information carefully and answer the questions based on it.

Ten students– A, B, C, D, E, F, G, H, I and J are sitting in a row facing West.
I. B and F are not sitting on either of the edges.
II. G is sitting to the left of D and H is sitting to the right of J.
III. There are four persons between E and A.
IV. I is to the North of B and F is to the South of D.
V. J is in between A and D and G is in between E and F.
VI. There are two persons between H and C.

51. Who is sitting at the seventh place counting from left?
(a) H (b) C
(c) J (d) Either H or C
(e) None of these

52. Who among the following is definitely sitting at one of the ends?
(a) C (b) H
(c) E (d) Cannot be determined
(e) None of these

53. Who are immediate neighbours of I?
(a) BC (b) BH
(c) AH (d) Cannot be determined
(e) None of these

54. Who is sitting second left of D?
(a) G (b) F
(c) E (d) J
(e) None of these

55. If G and A interchange their positions, then who become the immediate neighbours of E?
(a) G and F (b) Only F
(c) Only A (d) J and H
(e) None of these

DIRECTIONS (Qs. 56-60): Answer these questions referring to the symbol-letter-number sequence given below:

E G 4 B H 7 5 @ K 8 D N £ Q Z $ W 3 C 1 9 * 1 B 2 S 6

56. How many such consonants are there in the above sequence which are immediately preceded by a symbol and immediately followed by a digit ?
(a) One (b) Two
(c) None (d) Three
(e) More than three

57. What should come in place of the question mark (?) in the following sequence ?
4H@, KDQ, ?, 9IS
(a) ZW1 (b) NQ$
(c) @8N (d) $W9
(e) None of these

58. Which of the following is exactly in the midway between the ninth from left end and the seventh from right end ?
(a) Q (b) Z
(c) $ (d) W
(e) None of these

59. If the first fifteen elements are written in the reverse order then which of the following will be seventh to the left of twelfth element from right end ?
(a) 7 (b) @
(c) 5 (d) K
(e) None of these

60. How many such digits are there in the above sequence which are immediately preceded as well as followed by digits ?
(a) None (b) One
(c) Two (d) Three
(e) None of these

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

A university organised exams for six different subjects, viz Maths, Physics, Chemistry, Electronics, Statistics and English on six days of a week, not necessarily in the same order. The exams start from Monday, with a holiday on any day of the week. Only full day is devoted to one exam.

The exam of Maths is scheduled immediately after the exam of Physics. The exam of Electronics is scheduled on Wednesday but not after the exam of English. The exam of Chemistry is scheduled on Friday. There is only one exam between the exams of Statistics and Maths. There is only one day when no paper is scheduled but that is not Saturday. The exam of English is scheduled just before the holiday.

61. On which of the following days is the exam of Statistics scheduled?
(a) Tuesday (b) Wednesday
(c) Friday (d) Saturday
(e) None of these

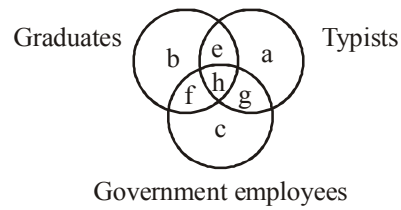
62. On which day is a holiday?
(a) Sunday (b) Monday
(c) Tuesday (d) Wednesday
(e) None of these

63. How many exams is/are scheduled between the exams of Maths and Electronics?
(a) One (b) Two
(c) Three (d) Four
(e) None of these

64. Which two exams are scheduled on the first and last day?
(a) Electronics, English (b) Maths, English
(c) Physics, Chemistry (d) Physics, English
(e) None of these

65. Which of the following combinations is correct?
(a) English - Thursday (b) Maths-Monday
(c) Statistics- Saturday (d) Physics-Monday
(e) None of these

DIRECTIONS (Q. 66-67): Below is given a figure made of three circles intersecting one another. These circles represents graduates, typists and Government employees. The intersecting regions have been denoted by a, b, c, e, f, g and h, respectively. Study the diagram carefully and answer the questions that follow.



66. Which of the following letters represents the typists who are only graduates ?
(a) e (b) h
(c) g (d) a
(e) f

67. Which of the following letters represents the typists who are government employees but not graduates?

(a) e (b) g
(c) f (d) h
(e) c

68. In a certain code, a number 13479 is written as AQFJL and 2568 is written as DMPN. How is 396824 written in that code?

(a) QLPNMJ (b) QLPNMF
(c) QLPMNF (d) QLPNDF
(e) None of these

69. In a certain code OVER is written as $#%*. and VIST is written as #+×–. How is SORE written in that code?

(a) ×$*% (b) %×$*
(c) ×*$% (d) ×%*$
(e) None of these

70. A boy goes to see a film and finds a man who is his relative. The man is the husband of the sister of his mother. How is the man related to the boy?

(a) Brother (b) Nephew
(c) Uncle (d) Father
(e) None of these

71. Laxman went 15 km to the west from my house, then turned left and walked 20 km. He then turned East and walked 25 km and finally turning left covered 20 km. How far was he from my house?

(a) 5 km (b) 10 km
(c) 40 km (d) 80 km
(e) None of these

72. Rearrange the first four letters, in any way, of the word DECISION. Find how many words can be formed by using all the four words.

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

73. In the following question a word is given followed by four different words, one of which can be formed by using the letter of the given word find the word.

'IMMEDIATELY'

(a) DIALECT (b) LIMITED
(c) DIAMETER (d) DICTATE
(e) None of these

74. Five boys took part in a race. Raj finished before Mohit but behind Gaurav. Ashish finished before Sanchit but behind Mohit. Who won the race?

(a) Raj (b) Gaurav
(c) Mohit (d) Ashish
(e) None of these

DIRECTIONS (Qs. 75-80) : Study the following information carefully to answer the given questions.

Eight friends A, B, C, D, E, F, G and H are sitting around a circle facing the centre but not necessarily in the same order. G sits third to left of D. Only one person sits between D and F. B sits second to right of H. H is not an immediate neighbour of D.C is not an immediate neighbour of D.E is an immediate neighbour of H.

75. What is the position of E with respect to the position of C?

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

76. Who amongst the following sits exactly between A and G?

(a) B (b) C
(c) E (d) F
(e) D

77. Four of the following five are alike in a certain way and thus form a group. Which is the one that does not belong to that group?

(a) CG (b) AE
(c) HD (d) EC
(e) None of these

78. Which of the following is true with respect to given seating arrangement ?

(a) Both A and D are immediate neighbours of E
(b) C sits exactly between H and F
(c) Only three people sit between C and E
(d) H is to the immediate left of B
(e) None of these

79. Who amongst the following sits thrid to the left of F?

(a) A (b) B
(c) C (d) G
(e) H

80. What is the position of A with respect to H?

(a) Second to the left (b) Fourth to the left
(c) Third to the right (d) Third to the left
(e) Second to the right

HINTS & EXPLANATIONS

1. (c) $? = \frac{786 \times 64}{48} = 1048$

2. (a) $\sqrt[3]{13824} \times \sqrt{?} = 864$

$\sqrt[3]{24 \times 24 \times 24} \times \sqrt{?} = 864$

$\Rightarrow 24 \times \sqrt{?} = 864$

$\Rightarrow \sqrt{?} = \frac{864}{24}$

$\therefore ? = 36 \times 36 = 1296$

3. (e) $\frac{60}{100} \times \frac{20}{100} \times \frac{3}{5} \times ? = 450$

$\Rightarrow \frac{9}{125} \times ? = 450$

$\Rightarrow ? = \frac{450 \times 125}{9} = 6250$

4. (d) $? = 196 \times 948 \div 158 = \frac{196 \times 948}{158} = 1176$

5. (b) $? = 3.5 + 11.25 \times 4.5 - 32.5$
$= 3.5 + 50.625 - 32.5 = 54.125 - 32.5 = 21.625$

6. (c) $? = \frac{\sqrt{4096} \times 56}{764 - 652} = \frac{64 \times 56}{112} = 32$

7. (d) $? = (98360 + 25845 - 36540) \div 2500$
$= 87665 \div 2500 = 35.066$

8. (e) $? = 7414 + 3698 + 1257 + 1869 = 14238$

9. (b) $(91)^2 + (41)^2 - \sqrt{?} = 9858$

$\Rightarrow 8281 + 1681 - \sqrt{?} = 9858$

$\Rightarrow \sqrt{?} = 9962 - 9858 = 104$

$\therefore ? = 104 \times 104 = 10816$

10. (a) $? = (2640 \div 48) \times (2240 \div 35)$
$= 55 \times 64 = 3520$

11. (a) $? \approx 395 + 187 = 582$

12. (c) $? \approx (5)^2 + (21)^3 + \sqrt{1089}$
$\approx 25 + 9261 + 33 \approx 9319$

13. (e) $? \approx \frac{5000 \times 25}{100} - \frac{3000 \times 65}{100}$
$\approx 1250 - 1950 \approx -700$

14. (c) $? = (81)^{-1/2} - (64)^{-2/3}$

$= \left(\frac{1}{8}\right)^{\frac{1}{2}} - \left(\frac{1}{64}\right)^{\frac{2}{3}} = \frac{1}{9} - \frac{1}{16} = \frac{16 - 9}{144} = \frac{7}{144}$

15. (a) $? = \frac{\sqrt{29241}}{\sqrt{361}} \times \frac{47}{9} = \frac{171}{19} \times \frac{47}{9} = 47$

16. (a) 121 117 108 92 67 **31**
-2^2 -3^2 -4^2 -5^2 -6^2

17. (b) 50 26 14 **8** 5 3.5
÷2+1 ÷2+1 ÷2+1 ÷2+1 ÷2+1

18. (c) 3 23 43 **63** 83 103
+20 +20 +20 +20 +20

19. (e) 748 737 715 682 638 **583**
–11 –22 –33 –44 –55

20. (d) 1 9 25 49 81 **121** 169
1^2 3^2 5^2 7^2 9^2 11^2 13^2

21. (c) Let the number of ducks and frogs in the pond be 37x and 39x respectively.
ATQ,

$\frac{37x + 39x}{2} = 152$

$\Rightarrow 38x = 152 \Rightarrow x = \frac{152}{38} = 4$

$\therefore$ Number of frogs = 39x
$= 39 \times 4 = 156$

22. (e) The number of employees in companies A, B and C be 4x, 5x and 6x respectively
After increase in the number of employees, required ratio will be

$= 4x \times \frac{125}{100} : 5x \times \frac{130}{100} : 6x \times \frac{150}{100}$

$= 4 \times 25 : 5 \times 26 : 6 \times 30$
$= 10 : 13 : 18$

23. (b) According to the questions, third number will be
$= 5 \times 213 - 2 \times 233.5 - 2 \times 271$
$= 1065 - 467 - 542 = 56$

24. (a) Let Sonali's monthly income = ₹ x
Sonali's percentage monthly spendings
$= (55 + 15)\% = 70\%$
Percentage savings $= 100 - 70 = 30\%$
ATQ,
$\therefore$ 30% of x = 12750

$\Rightarrow x = \frac{12750 \times 100}{30} =$ ₹ 42500

25. (e) $C.I. = P\left[\left(1+\frac{r}{100}\right)^t - 1\right] = 9650\left[\left(1+\frac{6}{100}\right)^3 - 1\right]$

$= 9650(1.191016 - 1)$

$= 9650 \times 0.191016 \approx$ ₹ 1843

26. (c) The rate of milk when milkman sells 120 litres of milk for ₹ 3360

$\therefore \quad SP = \left(\frac{3360}{120}\right) =$ ₹ 28

The rate of milk when milkman sells 240 litres of milk for ₹ 6120.

$\therefore \quad SP = \left(\frac{6120}{240}\right) =$ ₹ 25.5

$\therefore$ Required discount $= (28 - 25.5) =$ ₹ 2.5

27. (a) Let the number be x.

ATQ, $\frac{3626}{x^2} \times 32 = 2368$

$\Rightarrow \quad x^2 = \frac{3626 \times 32}{2368} = 49$

$\therefore \quad x = \sqrt{49} = 7$

28. (b) Let the two digits number be 10n + m and n > m.
As given,
n + m = 14
n – m = 2
On solving the equation,
n = 8, m = 6
$\therefore$ Product of digits = 8 × 6 = 48

29. (d) After servicing, speed of car = 60 km/h
$\therefore$ Distance covered in 6 hours
= (60 × 6)km = 360 km
Before servicing, time taken to cover 360 km

$\therefore$ Time taken $= \frac{360\,\text{km}}{50\,\text{km/h}} = 7.2$ hours

30. (b) Let Venkat has x ducks and y sheep.
$\therefore$ x + y = 81
$\therefore$ x = 81 – y ...(i)
and 2x + 4y = 268
$\Rightarrow$ 162 – 2y + 4y = 268
$\Rightarrow$ 2y = 268 – 162 = 106

$\Rightarrow y = \frac{106}{2} = 53$

$\therefore$ Number of sheep = 53

31. (a) x + y = 13 ...(i)
x – y = 3 ...(ii)
On adding,
2x = 16
$\Rightarrow$ x = 8
$\therefore$ y = 5
$\therefore$ Numbers are 85 and 58.

32. (c) Length of the reel
= (25 × 125 + 90) cm
= 3215 cm = 32.15 m

33. (e) 17 × 17 = 289
19 × 19 = 361

34. (b) Le the CP of the shoes be ₹ x.
$\therefore$ 2033 – x = x – 1063
$\Rightarrow$ 2x = 2033 + 1063 = 3096

$\Rightarrow x = \frac{3096}{2} =$ ₹1548

35. (e) Amount received by each person

$= ₹ \left(\frac{158965}{120}\right) =$ ₹ 1325

36. (b) Total number of users of brand B across all Five cities
= 600 + 500 + 650 + 700 + 550 = 3000

37. (c) 700 = x % of 500

$700 = \frac{x \times 500}{100} \Rightarrow x = \frac{700}{5} = 140$

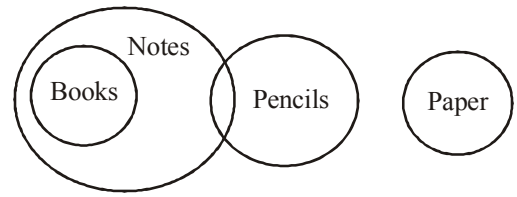
38. (c) Required average $= \frac{500 + 550 + 600 + 550 + 700}{5}$

$= 580$

39. (d) Required difference = 1250 – 1100 = 150

40. (a) Required Ratio $= \frac{500}{700} = 5:7$

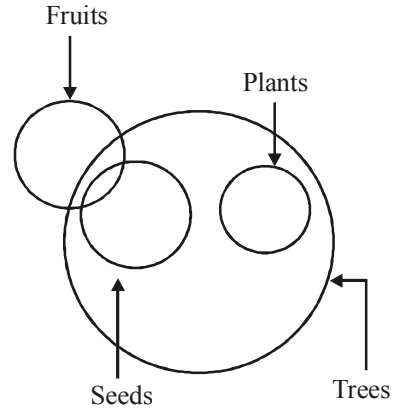
41. (a)



conclusions: I √ II. × III. • IV.
Complementary pair

So, only I and either III and IV, follow.

42. (c)



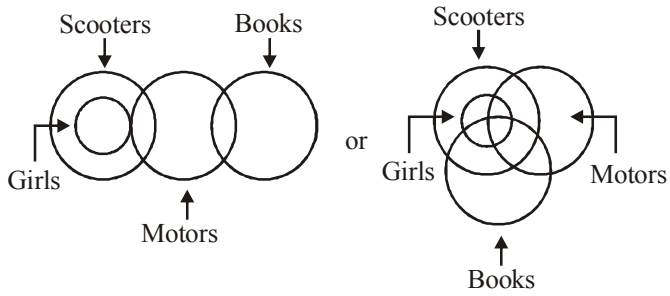
Conclusions

I. Some plants are seeds.
II. Some plants are fruits. (×)
III. Some trees are fruits. (×)
IV. No plant is a seed.

Complementary pair (I-E)

So, either I or IV follow.

43. (e)



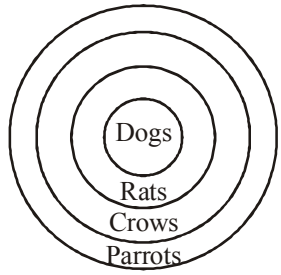
Conclusions

I. Some girls are motors. (×)
II. Some girls are books. (×)
III. Some scooters are girls. (√)
IV. No girl is book. (×)

Complementary pair (I-E)

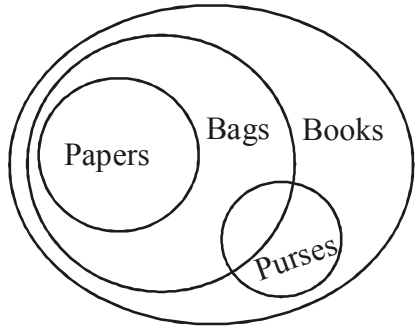
So, either II or IV and III follow.

44. (b)



Conclusions I. All dogs are parrots. **(√)**
II. Some parrots are dogs. **(√)**
III. Some crows are dogs. **(√)**
IV. All rats are dogs. **(×)**

45. (b)



Conclusions: I. × II. √ III. √ IV ×
So, only II and III follow.

46. (b) Here, $T > K$ ...(i)
$K \le R$ ...(ii)
$R = M$ ...(iii)
From (ii) and (iii), we get
$R = M \ge K$ ...(iv)
Now, from (iv) we get $M > K$ (conclusion III) for $M = K$ (conclusion I). Hence, either conclusion I or conclusion III follows. Again, from (i) and (iv) we can't get any specific relationship between 'M' and 'T'. Hence, conclusion II does not follow.

47. (c) Here, $M < R$ ...(i)
$R \le T$ ...(ii)
$T = N$ ...(iii)
From (i), (ii) and (iii), we get
$T = N \ge R > M$ ...(iv)
Hence, from (iv) we get $N = R$ (conclusion I) or $N > R$ (conclusion II). Hence, either conclusion I or conclusion II follows. Also, from (iv) we get $N > M$ (conclusion III). Hence, conclusion III follows.

48. (d) Here, $V \ge M$ ...(i)
$A > M$ ...(ii)
$R \le V$ ...(iii)
Therefore, $R \le V \ge M < A$
Conclusions I. $R < A$ ...(false)
II. $V \ge A$ ...(false)
III. $R > M$ ...(false)
So, none follows.

49. (a) Here, $B = D$ ...(i)
$D \ge H$ ...(ii)
$H < F$ ...(iii)
Therefore; $B = D \ge H < F$
Conclusions: I. $B = F$ ...(false)
II. $B > F$ ...(false)
III. $D > F$ ...(false)
So, none follows.

50. (e) Here, $J \le N$ ...(i)
$K \ge N$ ...(ii)
$T > K$ ...(iii)
From (i), (ii) and (iii), we get
$T > K \ge N \ge J$ ...(iv)
Conclusions: I. $J < T$ ...(True)
II. $T > N$ ...(True)
III. $N \ge J$ ...(True)
Thus, all follow.

51. (d) Either H or C will occupy seventh position from the left.
52. (c) Clearly, E is definitely sitting at one of the ends.
53. (d) The immediate neighbours of I cannot be determined because the position of H and C are not fixed.
54. (a) G is sitting to the second left of D.
55. (c) A will become the immediate neighbour of E after interchanging position.

56. (b) E G 4 B H 7 5 @ K 8 D N £ Q Z $ W 3 C 1 9 * 1 B 2 S 6

57. (a) The first, second and third element of each group is sixth element to the right of the respective element of previous group as given in all in the sequence.

58. (b) There are 27 elements in all in the sequence.
So, (27 – 9 – 7 =) 11 elements are between the 9th from left and 7th from right.
Hence, (9 + 6 =) 15th element from the left and will be the required answer.

59. (c) 7th to the left of 12th from right
= (12 + 7 =) 19th from right
= (27 – 19 + 1 =) 9th from left
But the first 15 elements are reversed.
= (15 – 9 + 1 =) 7th from left in the original sequence = 5.

60. (a) For the condition to be fulfilled, three digits should be together but it is not so in the given sequence.

Sol. (Qs. 61-65)

Monday	Physics
Tuesday	Maths
Wednesday	Electronics
Thursday	Statistics
Friday	Chemistry
Saturday	English
Sunday	Holiday

61. (e) 62. (a) 63. (e) 64. (d) 65. (d)

66. (a) Letter e represents the typists who are only graduates but not Government employees.

67. (b) Letter g represent the typists who are only Government employees but not graduates

68. (d) Given

1	3	4	7	9	2	5	6	8
A	Q	F	J	L	D	M	P	N

From the above table, 396824 is coded as:

Thus,

3	9	6	8	2	4
Q	L	P	N	D	F

69. (a) Given,

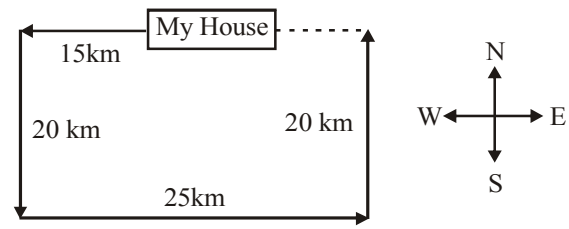
O	V	E	R	V	I	S	T
$	#	%	*	#	+	×	–

From the above table, SORE is coded as :

S	O	R	E
×	$	*	%

70. (c) The sister of one's mother is one's maternal aunt. Hence, the man is the husband of the boy's maternal aunt.

71. (b) The direction movement of laxman is as following:



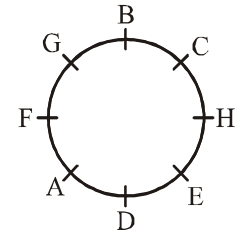
From the above diagram, required distance is
= 25 – 15 = 10 km.

72. (a) The first four letters are D, E, C, I and only word DICE can be formed. so, the answer is option (a).

73. (d) 'LIMITED' is the only word which can be formed using the letters of given word.

74. (b) The order in which the five boys reach the finishing line is, Gaurav > Raj > Mohit > Ashish > Sanchit.
Hence, Gaurav won the race.

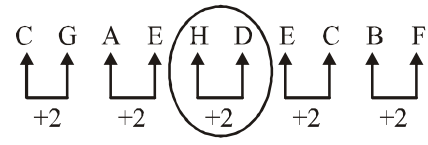
(75-80):



75. (b) Clearly, E is second to the left of C.

76. (d) F sits exactly between A and G.

77. (c) Except HD, in all other pairs, first member is present on the clockwise side of other.



78. (e) It is clear from the figure that none of the options (a) - (d) is true.

79. (d) Clearly, C is third to the left of F.

80. (d) A is third to the left of H.

PRACTICE SET 4

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. 1-5) : What should come in place of question mark (?) in the following number series?

1. 36 20 ? 8 6 5
(a) 10 (b) 12
(c) 14 (d) 16
(e) None of these

2. 668 656 632 584 ? 296
(a) 392 (b) 438
(c) 488 (d) 536
(e) None of these

3. 1 121 441 961 1681 ?
(a) 2701 (b) 2511
(c) 2611 (d) 2801
(e) None of these

4. 9 49 201 1009 ? 20209 80841
(a) 4054 (b) 4049
(c) 4050 (d) 4041
(e) None of these

5. 31 35 44 60 85 ?
(a) 121 (b) 111
(c) 109 (d) 97
(e) None of these

6. The average of five positive numbers is 308. The average of first two numbers is 482.5 and the average of last two numbers is 258.5. What is the third number?
(a) 224 (b) 58
(c) 121 (d) Cannot be determined
(e) None of these

7. Sophia invests 25% of her monthly salary in insurance policies. She spends 15% of her monthly salary in shopping and 35% of her salary on household expenses. She saves the remaining amount of ₹ 9,050. What is Sophia's annual income?
(a) ₹ 84,500 (b) ₹ 5, 30, 000
(c) ₹ 3, 25, 200 (d) ₹ 4, 34, 400
(e) None of these

8. The number of employees in companies A, B and C are in a ratio of 3 : 2 : 4 respectively. If the number of employees in the three companies is increased by 20%, 30% and 15% respectively, what will be the new ratio of employees working in companies A, B and C respectively ?
(a) 18 : 13 : 24 (b) 13 : 18 : 23
(c) 17 : 3 : 23 (d) 18 : 11 : 23
(e) None of these

9. The ages of Vaibhav and Jagat are in the ratio of 12 : 7 respectively, After 6 years the ratio of their ages will be 3 : 2. What is the difference in their ages?
(a) 8 years (b) 12 years
(c) 9 years (d) 10 years
(e) None of these

10. What is the least number to be added to 8008 to make it a perfect square?
(a) 273 (b) 87
(c) 264 (d) 92
(e) None of these

11. The product of two consecutive odd numbers is 6723, What is the square root of the smaller number?
(a) 9 (b) 729.
(c) 6561 (d) 81
(e) None of these

12. 60 per cent of first number is 40 per cent of the second number. What is the respective ratio of the first number to the second number?
(a) 2 : 3 (b) 21 : 31
(c) 7 : 10 (d) Cannot be determined
(e) None of these

13. The owner of a book shop charges his customer 28% more than the cost price. If a customer paid ₹ 1,408 for some books, then what was the cost price of the books ?
(a) ₹1,100 (b) ₹1,111
(c) ₹1,110 (d) ₹1,000
(e) None of these

14. The difference between 56% of a number and 39% of the same number is 425. What is 63% of that number?
(a) 1525 (b) 1650
(c) 1700 (d) 1575
(e) None of these

15. Find the average of the following set of scores:
456, 328, 489, 453, 511, 328, 222, 205
(a) 374 (b) 388
(c) 362 (d) 391
(e) None of these

DIRECTIONS (Qs. 16-20) : What approximate value should come in place of the question mark (?) in the following questions? (You are not expected to calculate the exact value.)

16. $[(1.3)^2 \times (4.2)^2] \div 2.7 = ?$
(a) 7 (b) 21
(c) 18 (d) 11
(e) 16

17. $746 \div 32 \times 15 = ?$
(a) 350 (b) 345
(c) 355 (d) 340
(e) 335

18. $\sqrt{834} \times \sqrt{349} = ?$
(a) 525 (b) 556
(c) 534 (d) 550
(e) 540

19. $(3986 + 2416 + 3897) \div 754 = ?$
(a) 18 (b) 14
(c) 11 (d) 9
(e) 21

20. $41.25 + 11.085 \times 2.75 = ?$
(a) 63 (b) 67
(c) 76 (d) 72
(e) 80

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

24. I. 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 should come in place of the question mark (?) in the following questions?

26. $(84)^2 - (67)^2 + \sqrt{?} = 2588$
(a) 361 (b) 529
(c) 441 (d) 625
(e) None of these

27. $668 \div 167 \times 284 = ?$
(a) 1156 (b) 1136
(c) 1096 (d) 1116
(e) None of these

28. $\sqrt[3]{10648} \times \sqrt[3]{5832} = ?$
(a) 396 (b) 216
(c) 432 (d) 576
(e) None of these

29. 60% of 25% of $\frac{5}{6}$th of ? = 630
(a) 5060 (b) 5200
(c) 4880 (d) 4500
(e) None of these

30. $(85410 + 36885 + 24705) \div 1600 = ?$
(a) 90.25 (b) 94.386
(c) 95.50 (d) 91.875
(e) None of these

31. What amount of compound interest can be obtained on an amount of ₹ 8, 840 at the rate of 5% p.a at the end of 3 years?
(a) ₹1,393.405 (b) ₹1,326
(c) ₹1,384.50 (d) ₹1340
(e) None of these

32. A trader sells 150 metres of cloth for ₹ 6, 600 and he sells 300 metres of cloth for ₹ 12, 750. How much concession does the trader give per metre of cloth, when he sells 300 metres of cloth?
(a) ₹3 (b) ₹2.5
(c) ₹1.5 (d) ₹2
(e) None of these

33. When 3888 is divided by the square of a number and the answer so obtained is multiplied by 21, the final answer so obtained is 252. What is the number?
(a) 324 (b) 16
(c) 256 (d) 144
(e) None of these

34. The sum of the digits of a two digit number is 14. The difference between the first digit and the second digit of the two digit number is 4. What is the two digit number ?
(a) 86 (b) 95
(c) 68 (d) 77
(e) None of these

35. A car runs at the speed of 40 when not serviced and runs at 65 kmph. when serviced. After servicing, the car covers a certain distance in 5 hours. How much **approximate** time will the car take to cover the same distance when not serviced?
(a) 10 (b) 7
(c) 12 (d) 8
(e) 6

DIRECTIONS (Qs. 36-40) : Study the following table carefully and answer the questions given below.

Number of literates in various cities over the years
M = Males, F = Females

Year	2012		2013		2014		2015		2016	
City	M	F	M	F	M	F	M	F	M	F
U	15000	25000	18550	20000	18590	25000	25000	25500	28000	28800
V	12500	9200	14680	10520	16000	11000	16850	13680	16920	14360
W	18660	17380	18950	18000	18980	19000	19500	19500	19250	19600
X	14200	14350	14820	14500	15250	15000	15390	15250	16000	16200
Y	9700	8320	9990	8540	9870	8820	10200	10000	10520	10300

36. What is the total number of male literates in City W over the years?
(a) 97650 (b) 95670
(c) 99280 (d) 96570
(e) None of these

37. What is the total number of literates across the cities in the year 2016 ?
(a) 180280 (b) 182000
(c) 188050 (d) 180500
(e) None of these

38. What is the difference between the total number of female literates across the cities in the year 2013 and the year 2015 ?
(a) 11850 (b) 12000
(c) 11500 (d) 12800
(e) None of these

39. What is the ratio of literates of City X in the year 2012 to the literates of the same city in the year 2014 ?
(a) 581 : 624 (b) 64 : 75
(c) 571 : 605 (d) 84 : 131
(e) None of these

40. What is the average number of female literates across the cities in the year 2012 ?
(a) 18725 (b) 15872
(c) 17582 (d) 17852
(e) None of these

REASONING ABILITY

41. 'Talk' is related to 'Speak' in a certain way. Similarly, 'Honest' is related to 'Truthful'. Following the same logic, 'Listen' is related to '.....'.
(a) Music (b) Ears
(c) Hear (d) Ignore
(e) Sound

42. Three of the following are alike in a certain way and form a group. Find the odd one out.
(a) Bird (b) Insect
(c) Aeroplane (d) Kite
(e) None of these

43. If the 1st half of the English alphabet is written in the backward order, then find the 15th letter to the left of 20th letter from left.
(a) H (b) I
(c) Y (d) X
(e) N

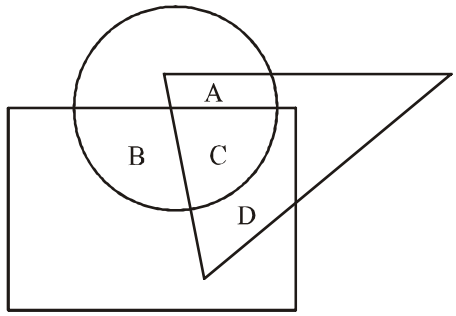
44. Select the combination of numbers so that letters arranged accordingly will form a meaningful word.
R A C E T
1 2 3 4 5
(a) 1, 2, 3, 4, 5 (b) 3, 2, 1, 4, 5
(c) 5, 2, 3, 4, 1 (d) 5, 1, 2, 3, 4
(e) None of these

45. Veena walked 5m towards north, took a left turn and walked 7 m. She took a left turn again and walked 8m before taking a left turn and walking 7 m. She then took a final left turn and walked 1 m before stopping. How far is Veena from the starting point ?
(a) 3m (b) 6m
(c) 4m (d) 2m
(e) 7m

46. A, B, C, D and E each has different heights. D is only shorter than B. E is shorter than A and C. Who is the shortest of them?
(a) E (b) A
(c) C (d) Data inadequate
(e) None of these

47. ENGLAND is written as 1234526 and FRANCE as 785291. How will GREECE be written in this coding scheme ?
(a) 381191 (b) 381911
(c) 394132 (d) 562134
(e) None of these

48. In the following diagram, the triangle represents doctors, the circle represents players and the rectangle represents singers. Which region represents doctors who are singers but not players?



(a) A (b) B
(c) C (d) D
(e) None of these

49. Pointing to a photograph Arun said, 'She is the mother of my brother's son's wife's daughter.' How is Arun related to the lady's husband?
(a) Uncle (b) Daughter-in-law
(c) Cousin (d) Brother
(e) None of these

50. How many such pairs of letters are there in the word 'KINDNESS' each of which have as many letters between them in word as in the alphabets?
(a) Nil (b) One
(c) Two (d) Three
(d) None of these

DIRECTIONS (Qs. 51-55) : In each of the questions below are given three statements followed by three conclusions numbered I, III and III. You have to take the given statements to be true even, if they seems to be at variance with commonly known facts. Read all the conclusions and then decide which of the given conclusions logically follows from the given statements disregarding commonly known facts.

51. **Statements** Some carrots are brinjals.
Some brinjals are apples.
All apples are bananas.
Conclusions I. Some apples are carrots.
II. Some bananas are brinjals.
III. Some bananas are carrots.
(a) Only I follows (b) Only II follows
(c) Only III follows (d) Either II or III follows
(e) None of these

52. **Statements** All keys are locks.
All locks are bangles.
All bangles are cars.
Conclusions I. Some cars are locks.
II. Some bangles are keys.
III. Some cars are keys.
(a) Only I follows (b) I and II follow
(c) I and III follow (d) II and III follow
(e) All I, II and III follow

53. **Statements** All fruits are leaves.
Some leaves are trees.
No tree is house.
Conclusions I. Some houses are fruits.
II. Some trees are fruits.
III. No house is a fruit.
(a) Only follows (b) Only II follows
(c) Only III follows (d) Either I or III follows
(e) None follows

54. **Statements** All tables are mirrors.
Some mirrors are chairs.
All chairs are glasses.
Conclusions I. Some glasses are mirrors.
II. Some chairs are tables.
III. Some mirrors are tables.
(a) I and II follow (b) II and III follow
(c) I and III follow (d) All I, II and III follow
(e) None of these

55. **Statements** All calculators are boxes.
All boxes are taps.
Some taps are machines.
Conclusions I. Some machines are boxes.
II. Some taps are calculators.
III. Some boxes are calculators.
(a) I and II follow (b) I and III follow
(c) II and III follow (d) All, II and III follow
(e) None of above

DIRECTIONS (Qs. 56-60) : Read the following information and answer the questions given below.

I. A, B, C, D, E, F, G and H are sitting in a row facing North
II. A is fourth to the right of E.
III. H is fourth to the left of D.
IV. C and F, who are not at the ends, are neighbours of B and E, respectively.
V. H is next to the left of A and A is the neighbour of B.

56. What is the position of F?
(a) Next to the right of E (b) Next to the right of G
(c) Sixth to the right of D (d) Between G and H
(e) None of these

57. Which of the following statements is not true?
(a) G is the neighbour of H and F
(b) B is next to the right of A
(c) E is at left end
(d) D is next to the right of B
(e) None of the above

58. Who is/are the neighbour/(s) of D?
(a) F alone (b) C alone
(c) B and C (d) Cannot be determined
(e) None of these

59. Which of the following statements is not true?
(a) H is second to the right of F
(b) E is fourth to the left of A
(c) D is fourth to the right of H
(d) All are true
(e) None of the above

60. Who are sitting at the ends?
(a) E and C (b) F and D.
(c) G and B (d) Data inadequate
(e) None of the above

DIRECTIONS (Qs. 61-65) : In each of the questions given below a group of digits is given followed by four combinations of letters/symbols. You have to find out which of the four combinations correctly represents the group of digits based on the letter/symbol codes and the conditions given below. If none of the four combinations represents the group of digits correctly, give (e) i.e. "None of these" as the answer.

Digit:	3	9	6	2	8	7	5	4	1
Symbol :	K	T	$	F	H	#	%	D	M

Conditions for the coding the group of digits:

1. If the first digit is odd and last digit is even, the codes for the first and the last digits are to be interchanged.
2. If the first as well as the last digit is even, both are to be coded by the code for last digit.
3. If the first as well as the last digit is odd, both are to be coded as 'X'.

61. 564923
(a) %$DTFK (b) K$DTFK
(c) X$DTFX (d) K$DTF%
(e) None of these

62. 658247
(a) $%HFD# (b) #%HFD$
(c) %$HFD# (d) %#HFD$
(e) None of these

63. 436958
(a) DK$T%D (b) DK$T%H
(c) HK$T%H (d) #%$HK#
(e) None of these

64. 756834
(a) #%$HKD (b) D%$HK#
(c) D%$HKD (d) #%$HK#
(e) None of these

65. 291378
(a) FTMK#H (b) XTMK#X
(c) HTMK#F (d) FTMK#F
(e) None of these

66. 128547
(a) XFH%DX (b) XFH#DX
(c) MFH%DX (d) XFH%D#
(e) None of these

DIRECTIONS (Qs. 67-70) : In each of these questions, relationship between different elements is shown in the statements. The statements are followed by two conclusions.

Give answer
(a) if only Conclusion I is true
(b) if only Conclusion II is true
(c) if either Conclusion I or II is true
(d) if neither Conclusion I nor II is true
(e) if both the Conclusions I and II are true

67. Statements $P > R, R < S \leq X, Y = X$
Conclusions I. $P < S$ II. $Y > R$

68. Statements $Z = C, B < A = N, C < B$
Conclusions I. $Z < B$ II. $N > Z$

69. Statements $T < V = W, X \geq Y, W > X$
Conclusions I. $V > Y$ II. $V < X$

70. Statements $J \geq K > P = R < N = S$
Conclusions I. $S \geq P$ II. $J < R$

DIRECTIONS (Qs. 71-72) : Study the following information carefully to answer the questions given below.

P, T, V, R, M, D, K and W are sitting around a circular table facing the centre. V is second to the left of T. T is fourth to the right of M. D and P are not immediate neighbours of T. D is third to the right of P. W is not an immediate neighbour of P. P is to the immediate left K.

71. Who is second to the left of K?
(a) P (b) R
(c) M (d) W
(e) Data inadequate

72. Who is to the immediate left of V?
(a) D (b) M
(c) W (d) Data inadequate
(e) None of these

73. Who is the third to the right of V?
(a) T (b) K
(c) P (d) M
(e) None of these

74. What is R's position with respect to V?
(a) Third to the right (b) Fifth to the right
(c) Third to the left (d) Second to the left
(e) Fourth to the left

75. Four of the following five are alike in a certain way based on their positions in the above sitting arrangement and so form a group. Which of the following does not belong to that group?
(a) DW (b) TP
(c) VM (d) RD
(e) KR

DIRECTIONS (Qs. 76-80): Read the following information carefully to answer the question:

P × Q means "P is sister of Q"
P ÷ Q means " P is mother of Q"
P + Q means " P is brother of Q"
P – Q means " P is father of Q"

76. Which of the following represent W is grandfather of H?
(a) W + T - H (b) W ÷ T – H
(c) W × T + H (d) W ÷ T + H
(e) None of these

77. Which of the following represent "M is nephew of R"?
(a) M ÷ T – R (b) R ÷ T – M
(c) R × T ÷ M × J (d) R ÷ T – M + J
(e) None of these

78. How T is related to S "W ÷ T – H + V – S"?
(a) sister (b) mother
(c) aunt (d) uncle
(e) None of these

79. The expression means "S ÷ T – H × V – N"?
(a) S is grandmother of N
(b) S is great grandmother of N
(c) S is mother of V
(d) N is grand son of S
(e) None of these

80. In a group of 6 students P, Q, R, S, T and U each one having different height. P is taller than T but not as tall as U. Q and U are not the tallest and also R is the shortest. Who is the tallest among them.
(a) P (b) S
(c) Q (d) U
(e) None of these

HINTS & EXPLANATIONS

1. (b) 36 20 12 8 6 5
÷2+2 ÷2+2 ÷2+2 ÷2+2 ÷2+2

2. (c) 668 656 632 584 488 296
−12 −24 −48 −96 −192
×2 ×2 ×2 ×2

3. (e) 1 121 441 961 1681 2601
1^2 11^2 21^2 31^2 41^2 51^2

4. (d) 9 49 201 1009 4041 20209 80841
×5+4 ×4+5 ×5+4 ×4+5 ×5+4 ×4+5

5. (a) 31 35 44 60 85 121
$+2^2$ $+3^2$ $+4^2$ $+5^2$ $+6^2$

6. (b) Third number
$= 5 \times 308 - 2 \times 482.5 - 2 \times 258.5$
$= 1540 - 965 - 517 = 58$

7. (d) Let Sophia's monthly salary = ₹. x.
ATQ,
Sophia's % monthly expenditure
$= (25 + 15 + 35)\% = 75\%$
Saving % $= 100 - 75 = 25\%$
$\therefore$ 25% of $x = 9050$
$\Rightarrow x = 9050 \times 4 = ₹36200$
$\therefore$ Sophia's annual income
$= ₹(12 \times 36200) = ₹434400$

8. (e) Let the number of employees in the companies A, B and C be $3x$, $2x$ and $4x$ respectively.
Required ratio
$$= \frac{3x \times 120}{100} : \frac{2x \times 130}{100} : \frac{4x \times 115}{100}$$
$= 18 : 13 : 23$

9. (d) Let the present ages of Vaibhav and Jagat be 12x and 7x years respectively.
According to the question,
$$\frac{12x + 6}{7x + 6} = \frac{3}{2}$$
$\Rightarrow 24x + 12 = 21x + 18$
$\Rightarrow 24x - 21x$
$= 18 - 12$
$\Rightarrow 3x = 6$
$$\Rightarrow x = \frac{6}{3} = 2$$
$\therefore$ Required difference $= 12x - 7x = 5x = 5 \times 2$
$= 10$ years

10. (d) $\sqrt{8008} \equiv 89.5$
$89^2 = 7921; 90^2 = 8100$
$\therefore$ Required number
$= 8100 - 8008 = 92$

11. (a) $81 \times 83 = 6723$
$\therefore$ Smaller number $= 81$
Now, $\sqrt{81} = 9$

12. (a) Let the first number be x and the second number be y.
According to the question,
$$x \times \frac{60}{100} = y \times \frac{40}{100}$$
$$\Rightarrow \frac{3x}{5} = \frac{2y}{5}$$
$$\Rightarrow \frac{x}{y} = \frac{2}{3}$$

13. (a) CP of the books
$$= ₹\left(\frac{100}{128} \times 1408\right)$$
$= ₹1100$

14. (d) Let the number be x.
According to the question,
$(56 - 39)\%$ of $x = 425$
$$\Rightarrow \frac{x \times 17}{100} = 425$$
$$\Rightarrow x = \frac{425 \times 100}{17} = \frac{42500}{17}$$
$\therefore$ 63 % of x
$$= \frac{42500}{17} \times \frac{63}{100} = 1575$$

15. (a) Required average
$$= \frac{456 + 328 + 489 + 453 + 511 + 328 + 222 + 205}{8}$$
$$= \frac{2992}{8} = 374$$

16. (d) $? = \frac{1.69 \times 17.64}{2.7} = 11.04 \approx 11$

17. (a) $? = 23.31 \times 15 = 350$

18. (e) $? = 28.88 \times 18.68 = 539.52 \approx 540$

19. (b) $? = \frac{10299}{754} \approx \frac{10300}{750} \approx 14$

20. (d) $? = 41.25 + 30.48$

$= 71.5 \approx 72$

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

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

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

II. $y^3 + 9.68 + 5.64 = 16.95$

$\Rightarrow y^3 = 16.95 - 15.32$

$\Rightarrow y^3 = 1.63 = y = \sqrt[3]{1.63}$

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

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

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

$\Rightarrow 3y + 7 = 0 \Rightarrow 3y = -7$

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

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. $x^{7/5} \div 9 = 169 \text{ I } x^{3/5}$

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

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

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

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

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

$x \leq y$

26. (c) $\Rightarrow (84 + 67)(84 - 67) + \sqrt{?} = 2588$

$\Rightarrow 151 \times 17 + \sqrt{?} = 2588$

$\Rightarrow \sqrt{?} = 2588 - 2567 = 21$

$\therefore ? = 21 \times 21 = 441$

27. (b) $? = 4 \times 284 = 1136$

28. (a) $? = \sqrt[3]{10648} \times \sqrt[3]{5832} = 22 \times 18 = 396$

29. (e) $\frac{60}{100} \times \frac{25}{100} \times \frac{5}{6} \times ? = 630$

$\therefore ? = 8 \times 630 = 5040$

30. (d) $? = 147000 \div 1600 = 91.875$

31. (a) $\text{C.I.} = P\left[\left(1 + \frac{r}{100}\right)^t - 1\right]$

$= 8840\left[\left(1 + \frac{5}{100}\right)^3 - 1\right] = 8840\left[\left(\frac{21}{20}\right)^3 - 1\right]$

$= 8840\left[\frac{9261}{8000} - 1\right] = \frac{8840 \times 1261}{8000} = ₹ 1393.405$

32. (c) SP of 150 metres of clothes = ₹ 6600

$\therefore$ SP of 1 m cloth = $₹\left[\frac{6600}{150}\right] = ₹ 44$

SP of 300 metres of cloth = ₹ 12750

$\therefore$ SP of 1 m cloth = $₹\left[\frac{12750}{300}\right] = ₹ 42.5$

$\therefore$ Concession = ₹ (44 – 42.5) = ₹ 1.5

33. (e) Let the number = *x*.

ATQ,

$\frac{3888}{x^2} \times 21 = 252$

$\Rightarrow x^2 = \frac{3888}{252} \times 21 = 324$

$\therefore x = \sqrt{324} = 18$

34. (b) Let two digit number = $10x + y$

ATQ,

$x + y = 14$ ..... (i)

$x - y = 4$ ..... (ii)

From equation (i) & (ii), we get

$y = 5$

Now, $x + y = 14$

$\therefore \quad x = 14 - 5 = 9$

Thus, required two-digit number

$= 10x + y = 10 \times 9 + 5$

$= 90 + 5 = 95$

35. (d) After servicing, the distance covered in 5 hours $= 65 \times 5 = 325$ km.

Without servicing, speed = 40 km/h

$$\therefore \quad \text{Time} = \frac{\text{Distance}}{\text{Speed}} = \frac{325}{40} = 8 \text{ hours}$$

36. (e) 37. (e)

38. (e) Female literates in 2013 = 71560

Female literates in 2015 = 83930

Required difference

$= 83930 - 71560 = 12370$

39. (c) No. of literates of city X in 2012

$= 14200 + 14350 = 28550$

No. of literates of city X in 2014

$= 15250 + 15000 = 30250$

$\therefore$ Required ratio = 28550 : 30250

= 571 : 605

40. (d) Required average

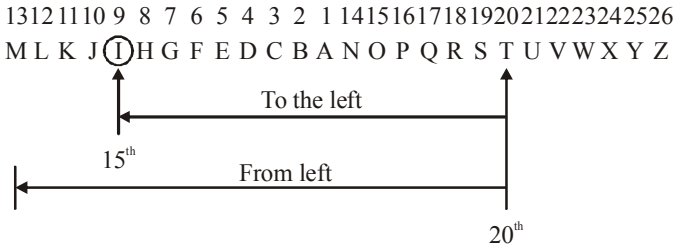
$$= \frac{28800 + 14360 + 19600 + 16200 + 10300}{5}$$

$$= \frac{89260}{5} = 17852$$

41. (c) As, talk is related to speak and honest to truthful. Similarly, listen is to hear.

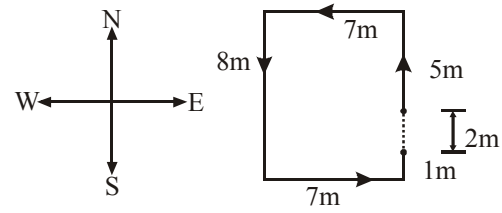
42. (b) All except the insect fly in the sky.

43. (b) I is the letter



44. (d) Clearly, the given letters, when arranged in the order 5, 1, 2, 3, 4 from the word 'TRACE' will form.

45. (d) The direction movement is as shown below:



So, the required distance = 8 – (5 + 1) = 8 – 6 ⇒ 2m

46. (a) According to the question,

B > D

A/C > E

$\therefore$ B > D > A/C > (E)

Clearly, shortest = E

47. (a) Going through information provided, we get codes for G → 3, R → 8, E → 1, C → 9.

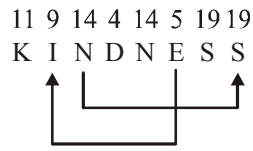
Therefore, Greece will be coded as 381191.

48. (d) Letter D represents those people who are doctors and singers but not players as it is common to triangle and rectangle but not circle.

49. (a) One's brother's son's wife's daughter implies paternal grand-daughter of one's brother. Now, the mother of paternal grand-daughter of one's brother implies wife of one's nephew.

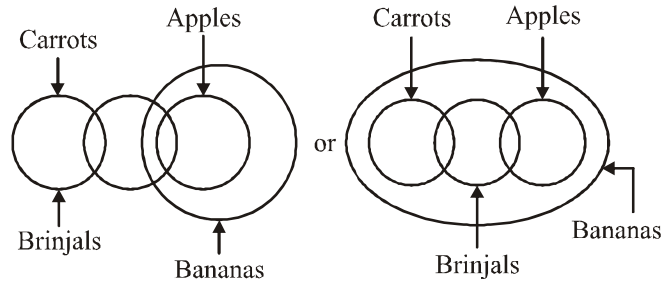
Thus, we can conclude that Arun is the paternal uncle of the female's husband.

50. (c)



$\therefore$ Letter pairs = EI, NS ⇒ Two

51. (b)

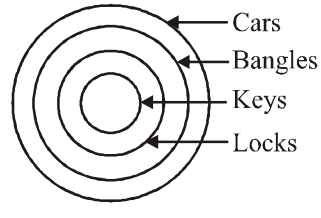


Conclusions I. Some apples are carrots. (×)

II. Some bananas are brinjals (√)

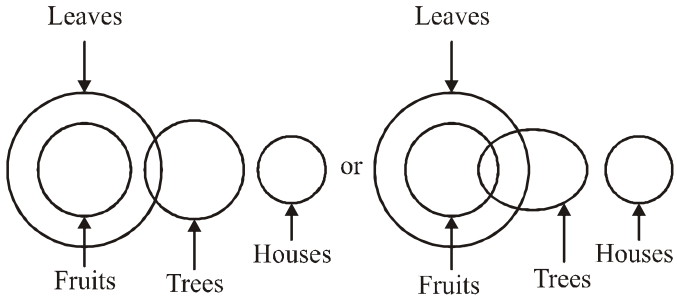
III. Some bananas are carrots (×)

52. (e)

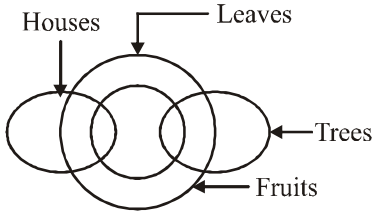


Conclusions I. Some cars are locks. (√)
II. Some bangles are keys. (√)
III. Some cars are keys. (√)

53. (d)

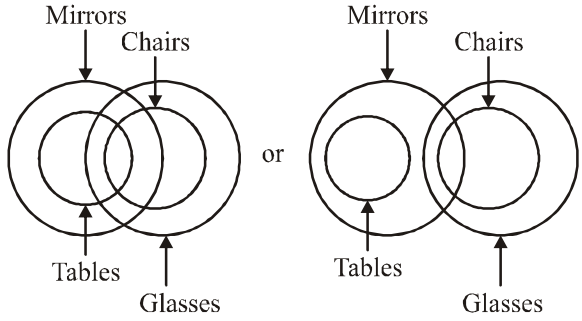


Or



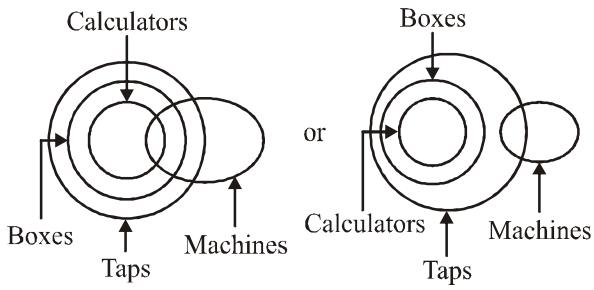
Conclusions I. Some houses are fruits. (×)
II. Some trees are fruits. (×)
III. No house is a fruit. (×)
Complementary pair (I-E)

54. (c)

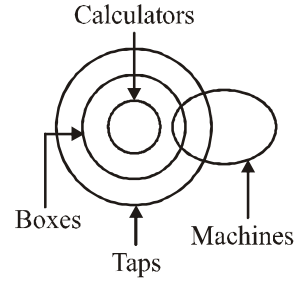


Conclusions I. Some glasses are mirrors. (√)
II. Some chairs are tables. (×)
III. Some mirrors are tables. (√)

55. (c)

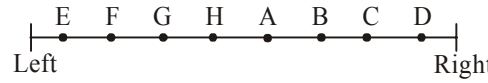


or



Conclusions I. Some machines are boxes. (×)
II. Some taps are calculators. (√)
III. Some boxes are calculators (√)

(56-60) :



56. (a) F is next to the right of E.
57. (d) D is 2nd to the right of B. Hence, statement (d) is not true.
58. (b) C alone is the neighbour of D.
59. (d) All the given statements are correct.
60. (d) E and D are sitting at the ends.

For (61-65): Simply follow the rules of the codes and do these sums.

61. (c) X$DTFX (Because 1st and last digits are odd.)
62. (a) $%HFD# (No any condition.)
63. (c) HK$T%H (Because 1st and the last digits are even.)
64. (b) D%$HK# (Because 1st digit is odd and the last digit is even.)
65. (e) HTMK#H (Because Ist and the last digits are even.)
66. (a) XFH% D X (Because Ist and last digits are odd)
67. (b) According to the question,

$P > R$ ...(i)
$R < S \leq X$ ...(ii)
$Y = X$ ...(iii)

On the combining statements (i), (ii) and (iii), we get

$P > R < S \leq X = Y$

Conclusions I. $P < S$ (false)
II. $Y > R$ (true)

So, it is clear that only Conclusion II is true.

68. (e) According to the question,

$Z = C$ ...(i)
$B < A = N$ ...(ii)
$C = B$ ...(iii)

On combining the statements (i), (ii) and (iii), we get

$Z = C < B < A = N$

Conclusions I. $Z < B$ (true)
II. $N > Z$ (true)

So, it is clear that both Conclusion I and II are true.

69. (a) According to the question,

$T < V = W$ ...(i)

$X \geq Y$ ...(ii)

$W = X$ ...(iii)

On combining statements (i), (ii) and (iii), we get

$T < V = W > X \geq Y$

Conclusions I. $V > Y$ (true)

II. $V < X$ (false)

So, it is clear that only Conclusion I is true.

70. (b) According to the question,

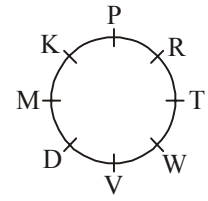
$J \geq K > P = R < N = S$

Conclusions I. $S \geq P$ (false)

II. $J > R$ (true)

So, it is clear that only Conclusion I is true.

(71-75) :



71. (b) Clearly, R is second to the left of K.

72. (a) Clearly, D is to the immediate left of V.

73. (e) Clearly, R is third to the right of V. So, none of the given options is correct.

74. (a) Clearly, R is the third to the right of V.

75. (d) In all the others, there is only one individual between the two. But, R and D are opposite to each other.

76. (e) 77. (e)

78. (e) T is grandfather.

79. (b)

80. (b) $S > (Q, U) > P > T > R$

PRACTICE SET 5

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. 1-10) : What will come in place of question mark (?) in the following questions ?

1. 48% of $525 + ?\%$ of $350 = 399$

(a) 42 (b) 46
(c) 28 (d) 26
(e) None of these

2. $2\frac{5}{9} \times 3\frac{4}{5} + ? = 12\frac{1}{5}$

(a) $2\frac{13}{45}$ (b) $2\frac{4}{5}$
(c) $3\frac{22}{45}$ (d) $3\frac{5}{9}$
(e) None of these

3. $\sqrt{?} + 17^2 = 335$

(a) 46 (b) 42
(c) 1764 (d) 2116
(e) None of these

4. $\frac{28 \times 5 - 15 \times 6}{7^2 + \sqrt{256} + (13)^2} = ?$

(a) $\frac{27}{115}$ (b) $\frac{22}{117}$
(c) $\frac{25}{117}$ (d) $\frac{22}{115}$
(e) None of these

5. $13\frac{4}{7} + 5\frac{2}{7} \times 2\frac{1}{2} = ?$

(a) $25\frac{11}{14}$ (b) $25\frac{3}{7}$
(c) $26\frac{3}{7}$ (d) $26\frac{5}{14}$
(e) None of these

6. $784 \div 16 \div 7 = ?$

(a) 49 (b) 14
(c) 21 (d) 7
(e) None of these

7. $\frac{3}{2}$ of $455 + \frac{5}{8}$ of $456 = ?$

(a) 448 (b) 476
(c) 480 (d) 464
(e) None of these

8. $6425 \div 125 \times 8 = ?$

(a) 411.2 (b) 41.12
(c) 64.25 (d) 421.25
(e) None of these

9. 1.05% of $2500 + 2.5\%$ of $440 = ?$

(a) 37.50 (b) 37.25
(c) 370.25 (d) 372.50
(e) None of these

10. $4900 \div 28 \times 444 \div 12 = ?$

(a) 6575 (b) 6475
(c) 6455 (d) 6745
(e) None of these

DIRECTIONS (Qs. 11-15): What approximate value will come in place of the question mark (?) in the following questions ? (You are not required to find the exact value).

11. $2371 \div 6 + (43 \times 4.35) = ?$

(a) 582 (b) 590
(c) 600 (d) 570
(e) 595

12. $(4.989)^2 + (21.012)^3 + \sqrt{1090} = ?$

(a) 9219 (b) 9391
(c) 9319 (d) 9129
(e) None of these

13. 24.99% of 5001 – 65.01% of 2999 = ?

(a) 840 (b) 500
(c) 700 (d) –500
(e) –700

14. $(81)^{-\frac{1}{2}} - (64)^{-\frac{2}{3}} = ?$

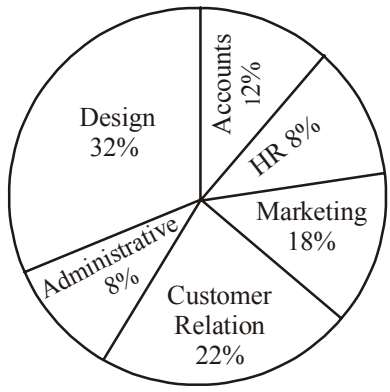
(a) $\frac{3}{19}$ (b) $\frac{1}{16}$
(c) $\frac{7}{144}$ (d) $\frac{1}{9}$
(e) None of these

15. $\frac{\sqrt{29241}}{\sqrt{361}} \times 5\frac{2}{9} = ?$

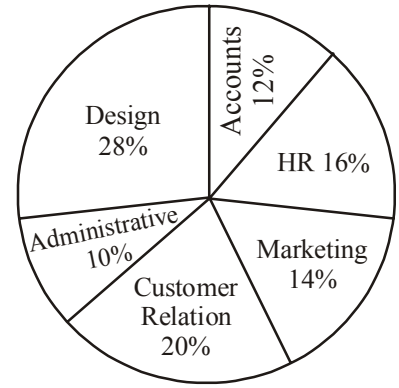
(a) 47 (b) 49
(c) 46 (d) 45
(e) 61

DIRECTIONS (16-20): Study the following graph carefully and answer the questions that follow:

Percentage of employees in different departments of a company Total No. of employees = 4500



Percentage of females in each department in the same company Total No. of females in the organisation = 2000



16. What is the total number of males from Design, Customer Relation and HR departments together ?

(a) 1550 (b) 1510
(c) 1540 (d) 1580
(e) None of these

17. What is the ratio of number of males in HR department to the number of males in Accounts department respectively ?

(a) 3 : 17 (b) 4 : 15
(c) 2 : 15 (d) 2 : 13
(e) None of these

18. The number of females in the Marketing department are approximately what per cent of the total employees in Marketing and Customer Relation Departments together?

(a) 26 (b) 36
(c) 6 (d) 46
(e) 16

19. What is the respective ratio of number of employees in Administrative department to the number of males in the same department ?

(a) 9 : 4 (b) 8 : 3
(c) 7 : 2 (d) 8 : 5
(e) None of these

20. The total number of females are what per cent of the total number of males in the organisation ?

(a) 90 (b) 70
(c) 80 (d) 60
(e) None of these

DIRECTIONS (Qs. 21-25) : What will come in place of the question mark (?) in the following number series?

21. 7 9 12 16 ?

(a) 22 (b) 19
(c) 20 (d) 21
(e) None of these

22. 384 192 96 48 ?
(a) 36 (b) 28
(c) 24 (d) 32
(e) None of these

23. 5 6 14 45 ?
(a) 183 (b) 185
(c) 138 (d) 139
(e) None of these

24. 8 9 13 22 ?
(a) 30 (b) 31
(c) 34 (d) 36
(e) None of these

25. 6 11 21 41 ?
(a) 81 (b) 61
(c) 71 (d) 91
(e) None of these

26. Number of students studying in colleges *A* and *B* are in the ratio of 3 : 4 respectively. If 50 more students join college *A* and there is no change in the number of students in college *B,* the respective ratio becomes 5 : 6. What is the number of students in college *B* ?
(a) 450 (b) 500
(c) 400 (d) 600
(e) None of these

27. Cost of 12 belts and 30 wallets is ₹ 8940. What is the cost of 4 belts and 10 wallets?
(a) ₹ 2890 (b) ₹ 2980
(c) ₹ 2780 (d) ₹ 2870
(e) None of these

28. 80% of a number is equal to three-fifth of another number. What is the ratio between the first and the second number respectively?
(a) 3 : 4 (b) 4 : 3
(c) 4 : 5 (d) 5 : 4
(e) None of these

29. Ghanshyam purchased an article for ₹1850. At what price should he sell it so that 30% profit is earned?
(a) ₹2450 (b) ₹2245
(c) ₹2405 (d) ₹2425
(e) None of the above

30. What is the compound interest accrued on an amount of ₹ 8500 in two years @ interest 10% per annum?
(a) ₹1875 (b) ₹1885
(c) ₹1775 (d) ₹1765
(e) None of these

31. A train running at the speed of 60 kmph crosses a 200 m long platform in 27 s. What is the length of the train ?
(a) 250m (b) 200m
(c) 240m (d) 450m
(e) None of these

32. Which of the following has the fractions in ascending order?
(a) $\frac{5}{11},\frac{3}{8},\frac{4}{9},\frac{2}{7}$ (b) $\frac{5}{11},\frac{4}{9},\frac{3}{8},\frac{2}{7}$
(c) $\frac{2}{7},\frac{3}{8},\frac{4}{9},\frac{5}{11}$ (d) $\frac{2}{7},\frac{4}{9},\frac{3}{8},\frac{5}{11}$
(e) None of these

33. Sum of the digits of a two digit number is 8 and the digit in the ten's place is three times the digit in the unit's place. What is the number?
(a) 26 (b) 36
(c) 71 (d) 62
(e) None of these

34. 10 men can complete a piece of work in 8 days. In how many days can 16 men complete that work?
(a) 4 days (b) 5 days
(c) 6 days (d) 3 days
(e) None of these

35. 71% of a number is more than its 46% by 120. What is 30% of that number?
(a) 160 (b) 150
(c) 140 (d) 148
(e) None of these

36. Average of five consecutive odd numbers is 95. What is the fourth number in descending order?
(a) 91 (b) 95
(c) 99 (d) 97
(e) None of these

37. Latika spends 45% of her monthly income on food and 30% of the monthly income on transport. Remaining amount of ₹4500 she saves. What is her monthly income?
(a) ₹16000 (b) ₹18000
(c) ₹16500 (d) ₹18500
(e) None of these

38. Amount of simple interest accrued on an amount of Rs 28500 in seven years is Rs 23940 what is the rate of interest % per annum?
(a) 10.5 (b) 12.5
(c) 11 (d) 12
(e) None of these

39. *A* and *B* started a business investing amounts of ₹150000 and ₹250000 respectively. What will be *B*'s share in the profit of ₹160000 ?
(a) ₹100000 (b) ₹60000
(c) ₹80000 (d) ₹110000
(e) None of these

40. The average age of 60 boys in a class was calculated as 12 years. It was later realised that the actual age of one of the boys in the class was 12.5 years but it was calculated as 14 years. What is the actual average age of the boys in the class?
(a) 11 years (b) 11.275 years
(c) 11.50 years (d) 11.975 years
(e) None of these

REASONING ABILITY

41. B is the father of Q. B has only two children. Q is the brother of R. R is the daughter of P. A is the granddaughter of P and S is the father of A. How is S related to Q?
(a) Son (b) Son-in-law
(c) Brother (d) Brother-in-law
(e) Noneof these

42. Unscramble the letters in the given words and find the odd one out.
(a) UMRSME (b) EIWNTR
(c) PIGRSN (d) LCUOD
(e) None of these

43. If the first and second letters in the word DEPRESSION were interchanged, also the third and the fourth letters, the fifth and the sixth letters and so on, which of the following would be the seventh letter from the right ?
(a) R (b) O
(c) S (d) P
(e) None of these

44. In P, Q, R, S, T and U, R is taller than only P and U. S is shorter than only T and Q. If each has different heights. then who will be at the third place when they are standing in descending order of their height and the counting is done in the same order (tallest to shortest)?
(a) R (b) P
(c) S (d) Q
(e) None of these

45. City D is to the West of city M. City R is to the South of City D. If city K is to the East of city R, then in which direction is city K located in respect of city D?
(a) North (b) East
(c) North-East (d) South-East
(e) None of these

DIRECTIONS (Qs. 46- 50) : In each of the questions below are given three statements followed by two conclusions numbered I and II. You have to take the given statements to be true even if they seem to be at variance from commonly known facts and decide which of the given conclusion(s) logically follow(s) from the three given statements.

Give answer
(a) if only Conclusion I follows
(b) if only Conclusion II follows
(c) if either Conclusion I or II follows
(d) if neither Conclusion I nor II follows
(e) if both Conclusions I and II follow

46. **Statements:** All pens are papers.
Some papers are blades.
All blades are knives.
Conclusions: I. Some knives are papers.
II. Some blades are pens.

47. **Statements:** All fans are televisions.
Some televisions are channels.
Some channels are radios.
Conclusions: I. Some fans are channels.
II. Some radios are televisions.

48. **Statements:** Some roots are stems.
All stems are branches.
All branches are leaves.
Conclusions: I. Some leaves are roots.
II. Some branches are stems.

49. **Statements:** Some computers are machines.
Some machines are boards.
All boards are chalks.
Conclusions: I. Some chalks are computers.
II. No chalk is computer.

50. **Statements:** Some locks are keys.
All keys are metals.
Some metals are cards.
Conclusions: I. Some cards are keys.
II. Some metals are locks.

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

V, U and T are sitting around a circle. A, B and C are also sitting around the same circle but two of them are not facing centre (they are facing the direction opposite to centre). Y is second to the left of C. U is second to the right of A. B is third to the left of T. C is second to the right of T. A is seated next to V.

51. Which of the following are not facing centre?
(a) BA (b) CA
(c) BC (c) Cannot be determined
(e) None of these

52. Which of the following is the position of T in respect of B?
(a) Third to the right (b) Second to the right
(c) Third to the left (d) Third to the left or right
(e) None of these

53. What is the position of V in respect of C?
(a) Second to the right (b) Third to the left
(c) Fourth to the right (d) Fourth to the left
(e) Cannot be determined

54. Which of the following statement is correct?
(a) A, B and C are sitting together.
(b) V, U and T are sitting together
(c) Sitting arrangement of two persons cannot be determined
(d) Those who are not facing centre are sitting together
(e) Only two people are sitting between V and T

55. What is the position of A in respect of U?
(a) Second to the left (b) Second to the right
(c) Third to the right (b) Cannot be determined
(e) None of these

DIRECTIONS (Qs. 56-60) : Study the following information carefully to answer the given questions.

A, B, C, D, E, F, G, and H are seated in straight line facing North. C sits fourth to left of G. D sits second to right of G. Only two people sit between D and A. B and F are immediate neighbours of each other. B is not an immediate neighbour of A. H is not an immediate neighbour of D.

56. Who amongst the following sits exactly in the middle of the persons who sit fifth from the left and the person who sits sixth from the right?
(a) C (b) H
(c) E (d) F

57. Who amongst the following sits third to the right of C?
(a) B (b) F
(c) A (d) E

58. Which of the following represents persons seated at the two extreme ends of the line?
(a) C, D (b) A, B
(c) B, G (d) D, H

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

60. How many persons are seated between A and E?
(a) One (b) Two
(c) Three (d) Four

DIRECTIONS (Qs. 61- 65) : In these questions symbols #, @, $, *, % are to be used with different meanings as follows:

'A # B' means 'A is neither smaller than nor equal to B'.
'A @ B' means 'A is neither greater than nor equal than to B'.
'A $ B' means 'A is not greater than B'
'A * B' means ' A is not smaller than B'.
'A % B' means 'A is neither smaller than nor greater than B'.
In each question, three statements showing relationships have been given, which are followed by two conclusions I & II. Assuming that the given statements are true, find out which conclusion(s) is/are definitely true. Mark answer
(a) if only conclusion I is true;
(b) if only conclusion II is true;
(c) if either conclusion I or II is true;
(d) if neither conclusion I nor II is true and
(e) if both conculsions I and II are true.

61. **Statements:** T @ J, J * M, M $ B
Conclusions: I. T # M
II. J $ B

62. **Statements:** R# F, F @ K, K $ V
Conclusions : I. R # V
II. V # F

63. **Statements:** E @ A, A % F, F $ Q
Conclusions : I. E @ Q
II. Q *A

64. **Statements:** L # M, M % D, D * Q
Conclusions: I. M # Q
II. Q @ L

65. **Statements:** W $ F, F @ H, H # R
Conclusions: I. W # R
II. W $ R

DIRECTIONS (Qs. 66-70) : Study the following information carefully and answer the given questions.

Seven friends A, B, C, D, E, F and G studied in colleges X, Y and Z and are currently in different professions, namely Medicines, Fashion Designing, Engineering, Business, Acting, Teaching and Architecture (not necessarily in the same order). At least two and not more than three friends had studied in the same college.

C is an architect and studied in college Y. E is not a businessman. Only G amongst the seven friends studied in college X along with E. F is an engineer and did not study in college Y. B is an actor and did not study in the same college as F. A did not study in college Z. Those who studied in college X are neither Fashion Designers nor teachers. None of those who studied in college Y is a teacher.

66. Who amongst the following have studied in college Z?
(a) B, A (b) C, F
(c) B, D, F (d) A, D
(e) D, F

67. Which of the following groups represents the students of college Y ?
(a) C, E, G (b) A, C, D
(c) A, B, C (d) D, B, C
(e) None of these

68. What is the profession of F ?
(a) Engineering (b) Business
(c) Medicines (d) Acting
(e) None of these

69. Who amongst the following is in the profession of Medicine?
(a) E (b) G
(c) A (d) D
(e) None of these

70. What is the profession of A?
(a) Teaching (b) Medicine
(c) Business (d) Fashion Designing
(e) None of these

71. Which of the following combinations of person, college and profession is definitely correct ?
(a) E-X-Fashion Designing (b) F-X-Engineering
(c) A-Y-Businessman (d) D-Z-Teaching
(e) None of these

72. Who amongst the following is a businessman?
(a) A (b) D
(c) E (d) G
(e) None of these

DIRECTIONS (Qs. 73-77): Answer these questions referring to the letter sequence given below:

N O P Q Y B Z A R S H I J K I L M T U V G E F W X D C

73. If letters of the above given series are written in reverse order then which letter will be third to the left of eighteenth letter from your right?
(a) Z (b) G
(c) I (d) L
(e) None of these

74. What will come in place of question mark (?) in the following series ?
NDP, QWB, ZER, ?
(a) SVJ (b) AFS
(c) IVS (d) SFA
(e) None of these

75. Which of the following is the fifth to the right of thirteenth letter from you left ?
(a) T (b) J
(c) S (d) Z
(e) None of these

76. If every alternate letter starting from O is replaced with odd numbers starting from 1, which letter or number will be third to the left of tenth letter from your right ?
(a) 15 (b) L
(c) K (d) I
(e) None of these

77. If it is possible to make a meaningful word from the eighth, sixteenth, seventeenth and twenty-second letters from your left in the given series, which will be th first letter of that word? If no such word can be formed, your answer would be *X*, and if more than one such word can be formed, answer is *P*.
(a) M (b) T
(c) X (d) E
(e) P

DIRECTIONS (Qs. 78-80) : In each of the questions below, a group of numerals is given followed by four groups of symbols/ letter combinations lettered (a), (b), (c) and (d). Numerals are to be coded as per the codes and conditions given below. You have to find out which of the combinations (a), (b), (c) and (d) is correct and indicate your answer accordingly. If none of the four combinations represents the correct code, mark (e) as your answer.

Numerals	3	5	7	4	2	6	8	1	0	9
Letter/Symbol Code	*	B	E	A	@	F	K	%	R	M

Following conditions apply
(i) if the first digit as well as the last digits is odd, both are to be coded as 'x'.
(ii) if the first digit as well as the last digit is even, both are to be coded as $.
(iii) if the last digit is 'zero', it is to be coded as #.

78. 487692
(a) $KEFM@ (b) AKEFM@
(c) AKEFM$ (d) $KEFM$
(e) None of these

79. 713540
(a) X%★BA (b) E%★BA#
(c) E%★BAR (d) X%★BAR
(e) None of these

80. 765082
(a) EFB#K@ (b) XFBRK@
(c) EFBRK@ (d) EFBR#K
(e) None of these

HINTS & EXPLANATIONS

1. (a) $48\%\text{ of }525+?\%\text{ of }350=399$

$\Rightarrow \frac{48}{100}\times 525+\frac{?}{100}\times 350=399$

$\Rightarrow 25200+?\times 350=399\times 100$

$\Rightarrow ?\times 350=39900-25200=14700$

$\Rightarrow ?=\frac{14700}{350}=42$

2. (e) $2\frac{5}{9}\times 3\frac{4}{5}+?=12\frac{1}{5}$

$\Rightarrow \frac{23}{9}\times\frac{19}{5}+?=\frac{61}{5}$

$\Rightarrow ?=\frac{61}{5}-\frac{437}{45}$

$\Rightarrow ?=\frac{549-437}{45}$

$\Rightarrow ?=\frac{112}{45}=2\frac{22}{45}$

3. (d) $\sqrt{?}+17^2=335$

$\Rightarrow \sqrt{?}+289=335$

$\Rightarrow \sqrt{?}=335-289=46$

$\Rightarrow ?=46\times 46=2116$

4. (c) $?=\frac{28\times 5-15\times 6}{7^2+\sqrt{256}+(13)^2}$

$\Rightarrow ?=\frac{140-90}{49+16+169}$

$\Rightarrow ?=\frac{50}{234}=\frac{25}{117}$

5. (e) $?=13\frac{4}{7}+5\frac{2}{7}\times 2\frac{1}{2}$

$\Rightarrow ?=\frac{95}{7}+\frac{37}{7}\times\frac{5}{2}$

$\Rightarrow ?=\frac{95}{7}+\frac{185}{14}$

$\Rightarrow ?=\frac{190+185}{14}$

$\Rightarrow ?=\frac{375}{14}=26\frac{11}{14}$

6. (d) $?=784\div 16\div 7$

$\Rightarrow ?=\frac{784}{16}\div 7 \Rightarrow ?=49\div 7=7$

7. (c) $?=\frac{3}{7}\text{of }455+\frac{5}{8}\text{of }456$

$\Rightarrow ?=\frac{3}{7}\times 455+\frac{5}{8}\times 456$

$\Rightarrow ?=195+285$

$\Rightarrow ?=480$

8. (a) $?=6425\div 125\times 8$

$\Rightarrow ?=51.4\times 8$

$\Rightarrow ?=411.2$

9. (b) $?=1.05\%\text{ of }2500+2.5\%\text{ of }440$

$\Rightarrow ?=\frac{1.05}{100}\times 2500+\frac{2.5}{100}\times 440$

$\Rightarrow ?=\frac{2625}{100}+\frac{1100}{100}$

$\Rightarrow ?=\frac{3725}{100}=37.25$

10. (b) $?=4900\div 28\times 444\div 12$

$\Rightarrow ?=175\times 37$

$\Rightarrow ?=6475$

11. (a) $?\approx 395+187=582$

12. (c) $?\approx(5)^2+(21)^3+\sqrt{1089}$

$\approx 25+9261+33\approx 9319$

13. (e) $?\approx\frac{5000\times 25}{100}-\frac{3000\times 65}{100}$

$\approx 1250-1950\approx -700$

14. (c) $?=(81)^{-1/2}-(64)^{-2/3}$

$=\left(\frac{1}{8}\right)^{\frac{1}{2}}-\left(\frac{1}{64}\right)^{\frac{2}{3}}=\frac{1}{9}-\frac{1}{16}$

$=\frac{16-9}{144}=\frac{7}{144}$

15. (a) $?=\frac{\sqrt{29241}}{\sqrt{361}}\times\frac{47}{9}=\frac{171}{19}\times\frac{47}{9}$

$=47$

16. (b) Number of employees in design, customer relation and HR departments together

$4500\times(32+22+8)\%$

$=\frac{4500\times 62}{100}=2790$

Number of women employees in these departments

$=2000\times(28+20+16)\%$

$=\frac{2000\times 64}{100}=1280$

$\therefore$ Required number of males

$=2790-1280=1510$

17. (c) Number of employees in HR department

$=\frac{4500\times 8}{100}=360$

$\therefore$ Number of males

$=360-\frac{2000\times 16}{100}$

$=360-320=40$

Number of employeess in Accounts department

$$= \frac{4500 \times 12}{100} = 540$$

$\therefore$ Number of males

$$= 540 - \frac{2000 \times 12}{100}$$

$$= 540 - 240 = 300$$

$\therefore$ Required ratio $= 40 : 300 = 2 : 15$

18. (e) Number of employees in marketing and customer relation departments

$$= \frac{4500 \times 40}{100} = 1800$$

Number of females in the marketing department

$$= \frac{2000 \times 14}{100} = 280$$

$$\therefore \text{Required percentage} = \frac{280}{1800} \times 100 \approx 16$$

19. (a) Total number of employees in administrative department

$$= \frac{4500 \times 8}{100} = 360$$

Number of males in the same department

$= 360 - 200 = 160$

$\therefore$ Required ratio

$= 360 : 160 = 9 : 4$

20. (c) Required percentage

$$= \frac{2000}{2500} \times 100 = 80$$

21. (d) Pattern of the series would be as follows

7 (+2) 9 (+3) 12 (+4) 16 (+5) 21

22. (c) Pattern of the series would be as follows

384 (÷2) 192 (÷2) 96 (÷2) 48 (÷2) 24

23. (e) Pattern of the series would be as follows

$5 \times 1 + 1 = 6$

$6 \times 2 + 2 = 14$

$14 \times 3 + 3 = 45$

$\therefore \quad 45 \times 4 + 4 = 184$

24. (e) Pattern of the series would be as follows

8 ($+(1)^2$) 9 ($+(2)^2$) 13 ($+(3)^2$) 22 ($+(4)^2$) 38

25. (a) Pattern of the series would be as follows

6 (+5) 11 (+10) 21 (+20) 41 (+40) 81

26. (d) Let total number of students in college $A = 3x$
and total number of students in college $B = 4x$
After 50 more students join college A

$$\text{New Ratio} = \frac{3x + 50}{4x} = \frac{5}{6}$$

$$\Rightarrow \quad 18x + 300 = 20x$$

$$\Rightarrow \quad 2x = 300$$

$$\Rightarrow \quad x = \frac{300}{2} = 150$$

Total number of students in college

$B = 4x = 4 \times 150 = 600$

27. (b) $\because$ Cost price of (12 belts + 30 wallers) = ₹ 8940

$\because$ Cost price of 3 × (4 belts + 10 wallets) = ₹ 8940

$$\because \text{Cost price of 4 belts + 10 wallets} = \frac{8940}{3} = ₹\,2980$$

28. (a) Let the first number be x
and the second number be y

Then, 80% of $x = \frac{3}{5}$ of y

$$\Rightarrow \quad \frac{80}{100} \times x = \frac{3}{5} \times y$$

$$\Rightarrow \quad \frac{4}{5} \times x = \frac{3}{5} \times y \qquad \Rightarrow \qquad 4x = 3y$$

$$\Rightarrow \quad \frac{x}{y} = \frac{3}{4} = 3 : 4$$

29. (c) $\because$ Cost price of an article = ₹ 1850

For 30% profit, selling price of this article

$$= 1850 \times \frac{130}{100} = ₹\,2405$$

30. (e) Compound Interest after two years

$$= 8500\left(1 + \frac{10}{100}\right)^2 - 8500$$

$$= 8500 \times \frac{11}{10} \times \frac{11}{10} - 8500$$

$= 10285 - 8500 = ₹\,1785$

31. (a) Let length of the train be x m

Speed of the train be 60 km/h $= 60 \times \frac{5}{18} = \frac{50}{3}$ m/s

Then, $\dfrac{x + 200}{\frac{50}{3}} = 27$

$$\Rightarrow \quad \frac{3(x + 200)}{50} = 27$$

$$\Rightarrow \quad 3x + 600 = 1350$$

$$\Rightarrow \quad 3x = 1350 - 600$$

$$\Rightarrow \quad 3x = 750$$

$$\Rightarrow \quad x = \frac{750}{3} = 250 \text{ m}$$

32. (c) Each fractions, decimal value are given below :

$$\frac{5}{11} = 0.454, \frac{3}{8} = 0.375, \frac{4}{9} = 0.444, \frac{2}{7} = 0.286$$

So, ascending order of the fractions is $\frac{2}{7}, \frac{3}{8}, \frac{4}{9}, \frac{5}{11}$.

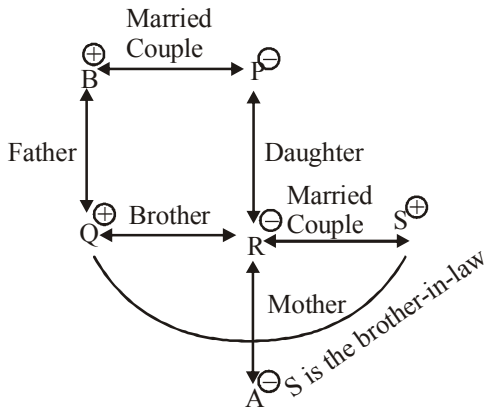
33. (d) Let ten's digit be x and unit's digit be $8 - x$
Then, $x = 3(8 - x)$
$\Rightarrow \quad x = 24 - 3x,$
$\Rightarrow \quad 4x = 24$
$\Rightarrow \quad x = \frac{24}{4} = 6$
$\therefore$ unit's digit $= 8 - x = 8 - 6 = 2$
So, required number = 62

34. (b) Suppose 16 men can complete the same work in x days
Then, Men days
10 ↑ 8 ↓
16 | x ↓
$16 : 10 :: 8 : x$
$\Rightarrow \quad 16 \times x = 10 \times 8$
$\Rightarrow \quad x = \frac{10 \times 8}{16} = 5$ days

35. (e) 36. (e) 37. (b) 38. (d) 39. (a)

40. (d)

41. (d) Let us draw the family diagram



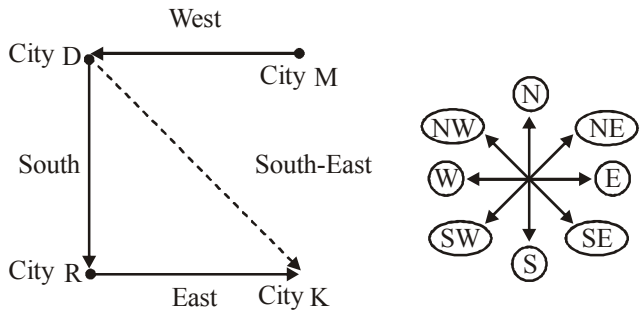
Hence, S isthe brother-in-law of Q.

42. (d) (a) Summer (b) Winter (c) Spring (d) Cloud
All others are name of seasons.

43. (d) The new letter sequence is EDRPSEISNO.
The seventh letter from the right is P.

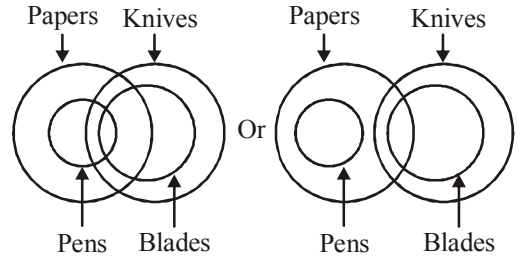
44. (c) According to the question, R > P/U: T/Q > S
$\therefore$ T/Q > (S) > R > P/U
$\therefore$ 3rd tallest = S

45. (d) According to the question, the direction diagram is as follows



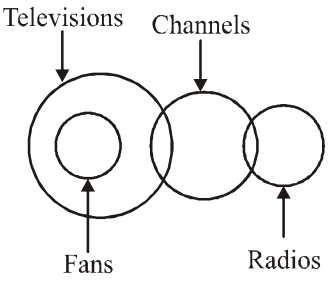
Hence, city K is located in the South-East direction.

46. (a)



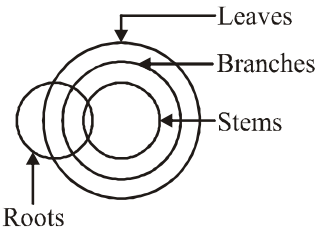
Conclusions I. Some knives are papers (√)
II. Some blades are pens (x)

47. (d)



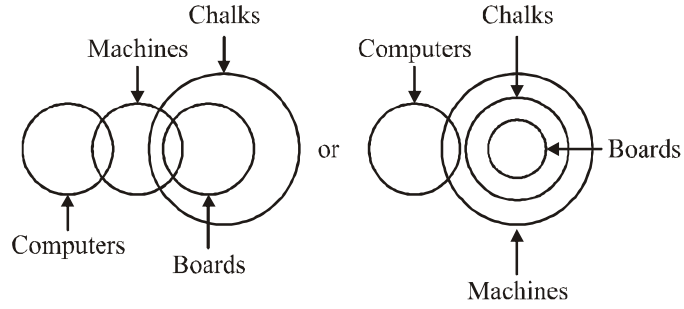
Conclusions I. Some fans are channels. (x)
II. Some radios are televisions (x)

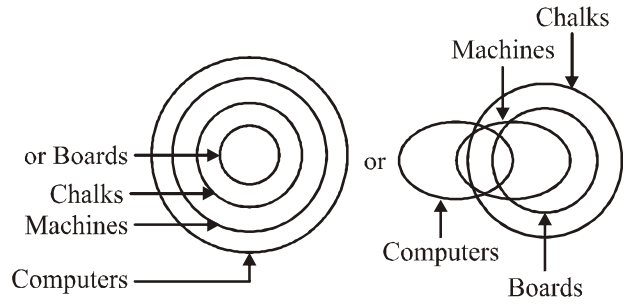
48. (e)



Conclusions I. Some leaves are roots (√)
II. Some branches are stems (√)

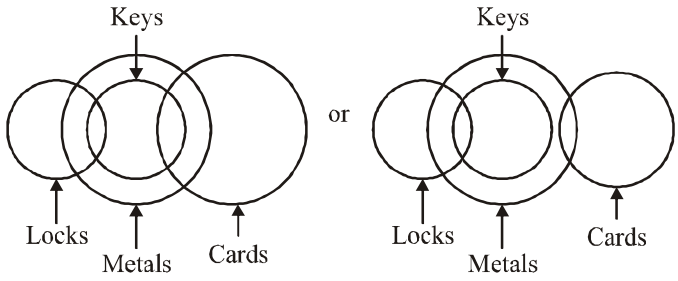
49. (c)

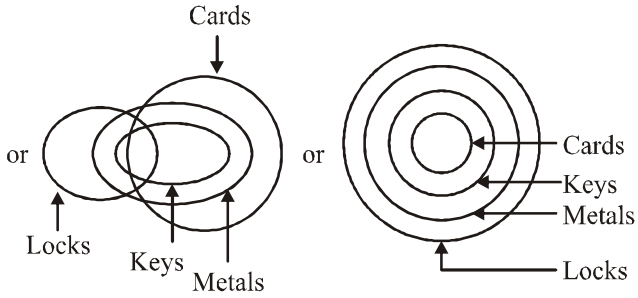


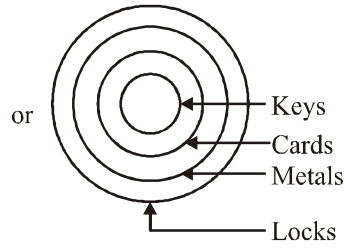


Conclusions I. Some chalks are computers. (x)
II. No chalk is a computer (x)

50. (b)

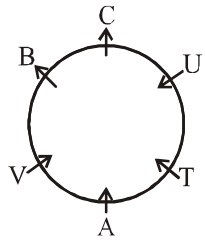






(Qs. 51-55):

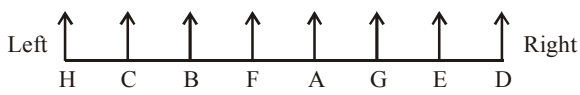
Sitting Arrangement:



51. (c) B and C are not facing centre.
52. (d) The position of T in respect of B is third to the left or right.
53. (c) The position of V in respect of C is fourth to the right.
54. (c) B and C are not facing centre are sitting together.
55. (a) The position of A in respect of U is second to the left.

(Qs. 56-60):

Sitting Arrangement:



56. (d) 57. (c) 58. (d) 59. (a) 60. (a)

(Qs. 61-65)

# ⇒>	@ ⇒<	$ ⇒≤
* ⇒≥	% ⇒=	

61. (d) $T < J,\ J \geq M,\ M \leq B$
No relation between T and M, and J and B.
So neither I nor II is true.
62. (b) $R > F, F < K,\ K \leq V$
No relation between R and V. So conclusion I is not true.
But $V \geq K > F$ or $V > F$
So, conclusion II is true.
63. (e) $E < A,\ A = F,\ F \leq Q$
Combining all, $Q \geq F = A > E$ or $E < Q$ and $Q \geq A$
So, both conclusions I and II are true.
64. (b) $L > M, M = D,\ D \geq Q$
Combining all, $L > M = D \geq Q$ or $M \geq Q$ and $Q < L$.
So, only conclusion II is true.
65. (c) $W \leq F,\ F < H, H > R$
Although no direct relation between W and R but I and II together show all three probable relations. Hence, either I or II is true.

(66-70):

Friend	College	Subject
A	Y	Fashion
B	Y	Acting
C	Y	Architecture
D	Z	Teaching
E	X	Medicine
F	Z	Engineering
G	X	Business

66. (e) 67. (c) 68. (a) 69. (a) 70. (d)
71. (d) 72. (d)
73. (b) 18 + 3 = 21st letter from the right in the reverse series or, 21st letter from the left in the original series.
74. (e) $N + 3 = Q,\ Q + 3 = Z,\ Z + 3 = S$
$D - 2 = W,\ W - 2 = E,\ E - 2 = V$
$P + 3 = B,\ B + 3 = R,\ R + 3 = I$ Hence, ? = SVI
75. (a) 13 + 5 = 18th from you left
76. (d) 10 + 3 = 13th from the right
77. (e) Given A, L, M, E
MALE, LAME, MEAL
78. (d) Condition II apply
79. (b) Condition III apply
80. (c) No Condition apply

PRACTICE SET 6

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. 1-10) : What will come in place of question mark (?) in the following questions?

1. $72.42 + 385.66 + 4976.38 = ?$
(a) 5234.46 (b) 5434.46
(c) 5434.66 (d) 5244.66
(e) None of these

2. $8\frac{5}{9} \times 4\frac{3}{5} - 6\frac{1}{3} = ?$
(a) $32\frac{11}{45}$ (b) $33\frac{11}{45}$
(c) $32\frac{1}{45}$ (d) $33\frac{1}{45}$
(e) None of these

3. $\frac{17 \times 4 + 4^2 \times 2}{90 \div 5 \times 12} = ?$
(a) $\frac{25}{54}$ (b) $\frac{22}{57}$
(c) $\frac{11}{27}$ (d) $\frac{13}{27}$
(e) None of these

4. 16% of 250 + 115% of 480 = ?
(a) 522 (b) 588
(c) 582 (d) 498
(e) None of these

5. 55% of 860 + ?% of 450 = 581
(a) 24 (b) 28
(c) 32 (d) 36
(e) None of these

6. $16.45 \times 2.8 + 4.5 \times 1.6 = ?$
(a) 56.23 (b) 56.32
(c) 53.26 (d) 53.66
(e) None of these

7. $8\frac{2}{5} \times 5\frac{2}{3} + ? = 50\frac{1}{5}$
(a) $3\frac{2}{5}$ (b) $2\frac{2}{5}$
(c) $3\frac{3}{5}$ (d) $2\frac{3}{5}$
(e) None of these

8. $2520 \div 14 \div 9 = ?$
(a) 22 (b) 18
(c) 20 (d) 16
(e) None of these

9. $\frac{5}{9}$ of $504 + \frac{3}{8}$ of $640 = ?$
(a) 520 (b) 480
(c) 460 (d) 540
(e) None of these

10. 3.2% of 250 + 1.8% of 400 = ?
(a) 14.8 (b) 15.75
(c) 14.75 (d) 15.2
(e) None of these

11. Difference between the digits of a two digit number is 5 and the digit in the unit's place is six times the digit in the ten's place. What is the number?
(a) 27 (b) 72
(c) 16 (d) 61
(e) None of these

12. Populations of two villages X and Y are in the ratio of 5 : 7 respectively. If the population of village Y increases by 25000 and the population of village X remains unchanged the respective ratio of their populations becomes 25:36. What is the population of village X?
(a) 625000 (b) 675000
(c) 875000 (d) 900000
(e) None of these

13. Ajay spends 25 per cent of his salary on house rent, 5 per cent on food, 15 per cent on travel, 10 per cent on clothes and the remaining amount of ₹ 27,000 is saved. What is Ajay's income?
(a) ₹60,000 (b) ₹80,500
(c) ₹60,700 (d) ₹70,500
(e) None of these

14. The length of a rectangular field is thrice its breadth. If the cost of cultivating the field at ₹ 367.20 per square metre is ₹ 27,540, then what is the perimeter of the rectangle?
(a) 47m (b) 39m
(c) 52m (d) 40m
(e) None of these

15. If the fractions $\frac{8}{5}, \frac{7}{2}, \frac{9}{5}, \frac{5}{4}, \frac{4}{5}$ are arranged in descending order of their values, which one will be the fourth?
(a) $\frac{4}{5}$ (b) $\frac{5}{4}$
(c) $\frac{9}{5}$ (d) $\frac{8}{5}$
(e) $\frac{7}{2}$

DIRECTIONS (Qs. 16-20): In each of these questions, a number series is given. In each series, only one number is wrong. Find out the wrong number.

16. 3601 3602 1803 604 154 36 12
(a) 3602 (b) 1803
(c) 604 (d) 154
(e) 36

17. 4 12 42 196 1005 6066 42511
(a) 12 (b) 42
(c) 1005 (d) 196
(e) 6066

18. 2 8 12 20 30 42 56
(a) 8 (b) 42
(c) 30 (d) 20
(e) 12

19. 32 16 24 65 210 945 5197.5
(a) 945 (b) 16
(c) 24 (d) 210
(e) 65

20. 7 13 25 49 97 194 385
(a) 13 (b) 49
(c) 97 (d) 194
(e) 25

21. A 240 m long train crosses a 300 m long plate form in 27 s. What is the speed of the train in km/h?
(a) 66 (b) 60
(c) 76 (d) 64
(e) None of these

22. Vandana sells an article for ₹ 3240 and earns a profit of 20%. What is the cost price of the article ?
(a) ₹2800 (b) ₹2820
(c) ₹2750 (d) ₹2700
(e) None of these

23. Mr. Sharma invested an amount of ₹25000 in fixed deposit @ compound interest 8% per annum for two years. What amount Mr. Sharma will get on maturity ?
(a) ₹28540 (b) ₹29160
(c) ₹29240 (d) ₹28240
(e) None of these

24. Four-seventh of a number is equal to 40 % of another number. What is the ratio between the first number and second number respectively ?
(a) 5 : 4 (b) 4 : 5
(c) 10 : 7 (d) 7 : 10
(e) None of these

25. Cost of 6 dozen apples and 8 dozen bananas is ₹ 1400. What will be the cost of 15 dozen apples and 20 dozen bananas ?
(a) ₹3200 (b) ₹3500
(c) ₹3600 (d) ₹4200
(e) None of these

26. Beena and Meena started a boutique investing amounts of ₹ 35000 and ₹ 56000 respectively. If Beena's share in the profit earned by them is ₹ 45000, what is the total profit earned ?
(a) ₹81000 (b) ₹127000
(c) ₹72000 (d) ₹117000
(e) None of the above

27. Nandkishore gives 35% of the money he had to his wife and gave 50% of the money he had to his sons. Remaining amount of ₹ 11250 he kept for himself. What was the total amount of money Nandkishore had ?
(a) ₹63750 (b) ₹75000
(c) ₹73650 (d) ₹72450
(e) None of these

28. Simple interest accured on an amount in eight years @ 11% per annum is ₹ 57200. What was the principal amount ?
(a) ₹72000 (b) ₹82000
(c) ₹75000 (d) ₹65000
(e) None of these

29. Four-fifth of a number is 10 more than two-third of the same number. What is the number?
(a) 70 (b) 75
(c) 69 (d) 85
(e) None of these

30. A shopkeeper purchased 200 bulbs for ₹ 10 each. However, 5 bulbs were fused and had to be thrown away. The remaining were sold at ₹ 12 each. What will be the percentage profit?
(a) 25 (b) 15
(c) 13 (d) 17
(e) None of these

31. The average monthly income of a family of four earning members was ₹15,130. One of the daughter in the family got married and left home, so the average monthly income of the family came down to ₹ 14,660. What is the monthly income of the married daughter?

(a) ₹15,350 (b) ₹12,000
(c) ₹16,540 (d) Cannot be determined
(e) None of these

32. On a test consisting of 250 questions, Jassi answered 40% of the first 125 questions correctly. What percent of the other 125 question does she need to answer correctly for her grade on the entire exam to be 60%?
(a) 75 (b) 80
(c) 60 (d) Cannot be determined
(e) None of these

33. Swapnil, Aakash and Vinay begin to jog around a circular stadium. They complete their revolutions in 36 seconds, 48 seconds and 42 seconds respectively. After how many seconds will they be together at the starting point.
(a) 504 seconds (b) 940 seconds
(c) 1008 seconds (d) 470 seconds
(e) None of these

34. Excluding the stoppages, the speed of a bus is 64 km/hr and including the stoppage the speed of he bus is 48 km/hr. For how many minutes does the bus stop per hour?
(a) 12.5 minutes (b) 15 minutes
(c) 10 minutes (d) 18 minutes
(e) None of these

35. A, B, C, D and E are five consecutive odd numbers. The sum of A and C is 146. What is the value of E?
(a) 75 (b) 81
(c) 71 (d) 79
(e) None of these

DIRECTIONS (Qs. 36-38): Study the table carefully to answer the questions that follow:

Total number of employees in different departments of an organization and (of these) percentage of females and males

Department	Total Number of Employees	Percentage of Females	Percentage of Males
IT	840	45	55
Accounts	220	35	65
Production	900	23	77
HR	360	65	35
Marketing	450	44	56
Customer Service	540	40	60

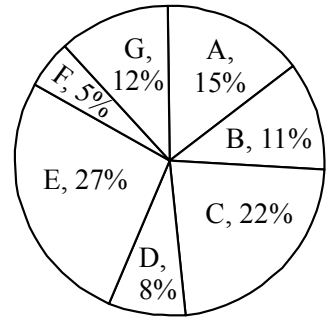
36. What is the total number of employees in all the departments together?
(a) 3260 (b) 3310
(c) 3140 (d) 3020
(e) None of these

37. The total number of employees in the HR department forms approximately what percent of the total number of employees in the Accounts department?
(a) 149 (b) 178 (c) 157 (d) 164 (e) 137

38. What is the total number of males in the IT and Customer Service departments together?
(a) 687 (b) 678
(c) 768 (d) 876
(e) None of these

DIRECTIONS (Qs. 39 & 40) : Seven companies A, B, C, D, E, F and G are engaged in production of two items I and II. The comparative data about production of these items by the seven companies is given in the following pie-chart and the table. Study them carefully and answer the questions given below.

Percentage of the total production produced by the seven companies



Cost of the total production (both items together) by seven companies. = ₹ 25 crores

Ratio of production between items I and II and the per cent profit earned for tshe two items.

Company	Ratio of Production		Per cent profit earned	
	Item I	Item II	Item I	Item II
A	2	3	25	20
B	3	2	32	35
C	4	1	20	22
D	3	5	15	25
E	5	3	28	30
F	1	4	35	25
G	1	2	30	24

39. What is the total cost of the production of item 'I' by companies A and C together in ₹ crore?
(a) 9.25 (b) 5.9
(c) 4.1625 (d) 4.9
(e) None of these

40. What is the amount of profit eared by company 'D' on item 'II'?
(a) ₹3.125 crores (b) ₹31.25 crores
(c) ₹3.125 lakhs (d) ₹31.25 lakhs
(e) None of these

REASONING ABILITY

DIRECTIONS (Qs. 41-45) : In each of the questions below are given three statements followed by four conclusions numbered I, II, III and IV. You have to take the given statements to be true even if they seem to be at variance with commonly know facts. Read all the conclusions and then decide which of the given conclusions logically follows from the given statements disregarding commonly known facts.

41. **Statement :** **A.** Some boys are rains.
B. All rains are clouds.
C. Some clouds are cars.
Conclusions : **I.** Some clouds are boys.
II. Some cars are boys.
III. Some cars are rains.
IV. Some rains are boys.
(a) Only II follows (b) Only IV follows
(c) Only I follows (d) Both I and IV follow
(e) None of these

42. **Statement :** **A.** All bricks are flowers.
B. Some houses are flowers.
C. All pens are houses.
Conclusions : **I.** Some houses are bricks.
II. Some pens are flowers.
III. Some flowers are bricks.
IV. No pen is flower.
(a) Only either II or IV and III follow
(b) Only either II or IV and I follow
(c) Only either I or II and IV follow
(d) Either II or IV follow
(e) None of these

43. **Statement :** **A.** All lions are ducks.
B. No duck is a horse.
C. All horses are fruits.
Conclusions : **I.** No lion is a horse.
II. Some fruits are horses.
III. Some ducks are lions.
IV. Some lions are horses.
(a) All follows
(b) Only either I or II and both III and IV follow
(c) Only either I or IV and both II and III follow
(d) Neither I nor II follow
(e) None of these

44. **Statements :** **A.** Some stones are bricks.
B. All plants are stones.
C. No flower is a plant.
Conclusions : **I.** No flower is a stone.
II. Some bricks are plants.
III. No bricks are plants.
(a) Only I follows (b) Only II follows
(c) Only III follows (d) Either II or III follows
(e) None of these

45. **Statements :** **A.** All tigers are jungles.
B. No jungle is a bird.
C. Some birds are rains.
Conclusions : **I.** No rain is a jungle.
II. Some rains are jungles.
III. No bird is a tiger.
(a) Only either II or III follows
(b) Only I and II follow
(c) Only either I or II and III follow
(d) Neither II nor III follow
(e) None of these

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

(I) M, N, P, Q, S and T are six members of a group in which there are three female members. Females work in three departments – Accounts, Administration and Personnel and sit in three different floors – 1st, 2nd and 3rd. Persons working in the same department are not on the same floor. On each floor, two persons work.

(II) No two ladies, work in the same department or on the same floor. N and S work in the same department but not in personnel. Q works in Administration. S and M are on the 1st and 3rd floors respectively and work in the same department. Q, a lady, does not work on 2nd floor. P, a man, works on the Ist floor.

46. Which of the following groups of persons is females ?
(a) SQT (b) QMT
(c) QPT (d) Data inadequate
(e) None of these

47. T works in which department ?
(a) Accounts (b) Administration
(c) Personnel (d) Accounts or Personnel
(e) None of these

48. Which of the following pairs of persons work on IInd floor?
(a) PT (b) SM
(c) QN (d) Data inadequate
(e) None of these

49. If T is transferred to Accounts and S is transferred to Administration, who is to be transferred to Personnel to maintain the original distribution of females on each floor ?
(a) P (b) N
(c) Q (d) Data inadequate
(e) None of these

50. Which of the following pairs of persons works in Administration ?
(a) QP (b) QN
(c) SP (d) Data inadequate
(e) None of these

DIRECTIONS (Qs. 51-55) : In each of these questions a group of letters is given followed by four combinations of numbers codes lettered (a), (b), (c) and (d). The group of letters is to be coded with the numbers codes and the condition given below. The 'serial number of the number combination'. Which correctly represents the letter group, is your answer.

Letters	D	J	K	Q	H	V	N	E	B	A
Numbers Codes	3	9	7	6	4	8	2	1	5	0

Conditions : If the first or the last letter or both in the letter group is /are a vowel then the same is/are to be coded by symbol #.

51. EHNDJV
(a) #42389 (b) 142398
(c) #42398 (d) 14239#
(e) None of these

52. KQDJNH
(a) 763942 (b) 736924
(c) #36924 (d) #63924
(e) None of these

53. AJNVQE
(a) #9286# (b) 09286#
(c) #92861 (d) 092861
(e) None of these

54. QHJVND
(a) 648923 (b) 649823
(c) #49823 (d) 64892#
(e) None of these

55. JKEDHA
(a) 97#34# (b) 971340
(c) 971430 (d) 97134#
(e) None of these

DIRECTIONS : (Qs. 56-60): In the questions given below, certain symbols are used with the following meaning:

A @ B means A is greater than B.
A + B means A is either greater than or equal to B.
A † B means A is smaller than B
A ⊗ B meansA is either smaller than or equal to B.
A $ B means A is equal to B
Now in each of the following questions assuming the given statements to be true find which of the two conclusions I and II given below them is /are definitely **true.** Give answer
(a) if only conclusion I is true.
(b) if only conclusion II is true.
(c) if either I or II is true.
(d) if neither I nor II are true.
(e) if both I and II are true.

56. Statements : T $ G, K @ P, M † T, P + M
Conclusions: I. K @ M **II.** G$P

57. Statements : R + N, S ⊗ B, A @ N, B$A
Conclusions: I. S $ N **II.** A @N

58. Statements : G $ K, F @ J. K + Q, Q + F
Conclusions: I. K $ F **II.** F † K

59. Statements : W @ S, K ⊗ Z, U + W, S $ K
Conclusions: I. U @ K **II.** Z @ S

60. Statements : G $ E, D † K, E † S, K ⊗ G
Conclusions: I. S @ D **II.** D † E

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

Eight friends P, Q, R, S, T, V, W and Y are sitting around a square table in such a way that four of them sit at four corners of the square while four sit in the middle of each of the four sides. The ones who sit at the four corners face the centre while those who sit in the middle of the sides face outside.

P, who faces the centre, sits third to the right of V. T, who faces the centre, is not an immediate neighbour of V. Only one person sits between V and W. S sits second to right of Q. Q faces the centre. R is not an immediate neighbour of P.

61. Who sits second to the left of Q?
(a) V (b) P
(c) T (d) Y
(e) Cannot be determined

62. What is the position of T with respect to V ?
(a) Fourth to the left (b) Second to the left
(c) Third to the left (d) Third to the right
(e) Second to the right

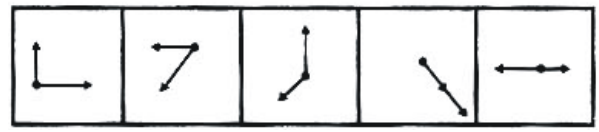
63. Four of the following five are alike in a certain way and so form a group. Which is the one that does not belong to the group?
(a) R (b) W
(c) V (d) S
(e) Y

64. Which of the following will come in place of the question mark based upon the given seating arrangement ?
WP TR QW RS ?
(a) YT (b) VY
(c) VQ (d) PY
(e) QV

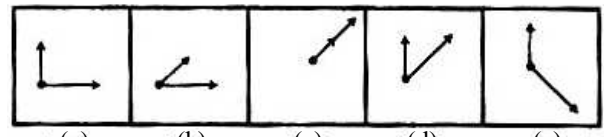
65. Which of the following is true regarding R ?
(a) R is an immediate neighbour of V
(b) R faces the centre
(c) R sits exactly between T and S
(d) Q sits third to left of R
(e) None of these

DIRECTIONS (Qs. 66-70) : In each of the questions given below which one of the five answers figures should come after the problem figures, if the sequence were continued?

66. Problem figures

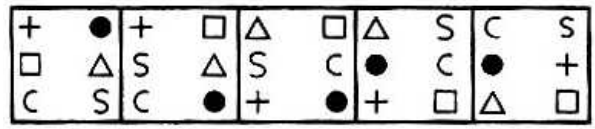


Answer figures

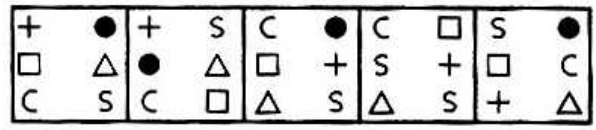


(a) (b) (c) (d) (e)

67. Problem figures

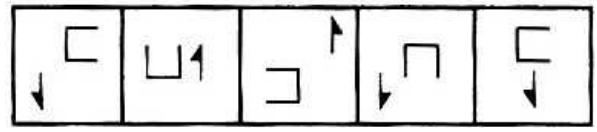


Answer figures

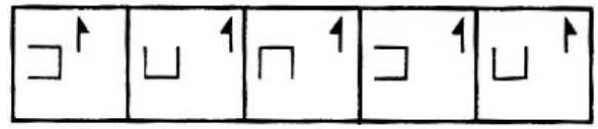


(a) (b) (c) (d) (e)

68. Problem figures



Answer figures



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

69. Four the following five are alike in a certain way and so form a group. Which is the one that does not belong to the group?
(a) Horse (b) Dog
(c) Camel (d) Cow
(e) Fox

70. In a certain code RUST is written as QVRU. How is LINE written in that code?
(a) KJMF (b) KJLI
(c) KMJF (d) KJME
(e) None of these

DIRECTIONS (Qs. 71-75) : Study the following information carefully and answer the given questions.

P, Q, R, S, T, V, W and X are captains of eight different cricket teams, namely Australia, New Zealand, India, Pakistan, Sri Lanka, England, West Indies and South Africa, but not necessarily in the same order. All of them are seated around a circular table and are facing the centre.

P sits third to the left of the Sri Lankan captain. Only two people sit between T and W. Neither T nor W is an immediate neighbour of P. Neither T and W is the captain of Sri lanka. The captain of South Africa sits second to the right of S. S is not an immediate neighbour of P.S. is not the Sri Lankan captain and P is not the captain of South Africa. The Australian captain sits third to the left of V. The Australian and Sri Lankan captains are not immediate neighbours. Only one person sits between S and the Indian captain. Captains of Pakistan and New Zealand are immediate neighbours. S is not the captain of New Zealand's team. Only one person sits between Q and the captain of England. The captain of England is an immediate neighbour of X. W and Q are not immediate neighbours.

71. How many people sit between T and the captain of England when counted in clockwise direction from T?
(a) None (b) One
(c) Two (d) Four
(e) Five

72. Who is the captain of the Australian team?
(a) P (b) V
(c) W (d) T
(e) Q

73. Which of the following would come in place of question mark based upon the given seating arrangement?
VS XR TV RP ?
(a) SW (b) WX
(c) QW (d) QX
(e) VR

74. Which of the following is **true** with respect to the given arrangement?
(a) R is the captain of South Africa
(b) W is an immediate neighbour of V.
(c) The captain of Australia and England are immediate neighbours.
(d) Four people sit between W and Q.
(e) X sits second to the left of S.

75. Who is the Indian captain?
(a) Q (b) V
(c) X (d) T
(e) Cannot be determined

DIRECTIONS (Qs. 76-78) : Study the given information carefully and answer the given questions.

Among six people - A, B, C, D, E and F each of a different age, A is younger than only D. Only three people are younger than C. F is younger than E. F is not the youngest.

76. Who amongst the following is the youngest?
(a) B (b) A
(c) E (d) C
(e) None of these

77. If E's age 16 years, then which of the following may be B's age?
(a) 19 years (b) 22 years
(c) 18 years (d) 17 years
(e) 12 years

78. How many people are younger than E?
(a) One (b) Two
(c) Three (d) Four
(e) More than four

DIRECTIONS (Qs. 79 & 80): Study the given information carefully and answer the given questions.

Twenty students are standing in a straight line facing north. Rina is standing sixth from the left end. There are only three students between Rina and Shweta. Radha is standing exactly between Shweta and Rina. Tina is standing sixth to the right of Radha. Anita is standing fourth from the right end of the line. There are more than four students between Rina and Tina.

79. How many people are standing between Anita and Tina.
(a) One (b) Two
(c) Three (d) None
(e) More than three

80. What is Shweta's position with respect to Anita?
(a) Sixth to the left (b) Eighth to the left
(c) Seventh to the left (d) Ninth to the left
(e) None of these

HINTS & EXPLANATIONS

1. (b) $? = 72.42 + 385.66 + 4976.38$

$\Rightarrow ? = 5434.46$

2. (d) $? = 8\frac{5}{9} \times 4\frac{3}{5} - 6\frac{1}{3}$

$\Rightarrow ? = \frac{77}{9} \times \frac{23}{5} - \frac{19}{3}$

$\Rightarrow ? = \frac{1771 - 285}{45}$

$\Rightarrow ? = \frac{1486}{45} = 33\frac{1}{45}$

3. (a) $? = \frac{17 \times 4 + 4^2 \times 2}{90 \div 5 \times 12}$

$\Rightarrow ? = \frac{68 + 16 \times 2}{18 \times 12}$

$\Rightarrow ? = \frac{68 + 32}{216}$

$\Rightarrow ? = \frac{100}{216} = \frac{25}{54}$

4. (e) $? = 16\%\ \text{of}\ 250 + 115\%\ \text{of}\ 480$

$\Rightarrow ? = \frac{16}{100} \times 250 + \frac{115}{100} \times 480$

$\Rightarrow ? = \frac{4000}{100} + \frac{55200}{100}$

$\Rightarrow ? = 40 + 552 = 592$

5. (a) $55\%\text{ of }860 + ?\%\text{ of }450 = 581$

$\Rightarrow \frac{55}{100}\times 860 + \frac{?}{100}\times 450 = 581$

$\Rightarrow 473 + \frac{?}{100}\times 450 = 581$

$\Rightarrow \frac{?}{100}\times 450 = 581 - 473 = 108$

$\Rightarrow ? = \frac{108\times 100}{450} = 24$

6. (c) $? = 16.45\times 2.8 + 4.5\times 1.6$

$\Rightarrow ? = 46.06 + 7.20$

$\Rightarrow ? = 53.26$

7. (d) $8\frac{2}{5}\times 5\frac{2}{3} + ? = 50\frac{1}{5}$

$\Rightarrow \frac{42}{5}\times\frac{17}{3} + ? = \frac{251}{5}$

$\Rightarrow \frac{238}{5} + ? = \frac{251}{5}$

$\Rightarrow ? = \frac{251}{5} - \frac{238}{5}$

$\Rightarrow ? = \frac{13}{5} = 2\frac{3}{5}$

8. (c) $? = 2520 \div 14 \div 9$

$\Rightarrow ? = 180 \div 9 = 20$

9. (a) $? = \frac{5}{9}\text{ of }504 + \frac{3}{8}\text{ of }640$

$\Rightarrow ? = \frac{5}{9}\times 504 + \frac{3}{8}\times 640$

$\Rightarrow ? = 280 + 240$

$\Rightarrow ? = 520$

10. (d) $? = 3.2\%\text{ of }250 + 1.8\%\text{ of }400$

$\Rightarrow ? = \frac{3.2}{100}\times 250 + \frac{1.8}{100}\times 400$

$\Rightarrow ? = \frac{800}{100} + \frac{720}{100}$

$\Rightarrow ? = 8 + 7.2 = 15.2$

11. (c) Let ten's digit $= x$ and units digit $= x + 5$

Then, $x + 5 = 6x$

$x = 1$

$\therefore$ units digit $= x + 5 = 1 + 5 = 6$

So required number $= 16$

12. (a) Let the population of village X and Y be $5p$ and $7p$ respectively.

If population of village Y, increases by 25000

the new ratios $\rightarrow \frac{5p}{7p + 25000} = \frac{25}{36}$

$\Rightarrow 180p = 175p + 625000$

$\Rightarrow 5p = 625000$

13. (a) Saving percentage $= (100 - 55)\% = 45\%$

If the income of Ajay be ₹ x, then,

$\frac{45\times x}{100} = 27000$

$\Rightarrow x = \frac{27000\times 100}{45} = ₹60000$

14. (d) Let the breadth of the rectangle be x metre.

$\therefore$ Length $= 3x$ metre

$\therefore 3x\times x = \frac{27540}{367.20} = 75$

$\Rightarrow x^2 = 25$

$\Rightarrow x = 5$

$\therefore$ Perimeter of the rectangle

$= 2(3x + x) = 8x$

$= 8\times 5 = 40$ metre

15. (b) Decimal equivalent of each fraction :

$\frac{8}{5} = 1.6;\ \frac{7}{2} = 3.5$

$\frac{9}{5} = 1.8;\ \frac{5}{4} = 1.25$

$\frac{4}{5} = 0.8$

Clearly, $\frac{7}{2} > \frac{9}{5} > \frac{8}{5} > \frac{5}{4} > \frac{4}{5}$

16. (d)

3601	3602	1803	604	155 / 154	36	12
	$\div 1 + 1$	$\div 2 + 2$	$\div 3 + 3$	$\div 4 + 4$	$\div 5 + 5$	$\div 6 + 6$

154 is written in place of 155.

17. (b)

4	12	45 / 42	196	1005	6066	42511
	$\times 2 + (2)^2$	$\times 3 + (3)^2$	$\times 4 + (4)^2$	$\times 5 + (5)^2$	$\times 6 + (6)^2$	$\times 7 + (7)^2$

42 is written in place of 45.

18. (a)

2	6 / 8	12	20	30	42	56
	+ 4	+ 6	+ 8	+ 10	+ 12	+ 14

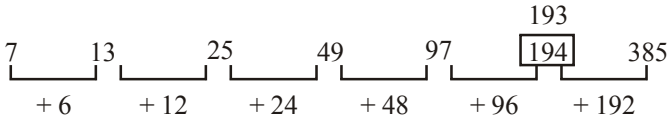
8 is written in place of 6.

19. (e)

32	16	24	60 / 65	210	945	5197.5
	$\times 0.5$	$\times 1.5$	$\times 2.5$	$\times 3.5$	$\times 4.5$	$\times 5.5$

65 is written in place of 60.

20. (d)



194 is written in place of 193

21. (e) Total length (distance) = 240 + 300 = 540 *m*

$\therefore$ Speed of train = $\frac{540}{27} = 20\ m/s = 20 \times \frac{18}{5} = 72$ km/h

22. (d) Cost prize of the article

$= 3240 \times \frac{100}{(100+20)} = 3240 \times \frac{100}{120} = ₹2700$

23. (b) Required amount = $25000\left(1+\frac{8}{100}\right)^2$

$= 25000 \times \frac{27}{25} \times \frac{27}{25} = ₹29160$

24. (d) Let first number = x
and second number = y

Then, $\frac{4}{7}$ of $x = 40\%$ of y

$\Rightarrow \quad \frac{4}{7} \times x = \frac{40}{100} \times y$

$\Rightarrow \quad \frac{4}{7} \times x = \frac{2}{5} \times y$

$\Rightarrow \quad 10x = 7y$

$\Rightarrow \quad \frac{x}{y} = \frac{7}{10} = 7:10$

25. (b) $\because$ Cost prize of (6 dozen apples + 8 dozen bananas) = ₹1400

$\therefore$ Cost prize of (15 dozen apples + 20 dozen bananas) $= 1400 \times 2.5 = ₹3500$

26. (d) Amount ratio between Beena and Meena
$= 35000 : 56000 = 5 : 8$
Let the share of Beena and Meena amount be $5x$ and $8x$ respectively.
Then, $5x = 45000$

$\Rightarrow \quad x = \frac{45000}{5} = ₹9000$

$\therefore$ Amount (profit) of Meena $= 8x = 8 \times 9000 = ₹72000$
So, total earned profit = 45000 + 72000 = ₹ 117000

27. (b) Let Nand Kishore's total money was = ₹ x
After giving some amount to his wife and his sons, remaining amount

$= x - \left(x \times \frac{35}{100} + x \times \frac{50}{100}\right) = x - \frac{85x}{100} = ₹\frac{15x}{100}$

Then, $\frac{15x}{100} = ₹11250$

$\Rightarrow \quad x = \frac{11250 \times 100}{15} = ₹75000$

28. (d) Let principal amount = x

Then, $57200 = \frac{x \times 11 \times 8}{100}$

$\Rightarrow \quad x = \frac{57200 \times 100}{11 \times 8} = ₹65000$

29. (b) Let the number be x.

$\therefore \quad \frac{4x}{5} = \frac{2}{3}x + 10$

$\Rightarrow \quad \frac{4x}{5} - \frac{2x}{3} = 10$

$\Rightarrow \quad \frac{12x - 10x}{15} = 10$

$\Rightarrow \quad x = \frac{10 \times 15}{2} = 75$

30. (d) Total cost price = 200 × 10 = ₹ 2000
Total selling price = 12 × 195 = ₹ 2340

$\therefore$ Profit per cent $= \frac{2340 - 2000}{2000} \times 100 = 17\%$

31. (c) $\Rightarrow$ Total income of the four-membered family
$= 4 \times 15430 = ₹60520$
$\Rightarrow$ Total income of three family members
$= 3 \times 14660 = ₹43980$
$\Rightarrow$ Monthly income of the married daughter
$= 60520 - 43980 = ₹16540$

32. (b) Total correct questions for getting 60% grade

$= 250 \times \frac{60}{100} = 150$

40% of 125 = 50 questions
$\therefore$ x% of 125 = 150 – 50 = 100 questions

$\Rightarrow \quad x = \frac{100 \times 100}{125} = 80$

Required percentage = 80%
Note: This can be solved by alligation method quickly. Try it.

33. (c) LCM of 36 sec, 48 sec and 42 sec = 1008 sec
$\therefore$ After 1008 seconds, they will be together at the starting point.

34. (b) Stoppage time per hour

$= \frac{64 - 48}{64} = \frac{1}{4} \times 60 = \frac{1}{4}\text{hr} = 15$ minutes

35. (d) Let the numbers A, B, C, D and E be x, x + 2, x + 4, x + 6 and x + 8 respectively.
Now, A + C = 146
$\Rightarrow$ x + x + 4 = 146
$\Rightarrow$ 2x = 142 $\Rightarrow$ x = 71
$\therefore$ Value of E = 71 + 8 = 79

36. (b) Total no. of employees
$= (840 + 220 + 900 + 360 + 450 + 540) = 3310$

37. (d) Required % $= \frac{360}{220} \times 100 \approx 164\%$

38. (e) Total no. of male employees in IT and Customer Service

$= 840 \times \frac{55}{100} + 540 \times \frac{60}{100} = 462 + 324 = 786$

39. (b) Cost of production of both items for

Company A $= \frac{15}{100} \times 25 = 3.7$ crores

Company C $= \frac{22}{100} \times 25 = ₹5.5$ crores

These costs will be divided in the ratio of production of items I and II.

Cost of production of item I for

$$\text{Company A} = \frac{2}{2+3} \times 3.75 = ₹\,1.5 \text{ crores}$$

$$\text{Company C} = \frac{4}{4+1} \times 5.5 = ₹\,4.4 \text{ crores}$$

∴ Total cost of production of item 1 by companies A and C together

= ₹ (1.5 + 4.4) crores = ₹ 5.9 crores

40. (d) Cost of production of both items for company D

$$= \frac{81}{100} \times 25 = ₹\,2 \text{ crores}$$

Cost of production of item II for company D

$$= \frac{5}{3+5} \times 2 = ₹\,\frac{5}{4} \text{ crores}$$

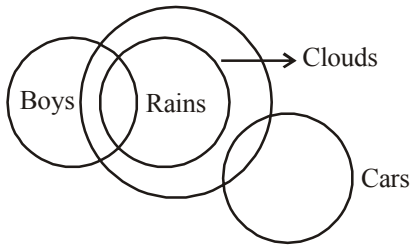
% profit earned by company D on item II = 25%

∴ Amount of profit earned by company D on item II.

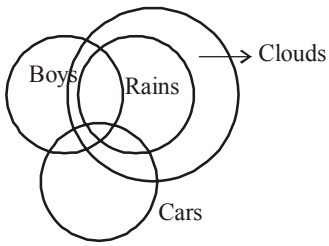
$$= \frac{25}{100} \times \frac{5}{4} = ₹\,\frac{5}{16} \text{ crores}$$

$$= ₹\,\frac{5}{16} \times 100 \text{ lakhs} = ₹\,31.25 \text{ lakhs}$$

41. (e)



OR



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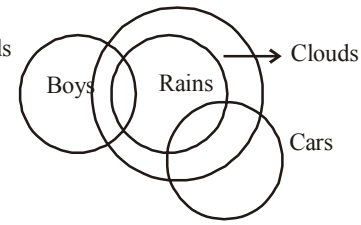
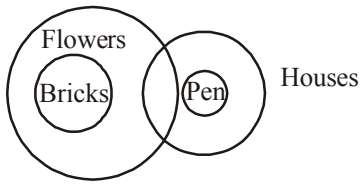


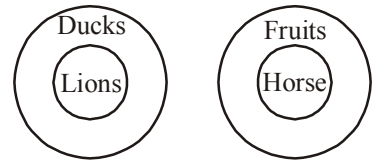
Conclusion - I. ✓
II. ✓
III. ✓
IV. ✓ (Conversion of I Statement)

42. (a)



Conclusion - I. ×
II. ×
III. ✓ Either
IV. ×

43. (c)



Conclusion - I. ✓
II. ✓
III. ✓ Either
IV. ✓

44. (d) Statements : Some stones are bricks.
Conclusions : Some bricks are stone. (conversion)
Statements : All plants are stones.
Conclusions : Some plants are stones. (Implication)
Some stones are plants. (conversion)
Statements : No flower is plant.
Conclusions : Some flowers are not plant. (Implication)
No plant is flower. (Conversion)
Statements : No flower is plant.
All plants are stones.
Conclusions : Some stones are not flower.
(E + A = O* type)
Since, II and III form a complementary I-E pair, either of two must follow.

45. (c) Statements : All tigers are jungles.
Conclusions : Some tigers are jungles. (Implication)
Some jungles are tigers. (conversion)
Statements : No jungle is bird.
Conclusions : Some jungle are not bird. (Implication)
No bird is jungle. (conversion)
Statements : Some birds are rains.
Conclusions : Some rains are birds. (conversion)
Statements : All tigers are jungles.

No jungle is bird.
Conclusions : No tiger is bird. (A + E = E-type)
No bird is tiger. (conversion)
Hence III follows.
Statements : No jungle is bird.
Some birds are rains.
Conclusions : Some rains are not jungle.
(E + I = O* type)
Since I and II form a complementary E-I pair, either of two must follow.

For (Qs. 46-50) :

The given information can be summarized as follows.

	Floors					
	I		II		III	
Member	P	S	N	T	M	Q
Department	Not clear	Acc	Acc	Per-sonnel	Acct.	Adm.
Sex	M	F	M	F	M	F

46. (a) From the analysis of table constructed above, SQT is the group of females.

47. (c) Clearly, T works in personnel.
48. (e) N and T work on the second floor.
49. (c) To maintain the original distribution of females on each floor, Q must be transferred to personnel.
50. (d) Data is inadequate to determine the department of P. From the information provided only we can say that Q works in administration.
51. (c)

Letter	E	H	N	D	J	V
Code	#	4	2	3	9	8

Condition is applied.

52. (e)

Letter	K	Q	D	J	N	H
Code	7	6	3	9	2	4

53. (a)

Letter	A	J	N	V	Q	E
Code	#	9	2	8	6	#

Condition is applied.

54. (b)

Letter	Q	H	J	V	N	D
Code	6	4	9	8	2	3

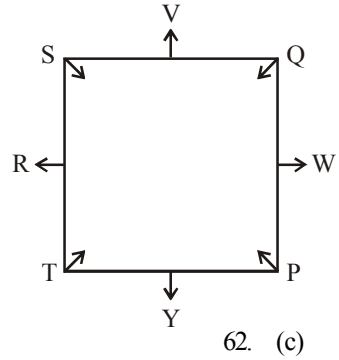
55. (d)

Letter	J	K	E	D	H	A
Code	9	7	1	3	4	#

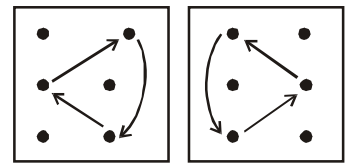
Condition is applied.

56. (a) $T = G,\ K > P,\ M < T,\ P \geq M$
$K > P \geq M < T = G$
Conclusions: I. $K > M$ (✓)
II. $G = P$ (×)
Hence, only conclusion I is true.
57. (b) $R \geq N,\ S \leq B,\ A > N,\ B = A$
$S \leq B = A > N \leq R$
Conclusions : I. $S = N$ (×)
II. $A > N$ (✓)
Hence, only conclusion II is true.
58. (c) $G = K, F > J, K \geq Q, Q \leq F$
$G = K \geq Q \geq F > J$
Conclusions : I. $K = K$ (✓)
II. $F < K$ (✓) Either
Hence, either I or II is true.
59. (e) $W > S, K \leq Z, U \geq W, S = K$
$U \geq W > S = K \leq Z$
Conclusions : I. $U > K$ (✓)
II. $Z > S$ (✓)
60. (e) $G = E$ ....(i), $D < K$ ...(ii), $E < S$ .....(iii), $K \leq G = E < S$.
Clearly, both conclusions I and II follow.

(61-65):



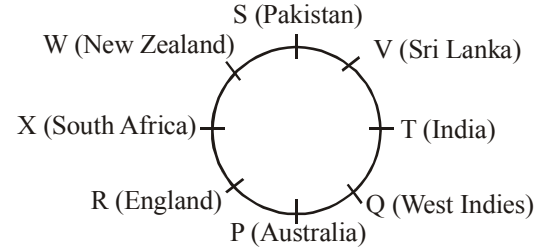
61. (b) 62. (c)
63. (d) Others sit at the middle of the sides.
64. (a) Move $1\frac{1}{2}$, 2, $2\frac{1}{2}$, 3..... sides clockwise on the square.
65. (c)
66. (d) The smaller arrow moves through 90° and 45° anticlockwise respectively while the bigger one moves through 135° in each subssequent figure clockwise.
67. (c) The movement of design is as follows:



Problem fig. 1 to 2 Problem fig. 2 to 3
Problem fig. 3 to 4 Problem fig. 4 to 5
Problem fig. 5 to answer fig. 6

68. (b) In each subsequent figure the design ⊏ moves through 90° anticlockwise and shifts diagonally halfway while the arrow shifts halfway diagonally and is each time inverted.
69. (e) Except fox, all others are domenstic animals.
70. (a) R U S T → Q V R U
−1, +1, −1, +1
Similarly,
L I N E → K J M F
−1, +1, −1, +1

(71-75) :



71. (c)
72. (a)
73. (b) There is pattern of going from second member of a pair to the first member of the next pair: +2, +3, +4 ... CW.
74. (c)
75. (d)

(Qs. 76-78). According to given information

$D > A > — > — > — > —$ A is younger than only D
⇓
$D > A > C > — > — > — >$ — Only three are younger than C
⇓
$D > A > C > E > F > B$
F is younger than E, F is not the youngest

76. (a)
77. (e) (B is younger than E)
78. (b) (Only two F and B)

(Qs. 79-80).
According to information given
Final arrangement is as follows
1 2 3 4 5 Rina 7 Radha 9 Shweta 11 12 13 Tina 15 16 Anita 18 19 20.

79. (b) Two person are between Anita and Tina.
80. (c) Anita is at 17^{th} position and Shweta at 10^{th} position.

PRACTICE SET 7

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. 1-10): What will come in place of the question mark (?) in the following questions.

1. $\frac{5}{11}$ of $\frac{4}{5}$ of $\frac{11}{6}$ of 848=?

(a) 216 (b) 222
(c) 208 (d) 212
(e) None of these

2. 1.4% of 750 + 2.2% of 480 = ?

(a) 21.06 (b) 21.16
(c) 20.88 (d) 21.18
(e) None of these

3. $\frac{3}{4}$ of $116 - \frac{2}{3}$ of 87=?

(a) 31 (b) 27
(c) 29 (d) 26
(e) None of these

4. $6.96 \div 1.2 - 18.24 \div 7.6 = ?$

(a) 3.4 (b) 3.14
(c) 3.04 (d) 3.24
(e) None of these

5. 136% of 250 + ? % of 550 = 670

(a) 64 (b) 55
(c) 56 (d) 65
(e) None of these

6. $\frac{14 \times 25 - 5^3}{24 \times 5 + 8 \times 9} = ?$

(a) $1\frac{9}{64}$ (b) $\frac{64}{75}$
(c) $1\frac{11}{64}$ (d) $1\frac{11}{75}$
(e) None of these

7. $17\frac{2}{5} \times 4\frac{5}{8} - ? = 46\frac{7}{8}$

(a) $32\frac{3}{5}$ (b) $33\frac{3}{5}$
(c) $33\frac{2}{5}$ (d) $32\frac{2}{5}$
(e) None of these

8. $5616 \div 18 \div 8 = ?$

(a) 36 (b) 76
(c) 49 (d) 39
(e) None of these

9. $22^2 + \sqrt{?} = 516$

(a) 1029 (b) 1024
(c) 1124 (d) 1128
(e) None of these

10. 45% of 660 + 28% of 450 = ?

(a) 413 (b) 428
(c) 423 (d) 418
(e) None of these

DIRECTIONS (Qs. 11-15) : What will come in place of the question mark (?) in the following number series.

11. 12 16 24 40 ?

(a) 76 (b) 72
(c) 84 (d) 88
(e) None of these

12. 9 19 39 79 ?
(a) 139 (b) 129
(c) 159 (d) 149
(e) None of these

13. 8 17 42 91 ?
(a) 170 (b) 142
(c) 140 (d) 172
(e) None of these

14. 7 8 18 57 ?
(a) 244 (b) 174
(c) 186 (d) 226
(e) None of these

15. 3840 960 240 60 ?
(a) 20 (b) 18
(c) 12 (d) 22
(e) None of these

16. Simple interest accrued on an amount in 8 years at the rate of 12 p.c.p.a. is ₹ 5,520. What is the principal?
(a) ₹ 5,750 (b) ₹ 8,500
(c) ₹ 5,650 (d) ₹ 8,250
(e) None of these

17. Srikant and Vividh started a business investing amounts of ₹ 1, 85,000 and ₹ 2, 25,000 respectively, If Vividh's share in the profit earned by them is ₹ 9,000, what is the total profit earned by them together?
(a) ₹ 17,400 (b) ₹ 16,400
(c) ₹ 16,800 (d) ₹ 17,800
(e) None of these

18. Present ages of father and son are in the ratio of 6 : 1 respectively. Four years after the ratio of their ages will become 4 : 1 respectively. What is the son's present age?
(a) 10 years (b) 6 years
(c) 4 years (d) 8 years
(e) None of these

19. A DVD player was purchased for Rs. 4,860. At what price should it be sold so that 25% profit is earned?
(a) ₹ 6,225 (b) ₹ 6,275
(c) ₹ 6,075 (d) ₹ 6,025
(e) None of these

20. 65% of a number is more than its $\frac{2}{5}$th by 140. What is 30% of that number?
(a) 186 (b) 168
(c) 164 (d) 182
(e) None of these

21. Number obtained by interchanging the digit of a two digit number is more than the original number by 27 and the sum of the digits is 13. What is the original number?
(a) 58 (b) 67
(c) 76 (d) 85
(e) None of these

22. 22 men can complete a job in 16 days. In how many days will 32 men complete that job?
(a) 14 (b) 12
(c) 16 (d) 9
(e) None of these

23. Mr. Davar spends 38% of his monthly income on food, 25% on children's education and 12% on transport and the remaining amount of ₹ 5,800 he saves. What is Mr. Davar's monthly income?
(a) ₹ 23,200 (b) ₹ 24,200
(c) ₹ 23,800 (d) ₹ 24,400
(e) None of these

24. A, B, C, D and E are five consecutive odd numbers. Average of A and C is 59. What is the smallest number?
(a) 65 (b) 63
(c) 61 (d) 57
(e) None of these

25. Out of the fractions
$\frac{9}{31}, \frac{3}{17}, \frac{6}{23}, \frac{4}{11}$ and $\frac{7}{25}$, which is the largest fraction?
(a) $\frac{9}{31}$ (b) $\frac{3}{17}$
(c) $\frac{6}{23}$ (d) $\frac{4}{11}$
(e) None of these

26. What will come in place of both the question marks (?) in the following question?
$\frac{23}{?} = \frac{?}{92}$
(a) 56 (b) 54
(c) 44 (d) 46
(e) None of these

27. The salary of a man increases by 20% every year in the month of January. His salary was ₹ 5,000 in the month of February in year 2009. What will be his salary in the month of February in the year 2011 ?
(a) ₹ 7,200 (b) ₹ 6,200
(c) ₹ 7,800 (d) ₹ 6,800
(e) None of these

28. The simple interest on a certain principal in 5 years at the J dte of 12 p.c. p.a. is ₹ 1,536. What amount of the simple interest would one get if one invests ₹ 1,000 more than the previous principal for 2 years and at the same rate p.c.p.a.?
(a) ₹ 845.40 (b) ₹ 614.40
(c) ₹ 2,136 (d) ₹ 1,536
(e) None of these

29. If 3 men or 9 boys can finish a piece of work in 21 days. In how many days can 5 men and 6 boys together do the same piece of work?
(a) 12 days (b) 8 days
(c) 14 days (d) Cannot be determined
(e) None of these

30. In a test, Rajesh got 112 marks which is 32 more than the passing marks. Sonal got 75% marks which is 70 more than the passing marks. What is the minimum passing percentage of the test?
(a) 35 (b) 45
(c) 40 (d) 30
(e) None of these

DIRECTIONS (Qs. 31-35): Study the following information carefully and answer the questions given below it.

Out of the 15,000 candidates eligible for an Officer's post in a Public Sector Bank, 450 candidates have prior experience of working in Public Sector banks in rural area only. 25% of the total number of candidates have prior experience of working in Public Sector Banks in urban areas only. 12% of the total number of candidates have prior experience of working in Private Sector Banks in urban areas only. 2% of the total number of candidates have prior experience of working in Private Sector banks in rural areas only. 3,600 candidates have worked in both Public and Private Sector Banks in urban areas only. 600 candidates have worked in both Public and Private Sector Banks in rural areas only. The remaining candidates have no prior experience of working in the Banking industry.

31. How many candidates have prior experience of working in rural areas (both Public Sector and Private Sector Banks together)?
(a) 4,350 (b) 4,950
(c) 4,800 (d) 4,900
(e) 4,850

32. How many candidates have prior experience of working in Public Sector Banks (Urban and Rural areas together)?
(a) 12,450 (b) 8,400
(c) 10,050 (d) 10,650
(e) None of these

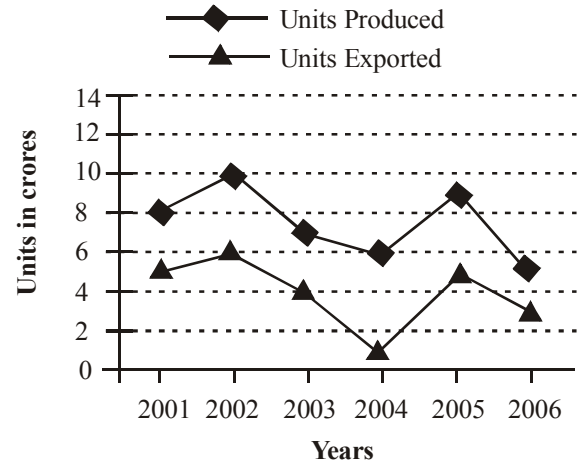
33. What is the ratio of the candidates who have a prior experience of working in Public Sector Banks in rural areas only to the candidates who have a prior experience of working in Private Sector Banks in rural areas only?
(a) 4 : 3 (b) 3 : 2
(c) 2 : 3 (d) 3 : 4
(e) None of these

34. What is the total number of candidates who have worked in Private Sector Banks in urban areas?
(a) 1,800 (b) 2,250
(c) 4,050 (d) 36,600
(e) None of these

35. The candidates who have no prior experience of working in the banking industry are what per cent of the candidates who have worked in Public Sector Banks in both urban and rural areas together?
(a) 60.5 (b) 63.5
(c) 62 (d) 64
(e) None of these

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

Number of units produced (in crores) and exported (in crores) by a Company over the years.



36. What is the average number of units exported over the years?
(a) 40000000 (b) 38333333
(c) 36666666 (d) 20000000
(e) None of these

37. In which year is the percent of units exported with respect to the units produced the **minimum** ?
(a) 2001 (b) 2002
(c) 2003 (d) 2004
(e) None of these

38. In which year is the percent of units exported with respect to the units produced the **maximum** ?
(a) 2003 (b) 2004
(c) 2005 (d) 2006
(e) None of these

39. In which year is the difference between the units produced and exported the **maximum** ?
(a) 2002 (b) 2003
(c) 2004 (d) 2005
(e) None of these

40. What is the difference between the number of units exported in 2002 and 2005 ?
(a) 100000000 (b) 1000000
(c) 10000000 (d) 100000
(e) None of these

REASONING ABILITY

41. How many meaningful three letter English words can be formed with the letters AER, using each letter only once in each word ?
(a) None (b) One
(c) Three (d) Two
(e) Four

42. Each vowel of the word ADJECTIVE is substituted with the next letter of the English alphabetical series, and each consonant is substituted with the letter preceding it. How many vowels are present in the new arrangement ?

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

43. In a certain code '*na pa ka so*' means 'birds fly very high', '*ri so la pa*' means 'birds are very beautiful' and '*ti me ka bo*' means 'the parrots could fly'. Which of the following is the code for 'high' in that language ?
(a) *na* (b) *ka*
(c) *bo* (d) *so*
(e) None of these

44. If the digits in the number 86435192 are arranged in ascending order, what will be the difference between the digits which are second from the right and fourth from the left in the new arrangement ?
(a) One (b) Two
(c) Three (d) Four
(e) None

45. If it is possible to make only one meaningful word with the Third, Seventh, Eighth and Tenth letters of the word COMPATIBILITY, which of the following would be the last letter of that word ? If no such word can be made, give 'X' as your answer and if more than one such word can be formed, give your answer as 'Y'.
(a) I (b) B
(c) L (d) X
(e) Y

46. In a certain code FINE is written HGPC. How is SLIT written in that code ?
(a) UTGR (b) UTKR
(c) TUGR (d) RUGT
(e) None of these

47. If in a certain language LATE is coded as 8 & 4 $ and HIRE is coded as 7*3$ then how will HAIL be coded in the same language ?
(a) 7 & 8* (b) &7*8
(c) 7*& 8 (d) 7&*8
(e) None of these

48. Four of the following five are alike in a certain way and so form a group. Which is the one that does not belong to that group ?
(a) Stem (b) Tree
(c) Root (d) Branch
(e) Leaf

49. If 'Apple' is called 'Orange', 'Orange' is called 'Peach', 'Peach' is called 'Patato', 'Potato' is called 'Banana', 'Banana' is called 'Papaya' and 'Papaya' is called 'Guava', which of the following grows underground ?
(a) Potato (b) Guava
(c) Apple (d) Banana
(e) None of these

50. How many such pairs of letters are there in word ENGLISH, each of which has as many letters between its two letters as there are between them in the English alphabets ?
(a) None (b) One
(c) Two (d) Three
(e) More than three

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

Eight friends, Meenal, Rumia, Shikha, Ali, Peter, Harleen, Ketan and Bharat, are sitting around a square table in such a way that four of them sit at four corners of the square while four sit in the middle of each of the four sides. The ones who sit at the four corners face the centre while those who sit in the middle of the sides face outside.

Bharat sits second to the right of Shikha. Bharat does not sit at any of the corners. Meenal sits third to the right of Peter. Peter is not an immediate neighbour of Shikha. Rumia and Ketan are immediate neighbours of each other but Rumia does not sit at any of the corners of the table. Harleen is an immediate neighbour of neither Peter nor Shikha.

51. Four of the following five are alike in a certain way and so form a group. Which is the one that does not belong to that group?
(a) Peter (b) Rumia
(c) Harleen (d) Shikha
(e) Bharat

52. Who sits third to the left of Ali?
(a) Bharat (b) Rumia
(c) Shikha (d) Peter
(e) Cannot be determined

53. What is the position of Peter with respect to Meenal?
(a) Immediate to the left
(b) Second to the left
(c) Third to the left
(d) Third to the right
(e) Second to the right

54. Who amongst the following sits second to the right of Ketan?
(a) Shikha (b) Ali
(c) Bharat (d) Harleen
(e) Meenal

55. Who amongst the following represent the immediate neighbours of Harleen?
(a) Meenal, Ketan (b) Bharat, Rumia
(c) Bharat, Meenal (d) Ali, Rumia
(e) Ali, Ketan

DIRECTIONS (Qs. 56-60) : In each of the questions below are given three statements followed by two conclusions numbered I and II. You have to take the given statements to be true even if they seem to be at variance from commonly known facts. Read both of the conclusions and then decide which of the given conclusions logically follows from the given statements disregarding commonly known facts.

Read the statements and the conclusions which follow it and give answer
(a) If only conclusion I is true.
(b) If only conclusion II is true.
(c) If either conclusion I or conclusion II is true.
(d) If neither conclusion I nor conclusion II is true.
(e) If both conclusions I and II are true.

56. Statements :
All stars are suns.
Some suns are planets.
All planets are satellites.
Conclusions :
I. Some satellites are stars.
II. No star is a satellite.

57. Statements :
All curtains are rods.
Some rods are sheets.
Some sheets are pillows.
Conclusions:
I. Some pillows are rods.
II. Some rods are curtains.

58. Statements :
All switches are plugs.
Some plugs are bulbs.
All bulbs are sockets.
Conclusions:
I. Some sockets are plugs.
II. Some plugs are switches.

59. Statements :
All fishes are birds.
All birds are rats.
All rats are cows.
Conclusions :
I. All birds are cows.
II. All rats are fishes.

60. Statements :
Some walls are windows.
Some windows are doors.
All doors are roofs.
Conclusions :
I. Some doors are walls.
II. No roof is a window.

DIRECTIONS (Qs. 61-65) : Read the following information carefully and answer the questions, which follow :

'A - B' means 'A is father of B'.
'A + B' means 'A is daughter of B'.
'A ÷ B' means 'A is son of B'.
'A × B' means 'A is wife of B'.

61. How is P related to T in the expression 'P + S – T' ?
(a) Sister (b) Wife
(c) Son (d) Daughter
(e) None of these

62. In the expression 'P × Q – T' how is T related to P ?
(a) Daughter (b) Sister
(c) Mother (d) Can't be determined
(e) None of these

63. Which of the following means T is wife of P ?
(a) P × S ÷ T (b) P ÷ S × T
(c) P – S ÷ T (d) P + T ÷ S
(e) None of these

64. Which of the following means P is grandson of S ?
(a) P + Q – S (b) P ÷ Q × S
(c) P ÷ Q + S (d) P × Q ÷ S
(e) None of these

65. In the expression 'P + Q × T' how is T related to P ?
(a) Mother (b) Father
(c) Son (d) Brother
(e) None of these

DIRECTIONS (Qs. 66-70) : In each question a group of letters is given followed by four combinations of number/symbol numbered (a), (b), (c) and (d). Letters are to be coded as per the scheme and conditions given below. You have to find out the serial number of the combination, which represents the letter group. Serial number of that combination is your answer. If none of the combinations is correct, your answer is (e) i.e. None of these.

Letters	Q	M	S	I	N	G	D	K	A	L	P	R	B	J	E
Number/ Symbol	7	@	4	#	%	$	6	1	2	£	5	*	9	8	3

Conditions :
(i) If the first letter is a consonant and the last a vowel, both are to be coded as the code of the vowel.
(ii) If the first letter is vowel and the last a consonant, the codes for the first and the last are to be interchanged.
(iii) If no vowel is present in the group of letters, the second and the fifth letters are to be coded as ©.

66. BARNIS
(a) 9 2 * % # 4 (b) 9 2 4 # * %
(c) 9 2 * # % 9 (d) 4 2 * # % 4
(e) None of these

67. DMBNIA
(a) 6 @ 9 % # 2 (b) 2 @ 9 % # 6
(c) 2 @ 9 % # 6 (d) 2 @ 9 % # 2
(e) None of these

68. IJBRLG
(a) # 8 9 * £ $ (b) # 8 9 * £ #
(c) $ 8 9 * £ # (d) $ 8 9 * £ $
(e) None of these

69. BKGQJN
(a) 9 © $ 7 © % (b) © 9 $ 7 % ©
(c) 9 1 $ 7 8 % (d) % 1 $ 7 8 9
(e) None of these

70. EGAKRL
(a) # £ $ 2 1 * (b) £ $ 2 1 * 3
(c) £ $ 2 1 * # (d) # £ $ 2 1 #
(e) None of these

DIRECTIONS (Qs. 71-75) : Study the following information carefully to answer these questions.

Eight persons A, B, C, D, E, F, G and H work for three different companies namely X, Y and Z. Not more than three persons work for a company. There are only two ladies in the group who have different specialisations and work for different companies. Of the group of friends, two have specialisation in each HR, Finance and Marketing. One member is an engineer and one is a doctor. H is an HR specialist and works with a Marketing specialist B who does not work for company Y. C is an engineer and his sister works in company Z. D is a specialist in HR working in company X while her friend G is a finance specialist and works for company Z. No two persons having the same specialisation work together. Marketing specialist F work for company Y and his friend A who is a Finance expert works for company X in which only two specialists work. No lady is a marketing specialist or a doctor.

71. Which of the following combinations is correct ?
(a) C - Z - Engineer (b) E - X - Doctor
(c) H – X – HR (d) C – Y – Engineer
(e) None of these

72. For which of the following companies does C work?
(a) Y (b) X
(c) Z (d) Data inadequate
(e) None of these

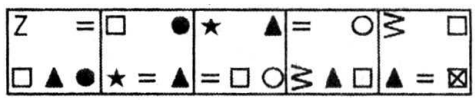
73. Which of the following pairs represents the two ladies in the group ?
(a) A and D (b) B and D
(c) D and G (d) Data inadequate
(e) None of these

74. Which of the following represents the pair working in the same company ?
(a) D and C (b) A and B
(c) A and E (d) H and F
(e) None of these

75. Who amongst the friends is a doctor ?
(a) H (b) E
(c) C (d) Either E or C
(e) None of these

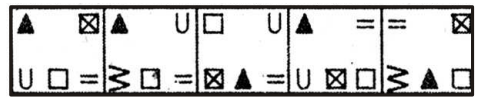
DIRECTIONS (Qs. 76-80) : In each of the questions given below which one of the five answer figures should come after the problem figures if the sequence were continued ?

76. Problem Figures



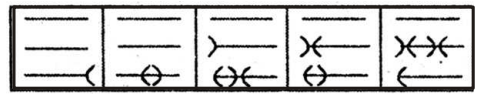
(a) (b) (c) (d) (e)

Answer Figures



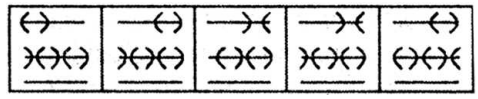
(a) (b) (c) (d) (e)

77. Problem Figures



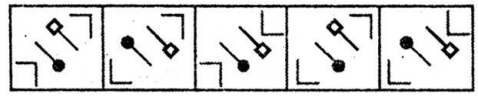
(a) (b) (c) (d) (e)

Answer Figures



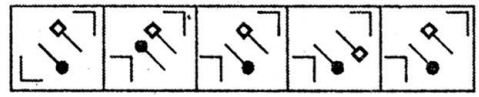
(a) (b) (c) (d) (e)

78. Problem Figures



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

Answer Figures

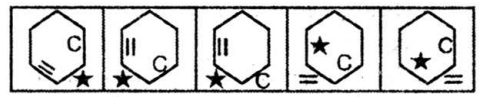


(a) (b) (c) (d) (e)

79. Problem Figures

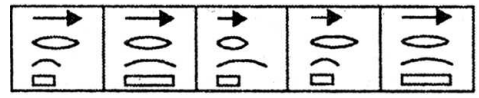
(a) (b) (c) (d) (e)

Answer Figures



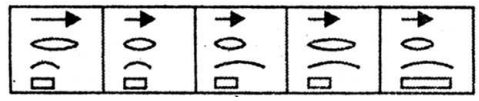
(a) (b) (c) (d) (e)

80. Problem Figures



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

Answer Figures



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

HINTS & EXPLANATIONS

1. (d) $? = 848 \times \frac{11}{16} \times \frac{4}{5} \times \frac{5}{11} = 212$

2. (a) $? = \frac{150 \times 1.4}{100} + \frac{480 \times 2.2}{100}$
$= 10.50 + 10.56 = 21.06$

3. (c) $? = \frac{116 \times 3}{4} - \frac{87 \times 2}{3}$
$= 87 - 58 = 29$

4. (a) $? = \frac{6.96}{1.2} - \frac{18.24}{7.6}$
$= 5.8 - 2.4 = 3.4$

5. (e) $\frac{250 \times 136}{100} + \frac{550 \times ?}{100} = 670$
$\Rightarrow 340 + 5.5 \times ? = 670$
$\Rightarrow 5.5 \times ? = 670 - 340 = 330$
$\Rightarrow ? = \frac{330}{5.5} = 60$

6. (c) $? = \frac{14 \times 25 - 125}{120 + 72} = \frac{225}{192}$
$= \frac{75}{64} = 1\frac{11}{64}$

7. (b) $\frac{87}{5} \times \frac{37}{8} - ? = \frac{375}{8}$
$\Rightarrow ? = \frac{3219}{40} - \frac{375}{8}$
$= \frac{3219 - 1875}{40} = \frac{1344}{40}$
$= \frac{168}{5} = 33\frac{3}{5}$

8. (d) $? = \frac{5616}{18 \times 8} = 39$

9. (b) $484 + \sqrt{?} = 516$
$\Rightarrow \sqrt{?} = 516 - 484 = 32$
$\therefore ? = 32 \times 32 = 1024$

10. (c) $? = \frac{660 \times 45}{100} + \frac{450 \times 28}{100}$
$= 297 + 126 = 423$

11. (b) The pattern of the number series is:
$12 + 2^2 = 16$
$16 + 2^3 = 24$
$24 + 2^4 = 40$
$40 + 2^5 = \boxed{72}$

12. (c) The patern of the number series is :
$9 + 10 = 19$
$19 + 20 = 39$
$39 + 40 = 79$
$79 + 80 = \boxed{159}$

13. (d) The pattern of the number series is:
$8 + 3^2 = 17$
$17 + 5^2 = 42$
$42 + 7^2 = 91$
$91 + 9^2 = \boxed{172}$

14. (e) The pattern of the number series is:
$7 \times 1 + 1 = 8$
$8 \times 2 + 2 = 18$
$18 \times 3 + 3 = 57$
$57 \times 4 + 4 = \boxed{232}$

15. (e) The pattern of the number series is:
$3840 \div 4 = 960$
$960 \div 4 = 240$
$240 \div 4 = 60$
$60 \div 4 = \boxed{15}$

16. (a) $\text{Principal} = \frac{\text{SI} \times 100}{\text{Time} \times \text{Rate}} = \frac{5520 \times 100}{8 \times 12} = ₹\,5750$

17. (b) Ratio of the profit of Srikant and Vividh
$= 185000 : 225000 = 37 : 45$
Sum of the ratios $= 37 + 45 = 82$
$\therefore$ Total profit earned
$= \frac{82}{45} \times 9000$
$= ₹\,16400$

18. (b) Father's present age = $6x$ years
Son's present age = x years
After four years
$\therefore \frac{6x + 4}{x + 4} = \frac{4}{1}$
$\Rightarrow 6x + 4 = 4x + 16$
$\Rightarrow 2x = 12 \Rightarrow x = \frac{12}{2} = 6$
$\therefore$ Son's present age = 6 years

19. (c) $\text{SP} = \frac{100 \times \text{Profit}\%}{100} \times \text{CP}$
$= ₹\left(4860 \times \frac{125}{100}\right) = ₹\,6075$

20. (b) Let the number be x.

$\therefore \frac{x\times 65}{100}-\frac{2x}{5}=140 \Rightarrow \frac{13x}{20}-\frac{2x}{5}=140$

$\Rightarrow \frac{13x-8x}{20}=140 \Rightarrow \frac{x}{4}=140$

$\Rightarrow x=4\times 140=560$

$\therefore$ 30% of $560=\frac{560\times 30}{100}=168$

21. (a) Let the original number be $10x+y$ where $y>x$.

$\therefore 10y+x-10x-y=27$

$\Rightarrow 9(y-x)=27$

$\Rightarrow y-x=3$ ....(i)

and $x+y=13$ ....(ii)

From equations (i) and (ii),

$y=8$ and $x=5$

$\therefore$ Original number $=58$

22. (e) $M_1D_1=M_2D_2$

$\Rightarrow 22\times 16=32\times D_2$

$\Rightarrow D_2=\frac{22\times 16}{32}=11$ days

23. (a) Davar's total expenditure percentage

$=(38+25+12)\%=75\%$

Savings percentage $=25\%$

If this monthly salary be ₹ x, then

$\frac{x\times 25}{100}=5820$

$\Rightarrow$ x $=₹(4\times 5800)=₹23200$

24. (d) Let the smallest odd number A be x

$x+x+4=2\times 59$

$\Rightarrow 2x=118-4=114$

$\therefore x=\frac{114}{2}=57$

25. (d) Decimal equivalent of each fraction :

$\frac{9}{31}=0.29$; $\frac{3}{17}=0.18$

$\frac{6}{23}=0.26$; $\frac{4}{11}=0.36$; $\frac{7}{25}=0.28$

$\therefore$ The largest fraction $=\frac{4}{11}$

26. (d) $\frac{23}{?}=\frac{?}{92}$

$\Rightarrow ?=23\times 92$

$\Rightarrow ?=\sqrt{23\times 23\times 4}$

$=2\times 23=46$

27. (a) Tricky Approach

Man's salary in the month of February, 2011

$=5000\left(1+\frac{20}{100}\right)^2=5000\times\frac{6}{5}\times\frac{6}{5}$

$=₹7200$

28. (e) **Case I**

Principal $=\frac{\text{S.I.}}{\text{Time}\times\text{Rate}}$

$=\frac{1536\times 100}{5\times 12}=₹2560$

Case II

S.I. $=\frac{\text{Principal}\times\text{Time}\times\text{Rate}}{100}$

$=\frac{3560\times 2\times 12}{100}=₹854.40$

29. (e) $\because$ 3 men $\equiv$ 9 boys

$\therefore$ 1 man $\equiv$ 3boys

$\therefore$ 5 man + 6 boys

$\therefore (5\times 3+6)$ boys $=21$ boys

$\therefore M_1D_1=M_2D_2$

$\Rightarrow D_2=\frac{9\times 21}{21}=9$ days

30. (c) Let the total marks of the exam be x.

Passing marks $=112-32=80$

$\therefore \frac{x\times 75}{100}=80+70=150$

$\Rightarrow$ x $=\frac{150\times 100}{75}=200$

If the minimum Pass percentage is y, then

$\therefore$ y% of $200=80 \Rightarrow$ y $=40$

(31-35): Distribution of officers in different categories is as follow:

Pub. R_u	Pub. U_r	Pri. R_u	Pri. U_r	Pub. (R_u+U_r)
450	3750	300	1800	3600

Pub. + Pri (R_u)	Pub. + Pri (U_r)
600	2250

31. (b)

32. (d) Total number of candidates.

$=450+3750+3600+600+2250=10650$

33. (b) Reqd ratio $\frac{450}{300}=\frac{3}{2}=3:2$

Required ratio $=300+450=2:3$

34. (c) Required number of candidates working in Private Sector Banks in Urban Areas only

$=1800+2250=4050$

35. (e) Number of candidate having no prior experience of working in banking sector

$=15000-(450+3750+300+1800+3600+600+2250)$

$=15000-12750=2250$

Req. % $=\frac{2250}{15000}\times 100=15\%$

36. (a) Required average

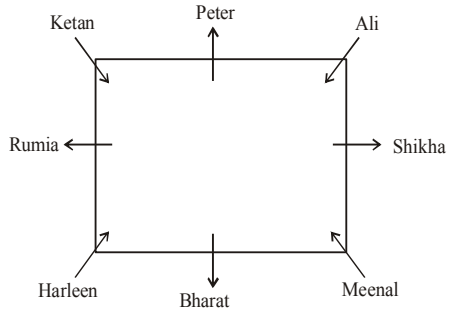
$=\frac{5+6+4+1+5+3}{6}=\frac{24}{6}=4$ crores

37. (d) It is clear from graph. The % value for 2004 is $\frac{1}{6} \times 100$ = 16.67, which is the lowest.
38. (e) % of units exported with respect to units produced is the maximum for year 2001.
It is equal to $\frac{5}{8} \times 100 = 62.5\%$
39. (c) The maximum difference is in 2004.
It is equal to 6 – 1 = 5 crore units.
40. (c) The required difference
= 1 cr = 10000000 units.
41. (c) Meaningful words : ARE, EAR, ERA
42. (c)

A	D	J	E	C	T	I	V	E
+1↓	−1↓	−1↓	+1↓	−1↓	−1↓	+1↓	−↓	+↓
B	C	I	F	B	S	J	U	F

43. (a) na *pa* ka *so* → *birds* fly *very* high
ri *so* la *pa* → *birds* are *very* beautiful
ti me *ka* bo → the parrots could fly
Thus *high* is coded as *na*.
44. (d) 1 2 3 **4** 5 6 7 **8** 9
Difference = 8 – 4 = 4
45. (b) 1 2 **3** 4 5 6 **7** **8** 9 **10** 11 12 13
C O **M** P A T **I** **B** I **L** I T Y
Meaningful word ⇒ L I M [B]
46. (e) As $F \xrightarrow{+2} H$ $I \xrightarrow{-2} G$
$N \xrightarrow{+2} P$ $E \xrightarrow{-2} C$
Similarly,
$S \xrightarrow{+2} U$ $L \xrightarrow{-2} J$
$I \xrightarrow{+2} K$ $T \xrightarrow{-2} R$
47. (d) As L → 8 and H → 7
A → & I → *
T → 4 R → 3
E → $ E → $
Similarly,
$H \longrightarrow 7$ $A \longrightarrow \&$
$I \longrightarrow *$ $L \longrightarrow 8$
48. (b) Others related to 'parts of tree'.
49. (d) Since 'Potato' is called Banana. Thus, 'Banana' grows underground.
50. (e) EI, EG, GI and NL.

Solutions (51-55) :



51. (c) All others sit in the middle of the sides.
52. (a) 53. (d) 54. (d) 55. (b)
56. (c) Some suns are planets.

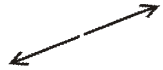
All planets are satellites.
(I + A ⇒ I-type)
"Some suns are satellites".
Conclusions I and II form Complementary Pair.
Therefore, either I or II follows.
57. (b) All curtains are rods.

Some rods are sheets.
(A + I ⇒ No Conclusion)
58. (e) Some plugs are bulbs

All bulbs are sockets.
(I + A ⇒ I-type)
"Some plugs are sockets".
Conclusion I is Converse of thi3s Conclusion.
Conclusion II is Converse of the first Premise.
59. (a) All fishes are birds. (conversion)

All birds are rats.
(A + A ⇒ A-type)
"All fishes are rats".
All birds are rats. (conversion)

All rats are cows.
(A + A ⇒ A-type)
"All birds are cows".
This is Conclusion I.
60. (d) Some windows are doors.



All doors are roofs.
(I + A ⇒ I-type)
"Some windows are roots".
61. (a) P + S → P is daughter of S.
S – T → S is father of T.
Therefore, P is sister of T.
62. (d) P × Q → P is wife of Q.
Q – T → Q is father of T.

T is child of P and Q.
The gender of T is not known.
T is either son or daughter of P.

63. (e) P × S → P is wife of S.
S ÷ T → S is son of T.
T is either father-in-law or mother-in-law of P.
P ÷ S → P is son of S.
S × T → S is daughter of T
Therefore, T is father of P.
P – S → P is father of T.
P + T → P is daughter of T
T ÷ S → T is son of S.
Therefore, T is father of P.

64. (c) P + Q → P is daughter of Q.
Q – S → Q is father of S.
Therefore, P is sister of S.
P ÷ Q → P is son of Q.
Q × S → Q is wife of S.
Therefore, P is son of S.
P ÷ Q → P is son of Q.
Q + S → Q is daughter of S.
Therefore, P is grandson of S.

65. (b) P + Q → P is daughter of Q.
Q × T → Q is wife of P.
Therefore, T is father of P.

66. (a) B → 9; A → 2; R → *; N → %; I → #; S → 4

67. (d) D → **2**; M → @; B → 9; N → %; I → #; A → **6**
Condition (i) is applied.

68. (c) I → **$;** J → 8; B → 9; R → *; L → £; G → **#**
Condition (ii) is applied.

69. (a) B → 9; K → ©; G → $; Q → 7; J → ©; N → %
Condition (iii) is applied.

70. (b) E → **£**; G → $; A → 2; K → 1; R → *; L → **3**
Condition (ii) is applied.

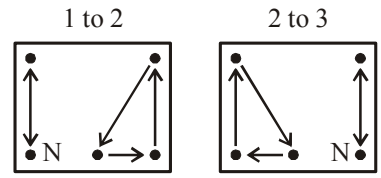
For (Qs. 71-75): Given information can be tabulated as follows

Person	Sex	Company	Specialisation
A	Male	X	Finance
B	Male	Z	Marketing
C	Male	Y	Engineer
D	Female	X	HR
E	Male	Y	Doctor
F	Male	Y	Marketing
G	Female	Z	Finance
H	Male	Z	HR

Thus, 'G' is a sister of 'C'.

71. (d) 72. (a) 73. (c) 74. (c) 75. (b)

76. (a) The movement and other changes in designs can be shown as :



These two steps are repeated alternately.

77. (d) In the subsequent figures respectively one, two zero..... curve(s) is/are added and curves move along the line segment and get reversed in each subsequent figure.

78. (c) In the subsequent figures one design is left intact while other three designs are inverted.

79. (d) In the subsequent figures the star moves three steps in clockwise direction inside the hexagon after every two figures. The equal sign moves respectively one and two step(s) in clockwise direction along the sides of the hexagon. The design C moves in and out the hexagon in the subsequent figures and moves respectively two and one step(s) in clockwise direction. In other words, this problem is based on the rule (1) = (5) and hence (2) = (6).

80. (e) In the subsequent figures respectively two and three designs change size alternately in a set order.

PRACTICE SET 8

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. 1-10): What will come in place of question mark (?) in the following questions?

1. $\frac{3}{5}$ of $\frac{4}{7}$ of $\frac{5}{12}$ of $1015 = ?$

(a) 220 (b) 340
(c) 240 (d) 145
(e) None of these

2. $1.5 \times 0.025 + (?)^2 = 0.1$

(a) 0.28 (b) 0.27
(c) 0.25 (d) 0.235
(e) None of these

3. $1.5^2 \times \sqrt{0.0225} = ?$

(a) 0.3375 (b) 3.275
(c) 32.75 (d) 0.0375
(e) None of these

4. $\sqrt{0.0289} \times 12 \div 1.5 = ?$

(a) 1.36 (b) 2.06
(c) 13.90 (d) 14.80
(e) None of these

5. 125% of 260 + ?% of 700 = 500

(a) 32 (b) 56
(c) 23 (d) 46
(e) None of these

6. 45% of 750 – 25% of 480 = ?

(a) 216 (b) 217.50
(c) 245 (d) 236.50
(e) None of these

7. $75^{8.5} \div 75^{3.8} = 75^{?}$

(a) 4.9 (b) 3.6
(c) 3.3 (d) 4.7
(e) None of these

8. 5431 + 10500 – 4371 – 1357 = ?

(a) 9203 (b) 10003
(c) 10203 (d) 11203
(e) None of these

9. $3\frac{7}{11} + 7\frac{3}{11} \times 1\frac{1}{2} = ?$

(a) $13\frac{10}{11}$ (b) $14\frac{6}{11}$
(c) $14\frac{9}{11}$ (d) $10\frac{17}{22}$
(e) None of these

10. $1080 \div 12 \div 10 = ?$

(a) 900 (b) 90
(c) 120 (d) 12
(e) None of these

11. The number zero (0) is surrounded by the same 2-digit number on both (left and right) the sides; for example, 25025, 67067, etc. The largest number that always divides such a number is

(a) 7 (b) 11
(c) 13 (d) 1001
(e) None of these

12. If a certain sum of money becomes double at simple interest in 12 years, what would be the rate of interest per annum ?

(a) $8\frac{1}{3}$ (b) 10
(c) 12 (d) 14
(e) None of these

13. Three successive discounts of 10%, 12% and 15% amount to a single discount of
(a) 36.28 % (b) 34.68%
(c) 37% (d) 32.68%
(e) None of these

14. The ratio of the prices of two houses A and B was 4 : 5 last year. This year, the price of A is increased by 25% and that of B by ₹ 50000. If their prices are now in the ratio 9 : 10, the price of A last year was
(a) ₹3,60,000 (b) ₹4,50,000
(c) ₹4,80,000 (d) ₹5,00,000
(e) None of these

15. The number of 3-digit number exactly divisible by 5 is
(a) 181 (b) 180
(c) 179 (d) 199
(e) None of these

DIRECTIONS (Qs. 16-20) : Find the *next term* in the given series in each of the questions below.

16. 198, 194, 185, 169, (?)
(a) 136 (b) 144
(c) 9 (d) 92
(e) None of these

17. 6, 9, 7, 10, 8, 11, (?)
(a) 12 (b) 13
(c) 9 (d) 14
(e) None of these

18. 7 , 11, 19, 35, 67, (?)
(a) 121 (b) 153
(c) 141 (d) 133
(e) None of these

19. 5, 6, 10, 19, 35, (?)
(a) 55 (b) 65
(c) 60 (d) 70
(e) None of these

20. 1, 3, 8, 18, 35, (?)
(a) 61 (b) 72
(c) 67 (d) 52
(e) 71

21. The average age of A, B and C is 26 years. If the average age of A and C is 29 years, what is the age of B in years ?
(a) 26 (b) 20
(c) 29 (d) 23
(e) None of these

22. A man walks at the speed of 5 km/hr and runs at the speed of 10 km/hr. How much time will the man require to cover the distance of 28 km, if he covers half (first 14 km) of his journey walking and half of his journey running ?
(a) 8.4 hrs (b) 6 hrs
(c) 5 hrs (d) 4.2 hrs
(e) None of these

23. a, b, c and d are four consecutive numbers. If the sum of a and d is 103, what is the product of b and c ?
(a) 2652 (b) 2562
(c) 2970 (d) 2550
(e) None of these

24. The letters of the word SOCIETY are placed at random in a row. The probability that the three vowels come together is
(a) $\frac{1}{6}$ (b) $\frac{1}{7}$
(c) $\frac{2}{7}$ (d) $\frac{5}{6}$
(e) None of these

25. A man can swim 72 km upstream and 54 km downstream in 9 hours. Also, he can swim 84 km upstream and 90 km downstream in 12 hours. What is the speed of the man in still water?
(a) 9 kmph (b) 12 kmph
(c) 15 kmph (d) 18kmph
(e) 21 kmph

DIRECTIONS (Qs. 26-30) : In each of these questions an equation is given with a question mark (?) in place of a correct symbol. Based on the values on the right hand side and the left hand side of the question mark. you have to decide which of the following symbols will correct in place of the question mark.

Give answer If in place of question mark (?) following will come
(a) > (greater than),
(b) = (equal to)
(c) < (lesser than)
(d) ≥ (either greater than or equal to)
(e) ≤ (either lesser than or equal to)

26. $[(7 \times 3) + 12] \,?\, [\sqrt{225} + 15]$

27. $[(\sqrt{324} - \sqrt{49})] ? (\sqrt{121})$

28. $[(34 - (2)^2 \times 5]) \,?\, [42 \times 8 + (4 \times 4)]$

29. $[133 - (88 - 72)] \,?\, [(7)_2 \times 3]$

30. $21 \div 3 + (54 \div 9) \,?\, [(160 - 60) \div 4)$

DIRECTIONS (Qs. 31-35): Find out the *approximate* value which should replace the question mark (?) in the following questions. (You are not expected to find out the exact value).

31. $|\sqrt{10609}| \times |\sqrt{7938.81}| = ?$
(a) 9200 (b) 81973.
(c) 8553.3 (d) 8682.7
(e) None of these

32. $\left[\left[(13)^2\right]^3\right]^{?} = 2197$
(a) –3 (b) $\frac{1}{3}$
(c) 0.5 (d) – 4
(e) None of these

33. 18.4% of 656 + 12.7% of 864 = ?
(a) 253 (b) 231
(c) 211 (d) 241
(e) None of these

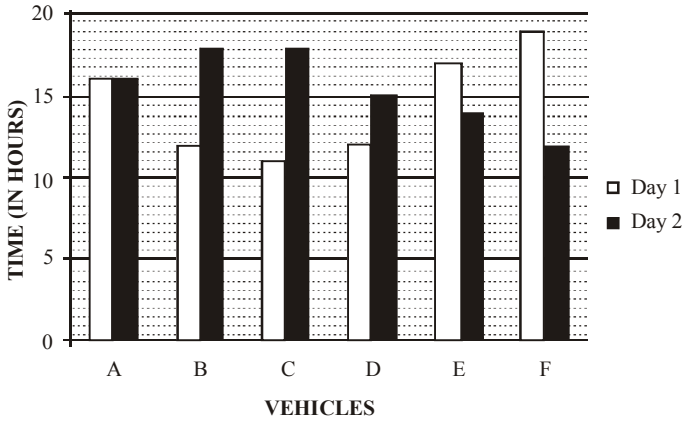
34. $(98.4)^2 + (33.6)^2 = ?$
(a) 10812 (b) 18012
(c) 10910 (d) 18102
(e) None of these

35. $8787 \div 343 \times \sqrt{50} = ?$

(a) 250 (b) 140
(c) 180 (d) 100
(e) 280

DIRECTIONS (Qs. 36-40) : Study the following graph and table carefully and answer the questions given below :

TIME TAKEN TO TRAVEL (IN HOURS) BY SIX VEHICLES ON TWO DIFFERENT DAYS



DISTANCE COVERED (IN KILOMETERS) BY SIX VEHICLES ON EACH DAY

Vehicle	Day 1	Day 2
A	832	864
B	516	774
C	693	810
D	552	765
E	935	546
F	703	636

36. Which of the following vehicles travelled at the same speed on both the days ?
(a) Vehicle A (b) Vehicle C
(c) Vehicle F (d) Vehicle B
(e) None of these

37. What was the difference between the speed of vehicle A on day 1 and the speed of vehicle C on the same day ?
(a) 7 km/hr. (b) 12 km/hr.
(c) 11 km/hr. (d) 8 km/hr.
(e) None of these

38. What was the speed of vehicle C on day 2 in terms of meters per second ?
(a) 15.3 (b) 12.8
(c) 11.5 (d) 13.8
(e) None of these

39. The distance travelled by vehicle F on day 2 was approximately what percent of the distance travelled by it on day 1 ?
(a) 80 (b) 65
(c) 85 (d) 95
(e) 90

40. What is the respective ratio between the speeds of vehicle D and vehicle E on day 2 ?
(a) 15:13 (b) 17:13
(c) 13:11 (d) 17:14
(e) None of these

REASONING ABILITY

DIRECTIONS (Qs. 41-45) : In the following questions, the symbols #, %, @, © and δ are used with the following meanings illustrated.

'P % Q' means 'P is not greater than Q'.
'P δ Q' means 'P is not smaller than Q'.
'P # Q' means 'P is neither equal to nor smaller than Q'.
'P © Q' means 'P is neither equal to nor greater than Q'.
'P @ Q' means 'P is neither smaller than nor greater than Q'.
In each question, three statements showing relationships have been given, which are followed by three conclusions I, II and III. Assuming that the given statements are true, find out which conclusion(s) is/are **definitely true**.

41. **Statements :** M © K, K δ T, T © J
Conclusions :
I. J # K II. T # M
III. M # J
(a) None is true (b) Only I is true
(c) Only II is true (d) Only III is true
(e) II and III are true

42. **Statements :** F @ T, T % M, M # R
Conclusions :
I. R © T II. F @ M
III. F © M
(a) Only I is true (b) Only II is true
(c) Only III is true (d) either II or III is true
(e) II and III are true

43. **Statements :** J δ H, H @ B, B % N
Conclusions :
I. N δ H II. N @ J
III. J δ B
(a) I and II are true (b) II and III are true
(c) I and III are true (d) All I, II and III are true
(e) None of the above

44. **Statements :** B # T, T © K, K % M
Conclusions :
I. K # B
II. M # T
III. B # M
(a) Only I is true
(b) Only II is true
(c) Only III is true
(d) II and III are true
(e) None of the above

45. **Statements :** D % F, F δ K, K @ R
Conclusions :
I. R % F
II. R % D
III. R@D
(a) Only I is true (b) Only II is true
(c) Only III is true (d) I and II are true
(e) None of the above

DIRECTIONS (Q. 46-50) : Study the following arrangement carefully and answer the questions given below

D 5 δ R @ A K © 3 9 B J E F $ M P I 4 H 1 W 6 2 # U Q 8 T N

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

47. Which of the following is the ninth to the right of the twenty second from the right end of the above arrangement ?
(a) E (b) I
(c) D (d) N
(e) None of these

48. How many such symbols are there in the above arrangement each of which is immediately preceded by a number and immediately followed by a letter?
(a) None (b) One
(c) Two (d) Three
(e) More than three

49. If all the numbers are dropped from the above arrangement, which of the following will be the eleventh from the left end?
(a) B (b) H
(c) $ (d)
(e) None of these

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

DIRECTIONS (Q. 51-55) : Study the following arrangement carefully and answer the questions given below

M, D, K, R, T, H, W and A are sitting around a circle facing at the centre. D is second to the right of M who is fifth to the left of T. K is third to the right of R who is second to the right of D. H is second to the right of W.

51. Who is second to the right of A ?
(a) M (b) D
(c) K (d) Data inadequate
(e) None of the above

52. Who is third to the left of M ?
(a) A (b) T
(c) H (d) D
(e) Data inadequate

53. Who is fourth to the right of H ?
(a) A (b) T
(c) R (d) K
(e) None of these

54. In which of the following combinations is the first person sitting between the second and the third person ?
(a) KMW
(b) MWD
(c) RHT
(d) TAK
(e) None of the above

55. If A and W interchange their positions who will be third to the left of R ?
(a) M (b) D
(c) A (d) K
(e) None of these

DIRECTIONS (Qs. 56–60) : Study the following information carefully and answer the given questions :

In a certain code language :
"only in serial order" is written as "ve pu na to".
"order in the state" is written as "li ve su pu".
"the logical idea only" is written as "su na ri jo".
"in idea or theory" is written as "zt jo bk pu".

56. Which of the following is code of 'theory' ?
(a) zt (b) bk
(c) jo (d) pu
(e) Either 'zt' or 'bk'

57. The code 'li ri to ve' may represent
(a) serial order theory only
(b) only idea state order
(c) state logical serial order
(d) serial theory state the
(e) only the idea logical

58. Which of the following represent "logical idea is only order"?
(a) jo na ri ge ve (b) ve na ri jo pu
(c) ri ve na zt bk (d) bk to pu jo ve
(e) na ve su li pu

59. Which of the following is code of "logical" ?
(a) su (b) jo
(c) na (d) ri
(e) None of these

60. Which of the following is code of "serial" ?
(a) pu (b) to
(c) ve (d) su
(e) Cannot be determined

DIRECTIONS (Q. 61-65) : In each question below are three statements followed by three conclusions numbered I, II and III. You have to take the three 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 three given statements disregarding commonly known facts. Then decide which of the answers (a), (b), (c), (d) and (e) is the correct answer and indicate it on the answer sheet.

61. **Statements :** Some desks are chairs. All chairs are tables. Some tables are mats.
Conclusions : I. Some mats are desks.
II. Some tables are desks.
III. Some mats are chairs.
(a) Only I follows (b) Only II follows
(c) Only III follows (d) II and III follow
(e) None of the above

62. **Statements :** All sweets are fruits. No fruit is pencil. Some pencils are glasses.
Conclusions : I. Some glasses are sweets.
II. Some pencils are sweets.
III. No glass is sweet.
(a) Only I follows (b) Only II follows
(c) Only III follows (d) either I or III follows
(e) None of the above

63. **Statements :** Some books are flowers. Some flowers are chains. Some chains are hammers.
Conclusions : I. Some hammers are flowers.
II. Some chairs are books.
III. Some hammers are books.
(a) None follows (b) Only I follows
(c) Only II follows (d) Only III follows
(e) II and III follow

64. **Statements :** All roofs are cameras. Some cameras are photographs.
Some photographs are stores.
Conclusions : I. Some stores are cameras.
II. Some stores are roofs.
III. Some cameras are roofs.
(a) Only I follows (b) Only II follows
(c) Only III follows (d) II and III follow
(e) None of the above

65. **Statements :** Some nails are horses. All horses are tablets. All tablets are crows.
Conclusions : I. Some crows are nails.
II. Some tablets are nails.
III. Some crows are horses.
(a) Only I follows (b) I and II follows
(c) I and III follow (d) II and III follow
(e) All I, II and III follow

66. How many meaningful English words can be made with the letters ATLE using each letter only once in each word ?
(a) None (b) One
(c) Two (d) Three
(e) More than three

67. In a certain code GROWN is written as 7 @ % 36 and NAME is written as 64 $. How is GEAR written in that code?
(a) 74$@ (b) 7$4@
(c) 7%4@ (d) 7@$4
(e) None of these

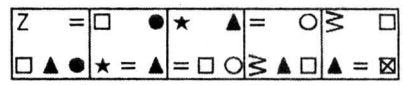
68. What should come next in the following letter series?
B D F H J L N A C E G I K M B D F H J L A C E G I K B D F H J
(a) B (b) L
(c) M (d) F
(e) None of these

69. In a certain code DISPLAY is written as RHCQZBM. How is GROUPED written in that code?
(a) PSHTEFQ (b) NQFVCDO
(c) NQFVEFQ (d) PSHTCDO
(e) None of these

70. Among P, Q, R, T and W each having different weight, T is heavier than W and lighter than only P. Q is not the lightest. Who among them is definitely the lightest ?
(a) R (b) W
(c) R or W (d) Data inadequate
(e) None of these

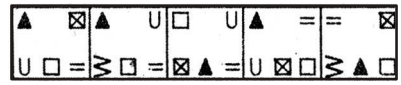
DIRECTIONS (71-75) : In each of the questions given below which one of the five answer figures should come after the problem figures if the sequence were continued ?

71. **Problem Figures**



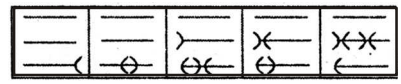
(a) (b) (c) (d) (e)

Answer Figures



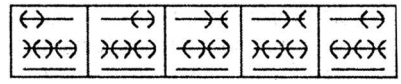
(a) (b) (c) (d) (e)

72. **Problem Figures**



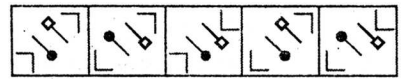
(a) (b) (c) (d) (e)

Answer Figures



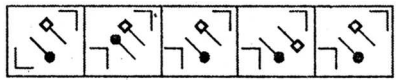
(a) (b) (c) (d) (e)

73. **Problem Figures**



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

Answer Figures



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

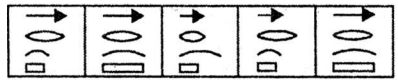
74. Problem Figures

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

Answer Figures

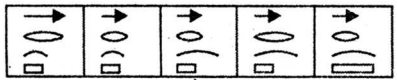
(a) (b) (c) (d) (e)

75. Problem Figures



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

Answer Figures



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

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

Auditions for a show were held in seven different cities of India Chennai, Bangalore, Cochin, Mumbai, Delhi, Bhopal and Kolkata, not necessarily in the same order, during the first seven months of the year 2011 (starting in January and ending" in July). The auditions were held only in one city during a month. Auditions in only four cities were held between the Kolkata audition and the Cochin audition. The Kolkata audition was not held in June. Only one audition was held between the Kolkata audition and the Bangalore audition. The Chennai audition was held immediately after the Kolkata audition. The Delhi audition was held immediately before the Bhopal audition. The Bhopal audition was not held in May.

76. How many auditions were held between the Mumbai audition and the Chennai audition?
(a) One (b) Two
(c) Three (d) None
(e) More than three

77. Which of the following statements is **true** according to the given sequence?
(a) Mumbai audition was held in July
(b) Delhi audition was held in April
(c) Cochin audition was held before May
(d) Kolkata audition was held in January
(e) None is true

78. Four of the following five are alike in a certain way based on the given sequence and hence form a group.
Which one does **not** belong to the group?
(a) January-Kolkata (b) March-Bangalore
(c) June-Cochin (d) May-Delhi
(e) February-Chennai

79. During March, the audition was held in which of the following cities?
(a) Bangalore (b) Kolkata
(c) Mumbai (d) Chennai
(e) None of these

80. The audition in Mumbai was held in which of the following months?
(a) July (b) May
(c) February (d) March
(e) None of these

HINTS & EXPLANATIONS

1. (d) $\frac{3}{5}$ of $\frac{4}{7}$ of $\frac{5}{12}$ of $1015 = \frac{3}{5}\times\frac{4}{7}\times\frac{5}{12}\times 1015 = \frac{1015}{7} = 145$

2. (c) $1.5\times 0.025 + (?)^2 = 0.1 \Rightarrow (?)^2 = 0.1 - 1.5\times 0.025$

$\Rightarrow (?)^2 = 0.1 - 0.0375 \Rightarrow ? = \sqrt{.0625} = 0.25$

3. (a) $1.5^2 \times \sqrt{0.0375} = 2.25\times 0.15 = 0.3375$

4. (a) $\sqrt{0.0289}\times 12 \div 1.5$

$0.17 \times 8 \Rightarrow 1.36$

5. (e) 125% of 260 + ?% of 700 = 500

$\Rightarrow$?% of 700 = 500 – 125% of 260

$\Rightarrow$?% of 700 = 175

$\therefore \quad ? = \frac{175\times 100}{700} = 25$

6. (b) 45% of 750 – 25% of 480

$= \frac{45\times 750}{100} - \frac{25\times 480}{100} = 337.5 - 120 = 217.5$

7. (d) $75^{8.5} \div 75^{3.8} = 75^{(8.5-3.8)} = 75^{4.7}$

9. (b) $3\frac{7}{11} + 7\frac{3}{11}\times 1\frac{1}{2} = \frac{40}{11} + \frac{80}{11}\times\frac{3}{2} = \frac{160}{11} = 14\frac{6}{11}$

10. (e) $1080 \div 12 \div 10 = \frac{1080}{12\times 10} = 9$

11. (d) First start with the option (d).

$1001\times 25 = 25025$

$1001\times 67 = 67067$ etc.

Thus 1001 is the largest number which divides the numbers of the type 25025, 67067 etc.

12. (a) Let the principal be P, then amount after 12 years = 2P

$\Rightarrow$ SI = (2P – P) = P

Now, $I = \frac{P\times r\times t}{100} \Rightarrow P = \frac{P\times r\times 12}{100}$

or $r = \frac{100}{12} = \frac{25}{3} = 8\frac{1}{3}\%$

13. (d) Applying successive discounts of 10%, 12% and 15% on 100, we get $100\times 0.9\times 0.88\times 0.85 = 67.32$

$\Rightarrow$ Single discount = 100 – 67.32=32.68

14. (a) Let the prices of two houses A and B be Rs $4x$ and Rs $5x$, respectively for the last year.

Then, the prices of A this year = Rs $(1.25 \times 4x)$ and that of B = Rs $(5x + 50{,}000)$

This year, Ratio of their prices = 9 : 10

$\therefore \quad \frac{1.25\times 4x}{5x + 50{,}000} = \frac{9}{10}$

$\Rightarrow \quad 50x - 45x = 450000 \Rightarrow 5x = 4{,}50{,}000$

$\Rightarrow \quad x = 90{,}000$

Hence, the price of A last year was

$4x$ = Rs 3,60,000

15. (b) A three digit number to be exactly divisible by 5 must have either 0 or 5 at its units place.

Such numbers will be 100, 105, 110, ..., 995.

First term = 100, last term = 995

Let the required number be n.

To find the value of n, we may use the following formula of arithmetic progression,

$T_n = a + (n-1)\,d$..... (1)

Where d = common difference = 5

$T_n = 995$

a = 100

Hence from (1)

$995 = 100 + (n-1)\,5$

$\Rightarrow 5n = 900$

n = 180

Digits to be used = 0, 1, 2, 3, 4, 5, 6, 7, 8, 9.

16. (b) 198 $\xrightarrow{-2^2}$ 194 $\xrightarrow{-3^2}$ 185 $\xrightarrow{-4^2}$ 169 $\xrightarrow{-5^2}$ 144

17. (c) The first, third, fifth .... and second, fourth .... terms are groups of consecutive natural numbers.

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

$7\times 2 - 3 = 11$

$11\times 2 - 3 = 19$

$19\times 2 - 3 = 35$

$35\times 2 - 3 = 67$

$67\times 2 - 3 = 134 - 3 = \boxed{131}$

19. (c) The pattern of the number series is:

$5 + 1^2 = 6$

$6 + 2^2 = 10$

$10 + 3^2 = 19$

$19 + 4^2 = 35$

$35 + 5^2 = 35 + 25 = \boxed{60}$

20. (a) The pattern of the number series is:
$1+2=3$
$3+(2+3)=8$
$8+(2+3+5)=18$
$18+(2+3+5+7)=35$
$35+(2+3+5+7+9)=61$

21. (b) Age of B = Age of (A + B + C) – Age of (A + C) = $26\times3 - 29\times2 = 78-58 = 20$ years.

22. (d) Total time required = $\frac{14}{5}+\frac{14}{10}$

$= \frac{28+14}{10} = 4.2$ hrs

23. (a) Here $d = a+3$
$a+a+3=103$
$2a=100$
$a=50$
So, numbers are 50, 51, 52 and 53
$\therefore b\times c = 51\times52 = 2652$

24. (b) The word 'SOCIETY' contains seven distinct letters and they can be arranged at random in a row in ${}^7P_7$ ways, i.e. in 7! = 5040 ways.
Let us now consider those arrangements in which all the three vowels come together. So in this case we have to arrange four letters. S,C,T,Y and a pack of three vowels in a row which can be done in ${}^5P_5$ i.e. 5! = 120 ways.
Also, the three vowels in their pack can be arranged in ${}^3P_3$ i.e. 3! = 6 ways.
Hence, the number of arrangements in which the three vowels come together is $120\times6 = 720$
$\therefore$ The probability that the vowels come together = $\frac{720}{5040}=\frac{1}{7}$

25. (c) Let the speed of the man upstream be x kmph and that downstream be y kmph.

$\therefore \frac{72}{x}+\frac{54}{y}=9 \quad \therefore \frac{8}{x}+\frac{6}{y}=1$

$\therefore 8u+6v=1 \qquad \ldots(i)$

where $u=\frac{1}{x}$ and $v=\frac{1}{y}$

$\frac{84}{x}+\frac{90}{y}=12 \qquad \therefore \frac{14}{x}+\frac{15}{y}=2$

$\therefore 14u+15v=2 \qquad \ldots(ii)$

From equations (i) and (ii),

$u=\frac{1}{12}$ and $v=\frac{1}{18} \quad \therefore x=12, y=18$

$\therefore$ speed of the man in still water

$= \frac{12+18}{2}$ kmph $= 15$kmph

26. (a) LHS = 21 + 12 = 33
RHS = 15 + 15 = 30
LHS > RHS

27. (b) LHS = $\pm(18-7) = \pm11$
RHS = $\sqrt{121} = \pm11$

28. (a) LHS = $(34-4)\times5 = 150$
RHS = $(16\times8+16) = 16(8+1) = 144$
LHS > RHS

29. (c) LHS = 133 – 16 = 117
RHS = $49\times3 = 147$
LHS < RHS

30. (c) LHS = 7 + 6 = 13
RHS = $100\div4 = 25$
LHS < RHS

31. (a) $\left|\sqrt{10609}\right|\times\left|\sqrt{7938.81}\right|$

$\sqrt{10609} = 103$, by long division method, as below:

```
      103
  10 | 10609
       100
 203 |  609
       609
         0
```

Also, $\sqrt{7938.81} = 89.1$, by long division method, as below:

```
      89.1
   8 | 7938.81
       64
 169 | 1538
       1521
1781 |  1781
       1781
          0
```

Hence $103\times89.1 = 9177.3 \approx 9200$

32. (c) Let *x* be there in place of question mark.

So, $\left[\left[(13)^2\right]^3\right]^x = 2197 \Rightarrow \left[(169)^3\right]^x = 2197$

$4826809^x = 2197$, taking $\log_{10}$ on both the sides
$x\log_{10}(4826809) = \log_{10}2197$

$\Rightarrow x\times6.68366 = 3.34183 \Rightarrow x=\frac{1}{2}\approx0.5$

33. (b) 18.4% of 656 + 12.7% of 864 = $0.184\times656+0.127\times864$
$= 120.704 + 109.728 = 230.432 \approx 231$

34. (a) $(98.4)^2+(33.6)^2 = 9682.56+1128.96 = 10811.52 \approx 10812$

35. (c) $8787\div343\times\sqrt{50} = 25\times7 = 175 \approx 180$

36-40.

	Day 1			Day 2		
Vehicle	Time in hr	Distance in km	Speed in km / hr	Time in hr	Distance in km	Speed in km/hr
A	16	832	52	16	864	54
B	12	516	43	18	774	43
C	11	693	63	18	810	45
D	12	552	46	15	765	51
E	16	935	58.4	14	546	39
F	19	703	37	12	636	53

36. (d) Vehicle B.
37. (c) Speed of vehicle A on day 1 = 52 km/hr
Speed of vehicle C on day 1 = 63 km/hr
Difference = 63 – 52 = 11 km / hr
38. (e) Speed of vehicle can day 2 = 45 km/hr

$$\Rightarrow \left(45 \times \frac{5}{18}\right) \text{m/sec} = 12.5 \text{m/sec}$$

39. (e) Percentage

$$= \frac{\text{Distance travelled by vehicle F on day 2}}{\text{Distance travelled by vehicle F on day 1}} \times 100$$

$$= \frac{636}{703} \times 100 \approx \frac{630}{700} \times 100 \approx 90\%$$

40. (b) Speed of vehicle D on day 2 = 51
Speed of vehicle E on day 2 = 39

$$\text{Required ratio} = \frac{51}{39} = \frac{17}{13} \text{ or } 17:13$$

41. (a) 42. (d) 43. (a)
44. (a) 45. (b) 46. (a)
47. (b) 48. (c) 49. (d)
50. (c) 51. (c) 52. (b)
53. (a) 54. (a) 55. (b)

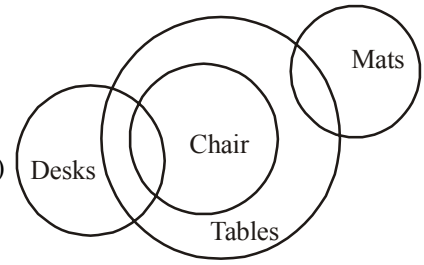
56-60.

only in serial order → ve pu na to
order in the state → li ve su pu
the logical idea only → su na ri jo
in idea or theory → zt jo bk pu

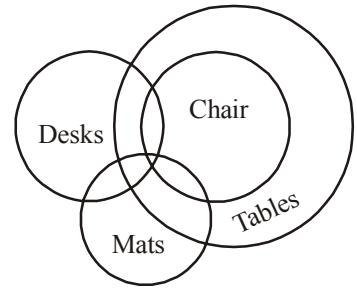
Codes are :
only ⇒ na the ⇒ su or ⇒ zt or bk
in ⇒ pu state ⇒ li theory ⇒ zt or bk
serial ⇒ to logical ⇒ ri
order ⇒ ve idea ⇒ jo

56. (e) The code of 'theory' is either 'zt' or 'bk',
57. (c) li ⇒ state
ri ⇒ logical
to ⇒ serial
ve ⇒ order
58. (a) logical ⇒ ri
idea ⇒ jo
only ⇒ na
order ⇒ ve
The code for 'is' may be 'ge'
59. (d) logical ⇒ ri
60. (b) serial ⇒ to

61. (b)

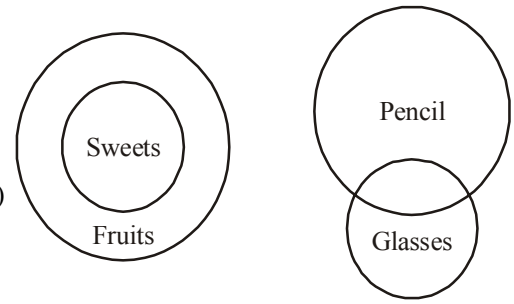


or



I. False II. True III. False

62. (d)



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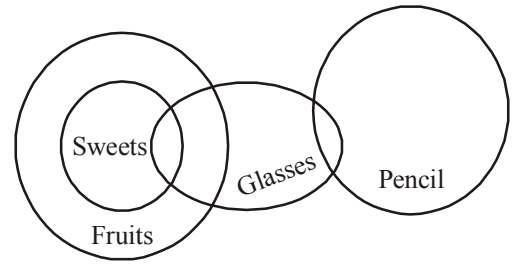
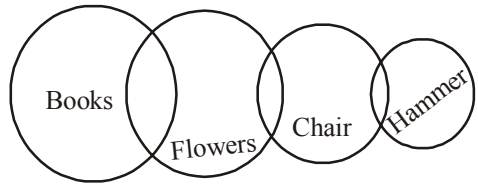


II. False. From both figures it is clear that either I or III follows.

63. (a)



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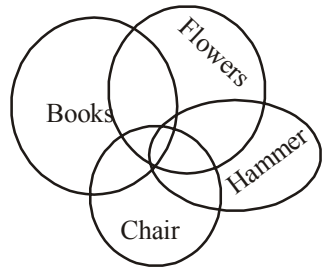
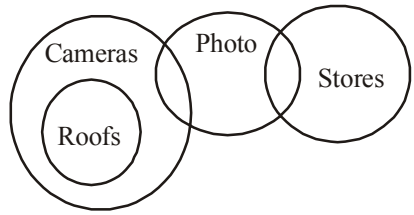


I. False II. False III. False

64. (c)



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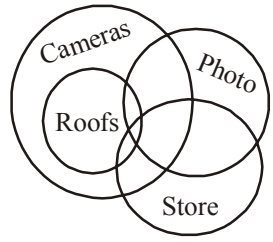
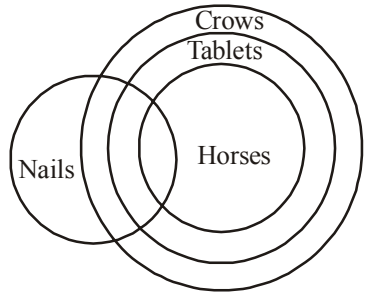


I. False II. False III. True

65. (e)

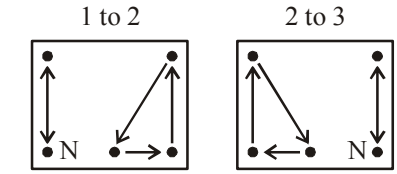


I. True II. True III. True

66. (a) 67. (b) 68. (e)

69. (c) 70. (c)

71. (a) The movement and other changes in designs can be shown as :



These two steps are repeated alternately.

72. (d) In the subsequent figures respectively one, two zero..... curve(s) is/are added and curves move along the line segment and get reversed in each subsequent figure.

73. (c) In the subsequent figures one design is left intact while other three designs are inverted.

74. (d) In the subsequent figures the star moves three steps in clockwise direction inside the hexagon after every two figures. The equal sign moves respectively one and two step(s) in clockwise direction along the sides of the hexagon. The design C moves in and out the hexagon in the subsequent figures and moves respectively two and one step(s) in clockwise direction. In other words, this problem is based on the rule (1) = (5) and hence (2) = (6).

75. (e) In the subsequent figures respectively two and three designs change size alternately in a set order.

(Qs. 76-80).

From the information given we can draw the following table

S.No.	Month	City
1.	January	Mumbai
2.	February	Kolkata
3.	March	Channai
4.	April	Bangalore
5.	May	Delhi
6.	June	Bhopal
7.	July	Cochin

76. (a) Only one audition held in Kolkata.

78. (d) (May-Delhi) is correct sequence rest are in Month (+ 1) city manner.

79. (d) In March audition held in Channai.

80. (e) Audition in Mumbai held in January.

PRACTICE SET 9

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 (Q. 1-10) : What should come in place of the question mark (?) in the following questions?

1. $\sqrt{?} = \pm 75$

(a) –5625 (b) 75
(c) 1500 (d) Cannot be determined
(e) None of these

2. $\frac{21}{8} \div \frac{7}{72} \times \frac{1}{171} = ?$

(a) $\frac{9}{19}$ (b) $\frac{1}{3}$
(c) $\frac{5}{19}$ (d) $\frac{3}{19}$
(e) None of these

3. $4\frac{1}{2} + 6\frac{2}{3} \div 5\frac{1}{3} = ?$

(a) $15\frac{1}{2}$ (b) $16\frac{2}{3}$
(c) $16\frac{1}{2}$ (d) 17
(e) None of these

4. $792.02 + 101.32 - 306.76 = ?$

(a) 893.34 (b) 1200.10
(c) 997.11 (d) 586.58
(e) None of these

5. 300% of 150 = ?% of 600

(a) 75 (b) 45
(c) 450 (d) $133\frac{1}{2}$
(e) None of these

6. $34.95 + 240.016 + 23.9800 = ?$

(a) 299.09 (b) 298.0946
(c) 298.111 (d) 298.946
(e) None of these

7. $48.95 - 32.006 = ?$

(a) 16.089 (b) 16.944
(c) 16.35 (d) 16.89
(e) None of these

8. $3889 + 12.952 - ? = 3854.002$

(a) 47.95 (b) 47.752
(c) 47.095 (d) 47.932
(e) None of these

9. $? + 72.64 = 74.64$

(a) 145.28 (b) –2.00
(c) –145.28 (d) 147.28
(e) None of these

10. $6.25 \div 0.0025 = ?$

(a) 1800 (b) 2300
(c) 1700 (d) 2500
(e) None of these

11. Which is the smallest of the following numbers ?

(a) $\sqrt{7}$ (b) $\frac{1}{\sqrt{7}}$
(c) $\frac{\sqrt{7}}{7}$ (d) $\frac{1}{7}$
(e) None of these

12. Two equal sums were borrowed at 8% simple interest per annum for 2 years and 3 years, respectively. The difference in the interests was ₹ 56. The difference in the interests was ₹ 56. The sum borrowed were
(a) ₹ 690 (b) ₹ 700
(c) ₹ 740 (d) ₹ 780
(e) None of these

13. A machine is sold at a profit of 10%. Had it been sold for ₹ 80 less, there would have been a loss of 10%. The cost price of the machine is
(a) ₹ 350 (b) ₹ 400
(c) ₹ 450 (d) ₹ 520
(e) None of these

14. A jar of oil was four fifths full. When six bottles of oil were taken out and four bottles of oil were poured into, it was three fourths full. How many bottles of oil were contained by the jar ?
(a) 10 (b) 20
(c) 30 (d) 40
(e) None of these

15. During a journey of 80 km a train covers first 60km with a speed of 40 km/h and completes the remaining distance with a speed of 20 km/h. What is the average speed of the train during the whole journey?
(a) 30 km/h (b) 32 km/h
(c) 36 km/h (d) 40 km/h
(e) None of these

16. An aeroplane takes off 30 minutes later than the scheduled time and in order to reach its destination 1500 km away in time, it has to increase its speed by 250 km/h from its usual speed. Find its usual speed.
(a) 1000 km/h (b) 750 km/h
(c) 850 km/h (d) 650 km/h
(e) None of these

17. In an examination 35% of the candidates failed in one subject and 42% failed in another subject. While 15% failed in both the subjects. If 2500 candidates appeared at the examination, how many students passed in either subject but not in both?
(a) 325 (b) 1175
(c) 2125 (d) 1230
(e) None of these

18. If the length of a certain rectangle is decreased by 4 cm and the width is increased by 3 cm, a square with the same area as the original rectangle would result. The perimeter of the original rectangle (in centimetres) is :
(a) 44 (b) 46
(c) 48 (d) 50
(e) None of these

19. Raju decided to marry 3 years after he gets a job. He was 17 years old when he passed class 12th. After passing class 12th', he had completed his graduation course in 3 years and PG Course in 2 years. He got the job exactly 1 year after completing his PG Course. At what age will he get married?
(a) 27 years (b) 26 years
(c) 28 years (d) 23 years
(e) None of these

20. The angles of a triangle are in the ratio of 5 : 6 : 7. respectively. What is the sum of the smallest angle and the largest angle together?
(a) 130° (b) 100°
(c) 110° (d) 140°
(e) None of these

DIRECTIONS (Qs. 21-25): Find out the approximate value which should replace the question mark (?) in the following questions. (You are not expected to find out the exact value.)

21. $\sqrt{1000} + \frac{3.001}{4.987}$ of $1891.992 = ?$
(a) 2500 (b) 1230
(c) 1640 (d) 1525
(e) 2130

22. $0.0004 \div 0.0001 \times 36.000009 = ?$
(a) 0.10 (b) 1.45
(c) 145 (d) 14.5
(e) 1450

23. 137% of $12345 = ?$
(a) 17000 (b) 15000
(c) 1500 (d) 1430
(e) 900

24. $12.25 \times ? \times 21.6 = 3545.64$
(a) 20 (b) 12
(c) 15 (d) 13
(e) None of these

25. $\sqrt[3]{4096} = ?$
(a) 16 (b) 26
(c) 18 (d) 24
(e) None of these

DIRECTIONS (Qs. 26-30): What will come in place of the question mark (?) in the following number series?

26. 2 9 30 105 ? 2195
(a) 432 (b) 426
(c) 440 (d) 436
(e) None of these

27. 3 4 12 45 ? 1005
(a) 152 (b) 198
(c) 144 (d) 192
(e) None of these

28. 1 3 9 31 ? 651
(a) 97 (b) 127
(c) 129 (d) 109
(e) None of these

29. 5 ? 4 7.5 17 45
(a) 3.5 (b) 3
(c) 2.5 (d) 2
(e) None of these

30. 15 30 ? 40 8 48
(a) 10 (b) 20
(c) 18 (d) 12
(e) None of these

31. Mr Duggal invested ₹20,000 with rate of interest @ 20 pcpa. The interest was compounded half-yearly for the first one year and in the next year it was compounded yearly. What will be the total interest earned at the end of two years?
(a) ₹8,800 (b) ₹9,040
(c) ₹8,040 (d) ₹9,800
(e) None of these

32. In how many different ways can the letters of the word DESIGN be arranged so that the vowels are at the two ends?
(a) 48 (b) 72
(c) 36 (d) 24
(e) None of these

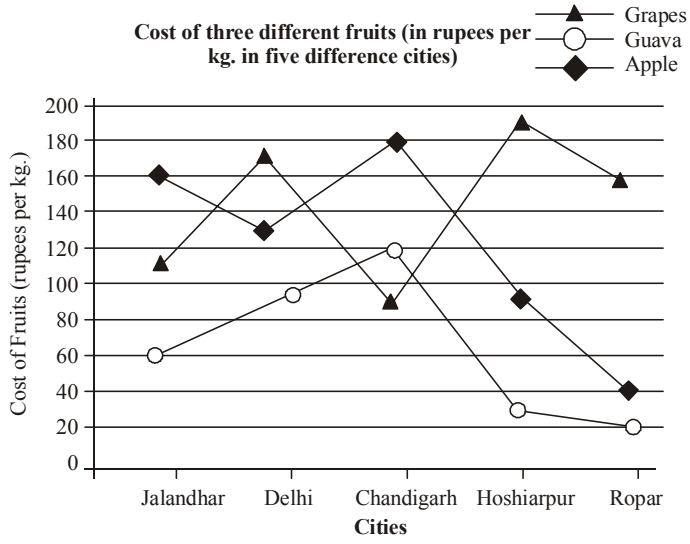
33. The probability that the 13th day of a randomly chosen month is a Friday, is
(a) $\frac{1}{12}$ (b) $\frac{1}{7}$
(c) $\frac{1}{84}$ (d) $\frac{1}{13}$
(e) $\frac{2}{17}$

34. 4 men can complete a piece of work in 2 days. 4 women can complete the same piece of work in 4 days whereas 5 children can complete the same piece of work in 4 days. If, 2 men, 4 women and 10 children work together, in how many days can the work be completed ?
(a) 1 day (b) 3 days
(c) 2 days (d) 4 days
(e) None of these

35. A boat takes 6 hours to travel from place M to N downstream and back from N to M upstream. If the speed of the boat in still water is 4 km./hr., what is the distance between the two places?
(a) 8 kms. (b) 12 kms.
(c) 6 kms. (d) Data inadeqate
(e) None of these

DIRECTIONS (Qs. 36-40): Study the following information carefully and answer the given questions.

Cost of three different fruits (in rupees per kg. in five different cities)



36. In which city is the difference between the cost of one kg of apple and cost of one kg of guava second lowest?
(a) Jalandhar (b) Delhi
(c) Chandigarh (d) Hoshiarpur
(e) Ropar

37. Cost of one kg of guava in Jalandhar is approximately what percent of the cost of two kgs of grapes in Chandigarh?
(a) 66 (b) 24
(c) 28 (d) 34
(e) 58

38. What total amount will Ram pay to the shopkeeper for purchasing 3 kgs of apples and 2 kgs of guavas in Delhi?
(a) ₹530/- (b) ₹450/-
(c) ₹570/- (b) ₹620/-
(e) ₹490/-

39. Ravinder had to purchase 45 kgs of grapes from Hoshiarpur. Shopkeeper gave him discount of 4% per kg. What amount did he pay to the shopkeeper after the discount?
(a) ₹8,280/- (b) ₹8,104/-
(c) ₹8,340/- (b) ₹8,550/-
(e) ₹8,410/-

40. What is the respective ratio between the cost of one kg of apples from Ropar and the cost of one kg of grapes from Chandigarh?
(a) 3 : 2 (b) 2 : 3
(c) $2^2 : 3^2$ (d) $4^2 : 9^2$
(e) $9^2 : 4^2$

REASONING ABILITY

DIRECTIONS (Qs. 41-45): In these questions, relationships between different elements is shown in the statements. These statements are followed by two conclusion.

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

41. **Statement:** $R \geq S \geq T > U > X; T < V < W$
Conclusions: **I.** $R > X$
II. $X < W$

42. **Statement:** $E = F < G < H; G \geq I$
Conclusions: **I.** $H > I$
II. $E \geq I$

43. **Statement:** $A > B > F > C; D > E > C$
Conclusions: **I.** $C < A$
II. $B > D$

44. **Statement:** $K \leq L \leq M = N; P \geq O \geq N$
Conclusions: **I.** $K < P$
II. $K = P$

45. **Statement:** $D < E < F < G; K > F$
Conclusions: **I.** $K \leq G$
II. $K > D$

46. Which of the following will come next in the following series?
0 9 0 1 9 0 1 2 9 0 1 2 3 9 0 1 2 3 4 9 0 1 2 3 4 5 9 0 1 2 3 4 5
(a) 0 (b) 6
(c) 9 (d) 7
(e) 4

DIRECTIONS (Qs. 47-49): Study the following information carefully and answer the given questions.

If A + B means A is the father of B
If A × B means A is the sister of B
If A $ B means A is the wife of B
If A % B means A is the mother of B
If A ÷ B means A is the son of B

47. What should come in place of the question mark, to establish that J is the brother of T in the expression?
J ÷ P % H ? T % L
(a) × (b) ÷
(c) $ (d) Either ÷ or ×
(e) Either + or ÷

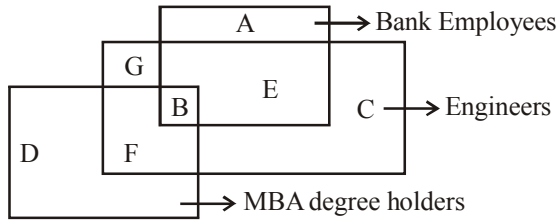
48. Which among the given expressions indicate that M is the daughter of D?
(a) L % R $ D + T × M (b) L + R $ D + M × T
(c) L % R % D + T ÷ M (d) D + L $ R + M × T
(e) L $ D ÷ R % M ÷ T

49. Which among the following options is true if the expresssion 'I + T % J × L ÷ K' is **definitely true**?
(a) L is the daughter of T (b) K is the son-in-law of I
(c) I is the grandmother of L (d) T is the father of L
(e) J is the brother of L

50. Veena walked 5m towards north, took a left turn and walked 7 m. She took a left turn again and walked 8m before taking a left turn and walking 7 m. She then took a final left turn and walked 1 m before stopping. How far is Veena from the starting point ?
(a) 3m (b) 6m
(c) 4m (d) 2m
(e) 7m

51. In a certain code IDEAS is written as HEDBR and WOULD is written as VPTMC. How will RIGHT be written in the same code ?
(a) QJHIS (b) QJFGS
(c) SHHGU (d) QJFIU
(e) QJFIS

DIRECTIONS (Qs. 52-55) : Each of the questions given below is based on the given diagram. The diagram shows three figures each representing Engineers, MBA degree holders and Bank employees.



52. Which of the following does the group B represent in the above diagram ?
(a) All such engineers who are not MBA degree holders
(b) Such bank employees who are engineers but not MBA degree holders
(c) All such engineers who are MBA degree holders but are not bank employees
(d) All such MBA degree holders who are not bank employees
(e) All such bank employees who are engineers as well MBA degree holders

53. Which of the following groups represents all such persons who are MBA degree holders but are neither engineers nor bank employees ?
(a) Only G (b) Only D
(c) D and G (d) Only C
(e) Not represented in the diagram

54. Which of the following represents such engineers who are MBA degree holders but not bank employees ?
(a) G and B
(b) Only F
(c) D
(d) G
(e) None of these

55. Which of the following correctly represents such engineers who are neither bank employees nor MBA degree holders?
(a) Only G (b) C and B
(c) A and D (d) C and G
(e) Only C

DIRECTIONS (Qs. 56-60): Study the given information carefully and answer the given questions.

Eight people - J, K, L, M, N, O, P and Q are sitting around a circular table facing the centre, not necessarily in the same order. O is sitting third to the right of M. There is only one person sitting between M and J. There are only three people between J and K. P is an immediate neighbour of J. There are only three people between P and L. N is second to the right of P.

56. Which of the following is **true** regarding the given arrangement?
(a) M is an immediate neighbour of K
(b) N is an immediate neighbour of J
(c) P is second to the left of O
(d) There are four people between N and O.
(e) None is true

57. Who is sitting second to the left of the one who is sitting second to the left of Q?
(a) M (b) K
(c) N (d) L
(e) J

58. '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 one does **not** belong to the group?
(a) PQ (b) KL
(c) MN (d) QO
(e) KO

59. What is N's position with respect to K?
(a) Second to the left (b) Second to the right
(c) Third to the left (d) Third to the right
(e) Fourth to the left

60. How many people are sitting between K and P when counted from the right side of K?
(a) One (b) Two
(c) Three (d) None
(e) More than three

DIRECTIONS (Qs. 61-65): In each of the questions below, two statements are given followed by two conclusions numbered I and II. You have to take the two statements to be true even if they seem to be at variance from the commonly known facts and then decide which of the given conclusions logically follows from the given statement disregarding the commonly known facts.

Give answer (a) if **only** concluion **I** follows
Give answer (b) if **only** concluion **II** follows
Give answer (c) if **either** concluion **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** follows

61. Statements : Some rings are circles.
No circle is a square.
Conclusions : I. No ring is a square.
II. All rings are squares.

62. Statements : All rows are lines.
All lines are queues.
Conclusions: I. All rows are queues.
II. Atleast some queues are lines.

63. Statements : All laptops are computers.
Some laptops are notebooks.
Conclusions: I. Some notebooks are computers
II. All notebooks are computers.

64. Statements : Some participants are students.
Some students are boys.
Conclusions: I. No boy is a participant.
II. All boys are participants.

65. Statements : All sparrows are birds.
No birds is a reptile.
Conclusions: I. No sparrow is a reptile.
II. Some reptiles are sparrows.

DIRECTIONS (Qs. 66-70) : Study they following information carefully to answer the questions given below it.

Seven professionals A, B, C, D, E, F and G are practising their professions in different cities Chennai, Bangalore, Hyderabad, Mumbai, Ahmedabad, Jaipur and Bhubaneshwar, not necessarily in the same order. Each has a different profession-Doctor, Engineer, Pharmacist, Lawyer, Counsellor, Professor and Artist, not necessarily in the same order.

A is a Pharmacist and practises in Bhubaneshwar. D practises in Bangalore but is not a Doctor or an Artist. The one who practises in Hyderabad is a Professor. G is a Counsellor and does not practise in Mumbai or Chennai. E is a Lawyer and practises in Ahmedabad. F practises in Chennai but is not an artist. C practises in Mumbai.

66. What is D's profession?
(a) Doctor (b) Professor
(c) Engineer (d) Cannot be determined
(e) None of these

67. Who is the Professor?
(a) B (b) C
(c) D (d) E
(e) None of these

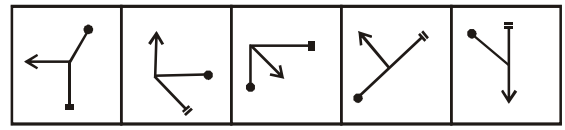
68. Which of the following combinations of profession and place is **correct**?
(a) Pharmacist-Jaipur (b) Engineer-Chennai
(c) Doctor-Bangalore (d) Artist-Mumbai
(e) None of these

69. Which of the following persons works in Jaipur?
(a) B (b) G
(c) C (d) B or G
(e) None of these

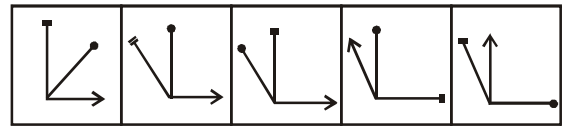
70. Who is the Doctor?
(a) D (b) B
(c) C (d) B or C
(e) None of these

DIRECTIONS (Qs. 71-75): In each of the questions given below which one of the five answer figures on the top should come after the problem figures on the bottom, if the sequence were continued?

71. Problem Figures



Answer Figures



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

72. Problem Figures

S	Δ	R	S	*	R	*	R	A	*	=	A	=	A	⅂
T	O	4	Δ	4	A	S	Δ	3	R	3	⅂	*	R	T
3	⅂	A	T	3	⅂	T	9	⅂	S	T	9	S	□	9

Answer Figures

A	⅂	T	⅂	K	=	=	O	⅂	=	K	⅂	=	K	⅂
=	*	□	A	T	9	A	T	9	S	*	A	A	T	9
S	K	9	*	S	□	*	S	□	□	9	T	*	S	□

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

73. Problem Figures

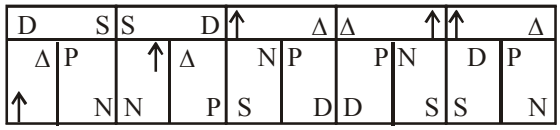
3	⊗	K / S R	⊗	3	R / 2 A	S	⊗	A / R 2	⊗	K	2 / A 3	K	⊗	3 / S R
2		A	S		K	K		3	S		R	A		2

Answer Figures

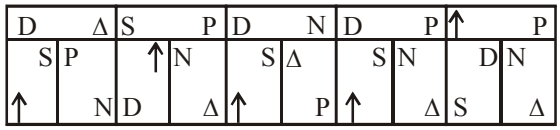
⊗	2	R / 3 S	A	K	R / 3 S	⊗	2	R / 3 S	A	K	S / R 3	A	K	3 / S R
K		A	2		⊗	K		A	2		⊗	2		⊗

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

74. Problem Figures

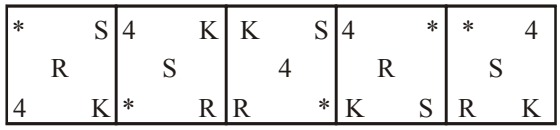


Answer Figures

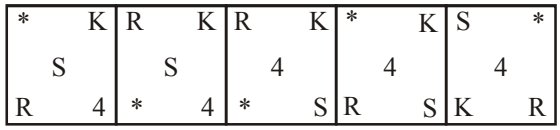


(a) (b) (c) (d) (e)

75. Problem Figures



Answer Figures



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

DIRECTIONS (Qs. 76-80) : Following questions are based on five words given below :

WIT BAR URN ELF TOP

(The new words formed after performing the mentioned operations may or may not necessarily be meaningful English words)

76. If in each of the words, all the alphabets are arranged in English alphabetical order within the word, how many words will NOT begin with a vowel ?
(a) None (b) One
(c) Two (d) Three
(e) More than three

77. How many letters are there in the English alphabetical series between second letter of the word which is second from the right and the third letter of the word which is third from the left of the given words?
(a) One (b) Two
(c) Three (d) Four
(e) Five

78. If in each of the given words, each of the consonants is changed to previous letter and each vowel is changed to next letter in the English alphabetical series, in how many words thus formed will no vowels appear ?
(a) None (b) One
(c) Two (d) Three
(e) More than three

79. If the last alphabet in each of the words is changed to the next alphabet in the English alphabetical order, how many words having two vowels (same or different vowels) will be formed ?
(a) None (b) One
(c) Two (d) Three
(e) Four

80. If the given words are arranged in the order as they would appear in a dictionary from left to right, which of the following will be fourth from the left ?
(a) WIT (b) BAR
(c) URN (d) ELF
(e) TOP

HINTS & EXPLANATIONS

1. (e) $\sqrt{?} = \pm 75$
Squaring on both the sides, we get
$? = 75 \times 75 = 5625$

2. (d) $\frac{21}{8} \div \frac{7}{72} \times \frac{1}{171} = ?$

or $? = \frac{21}{8} \div \frac{7}{72} \times \frac{1}{171} = \frac{3}{19}$

3. (c) $? = 4\frac{1}{2} + 6\frac{2}{3} + 5\frac{1}{3}$

$= (4+6+5) + \frac{3+4+2}{6} = 15 + \frac{9}{6} = 16\frac{1}{2}$

4. (d) $? = 792.02 + 101.32 - 306.76 = 586.58$

5. (a) 300% of 150 = ? % of 600
or , ? of 600 = 45000 or, ? = 75

6. (d) $34.95 + 240.016 + 23.9800 = 298.946$

7. (b) $48.95 - 32.006 = ?$
or, $? = 48.95 - 32.006 = 16.944$

8. (a) $3889 + 12.952 - ? = 3854.002$
or $? = 3889 + 12.952 - 3854.002 = 47.95$

9. (e) $? + 72.64 = 74.64$ or $? = 74.64 - 72.64 = 2.00$

10. (d) $6.25 \div 0.0025 = ?$ or $? = 6.25 \times \frac{1}{0.0025} = 2500$

11. (d) Clearly, $\frac{1}{7} < \frac{1}{\sqrt{7}} = \frac{\sqrt{7}}{7} < \sqrt{7}$

$\Rightarrow \frac{1}{7}$ is the smallest number.

12. (b) Let the sum be ₹ x

Now, $56 = \frac{x \times 8 \times (3-2)}{100} \Rightarrow x = ₹ 700$

13. (b) Let the cost price of the machine be ₹ x.

Then, selling price at a profit of 10% = ₹ $\frac{11x}{10}$

And the selling price at a loss of 10% = ₹ $\frac{9x}{10}$

Consequently, we find that

$$\left(\frac{11x}{10}-\frac{9x}{10}\right) = 80$$

$$\Rightarrow \frac{x}{5} = 80 \Rightarrow x = ₹400$$

14. (d) Let the capacity of the jar be of x bottles.
since 6 bottles were taken out from jar and 4 bottles of oil poured into it $\therefore$ 2 bottles were taken out
Therefore, we have

$$\Rightarrow \frac{4}{5}x - 2 = \frac{3}{4}x$$

$$\Rightarrow \frac{4}{5}x - \frac{3}{4}x = 2 \Rightarrow x = 40$$

15. (b) Average speed = $\frac{\text{Total distance}}{\text{Total time}}$

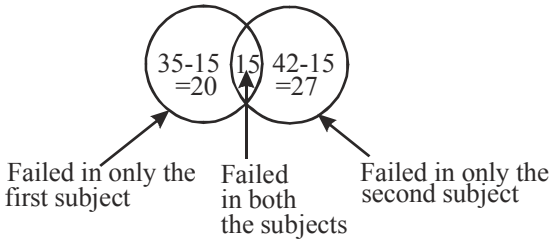
$$= \frac{80}{\frac{60}{40}+\frac{20}{20}} = \frac{80}{2.5} = 32\,\text{km/h}$$

16. (b) Let the usual speed of the aeroplane be x km/h.

Then, $\frac{1500}{x} - \frac{1}{2} = \frac{1500}{(x+250)}$

Solving, we get x = 750 km/h

17. (b) Using Venn Diagram



Thus, percentage of students who passed in both subjects
$= 100 - [(35-15)+(42-15)+15] = 100-(35+42-15)$
$= 100-(62) = 38\%$
and percentage of students who failed in both subject = 15%
Therefore, the percentage of students who passed in either subject = 100 – (38 + 15) = 100 – 53 = 47%
Hence, required no. of students who passed in either subject but not in both = $2500 \times \frac{47}{100} = 1175$

18. (d) Let the length and breadth of the rectangle be x and y cm, respectively.
Then, $(x-4)(y+3) = xy \Rightarrow 3x - 4y = 12$ ... (i)
Also, $(x-4) = (y+3)$ [sides of square]
$\Rightarrow x - y = 7$ ...(ii)
From (i) and (ii),
$x = 16$ and $y = 9$
Perimeter of the original rectangle = $2(x+y) = 50$ cm

19. (b) Raju's age at the time of marriage
$= 17 + 3 + 2 + 1 + 3 = 26$ years

20. (e) $5x + 6x + 7x = 180°$
$\Rightarrow 18x = 180°$

$\Rightarrow x = \frac{180}{18} = 10$

$\therefore$ Sum of the smallest and the largest angles
$= 12x = 12 \times 10 = 120°$

21. (b) $\sqrt{1000} + \frac{3.001}{4.987}$ of 1891.992 = ?

or ? = $100 + \frac{3}{5}$ of $1900 = 100 + 1140 = 1230$

22. (c) $? = 0.0004 \div 0.0001 \times 36.000009 = 4 \times 36.000009 \approx 154$

23. (a) ? = 137% of 12345 = (100+ 37)% of 12345
$\approx 12345 + 4570 \approx 17000$

24. (d) $\because$ $12.25 \times ? \times 21.6 = 3545.64$

$\because$ $? = \frac{3545.64}{264.6} = 13.4 \approx 13$

25. (a) $? = \sqrt[3]{4096} = \sqrt[3]{16 \times 16 \times 16} = 16$

26. (d) The series is $\times 1 + 1 \times 7, \times 2 + 2 \times 6, \times 3 + 3 \times 5$...

27. (e) The series is $\times 1 + 1^2, \times 2 + 2^2, \times 3 + 3^2$.., ...

28. (c) The series is $\times 1 + 2, \times 2 + 3, \times 3 + 4$, ...

29. (b) The series is $\times 0.5 + 0.5, \times 1 + 1, + 1.5 + 1.5$, ...

30. (a) The series is $\times 2, \times 4, + 5$, ...

31. (b) Interest earned in 1st half of a year

$$= 20,000 \times \frac{1}{2} \times \frac{20}{100} = 2000$$

Similarly,
During second half, interest earned = 2200
During second year, interest earned = 4840
(**Note :** Interest is calculated as compound)

32. (a) Required no. of ways = ${}^2P_2 \times {}^4P_4 = 48$

33. (c) Probability of selecting a month = $\frac{1}{12}$

13^{th} day of the month is Friday if its first day is Sunday and the probability of this = $\frac{1}{7}$

$\therefore$ Required probability = $\frac{1}{12} \cdot \frac{1}{7} = \frac{1}{84}$

34. (a) 4×2 men = 4×4 women = 5×4 children
$\Rightarrow 2$ men = 4 women = 5 children
$\therefore$ 2 men + 4 women + 10 children
= 20 children
$\therefore$ $M_1D_1 = M_2D_2$
$\Rightarrow 5 \times 4 = 20 \times D_2 \Rightarrow D_2 = 1$ day

35. (d) Total Time = 6 hours
Speed of the boat in still water = 4 km/hr.
Let the distance between M and N be D.
and the speed of the stream be x.

$$D\left[\frac{1}{4+x}+\frac{1}{4-x}\right] = 6 \text{ or } D\left[\frac{4-x+4-x}{(x+x)(4-x)}\right] = 6$$

$$D\left[\frac{8}{4^2-x^2}\right] = 6 \text{ or } \frac{8D}{16-x^2} = 6$$

$D = \frac{6}{8}\left(16 - x^2\right) = \frac{3}{4}\left(16 - x^2\right)$

Since the speed of the stream (x) is not given, the distance D cannot be determined.

36. (b) Difference between cost of 1 kg apple and cost of 1 kg guava in 5 cities.
J 160 – 60 = 100
D 130 – 90 = 40
C 180 – 120 = 60
H 90 – 30 = 60
R 40 – 20 = 20
∴ Cost is second lowest in Delhi.

37. (d) Cost of 1 kg guava in Jalandhar = ₹ 60
Cost of 2 kg grapes in chandigarh = ₹ 90 × 2 = ₹ 180

$\% = \frac{60}{180} \times 100 = 33.3 \approx 34\%$

38. (c) Cost of 3 kgs apples for Ram = 3 × 130 = ₹ 390
Cost of 2 kgs guavas for Ram = 2 × 90 = ₹ 180
Total cost that Ram pay = 390 + 180 = ₹ 570

39. (a) Total cost of 45 kgs grapes from Hoshiarpur = 45 × 190 = ₹ 8550

After discount 4% Ravinder paid = $8550 - \frac{8550 \times 4}{100}$

= ₹ 8208

40. (c) Cost of 1 kg apples from Ropar :
Cost of 1kg grapes from chandigarh
40 : 90
4 : 9 or $2^2 : 3^2$

41. (e) As (i) U > X (ii) T > U
Hence T > X
As R ≥ T So R > X I[st] follows
As (i) W > T (ii) T > X
Combining, we get W > X II[nd] follows.

42. (a) As (i) H > G (ii) G ≥ I
Combining, we get H > I I[st] follows.
As (i) G ≥ I (ii) G > E
Combining, we get E = I but E > I not possible.

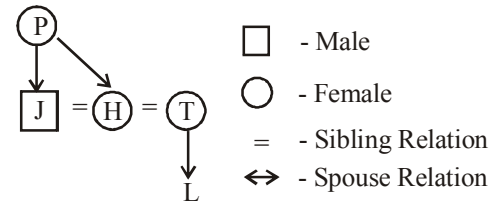
43. (a) As (i) A > F (ii) F > C
So A > C I[st] follows

44. (c) As (i) P ≥ O (ii) O ≥ N
So (i) P = N or (ii) P > N
(i) P = N
As (a) N = M (b) M ≥ L (c) L ≥ K
Combining, we get
(i) N = K (ii) N > K
If N = K then P = K II[nd] follow
If N > K then P > K I[st] follow
(ii) Similarly if P > N
then also both conclusion can be establish.

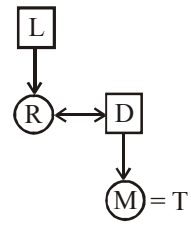
45. (b) As (i) K > F (ii) F > D
So K > D II[nd] follow
As (i) K > F (ii) G > F
So K ≤ G can't be establish.

46. (b) Series is :
09 / 019 / 0129 / 01239 / 012349 / 0123459 / 012345⑥9

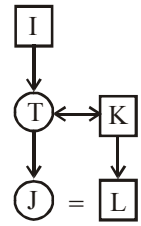
47. (a) J ÷ P % H × T % L can be represented in diagram. As follows.



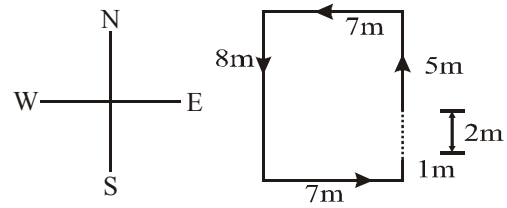
48. (b) L + R $ D + M × T



49. (b) I + T % J × L ÷ K



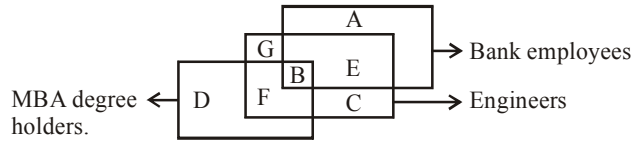
50. (d)



51. (e)

Coding for:	I	D	E	A	S
	–1↓	+1↓	–1↓	+1↓	–1↓
	H	E	D	B	R
Coding for:	W	O	U	L	D
	–1↓	+1↓	–1↓	+1↓	–1↓
	V	P	T	M	C
Similarly,	R	I	G	H	T
	–1↓	+1↓	–1↓	+1↓	–1↓
	Q	J	F	I	S

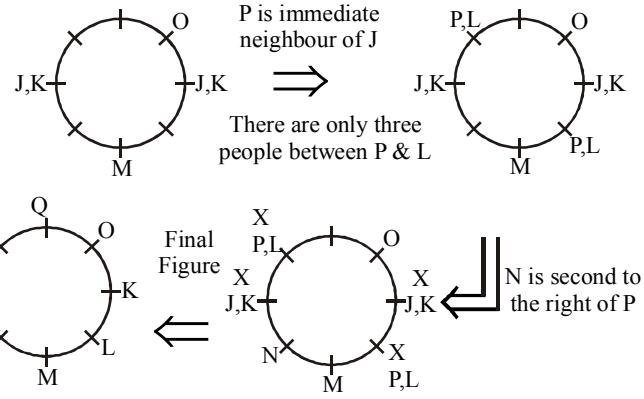
52-55.



52. (e) B is common to all diagram
53. (b) Letter D represents only MBA degree holders.
54. (b) Letter F represents such engineers who are MBA degree holders but not bank employees.
55. (e) Letter C represents only engineers (neither MBA nor bank employees).

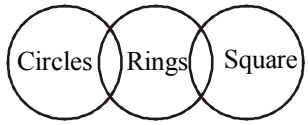
(Qs. 56-60).

Formation of fig according to information given

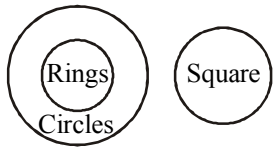


56. (b) N is immediate neighbour of J.
57. (a) 'K' is second to the left of 'Q' and 'M' is second to the left of 'K'.
58. (e) PQ, KL, MN, QO are in clockwise way and KO in anticlockwise way.
59. (c) Third to the left.
60. (b) Only two persons are sitting i.e. 'O' and 'Q'.

61. (d)

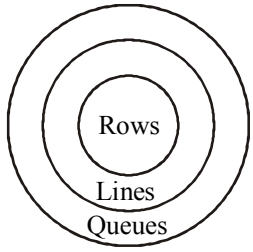


OR



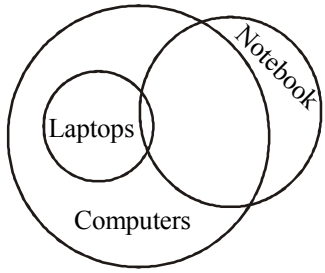
Conclusion-I : False
Conclusion-II : False

62. (e)

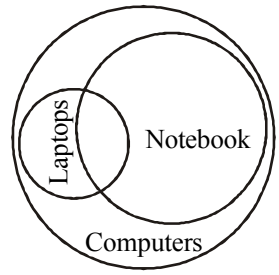


Conclusion-I : True
Conclusion-II : True

63. (a)

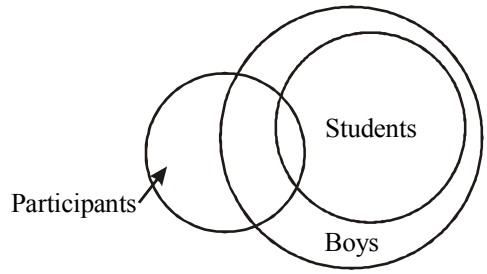


OR

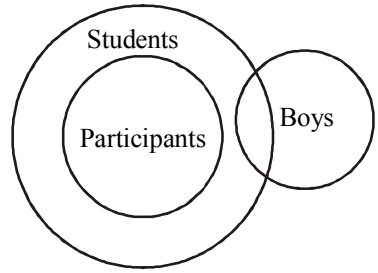


Conclusion-I : True
Conclusion-II : False

64. (d)

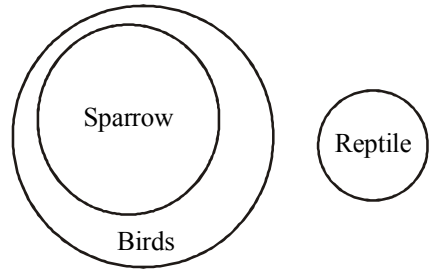


OR



Conclusion-I False
Conclusion-II False

65. (a)



Conclusion-I True
Conclusion-II False

(66-70):

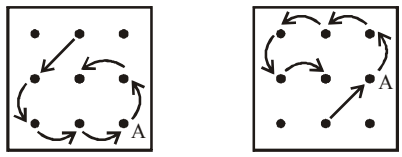
Professional	City	Profession
A	Bhubaneshwar	Pharmacist
B	Hyderabad	Professor
C	Mumbai	Artist
D	Bangalore	Engineer
E	Ahmedabad	Lawyer
F	Chennai	Doctor
G	Jaipur	Counsellor

66. (c) 67. (a) 68. (d) 69. (b) 70. (e)

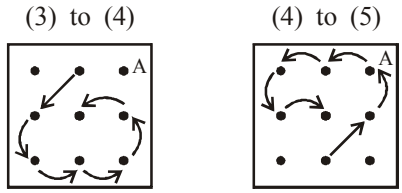
71. (b) In each subsequent figure, → design rotates through +90°, + 135°, + 180°, + 225° and so on clock wise. —●— design rotate + 45°, + 90° and so on in the same pair clockwise direction and ——■ design rotates ——■ 45° in each step anticlockwise.

72. (c) The movement of designs and other changes in designs can be shown as follows:

(1) to (2) (2) to (3)



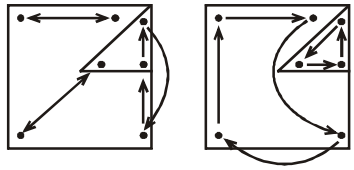
(3) to (4) (4) to (5)



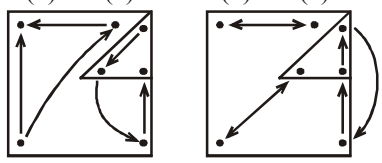
Therefore, similar changes would occur from problem figure(s) to answer figure as that have been occured from problem figure (1) to (2).

73. (b) The movement of designs and other changes in designs can be shown as follows :

(1) to (2) (2) to (3)



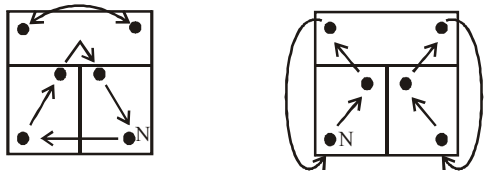
(3) to (4) (4) to (5)



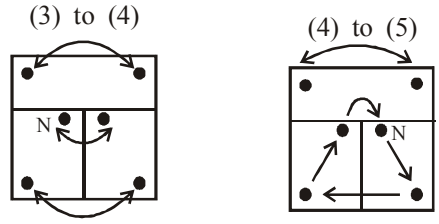
Therefore, similar changes would occur from problem figure (5) to Answer figure as that have been occured from problem figure (2) to (3).

74. (d) The movement of designs and other changes in designs can be shown as follows :

(1) to (2) (2) to (3)



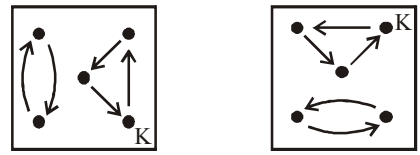
(3) to (4) (4) to (5)



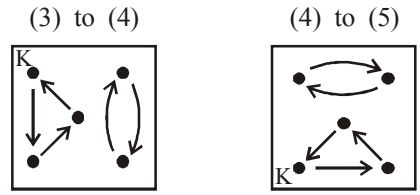
Therefore, similar changes would occur from problem figure (5) to answer figure as that have been occured from problem figure (2) to (3).

75. (c) The movement of designs and other changes in designs can be shown as follows:

(1) to (2) (2) to (3)



(3) to (4) (4) to (5)



Therefore, similar changes would occur from problem figure (5) to Answer figure as that have been occured from problem figure (1) to (2).

76. (b) After arranging –

ITW, ABR [NRU] EFL OPT

77. (e) 78. (c)

W	I	T	B	A	R	U	R	N	E	L	F	T	O	P
–1	+1	–1	–1	+1	–1	+1	–1	–1	+1	–1	–1	–1	+1	–1
V	J	S	A	B	Q	V	Q	M	F	K	E	S	P	O

79. (a)

	W	I	T	B	A	R	U	R	N	E	L	F	T	O	P
+1	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓
	X	J	U	C	B	S	V	S	O	F	M	G	U	P	Q

80. (c) Dictionary oder is–

1	2	3	4	5
BAR	ELF	TOP	[URN]	WIT

PRACTICE SET 10

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. 1-10): What will come in place of the question mark (?) in the following questions ?

1. $3 \times ? + 30 = 0$

(a) -15 (b) 15
(c) 10 (d) -30
(e) None of these

2. $40.83 \times 1.02 \times 1.2 = ?$

(a) 49.97592 (b) 41.64660
(c) 58.7952 (d) 42.479532
(e) None of these

3. $3\frac{1}{3} + 6\frac{3}{7} \times 1\frac{1}{2} \times \frac{22}{7} = ?$

(a) 4.4 (b) $\frac{22}{7}$
(c) $\frac{5}{22}$ (d) 40.5
(e) None of these

4. $3978 + 112 \times 2 = ? \div 2$

(a) 8400 (b) 8406
(c) 8600 (d) 8404
(e) None of these

5. $\left(10^{3.7} \times 10^{1.3}\right)^2 = 10^{?}$

(a) 6 (b) 7
(c) 5 (d) 3
(e) None of these

6. $300 + 10^2 \times 2 = ?$

(a) 450 (b) 800
(c) 550 (d) 320
(e) None of these

7. $\frac{5 \times 1.6 - 2 \times 1.4}{1.3} = ?$

(a) 4 (b) 0.4
(c) 1.4 (d) 1.2
(e) None of these

8. $3\frac{2}{5} + 7\frac{1}{5} - 5\frac{1}{4} = ?$

(a) $5\frac{3}{10}$ (b) $5\frac{3}{20}$
(c) $5\frac{7}{10}$ (d) $5\frac{11}{20}$
(e) None of these

9. $25.05 \times 123.95 + 388.999 \times 15.001 = ?$

(a) 900 (b) 8950
(c) 8935 (d) 8975
(e) 8995

10. $(15.01)^2 \times \sqrt{730} = ?$

(a) 6125 (b) 6225
(c) 6200 (d) 6075
(e) 6250

11. A boy was asked to write $2^5 \times 9^2$ but he wrote 2592. The numerical difference between the two is:
(a) 0 (b) 3
(c) 2 (d) 9
(e) None of these

12. If the two numbers are respectively 20% and 50% of a third number, what is the percentage of the first number to the second ?
(a) 10 (b) 20
(c) 30 (d) 40
(e) None of these

13. A man gains 10% by selling a certain article for a certain price. If he sells it at double the price, then the profit made is:
(a) 120% (b) 60%
(c) 100% (d) 80%
(e) None of these

14. A, B and C enter into a partnership with investments of ₹ 3500, ₹ 4500 and ₹ 5500, respectively. In the first six months, profit is ₹ 405. What is A's share in the profit ?
(a) ₹ 200 (b) ₹ 105
(c) ₹ 250 (d) ₹ 151
(e) None of these

15. A tap can fill a cistern in 8 hours and another tap can empty it in 16 hours. If both the taps are opened simultaneously, the time taken (in hours) to fill the cistern will be :
(a) 8 (b) 10
(c) 16 (d) 24
(e) None of these

16. Pipes A and B can fill a tank in 5 and 6 hours, respectively. Pipe C can empty it in 12 hours. The tank is half full. All the three pipes are in operation simultaneously. After how much time, the tank will be full ?
(a) $3\frac{9}{17}$ h (b) 11 h
(c) $2\frac{8}{11}$ h (d) $1\frac{13}{17}$ h
(e) None of these

17. If the sum of the digits of an even number is divisible by 9, then that number is always divisible by :
(a) 24 (b) 12
(c) 18 (d) 27
(e) None of these

18. A water tank in the form of a cuboid has its base 20 m long, 7 m wide and 10 m deep. Initially, the tank is full but later when water is taken out of it, the level of water in the tank reduces by 2 m. The volume of water left in the tank is :
(a) $1120\,m^3$ (b) $400\,m^3$
(c) $280\,m^3$ (d) $140\,m^3$
(e) None of these

19. The area of a circular plot is twice the area of a rectangular plot. If the area of the rectangular plot is 11088 sq. metres., what is the perimeter of the circular plot?
(a) 484 metres (b) 572 metres
(c) 528 metres (d) 440 metres
(e) None of these

20. The sum of the two digits of a two-digit number and the difference between the two digits of the two-digit number is 8. What is the two digit number?
(a) 80 (b) 88
(3) 44 (d) Cannot be determined
(e) None of these

21. The total number of students studying in a college is 4220. If the number of girls studying in the college is 2420, what is the respective ratio of the number of boys to the number of girls studying in the college?
(a) 90 : 131 (b) 90 : 121
(c) 121 : 70 (d) 121 : 80
(e) None of these

22. The cost of 14 kgs. of rice is ₹ 672, the cost of 12 kgs. of wheat is ₹ 432 and the cost of 18 kgs. of sugar is ₹ 504. What is the total cost of 20 kgs. of rice, 15 kgs. of wheat and 16 kgs. of sugar?
(a) ₹ 1,898 (b) ₹ 1,948
(c) ₹ 2,020 (d) ₹1,964
(e) None of these

23. If the length of a rectangular field is increased by 20% and the breadth is reduced by 20%, the area of the rectangle will be 192 m^2. What is the area of the original rectangle?
(a) $184\,m^2$ (b) $196\,m^2$
(c) $204\,m^2$ (d) $225\,m^2$
(e) None of these

24. The product of one-third of a number and 150% of another number is what per cent of the product of the original numbers?
(a) 80% (b) 50%
(c) 75% (d) 120%
(e) None of these

25. Inside a square plot, a circular garden is developed which exactly fits in the square plot and the diameter of the garden is equal to the side of the square plot which is 28 metres. What is the area of the space left out in the square plot after developing the garden?
(a) $98\,m^2$ (b) $146\,m^2$
(c) $84\,m^2$ (d) $168\,m^2$
(e) None of these

DIRECTIONS (Qs. 26-30) : Find the next term in the given series in each of the questions below.

26. 41, 31, ?, 17, 11, 5
(a) 19 (b) 21
(c) 23 (d) 27
(e) None of these

27. 8, 15, 28, 53, ?
(a) 106 (b) 98
(c) 100 (d) 102
(e) None of these

28. 24, 49, ?, 94, 15, 31, 59, 58
(a) 51 (b) 63
(c) 77 (d) 95
(e) None of these

29. 5, 10, 13, 26, 29, 58, ?, 122
(a) 60 (b) 61
(c) 111 (d) 91
(e) None of these

30. 2, 3, 10, 15, 26, ?, 55
(a) 32 (b) 33
(c) 34 (d) 35
(e) None of these

DIRECTIONS (Qs. 31-35) : What approximate value should come in place of the question mark (?) in the following questions? (You are not expected to calculate the exact value).

31. $\sqrt[3]{860000} = ?$
(a) 75 (b) 80
(c) 110 (d) 125
(e) 95

32. $1\frac{5}{8} + 5\frac{1}{3} + 2\frac{2}{5} = ?$
(a) 15 (b) 4
(c) 19 (d) 9
(e) 21

33. $8769 \div 82 \div 4 = ?$
(a) 27 (b) 44
(c) 429 (d) 12
(e) 512

34. ? % of 45.999 × 16% of 83.006 = 116.073
(a) 6 (b) 24
(c) 19 (d) 30
(e) 11

35. $12.998 \times 27.059 \times 17.999 = ?$
(a) 6020 (b) 6320
(c) 6800 (d) 6540
(e) 6150

DIRECTIONS (Qs. 36-40): Study the following table and answer the questions given below.

Export of electronic goods from India (in ₹Crore)

Year	Total Exports	Electronic Goods
2011	5,143	552
2012	5,404	624
2013	5,426	717
2014	5,999	653

36. **Approximately** what percent of the total exports were electronic goods in 2013?
(a) 13% (b) 19%
(c) 21% (d) 23%
(e) None of these

37. The fall in electronic goods exports in 2014 from 2013 was **nearly**
(a) 20% (b) 15%
(c) 9% (d) 12%
(e) 16%

38. If the electronic goods are not exported in the year 2012, then what are the total exports of that year?
(a) 4770 (b) 4780
(c) 4790 (d) 4760
(e) None of these

39. Percentage growth of electronic goods exports in the period of 2012 to 2013 exceeded the percentage growth of the total exports over the same period **approximately** by
(a) 3.5 (b) 12.5
(c) 15.5 (d) 11.5
(e) 14.5

40. Over the 4-year period from 2011 to 2014, the electronic exports rose by **nearly**
(a) 16.3% (b) 15.3%
(c) 14.3% (d) 18.3%
(e) 20.3%

REASONING ABILITY

DIRECTIONS (Qs. 41-45) : In each question below are two/three statements followed by two conclusions numbered I and II. You have to take the two/three 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 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** conclusion I and conclusion II follow.

41. **Statements** : All kites are birds. All aeroplanes are kites. No bird is a fish.
Conclusions : I. No fish is a kite.
II. All aeroplanes are birds.

42. **Statements** : Some wires are fires. All fires are tyres.
Conclusions : I. Atleast some tyres are wires.
II. Some fires are definitely not wires.

43. **Statements** : No clip is a pin. All badges are pins.
Conclusions : I. No badge is a clip.
II. All pins are badges.

44. **Statements** : No colour is a paint. No paint is a brush.
Conclusions : I. No colour is a brush.
II. All brushes are colours.

45. **Statements** : All stars are planets. All planets are galaxies.
Conclusions : I. All galaxies are planets.
II. All starts are galaxies.

DIRECTIONS (Qs. 46-50) : Study the following arrangement carefully and answer the questions given below :

B U B D C E D B D E U B **A D C B E** A C D A E B A U A C D B C AC

46. How many such pairs of alphabets are there in the series of alphabets given in BOLD (A to E) in the above arrangement each of which has as many letters between them (in both forward and backward directions) as they have between them in the English alphabetical series ?
(a) None (b) One
(c) Two (d) Three
(e) More than three

47. Which of the following is the eighth to the left of the twentieth from the left end of the above arrangement ?
(a) C (b) E
(c) U (d) B
(e) A

48. How many meaningful words can be formed with the alphabets which are first, second, fifth and sixth from the left end of the above arrangement ?
(a) None (b) One
(c) Two (d) Three
(e) More than three

49. How many such consonants are there in the above arrangement each of which is immediately preceded by a vowel and also immediately followed by a consonant ?
(a) One (b) Two
(c) Three (d) Four
(e) More than Four

50. If all as are dropped from the above arrangement, which of the following will be eleventh from the right end of the above arrangement ?
(a) E (b) C
(c) D (d) U
(e) None of these

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

Eight people 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 P, Q, R and S are seated (but not necessarily in the same order) and all of them are facing south. In row-2 A, B, C and D are seated (but not necessarily in the same order) 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.

R sits second to the right of P. A is an immediate neighbour of the person who faces R. Q sits second to left of the person who faces A. Only one person sits between B and C. C does not face P. C does not sit at any of the extreme ends of the line.

51. Four of the following five are alike in a certain way based on the given seating arrangement and thus form a group. Which is the one that does not belong to that group ?
(a) A (b) P
(c) R (d) B
(e) S

52. Who amongst the following faces B ?
(a) P (b) Q
(c) R (d) S
(e) Cannot be determined

53. Which of the following is true regarding S ?
(a) S sits exactly between R and P
(b) S sits second to left of Q
(c) P is an immediate neighbour of S
(d) D is an immediate neighbour of the person who faces S
(e) None is true

54. Who amongst the following faces Q ?
(a) A (b) B
(c) C (d) D
(e) Cannot be determined

55. Who amongst the following faces the person who sits exactly between B and C ?
(a) P (b) Q
(c) R (d) S
(e) Cannot be determined

DIRECTIONS (Qs. 56-60): In each question below is given a group of letters followed by four combinations of digits/symbols numbered (a), (b), (c) and (d). You have to find out which of the combinations correctly represents the group of letters based on the coding system and the conditions given below and mark the number of that combination as your answer. If none of the combinations correctly represents the group of letters, mark (e) i.e. 'None of these' as your answer.

Letters	P	M	A	E	J	K	D	R	W	H	I	U	T	F
Digits/symbols Conditions	4	$	1	2	3	#	5	@	©	6	%	δ	7	9

(i) If the first letter is a consonant and the last letter is a vowel, the codes of both these are to be interchanged.
(ii) If both the first and the last letters are consonants both these are to be coded as per the code of the last letter.
(iii) If the first letter is vowel and the last letter is a consonant both these are to be coded as ' '

Note: All the remaining letters are to be coded as per their original codes.

56. ERWHKA
(a) 2@©6#1 (b) 1@©6#2 (c) 1@©6#I
(d) 2@©6#2 (e) None of these

57. MPEKDU
(a) $42#5δ (b) $42#5$ (c) δ42#5δ
(d) δ425#$ (e) None of these

58. TMEIUF
(a) 7$2%δ9 (b) 7$2%δ7 (c) 9$2%δ7
(d) 9$2%δ9 (e) None of these

59. JTAERI
(a) % 712@3 (b) 3712@3 (c) 712@
(d) %712@% (e) None of these

60. UKTMIH
(a) #7$%6 (b) 6#7$%δ (c) #7$%
(d) 7#$%6 (e) None of these

61. In a certain code GRANT is written as UOBSH and PRIDE is written as FEJSQ, How is SOLD written in that code?
(a) EPMT (b) TPME
(c) EMPT (d) CKNR
(e) ETPM

62. Four of the following five are alike in a certain way and so form a group. Which is the one that does not belong to that group?
(a) 19 (b) 17
(c) 13 (d) 27
(e) 37

63. How many meaningful English words can be made with the second, the fourth, the sixth and the seventh letters of the word STUMBLE using each letter only once in each word?
(a) None (b) One
(c) Two (d) Three
(e) More than three

64. What should come in place of the question mark (?) in the following letter series based on the English alphabetical order?
BE GJ LO QT ?
(a) UX (b) VY
(c) SV (d) RU
(e) WZ

65. How many such pairs of letters are there in the word GOVERNMENT each of which has as many letters between them in the word (in both forward and backward directions) as in the English alphabet?
(a) None (b) One
(c) Two (d) Three
(e) More than three

DIRECTIONS (Qs. 66-70): Study the following information carefully and answer the given questions.

Eight colleagues, A, B, C, D, E, F, G and H, are sitting around a circular table facing the centre but not necessarily in the same order. Each one of them holds a different post–Manager, Company Secretary, Chairman, President, Vice President, Group Leader, Financial Advisor and Managing Director.

A sits third to the right of the Managing Director. Only two people sit between the Managing Director and H. The Vice President and the Company Secretary are immediate neighbours. Neither A nor H is a Vice President or a Company Secretary. The Vice President is not an immediate neighbour of the Managing Director. The Manager sits second to the left of E. E is not an immediate neighbour of H. The Manager is an immediate neighbour of both the Group Leader and the Financial Advisor. The Financial Advisor sits third to the -right of B. B is not the Vice President. C sits on the immediate right of the Chairman. A is not the Chairman. F is not an immediate neighbour of A. G is not an immediate neighbour of the Manager.

66. Who amongst the following sits third to the left of E?
(a) Manager (b) G
(c) A (d) Financial Advisor
(e) B

67. Four of the following five are alike in a certain way based on the given arrangement and thus form a group. Which is the one that does not belong to that group?
(a) F-Chairman (b) G-President
(c) D-Manager (d) A-Financial Advisor
(e) Managing Director

68. Who among the following is the President of the company?
(a) A (b) C
(c) H (d) G
(e) D

69. Which of the following is true with respect to the given seating arrangement?
(a) The Group Leader of the company is an immediate neighbour of the Vice President.
(b) G sits second to the right of D.
(c) The Group Leader and the Company Secretary are immediate neighbours.
(d) The Chairman of the company sits to the immediate left of the Managing Director.
(e) The Group Leader sits second to the left of D.

70. Which of the following posts does B hold in the company?
(a) Chairman (b) Manager
(c) Company Secretary (d) Vice President
(e) Financial Advisor

DIRECTIONS (Qs. 71-75) : In the following questions, the symbols δ, %, $, # and @ are used with the following meaning as illustrated below:

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

Now in each of the following questions assuming the given statements to be true, find which of the two conclusions I and II given below them is/are **definitely true**?

Give answer
(a) if only Conclusion I is true.
(b) if only Conclusion II is true.
(c) if either Conclusion I or II is true.
(d) if neither Conclusion I nor II is true.
(e) if both Conclusions I and II are true.

71. **Statements:** F @ N, N δ R, H @ R
Conclusions: **I.** H δ N
II. F # R

72. **Statements:** M # T, T @ K, K $ N
Conclusions: **I.** M # N
II. K δ M

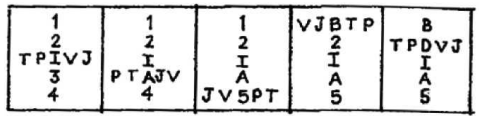
73. **Statements:** T % H, H $ W
Conclusions: **I.** W # T
II. W % T

74. **Statements:** N δ K, K # D, D % M
Conclusions: **I.** M δ K
II. D δ N

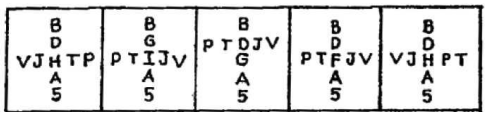
75. **Statements:** J $ B, B % R, R δ F
Conclusions: **I.** F # B
II. R @ J

DIRECTIONS (Qs. 66-70) : 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**

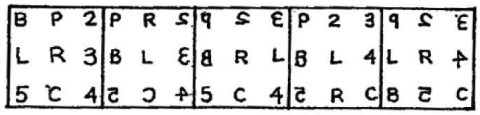


Answer Figures

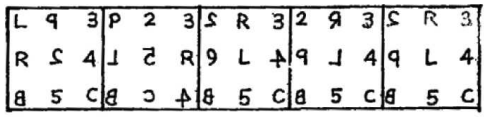


(a) (b) (c) (d) (e)

77. **Problem Figures**

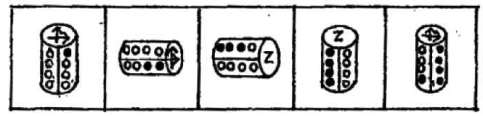


Answer Figures

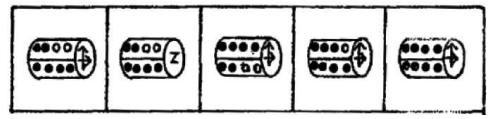


(a) (b) (c) (d) (e)

78. **Problem Figures**

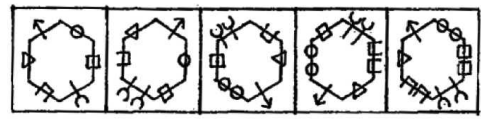


Answer Figures

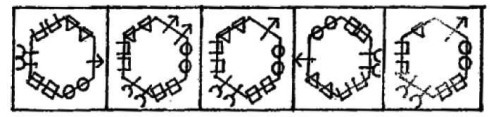


(a) (b) (c) (d) (e)

79. **Problem Figures**

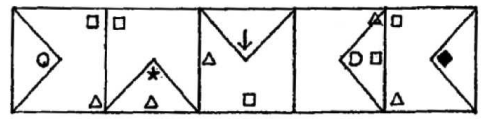


Answer Figures

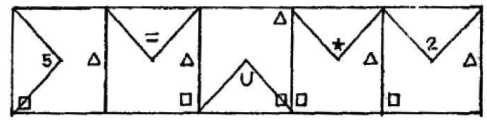


(a) (b) (c) (d) (e)

80. **Problem Figures**



Answer Figures



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

HINTS & EXPLANATIONS

1. (e) $3 \times ? + 30 = 0$

$\Rightarrow ? = \frac{-30}{3} = -10$

2. (a) $? = 40.83 \times 1.02 \times 1.2 = 49.97592$

3. (e) $? = 3\frac{1}{3} + 6\frac{3}{7} \times 1\frac{1}{2} \times \frac{22}{7}$

$= \frac{10}{3} + \frac{45}{7} \times \frac{3}{2} \times \frac{22}{7} = 2.44$

4. (d) $3978 + 112 \times 2 = ? \div 2$

$\therefore ? = (3978 + 224) \times 2 = 8404$

5. (e) $\left(10^{3.7} \times 10^{1.3}\right)^2 = 10^?$

$\Rightarrow \left(10^{3.7+1.3}\right)^2 = 10^? \quad [\because a^b \times a^c = a^{b+c}]$

$\therefore 10^? = \left(10^5\right)^2 = 10^{5\times 2} \quad \left[\because \left(a^b\right)^c = a^{bc}\right] = 10^{10}$

6. (e) $? = 300 + (100 \times 2) = 300 + 200 = 500$

7. (a) $? = \frac{5 \times 1.6 - 2 \times 1.4}{1.3} = \frac{8 - 2.8}{1.3} = \frac{5.2}{1.3} = 4$

8. (e) $3\frac{2}{5} + 7\frac{1}{5} - 5\frac{1}{4} = (3 + 7 - 5) + \left(\frac{2}{5} + \frac{1}{5} - \frac{1}{4}\right) =$

$5 + \left(\frac{8 + 4 - 5}{20}\right) = 5\frac{7}{20}$

9. (c) $25 \times 124 + 389 \times 15 = 3100 + 5835 = 8935$

10. (d) $(15)^2 \times \sqrt{730} = 225 \times 27 = 6075$

11. (a) $2^5 \times 9^2 = 32 \times 81 = 2592$.

$\therefore$ Difference $= 2^5 \times 9^2 - 2592$

$= 2592 - 2592 = 0$

Hence, the numerical difference is 0.

12. (d) Let the third number be 100. Then, the first and second numbers will be 20 and 50, respectively.

Required % $= \frac{20}{50} \times 100 = 40$

13. (a) Let the cost price of an article be ₹ 100

then, S.P. $= 100 + 10 =$ ₹ 110

If S.P. $= 2 \times 110 =$ ₹ 220

then, profit % $= \frac{(220 - 100)}{100} \times 100 = 120\%$

14. (b) Ratio of investment

$= 3500 : 4500 : 5500 = 35 : 45 : 55 = 7 : 9 : 11$

Since, Ratio of investment is same as ratio of profit.

$\therefore$ Ratio of profit $= 7 : 9 : 11$

Now, profit = ₹ 405

$\therefore$ A's share $= \frac{7}{27} \times 405 =$ ₹ 105

15. (c) Part of the tank filled in one hour $= \frac{1}{8} - \frac{1}{16} = \frac{1}{16}$

Hence, the tank will be filled in 16 hours.

16. (d) Part of the tank filled by the three pipes working simultaneously in one hour is $= \frac{1}{5} + \frac{1}{6} - \frac{1}{12} = \frac{17}{60}$

i.e. it takes $\frac{60}{17}$ hours to fill up the tank completely.

Now, $\frac{1}{2}$ of the tank is filled with all the pipes open, simultaneously together in $\frac{60}{17} \times \frac{1}{2} = 1\frac{13}{17}$ hours

17. (c) Any even number is given by 2n for all $n \in Z$, where Z is a set of integers. This is divisible by 9 if it form $9 \times 2n = 18n$, which is divisible by 18.

For example, number 36 is even and sum of digits (3 + 6) is 9, which is divisible by 9. Hence, the number 36 is divisible by 18.

18. (a) Volume of water left in the tank $= \ell \times b \times h$

$= 20 \times 7 \times (10 - 2) = 1120\ m^3$

19. (c) $\pi r^2 = 2 \times 11088$

$\Rightarrow \frac{22}{7} \times r^2 = 2 \times 11088$

$\Rightarrow r^2 = \frac{2 \times 11088 \times 7}{22} = 7056$

$\therefore r = \sqrt{7056} = 84$ metre

$\therefore$ Circumference $= 2\pi r = 2 \times \frac{22}{7} \times 84 = 528$ metre

20. (a) $x + y = 8$

$x - y = 8$

$2x = 16$

$\Rightarrow x = 8$

$\therefore y = 0$

$\therefore$ Two digit number $= 80$

21. (b) Required ratio

$= (4220 - 2420) : 2420$

$= 1800 : 2420$

$= 90 : 121$

22. (b) C.P. of 20 kg of rice

$= ₹ \left(\frac{672}{14} \times 20\right)$

$= ₹ 960$

C.P. of 15 kg of wheat

$= ₹ \left(\frac{432}{12} \times 15\right)$

$= ₹540$

C.P. of 16 kg of sugar

$= ₹\left(\frac{504}{18} \times 16\right)$

$= ₹448$

$\therefore$ Total cost price

$= ₹(960 + 540 + 448)$

$= ₹1948$

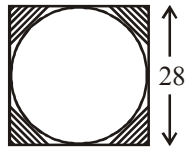
23. (e) Let the length and breadth of the original rectangle be 'L' m and 'B' m respectively.
After increasing the length by 20% and decreasing the breadth by 20% area is 192.
$(1.2\,L) \times (0.8\,B) = 192$
or $0.96\,LB = 192$
$LB = 200$

24. (b) Let the original numbers be x and y and their product be xy.

Product of $\frac{1}{3}$rd of x and 150% of $y = \frac{x}{3} \times \frac{3}{2} y = \frac{xy}{2}$

Required answer $= \frac{xy}{2 \times xy} \times 100 = 50\%$

25. (d)



We have to calculate the area of the shaded region which is equal to area of square – Area of the circle

Required answer $= (28)^2 - \frac{22}{7} \times 14 \times 14$

$= 784 - 616 = 168\ m^2$

26. (c) This is a series of prime number

27. (d) Let x = 8
then $15 = 2x - 1 = y$
$28 = 2y - 2 = z$
$53 = 2z - 3 = m$
Next term in the pattern should be $2m - 4 = 2 \text{ x } 53 - 4$
$= 102$

28. (d) It is a combination of two series, namely
24, 49, – 94; and 15, 31, 59, 58
The two series correspond to
$x, (2x + 1), (4x - 1), (4x - 1), (4x - 2)$
Hence the missing term is
$4 \times 24 - 1 = 95$

29. (b) Add 3 after doubling the previous number.

30. (d) The series exhibits the pattern of $n^2 + 1$, $n^2 - 1$, alternatively, n taking values 1, 2.....

31. (a) $\therefore$ Requred % $= \frac{717}{5426} \times 100 = 13.21$
$\approx 13\%$ (Approx)

32. (c) Percentage fall in electronic goods exports in 2014 from 2013

$= \frac{(717 - 653)}{717} \times 100 = 8.92\% \approx 9\%$

33. (b) Required total exports of the year 2012
$= 5404 - 624 = 4780$

34. (e) Percentage growth of electronic goods exports in the period of 2012 to 2013

$= \frac{717 - 624}{624} \times 100 = 14.90\%$

$\Rightarrow$ % growth of total exports over the same period

$= \frac{5426 - 5404}{5404} \times 100 = 0.40\%$

$\therefore$ Difference $= 14.90 - 0.40$
$= 14.50\%$

35. (d) From 2011 to 2014, % rise in electronic exports

$= \frac{(653 - 552)}{552} \times 100 = 18.29\%$

$\approx 18.3\%$

36. (e) Let x be there in the question mark.

So, $\sqrt[3]{860000} = x \Rightarrow x^3 = 860000$

Taking $\log_{10}$ on boths the sides $3\log_{10} x = 5.9345$
$\log x = 1.9782$, Taking antilog we get $x \approx 95$
[$\log x$ is nearly 2 so, x will be near to but less than 100]

37. (d) $1\frac{5}{8} + 5\frac{1}{3} + 2\frac{2}{5} = \frac{13}{8} + \frac{16}{3} + \frac{12}{5}$

$= \frac{15 \times 13 + 40 \times 16 + 12 \times 24}{120} = \frac{195 + 640 + 288}{120}$

$= \frac{1123}{120} = 9.35 \approx 9.$

38. (a) $8769 \div 82 \div 4 = \frac{8769}{4 \times 82} = \frac{8769}{328} = 26.73 \approx 27$

39. (c) Let x be there in place of question mark so, x% of $45.999 \times 16\%$ of $83.006 = 116.073$.

We take $\frac{x}{100} \times 46 \times \frac{16}{100} \times 83 = 116$

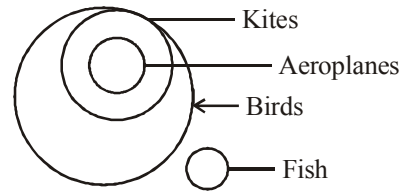
$x \times 0.46 \times 13.28 = 116$

or $x \times 6.11 = 116$

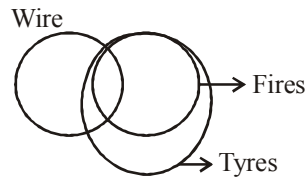
$\Rightarrow x = 18.98 \approx 19.$

40. (b) $12.998 \times 27.059 \times 17.999$

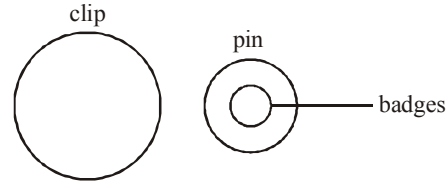
41. (b)



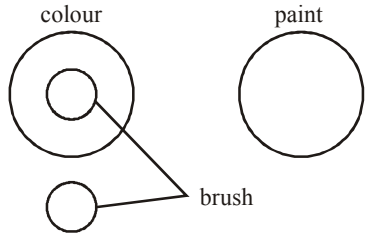
42. (a)



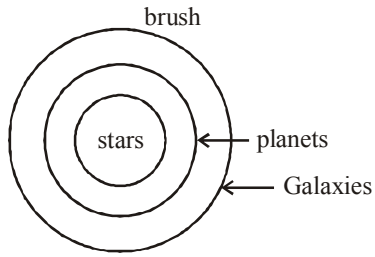
43. (a)



44. (c)



45. (b)



46. (e)

47. (d) The given arrangement is:

8th to the left of 20th

B U B D C E D B D E U (B) A D

C B E A C (D) A E B A U A C D

B C A C

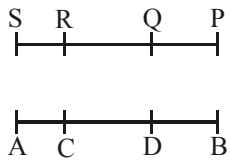
20th from the left

48. (b) B U C E
C U B E

49. (d) U B D
C E D
A D C
A C D

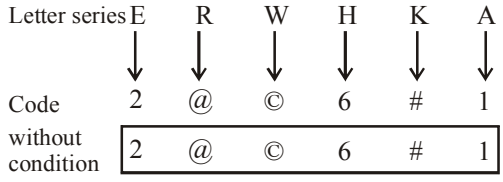
50. (a) E

51-55.

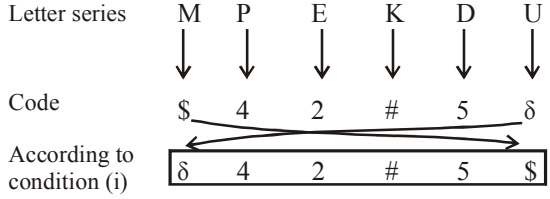


51. (a) 52. (a) 53. (e) 54. (d) 55. (b)

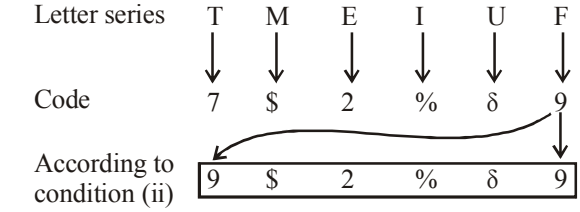
56. (a)



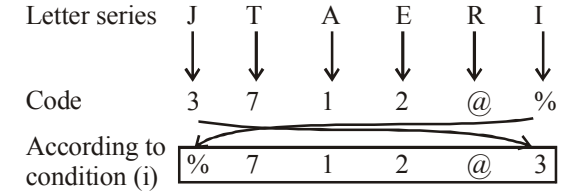
57. (e)



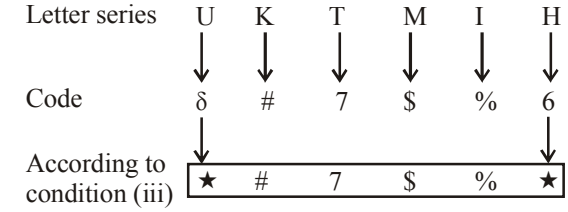
58. (d)



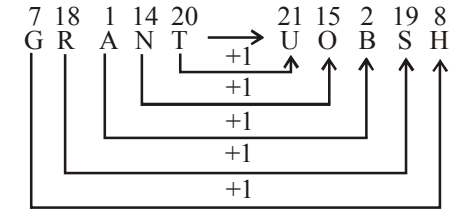
59. (a)



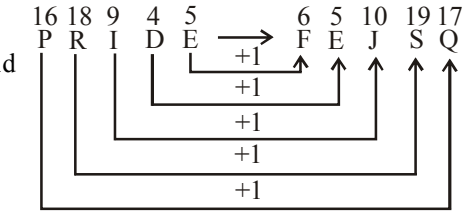
60. (c)



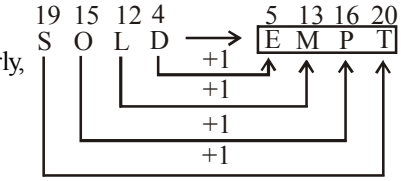
61. (c) Given that



and



Similarly,

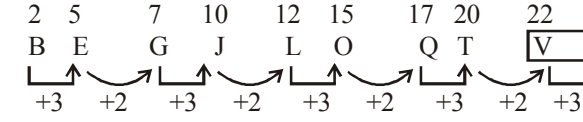


∴ SOLD ⇒ EMPT

62. (d) All others are prime number Except 27.

63. (b) Second, Fourth, sixth and seventh letters of word "STUMBLE" are T, M, L & E respectively
and meaningful word made by then letter is 'MELT'

64. (b) Given letter series:-



⇒ : ? = V Y

65. (e) According to question.

7	15	22	5	18	14	13	5	14	20
G	O	V	E	R	N	M	E	N	T

Such couple are G - M, O - R, M - N and N - R and is more than three.

Solution : 61 to 65

$P \$ Q \Rightarrow P \geq Q$

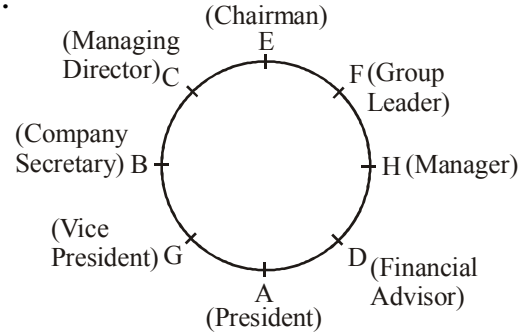
$P @ Q \Rightarrow P \leq Q$

$P \delta Q \Rightarrow P > Q$

$P \# Q \Rightarrow P < Q$

$P \% Q \Rightarrow P = Q$

(66-70) :



66. (d) 67. (e) 68. (a) 69. (d) 70. (c)

71. (d) Accordingly,

$F @ N \Rightarrow F \leq N$

$N \delta R \Rightarrow N > R$

$H @ R \Rightarrow H \leq R$

$\therefore F \leq N > R \geq H$

Conclusion : I. $H \delta N \Rightarrow H > N$ [not true]

II. $F \# R \Rightarrow F < R$ [not true]

If neither conclusion I not II is true.

72. (b) Accordingly,

$M \# T \Rightarrow M < T$

$T @ K \Rightarrow T \leq K$

$K \$ N \Rightarrow K \geq N$

$\therefore M < T \leq K \geq N$

Conclusion : I. $M \# N \Rightarrow M < N$ [not true]

II. $K \delta M \Rightarrow K > M$ [not true]

Only conclusion II is true.

73. (c) Accordingly,

$T \% H \Rightarrow T = H$

$H \$ W \Rightarrow H \geq W$

$\therefore T = H \geq W$

Conclusion : I. $W \# T \Rightarrow W < T$ [true]

II. $W \% T \Rightarrow W = T$ or

If either conclusion I or II is true. [true]

74. (a) Accordingly,

$N \delta K \Rightarrow N > K$

$K \# D \Rightarrow K < D$

$D \% M \Rightarrow D = M$

$\therefore N > K < D = M$

Conclusion : I. $M \delta K \Rightarrow M > K$ [true]

II. $D \delta N \Rightarrow D > N$ [not true]

Only conclusion I is true.

75. (e) Accordingly,

$J \$ B \Rightarrow J \geq B$

$B \% R \Rightarrow B = R$

$R \delta F \Rightarrow R > F$

$\therefore J \geq B = R > F$

Conclusion : I. $F \# B \Rightarrow F < B$ [true]

II. $R @ J \Rightarrow R \leq J$ [true]

Both conclusion I and II are true.

76. (d) Next figure of each problem figure changes like that the horizontal line shifted to downward and the letters changes their position on either side of vertical lines and middle letter of horizontal line changes by new letter.

77. (b)

78. (a) Next second figure of each problem figure is rotated clockwise by 90° and in next figure of each problem figure one more circle is darken.

79. (e) First right of each problem figure change like : The figures on hexagonal side are rotated clockwise one side and two side respectively and one more same figure added on particular side.

80. (b) Next right figure of each problem figure is rotated anticlockwise clockwise respectively by so and the figure at appex is changes to new Figure.

❑❑❑

PRACTICE SET 11

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. 1-10): What will come in place of the question mark (?) in the following questions ?

1. $\frac{5}{8}$ of $\frac{4}{9}$ of $\frac{3}{5}$ of $222 = ?$

(a) 42 (b) 43 (c) 39 (d) 37
(e) None of these

2. 56% of $450 + ? = 300$

(a) 52 (b) 48 (c) 42 (d) 56
(e) None of these

3. $27^{1.5} \times 27^{3.5} = 27^{?}$

(a) 5 (b) 7 (c) 3 (d) 2
(e) None of these

4. $27.06 \times 25 - ? = 600$

(a) 76.3 (b) 76.7 (c) 76.5 (d) 76.2
(e) None of these

5. $4\frac{7}{8} \times 2\frac{4}{13} = ?$

(a) $11\frac{1}{3}$ (b) $11\frac{1}{13}$
(c) $11\frac{4}{13}$ (d) $11\frac{3}{8}$
(e) None of these

6. $8^4 \times \frac{1}{8^3} \times 8^5 \div 8^2 = 8^{?}$

(a) 7 (b) 2 (c) 3 (d) 4
(e) None of these

7. $-(a-b) \times ? = b - a$

(a) -1 (b) 1 (c) $-a$ (d) a
(e) None of these

8. $(a+b) = ? \times (-a-b)$

(a) 1 (b) $-a$
(c) -1 (d) $-b$
(e) None of these

9. $|? + 14| = 11$

(a) –3 (b) –25
(c) 25 (d) 3
(e) Either – 3 or –25

10. $16 + 26 \times 2 = ?$

(a) 84 (b) 44
(c) 40 (d) 832
(e) None of these

11. Which of the following fractions is the least ?

(a) $\frac{12}{119}$ (b) $\frac{1}{10}$
(c) $\frac{4}{39}$ (d) $\frac{7}{69}$
(e) None of these

12. A number of points are marked on a plane and are connected pairwise by a line segment. If the total number of line segments is 10, how many points are marked on the plane ?

(a) 4 (b) 10 (c) 5 (d) 9
(e) None of these

13. A sum of money becomes eight times in 3 years if the rate is compounded annually. In how much time, the same amount at the same compound interest rate will become sixteen times?

(a) 6 years (b) 4 years
(c) 8 years (d) 5 years
(e) None of these

14. A machine is sold at a profit of 10%. Had it been sold for ₹ 40 less, there would have been a loss of 10%. What was the cost price ?
(a) ₹320 (b) ₹200
(c) ₹225 (d) ₹250
(e) None of these

15. Ram spends ₹ 3620 for buying pants at the rate of ₹ 480 each and shirts at the rate of ₹ 130 each. What will be the ratio of pants to shirts when maximum number of pants are to be bought ?
(a) 7 : 2 (b) 7 : 3 (c) 2 : 7 (d) 4 : 5
(e) None of these

16. Two trains each of 120 m in length, run in opposite directions with a velocity of 40 m/s and 20 m/s respectively. How long will it take for the tail ends of the two trains to meet each other during the course of their journey ?
(a) 20 s (b) 3 s
(c) 4 s (d) 5 s
(e) None of these

17. Ramesh is twice as good a workman as Sunil and finishes a piece of work in 3 hours less than Sunil. In how many hours they together could finish the same piece of work ?
(a) $2\frac{1}{3}$ (b) 2 (c) $1\frac{2}{3}$ (d) 8
(e) None of these

18. Fifteen years hence, a man will be four times as old as he was fifteen years ago. His present age is:
(a) 25 years (b) 20 years
(c) 30 years (d) 45 years
(e) None of these

19. The floor of a rectangular room is 15 m long and 12 m wide. The room is surrounded by a vrandah of width 2 m on all its sides. The area of the vrandah is :
(a) $124\,m^2$ (b) $120\,m^2$
(c) $108\,m^2$ (d) $58\,m^2$
(e) None of these

20. Pratul's monthly income is onefourth of Manoj's monthly income. Manoj's annual income is ₹ 2.16 lacs. What is Pratul's annual income? (In some cases monthly income and in some cases annual income are used.)
(a) ₹54.000 (b) ₹ 5.4 thousand
(c) ₹4.500 (d) ₹45.000
(e) None of these

21. The present ages of Trisha and Shalini are in the ratio of 7 : 6 respectively . After 8 years the ratio of their ages will be 9 : 8. What is the difference in their ages ?
(a) 4 years (b) 8 years
(c) 10 years (d) 12 years
(e) None of these

22. Profit earned by an organisation is distributed among officers and clerks in the ratio of 5 : 3. If the number of officers is 45 and the number of clerks is 80 and the amount received by each officer is ₹25,000, what was the total amount of profit earned?
(a) ₹22 lakh (b) ₹18.25 lakh
(c) ₹18 lakh (d) ₹23.25 lakh
(e) None of these

23. A shopkeeper labelled the price of his articles so as to earn a profit of 30% on the cost price. He,then sold the articles by offering a discount of 10% on the labelled price. What is the actual per cent profit earned in the deal?
(a) 18% (b) 15%
(c) 20% (d) Cannot be determined
(e) None of these

24. Prema decided to donate 15% of her salary to an orphanage. On the day of donation she changed her mind and donated ₹ 1,896 which was 80% of what she had decided earlier. How much is Prerna's salary?
(a) ₹18,500 (b) ₹10,250
(c) ₹15,800 (d) Cannot be determined
(e) None of these

25. Naresh purchased a TV set for ₹11,250 after getting discount of 10% on the labelled price. He spent ₹150 on transport and ₹800 on installation. At what price should it be sold so that the profit earned would be 15% if no discount was offered?
(a) ₹12,937.50 (b) ₹14,030
(c) ₹13,450 (d) ₹15,467.50
(e) None of these

DIRECTIONS (Qs. 26-30) : Find the next term in the given series in each of the questions below.

26. 2, 4, ?, 16, 32
(a) 6 (b) 10 (c) 8 (d) 12
(e) None of these

27. 0, 7, 26, ?, 124, 215
(a) 37 (b) 51
(c) 63 (d) 88
(e) None of these

28. 4, 15, 16, ?, 36, 63, 64
(a) 25 (b) 30
(c) 32 (d) 35
(e) None of these

29. 1, 8, 9, ?, 25, 216, 49
(a) 60 (b) 64
(c) 70 (d) 75
(e) None of these

30. 336, 210, 120, ?, 24, 6, 0
(a) 40 (b) 50
(c) 60 (d) 70
(e) None of these

DIRECTIONS (Qs. 31-35): Find out the approximate value which is closest to the value that should replace the questions mark (?) in the following questions. (You are not expected to find out the exact value.)

31. $\sqrt{1223.9975} = ?$
(a) 110 (b) 144
(c) 34 (d) 12.55
(e) 125

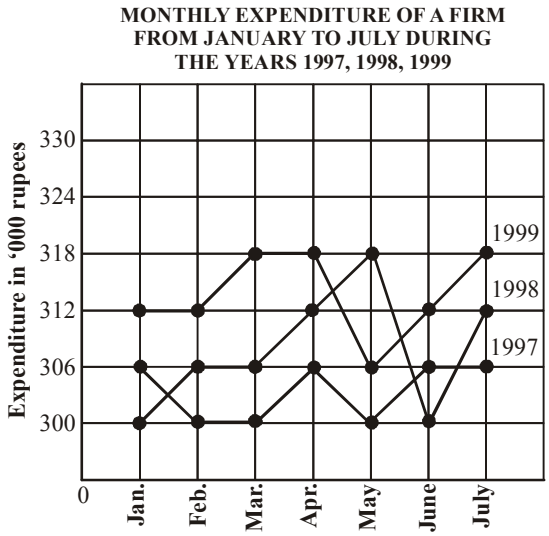
32. $503 \times 201 = ?$
(a) 101100 (b) 1000000
(c) 110000 (d) 100003
(e) 1000103

33. $1205 \div 2.5 = ?$
(a) 3000 (b) 4800
(c) 300 (d) 480
(e) 500

34. $22020 \div 0.011 = ?$
(a) 20020 (b) 2002000
(c) 200200 (d) 20002
(e) 2000020

35. $\sqrt{\sqrt{20800}} = ?$
(a) 12 (b) 120
(c) 140 (d) 102
(e) 1020

DIRECTIONS (Qs. 36-40) : Study the data presented in the following graph to answer the questions :



36. What is the total expenditure during the period under review (7 months) in 1997 ?
(a) ₹21, 07, 000 (b) ₹96, 07, 000
(c) ₹21, 54, 000 (d) ₹21, 24, 000
(e) None of these

37. What total expenditure has been made during the year 1997 and 1998 in the period covered in the graph ?
(a) ₹24, 87, 000 (b) ₹2, 70, 000
(c) ₹48, 27, 000 (d) ₹42, 78, 000
(e) None of these

38. What is the average monthly expenditure during the year 1999 covering the period shown in the graph ?
(a) ₹2, 75, 000 (b) ₹2, 70, 000
(c) ₹3, 14, 000 (d) ₹2, 47, 000
(e) None of these

39. Which month has been the least expensive during 1999 ?
(a) June (b) April
(c) May (d) July
(e) None of these

40. The expenditure in April 1999 was.....higher than that of corresponding period in 1998.
(a) 1.5% (b) 2%
(c) 2.5% (d) 0.94%
(e) None of these

REASONING ABILITY

DIRECTIONS (Qs. 41-45): In the following questions, the symbols δ, %, $, # and @ are used with the following meaning as illustrated below:

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

Now in each of the following questions assuming the given statements to be true, find which of the two conclusions I and II given below them is/are **definitely true**?

Give answer
(a) if only Conclusion I is true.
(b) if only Conclusion II is true.
(c) if either Conclusion I or II is true.
(d) if neither Conclusion I nor II is true.
(e) if both Conclusions I and II are true.

41. **Statements:** F @ N, N δ R, H @ R
Conclusions: **I.** H δ N
II. F # R

42. **Statements:** M # T, T @ K, K $ N
Conclusions: **I.** M # N
II. K δ M

43. **Statements:** T % H, H $ W
Conclusions: **I.** W # T
II. W % T

44. **Statements:** N δ K, K # D, D % M
Conclusions: **I.** M δ K
II. D δ N

45. **Statements:** J $ B, B % R, R δ F
Conclusions: **I.** F # B
II. R @ J

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

A, B, C, D, E, F and G are sitting around a circle facing the centre, not necessarily in the same order. D is not second to the left of F but D is second to the right of A. C is third to the right of A and C is second to the left of G. B is not an immediate neighbour of G.

46. Who is to the immediate right of C?
(a) D (b) G (c) E (d) B
(e) Data inadequate

47. Who is the only one person sitting between A and G?
(a) B (b) D (c) C (d) E
(e) F

48. Who is to the immediate left of D ?
(a) B (b) C (c) A
(d) Data inadequate
(e) None of these

49. Who is second to the left of C?
(a) B (b) G (c) F
(d) Data inadequate
(e) None of these

50. What is E's position with respect to D?
(a) To the immediate right (b) To the immediate left
(c) Third to the right (d) Second to the right
(e) Third to the left

DIRECTIONS (Qs. 51-55) : Each of the questions below consists of a question and two statements numbered I and II given below it. You have to decide whether the data provided in the statements are sufficient to answer the question. Read both the statements and Give answer

(a) if the data in statement **I alone** are sufficient to answer the question, while the data in statement II alone are not sufficient to answer the question.
(b) if the data in statement **II alone** are sufficient to answer the question, while the data in statement I alone are not sufficient to answer the question.
(c) If the data either in statement I alone or in statement II alone are sufficient to answer the question.
(d) if the data given in both the statements I and II together are not sufficient to answer the question.
(e) if the data given in both the statements I and II together are necessary to answer the question.

51. In a row of girls facing North, what is D's position from the left end?
I. D is twentieth from the right end.
II. There are ten girls between Band D.

52. Town M is towards which direction of Town K?
I. Town K is towards North-West of Town D
II. Town M is towards South-East of Town D

53. How many daughters does P have?
I. K and M are sisters of T.
II. T's father is husband of P's mother.

54. On which day of the week from Monday to Sunday did Arun leave for London?
I. Arun did not leave for London during the weekend.
II. Arun's brother left for London on Friday two days after Arun left for London.

55. How is 'new' written in a code language?
I. 'new good clothes' is written as '5 3 9' in that code language.
II. 'good clothes are costly' is written as '9673' in that code language.

DIRECTIONS (Qs. 56-60): In each question below are 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 I follows.
(b) if only conclusion II follows.
(c) if either conclusion I or II follows.
(d) if neither conclusion I nor II follows.
(e) if both conclusions I and II follow.

56. **Statements:** No holiday is a vacation.
Some vacations are trips.
Conclusions: **I.** No trip is a holiday.
II. Some holidays are definitely not trips.

57. **Statements:** Some kites are birds.
No kite is an aeroplane.
Conclusions: **I.** All aeroplanes are birds.
II. Some birds are definitely not kites

58. **Statements:** All metals are plastics.
All plastics are fibres.
Conclusions: **I.** Atleast some fibres are metals.
II. Some metals are not fibres.

59. **Statements:** All roads are streets.
No street is a highway.
Conclusions: **I.** No highway is a road.
II. All streets are roads.

60. **Statements:** Some animals are plants.
All plants are rocks.
Conclusions: **I.** All plants are animals.
II. Atleast some rocks are animals.

61. In a certain code language. 'LISP' is coded as 'MJTQ', similarly 'PLAN' is coded as 'QMBO'. How will 'FORT' be coded in the same code language?
(a) ENSQ (b) GPUS
(c) ENQS (d) GPSU
(e) None of these

62. 'Artificial' is related to 'Natural' in the same way as 'private' is related to '_____'
(a) Future (b) Personal
(c) Public (d) Closed
(e) Confidential

63. Four of the following five are alike on the basis of being divisible by a particular number and hence form a group. Which of the following **does not** belong to that group ?
(a) 21 (b) 91 (c) 65
(d) 77 (e) 35

64. In a class of 25 students. Lata's rank is 13th from the top and Parul's rank is 19th from the bottom. If Vishal's rank is exactly between Lata's and Parul's rank what is Vishal's rank from the top ?
(a) 10th (b) 8th
(c) 9th (d) 7th
(e) Cannot be determined

65. What should come next in the number series given below ?
1 1 2 1 2 3 1 2 3 4 1 2 3 4 5 1 2 3 4 5 6 1 2 3 4 5 6
(a) 5 (b) 2 (c) 8 (d) 1
(e) None of these

DIRECTIONS (Qs. 66-70) : Study the following information to answer the given questions

(a) Six plays are to be organized from Monday to Sunday-One play each day with one day when there is no play. 'No play' day is not Monday or Sunday.
(b) The plays are held in sets of 3 plays each in such a way that 3 plays are held without any break *ie*, 3 plays are held in such a way, that there is no 'No play' day between them but immediately before this set or immediately after this set it is 'No play' day.
(c) Play Z is held on 26th and play X was held on 31st of the same month.
(d) Play B was not held immediately after play A (but was held after A, not necessarily immediately) and play M was held immediately before Q.
(e) All the six plays were held in the same month.

66. Which play was organized on Monday?
(a) Z (b) M
(c) Q (d) Cannot be determined
(e) None of these

67. Which day was play Z organized?
(a) Tuesday (b) Monday
(c) Wednesday (d) Cannot be determined
(e) None of these

68. Which date was a 'No play' day?
(a) 26th (b) 28th
(c) 29th (d) Cannot be determined
(e) None of these

69. Which of the following is true?
(a) Play B is held immediately before play M
(b) Play Z is held after play B
(c) There was a gap after 2 plays and then 4 plays were organized
(d) First play was organized on the 25th
(e) Play B was held on Friday

70. Which day was play Q organized?
(a) Friday (b) Wednesday
(c) Saturday (d) Cannot be determined
(e) None of these

DIRECTIONS (71 - 75) : Study the following arrangement of consonants, vowels, numbers and symbols carefully and answer the questions given below:

H @ F ! 3 U 6 % G I T * P L 8 $ ∧ 9 S 2 7 & A M K + J © D 4 # 5 & E

71. Which of the following is ninth to the right of the twentieth from the right end of the above arrangement ?
(a) K (b) M (c) U (d) A
(e) None of these

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

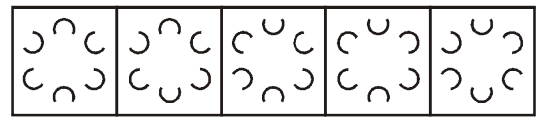
73. If all the symbols are dropped from the arrangement, which of the following will be the twelfth from the left end ?
(a) 9 (b) 2 (c) S (d) 7
(e) None of these

74. 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 the group?
(a) L$8 (b) AKM
(c) @!F (d) 6%G
(e) JD©

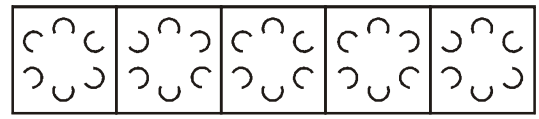
75. What should come in place of the question mark (?) in the following series based on the above arrangement >
F3U %IT L$ ∧ ?
(a) 927 (b) 7&A
(c) 7AM (d) 2&A
(e) 27&

DIRECTIONS (Q. 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**

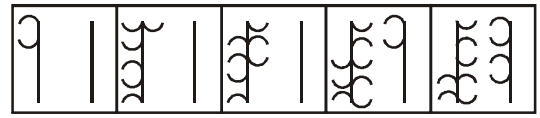


Answer figures

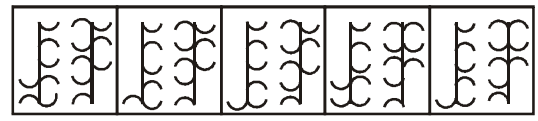


(a) (b) (c) (d) (e)

77. **Problem figures**

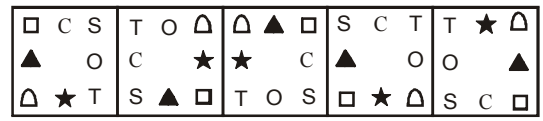


Answer figures

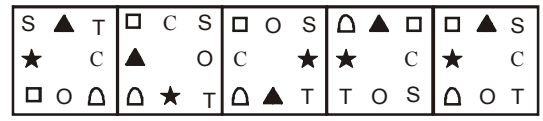


(a) (b) (c) (d) (e)

78. **Problem figures**

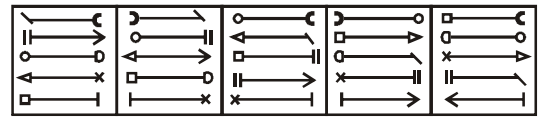


Answer figures

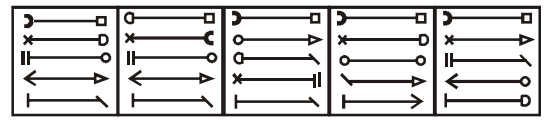


(a) (b) (c) (d) (e)

79. **Problem figures**

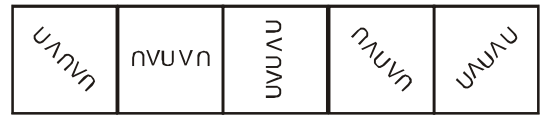


Answer figures

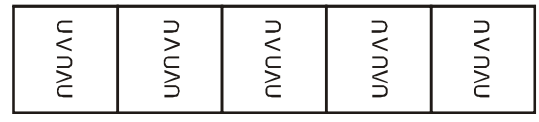


(a) (b) (c) (d) (e)

80. **Problem figures**



Answer figures



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

HINTS & EXPLANATIONS

1. (d) $? = \frac{5}{8} \times \frac{4}{9} \times \frac{3}{5} \times 222 = 37$

2. (b) Let the number be x

$\therefore \frac{56}{100} \times 450 + x = 300$

or $x = 300 - 252 = 48$

3. (a) $(27)^{1.5} \times (21)^{3.5} = (27)^{?}$

$\therefore ? = 5 \left[\because a^x + a^y = a^{(x+y)}\right]$

4. (c) Let the number be x.

$\therefore 27.06 \times 25 - x = 600$

or, $x = 676.5 - 600 = 76.5$

5. (e) $? = \frac{39}{8} \times \frac{30}{13} = \frac{45}{4} = 11\frac{1}{4}$

6. (d) $8^4 \times \frac{1}{8^3} \times 8^5 \times \frac{1}{8^2} = 8^{4-3+5-2} = 8^4 \ \therefore ? = 4$

7. (b) $-(a-b) \,.\, x = b - a$

Put x replacing '?' (question mark)

or $-[-(a-b)x] = -[b-a]$ or $(a-b)x = a - b$

or $x = \frac{a-b}{a-b} = 1$

8. (c) $a + b = ? \times (-a - b)$

or $a + b = x.(-a - b)$

[Put x replacing '?' (question mark)]

or $a + = x.\,(a + b)$

or $x = -1$

9. (e) $|? + 14| = 11$ or $? + 14 = 11$ or -11

$\therefore ? = -25$ or -3

10. (e) $16 + 26 \times 2 = 16 + 52 = 68$

11. (b) $\frac{12}{119} = 0.1008, \frac{1}{10} = 0.1$

$\frac{4}{39} = 0.102$ and $\frac{7}{69} = 0.101$

Thus, $\frac{1}{10}$ is the least.

12. (c) Let there be n points marked on the plane.

Total number of line segments = ${}^{n}C_2 = 10$

$\Rightarrow \frac{n(n-1)}{2} = 10$

or $n^2 - n - 20 = 0$

or $(n-5)(n+4) = 0$

or $n = 5$ [$n = -4$ is rejected]

13. (b) Let the sum of money be ₹ x.

Now, $8x = x\left(1 + \frac{r}{100}\right)^3$

or, $\left(1 + \frac{r}{100}\right)^3 = (2)^3$ or $1 + \frac{r}{100} = 2$

Again, let the sum becomes 16 times in n years. Then,

$16x = x\left(1 + \frac{r}{100}\right)^n$

$\Rightarrow 16 = 2^n$ or $2^4 = 2^n$ or $n = 4$

14. (b) Let the cost price of machine be ₹ 100

SP of machine at a profit of 10% = ₹ 110

SP of machine at a loss of 10% = ₹ 90

If SP is (110 – 90) = ₹ 20 less then CP = ₹ 100

Therefore, if SP is ₹ 40 less, then

$CP = \frac{100}{20} \times 40 =$ ₹ 200

15. (a) Let us work with the options.

For (a), total cost = $7 \times 480 + 2 \times 130 = 3620$

For (b), total cost = $7 \times 480 + 3 \times 130 = 3750$

For (c), total cost = $2 \times 480 + 7 \times 130 = 1870$

Hence, option (a) is correct.

16. (c) Relative speed of the trains = (40 + 20) = 60 m/s

Distance = (120 + 120) = 240 m

Time taken by trains to cross each other completely

$= \frac{240}{60} = 4s$

$\therefore$ Larger the no. of cogs (tooth of wheel) of wheel, lesser will be that no. of revolution made by it.

17. (b) Let Sunil finishes the job in x hours.

Then, Ramesh will finish the job in $\frac{x}{2}$ hours.

We have, $x - \frac{x}{2} = 3 \Rightarrow x = 6$

Therefore, Sunil finishes the job in 6 hours and Ramesh in 3 hours.

Work done by both of them in 1 hour = $\frac{1}{6} + \frac{1}{3} = \frac{1}{2}$

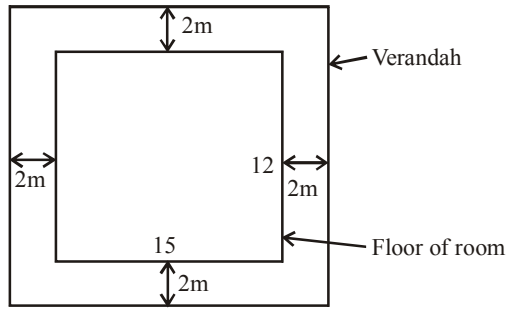
They together finish the piece of work in 2 hours.

18. (a) Let the present age of the man = x years

Now, (x + 15) = 4 (x – 15)

or 3x = 75 or x = 25 years

19. (a) Area of the outer rectangle = $19 \times 16 = 304\ m^2$



Area of the inner rectangle = $15 \times 12 = 180\ m^2$
$\therefore$ Required area = $(304 - 180) = 124\ m^2$

20. (a) Manoj's monthly income

$$= \frac{2.16 \times 100000}{12} = ₹\ 18000$$

$\therefore$ Pratul's monthly income

$$= 18000 \times \frac{1}{4} = ₹\ 4500$$

$\therefore$ Pratul's annual income
$= 12 \times 4500 = ₹\ 54000$

21. (a) Let Trisha's and Shalini's present ages be $7x$ and $6x$ years respectively.

After 8 years, $\frac{7x+8}{6x+8} = \frac{9}{8}$

$\Rightarrow \quad 56x + 64 = 54x + 72$
$\Rightarrow \quad 2x = 72 - 64 = 8$
$\Rightarrow \quad x = 4$
$\therefore$ Required difference = $7x - 6x \Rightarrow x = 4$ years

22. (d) Amount received by all the officers
$= 45 \times 25000 = 11,25,000$

Amount received by each clerk = $\frac{3}{5} \times 25000 = 15000$

Amount received by all the clerks
$= 80 \times 15000 = 12,00,000$
Total amount of profit earned = 11,25,000 + 12,00,000
= ₹23.25 lakh.

23. (e) Let the cost price of the articles be ₹100
Marked Price = ₹130
After giving a discount of 10% the selling price of the articles = $0.9 \times 130 = 117$

So, actual profit per cent = $\frac{(117-100)}{100} \times 100 = 17\%$

24. (c) Let Prerna's salary be ₹ x
According to the question,
80% of 15% of x = 1896

$$\Rightarrow \quad x \times \frac{15}{100} \times \frac{4}{5} = 1896$$

$$\therefore \quad x = \frac{1896 \times 5 \times 100}{15 \times 4} = ₹15800$$

25. (d) Cost price of TV when discount is not offered

$$= 11250 \times \frac{100}{90} = ₹12500$$

Total cost of TV after transport and installation
$= 12500 + 800 + 150 = 13450$

To earn 15% profit, he must sell at

$$13450 \times \frac{115}{100} = ₹\ 15467.50$$

26. (c) The terms exhibit the pattern $2^1, 2^2, 2^3$ and so on.
27. (c) Try the pattern $n^3 - 1, n = 1, 2, ...$
28. (d) Pattern is $2^2, 4^2 - 1, 4^2, 6^2 - 1, 6^2$ and so on.
29. (b) Can you see that the pattern is
$1^2, 2^3, 3^2, 4^3, 5^2, 6^3, 7^2$
30. (c) Note that
$0 = 1^3 - 1$ $6 = 2^3 - 2$
$24 = 3^3 - 3$
31. (c) $? = \sqrt{1223.9975} \approx 34$
32. (a) $? = 503 \times 201 = 101103 \approx 101100$
33. (d) $? = 1205 \div 2.5 = 482 \approx 480$
34. (b) $? = 22020 \div 0.011 = 2001818 \approx 2002000$
35. (a) $? = \sqrt{\sqrt{20800}} \approx \sqrt{144} = 12$
36. (d) Total expenditure
$= 306 + 300 + 300 + 306 + 300 + 306 + 306$
= ₹ 2124 thousands
37. (d) Total expenditure in the year 1998
$= 300 + 306 + 306 + 312 + 318 + 300 + 312$
= ₹ 2154 thousands
Total expenditure in 1997 and 1998
$= 2124 + 2154 = 4278$ thousands
38. (c) Average monthly expenditure in year 1999

$$= \frac{312 + 312 + 318 + 318 + 306 + 312 + 318}{7}$$

$$= \frac{2196}{7} = 313.714 \text{ thousands} \approx ₹\ 3,14,000$$

39. (c) In the year 1999, the least expenses of ₹ 306 thousands is in the month of May.
40. (b) Expenditure in April 1998 = 312 thousands
Expenditure in April 1999 = 318 thousands

Required % = $\frac{6}{312} \times 100 = 1.92 \approx 2\%$

41- (d) Accordingly,

$F @ N \Rightarrow F \le N$
$N \delta R \Rightarrow N > R$
$H @ R \Rightarrow H \le R$
$\therefore \quad F \le N > R \ge H$

Conclusion : I. $H \delta N \Rightarrow H > N$ [not true]
II. $F \# R \Rightarrow F < R$ [not true]
If neither conclusion I not II is true.

42. (b) Accordingly,

$M \# T \Rightarrow M < T$
$T @ K \Rightarrow T \le K$
$K \$ N \Rightarrow K \ge N$
$\therefore \quad M < T \le K \ge N$

Conclusion : I. $M \# N \Rightarrow M < N$ [not true]
II. $K \delta M \Rightarrow K > M$ [not true]
Only conclusion II is true.

43. (c) Accordingly,

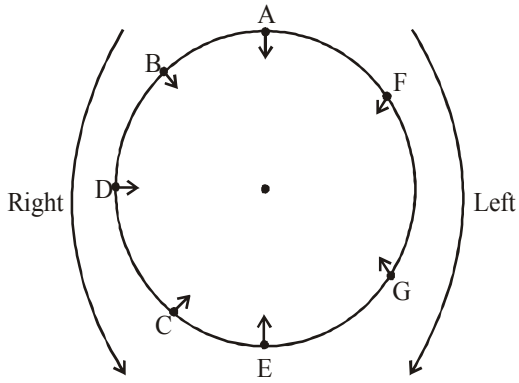
$T \% H \Rightarrow T = H$
$H \$ W \Rightarrow H \ge W$
$\therefore \quad T = H \ge W$

Conclusion : I. $W \# T \Rightarrow W < T$ [true]
II. $W \% T \Rightarrow W = T$ or
If either conclusion I or II is true. [true]

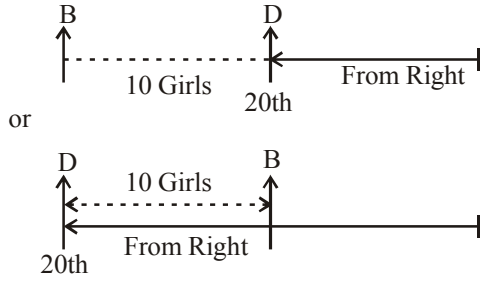
44. (a) Accordingly,
$N \delta K \Rightarrow N > K$
$K \# D \Rightarrow K < D$
$D \% M \Rightarrow D = M$
$\therefore N > K < D = M$
Conclusion : I. $M \delta K \Rightarrow M > K$ [true]
II. $D \delta N \Rightarrow D > N$ [not true]
Only conclusion I is true.

45. (e) Accordingly,
$J \$ B \Rightarrow J \geq B$
$B \% R \Rightarrow B = R$
$R \delta F \Rightarrow R > F$
$\therefore J \geq B = R > F$
Conclusion : I. $F \# B \Rightarrow F < B$ [true]
II. $R @ J \Rightarrow R \leq J$ [true]
Both conclusion I and II are true.

Solutions (46 - 50):
Sitting arrangement is given below.

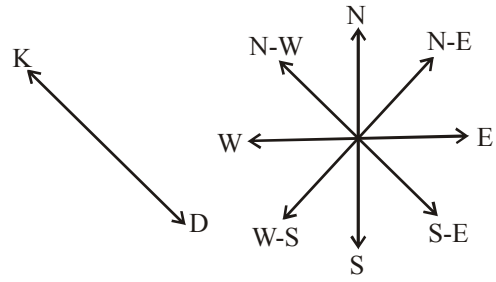


46. (c) E is to the immediate right of C
47. (e) F is sitting between A and G
48. (a) B is the immediate left of D
49. (a) Second to the left of C is B
50. (d) E is second to the right of D.
51. (d) According to statements I
D is the 20th from right end.
According to statement (ii)
10 girls are in between B and D.
Combining statement (i) and (ii).

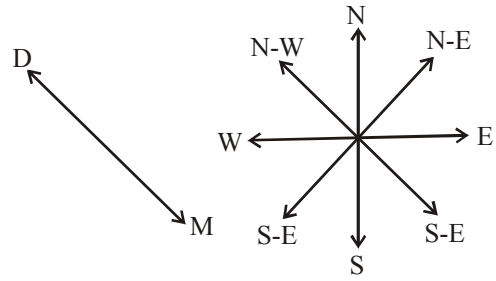


Both statements are not sufficient to answer the question.

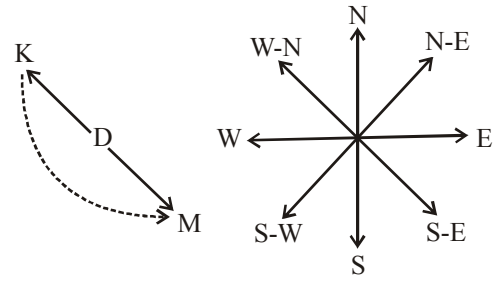
52. (e) According to statement I
Town K is in north-west with respect to town D.



According to statement II.
Town M is in S-E w.r.t to D

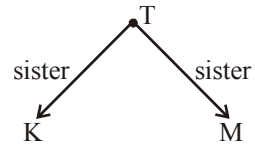


Combining statement I and II

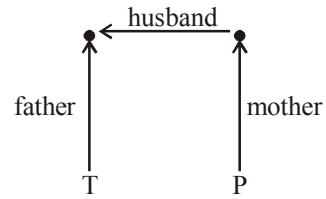


Town M is in S-E w.r.t town, K.
Both statements required to answer the question

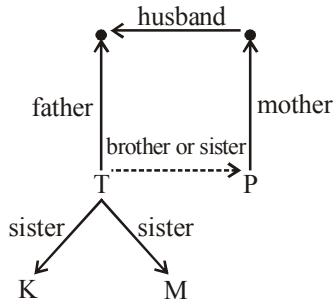
53. (d) From statement I
K and M are sister of T



From statement II.
T's father is husband of P's mother.



From statements - I and II



Both statements are not sufficient to answer the question.

54. (b) According to Statement I
Arun did not went London on sunday.
According to statement II:-
Arun's brother went London on Friday
Hence only statement II are sufficient to answer the question.

55. (e) **From statement I**

new (good) (clothes) ⇒ 5 ③ ⑨

From statement II

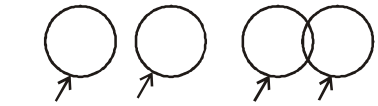
(good) (clothes) are costly ⇒ ⑨ 6 7 ③

Combining statement - I and II

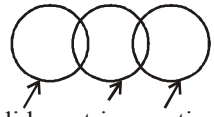
new ⇒ 5

Both statements are required to answer the question.

56. (d) According to statement

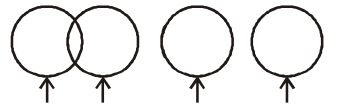


or,

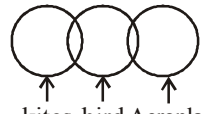


If neither conclusion I and nor II follow.

57. (d) According to statement

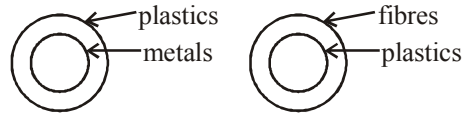


or

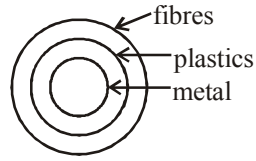


If neither conclusion I and II follows.

58. (a) According to statement

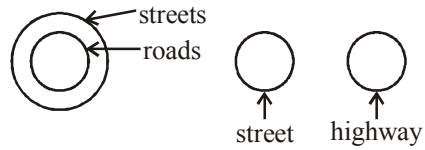


or,

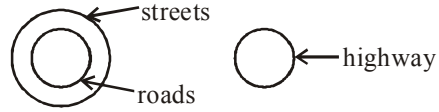


Only conclusion I follows.

59. (a) According to statement

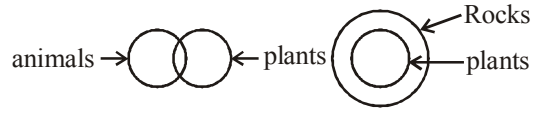


or,

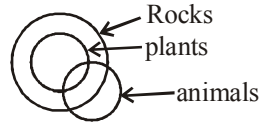


Hence only conclusion I follow.

60. (b) According to statement I

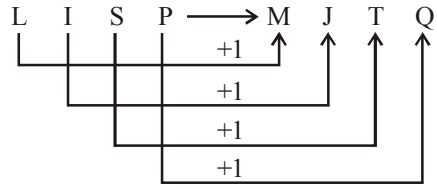


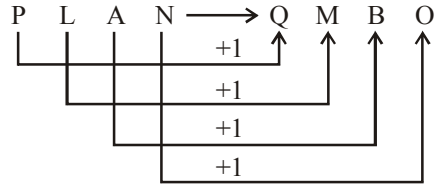
or,



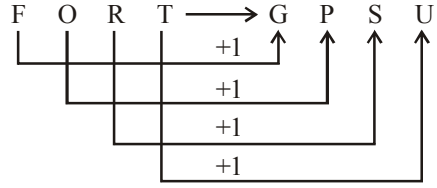
Hence, only conclusion II follows.

61. (d)





Therefore,



62. (c) 'Artificial' is antonym of 'Natural'. Similarly, 'Private' antonyms of 'Public'.

63. (c) $21 = 7 \times 3$; $91 = 7 \times 13$;
$77 = 7 \times 11$; $35 = 7 \times 5$;
But, $65 = 7 \times 9.28$

64. (a) $\xrightarrow{6}$ P || V || V $\xleftarrow{12}$
Vishal's rank from the top is 10th.

65. (e) 1, 12, 123, 1234, 12345, 123456, 123456 [7]

66. (b) Ninth to the right of the 20th from the right means 11th from the right, i.e., M.

67. (c)

Symbol	Consonant	Symbol

Such combinations are :

[@ F !] : [+ J ©]

68. (a) New arrangement

H F 3 U 6 G I T P L 8 [9] S 2 7 A M K .....

12th from left

69. (d) L $\xrightarrow{+2}$ S $\xrightarrow{-1}$ 8

A $\xrightarrow{+2}$ K $\xrightarrow{-1}$ M

@ $\xrightarrow{+2}$ I $\xrightarrow{-1}$ F

6 $\xrightarrow{+1}$ % $\xrightarrow{+1}$ G

J $\xrightarrow{+2}$ D $\xrightarrow{-1}$ ©

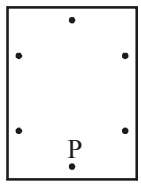
70. (c) F $\xrightarrow{+5}$ % $\xrightarrow{+6}$ L $\xrightarrow{+7}$

3 $\xrightarrow{+5}$ I $\xrightarrow{+6}$ S $\xrightarrow{+7}$

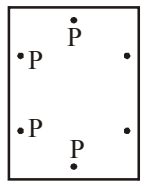
U $\xrightarrow{+5}$ T $\xrightarrow{+6}$ ^ $\xrightarrow{+7}$

[7 A M]

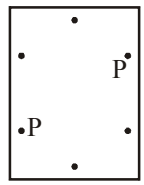
71. (c) ∪ design of question figure inverted in following manner in his next step.



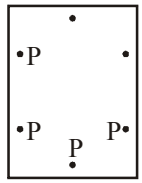
(1) to (2)



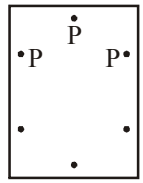
(2) to (3)



(3) to (4)



(4) to (5)

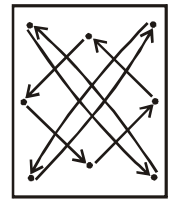


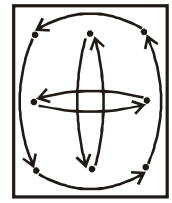
(5) to (6)

Next figure is similar to option (c)

72. (c) In next figure of each question upper left part is inverse and one part is eliminated and hence in such a way option no (c) will be next figure

73. (e) Designs of question figure changes their place in following way in his next step.

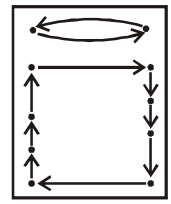


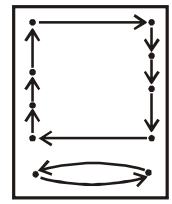


(1) to (2) (2) to (3)
(3) to (4) (4) to (5)
(5) to (6)

According to above arrangement next figure is (e)

74. (a) Designs of question figure changes their place in following way in his next step.

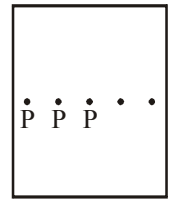


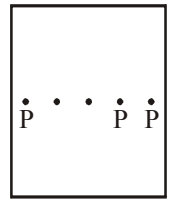


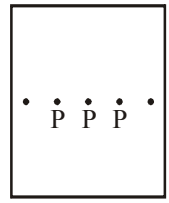
(1) to (2) (2) to (3)
(3) to (4) (4) to (5)
(5) to (6)

According to above arrangement next figure is (a)

75. (b) Next figure of each question figure is rotated anticlock-wise by 45° and 90°, so according to this next figure is option (b)







(1) to (2) (2) to (3) (3) to (4)
(4) to (5) (5) to (6)

According to above arrangement next figure is (b)

(76-80) :

Day	Date	Play
Monday	25th	A
Tuesday	26th	Z
Wednesday	27th	B
Thursday	28th	No play
Friday	29th	M
Saturday	30th	Q
Sunday	31st	X

76. (e) 77. (a) 78. (b) 79. (d) 80. (c)

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

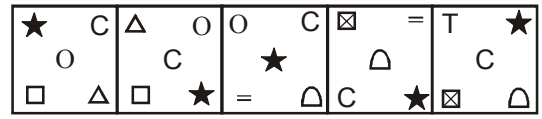
73. Which of the following symbols should replace question mark (?) in the given expression in order to make the expressions 'A > D' and 'F ≥ C' definitely true?
A > B ≥ C ? D ≤ E = F
(a) > (b) <
(c) ≤ (d) =
(e) Either = or ≥

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

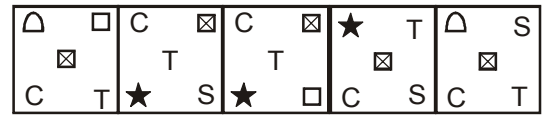
75. Read the following information carefully and answer the question which follows:
'A × B' means 'A is the father of B'.
'A + B' means 'A is the daughter of B'.
'A ÷ B' means 'A is the son of B'.
'A – B' means 'A is the sister of B'.
What will come in place of question mark to establish that P is the 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**

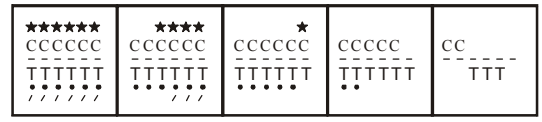


Answer figures

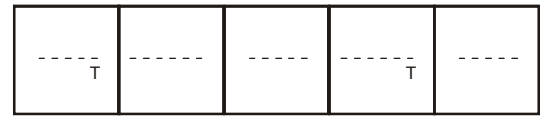


(a) (b) (c) (d) (e)

77. **Problem figures**

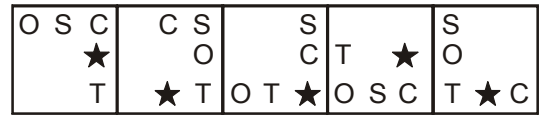


Answer figures

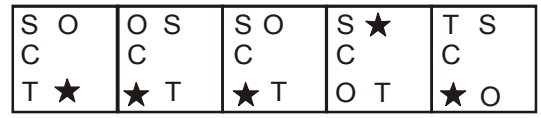


(a) (b) (c) (d) (e)

78. **Problem figures**

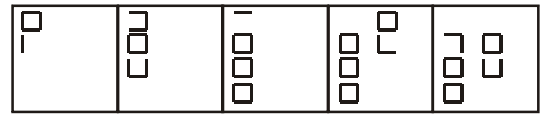


Answer figures

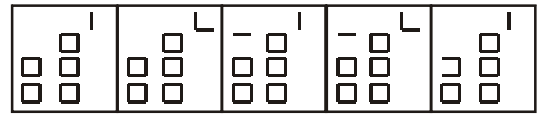


(a) (b) (c) (d) (e)

79. **Problem figures**

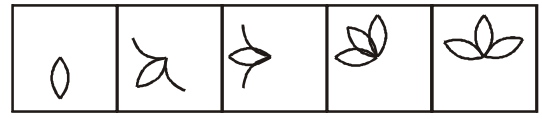


Answer figures

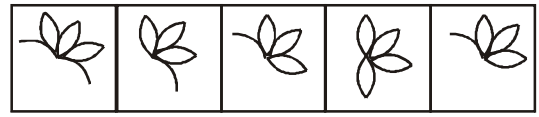


(a) (b) (c) (d) (e)

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 $= 27720 \times \frac{1}{6} = 4620$

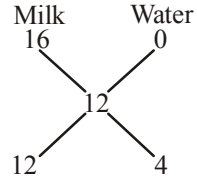
Remaining after M & N's share = 23100

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

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

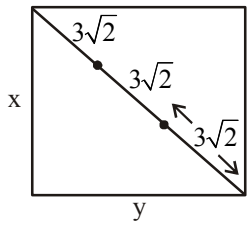
$\therefore$ CP of the mixture $= 15 \times \frac{100}{125} =$ ₹ 12

Now, by the rule of mixture,



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

30. (b)

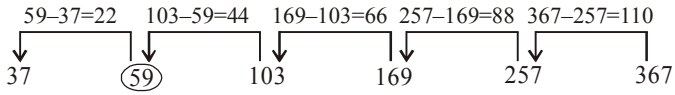


$x^2 + y^2 = (9\sqrt{2})^2$

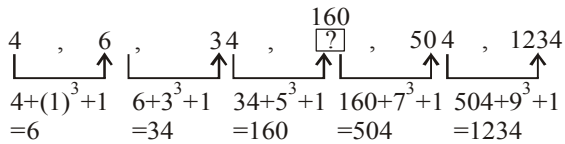
$2x^2 = 81 \times 9$

$x = 9$

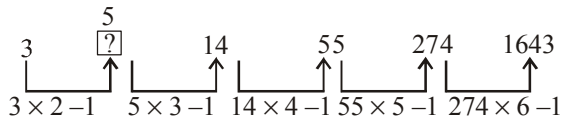
31. (b)



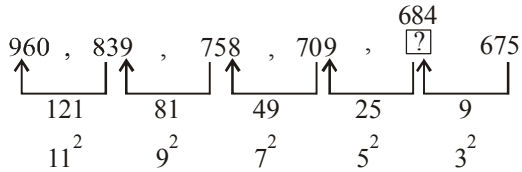
32. (b)



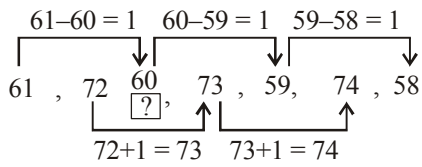
33. (b)



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) $6B^2 = A^2 + 540$

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

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

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

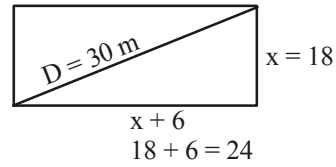
$3.75\,B^2 = 540$

$B = \sqrt{144} = 12$

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

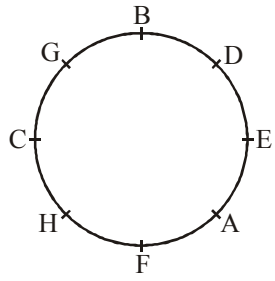
49. (a)

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

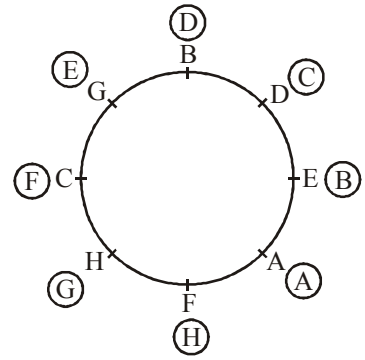
50. (d) Mother → only child
Arun (Himself) → daughter/She

Therefore, the girl is the daughter of Arun.

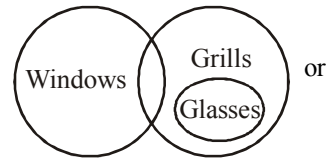
(51-55) :



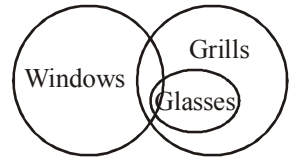
51. (a) D is to the immediate left of B.
52. (e) B and C are immediate neighbours of G.
53. (c) C is sitting just opposite to E. F is sitting just opposite to B. Similarly, A is sitting just opposite to G.
54. (d) Except in the pair BE, in all other pairs the first person is second to the left of the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



56. (d)

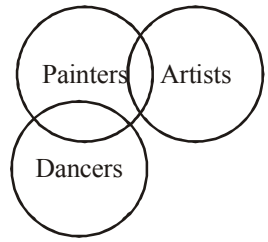


or

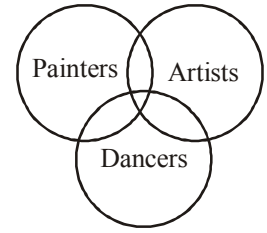


Conclusion: I. False
II. False

57. (d)

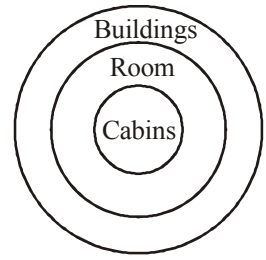


or



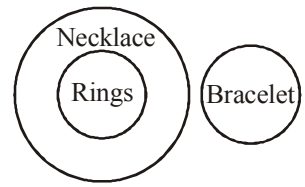
Conclusion: I. False
II. False

58. (b)



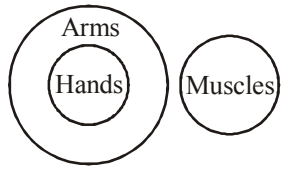
Conclusion: I. False
II. True

59. (a)



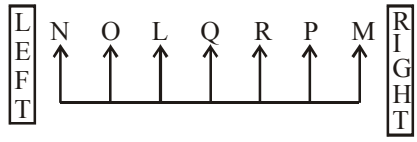
Conclusion: I. True
II. False

60. (a)

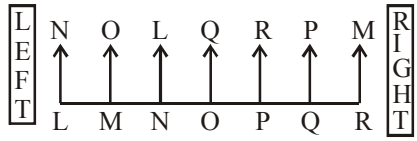


Conclusion : I. True
II. False

(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)

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

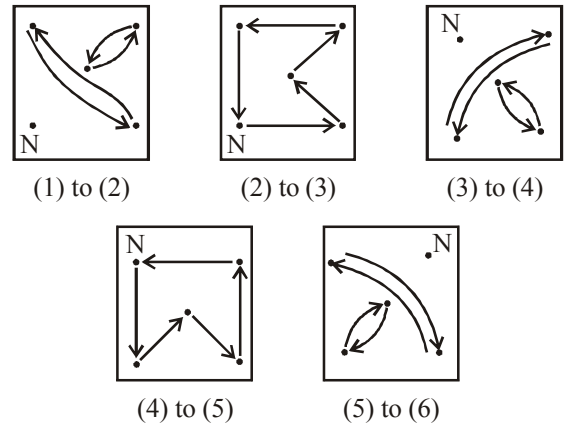
$P > R$

$R < S$ 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.

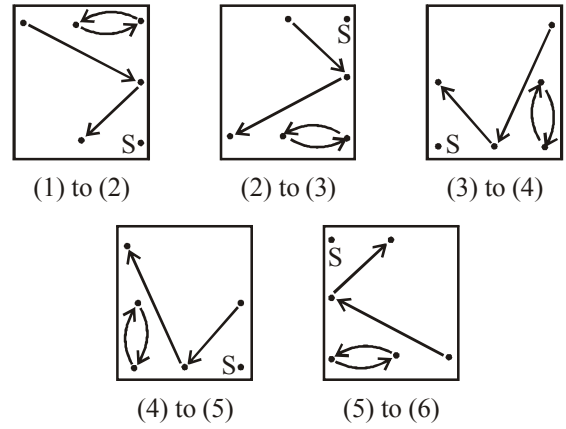
76. (e) Next figure of each question figure is changed by following way and N is replaced by a new design.



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).

PRACTICE SET 13

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. 1-10): What will come in place of the question mark (?) in the following questions?

1. $(3325 \div 25) \times (152 \div 16) = ?$
(a) 1269.4 (b) 1264.9
(c) 1265.3 (d) 1263.5
(e) None of these

2. $\sqrt{3136} - \sqrt{1764} = \sqrt{?}$
(a) 14 (b) $(196)^2$
(c) -14 (d) 144
(e) None of these

3. $5\frac{1}{5} + 2\frac{2}{15} + 3\frac{2}{3} = ?$
(a) 15 (b) 13 (c) $\frac{11}{15}$ (d) 12
(e) None of these

4. $-15 - 27 - 88 - 63 + 255 = ?$
(a) 55 (b) 74
(c) 62 (d) 59
(e) None of these

5. $(2525 \times 0.25 \div 5) \times 7 = ?$
(a) 889.43 (b) 883.75
(c) 886.45 (d) 881.75
(e) None of these

6. $\frac{14}{19} \times \frac{57}{70} \times \frac{20}{21} = ?$
(a) $\frac{2}{7}$ (b) $\frac{4}{7}$ (c) $\frac{2}{9}$ (d) $\frac{3}{7}$
(e) None of these

7. 32% of 500 + 162% of 50 = ?
(a) 231 (b) 245
(c) 237 (d) 247
(e) None of these

8. $45316 + 52131 - 65229 = ? + 15151$
(a) 17063 (b) 17073
(c) 17076 (d) 17067
(e) None of these

9. $\sqrt{25 - 12 + 155 + 1} = ?$
(a) 13 (b) 14
(c) 17 (d) 16
(e) None of these

10. $\frac{184 \times 4}{23 \text{ of } 400} = ?$
(a) 7 (b) 9
(c) 8 (d) 5
(e) None of these

DIRECTIONS (Qs. 11-15) : 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

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

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

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

14. I. $\sqrt{500}x + \sqrt{402} = 0$

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

15. I. $(17)^2 + 114 \div 18 = x$

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

16. Joel purchased 40 notebooks at the rate of ₹ 18 per notebook and 55 pencils at the rate of ₹ 8 per pencil. What is the total amount that he paid to the shopkeeper ?

(a) ₹1,165 (b) ₹1,160
(c) ₹1,166 (d) ₹1,161
(e) None of these

17. The sum of five consecutive odd numbers is 265. What is the sum of the largest number and twice the smallest number?

(a) 156 (b) 153 (c) 155 (d) 151
(e) None of these

18. The average of five numbers is 34.4. The average of the first and the second number is 46.5. The average of the fourth and the fifth number is 18. What is the third number ?

(a) 45 (b) 46 (c) 42 (d) 49
(e) None of these

19. One of the angles of a parallelogram is 45°. What will be the sum of the larger angle and twice the smaller angle of the parallelogram ?

(a) 228° (b) 224° (c) 225° (d) 222°
(e) None of these

20. 9 women can complete a piece of work in 19 days. How many days will 18 women take to complete the same piece of work?

(a) 12 days (b) 6.5 days
(c) 9 days (d) 8.5 days
(e) None of these

21. If $(1\,l)^3$ is subtracted from $(46)^2$ what will be the remainder ?

(a) 787 (b) 785 (c) 781 (d) 783
(e) None of these

22. The ratio between Gloria's and Sara's present ages is 4 : 7 respectively. Two years ago the ratio between their ages was 1 : 2 respectively. What will be Sara's age three years hence ?

(a) 17 years (b) 14 years
(c) 11 years (d) 8 years
(e) None of these

23. A plot of 1800 sq. ft. is available at the rate of ₹ 630 per sq. ft. If 45% of the total cost of the plot is to be paid at the time of booking it, how much is the booking amount?

(a) ₹11,34,0007 (b) ₹5,10,3007
(c) ₹6,03,0007 (d) ₹6,00,300
(e) None of these

24. 'A', 'B' and 'C' are three consecutive even integers such that four times 'A' is equal to three times 'C'. What is the value of B ?

(a) 12 (b) 10
(c) 16 (d) 14
(e) None of these

25. The sum of the squares of two odd numbers is 11570. The square of the smaller number is 5329. What is the other number?

(a) 73 (b) 75 (c) 78 (d) 79
(e) None of these

26. What is the difference between the simple and compound interest earned from a sum of ₹ 13,033 at a rate of 13 percent per annum for a period of 3 years (rounded off to 2 digits after decimal) ?

(a) ₹5,082.87 (b) ₹689.41
(c) ₹5,772.28 (d) ₹680.94
(e) None of these

27. The sum of three consecutive integers is 5685. Which of the following is the correct set of these numbers ?

(a) 1893, 1894, 1895 (b) 1895, 1896, 1897
(c) 1899, 1900, 1901 (d) 1897, 1898, 1899
(e) None of these

28. A factory produces 1515 items in 3 days. How many items will they produce in a week ?

(a) 3530 (b) 3553
(c) 3533 (d) 3535
(e) None of these

29. How much will a sum of ₹ 12,0007 deposited at a rate of 9% per annum (simple interest) for 13 years amount to?

(a) ₹14,040 (b) ₹20,650
(c) ₹ 13,404 (d) ₹ 27,800
(e) ₹26,040

30. If the following fractions are arranged in a descending order (from left to right), which of them will be second from the right end ?

$\frac{4}{9}, \frac{6}{13}, \frac{5}{11}, \frac{13}{16}, \frac{7}{12}$

(a) $\frac{6}{13}$ (b) $\frac{4}{9}$ (c) $\frac{13}{16}$
(d) $\frac{7}{12}$ (e) $\frac{5}{11}$

DIRECTIONS (Qs. 31-33) : What should come in place of the question mark (?) in the following number series ?

31. 800 400 200 100 50 ?

(a) 20 (b) 30 (c) 25 (d) 35
(e) None of these

32. 2 13 35 68 112 ?

(a) 173 (b) 178
(c) 163 (d) 167
(e) None of these

33. 650 601 565 540 524 ?

(a) 512 (b) 514
(c) 511 (d) 515
(e) None of these

DIRECTIONS (Qs. 34–35) : In the following number series only one number is wrong. Find out the wrong number.

34. 9050 5675 3478 2147 1418 1077 950

(a) 3478 (b) 1418
(c) 5675 (d) 2147
(e) 1077

35. 8424 4212 2106 1051 526.5 263.25 131.625

(a) 131.625 (b) 1051
(c) 4212 (d) 8424
(e) 263.25

36. Rubina could get equal number of ₹ 55, ₹ 85 and ₹ 105 tickets for a movie. She spents ₹ 2940 for all the tickets. How many of each did she buy?
(a) 12 (b) 14
(c) 16 (d) Cannot be determined
(e) None of these

37. Ramola's monthly income is three times Ravina's monthly income. Ravina's monthly income is fifteen percent more than Ruchira's monthly income. Ruchira's monthly income is ₹ 32,000. What is Ramola's annual income ?
(a) ₹ 1,10,400 (b) ₹ 13,24,800
(c) ₹ 36,800 (d) ₹ 52,200
(e) None of these

38. In an Entrance Examination Ritu scored 56 percent marks, Smita scored 92 percent marks and Rina scored 634 marks. The maximum marks of the examination are 875. What are the average marks scored by all the three girls together?
(a) 1929 (b) 815
(c) 690 (d) 643
(e) None of these

39. The respective ratio between the present age of Manisha and Deepali is 5 : X. Manisha is 9 years younger than Parineeta. Parineeta's age after 9 years will be 33 years. The difference between Deepali's and Manisha's age is same as the present age of Parineeta. What will come in place of X?
(a) 23 (b) 39
(c) 15 (d) Cannot be determined
(e) None of these

40. Seema bought 20 pens, 8 packets of wax colours, 6 calculators and 7 pencil boxes. The price of one pen is ₹ 7, one packet of wax colour is ₹ 22, one calculator is ₹ 175 and one pencil box is ₹ 14 more than the combined price of one pen and one packet of wax colours. How much amount did Seema pay to the shopkeeper?
(a) ₹ 1,491 (b) ₹ 1,725
(c) ₹ 1,667 (d) ₹ 1,527
(e) None of these

REASONING ABILITY

41. A school bus driver starts from the school, drives 2 km towards North, takes a left turn and drives for 5 km. He then takes a left turn and drives for 8 km before taking a left turn again and driving for 5 km. The driver finally takes a left turn and drives 1 km before stopping. How far and towards which direction should the driver drive to reach the school again?
(a) 3 km towards North (b) 7 km towards East
(c) 6 km towards South (d) 6 km towards West
(e) 5 km towards North

DIRECTIONS (Qs. 42-43) : Read the following information carefully and answer the questions which follow:

A, B, C, D, E and F live on different floors in the same building having six floors numbered one to six (the ground floor is numbered 1, the floor above it , number 2 and so on and the topmost floor is numbered 6.

A lives on an even numbered floor. There are two floors between the floors on which D and F live. F lives on a floor above D's floor. D does not live on floor number 2. B does not live on an odd numbered floor. C does not live on any of the floors below F's floor. E does not live on a floor immediately above or immediately below the floor on which B lives.

42. Who amongst the following live on the floors exactly between D and F ?
(a) E, B (b) C, B (c) E, C (d) A, E
(e) B, A

43. On which of the following floors does B live?
(a) 6th (b) 4th (c) 2nd (d) 5th
(e) Cannot be determined

DIRECTIONS (Qs. 44-45) : Study the following information to answer the given questions:

In a five letter English word (which may or may not be a meaningful English word), there are two letters between L and P. S is not placed immediately next to L. There is only one letter between S and A. S is towards the right of A. S is not placed immediately next to E.

44. Which of the following is correct with respect to the word thus formed?
(a) E is at one of the extreme ends of the word.
(b) P is not placed immediately next to A.
(c) There are two letters between A and E in the word thus formed.
(d) P is placed second to the right of E.
(e) None is correct

45. Which of the following words will be formed based on the given conditions?
(a) SPAEL (b) PEALS
(c) LEAPS (d) SEPAL
(e) LAPSE

DIRECTIONS (Qs. 46-50) : In each question below are two/three statements followed by two conclusions numbered I and II. You have to take the two/three 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 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 conclusion I and conclusion II follow.

(Qs. 46-48) :

Statements : All gliders are parachutes.
No parachute is an airplane.
All airplanes are helicopters.

46. Conclusions : I. No glider is an airplane.
II. All gliders being helicopters is a possibility.

47. Conclusions : I. No helicopter is a glider.
II. All parachutes being helicopters is a possibility.

48. Statements : Some mails are chats.
All updates are chats.
Conclusions : I. All mails being updates is a possibility.
II. No update is a mail.

(Qs. 49-50) :

Statement : No stone is metal.
Some metals are papers.
All papers are glass.

49. Conclusions : I. All stones being glass is a possibility.
II. No stone is a paper.

50. Conclusions : I. No glass is a metal.
II. Atleast some glass is metal.

DIRECTIONS (Qs. 51-55) : Each of the questions below consists of a question and three statements numbered I, II and III given below it. You have to decide whether the data provided in the statements are sufficient to answer the question.

51. How many daughters does W have?
I. B and D are sisters of M.
II. M's father T is husband of W.
Ill. Out of the three children which T has, only one is a boy.
(a) Only I and III
(b) All I, II and III are required to answer the question
(c) Only II & III are sufficient to answer the question
(d) Question cannot be answered even with all I, II and III
(e) Only I and II

52. Who among A, B, C, D, E and F each having a different height, is the tallest?
I. B is taller than A but shorter than E.
II. Only two of them are shorter than C.
III. D is taller than only F.
(a) Only I and II
(b) Only I and III
(c) Only II and III
(d) All I, II and III are required to answer the question
(e) All I, II and III are not sufficient to answer the question

53. How is 'go' written in a code language?
I. 'now or never again' is written as 'tom ka na sa' in that code language.
II. 'you come again now' is written as 'ja ka ta sa' in that code language.
III. 'again go now or never' is written as 'na ho ka sa tom' in that code language.
(a) Only I and III
(b) Only II and III
(c) Only I and II
(d) All I, II and III are required to answer the question
(e) None of these

54. Towards which direction is village J from village W ?
I. Village R is to the west of Village W and to the north of Village T.
II. Village Z is to the east of Village J and to the south of Village T.
III. Village M is to the northeast of Village J and north of Village Z.
(a) Only III
(b) Only II and III
(c) All I, II and III are required to answer the question
(d) Question cannot be answered even with all I, II and III
(e) None of these

55. On which day of the week starting from Monday did Suresh visit Chennai ?
l. Suresh took leave on Wednesday.
II. Suresh visited Chennai the day after his mother's visit to his house
III. Suresh's mother visited Suresh's house neither on Monday nor on Thursday
(a) Only II and III
(b) Only I and II
(c) Only I and III
(d) All I, II and III are required to answer the question
(e) Question cannot be answered even with all I, II and III

DIRECTIONS (Qs 56- 60): Study the information below and answer questions based on it.

Twelve people are sitting in two parallel rows containing six people each, in such a way that there is an equal distance between adjacent persons .In rows 1 there are p , q , r , s , t , and v are seated and all of them are facing south .In row 2 there are a , b , c , d , e ,and f 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.

1. a, sits third to right of d
2. Neither a nor d sits at the extremes ends
3. 't' faces 'd'
4. v does not face a and v does not sit at any of the extreme ends.
5. 'v' is not an immediate neighbor of t
6. 'b' sit at on the extreme ends.
7. Only two people sit between b and e
8. 'e' does not face v
9. Two persons sit between r and q
10. r is not the immediate neighbor of t
11. c does not face v
12. p is not an immediate neighbor of r

56. Who among the following sit at extreme ends of the rows?
(a) b,e (b) s,t
(c) p,r (d) b,f
(e) none

57. Who among the following faces a?
(a) r (b) t
(c) p (d) q
(e) s

58. How many persons are seated between t and s?
(a) one (b) two
(c) three (d) four
(e) none

59. p is related to v in the same way as the c is related to f. To which of the following is e related to, following the same pattern:
(a) b (b) d
(c) c (d) a
(e) none

60. Which of the following is true regarding f?
(a) f sits second to the right of c
(b) f is not an immediate neighbor of a
(c) f sits third to the left of d
(d) f sits at the one of the extreme ends of the line
(e) f faces v

DIRECTIONS (Qs. 61 - 65) : Study the information below and answer questions based on it.

P, Q, R, S, T, V, Wand 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 travellingto 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.

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

62. 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

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

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

65. 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

DIRECTIONS (Qs. 66-70) : In the following questions the symbols @, $\underline{@}$, =, © and $\underline{©}$ are used with the following meaning:

P © Q means P is less than Q.
P @ Q means P is greater than Q.
P $\underline{@}$ Q means P is greater than or equal to Q.
$P = Q$ means P is equal to Q.
P $\underline{©}$ Q means P is either smaller than or equal to Q.

Now in each of the following questions, assuming the given statements to be true, find which of the two conclusions I and II given below them is/are definitely true ? Give answer.
(a) if only conclusion I is true.
(b) if only conclusion II is true.
(c) if either I or II is true.
(d) if neither I nor II is true, and
(e) if both I and II are true.

66. **Statements:** B @ V, K © C, C $\underline{©}$ B
Conclusions : **I.** V @ C
II. B @ K

67. **Statements :** K @ T, $S = K$, T $\underline{©}$ R
Conclusions : **I.** S @ R
II. $T = R$

68. **Statements :** $U = M$, P $\underline{@}$ U, M $\underline{@}$ B
Conclusions : **I.** P = B
II. P @ B

69. **Statements**: L $\underline{@}$ N, J $\underline{©}$ P, P $\underline{@}$ L
Conclusions : **I.** J = L
II. $P = N$

70. **Statements:** H $\underline{@}$ G, D @ E, $H = E$
Conclusions : **I.** D @ H
II. G © D

DIRECTIONS (Qs. 71-80) : Study the following information carefully answer the given questions :

Twelve persons are sitting in two parallel rows containing six persons each, in such a way that there is an equal distance between adjacent persons. In row–1, A, B, C, D, E and F are seated (but not necessarily in the same order) and all of them are facing south. In row– 2, P, Q, R, S, T and V are seated (but not necessarily in the same order) and all of them are facing north. Therefore, in the given seating arrangement each person seated in a row faces another person of the other row.
A sits third to the left of E. The person facing A sits second to the left of T. Two persons are sitting between T and P. C and D are immediate neighbours. C and D do not sit at any of the extreme ends of the line. Only one person sits between B and C. The person facing D is an immediate neighbour of Q. V is not an immediate neighbour of P. S does not face A.

71. Who amongst the following sits seconds to the right of the person who faces R ?
(a) C (b) D
(c) B (d) E
(e) Cannot be determined

72. Which of the following statements regarding B is true ?
(a) B sits second to the left of C
(b) A sits to immediate left of B
(c) T faces B
(d) D is an immediate neighbour of B
(e) The person who faces B is an immediate neighbour of S

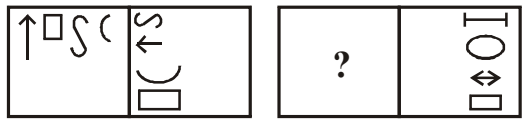
73. Who amongst the following faces P ?
(a) A (b) D
(c) C (d) E
(e) Cannot be determined

74. Who amongst the following sits exactly between T and R ?
(a) V (b) Q
(c) S (d) P
(e) Cannot be determined

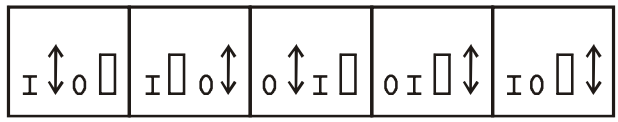
75. Four of the following five are alike in a certain way based on the given seating arrangement and thus form a group. Which is the one that **does not** belong to the group ?
(a) F (b) Q
(c) T (d) C
(e) E

DIRECTIONS (Qs. 76-80) : The first figure in the first unit of the problem figures bears a certain relationship to the second figure. Similarly one of the figures in the answer figures bears the same relationship to the second figure in the second unit of the problem figures. You are therefore to locate the figure which would fit in the question mark.

76. PROBLEM FIGURES

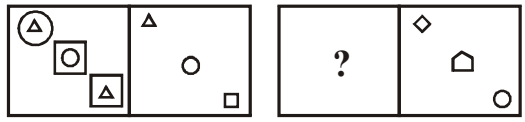


ANSWER FIGURES

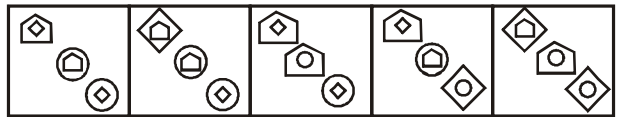


(a) (b) (c) (d) (e)

77. PROBLEM FIGURES

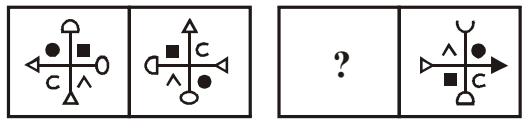


ANSWER FIGURES

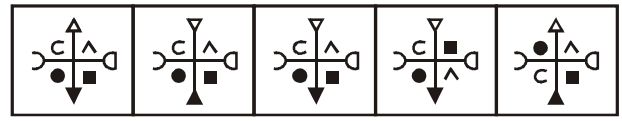


(a) (b) (c) (d) (e)

78. PROBLEM FIGURES

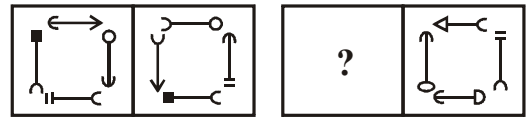


ANSWER FIGURES

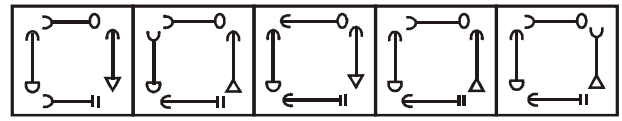


(a) (b) (c) (d) (e)

79. PROBLEM FIGURES

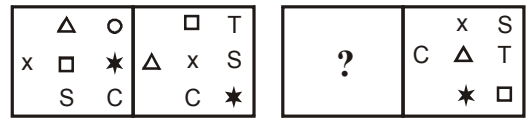


ANSWER FIGURES

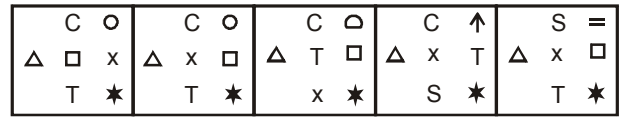


(a) (b) (c) (d) (e)

80. PROBLEM FIGURES



ANSWER FIGURES



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

HINTS & EXPLANATIONS

1. (d) Given expression implies $? = \frac{3325}{25} \times \frac{152}{16}$

$= 133 \times 9.5 = 1263.5$

2. (e) $\sqrt{3136} - \sqrt{1764} = \sqrt{?}$

$\Rightarrow 56 - 42 = \sqrt{?}$

$\Rightarrow \sqrt{?} = 14$

On squaring both the side

$\therefore ? = 14 \times 14 = 196$

3. (e) $? = 5 + \frac{1}{5} + 2 + \frac{2}{15} + 3 + \frac{2}{3}$

$= 10 + \frac{1}{5} + \frac{2}{15} + \frac{2}{3}$

$= 10 + \frac{3+2+10}{15} = 10 + \frac{15}{15}$

$= 10 + 1 = 11$

4. (c) $? = -15 - 27 - 88 - 63 + 255$

$= -193 + 255 = 62$

5. (b) Given expression can be written as

$? = \frac{2525 \times 0.25 \times 7}{5} = 883.75$

6. (b) $? = \frac{14}{19} \times \frac{57}{70} \times \frac{20}{21} = \frac{2}{1} \times \frac{3}{10} \times \frac{20}{21} = \frac{2}{1} \times \frac{1}{1} \times \frac{2}{7} = \frac{4}{7}$

7. (e) $? = \frac{500 \times 32}{100} + \frac{50 \times 162}{100}$

$= 160 + 81 = 241$

8. (d) $45316+52131-65229$
$=?+15151$
$\Rightarrow 32218=?+15151$
$\therefore ?=32218-15151=17067$

9. (a) $?=\sqrt{25-12+155+1}$
$=\sqrt{169}=13$

10. (c) $?=\dfrac{184\times4}{\frac{400\times23}{100}}=\dfrac{184\times4}{4\times23}=8$

11. (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. $2y^2-9y+9=0$
$2y^2-6y-3y+9=0$
$2y(y-3)-3(y-3)=0$
$(2y-3)(y-3)=0$
$\therefore y=\dfrac{3}{2}$ or 3
So $x\geq y$

12. (c) I. $x^3\times13=x^2\times247$
or $\dfrac{x^3}{x^2}=\dfrac{247}{13}$
$x=19$
II. $y^{1/3}\times14=294\div y^{2/3}$
or, $(y)^{1/3}\times(y)^{2/3}=\dfrac{294}{14}$
or, $(y)^{\frac{1}{3}+\frac{2}{3}}=21 \quad \therefore y=21$
So $y>x$

13. (d) I. $\dfrac{12\times4}{(x)^{4/7}}-\dfrac{3\times4}{(x)^{4/7}}=(x)^{10/7}$
or, $48-12=(x)^{10/7}\times(x)^{4/7}$
or, $36=(x)^{\frac{10+4}{7}}=(x)^2$
$x=\pm6$
II. $y^3+783=999$
$y^3=999-783$
$y^3=216$
$y=\pm6 \quad \therefore y\geq x$

14. (e)

15. (c) I. $(17)^2+144+18=x$
$289+8=x$
$\therefore x=297$
II. $(26)^2-18\times21=y$
$676-378=y$
$\therefore 298=y$
So, $y>x$.

16. (b) Amount paid $=₹(40\times18+55\times8)=₹(720+440)$
$=₹1160$

17. (c) Third number $=\dfrac{265}{5}=53$
$\therefore$ Smallest number $=49$
Largest number $=57$
$\therefore$ Required value
$=57+2\times49$
$=57+98=155$

18. (e) Third number
$=5\times34.4-2\times46.5-2\times18$
$=172-93-36=43$

19. (c) Second angle of parallelogram $=180°-45°=135°$
$\therefore$ Required value $=135+2\times45=135+90=225°$

20. (e) $M_1D_1=M_2D_2$
$\Rightarrow 9\times19=18\times D_2$
$\Rightarrow D_2=\dfrac{9\times19}{18}=9.5$ days

21. (b) Required remainder $=(46)^2-(11)^3=2116-1331=785$

22. (a) Let Gloria's and Sara's present ages be 4x and 7x years respectively.
Two years ago,
$\dfrac{4x-2}{7x-2}=\dfrac{1}{2}$
$\Rightarrow 8x-4=7x-2$
$\Rightarrow x=2$
$\therefore$ Sara's age three years hence $=7x+3=17$ years

23. (b) Total cost of plot $=₹630\times1800$
$\therefore$ Booking amount $=\dfrac{630\times1800\times45}{100}=₹510300$

24. (d) Let $A=x$,
$B=x+2$,
$C=x+4$
$\therefore$ According to the Question
$4x=3(x+4)$
$\Rightarrow 4x-3x=12 \Rightarrow x=12$
$\therefore B=x+2=12+2=14$

25. (d) $(\text{Larger number})^2=11570-5329=6241$
$\therefore$ Larger number $=\sqrt{6241}=79$

26. (b) S.I. $=\dfrac{13033\times13\times3}{100}=₹5082.87$
$\text{C.I.}=13033\left[\left(1+\dfrac{13}{100}\right)^3-1\right]=13033\times0.44=₹5772.28$
Difference $=5772.28-5082.87=₹689.41$

27. (e) Smallest number
$=\dfrac{5685-3}{3}=1894$

28. (d) Number of items produced in 3 days = 1515

Number of items produced in 1 day = $\frac{1515}{3}$

Required number of items

$= \frac{1515 \times 7}{3} = 3535$

29. (e) S.I. = $\frac{12000 \times 9 \times 13}{100}$

= ₹ 14040

∴ Amount = 12000 + 14040

= ₹ 26040

30. (e) Given fractions can be written in decimal forms as

$\frac{4}{9} = 0.44$; $\frac{6}{13} = 0.46$; $\frac{5}{11} = 0.45$; $\frac{13}{16} = 0.8125$

$\frac{7}{12} = 0.583$

∴ Clearly,

$\frac{13}{16} > \frac{7}{12} > \frac{6}{13} > \frac{5}{11} > \frac{4}{9}$

31. (c) The pattern of the number series is :

$800 \div 2 = 400$

$400 \div 2 = 200$

$200 \div 2 = 100$

$100 \div 2 = 50$

$50 \div 2 = \boxed{25}$

32. (d) The pattern of the number series is :

$2 + 1 \times 11 = 2 + 11 = 13$

$13 + 2 \times 11 = 13 + 22 = 35$

$35 + 3 \times 11 = 35 + 33 = 68$

$68 + 4 \times 11 = 68 + 44 = 112$

$112 + 5 \times 11 = 112 + 55 = \boxed{167}$

33. (d) The pattern of the number series is :

$650 - 7^2 = 650 - 49 = 601$

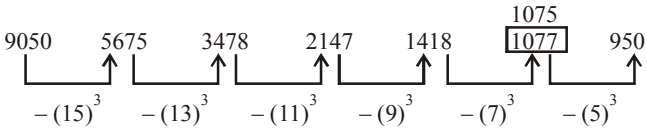
$601 - 6^2 = 601 - 36 = 565$

$565 - 5^2 = 565 - 25 = 540$

$540 - 4^2 = 540 - 16 = 524$

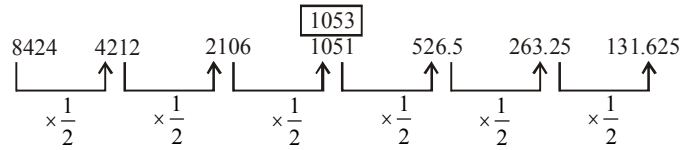
$524 - 3^2 = 524 - 9 = \boxed{515}$

34. (e) The given number series is based on the following pattern:



Hence, the number 1077 is wrong and it should be replaced by 1075.

35. (b) The given number series is based on the following pattern :



Hence, the number 1051 is wrong and it should be replaced by 1053.

36. (a) Value of one ticket of each kind = 55 + 85 + 105 = ₹ 245

∴ Required number of ticket of each kind

$= \frac{2940}{245} = 12$

37. (b) Ravina's monthly income

$= 32000 \times \frac{100 + 15}{100} = 32000 \times \frac{115}{100} =$ ₹ 36800

= Ramola's annual income = 36800 × 3 × 12

= ₹ 1324800

38. (d) Marks scored by Ritu = $875 \times \frac{56}{100} = 490$

Marks scored by Smita = $875 \times \frac{92}{100} = 805$

∴ Average marks scored by all the three together

$= \frac{490 + 805 + 634}{3} = \frac{1929}{3} = 643$

39. (e) According to the question

Present age of Parineeta = 33 – 9 = 24 years

Present age of Manisha = 24 – 9 = 15 years

Present age of Deepali = 24 + 15 = 39 years

∵ 5 : X = 15 : 39

∴ $X = \frac{5 \times 39}{15} = 13$

40. (c) Cost of one pencil box = 7 + 22 + 14 = ₹ 43

∴ Required amount = (20 × 7) + (8 × 22) + (6 × 175) + (7 × 43)

= 140 + 176 + 1050 + 301 = ₹ 1667

41. (e) According to questions.

AB = 2 km

BC = 5 km

CD = 8 km

DE = 5 km

EF = 1 km

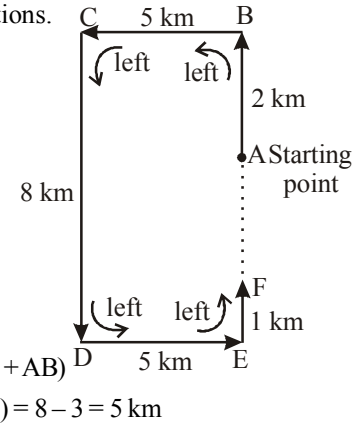
BC = DE = 5 km

CD = BE = 8 km

BE = EF + AF + AB

∴ AF = BE – (EF + AB)

= 8 – (1 + 2) = 8 – 3 = 5 km



∴ Required distance = AF = 5 km and required direction is North

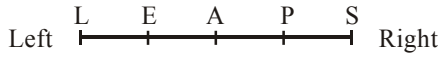
For questions (42-43) :

Person	Floor
B	6th
C	5th
F	4th
E	3rd
A	2nd
D	1st/Ground

42. (d) 43. (a)

For questions (44-45) :

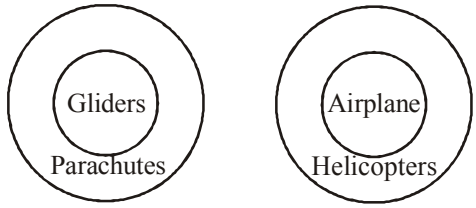
The meaningful english word 'LEAPS' will be formed.



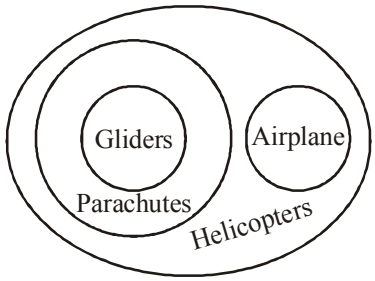
44. (d) P is placed second to the right of E.
45. (c) The word 'LEAPS' will be formed based on the given conditions.

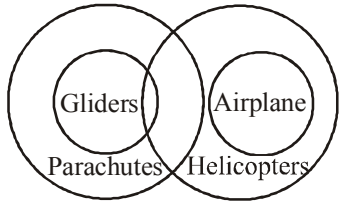
For questions (46-47) :

According to statements:

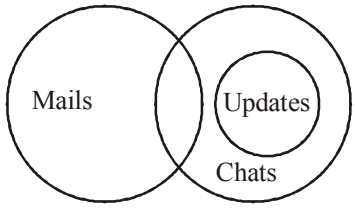


or

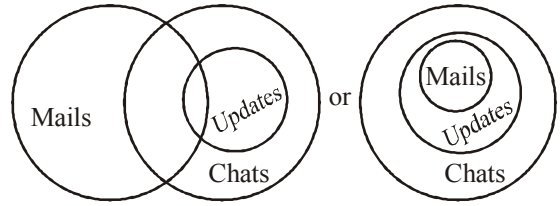




46. (a) Hence, only conclusion I follows.
47. (b) Hence, conclusion II follows.
48. (d) According to statements.



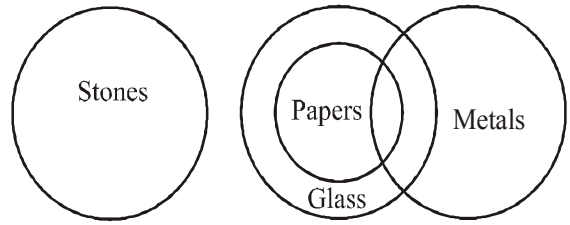
or



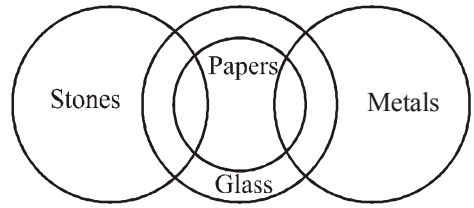
Hence, conclusion I follows.

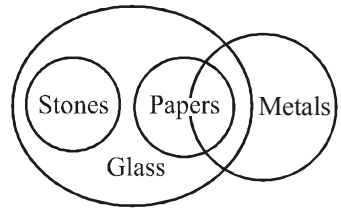
For questions (49-50) :

According to statements



or





49. (a) Hence, conclusion I follows.
50. (b) Hence, only conclusion II follows.
51. (c)
52. (d) **From statement I,**
E > B > A.
From statement II
• > • > • > C > • > •
From statement III
• > • > • > • > D > F
From statements I, II and III
E > B > A > C > D > F
Hence E is the tallest.
So, all I, II and III are required to answer the question.
53. (a) **From statement I**
now or never again ⇒ tom ka na sa
From statement II
you come again now ⇒ ja ka ta sa
From statement III
again go now or never ⇒ na ho ka sa tom
From statement I and III
now or never again ⇒ tom ka na sa
again go now or never ⇒ na ho ka sa tom
Hence, go ⇒ ho
So, only I and III, are required to answer the question.

54. (e)

55. (e) **From statement I, II, III**

Monday	Suresh's mother does not visit
Tuesday	
Wednesday	Leave
Thursday	Suresh's mother does not visit
Friday	
Saturday	

From statement II, Suresh visited Chennai the day after his mothers visit and the day of his mother's visit day is not given, so, we cannot answer the question even with all I, II and III.

Sol: 56-60

From the given data we can come up with the following sequence:

Row 1 P T q v s r

Row 2 C D e f a b

56. (a) 57. (e) 58. (b) 59. (a) 60. (e)

Sol: 61-65

The following table can be built to infer the answers:

Members	Car	Destination
TZ	Swift	Delhi
PQW	Honda city	Hyderabad
SVR	Ford Icon	Chennai

61. (c) 62. (a) 63. (d)

64. (c) 65. (b)

66. (b) $B > V$ ....(i) $K < C$ ...*(ii);* $C \leq B$ ...(iii)

No relationship can be find out between V *and* C.

Hence I does not follow.

From (ii) and (iii), $B > K$. Hence II follows.

67. (d) $K > T$ ...(i) ; $S = K$ ...(ii); $T \leq R$ ...(iii)

Neither relationship can be established .

68. (c) $U = M$ ...(i) $P \geq U$ ...(iii); $M \geq B$ ...(iii)

Combining, we get $P \geq U = M \geq B \Rightarrow P \geq B$

$\Rightarrow P = B$ or $P > B$

69. (d) $L \geq N$ ...(i) ; $J \leq P$ ...(ii); $P \geq L$ ...(iii)

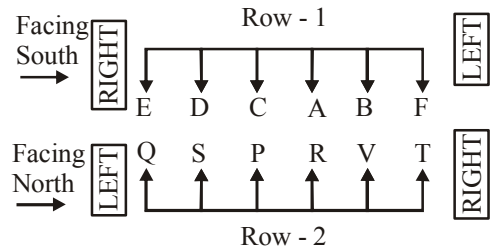
Neither relationship can be established.

70. (e) $H \geq G$ ....(i); $D > E$ ...(ii); $H = E$ ...(iii)

Combining, we get $D > E = H \geq G$

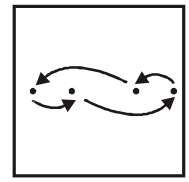
$\Rightarrow D > H$ and $G < D$

71-75 :



71. (b) 72. (a) 73. (c) 74. (a) 75. (d)

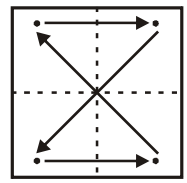
76. (b) From 2nd figure to 1st figure, the group of four symbols moves one step clockwise and the symbols change their position as follows :



The larger figure gets reduced in size and vice-versa.

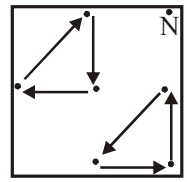
77. (a) From 2nd to 1st figure, lower symbol moves one step upper side, gets enlarged and covers existing design. Inside lowermost symbol change its shape as upper most design.

78. (c) The symbols of horizontal line become vertical and the symbols of vertical line become horizontal. Other four symbols move their position as follows:



79. (a) From 2nd figure to 1st figure, lower side symbol forms at left, left side design forms at upperside after reversing of its one end, upperside symbol forms right after reversing of its one end and the right side symbol forms at lowerside after reversing of its one end.

80. (b) From 2nd figure to 1st figure, the symbol move as follows and new symbols form at the place of N.



PRACTICE SET 14

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 should come in place of the question mark (?) in the following questions?

1. 16% of $450 \div ?\%$ of $250 = 4.8$

(a) 12 (b) 6
(c) 4 (d) 10
(e) None of these

2. 19.5% of $524 = ?$

(a) 102.18 (b) 122.81
(c) 120.18 (d) 112.81
(e) None of these

3. $\sqrt{?} - 11 = \sqrt{1521}$

(a) $\sqrt{2500}$ (b) $(28)^2$
(c) $\sqrt{28}$ (d) 50
(e) None of these

4. $700 \div 70 \div 0.5 = ?$

(a) 10 (b) 2.5
(c) 1.5 (d) 20
(e) None of these

5. $12.8 \times 4.5 \times 2.2 = ?$

(a) 168.72 (b) 126.72
(c) 128.27 (d) 162.72
(e) None of these

6. $55 \div 5.5 - 0.5 = ?$

(a) 11 (b) 10
(c) 8.5 (d) 10.5
(e) None of these

7. $(5 \times 5 \times 5 \times 5 \times 5 \times 5)^4 \times (5 \times 5)^6 \div (5)^2 = (25)^?$

(a) 10 (b) 17
(c) 19 (d) 12
(e) None of these

8. $8059 - 7263 = ? \times 40$

(a) 19.9 (b) 18.7
(c) 15.9 (d) 17.7
(e) None of these

9. $4 \times ? = 4062 \div 5$

(a) 203.1 (b) 213.1
(c) 205.1 (d) 215.1
(e) None of these

10. $3.5 \times (80 \div 2.5) = ?$

(a) 122 (b) 111
(c) 222 (d) 212
(e) None of these

11. $5\frac{1}{5}+2\frac{3}{5}+1\frac{2}{5}=?$

(a) $7\frac{4}{5}$ (b) $8\frac{3}{5}$

(c) $6\frac{2}{5}$ (d) $9\frac{1}{5}$

(e) None of these

12. 13% of 258 – ? = 10

(a) 23.45 (b) 24.53

(c) 23.54 (d) 24.35

(e) None of these

13. $\frac{4}{5}\times 2\frac{3}{4}\div\frac{5}{8}=?$

(a) $4\frac{12}{35}$ (b) $1\frac{12}{35}$

(c) $2\frac{11}{35}$ (d) $3\frac{13}{25}$

(e) None of these

14. 623.15 – 218.82 – 321.43 = ?

(a) 89.2 (b) 82.2

(c) 89.9 (d) 79.2

(e) None of these

15. 5437 – 3153 + 2284 = ? × 50

(a) 96.66 (b) 91.36

(c) 96.13 (d) 93. 16

(e) None of these

DIRECTIONS (Qs. 16-20) : What should come in place of the question mark (?) in the following number series?

16. 2 16 112 672 3360 13440 ?

(a) 3430 (b) 3340

(c) 40320 (d) 43240

(e) None of these

17. 4 9 19 ? 79 159 319

(a) 59 (b) 39

(c) 49 (d) 29

(e) None of these

18. 4000 2000 1000 500 250 125 ?

(a) 80 (b) 65

(c) 62.5 (d) 83.5

(e) None of these

19. 588 563 540 519 ? 483 468

(a) 500 (b) 496

(c) 494 (d) 490

(e) None of these

20. 121 ? 81 64 49 36 25

(a) 92 (b) 114

(c) 98 (d) 100

(e) None of these

21. The sum of 15% of a positive number and 10% of the same number is 70. What is twice of that number?

(a) 440 (b) 280

(c) 560 (d) 140

(e) None of these

22. Vikram scored 72 per cent marks in five subjects together, viz; Hindi, Science, Maths, English and Sanskrit together, where in the maximum marks of each subject were 100. How many marks did Vikram score in Science if he scored 80 marks in Hindi, 70 marks in Sanskrit, 76 marks in Maths and 65 marks in English?

(a) 72 (b) 69

(c) 59 (d) 71

(e) None of these

23. The respective ratio between Pooja's, Prarthana's and Falguni's monthly income is 53:70: 57. If Prarthana's annual income is ₹4,20,000, what is the sum of Pooja's and Falguni's annual incomes? (In some cases monthly income and in some cases annual income is used.)

(a) ₹ 5,92,500 (b) ₹ 6,83,500

(c) ₹ 6,60,000 (d) ₹ 7,79,200

(e) None of these

24. Manhar sold an item for ₹ 8,400 and incurred a loss of 25%. At what price should he have sold the item to have gained a profit of 40%?

(a) ₹ 15,680

(b) ₹ 16,220

(c) ₹ 14,540

(d) Cannot be determined

(e) None of these

25. What will come in place of both the question marks (?) in the following question?

$$\frac{(?)^{2.3}}{8}=\frac{2}{(?)^{1.7}}$$

(a) 8 (b) 1

(c) 4 (d) 16

(e) 2

26. What would be the simple interest accrued in 4 years on a principal of ₹16,500 at the rate of 16 p.c.p.a.?

(a) ₹ 11,560 (b) ₹ 10,250

(c) ₹ 12,500 (d) ₹ 9,980

(e) None of these

27. A truck covers a distance of 360 km in 8 hours. A car covers the same distance in 6 hours. What is the respective ratio between the speed of the truck and the car?

(a) 3 : 5 (b) 3 : 4
(c) 1 : 2 (d) 4 : 5
(e) None of these

28. In order to pass in an exam a student is required to get 975 marks out of the aggregate marks. Priya got 870 marks and was declared failed by 7 per cent. What are the maximum aggregate marks a student can get in the examination?

(a) 1500
(b) 1000
(c) 1200
(d) Cannot be determined
(e) None of these

29. The average of four consecutive numbers A, B, C and D respectively is 56.5. What is the product of A and C?

(a) 3363 (b) 3306
(c) 3192 (d) 3080
(e) None of these

30. Parag walks 226 metres everyday. How many kilometres will he walk in five weeks?

(a) 6.57 (b) 7.91
(c) 8.23 (d) 9.41
(e) None of these

31. On children's day sweets were to be equally distributed amongst 200 children. But on that particular day 40 children remained absent; hence each child got 2 sweets extra. How many sweets were distributed?

(a) 3000 (b) 1500
(c) 2000 (d) 1600
(e) Cannot be determined

32. The perimeter of a square is one-fourth the perimeter of a rectangle. If the perimeter of the square is 44 cm and the length of the rectangle is 51 cm, what is the difference between the breadth of the rectangle and the side of the square?

(a) 30 cm (b) 18 cm
(c) 26 cm (d) 32 cm
(e) None of these

33. What is the difference between the compound interest and simple interest accrued on an amount of ₹12,000 at the end of three years at the rate of 12%?

(a) ₹ 539.136 (b) ₹ 602.242
(c) ₹ 495.248 (d) ₹ 488.322
(e) None of these

34. The area of a rectangle is equal to the area of a circle with circumference equal to 220 metres. What is the length of the rectangle if its breadth is 50 metres?

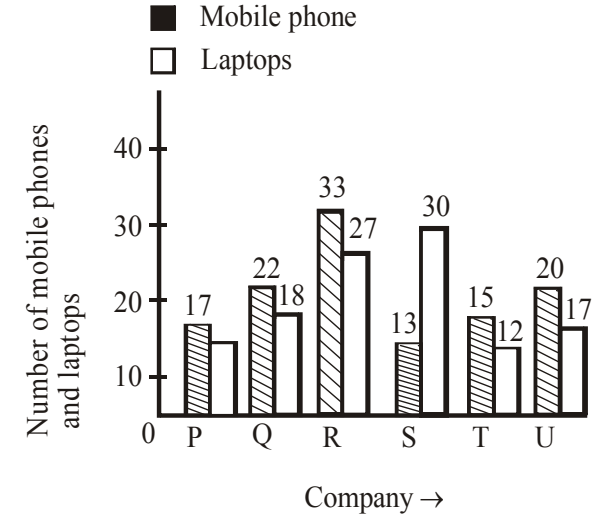
(a) 56 metres (b) 83 metres
(c) 77 metres (d) 69 metres
(e) None of these

35. Prashant incurred a loss of 75 per cent on selling an article for ₹ 6,800. What was the cost price of the article?

(a) ₹ 27,700 (b) ₹ 25,600
(c) ₹ 21,250 (d) ₹ 29,000
(e) None of these

DIRECTIONS (Qs. 36-40) : In the following bar diagram, the number of mobile phones and laptops (in thousands) sold by 6 different companies in a certain month has been given. Study the bar diagram carefully to answer the questions.

Number of mobile phones and laptops (in thousands) sold by 6 different companies in a month.



36. What is the average number of mobile phones sold by all companies taken together in a month ?

(a) 18 thousands (b) 20 thousands
(c) 17 thousands (d) 19 thousands
(e) None of these

37. By what percent the number of mobile phones sold by company U is more than that of company T ?

(a) $33\frac{1}{3}\%$ (b) 22%
(c) 20% (d) $23\frac{2}{3}\%$
(e) None of these

38. What is the average of the number of laptops sold by companies P, R and T ?

(a) 17 thousands (b) 17.3 thousands
(c) 18 thousands (d) 16 thousands
(e) None of these

39. What is the respective ratio between the number of mobile phones sold by company T and that of laptops sold by company Q ?

(a) 3 : 5 (b) 6 : 5
(c) 5 : 3 (d) 5 : 6
(e) None of these

40. What is the respective ratio of the numbers of laptops sold by company Q and company R?
(a) 2 : 5 (b) 4 : 3
(c) 3 : 4 (d) 3 : 2
(e) 2 : 3

REASONING ABILITY

41. In a certain code, a number 13479 is written as AQFJL and 2568 is written as DMPN. How is 396824 written in that code ?
(a) QLPNMJ (b) QLPNMF
(c) QLPMNF (d) QLPNDF
(e) None of these

42. In the following sequence or instructions, 1 stands for Run, 2 stands for Stop, 3 stands for Go, 4 stands for Sit and 5 stands for Wait. If the sequence is continued, which instruction will come next ?
4 4 5 4 5 3 4 5 3 1 4 5 3 1 2 4 5 4 5 3 4 5 3
(a) Wait (b) Sit
(c) Stop (d) Run
(e) None of these

43. If the first and second letters in the word DEPRESSION were interchanged, also the third and the fourth letters, the fifth and the sixth letters and so on, which of the following would be the seventh letter from the right ?
(a) R (b) O
(c) S (d) P
(e) None of these

44. In a certain code '*na pa ka so*' means 'birds fly very high', '*ri so la pa*' means 'birds are very beautiful' and '*ti me ka bo*' means 'the parrots could fly'. Which of the following is the code for 'high' in that language ?
(a) *na* (b) *ka*
(c) *bo* (d) *so*
(e) None of these

45. If 'P' denotes '–'; 'Q' denotes ' ÷ ', 'R' de notes '×' and 'W' denotes '+' then-
48 Q 12 R 10 P 8 W 4=?
(a) 56 (b) 40
(c) 52 (d) 44
(e) None of these

46. Laxman went 15 km to the west from my house, then turned left and walked 20 km. He then turned East and walked 25 km and finally turning left covered 20 km. How far was he from my house ?
(a) 5 km (b) 10 km
(c) 40 km (d) 80 km
(e) None of these

47. If 'yellow' means 'green', 'green' means 'white', white means 'red', 'red' means 'black', 'black' means 'blue' and 'blue' means 'violet', which of the following represents the colour of human blood ?
(a) black (b) violet
(c) red (d) blue
(e) None of these

48. A trader in order to code the prices of article used the letters of PSICHOLAZY in the form of '0 to 9' respectively. Which of the following code stands for ₹ 875.50 ?
(a) AIL.HP (b) AIL.HS
(c) ZYA.HO (d) ZCA.OP
(e) None of these

DIRECTIONS (Qs. 49-53) : In each of the following questions there are three items. These three items may or may not be related with one another. Each group of items may fit into one of the diagrams (a), (b), (c), (d) and (e). You have to decide in which of the following diagrams and groups of items may fit. The number of that diagram is the answer.

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 nor II follows.
Give answer (e) if both I and II follow.

49. **Statements:**
All leaders are good team workers.
All good team workers are good orators.
Conclusions:
I. Some good team workers are leaders.
II. All good orators are leaders.

50. **Statements:**
All terrorists are human.
All humans are bad.
Conclusions:
I. All terrorists are bad.
II. No human can be a terrorist.

51. **Statements:**
Some teachers are followers.
Some followers are famous.
Conclusions:
I. Some teachers are famous.
II. Some followers are teachers.

52. **Statements:**
Some books are pens.
No pen is pencil.
Conclusions:
I. Some books are pencils.
II. No book is pencil.

53. **Statements:**
Some dedicated sourls are angles
All social workers are angles.
Conclusions:
I. Some dedicated souls are social workers
II. Some social workers are dedicated souls

DIRECTIONS (Qs. 54-55) : Study the information given below and answer the questions following it:

Mohan is son of Arun's father's sister. Prakash is son of Reva, who is mother of Vikash and grandmother of Arun. Pranab is father of Neela and grandfather of Mohan. Reva is wife of Pranab.

54. How is Mohan related to Reva ?
(a) Grandson (b) Son
(c) Nephew (d) Data inadaequate
(e) None of these

55. How is Vikash's wife related to Neela ?
(a) Sister (b) Niece
(c) Sister-in-law (d) Data inadaequate
(e) None of these

DIRECTIONS (Qs. 56-60) : Read the following information carefully to answer the questions that follow.

There are six teachers A, B, C, D, E and F in a school. Each of the teachers teaches two subjects, one compulsory subject and the other optional subject. D's optional subject is History while three others have it as compulsory subject. E and F have Physics as one of their subjects. F's compulsory subject is Mathematics which is an optional subject of both C and E. History and English are A's subjects but in terms of compulsory and optional subjects, they are reverse of those of D's. Chemistry is an optional subject of any one of them. There is only one female teacher in the school who has English as her compulsory subject.

56. What is C's compulsory subject ?
(a) History (b) Physics
(c) Chemistry (d) English
(e) None of these

57. Who is a female member in the group ?
(a) A (b) B
(c) C (d) D
(e) None of these

58. Who among the following has same optional subjects as that of the compulsory subject of F ?
(a) D (b) B
(c) A (d) C
(e) None of these

59. Disregarding which is compulsory and which is the optional subject, who has the same two subjects combination as F ?
(a) A (b) B
(c) E (d) D
(e) None of these

60. Which of the following groups of teachers has History as the compulsory subject ?
(a) A, C and D (b) B, C and D
(c) C and D (d) A, B and C
(e) None of these

DIRECTIONS (Qs. 61-65) : In each of the questions below a group of letters are given followed by four groups of digits/symbol combinations numbered (a) (b), (c) and (d). Letters are to be coded as per the codes and conditions given below. You have to find out which of the combinations (a), (b) , (c) and (d) is correct and indicate your answer accordingly. If none of the four represents the correct code, mark (e) i.e. 'None of these' as your answer.

Letter	B	H	S	N	T	O	A	K	R	I	E	U	G
Digit/ Symbol Code	6	8	1	#	5	2	$	3	9	@	4	7	%

Conditions :
(i) If the first as well as last letter is vowel, both are to be coded as 'O'.
(ii) If the first letter is a vowel and the last letter is consonant, both are to be coded as 'Z'.
(iii) If the first letter is a consonant and the last letter is vowel, both are to be coded as '*'.

61. **ONSIRT**
(a) 2#1@95 (b) Z#@195
(c) Z#1@9Z (d) Z#1@95
(e) None of these

62. **KIUBSR**
(a) O@76129 (b) O@7610
(c) 3@7691 (d) 3@6719
(e) None of these

63. **BKAEUG**
(a) 03$470 (b) 63$470
(c) 03$47% (d) 63$47%
(e) None of these

64. **STOKGA**
(a) 1523%$ (b) 1523%*
(c) *523%* (d) *523%$
(e) None of these

65. **ORHSNU**
(a) O98#17 (b) O981#O
(c) 298#10 (d) 2981#7
(e) None of these

DIRECTIONS (Qs. 66-70) : In the following questions, the symbols @, #, $, % and © are used with the following meaning as illustrated below :

'P $ Q' means 'P is not greater 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 © Q' means 'P is not smaller than Q'.
'P # Q' means 'P is neither greater than nor smaller than Q'.

Now in each of the following questions assuming the given statements to be true, find which of the three conclusions I, II and III given below them is/are definitely true.

66. **Statements :** M @ R, R © K, J % K
Conclusions : I. M @ J
II. J % R
III. K % M
(a) Only I follows (b) Only I and II follow
(c) Only II and III follow (d) All follow
(e) None of these

67. **Statements :** D © N, N # V, W $ V
Conclusions : I. D # W
II. W % D
III. V # D
(a) Only III follows
(b) Only either I or II follows
(c) Only either II or III follows
(d) Only either I or III follows
(e) None of these

68. **Statements :** H % B, M © B, K # M
Conclusions : I. K @ H
II. B # K
III. K @ B
(a) All follow
(b) Only I follows
(c) Only either II or III follows
(d) Only either II or III and I follow
(e) None of these

69. **Statement :** V © M, N $ V, J @ N
Conclusions : I. J @ M
II. M @ N
III. V @ J
(a) Only II follows
(b) Only I follows
(c) Only either I or II follows
(d) Only III follows
(e) None of these

70. **Statements :** A @ B, B © E, F % E
Conclusions : I. A @ F
II. F % B
III. E % A
(a) Only I follows
(b) Only I and II follow
(c) Only I and III follow
(d) I, II and III follow
(e) None of these

DIRECTIONS (Qs. 71-75): Study the following information carefully and answer the given questions.

In a certain code language- '**economics is not money**' is written as, '**ka la ho ga**' '**demand and supply economics**' is written as, '**mo ta pa ka**' money makes only part' is written as, '**zi la ne ki**' demand makes supply economics' is written as, '**zi mo ka ta**'

71. What is the code for 'money' in the given code language?
(a) ga (b) mo
(c) pa (d) ta
(e) la

72. What is the code for 'supply' in the given code language?
(a) only ta (b) only mo
(c) either pa or mo (d) only pa
(e) either mo or ta

73. What may be the possible code for 'demand only more' in the given code language?
(a) xi ne mo (b) mo zi ne
(c) ki ne mo (d) mo zi ki
(e) xi ka ta

74. What may be the possible code for 'work and money' in the given code language?
(a) pa ga la (b) pa la tu
(c) mo la pa (d) tu la ga
(e) pa la ne

75. What is the code for 'makes' in the given code language?
(a) mo (b) pa
(c) ne (d) zi
(e) ho

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

If A + B means A is the father of B
If A × B means A is the sister of B
If A $ B means A is the wife of B
If A % B means A is the mother of B
If A ÷ B means A is the son of B

76. What should come in place of the question mark, to establish that J is the brother of T in the expression?
J ÷ P % H ? T % L
(a) × (b) ÷
(c) $ (d) Either ÷ or ×
(e) Either + or ÷

77. Which among the given expressions indicate that M is the daughter of D?
(a) L % R $ D + T × M (b) L + R $ D + M × T
(c) L % R % D + T ÷ M (d) D + L $ R + M × T
(e) L $ D ÷ R % M ÷ T

78. Which among the following options is true if the expresssion 'I + T % J × L ÷ K' is **definitely true**?
(a) L is the daughter of T
(b) K is the son-in-law of I
(c) I is the grandmother of L
(d) T is the father of L
(e) J is the brother of L

79. Which among the following expression is true if Y is the son of X is **definitely false**?
(a) W % L × T × Y ÷ X (b) W + L × T × Y ÷ X
(c) X + L × T × Y ÷ W (d) W $ X + L + Y + T
(e) W % X + T × Y ÷ L

80. What should come in place of the question mark, to establish that T is the sister-in-law of Q in the expression?
R % T × P ? Q + V
(a) ÷ (b) %
(c) × (d) $
(e) Either $ or ×

HINTS & EXPLANATIONS

1. (b) $16\%\text{ of }450 \div ?\%\text{ of }250 = 4.8$

$\Rightarrow \quad 450 \times \frac{16}{100} \div 250 \times \frac{?}{100} = 4.8$

$\Rightarrow \quad 72 \div 2.5 \times ? = 4.8$

$\Rightarrow \quad 2.5 \times ? = \frac{72}{4.8}$

$\therefore \quad ? = \frac{72}{4.8 \times 2.5} = 6$

2. (a) $? = 19.5\%\text{ of }524 = 524 \times \frac{19.5}{100} = 102.18$

3. (e) $\sqrt{?} - 11 = \sqrt{1521}$

$\Rightarrow \sqrt{?} - 11 = 39$

$\Rightarrow \quad \sqrt{?} = 39 + 11 = 50$

$\therefore \quad ? = (50)^2 = 2500$

4. (d) $? = 700 \div 70 \div 0.5 = 700 \times \frac{1}{70} \times \frac{1}{0.5} = 20$

5. (b) $? = 12.8 \times 4.5 \times 2.2 = 126.72$

6. (e) $? = 55 \div 5.5 - 0.5 = 55 \times \frac{1}{5.5} - 0.5$

$= 10 - 0.5 = 9.5$

7. (b) $(25)^? = (5 \times 5 \times 5 \times 5 \times 5 \times 5)^4 \times (5 \times 5)^6 \div (5)^2$

$= (25 \times 25 \times 25)^4 \times (25)^6 \div (25)^1$

$= (25^3)^4 \times (25)^6 \div 25^1 = (25)^{12} \times (25)^6 \div (25)^1$

$= (25)^{12+6-1} = (25)^{17}$

$\therefore \quad ? = 17$

8. (a) $? \times 40 = 8059 - 7263 = 796$

$\therefore \quad ? = \frac{796}{40} = 19.9$

9. (a) $4 \times ? = 4062 \div 5 = 4062 \times \frac{1}{5} = 812.4$

$\therefore \quad ? = \frac{812.4}{4} = 203.1$

10. (e) $? = 3.5 \times (80 \div 2.5) = 3.5 \times \left(80 \times \frac{1}{2.5}\right) = 3.5 \times 32 = 112$

11. (d) $? = 5\frac{1}{5} + 2\frac{3}{5} + 1\frac{2}{5} = \frac{26}{5} + \frac{13}{5} + \frac{7}{5}$

$= \frac{26+13+7}{5} = \frac{46}{5} = 9\frac{1}{5}$

12. (c) $13\%\text{ of }258 - ? = 10$

$\therefore \quad ? = 13\%\text{ of }258 - 10$

$= 258 \times \frac{13}{100} - 10 = 33.54 - 10 = 23.54$

13. (d) $? = \frac{4}{5} \times 2\frac{3}{4} \div \frac{5}{8} = \frac{4}{5} \times \frac{11}{4} \div \frac{5}{8}$

$= \frac{4}{5} \times \frac{11}{4} \times \frac{8}{5} = \frac{88}{25} = 3\frac{13}{25}$

14. (e) $? = 623.15 - 218.82 - 321.43 = 623.15 - 540.25 = 82.9$

15. (b) $? \times 50 = 5437 - 3153 + 2284 = 7721 - 3153 = 4568$

$\therefore \quad ? = \frac{4568}{50} = 91.36$

16. (c) Given series.

2 16 112 672 3360 13440 **40320**

×8 ×7 ×6 ×5 ×4 ×3

$\therefore \quad ? = 40320$

17. (b) Given series.

4 9 19 **39** 79 159 319

×2+1 ×2+1 ×2+1 ×2+1 ×2+1 ×2+1

$\therefore \quad ? = 39$

18. (c) Given series

4000 2000 1000 500 250 125 **62.5**

÷ 2 ÷ 2 ÷ 2 ÷ 2 ÷ 2 ÷ 2

$\therefore \quad ? = 62.5$

19. (a) Given series.

588 563 540 519 **500** 483 468

− 25 − 23 − 21 − 19 − 17 − 15

$\therefore \quad ? = 500$

20. (d) Given series.

121 **100** 81 64 49 36 25

$(11)^2$ $(10)^2$ $(9)^2$ $(8)^2$ $(7)^2$ $(6)^2$ $(5)^2$

$\therefore \quad ? = 100$

21. (c) Let the positive no. be x.

According to question. 15% of x + 10% of x = 70

$\Rightarrow \quad x \times \frac{15}{100} + \frac{x \times 10}{100} = 70$

$\Rightarrow \quad \frac{15x}{100} + \frac{10x}{100} = 70$

$\Rightarrow \quad \frac{25x}{100} = 70$

$\therefore \quad x = \frac{70 \times 100}{25} = 280$

$\therefore$ Double of given no. = 280 × 2 = 560

22. (b) Total number obtained by Vikram

$= (100 \times 5) \times \frac{72}{100} = 500 \times \frac{72}{100} = 360$

$\therefore$ Number in science

$= 360 - (80 + 70 + 76 + 65) = 360 - 291 = 69$

23. (c) Monthly income of Prarthana's $= \frac{4,20,000}{12} = ₹\ 35,000$

Monthly income of Pooja and Falgunis

$= 35,000 \times \frac{53+57}{70} = 35,000 \times \frac{110}{70} = ₹\ 55,000$

$\therefore$ Annual income of Pooja and Falgunis

$= 55,000 \times 12 = ₹\ 6,60,000$

24. (a) Cost price of item.

$= 8400 \times \frac{100}{100-25} = 8400 \times \frac{100}{75} = ₹\ 11200$

SP of item

$= 11200 \times \frac{100+40}{100} = 11200 \times \frac{140}{100} = ₹\ 15680$

25. (e) $\frac{(?)^{2.3}}{8} = \frac{2}{(?)^{1.7}}$

$\Rightarrow (?)^{2.3+1.7} = 16 \Rightarrow (?)^4 = 16 = (2)^4$

$\therefore ? = 2$

26. (e) Simple interest

$= \frac{\text{principle} \times \text{time} \times \text{rate}}{100} = \frac{16500 \times 4 \times 16}{100} = ₹10560$

27. (b) Speed of truck $= \frac{\text{distance}}{\text{time}} = \frac{360}{8} = 45\,\text{km/hr}$

Speed of car $= \frac{\text{distance}}{\text{time}} = \frac{360}{6} = 60\,\text{km/hr}$

$\therefore$ Ratio $= 45 : 60 = 3 : 4$

28. (a) Minimum marks to pass = 975

Priya failed by $975 - 870 = 105$ marks

$\therefore$ Maximum mark $= \frac{105}{7} \times 100 = 1500$

29. (e) Let four consecutive numbers are

$A = (x), B = (x+1), C = (x+2)$ and $D = (x+3)$

According to question

$$\text{Average} = \frac{(x) + (x+1) + (x+2) + (x+3)}{4}$$

$\Rightarrow \quad 56.5 = \frac{4x+6}{4}$

$\Rightarrow \quad 226 = 4x + 6$

$\Rightarrow \quad 4x = 226 - 6 = 220 \qquad \therefore \ x = \frac{220}{4} = 55$

$\therefore$ Product of A and C

$= (x) \times (x+2) = (55) \times (55+2) = 55 \times 57 = 3135$

30. (b) Required distance

$= 226 \times (5 \times 7) = 226 \times 35 = 7910\ \text{m} = 7.91\,\text{km}$

31. (d) Let x sweets is distributed to each children

According to question $(200 - 40) \times (x + 2) = 200 \times x$

$\Rightarrow \quad (160) \times (x+2) = 200x \ \Rightarrow \ 160x + 320 = 200x$

$\Rightarrow \quad 200x - 160x = 320 \ \Rightarrow \ 40x = 320$

$\therefore \quad x = \frac{320}{40} = 8$

$\therefore$ Total no. of sweets $= 200 \times x = 200 \times 8 = 1600$

32. (c) One side of square $= \frac{\text{circumference}}{4} = \frac{44}{4} = 11\,\text{cm}$

Circumference of rectangle = 4 × perimeter of square

$= 4 \times 44 = 176\,\text{cm}$

width of rectangle

$= \frac{\text{circumference of rectangle}}{2} - \text{length}$

$= \frac{176}{2} - 51 = 88 - 51 = 37\ \text{cm}.$

$\therefore$ Required difference = width – side = 37 – 11 = 26 cm.

33. (a) S.I. $= \frac{\text{principal} \times \text{time} \times \text{rate}}{100}$

$= \frac{12000 \times 3 \times 12}{100} = ₹4320$

$\text{C.I.} = P\left[\left(1 + \frac{\text{rate}}{100}\right)^{\text{time}} - 1\right]$

$= 12000\left[\left(1 + \frac{12}{100}\right)^3 - 1\right]$

$= 12000\left[\left(\frac{28}{25}\right)^3 - 1\right]$

$= 12000\left[\frac{21952}{15625} - 1\right] = 12000 \times \frac{6327}{15625}$

$= ₹4859.136$

$\therefore$ Required difference = 4859.136 – 4320 = ₹539.136

34. (c) Radius of circle (r) $= \frac{\text{circumference}}{2\pi} = \frac{220 \times 7}{2 \times 22} = 35\,\text{m}.$

Area of circle $= \pi r^2 = \frac{22}{7} \times (35)^2 = \frac{22}{7} \times 35 \times 35$

$= 3850\ \text{m}^2 = \text{area of rectangle}$

$\therefore$ Length of rectangle $= \frac{\text{area of rectangle}}{\text{width}}$

$= \frac{3850}{50} = 77\,\text{m}.$

35. (e) CP of article

$= 6800 \times \frac{100}{100-75} = 6800 \times \frac{100}{25} = ₹\ 27200$

36. (b) Required average $= \frac{17 + 22 + 33 + 13 + 15 + 20}{6}$

$= \frac{120}{6} = 20$ thousand

37. (a) Required per cent $= \frac{20-15}{15} \times 100 = \frac{100}{3} = 33\frac{1}{3}\%$

38. (b) Required average $= \frac{13+27+12}{3}$

$= \frac{52}{3} = 17\frac{1}{3}$ thousands

39. (d) Required ratio = 15 : 18 = 5 : 6

40. (e) Required ratio = 18 : 27 = 2 : 3

41. (d)

1	3	4	7	9	2	5	6	8
A	Q	F	J	L	D	M	P	N

Thus,

3	9	6	8	2	4
Q	L	P	N	D	F

42. (d) 4, 45, 453, 4531, 45312, 45, 453, 4531
The next coded digit will be 1. Hence, the instruction Run will come next.

43. (d) The new letter sequence is EDRPSEISNO.
The seventh letter from the right is P.

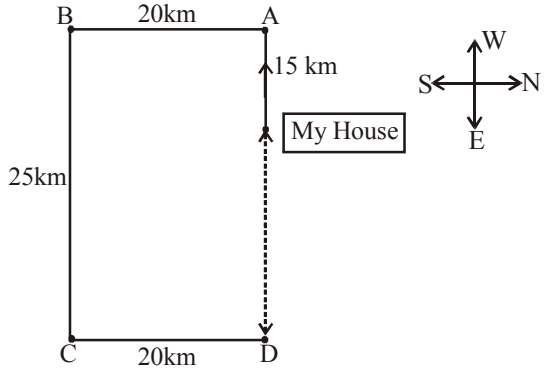
D E P R E S S I O N

1 2 3 4 5 6 7 8 9 10

44. (a) na *pa* ka *so* → *birds* fly *very* high
ri *so* la *pa* → *birds* are *very* beautiful
ti me *ka* bo → the parrots could fly
Thus *high* is coded as *na*.

45. (e) 48 Q 12 R 10 P 8 W 4 = ?
⇒ ? = 48 ÷ 12 × 10 – 8 + 4
⇒ ? = 4 × 10 – 8 + 4
⇒ ? = 40 – 8 + 4 = 36

46. (b)



From the above diagram required distance
= 25 – 15 = 10 km.

47. (e) The colour of human blood is red. Here *white* means *red*. Therefore *white* is our answer.
Do not opt for *black* because *red* means *black* implies that black is called red.

48. (e) P S I C H O L A Z Y
0 1 2 3 4 5 6 7 8 9
875.50 = ZAO.OP

49. (a) Conclusion I is the conversion of first statement, hence I follows. But II does not follow because A + A = A i.e. All leaders are good orators but not *vice versa*.

50. (a) A + A = A; i.e. All terrorists are human.

51. (b) I does not follow. But II follows because it is conversion of the first statement.

52. (c) 53. (d)

(54-55) : Pranab ⇔ Reva
(+) (–)
↓ ↓ ↓
Neela (–) Prakash (+) Vikash
↓
Mohan (+) Arun

54. (a) 55. (c)

For (Qs. 56 to 60)
The given information is summarised in a table as follows :

Teachers	Subjects	
	Compulsory	**Optional**
A	History	English
B	History	Chemistry
C	History	Mathematics
D	(Female) English	History
E	Physics	Mathematics
F	Mathematics	Physics

56. (a) History is the compulsory subject of C.

57. (d) D is a female member in the group.

58. (d) The compulsory subject of F (Mathematics) is the optional subject of C.

59. (c) E has physics and Mathematics as his two subjects.

60. (d) A, B and C all have History as the compulsory subjects.

61. (c)

Letter	O	N	S	I	R	T
Code	Z	#	1	@	9	Z

Condition (ii) is applied.

62. (e)

Letter	K	I	U	B	S	R
Code	3	@	7	6	1	9

63. (d)

Letter	B	K	A	E	U	G
Code	6	3	$	4	7	%

64. (c)

Letter	S	T	O	K	G	A
Code	*	5	2	3	%	*

Condition (iii) is applied.

65. (b)

Letter	O	R	H	S	N	U
Code	O	9	8	1	#	O

Condition (i) is applied.

66. (d) M > R ...(i)
R ≥ K ...(ii)
J < K ...(iii)
Combining (i), (ii) and (iii), we get
M > R ≥ K > J ⇒ M > J (conclusion I)
R > J (conclusion II)
M > K (conclusion III)
Hence, conclusion I (M > J), conclusion II (J < R) and conclusion III (K < M) are true.

67. (b) $D \geq N$ ...(i)
$N = V$ ...(ii)
$W \leq V$ ...(iii)
Combining (i) and (ii), we get
$D \geq N = V \Rightarrow D \geq V$. Hence, conclusion III ($V = D$) is not necessary true.
Again, combining all (i), (ii) and (iii), we get
$D \geq N = V \geq W \Rightarrow D \geq W$. Hence, neither conclusion I ($D = W$) nor conclusion II ($W < D$) is true. But both conclusion I ($D = W$) and conclusion II ($W < D$) together make a complementary pair. Hence, either conclusion I or conclusion II is true.

68. (d) $H < B$ ...(i)
$M \geq B$ ...(ii)
$K = M$ ...(iii)
Combining (ii) and (iii), we get
$K = M \geq B \Rightarrow K \geq B$. Hence, neither conclusion II ($B = K$) nor conclusion III ($K > B$) is true. But, both conclusion I and conclusion II together make a complementary pair. Hence, either conclusion II ($B = K$) or conclusion III ($K > B$) is true.
Again, combining all (i), (ii) and (iii), we get
$K = M \geq B > H \Rightarrow K > H$ (conclusion I). Hence, conclusion I ($K > H$) is true.

69. (e) $V \geq M$ ...(i)
$N < V$ ...(ii)
$J > N$ ...(iii)
From (i) and (ii), no specific relation between M and N can be established. Hence, conclusion II ($M > N$) is not necessarily true.
Again, from all (i), (ii) and (iii), no specific relation between J and M can be established. Hence, conclusion I ($J > M$) is not necessarily true. Again, from (ii) and (iii), no specific relation between V and J can be established. Hence, conclusion III ($V > J$) is not necessarily true.

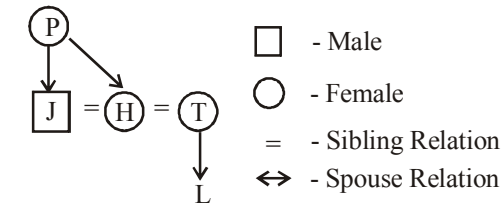
70. (d) $A > B$ ....(i)
$B \geq E$ ....(ii)
$F < E$ ....(iii)
Combining (i), (ii) and (iii), we get
$A > B \geq E > F$
Hence, Conclusion I ($A > F$)
Conclusion II ($F < B$)
and Conclusion III ($E < A$) are true.

(71-75)
Economics is not money - ka la ho ga .....(i)
demand and supply economics - mo ta pa ka ..... (ii)
money makes only part - zi la ne ki ..... (iii)
demand makes supply economics - zi mo ka ta ... (iv)
From (i) & (iii)
money → 'la'
From (iii) & (iv)
makes → 'zi'
From (i) & (iv)
economics – 'ka'
Also, and - 'pa'
demand - 'mo' or 'ta'
supply - 'mo' or 'ta'
only - 'ne' or 'ki'
part - 'ne' or 'ki'
is - 'ho' or 'ga'
not - 'ho' or 'ga;

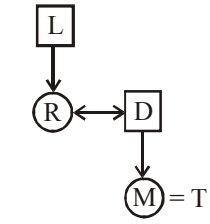
71. (e) 72. (e) 73. (a) 74. (b) 75. (d)

(76-80)
$A + B \Rightarrow$ A is the father of B.
$A \times B \Rightarrow$ A is the sister of B.
$A \$ B \Rightarrow$ A is the wife of B.
$A \% B \Rightarrow$ A is the mother of B.
$A \div B \Rightarrow$ A is the son of B.

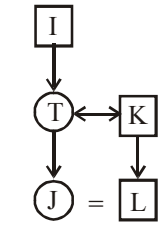
76. (a) $J \div P \% H \times T \% L$ can be represented in diagram. As follows.



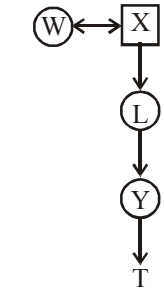
77. (b) $L + R \$ D + M \times T$



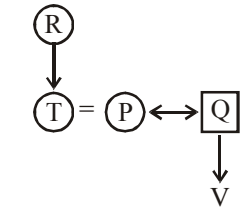
78. (b) $I + T \% J \times L \div K$



79. (d) $W \$ X + L + Y + T$



80. (d) $R \% T \times P \$ Q + V$



PRACTICE SET 15

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. 1-10) : What will come in place of question mark (?) in the following questions ?

1. 48% of $525 + ?\%$ of $350 = 399$
(a) 42 (b) 46 (c) 28
(d) 26 (e) None of these

2. $\frac{3}{7}$ of $\frac{4}{5}$ of $\frac{5}{8}$ of $490 = ?$
(a) 115 (b) 105 (c) 108
(d) 116 (e) None of these

3. $\sqrt{?} + 17^2 = 335$
(a) 46 (b) 42 (c) 1764
(d) 2116 (e) None of these

4. 125% of $560 + 22\%$ of $450 = ?$
(a) 799 (b) 700 (c) 782
(d) 749 (e) None of these

5. $\frac{28 \times 5 - 15 \times 6}{7^2 + \sqrt{256} + (13)^2} = ?$
(a) $\frac{27}{115}$ (b) $\frac{22}{117}$ (c) $\frac{25}{117}$
(d) $\frac{22}{115}$ (e) None of these

6. $18.76 + 222.24 + 3242.15 = ?$
(a) 3384.15 (b) 3483.15 (c) 3283.25
(d) 3383.25 (e) None of these

7. $784 \div 16 \div 7 = ?$
(a) 49 (b) 14 (c) 21
(d) 7 (e) None of these

8. $\frac{3}{2}$ of $455 + \frac{5}{8}$ of $456 = ?$
(a) 448 (b) 476 (c) 480
(d) 464 (e) None of these

9. 1.05% of $2500 + 2.5\%$ of $440 = ?$
(a) 37.50 (b) 37.25 (c) 370.25
(d) 372.50 (e) None of these

10. $4900 \div 28 \times 444 \div 12 = ?$
(a) 6575 (b) 6475 (c) 6455
(d) 6745 (e) None of these

11. What is the compound interest accrued on an amount of Rs 8500 in two years @ interest 10% per annum?
(a) ₹1875 (b) ₹1885 (c) ₹1775
(d) ₹1765 (e) None of these

12. A train running at the speed of 60 kmph crosses a 200 m long platform in 27 s. What is the length of the train ?
(a) 250m (b) 200m (c) 240m
(d) 450m (e) None of these

13. 10 men can complete a piece of work in 8 days. In how many days can 16 men complete that work?
(a) 4 days (b) 5 days (c) 6 days
(d) 3 days (e) None of these

14. If the numerator of a certain fractions increased by 100% and the denominator is increased by 200%; the new fraction thus formed is $\frac{4}{21}$. What is the original fraction?
(a) $\frac{2}{7}$ (b) $\frac{3}{7}$ (c) $\frac{2}{5}$
(d) $\frac{4}{7}$ (e) None of these

15. The ratio of the ages of A and B seven years ago was 3 : 4 respectively. The ratio of their ages nine years from now will be 7 : 8 respectively. What is B's age at present ?
(a) 16 years (b) 19 years (c) 28 years
(d) 23 years (e) None of these

16. The perimeter of a square is thrice the perimeter of a rectange. If the perimeter of the square is 84 cm and the length of the rectangel is 8 cm, what is the difference between the breadth of the rectangle and the sidce of the square?
(a) 15 cm (b) 19 cm (c) 10 cm
(d) 8 cm (e) None of these

17. The area of a circle is equal to the area of a rectangel with perimeter equal to 42 m and breadth equal to 8.5 m. What is the area of the circle?
(a) 116.25 sq m (b) 104.25 sq m (c) 146.25 sqm
(d) 128.25 sq m (e) None of these

18. The product of 5% of a positive number and 3% of the same number is 504.6 What is half of that number?
(a) 290 (b) 340 (c) 680
(d) 580 (e) None of these

19. 4 women and 12 children together take four days to complete a piece of work. How many days will four children alone take to complete the piece of work if two women alone can complete the piece of work in 16 days?
(a) 32 (b) 24 (c) 16
(d) 12 (e) None of these

20. Anu walks 2.31 km in three weeks by walking an equal distance each day. How many metres does she walk each day?
(a) 110 m (b) 90 m (c) 140 m
(d) 120 m (e) None of these

21. A man riding a bicycle completes one lap of a square field along its perimeter at the speed of 43.2 km/hr in 1 minute 20 seconds. What is the area of the field?
(a) 52900 sq m (b) 57600 sq m (c) 48400 sq m
(d) Can't be determined
(e) None of these

22. On Teacher's Day, 4800 sweets were to be equally distributed among a certain number of children. But on that particular day 100 children were absent. Hence, each child got four sweets extra. How many children were originally supposed to be there?
(a) 300 (b) 400 (c) 540
(d) 500 (e) Can't be determined.

23. The ratio of the monthly oncomes of Sneha, Tina and Akruti is 95:110:116. If Sneha's annual income is ₹3,42,000, what is Akruit's annual income?
(a) ₹3,96,900 (b) ₹5,63,500 (c) ₹4,17,600
(d) ₹3,88,000 (e) None of these

24. A truck covers a distance of 256 km at the speed of 32 km/hr. What is the average speed of a car which travels a distance of 160 km more than the truck in the same time?
(a) 46 kmh^{-1} (b) 52 kmh^{-1} (c) 49 kmh^{-1}
(d) 64 kmh^{-1} (e) None of these

25. In an examination, the maximum aggregate marks is 1020. In order to pass the exam a student is required to obtain 663 marks out of the aggregate marks. Shreya obtained 612 marks. By what per cent did Shreya fail the exam?
(a) 5% (b) 8% (c) 7%
(d) Can't be determined
(e) None of these

DIRECTIONS (Qs. 26-30): Study the following information and answer the questions that follow :

The premises of a bank are to be renovated. The renovation is in terms of flooring. Certain areas are to be floored either with marble or wood. All rooms/halls and pantry are rectangular. The area to be renovated comprises of a hall for customer transaction measuring 23 m by 29 m, branch manager's room measuring 13 m by 17 m, a pantry measuring 14 m by 13 m, a record keeping cum server room measuring 21m by 13 m and locker area measuring 29 m by 21 m. The total area of the bank is 2000 square meters. The cost of wooden flooring is ₹ 170/- per square meter and the cost of marble flooring is ₹ 190/- per square meter. The locker area, record keeping cum server room and pantry are to be floored with marble. The branch manager's room and the hall for customer transaction are to be floored with wood. No other area is to be renovated in terms of flooring.

26. What is the respective ratio of the total cost of wooden flooring to the total cost of marble flooring ?
(a) 1879 : 2527 (b) 1887 : 2386
(c) 1887 : 2527 (d) 1829 : 2527
(e) 1887 : 2351

27. If the four walls and ceiling of the branch managers room (The height of the room is 12 meters) are to be painted at the cost of ₹ 190/- per square meter, how much will be the total cost of renovation of the branch manager's room including the cost of flooring ?
(a) ₹ 1,36,800/- (b) ₹ 2,16,660/-
(c) ₹ 1,78.790/- (d) ₹ 2,11,940/-
(e) None of these

28. If the remaining area of the bank is to be carpeted at the rate of ₹ 110/- per square meter, how much will be the increment in the total cost of renovation of bank premises ?
(a) ₹ 5,820/- (b) ₹ 4,848/-
(c) ₹ 3,689/- (d) ₹ 6,890/-
(e) None of these

29. What is the percentage area of the bank that is not to be renovated ?
(a) 2.2 (b) 2.4
(c) 4.2 (d) 4.4
(e) None of these

30. What is the total cost of renovation of the hall for customer transaction and the locker area ?
(a) ₹ 2,29,100/- (b) ₹ 2,30,206/-
(c) ₹ 2,16,920/- (d) ₹ 2,42,440/-
(e) None of these

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

31. 8 52 ? 1287 4504.5 11261.25 16891.875
(a) 462 (b) 286 (c) 194
(d) 328 (e) None of these

32. 3 42 504 ? 40320 241920 967680
(a) 6048 (b) 5544 (c) 4536
(d) 5040 (e) None of these

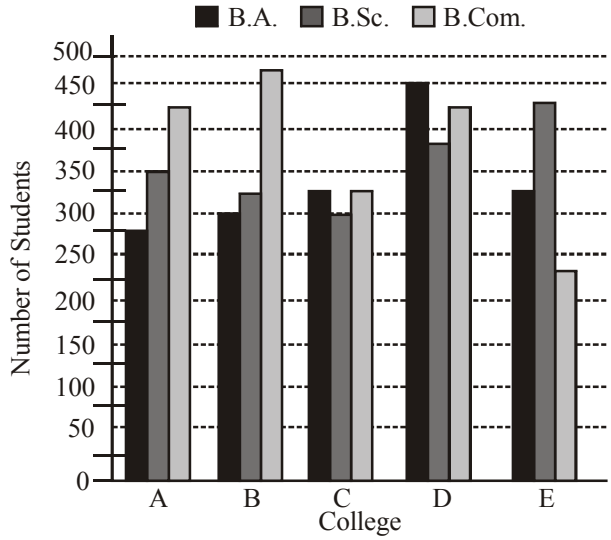
33. 403 400 394 382 358 310 ?
(a) 244 (b) 210 (c) 214
(d) 256 (e) None of these

34. 7 8 4 13 –3 22 ?
(a) –7 (b) –10 (c) –12
(d) –14 (e) None of these

35. 250000 62500 12500 3125 625 ? 31.25
(a) 156.25 (b) 172.25 (c) 125
(d) 150 (e) None of these

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

Number of Students Enrolled in Three Different Disciplines in Five Different Colleges



36. What is the total number of students studying B.Sc in all Colleges together?
(a) 1825 (b) 1975
(c) 1650 (d) 1775
(e) None of these

37. What is the respective ratio of total number of students studying B.Sc. in the colleges C and E together to those studying B.A. in the Colleges A and B together?
(a) 24 : 23 (b) 25 : 27
(c) 29 : 23 (d) 29 : 27
(e) None of these

38. What is the respective ratio of total number of students studying B.Sc., B.A. and B.Com. in all the Colleges together?
(a) 71 : 67 : 75 (b) 67 : 71 : 75
(c) 71 : 68 : 75 (d) 75 : 71 : 68
(e) None of these

39. Number of students studying B.Com. in College C forms **approximately** what percent of the total number of students studying B.Com. in all Colleges together?
(a) 39 (b) 21
(c) 44 (d) 33
(e) 17

40. Number of students studying B.A in College B forms what percent of total number of students studying all the disciplines together in that College? (rounded off two digits after decimal)
(a) 26.86 (b) 27.27
(c) 29.84 (d) 32.51
(e) None of these

REASONING ABILITY

DIRECTIONS (Qs. 41-45) : Study the following information carefully and answer the questions carefully :

Five experts on Nino-technology involved in an international Research Project hold a Quarterly Review Meeting in Singapore. There are certain limitations on their language skills. Expert R1 knows only Japanese and Hindi; R2 is good at Japanese and English; R3 is good at English and Hindi; R4 knows French and Japanese quite well, and R5, an Indian, knows Hindi, English, and French.

41. Besides R5, which of the following can converse with R4 without an interpreter?
(a) Only R1 (b) Only R2
(c) Only R3 (d) Both R1 and R2
(e) None of these

42. Which of the following cannot converse without an interpreter?
(a) R2 and R5 (b) R1 and R2
(c) R1 and R3 (d) R3 and R4
(e) None of these

43. Choose the language that is least commonly used at the meeting.
(a) English (b) French
(c) Japanese (d) Hindi
(e) None of these

44. Which of the following can act as an interpreter when R3 and R4 wish to discuss?
(a) Only R1 (b) Only R2
(c) Only R5 (d) All of the above
(e) None of these

45. Suppose a sixth Expert R6 joins the session. Which are the languages that he should know so that a maximum number of original experts are able to understand him?
(a) English and French
(d) Japanese and Hindi
(c) English and Hindi
(d) French and Japanese
(e) None of these

DIRECTIONS (Qs. 46-48): Study the following information carefully and answer the questions carefully :

In the English alphabet, letters from A to M denote numeric values from 1 to 13 (such that A is 1, B is 2, … … …) and letters from N to Z denote numeric values from -13 to -1 (such that N is -13, O is -12, … … …).

46. The numeric value of which of the following equations will be a whole number?
(a) KISS/RAPP (b) HIS/HELL
(c) HISS/YOUR (d) KISS/HELL
(e) None of these

47. Assuming that the salaries are basically coded with the help of employee names using the code given above, who among the following will be drawing the highest salary?
(a) PREM (b) SHAN
(c) RAMU (d) RHAN
(e) None of these

48. Following the above mentioned code, which of the following will be true?
(a) GS - TSZ = 0 (b) PRO = DLW
(c) ROD = YET (d) ROD = DLW
(e) None of these

DIRECTIONS (Qs. 49-53): Study the following information carefully and answer the questions carefully :

In a Public Sector Undertaking Township, there are five executives - Ambrish, Amit, Rohit, Manu and Tarun and they stay in five different flats, numbered 1 to 5.

1. Two of them play Cricket while the other three play different games viz. Football, Tennis and Chess.
2. One Cricket player and a Chess player stay in the third flat, whereas the other three stay in different flats, i.e. 2nd, 4th and 5th.
3. Two of these five players are mechanical engineers while the other three are quality inspector, design engineer, and power engineer respectively.
4. The chess player is the oldest in age while one of the cricket players, who plays at the national level, is the youngest in age.
5. The age of the other cricket player, who plays at the regional level, lies between the football player and the chess player.
6. Manu is a regional level player and stays in the 3rd flat while Tarun is a quality inspector and stays in the 5th flat.
7. The football player is a design engineer and stays in the 2nd Flat.
8. Amit is a power engineer and plays Chess while Ambrish is the mechanical engineer and plays Cricket at the national level.

49. Who stays in the 4th flat?
(a) Ambrish (b) Amit
(c) Rohit (d) Manu
(e) None of these

50. Which sport does Tarun play?
(a) Chess (b) Football
(c) Cricket (d) Tennis
(e) None of these

51. Who plays football?
(a) Ambrish (b) Amit
(c) Rohit (d) Manu
(e) None of these

52. Who stay in the same flat?
(a) Ambrish and Amit
(b) Maim and Tarun
(c) Amit and Manu
(d) Rohit and Tarun
(e) None of these

53. The Chess player is a:
(a) Power engineer (b) Mechanical Engineer
(c) Design engineer (d) Quality inspector
(e) None of these

DIRECTIONS (Qs. 54-56) : Study the information given below carefully to answer the following questions.

In a certain code language the following lines written as:
'lop eop aop fop' means 'Traders are above laws'
'fop cop bop gop' means 'Developers were above profitable'
'aop bop uop qop' means 'Developers stopped following traders'
'cop jop eop uop' means 'Following maps were laws'

54. 'Developers are following laws' would be correctly written as
(a) 'bop cop uop eop' (b) 'lop bop eop uop'
(c) 'oup cop lop aop' (d) 'gop cop uop qop'
(e) None of these

55. 'qop gop cop eop' would correctly mean
(a) profitable laws were stopped
(b) developers stopped following laws
(c) traders were above profitable
(d) were laws profitable traders
(e) None of the above

56. 'aop qop bop' would correctly mean
(a) following were above
(b) traders stopped developers
(c) developers are laws
(d) traders above stopped
(e) laws are stopped

DIRECTIONS (Qs. 57-61) : In each of the questions below are given four statements followed by three conclusions numbered I, II and III. You have to take the given statements to be true even if they seem to be at variance from commonly known facts. Read all the conclusions and then decide which of the given conclusions logically follows from the given statements disregarding commonly known facts.

57. Statements: All petals are flowers. Some flowers are buds. Some buds are leaves. All leaves are plants.
Conclusions: I. Some petals are not buds.
II. Some flowers are plants.
III. No flower is plant.
(a) Only I follows (b) Either II or III follows
(c) I and II follow (d) Only III follows
(e) None of the above

58. Statements: Some pens are keys. Some keys are locks. All locks are cards. No card is paper
Conclusions:
I. No lock is paper.
II. Some cards are keys.
III. Some keys are not paper.
(a) I and II follow (b) Only I follows
(c) Only II follows (d) All follow
(e) None follows

59. Statements: Some pearls are gems. All gems are diamonds. No diamond is stone. Some stones are corals.
Conclusions:
I. Some stones are pearls.
II. Some corals being diamond is a possibility.
III. No stone is pearl.
(a) Only I follows (b) Only II follows
(c) Either I or III follows (d) I and II follow
(e) None of these

60. Statements: Some apartments are flats. Some flats are buildings. All buildings are bungalows. All bungalows are gardens.
Conclusions:
I. All apartments being building is a possibility
II. All bungalows are not buildings.
III. No flat is garden.
(a) None follows (b) Only I follows
(c) Either I or III follows (d) II and III follow
(e) Only II follows

61. Statements: All chairs are tables. All tables are bottles. Some bottles are jars. No jar is bucket.
Conclusions:
I. Some tables being jar is a possibility.
II. Some bottles are chairs.
III. Some bottles are not bucket.
(a) Only I follows (b) I and II follow
(c) All follow (d) Only II follows
(e) None of these

DIRECTIONS (Qs. 62-66) : In these questions the symbols @, #, $, % and ★ are used with different meanings as follow.

'A @ B' means 'A is not smaller then B'.
'A # B' means 'A is neither smaller than nor equal to B'.
'A $ B' means 'A is neither greater than nor smaller than B'.
'A % B' means 'A is not greater than B'.
'A ★ B' means 'A is neither greater than nor equal to B'.
In each questions, four statements showing relationships have been given, which are followed by three conclusions I, II and III. Assuming that the given statements are true, find out which conclusion (s) is/are definitely true?

62. **Statements:** V $ Y, Y @ Z, Z % X, X # T
Conclusions:
I. T # Z II. X # Y
III. Z ★ Y
(a) None follows (b) Only I follows
(c) II and III follow (d) I and III follow
(e) Only III follows

63. **Statements:** R @ J, J % F, F ★ E, E % M
Conclusions:
I. M # J II. F % M
III. M ★ R
(a) Only I follows (b) Only II follows
(c) Only III follows (d) I and II follow
(e) All follow

64. **Statements:** H#R, R@L, L ★ W, W%F
Conclusions:
I. H # J II. F # L
III. H $ F
(a) Only I follows (b) I and II follow
(c) II and III follow (d) Either I or II follows
(e) All follow

65. **Statements:** M # K, M $ F, F % Q, Q ★ H
Conclusions:
I. H # K II. Q # K
III. Q @ M
(a) I and II follow (b) Either I or II follows
(c) All follow (d) II and III follow
(e) None of the above

66. **Statements:** D ★ Q, Q $ L, L # T, T % H
Conclusions:
I. D ★ L
II. L @ H
III. H # L
(a) Only I follows (b) I and II follow
(c) Either II or III follows (d) All follow
(e) None follow

DIRECTIONS (Qs. 67-71) : Each of the questions below consists of a question and two statements numbered I and II are given below it. You have to decide whether the data provided in the statements are sufficient to answer the question. Read both the statements and

Give answer:
(a) If the data is Statements I alone are sufficient to answer the question, while the data in Statement II alone are not sufficient to answer the question
(b) If the data in Statement II alone are sufficient to answer the question, while the date in Statement I alone are not sufficient to answer the question
(c) If the data in Statement I alone or in Statement II alone is sufficient to answer the question
(d) If the data in both the Statements I and II are not sufficient to answer the question
(e) If the data in both the Statements I and II together are necessary to answer the question

67. How many children are there in the group if no two children have same weight?
Statements:
I. Sahil is fifth from the top in order of weight if all the children in the group were arranged in descending order.
II. Ramesh, who in heavier than 14 children in the group is immediately next to Sahil in weight.

68. What is the code for 'healthy' in the code language?
Statements:
I. In the code language eat healthy food' is written as 'ka ma re'.
II. In code language 'food for healthy people' is written as 'ta ma jo re'.

69. How many brothers does 'H' have?
Statements:
I. 'H' is sister of 'K' who is son of 'T'.
II. T is mother of 'K' who is brother of 'H'.

70. Who among J, T, W, R and Q reached the office first?
Statements:
I. J reached before Q, R and T but after W.
II. Q reached before R but after W.

71. Village 'F' is in which direction with respect to village 'K'?
Statements:
I. Village 'J' is to the East of village 'F' and to the North of village 'K'.
II. Village 'R', which is to the South of village 'F' is to the West of village 'K'.

DIRECTIONS (Qs. 72-75) : Read the following passage carefully and answer the Question given below it.

Six friends Abhishek, Deepak, Mridul, Pritam, Ranjan and Salil married within a year in the months of February, April, July, September, November and December and in the cities of Ahmedabad, Bengaluru, Chennai, Delhi, Mumbai and Kolkata, but not necessarily following the above order. The brides' names were Geetika, Jasmine, Hema, Brinda, Ipsita and Veena, once again not following any order. The following are some facts about their weddings.

(i) Mridul's wedding took place in Chennai, however he was not married to Geetika or Veena

(ii) Abhishek's wedding took place in Ahmedabad and Ranjan's in Delhi; however neither of them was married to Jasmine or Brinda

(iii) The wedding in Kolkata took place in February

(iv) Hema's wedding took place in April, but not in Ahmedabad

(v) Geetika and Ipsita got married in February and November and in Chennai and Kolkata but not following the above order

(vi) Pritam visited Bengaluru and Kolkata only after his marriage in December

(vi) Salil was married to Jasmine to September

72. Hema's husband is

(a) Abhishek (b) Deepak
(c) Ranjan (d) Pritam
(e) Mridul

73. Deepak's wedding took place in

(a) Bengaluru (b) Mumbai
(c) Kolkata (d) Delhi
(e) Chennai

74. In Mumbai, the wedding of one of the friends took place in the month of

(a) April (b) September
(c) November (d) December
(e) July

75. Salil's wedding was held in

(a) Bengaluru (b) Chennai
(c) Kolkata (d) Delhi
(e) Mumbai

DIRECTIONS (Qs. 76-80): In each question below is given statement followed by two courses of action numbered I and II. A course of action is a step or administrative decision to be taken for improvement, follow-up or further action in regard to the problem, policy, etc. On the basis of the information given in the statement, you have to assume everything in the statement to be true, then decide which of the suggested courses of action logically follow(s) for pursuing.

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

76. **Statement :** Cases of road accidents are increasing constantly, particularly in the urban areas.

Courses of action :

I. Transport authorities in the urban areas should impose stringent norms for maintenance of vehicles.

II. Traffic police should severely punish those found to be violating traffic rules.

77. **Statement :** Despite good economic progress of the country, significant number of undernourished children has been observed in the rural parts of the country.

Courses of action :

I. Govt should increase Wealth Tax / Income tax and use that money for upliftment of the deprived class.

II. Govt should introduce schemes like free meals in primary schools and make primary education compulsory.

78. **Statement :** Launching of new brands of four-wheelers is adding to the traffic congestion in the metro cities.

Courses of action :

I. Public should be encouraged to share their private vehicles while travelling to their work places.

II. Govt. should levy heavy taxes on motor cars in metro cities.

79. **Statement :** Increasing levels of air pollution is creating health hazards for people living in the cities.

Courses of action :

I. All industries should be shifted to the outskirts of the cities.

II. Transport authorities should take steps for converting all public transport vehicles to run on CNG.

80. **Statement :** Large number of college students are found to be focusing more on fashion than on studies.

Courses of action :

I. Colleges should impose restrictions on use of fashionable clothes and accessories.

II. Colleges should keep the students busy enough with studies, so that they don't find time for other things like fashion.

HINTS & EXPLANATIONS

1. (a) $48\%\text{ of }525 + ?\%\text{ of }350 = 399$

$\Rightarrow \frac{48}{100}\times 525 + \frac{?}{100}\times 350 = 399$

$\Rightarrow 25200 + ? \times 350 = 399 \times 100$

$\Rightarrow ? \times 350 = 39900 - 25200 = 14700$

$\Rightarrow ? = \frac{14700}{350} = 42$

2. (b) $? = \frac{3}{7}\text{of}\frac{4}{5}\text{of}\frac{5}{8}\text{of } 490$

$\Rightarrow ? = \frac{3}{7}\times\frac{4}{5}\times\frac{5}{8}\times 490$

$\Rightarrow ? = 35\times 3 = 105$

3. (d) $\sqrt{?} + 17^2 = 335$

$\Rightarrow \sqrt{?} + 289 = 335$

$\Rightarrow \sqrt{?} = 335 - 289 = 46$

$\Rightarrow ? = 46\times 46 = 2116$

4. (a) $? = 125\%\text{ of } 560 + 22\%\text{ of } 450$

$\Rightarrow ? = \frac{125}{100}\times 560 + \frac{22}{100}\times 450$

$\Rightarrow ? = 700 + 99 = 799$

5. (c) $? = \frac{28\times 5 - 15\times 6}{7^2 + \sqrt{256} + (13)^2}$

$\Rightarrow ? = \frac{140 - 90}{49 + 16 + 169}$

$\Rightarrow ? = \frac{50}{234} = \frac{25}{117}$

6. (b) $? = 18.76 + 222.24 + 3242.15$

$\Rightarrow ? = 3483.15$

7. (d) $? = 784 \div 16 \div 7$

$\Rightarrow ? = \frac{784}{16} \div 7$

$\Rightarrow ? = 49 \div 7 = 7$

8. (c) $? = \frac{3}{7}\text{of } 455 + \frac{5}{8}\text{of } 456$

$\Rightarrow ? = \frac{3}{7}\times 455 + \frac{5}{8}\times 456$

$\Rightarrow ? = 195 + 285$

$\Rightarrow ? = 480$

9. (b) $? = 1.05\%\text{ of } 2500 + 2.5\%\text{ of } 440$

$\Rightarrow ? = \frac{1.05}{100}\times 2500 + \frac{2.5}{100}\times 440$

$\Rightarrow ? = \frac{2625}{100} + \frac{1100}{100}$

$\Rightarrow ? = \frac{3725}{100} = 37.25$

10. (b) $? = 4900 \div 28 \times 444 \div 12$

$\Rightarrow ? = 175 \times 37$

$\Rightarrow ? = 6475$

11. (e) Compound Interest after two years

$= 8500\left(1 + \frac{10}{100}\right)^2 - 8500$

$= 10285 - 8500 = ₹ 1785$

12. (a) Let length of the train be x m

Speed of the train be 60 km/h $= 60\times\frac{5}{18} = \frac{50}{3}$ m/s

Then, $\frac{x + 200}{\frac{50}{3}} = 27$

$\Rightarrow x = \frac{750}{3} = 250$ m

13. (b) Suppose 16 men can complete the same work in x days

Then, Men days

10 ↑ 8 |

16 | x ↓

$16 : 10 :: 8 : x$

$\Rightarrow 16\times x = 10\times 8$

$\Rightarrow x = \frac{10\times 8}{16} = 5$ days

14. (a) Let the original fraction be $= \frac{x}{y}$.

$\therefore \frac{x\times 200}{y\times 300} = \frac{4}{21} \Rightarrow \frac{x}{y} = \frac{4}{21}\times\frac{3}{2} = \frac{2}{7}$

15. (d) Let the present age of A = x and B = y years

According to first condition

$\frac{x-7}{y-7} = \frac{3}{4} \Rightarrow 4x - 28 = 3y - 21 \Rightarrow 4x - 3y = 7$ ..... (i)

According to second condition

$\frac{x+9}{y+9} = \frac{7}{8} \Rightarrow 8x + 72 = 7y + 63$

$\Rightarrow 7y - 8x = 9$ ..... (ii)

$8x - 6y = 14$

$7y - 8x = 9$

$y = 23$ years.

16. (a) Perimeter of the square = 84 cm

Perimeter of the rectangle = 28 cm

Perimeter of the rectangle = 2(1 + b)

or, 2(8 + b) = 28 cm

or, b = 14 – 8 = 6 cm.

$\therefore$ Breadth of the rectangle = 6 cm

Side of the square $= \frac{84}{4} = 21$ cm

Difference = 21 – 6 = 15 cm.

17. (e) Perimeter of the rectangle = 42 m

$2(l + b) = 42$ m

or, $l + 8.5 = 21$m

or, $l = 12.5$ m.

Area of the rectangle = $12.5 \times 8.5 = 106.25$ sq.m.

$\therefore$ Area of the circle. = 106.25 sq.m.

18. (d) Let the positive number be x.

Then, $\frac{5x}{100}\times\frac{3x}{100} = 504.6$

or, $x^2 = \frac{504.6\times 100\times 100}{15}$

$\therefore x = 580.$

19. (b) Two women alone can complete a piece of work in 16 days.
∴ Four women can complete the same work in 8 days.
Since 12 children can complete the work in $\frac{4\times8}{8-4}=\frac{4\times8}{4}=8$ days.
∴ Four children can complete the work in $\frac{12\times8}{4}$
= 24 days.

20. (a) 2.31 km = 2.31 × 1000 = 2310 m
Total number of days = 3 × 7 = 21
∴ Distance covered by Anu each day = $\frac{2310}{21}=110$ m.

21. (b) 43.2 m/hr = $43.2\times\frac{5}{18}=12$ m/s
Total distance covered = 12 × 80 = 960 m.
Perimeter of the square = 960 m.
Side of the square = 240 m.
Area = $(240)^2$ = 57600 sqm.

22. (b) Let the number of children be x.
Now, according to the question
$\left(\frac{4800}{x}-100\right)(x+4)=4800$
or, $\left(\frac{48}{x}-1\right)(x+4)=48$
or, (x + 16)(x – 12) = 0
∴ x = 12 sweets
Number of students = $\frac{4800}{12}=400$.

23. (c) Sneha's monthly income = $\frac{342000}{12}=28500$
∴ Akruti's monthly income = $\frac{28500}{95}\times116=34800$
Akruti's annual income = 417600.

24. (b) Time taken by the truck = $\frac{256}{32}=8$ hr.
Distance covered by the car = (256 + 160) = 416 km.
Time = 8 hr.
∴ Speed of the car = $\frac{416}{8}=52$ km/hr.

25. (a) Required percentage = $\frac{663-612}{1020}\times100=5\%$.

26. (c) Area of customer transaction room = 23m×29m = 667 sq.m
Area of branch manager room = 13m × 17 m = 221 sq. m
Area of Pantry room = 14m × 13m = 182 sq. m
Area of Server room = 21m × 13m = 273 sq. m
Area of locker room = 29 m × 21 m = 609 sq. m
Total cost of wooden flooring = ₹ [(170 × (667 + 221)]
= ₹ (888 × 170)
Total cost of marble flooring
= ₹ [(190 × (182 + 273 + 609)] = ₹ (190 × 1064)
Required Ratio = 888 × 170 : 1064 × 190 = 1887 : 2527

27. (c) Area of 4 walls and ceiling of branch managers room
= 2 (*lh* + *bh*) + *lb* = 2 [17 × 12 + 13 × 12] + 13 × 17
= 941 sq. m
Total cost of renovatin = ₹190 × 941 = ₹178790

28. (e) Total area of bank is 2000 sq. m
Total area of bank to be renovated = 1952 sq. m
Remaining Area = 2000 – 1952 = 48 sq. m
Total cost Remaining Area to be carpeted at the rate of ₹110/sq. meter = ₹(48 × 110) = ₹5280

29. (b) percentage area of bank not to be renovated
$\Rightarrow\frac{\text{Area bank not be renovated}}{\text{Total area of bank}}\Rightarrow\frac{48}{2000}\times100=2.4\%$

30. (a) Total cost of hall of customer transaction
= ₹(170 × 667) = ₹113,390
Total cost of Locker area = ₹(190 × 609) = ₹115710
Total cost of customer transaction hall + locker area
= ₹(113390 + 115710) = ₹229100

31. (b) 8 × 6.5 = 52
52 × 5.5 = $\boxed{286}$
286 × 4.5 = 1287.

32. (d) 3 × 14 = 42
42 × 12 = 504
504 × 10 = $\boxed{5040}$
5040 × 8 = 40320.

33. (c) 403 – 3 = 400
400 – 6 = 394
394 – 12 = 382
382 – 24 = 358
358 – 48 = 310
310 – 96 = $\boxed{214}$.

34. (d)

7	8	4	13	–3	22	–14
	+5		–9			
		–3		–7		–11

35. (a) 250000 ÷ 4 = 62500
62500 ÷ 5 = 12500
12500 ÷ 4 = 3125
3125 ÷ 5 = 625
625 ÷ 4 = $\boxed{156.25}$
156.25 ÷ 5 = 31.25.

36. (d) Total number of students studying B.Sc. in all the colleges together
= 350 + 325 + 300 + 375 + 425 = 1775

37. (c) Total number of students studying B.Sc. in colleges C and E
= 300 + 425 = 725
Total number of students studying B.A. in colleges A and B
= 275 + 300 = 575
∴ Required ratio = 725 : 575 = 29: 23

38. (a) Total number of students studying in different streams in all the colleges:
B.Sc. → 1775
B.A. → 275 + 300 + 325 + 450 + 325 = 1675
B.Com. → 425 + 475 + 325 + 425 + 225 = 1875
∴ Required ratio = 1775 : 1675 : 1875 = 71 : 67: 75

39. (e) Number of students studying B. Com. in college C = 325
Total number of students studying B. Com = 1875
∴ Required percentage = $\frac{325}{1875}\times100\approx17$

40. (b) Total number of students in college
B = 300 + 325 + 475 = 1100
Number of students studying B.A. in college B = 300
$\therefore$ Required percentage = $\frac{300}{1100} \times 100 = 27.27$

Sol. (41-45) :
From the given information, following table can be build:

	Japanese	Hindi	English	French
R1	yes	yes	no	no
R2	yes	no	yes	no
R3	no	yes	yes	no
R4	yes	no	no	yes
R5	no	yes	yes	yes

41. (d) 42. (d) 43. (b) 44. (d)
45. (b) 46. (d) 47. (a) 48. (a)

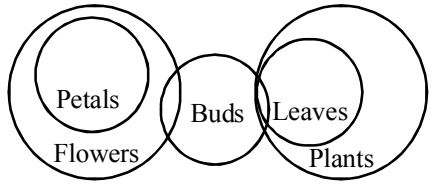
Sol. (49–53) :

Game	Profession	Name	Flat number
Tenis	Quality Inspector	Tarun	5
Cricketer (National)	Mechanical Engg	Ambrish	4
Chess	Power Engg.	Amit	3
Cricket (regional)	Mechanical Engg.	Manu	3
Football	Design Engg.	Rohit	2

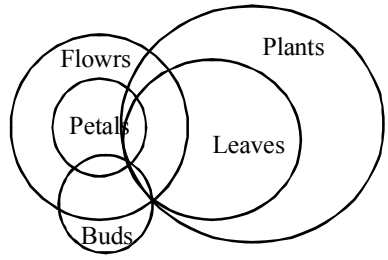
49. (a) 50. (d) 51. (c) 52. (c) 53. (a)

Sol. (54-56):
lop eop aop fop - Traders are above laws → (i)
fop cop bop gop - Developers were above profitable → (ii)
aop bop uop qop - Developers stopped following traders → (iii)
cop job cop uop - Following maps were laws → (iv)
From (i) and (ii), fop - above
From (i) and (iii), aop - traders
From (ii) and (iii), bop - developers
From (ii) and (iv), cop - were
From (iii) and (iv), uop - following
From (i) and (iv), eop - laws
Therefore, remaining codes are
lop - are [from (i)]
gop - profitable [from (ii)]
qop - stopped [from (iii)]
jop - maps [from (iv)]

54. (b) 55. (a) 56. (b)
57. (b) According to question,

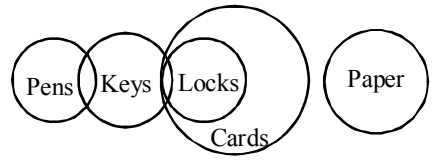


OR

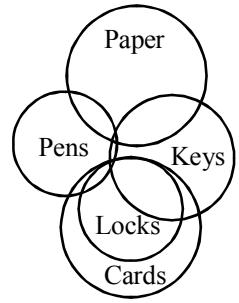


Conclusions I. false
II. false
III. false
or
Hence, only either II or III follows.

58. (d) According to question

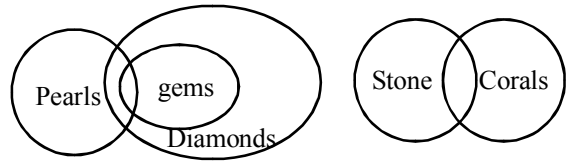


OR

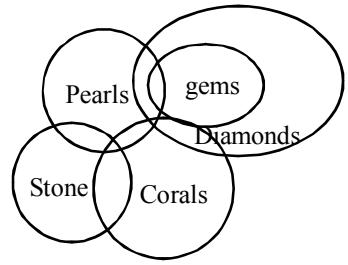


Conclusions I. True
II. True
III. True
Hence, All conclusions follow.

59. (e) According to question,

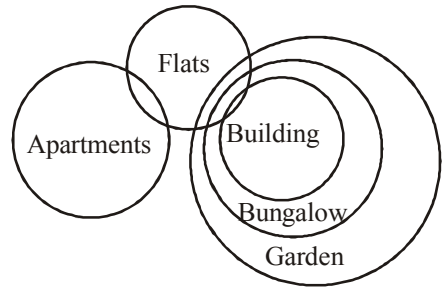


OR

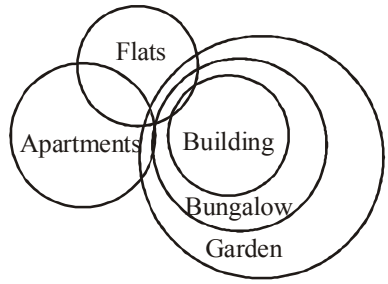


Conclusion I. False
II. True
III.False
or
Hence, only conclusions II and either I or III follow.

60. (a) According to question,

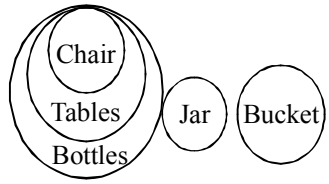


Or

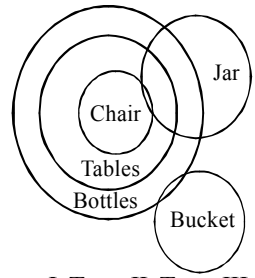


Conclusions I. True, II. False, III. False
Hence, only conclusion I follows.

61. (c) According to question,



OR



Conclusions, I. True, II. True, III. True.
Hence, All I, II and III follow.

(62-66) :

$\star \Rightarrow <$	$\# \Rightarrow >$	$@ \Rightarrow \geq$
$\% \Rightarrow \leq$	$\$ \Rightarrow =$	

62. (a) $V \$ Y \Rightarrow V = Y$
$Y @ Z \Rightarrow Y \geq Z$
$Z \% X \Rightarrow Z \leq X$
$X \# T \Rightarrow X > T$
From all above statements,
$V = Y \geq Z \leq X > T$
Conclusions I. $T \# Z \Rightarrow T > Z$ (False)
II. $X \# Y \Rightarrow X > Y$ (False)
III. $Z \star Y \Rightarrow Z < Y$ (False)

63. (a) $R @ J \Rightarrow R \geq J$
$J \% F \Rightarrow J \leq F$
$F \star E \Rightarrow F < M$
$E \% M \Rightarrow E \leq M$
From all above statements, $R \geq J \leq F < E \leq M$
Conclusions I: $M \# J \Rightarrow M > J$ (True)
II. $F \% M \Rightarrow F \leq M$ (False)
III. $M \star R \Rightarrow M < R$ (False)

64. (b) $H \# R \Rightarrow H > R$
$R @ L \Rightarrow R \geq L$
$L \star W \Rightarrow L < W$
$W \% F \Rightarrow W \leq F$
From all above statements, $H > R \geq L < W \leq F$
Conclusions I. $H \# L \Rightarrow H > L$ (True)
II. $F \# L \Rightarrow F > L$ (True)
III. $H \$ F \Rightarrow H = F$ (False)

65. (e) $M \# J \Rightarrow M > F$
$M \$ F \Rightarrow M = K$
$F \% Q \Rightarrow F \leq Q$
$Q \star H \Rightarrow Q < H$
From all above statements,
$K < M = F \leq Q < H$
Conclusions. I. $H \# K \Rightarrow H > K$ (True)
II. $Q \# K \Rightarrow Q > K$ (True)
III. $Q @ M \Rightarrow Q \geq M$ (True)

66. (e) $D \star Q \Rightarrow D < Q$
$Q \$ L \Rightarrow Q = L$
$L \# T \Rightarrow L > T$
$T \% H \Rightarrow T \leq H$
From all above statemens,
$D < Q = L > T \leq H$
Conclusions. I. $D \star L \Rightarrow D < L$ (True)
II. $L @ H \Rightarrow L \geq H$ (False)
III. $H \# L \Rightarrow H > L$ (False)

67. (e) From statements (I) and (II)
According to weight, the position of Sahil is 5th.
According to weight, the position of Ramesh is 5th.
So, the number of children in group = 5 + 15 = 20
So, both statements are required to given the answer.

68. (d) From statement I,
eat healthy food → Ka ma re
From statement II.
food for healthy people → ta ma jo re
So, from both statements, code of 'healthy' can not be determined exactly but it may be 'ma' or 're'.

69. (c)

70. (a) From statement (I). W > J > (Q, R, T)
So, W reached office first.
From statement (II), (J, T) > W > Q > R
It is not clear from statement (II) that who reached the office first either J or T.
So, for giving the answer. Statement I is sufficient but statement II is not sufficient.

71. (c)

Sol. (72-75)

	Mridul	Abhishek	Ranjan	Salil	Deepak	Pritam
Place	Chennai	Ahmedabad	Delhi	Bengaluru	Kolkata	Mumbai
Month	November	July	April	September	February	December
Brides	Ipsita	Veena	Hema	Jasmine	Geetika	Brinda

72. (c) 73. (c) 74. (d) 75. (a)

76. (b) Poor maintenance of vehicles may lead to pollution but is seldom a cause of accident. Hence I does not follow. But II follows as violation of traffic rules is the chief culprit in the case of accidents.

77. (e) I follows because providing nourishment to children needs money. II follows because compulsory meals are likely to provid enourishment.

78. (a) I follows as car pooling helps decongest traffic. But II does not follow as this may have impact on overall sales. It is like throwing away the baby with the bathwater.

79. (d) Neither follows because we do not know the cause of pollution.

80. (d) I does not follow because restriction cannot change inclination II does not follow because & inclination cannot be changed.

PRACTICE SET 16

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. 31-34): What will come in place of the questioon mark (?) in the following questions?

1. $9^3 \times 81^2 \div 27^3 = (3)?$

(a) 3 (b) 4
(c) 5 (d) 6
(e) None of these

2. $572 \div 26 \times 12 - 200 = (2)?$

(a) 5 (b) 6
(c) 8 (d) 7
(e) None of these

3. $4\frac{1}{2} - 2\frac{5}{6} = ? - 1\frac{7}{12}$

(a) $3\frac{1}{4}$ (b) $3\frac{5}{12}$
(c) $2\frac{7}{12}$ (d) $3\frac{3}{4}$
(e) None of these

4. 36% of 245 – 40% of 210 = 10 – ?

(a) 4.2 (b) 6.8
(c) 4.9 (d) 5.6
(e) None of these

5. $4 + 4.44 + 0.4 + 44.04 + 444 = ?$

(a) 497.24 (b) 487.66
(c) 496.88 (d) 469.88
(e) None of these

6. Ram had ₹ 2 lakh, part of which he lent at 15% per annum and rest at 12% per annum. Yearly interest accured was ₹ 27600. How much did he lent at 15%?

(a) ₹ 120000 (b) ₹ 100000
(c) ₹ 80000 (d) ₹ 60000
(e) None of these

7. *A* and *B* can do a piece of work in 8 days, *B* and *C* can do the same work in 12 days. If *A,B* and *C* can complete the same work in 6 days, in how many days can *A* and *C* complete the same work?

(a) 8 days (b) 10 days
(c) 12 days (d) 16 days
(e) None of these

8. Two trains each 200 m long move towards each other on parallel lines with velocities 20 km/h and 30 km/h, respectively. What is the time that elapses when they first meet until they have cleared each other ?

(a) 20 s (b) 24.8 s
(c) 28.8 s (d) 30 s
(e) None of these

9. Ravi's brother is 3 years elder to him. His father was 28 years of age when his sister was born while his mother was 26 years of age when he was born. If his sister was 4 years of age when his brother was born, the ages of Ravi's father and mother, respectively when his brother was born were

(a) 32 years and 23 years
(b) 32 years and 29 years
(c) 35 years and 29 years
(d) 35 years and 33 years
(e) None of these

10. Three unbiased coins are tossed. What is the probability of getting at least 2 heads?

(a) $\frac{1}{4}$ (b) $\frac{1}{2}$
(c) $\frac{1}{2}$ (d) $\frac{1}{8}$
(e) None of these

11. If the sum of a few numbers is 450 and their mean is 50 and if another number 100 is included, the mean would become
(a) 55 (b) 60
(c) 75 (d) 150
(e) None of these

12. In a mixture of 60 litres, the ratio of milk and water is 2 : 1. What amount of water must be added to make the ratio of milk and water as 1 : 2 ?
(a) 42 Litres (b) 56 Litres
(c) 60 Litres (d) 77 Litres
(e) None of these

13. The average weight of 5 men is increased by 2 Kg when one of the men whose weight is 60 Kg is replaced by a new man. The weight of the new man is
(a) 50 Kg (b) 65 Kg
(c) 68 Kg (d) 70 Kg
(e) None of these

14. Two-third of a consignment was sold at a profit of 5% and the remainder at a loss of 2% if the total profit was ₹400, what was the value of the consignment ?
(a) ₹13,000/- (b) ₹17,000/-
(c) ₹15,000/- (d) ₹40,000/-
(e) None of these

15. The sum of the number of boys and girls in a school is 150. If the number of boys is x, then the number of girls becomes x% of the total number of students. How many boys are there in the school ?
(a) 51 (b) 65
(c) 60 (d) 95
(e) None of these

DIRECTIONS (Qs. 16-20): What approximate value should come in place of question mark (?) in the following questions?

You are not expected to calculate the exact value

16. 32.05% of 259.99 =?
(a) 92 (b) 88
(c) 78 (d) 90
(e) 83

17. $\frac{1}{8}$ of $\frac{2}{3}$ of $\frac{3}{5}$ of 1715 = ?
(a) 80 (b) 85
(c) 90 (d) 95
(e) 75

18. $25.05 \times 123.95 + 388.999 \times 15.001 = ?$
(a) 900 (b) 8950
(c) 8935 (d) 8975
(e) 8995

19. $561 \div 35.05 \times 19.99 = ?$
(a) 320 (b) 330
(c) 315 (d) 325
(e) 335

20. $(15.01)^2 \times \sqrt{730} = ?$
(a) 6125 (b) 6225
(c) 6200 (d) 6075
(e) 6250

DIRECTIONS (Qs. 21-25): In each of these questions, a number series is given. In each series, only one number is wrong. Find out the wrong number.

21. 3601 3602 1803 604 154 36 12
(a) 3602 (b) 1803
(c) 604 (d) 154
(e) 36

22. 4 12 42 196 1005 6066 42511
(a) 12 (b) 42
(c) 1005 (d) 196
(e) 6066

23. 2 8 12 20 30 42 56
(a) 8 (b) 42
(c) 30 (d) 20
(e) 12

24. 32 16 24 65 210 945 5197.5
(a) 945 (b) 16
(c) 24 (d) 210
(e) 65

25. 7 13 25 49 97 194 385
(a) 13 (b) 49
(c) 97 (d) 194
(e) 25

DIRECTIONS (Qs. 26-30) : In the following questions two equations numbered I and II are given. You have to solve both equations and

Give answer if

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

26. I. $x^2 - 7x + 10 = 0$
II. $y^2 + \text{lly} + 10 = 0$

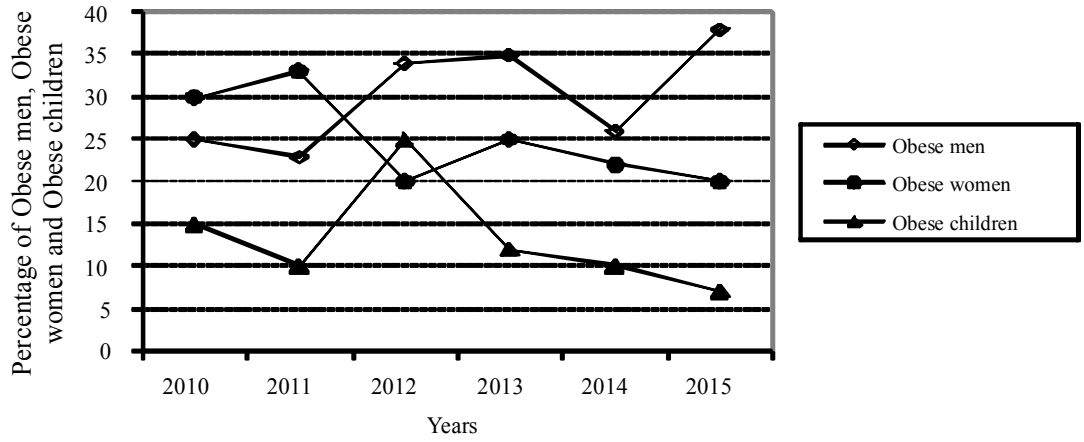
27. I. $x^2 + 28x + 192 = 0$
II. $y^2 + 16y + 48 = 0$

28. I. $2x - 3y = -3.5$
II. $3x - 2y = -6.5$

29. I. $x^2 + 8x + 15 = 0$
II. $y^2 + \text{lly} + 30 = 0$

30. I. $x = \sqrt{3136}$
II. $y^2 = 3136$

DIRECTIONS (Qs. 31-35): Study the following graph and table carefully and answer the questions given below them.



Total Number of Men, Women and Children in the state over the years

Years	Men	Women	Children
2010	54,000	38,000	15,000
2011	75,000	64,000	21,000
2012	63,000	60,000	12,000
2013	66,000	54,000	16,000
2014	70,000	68,000	20,000
2015	78,000	75,000	45,000

31. What was the **approximate** average of obese men, obese women and obese children in 2013?
(a) 12,683 (b) 12,795
(c) 12,867 (d) 12,843
(e) 12,787

32. The number of obese men in the year 2015 was what per cent of the men not suffering from obesity in the same year?
(a) 55 (b) 60
(c) 50.5 (d) 65.5
(e) None of these

33. What was the ratio of the obese women in the year 2014 to the obese men in the year 2014?
(a) 6 : 7 (b) 21 : 65
(c) 15 : 73 (d) 48 : 77
(e) None of these

34. What is the difference between the number of obese women and obese children together in the year 2012 and the number of obese men in the same year?
(a) 5,475 (b) 5,745
(c) 4,530 (d) 31,650
(e) None of these

35. What was the total number of children not suffering from obesity in the year 2010 and 2011 together?
(a) 4,350 (b) 31,560
(c) 4,530 (d) 31,650
(e) None of these

DIRECTIONS (Qs. 36-40) : These questions are based on the following data. Study it carefully and answer the questions that follow.

In a school having 400 students, boys and girls are in the ratio of 3 : 5. The students speak Hindi, English or both the languages. 12% of the boys speak only Hindi. 22% of the girls speak only English. 24% of the total students speak only Hindi and the number of boys speaking both the languages is six times the number of boys speaking only Hindi.

36. How many boys speak Hindi?
(a) 18 (b) 126
(c) 108 (d) 26
(e) None of these

37. How many girls speak only Hindi?
(a) 55 (b) 117
(c) 96 (d) 78
(e) None of these

38. How many students speak English?
(a) 304 (b) 79
(c) 225 (d) 117
(e) None of these

39. The number of girls speaking only Hindi is what per cent of the total number of students speaking only Hindi?
(a) 38.2% (b) 71.8%
(c) 31.2% (d) 78%
(e) None of these

40. What is the ratio of the number of boys to the number of girls speaking both the languages?
(a) 23 : 25 (b) 12 : 25
(c) 12 : 13 (d) 25 : 13
(e) None of these

REASONING ABILITY

DIRECTIONS (Qs. 41-45): In each question below are given two/three statements followed by two conclusions numbered I and II. You have to take the given statements to be true even if they seem to be at variance with commonly known facts. Read all the conclusions and then decide which of the given conclusions logically follows from the given statements, disregarding commonly known facts. Give answer
(a) if only conclusion I follows.
(b) if only conclusion II follows.
(c) if either conclusion I or conclusion II follows.
(d) if neither conclusion I nor conclusion II follows.
(e) if both conclusion I and conclusion II follow.

41. **Statements :** No house is an apartment.
Some bungalows are apartments.
Conclusions : **I.** No house is a bungalow.
II. All bungalows are houses.

42. **Statements :** Some gases are liquids.
All liquids are water.
Conclusions : **I.** All gases being water is a possibility.
II. All such gases which are not water can never be liquids.

43. **Statements :** All minutes are seconds.
All seconds are hours.
No second is a day.
Conclusions : **I.** No day is an hour.
II. At least some hours are minutes.

(44-45): Statements : Some teachers are professors.
Some lecturers are teachers.

44. **Conclusions :** **I.** All teachers as well as professors being lecturers is a possibility.
II. All those teachers who are lecturers are also professors.

45. **Conclusions :** **I.** No professor is a lecturer.
II. All lecturers being professors is a possibility.

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

A, B, C, D, E, F, G and H are sitting around a circle facing the centre but not necessarily in the same order.

- B sits second to left of H's husband. No female is an immediate neighbour of B.
- D's daughter sits second to right of F. F is the sister of G. F is not an immediate neighbour of H's husband.
- Only one person sits between A and F. A is the father of G. H's brother D sits to the immediate left of H's mother. Only one person sits between H's mother and E.
- Only one person sits between H and G. G is the mother of C. G is not an immediate neighbour of E.

46. What is position of A with respect to his mother-in-law ?
(a) Immediate left (b) Third to the right
(c) Third to the left (d) Second to the right
(e) Fourth to the left

47. Who amongst the following is D's daughter ?
(a) B (b) C
(c) E (d) G
(e) H

48. What is the position of A with respect to his grandchild ?
(a) Immediate right (b) Third to the right
(c) Third to the left (d) Second to the left
(e) Fourth to the left

49. How many people sit between G and her uncle ?
(a) One (b) Two
(c) Three (d) Four
(e) More than four

50. Four of the following five are alike in a certain way based on the given information and so form a group. Which is the one that does not belong to that group ?
(a) F (b) C
(c) E (d) H
(e) G

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

There are five statues - L, M, N, O and P - each of them having different height. Statue L is smaller than only statue M. Statue O is smaller than statue N. Statue O is longer than statue P. The height of the tallest statue is 20 feet. The height of the second smallest statue is 11 feet.

51. What Will be the height of statue P?
(a) 13 feet (b) 15 feet
(c) 9 feet (d) 12 feet
(e) 14 feet

DIRECTIONS (Qs. 52-55) : Study the following information to answer the given questions:

In a certain code, 'ze lo ka gi' is a code for 'must save some money', 'fe ka so ni' is a code for 'he made good money', 'ni lo da so' is a code for 'he must be good' and 'we so ze da' is a code for 'be good save grace'.

52. Which of the following is the code of 'must'?
(a) so (b) da
(c) lo (d) ni
(e) Cannot be determined

53. What does the code 'ze' stand for?
(a) some (b) most
(c) be (d) grace
(e) save

54. Which of the following is the code of 'good'?
(a) so (b) we
(c) ze (d) lo
(e) fe

55. 'grace of money' may be coded as
(a) ka da fe (b) we ka so
(c) ja da we (d) ka we yo
(e) ja ka ze

DIRECTIONS (Qs.56-60): In the following questions, the symbols δ, ✶, %, # and @ are used with the following meaning as illustrated below.

'P % Q' means 'P is neither greater than nor equal to Q'.
'P δ Q' means 'P is neither smaller than nor equal to Q'.
'P @ Q' means 'P is not greater than Q'.
'P ✶ Q' means 'P is not smaller than Q'.
'P # Q' means 'P is neither greater than nor smaller than Q'.
Now, in each of the follwoing 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.

56. **Statement:** R ✶ T, T δ M, M % K, K @ V
Conclusions
I. V δ M **II.** V δ T
III. M % R **IV.** K δ R
(a) I and II are true (b) I and III are true
(c) II and IV are true (d) I, III and IV are true
(e) None of these

57. **Statement:** H δ J, J # N, N @ R, R δ W
Conclusions
I. W % N **II.** W % H
III. R # J **IV.** R δ J
(a) Only I is true (b) Only II is true
(c) Only III is true (d) Only IV is true
(e) Either III or IV is true

58. **Statement:** B @ D, D δ F, F % M, M ✶ N.
Conclusions
I. B % F **II.** M δ D
III. N % F **IV.** N % F
(a) None is true (b) Only I is true
(c) Only II is true (d) Only III is true
(e) Only IV is true

59. **Statement:** F # Z, Z @ H, H % N, N δ B
Conclusions
I. F @ H **II.** N % Z
III. B % H **IV.** B % Z
(a) I and III are true (b) II, III and IV are true
(c) I and II are true (d) I, II and III are true
(e) None of the above

60. **Statement :** M % K, K ✶ W, W δ V, V @ N
Conclusions
I. N ✶ K **II.** M % W
III. K δ V **IV.** V % M
(a) None is true (b) Only I is true
(c) Only II is true (d) Only III is true
(e) Only IV is true

DIRECTIONS (Qs. 61-65): Following questions are based on the five three-digit numbers given below.

519 328 746 495 837

61. If half of the second highest number is subtracted from the third highest number, what will be the value ?
(a) 156 (b) 146
(c) 213 (d) 314
(e) None of these

62. If the positions of the first and the third digits in each of the numbers are interchanged, which of the following will be the second digit of the lowest number?
(a) 1 (b) 2
(c) 4 (d) 9
(e) 3

63. If in each number the third digit becomes the first digit, the first digit becomes the second digit and the second digit becomes the third digit, which of the following will be the first digit of the second highest number?
(a) 9 (b) 6
(c) 5 (d) 7
(e) 8

64. Which of the following represents the difference between the first and the second digits of the second highest number?
(a) 4 (b) 1
(c) 3 (d) 5
(e) None of these

65. If'1' is subtracted from eh third digit of each number and '1' is added to the first digit of each number, which of the following will be the sum of the second and third digits of the second lowest number?
(a) 13 (b) 9
(c) 8 (d) 6
(e) None of these

DIRECTIONS (Qs. 66-70): Study the following information to answer the given questions:

Twelve people are sitting in two parallel rows containing six people each such that they are equidistant from each other. In row 1: P, Q, R, S, T and V are seated and all of them are facing South. In row 2: A, B, C, D, E and F 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.

S sits third to the right of Q. Either S or Q sits at an extreme end of the line. The one who faces Q sits second to the right of E. Two people sit between Band F. Neither B nor F sits at an extreme end of the line. The immediate neighbour of B faces the person who sits third to the left of P. R and T are immediate neighbours. C sits second to the left of A. T does not face the immediate neighbour of D.

66. Who amongst the following sit at the extreme ends of the rows?
(a) S, D (b) Q, A
(c) V,C (d) P, D
(e) Q, F

67. Who amongst the following faces S?
(a) A (b) B
(c) C (d) D
(e) F

68. How many persons are seated between V and R?
(a) One (b) Two
(c) Three (d) Four
(e) None of these

69. P is related to A in the same way as S is related to B based on the given arrangement. Which of the following is T related to, following the same pattern?
(a) C (b) D
(c) E (d) F
(e) Cannot be determined

70. Which of the following is true regarding T?
(a) F faces T.
(b) V is an immediate neighbour of T.
(c) F faces the one who is second to the right of T.
(d) T sits at one of the extreme ends of the line.
(e) Q sits second to the right of T.

DIRECTIONS (Qs. 71-72): Read the following information carefully and answr the questions which follow.

If 'P ★ Q' means 'P is the mother of Q'.
If 'P × Q' means 'P is the father of Q'.
If 'P + Q' menas ' P is the sister of Q'.
If 'P – Q' menas 'P is the brother of Q'.
If 'P > Q' menas 'P is the son of Q'.
If 'P < Q' menas 'P is the daughter of Q'.

71. Which of the following means P is the father of S?
(a) P × Q > R ★ S (b) R × P < Q – S
(c) R + S > Q + P (d) S + Q – R ★ P
(e) Cannot be determined

72. Which of the following means D is the aunt of C?
(a) D > B ★ A ★ C (b) D + B – C ★ A
(c) D – B – A × C (d) D + B × A × C
(e) None of these

DIRECTIONS (Qs. 73-75): Study the following information to anwer the given questions.

Point A is 5 m towards the West of point B. Point C is 2 m towards the North of point B. Point D is 3 m towards the East of point C. Point E is 2 m towards the South of point D.

73. If a person walks 2 m towards the north from point A, takes a right turn and continues to walk, which of the following points would he reach the first?
(a) D (b) B
(c) E (d) C
(e) Cannot be determined

74. Which of the following points are in a straight line?
(a) ABE (b) DCA
(c) CED (d) BDA
(e) ACE

75. In a row of twenty–five children facing South R is 16th 30 m. He then took a right turn and walked 20 m. He again took a right turn and walked 30 m. How far was he from the starting point ?
(a) 70m (b) 60m
(c) 90m (d) Cannot be determined
(e) None of these

DIRECTIONS (Qs. 76-80) : Each of the questions below consists of a question and two statements numbered I and II given below it. You have to decide whether the data provided in the statements are sufficient to answer the question. Read both the statements and give answer
(a) if the data in statement I alone are sufficient to answer the question, while the data in statement II alone are not sufficient to answer the question.
(b) if the data in statement II alone are sufficient to answer the question, while the data in statement I alone are not sufficient to answer the question.
(c) if the data either in statement I alone or in statement II alone are sufficient to answer the question.
(d) if the data in both statements I and II together are not sufficient to answer the question.
(e) if the data in both statements I and II together are necessary to answer the question.

76. What does 'Pa' stand for in the code language?
I. 'Ra Hi Kok Pa' means 'I will tell you' and 'Hi Kok Pa Rt' means 'he will tell you' in the code language.
II. 'Hi Pa Po Rt' means 'will he call you' and 'Pa Rok Pac Hi' means 'how will you go'.

77. Who amongst A, B, C, D, E and F is the shortest?
I. A is shorter than C and E but not as short as F, who is shorter than B and D.
II. C is the third in height in the ascending order and not as tall as F, A and E. B is shorter than C but not the shortest.

78. Who among A, B, C, D, E and F read the novel first?
I. F, who gave the novel to B after reading, was the third to read the same.
II. C, who read the novel before A, was the third to read the novel after E.

79. Who is paternal uncle of A?
I. A is brother of M, who is daughter of H, who is sister of K, who is brother of S.
II. Z is brother of B, who is husband of M, who is mother of G, who is sister of A.

80. What is Ellan's rank in a class of 52 students?
I. Joseph, whose rank is 21st in the class, is ahead of Shyam by 4 ranks. Shyam is 9 ranks ahead of Ellan.
II. Sanju is 29 ranks ahead of Ellan and Shyam is 9 ranks behind Ellan while Savitri stands exactly in the middle of Shyam and Sanju in ranks, her rank being 23.

HINTS & EXPLANATIONS

1. (c) $9^3 \times 81^2 \div 27^3 = (3)^?$
$3^{2\times3} \times 3^{4\times2} \div 3^{3\times3} = (3)^?$
$3^6 \times 3^8 \div 3^9 = (3)^?$
$(3)^{6+8-9} = (3)^?$
$(3)^5 = (3)^?$
$\therefore\ ? = 5$

2. (b) $572 \div 26 \times 12 - 200 = (2)^?$
$22 \times 12 - 200 = (2)^?$
$264 - 200\ (2)^?$
$64 = (2)^?$
$(2)^6 = (2)^?$
$\therefore\ ? = 6$

3. (a)

4. (e) 36% of 245 – 40% 210 = 10 – ?
88.2 – 84 = 10 – ?
4.2 = 10 – ?
? = 10 – 42 = 5.8

5. (c) ? = 4 + 4.44 + 0.4 + 44.04 + 444
= 52.88 + 444 = 496.88

6. (a) Let first part be ₹ x, then second part be ₹ $(200000 - x)$
According to question,
$$\frac{x\times1\times15}{100} + \frac{(200000-x)\times1\times12}{100} = 27600$$
$\Rightarrow\ 15x - 12x + 2400000 = 2760000$
$\Rightarrow\ 3x = 2760000 - 2400000$
$\Rightarrow\ 3x = 360000$
$\therefore\ x = 120000$
Therefore he lented ₹ 120000 at 15%.

7. (a) $A's$ and $B's$ one day work = $\frac{1}{8}$

$B's$ and $C's$ one day work = $\frac{1}{12}$

$A's, B's$ and $C's$ one day work $= \frac{1}{6}$

$B's$ one day work $= \frac{1}{8}+\frac{1}{12}-\frac{1}{6}=\frac{1}{24}$

$A's$ and $C's$ one day work $= \frac{1}{6}-\frac{1}{24}=\frac{3}{24}=\frac{1}{8}$

A and C can do the work in 8 days.

8. (c) Relative speed of trains = (20 + 30) km/h

$= 50\text{ km/h} = 50\times\frac{5}{18}$ m/s

Total relative distance = 200 + 200 = 400 m

$\therefore$ Required time $= \frac{400\times18}{50\times5} = 28.8$ s

9. (a): Mother's age when Ravi was born

= 26 years ... (i)

Father's age when his sister was born

= 28 years ... (ii)

Sister's age when his brother was born

= 4 years ... (iii)

Ravi's brother is 3 years elder to him ... (iv)

From (i) and (iv),

Mother's age when brother was born

= 26 – 3 = 23 years

From (ii) and (iii),

Father's age when brother was born

= 28 + 4 = 32 years

10. (a) Here S = {TTT, TTH, THT, HTT, THH, HTH, HHT, HHH}.

Let E = event of getting at least two heads

= {THH, HTH, HHT, HHH}.

$\therefore P(E)=\frac{n(E)}{n(S)}=\frac{4}{8}=\frac{1}{2}.$

11. (a) $50 = \frac{\text{Sum of all numbers}}{\text{number of observations}}$

$50 = \frac{450}{\text{Number of observations}}$

Number of observations $= \frac{450}{50} = 9$

New mean $= \frac{450+100}{10} = \frac{550}{10} = 55$

12. (c) Milk $= \frac{2}{3}\times60 = 40l$

Water $= \frac{1}{3}\times60 = 20l$

Let 'x' be the amount to be added to milk and water.

$\frac{40+x}{20+x}=\frac{1}{2}$

$80+2x=20+x$

$60=x$

13. (d) Let total weight of 5 men be x kg and weight of new man y kg.

$\frac{x-60y+y}{5}=\frac{x}{5}+2$

$\Rightarrow \frac{x}{5}-12+\frac{y}{5}=\frac{x}{5}+2$

$\Rightarrow y = 70$ kg

weight of new man = 70 kg

14. (c) Let value of consignment was ₹ x

$\left(\frac{2}{3}\right)^{rd}$ consignment costs $\frac{2x}{3}$

Selling price of $\left(\frac{2}{3}\right)^{rd}$ consignment

$= \frac{2x}{3}+\frac{5}{100}\times\frac{2x}{3} = \frac{7}{10}x$

S.P of $\left(\frac{1}{3}\right)^{rd}$ consignment $= \frac{x}{3}-\frac{2}{100}\times\frac{x}{3}=\frac{49}{150}x$

Total S.P $= \frac{49x}{150}+\frac{7x}{10}=\frac{49x+105x}{150}=\frac{154x}{150}$

Profit = S.P – C.P

$400=\frac{154x}{150}-x=\frac{4x}{150}$

$x=\frac{400\times150}{4}=15000$

Value of consignment was ₹ 15,000

15. (c) If number of boys is x, then number of girls is (150–x)

(150 – x) = x % of 150

$150-x=\frac{x}{100}\times150=\frac{3x}{2}$

$\Rightarrow \frac{5x}{2}=150$

$\Rightarrow x=\frac{150\times2}{5}=60$

Number of boys is 60

16. (e) $\frac{32}{100}\times260 = 83.2\approx83$

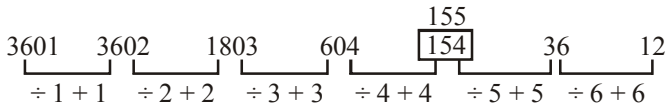
17. (b) $\frac{1}{8}\times\frac{2}{3}\times\frac{3}{5}\times1715 = 85.75\approx85$

18. (c) $25\times124+389\times15 = 3100+5835 = 8935$

19. (a) $\frac{561}{35}\times20 = 320.5\approx320$

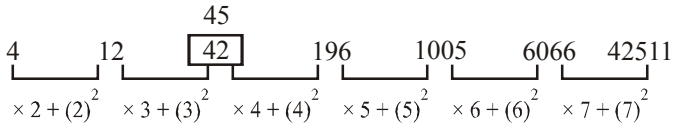
20. (d) $(15)^2 \times \sqrt{730} = 225 \times 27 = 6075$

21. (d)



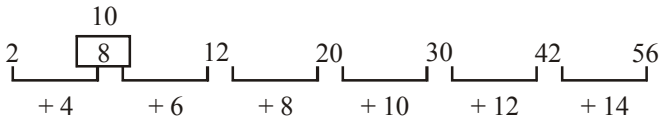
154 is written in place of 155.

22. (a)



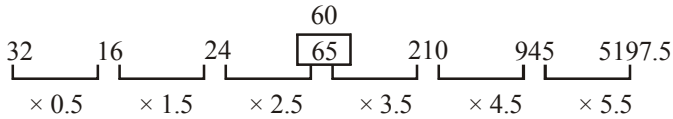
42 is written in place of 45.

23. (a)



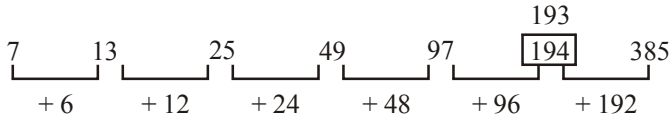
8 is written in place of 6.

24. (e)



65 is written in place of 60.

25. (d)



194 is written in place of 193.

26. (a) I. $x^2 - 7x + 10 = 0$
$\Rightarrow x^2 - 5x - 2x + 10 = 0$
$\Rightarrow x(x-5) - 2(x-5) = 0$
$\Rightarrow (x-2)(x-5) = 0$
$\Rightarrow x = 2$ or 5

II. $y^2 + 11y + 10 = 0$
$\Rightarrow y^2 + 10y + y + 10 = 0$
$\Rightarrow y(y+10) + 1(y+10) = 0$
$\Rightarrow (y+1)(y+10) = 0$
$\Rightarrow y = -1$ or -10
Clearly, $x > y$

27. (d) I. $x^2 + 28x + 192 = 0$
$\Rightarrow x^2 + 16x + 12x + 192 = 0$
$\Rightarrow x(x+16) + 12(x+16) = 0$
$\Rightarrow (x+12)(x+16) = 0$
$\Rightarrow x = -12$ or -16

II. $y^2 + 16y + 48 = 0$
$\Rightarrow y^2 + 12y + 4y + 48 = 0$
$\Rightarrow y(y+12) + 4(y+12) = 0$
$\Rightarrow (y+12)(y+4) = 0$
$\Rightarrow y = -12$ or -4
Clearly, $x \leq y$

28. (c)

29. (b) I. $x^2 + 8x + 15 = 0$
$\Rightarrow x^2 + 5x + 3x + 15 = 0$
$\Rightarrow x(x+5) + 3(x+5) = 0$
$\Rightarrow (x+5)(x+3) = 0$
$\Rightarrow x = -5$ or -3

II. $y^2 + 11y + 30 = 0$
$\Rightarrow y^2 + 6y + 5y + 30 = 0$
$\Rightarrow y(y+6) + 5(y+6) = 0$
$\Rightarrow (y+5)(y+6) = 0$
$\Rightarrow y = -5$ or -6
Clearly, $x \geq y$

30. (e) $x = \sqrt{3136} = \pm 56$
$y^2 = 3136$
$\Rightarrow y = \sqrt{3136} = \pm 56$
Clearly, $x = y$

31. (c) Total number of obese men in 2013
$= 66000 \times 35\% = 23100$
Total number of obese women in 2013
$= 54000 \times 35\% = 13500$
Total number of obese children in 2013
$= 16000 \times 12.5\% = 2000$
Required average $= (32100 + 13500 + 2000) \div 3$
$= 38600 \div 3 = 12867$

32. (b) Required percentage
$$\frac{78000 \times 37.5\%}{78000 \times 62.5\%} \times 100 = 60\%$$

33. (d) Required ratio
$$= \frac{60000 \times 20\%}{70000 \times 27.5\%} = 48 : 77$$

34. (a) No, of obese women in 2012
$= 20\%$ of $60000 = 12000$
Number of obese children in 2012
$= 25\%$ of $12000 = 3000$
Number of obese men in 2006 $= 32.5\%$ of $63000 = 20475$
Required difference $= 20475 - (12000 + 3000)$
$= 20475 - 15000 = 5475$

35. (d) Number of children not suffering from obesity in 2011 and 2010 = 90% of 21000 + 85% of 15000
$= 18900 + 12750$
Total of these two equals of 31650.

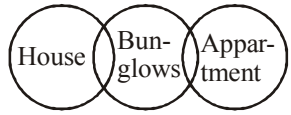
(36-40) :

	Eng	Hindi	Both	Total
Boys	24	18	108	150
Girls	55	78	117	250
Total	79	96	225	400

36. (b) 37. (d) 38. (a)
39. (e) 40. (c)

41. (d)

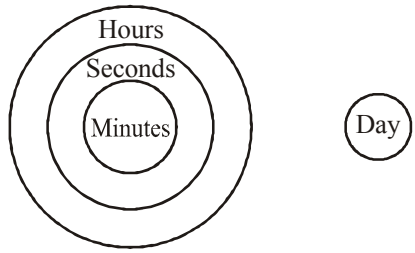
OR



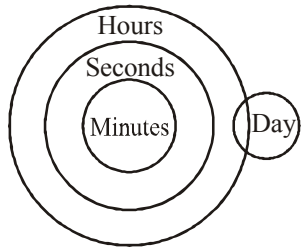
Conclusion I : False
Conclusion II : False

42. (a)

43. (b)

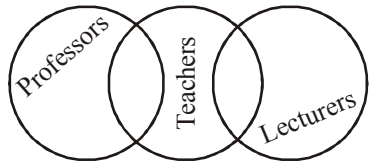


OR



Conclusion I : False
Conclusion II : True

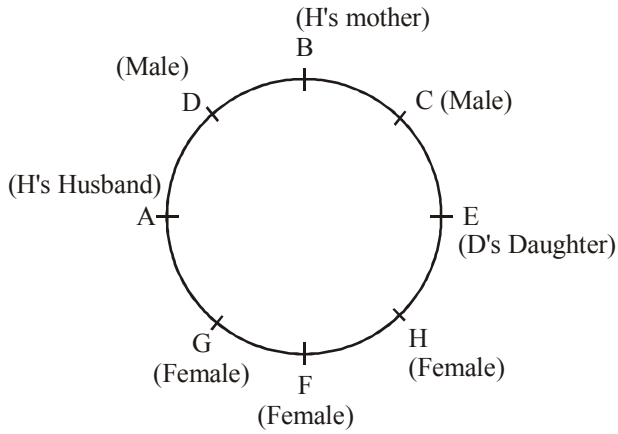
(44-45) :



44. (a) Conclusion I : True
Conclusion II : False

45. (b) Conclusion I : False
Conclusion II : True.

(46-50) :



46. (d) 47. (c) 48. (b)
49. (a) 50. (b) 51. (e)

(52-55):

ze ko ka gi → must save some money ...(i)
fe ka so ni → he made good money ...(ii)
ni lo da so → he must be good ...(iii)
we so ze da → he good save grace ...(iv)

52. (c) From eqs. (i) and (ii), the code of must is 'lo'.
53. (e) From eqs. (i) and (iv), ze is 'save'.
54. (a) From eqs. (i) and (ii), the code of good is 'so'.
55. (d)

(56-60):

$P \% Q \Rightarrow P < Q$
$P \delta Q \Rightarrow P > Q$
$P @ Q \Rightarrow P \le Q$
$P \bigstar Q \Rightarrow P \ge Q$
$P \# Q \Rightarrow P = Q$

56. (e) $R \bigstar T \Rightarrow R \ge T$; $T \delta M \Rightarrow T > M$; $M \% K \Rightarrow M < K$; $K @ V \Rightarrow K \le V$
So, $R \ge T > M < K \ge V$
Conclusions
I. $V \delta M \Rightarrow V > M$ (False)
II. $V \delta T \Rightarrow V > T$ (False)
III. $M \% R \Rightarrow M < R$ (True)
IV. $K \delta R \Rightarrow K > R$ (False)

57. (e) $H \delta J \Rightarrow H > J$; $J \# N \Rightarrow J = N$; $N @ R \Rightarrow N \le R$; $R \delta W \Rightarrow R > W$
So, $H > J = N \le R > W$
Conclusions
I. $W \% N \Rightarrow W < N$ (False)
II. $W \% H \Rightarrow W < H$ (False)
III. $R \# J \Rightarrow R = J$ (True)
IV. $R \delta J \Rightarrow R > J$ (True)
Only either III or IV is true.

58. (a) $B @ D \Rightarrow B \le D$; $D \delta F \Rightarrow D > F$; $F \% M \Rightarrow F < M$, $M \bigstar N \Rightarrow M \ge N$
So, $B \le D > F < M \ge N$
Conclusions
I. $B \% F \Rightarrow B < F$ (False)
II. $M \delta D \Rightarrow M > D$ (False)
III. $N \% F \Rightarrow N < F$ (False)
IV. $D \delta N \Rightarrow D > N$ (False)
So, none of the given conclusions is correct.

59. (c) $F \# Z \Rightarrow F = Z$; $Z @ H \Rightarrow Z \le H$; $H \% N \Rightarrow H < N$; $N \delta B \Rightarrow N > B$
So, $F = Z \le H < N > B$
Conclusions
I. $F @ H \Rightarrow F \le H$ (True)
II. $N \% Z \Rightarrow N > Z$ (True)
III. $B \% H \Rightarrow B < H$ (False)
IV. $B \% Z \Rightarrow B < Z$ (False)
Only I and II are true.

60. (d) $M \% K \Rightarrow M < K$; $K \bigstar W \Rightarrow K \ge W$; $W \delta V \Rightarrow W > V$, $V @ N \Rightarrow V \le N$
So, $M < K \ge W > V \le N$
Conclusions
I. $N \bigstar K \Rightarrow N \ge K$ (False)
II. $M \% W \Rightarrow M < W$ (False)
III. $K \delta V \Rightarrow K > V$ (True)
IV. $V \% M \Rightarrow V < M$ (False)
Only III is true.

61. (b) $519 - \frac{746}{2} = 146$

62. (d) 915 823 647 495 837
Smallest number = 594 and 2nd digit = 9

63. (e) 951 832 674 549 783
Second largest number = 832
and their first digit = 8

64. (c) Second hightest number = 746
$7 - 4 = 3$

65. (a)

5	1	9	3	2	6	7	4	6	4	9	4
+1		−1	+1		−1	+1		−1	+1		−1
6	1	8	4	2	7	8	4	5	5	9	4

8	3	7
+1		−1
9	3	6

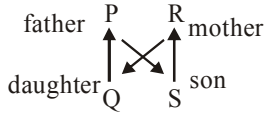
Second samllest number = 594 and 9 + 4 = 13

(66-70) :

Row 1.	↓	P	V	S	T	R	Q
Row 2.	↑	C	F	A	E	B	D

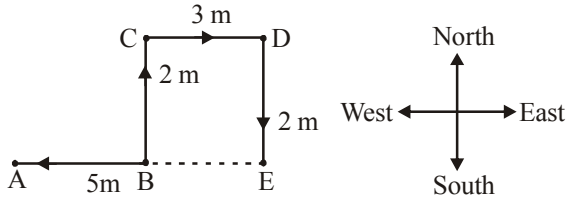
66. (d) 67. (a) 68. (b)
69. (b) 70. (c)

71. (d) Hence, P × Q < R★S shows that P is father of S.



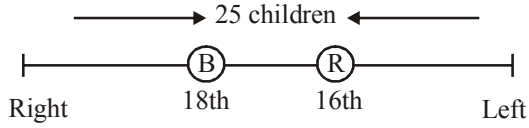
72. (a) None of these.

(73-75):



73. (c)
74. (a) ABE

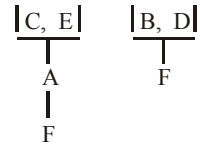
75. (e)



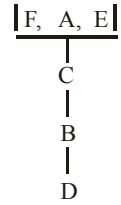
Seven children among R and B. All are facing Southward so left and right will be according.

76. (d) **From I :** *Ra Hi Kok Pa* ⇒
I will tell you ... (1)
Hi Kok Pa Rt ⇒
he will tell you ... (2)
From the above two clues,
we get *Ra* means 'I' and *Rt* means 'he'.
From II: *Hi Pa Po Rt* ⇒
will he call you ... (3)
Pa Rok Pac Hi ⇒
how will you go ... (4)
From the above two clues (3) and (4) we get *Hi Pa* means 'will you' and *Po RI* means 'call he'.
From I and II: We are unable to get the meaning of 'Pa' in the given code language.

77. (c) **From I:** F is the shortest.

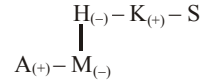


From II: D is the shortest.



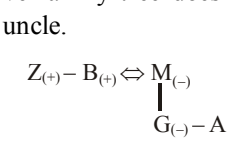
78. (d) **From I:** Among them, F was the third person who read the novel.
From II: Among them, C was at least the fourth person who read the novel.
Hence, even statements I and II together are not sufficient to answer the question.

79. (b) **From I:**



The above family tree does not say anything about paternal uncle.

From II:



From the family tree given above, Z is the paternal uncle of A.

80. (c) **From I:** Joseph : 21st rank
Shyam : 25th rank
Ellan : 34th rank

From II:
Savitri : 23rd rank
Sanju : $(x - 29)$th rank
Ellan : xth rank
Shyam : $(x + 9)$th rank
Since, Savitri is exactly in the middle of Sanju and Shyam,
therefore, $\frac{(x-29)+(x+9)}{2} = 23$
$\Rightarrow x - 29 + x + 9 = 46$
$\Rightarrow 2x = 46 + 20 \Rightarrow x = 33$
You do not need these calculations because Ellan's rank is related with Savitri, whose rank is given. Hence, Ellan's rank can be obtained easily.

PRACTICE SET 17

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

1. A trader mixes 26 kg of rice at ₹ 20 per kg with 30 kg rice of another variety costing ₹ 36 per kg. If he sells the mixture at ₹ 30 per kg his profit will be-
(a) –7% (b) 5%
(c) 8% (d) 10%
(e) None of these

2. A towel was 50 cm broad and 100 cm long. When bleached, it was found to have lost 20% of its length and 10% of its breadth. Find the percentage of decrease in area ?
(a) 32% (b) 28%
(c) 33% (d) 24%
(e) None of these

3. In an examination 75% of the total students passed in English and 65% passed in Mathematics, while 15% failed in English as well as Mathematics. If a total of 495 candidates who passed in both exams. Find the total number of students who appeared in the exam.
(a) 850 (b) 900
(c) 1000 (d) 1050
(e) None of these

4. A man deposited a total sum of ₹ 88400/- in the name of his two sons aged 19 and 17 years so that at the age of 21, both will get equal amounts. If the money is invested at the rate of 10% compound interest per annum what are the shares of his two sons ?
(a) ₹48200/- (b) ₹48400
(c) ₹42600/- (d) ₹44200
(e) None of these

5. The price of sugar increases by 20% due to the festive season. By what percentage should a family reduce the consumption of sugar so that there is no change in the expenditure ?
(a) 20% (b) $18\frac{1}{3}\%$
(c) $16\frac{2}{3}\%$ (d) $16\frac{1}{3}\%$
(e) None of these

6. Q is as much younger than R as he is older than T. If the sum of the ages of R and T is 50 years, what is definitely the difference between R and Q's age?
(a) 1 year (b) 2 years
(c) 25 years (d) Data inadequate
(e) None of these

7. How many words can be formed from the letters of the word 'SIGNATURE' so that the vowels always come together ?
(a) 720 (b) 1440
(c) 2880 (d) 3600
(e) 17280

8. Two taps can fill a tub in 5 min and 7 min respectively. A pipe can empty it in 3 min. If all the three are kept open simultaneously, when will the tub be full?
(a) 60 min (b) 85 min
(c) 90 min (d) 106 min

9. The distance between two points (A and B) is 110 km. X starts running from point A at a speed of 60 km/h and Y starts running from point B at a speed of 40 km/h at the same time. They meet at a point C, somewhere on the line AB. What is the ratio of AC to BC ?
(a) 3 : 2 (b) 2 : 3
(c) 3 : 4 (d) 4 : 3
(e) 3 : 1

10. Two vessels are full of milk with milk-water ratio 1 : 3 and 3 : 5 respectively. If both are mixed in the ratio 3 : 2, what is the ratio of milk and water in the new mixture ?
(a) 4 : 15 (b) 3 : 7
(c) 6 : 7 (d) 4 : 8
(e) None of these

11. From 5 girls and 6 boys in how many ways can 4 be chosen to include at least one girl?
(a) 315 (b) 225
(c) 215 (d) 185
(e) None of these

12. Two person Ravi and Shyam can do a work in 60 days and 40 days respectively. They began the work together but Ravi left after some time and Shyam finished the remaining work in 10 days. After how many days did Ravi leave?
(a) 8 days (b) 12 days
(c) 15 days (d) 18 days
(e) 20 days

13. The ratio of A's age to B's is 6 : 7. The product of their ages is 672. What is the ratio of their ages after 6 years?
(a) 6 : 7 (b) 5 : 7
(c) 7 : 8 (d) 15 : 17
(e) None of these

14. The respective ratio of the present ages of a mother and daughter is 7 : 1. Four years ago the respective ratio of their ages was 19 : 1. What will be the mother's age four years from now?
(a) 42 years (b) 38 years
(c) 46 years (d) 36 years
(e) None of these

15. Three friends J, K and L jog around a circular stadium and complete one round in 12, 18 and 20 seconds respectively. In how many minutes will all the three meet again at the starting point ?
(a) 5 (b) 8
(c) 12 (d) 3
(e) None of these

DIRECTIONS (Qs. 16-20) : What will come in place of the question mark (?) in the following questions ?

16. $\sqrt{11449} \times \sqrt{6241} - (54)^2 = \sqrt{?} + (74)^2$
(a) 384 (b) 3721
(c) 381 (d) 3638
(e) None of these

17. $\left[\left(3\sqrt{8} + \sqrt{8}\right) \times \left(8\sqrt{8} + 7\sqrt{8}\right)\right] - 98 = ?$
(a) $2\sqrt{8}$ (b) $8\sqrt{8}$
(c) 382 (d) 386
(e) None of these

18. $3463 \times 295 - 18611 = ? + 5883$
(a) 997091 (b) 997071
(c) 997090 (d) 999070
(e) None of these

19. $\frac{28}{65} \times \frac{195}{308} \div \frac{39}{44} + \frac{5}{26} = ?$
(a) $\frac{1}{3}$ (b) 0.75
(c) $1\frac{1}{2}$ (d) $\frac{1}{2}$
(e) None of these

20. $(23.1)^2 + (48.6)^2 - (39.8)^2 = ? + 1147.69$
(a) $(13.6)^2$ (b) $\sqrt{12.8}$
(c) 163.84 (d) 12.8
(e) None of these

DIRECTIONS (Qs. 21–25) : In the following number series only one number is wrong. Find out the wrong number.

21. 9050 5675 3478 2147 1418 1077 950
(a) 3478 (b) 1418
(c) 5675 (d) 2147
(e) 1077

22. 7 12 40 222 1742 17390 208608
(a) 7 (b) 12
(c) 40 (d) 1742
(e) 208608

23. 6 91 584 2935 11756 35277 70558
(a) 91 (b) 70558
(c) 584 (d) 2935
(e) 35277

24. 1 4 25 256 3125 46656 823543
(a) 3125 (b) 823543
(c) 46656 (d) 25
(e) 256

25. 8424 4212 2106 1051 526.5 263.25 131.625
(a) 131.625 (b) 1051
(c) 4212 (d) 8424
(e) 263.25

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. $\sqrt[3]{4663} + 349 = ? \div 21.003$
(a) 7600 (b) 7650
(c) 7860 (d) 7560
(e) 7680

27. 39.897% of 4331 + 58.779% of 5003 = ?
(a) 4300 (b) 4500
(c) 4700 (d) 4900
(e) 5100

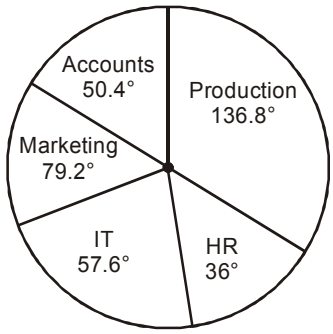
28. $59.88 \div 12.21 \times 6.35 = ?$
(a) 10 (b) 50
(c) 30 (d) 70
(e) 90

29. $43931.03 \div 2111.02 \times 401.04 = ?$
(a) 8800 (b) 7600
(c) 7400 (d) 9000
(e) 8300

30. $\sqrt{6354} \times 34.993 = ?$
(a) 3000 (b) 2800
(c) 2500 (d) 3300
(e) 2600

DIRECTIONS (Qs. 31-35) : Study the following pie chart carefully to answer the questions.

Degree Wise Break-up of Employees Working in Various Departments of an Organization and the ratio of Men to Women



Total number of employees = 3250

Respective Ratio of Men to Women in each Department

Department	Men	Women
Production	4	1
HR	12	13
IT	7	3
Marketing	3	2
Accounts	6	7

31. What is the number of men working in the Marketing department?
(a) 462 (b) 454
(c) 418 (d) 424
(e) None of these

32. What is the respective ratio of the number of women working in the HR department to the number of men working in the IT department?
(a) 11:12 (b) 17:29
(c) 13:28 (d) 12:35
(e) None of these

33. The number of men working in the production department of the organisation forms what per cent of the total number of employees working in that department?
(a) 88% (b) 90%
(c) 75% (d) 65%
(e) None of these

34. The number of women working in the IT department of the organization forms what per cent of the total number of employees in the organization from all departments together?
(a) 3.2% (b) 4.8%
(c) 6.3% (d) 5.6%
(e) None of these

35. What is the total number of men working in the organization?
(a) 2198 (b) 2147
(c) 2073 (d) 2236
(e) None of these

DIRECTIONS (Qs.36-40): Study the following table carefully to answer the questions.

Rate of interest (P.C.P.A.) offered by five companies on deposits under different schemes

Company → Scheme ↓	A	B	C	D	E
I	8.5	9.0	8.0	8.5	9.0
II	9.5	8.5	9.0	9.0	8.5
III	8.0	8.0	7.5	8.5	8.5
IV	10.0	9.5	10.5	9.5	10.0

36. Mr X. deposited an amount in Scheme II with Company for two years. After that he withdrew the amount and reinvested only the principal amount in Scheme IV of Company B for two years. Total amount of simple interest accrued from the two schemes is ₹ 14,800. What was the principal amount?
(a) ₹48,000 (b) ₹42,000
(c) ₹40,000 (d) Cannot be determined
(e) None of these

37. Company E offers compound interest under Scheme I and Company A offers simple interest under Scheme IV. What will be the difference between the interest earned under Scheme I of Company E and Scheme IV of Company A respectively in two years on an amount of ₹ 1.2 lakhs?
(a) ₹1,428 (b) ₹1,328
(c) ₹1,528 (d) ₹1,548
(e) None of these

38. Company D offers compound interest under Scheme II simple interest under Scheme IV. Abhijit invested ₹25,000 with this company under Scheme IV and after one year switched to Scheme II along with the interest for one more year. What is the total amount he will get at the end of two years?
(a) ₹28,939.25 (b) ₹29,838.75
(c) ₹31,748.25 (d) ₹31,738.75
(e) None of these

39. Abhishek invested an amount of ₹45,000 for two years with Company B under Scheme III, which offers compound interest, and Jeevan invested an equal amount for two years with Company C under Scheme IV, which offers simple interest. Who earned more interest and how much?
(a) Abhishek, ₹1,875 (b) Jeevan, ₹1,875
(c) Abhishek, ₹1,962 (d) Jeevan, ₹1,962
(e) None of these

40. Mr. Lal invested ₹30,000 in Company A under Scheme II, which offers compound interest and ₹48,000 in Company D under Scheme II, which offers compound interest. What will be the total amount of interest earned by Mr. Lal in two years?
(a) ₹14,728.80 (b) ₹17,428.50
(c) ₹14,827.70 (d) ₹16,728.20
(e) None of these

REASONING ABILITY

DIRECTIONS (Qs. 14-18) : In each of the questions below are given four statements followed by three conclusions numbered I, II and III. You have to take the given statements to be true even if they seem to be at variance from commonly known facts. Read all the conclusions and then decide which of the given conclusions logically follows from the given statements disregarding commonly known facts.

41. Statements: All petals are flowers. Some flowers are buds. Some buds are leaves. All leaves are plants.
Conclusions: I. Some petals are not buds.
II. Some flowers are plants.
III. No flower is plant.
(a) Only I follows (b) Either II or III follows
(c) I and II follow (d) Only III follows
(e) None of the above

42. Statements: Some pens are keys. Some keys are locks. All locks are cards. No card is paper

Conclusions:
I. No lock is paper.
II. Some cards are keys.
III. Some keys are not paper.
(a) I and II follow (b) Only I follows
(c) Only II follows (d) All follow
(e) None follows

43. Statements: Some pearls are gems. All gems are diamonds. No diamond is stone. Some stones are corals.
Conclusions:
I. Some stones are pearls.
II. Some corals being diamond is a possibility.
III. No stone is pearl.
(a) Only I follows (b) Only II follows
(c) Either I or III follows (d) I and II follow
(e) None of these

44. Statements: Some apartments are flats. Some flats are buildings. All buildings are bungalows. All bungalows are gardens.
Conclusions:
I. All apartments being building is a possibility
II. All bungalows are not buildings.
III. No flat is garden.
(a) None follows (b) Only I follows
(c) Either I or III follows (d) II and III follow
(e) Only II follows

45. Statements: All chairs are tables. All tables are bottles. Some bottles are jars. No jar is bucket.
Conclusions:
I. Some tables being jar is a possibility.
II. Some bottles are chairs.
III. Some bottles are not bucket.
(a) Only I follows (b) I and II follow
(c) All follow (d) Only II follows
(e) None of these

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

Nine friends A, B, C, D, E, F, G, H and K are sitting around a circle facing the centre. A sits second to left of D. K sits third to right of F. Neither K nor F is an immediate neighbour of A or D. G and H are immediate neighbours of each other. E sits third to right of H. B is not an immediate neighbor of F.

46. What is the position of F with respect to the position of B ?
(a) Second to the right (b) Third to the left
(c) Second to the left (d) Third to the right
(e) Sixth to the right

47. Who amongst the following is an immediate neighbour of H ?
(a) C (b) B
(c) K (d) F
(e) A

48. Starting from A, if all the friends are made to sit in the alphabetical order in clockwise direction, the positions of how many (except A) will remain unchanged ?
(a) None (b) One
(c) Two (d) Three
(e) Four

49. H is related to C and B is related to E in a certain way. To whom amongst the following is G related following the same pattern ?
(a) F (b) H
(c) C (d) A
(e) D

50. What will come in place of the question mark ?
DC DB DF DA?
(a) DG (b) DE
(c) DH (d) DK
(e) Either DK or DE

DIRECTIONS (Qs. 51-55): Study the following arrangement carefully and answer the questions given below :

P 1 % T R A 5 # D M 7 K ★ E G 2 8 $ H 3 I 4 V U 6 F ⌖ 9 Z

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

52. Four of the following five are alike in a certain way based on their position in the above arrangement. Which is the one that **does not** belong to that group?
(a) VIF (b) EK8
(c) R%# (d) 6V9
(e) $G3

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

54. Which of the following is exactly in the middle between the fifth element from the left end and the seventh element from the right end?
(a) G (b) 2
(c) E (d) ★
(e) None of these

55. If the positions of last twelve elements in the above arrangement are reversed, which of the following will be the eight element to the right of the eleventh element from the left ?
(a) H (b) I
(c) ⌖ (d) 9
(e) None of these

DIRECTIONS (Qs. 56-60): In the following questions, the symbols ★, δ, %, @ and © are used with the following meaning 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'.
'PδQ' means 'P is not greater than Q'.
'P @ Q' means 'P is neither greater than nor smaller than Q'.

Now, in each of the following questions, assuming the given statements to be true, find which of the three conclusions I, II and III given below them is/are definitely true and give your answer accordingly.

56. **Statements:** R δ K, K ★ M, M @ J
Conclusions: I. J © K
II. M © R
III. R ★ J
(a) Only I and II are true
(b) Only II and III are true
(c) Only I and III are true
(d) All I, II and III are true
(e) None of these

57. **Statements:** Z @ M, M © K, K ★ F
Conclusions: I. F © Z
II. K ★ Z
III. F © M
(a) None is true (b) Only I is true
(c) Only II is true (d) Only III is true
(e) Only II and III are true

58. **Statements:** B ★ J, J % W, W © M
Conclusions: I. M ★ J
II. W ★ B
III. B © M
(a) None is true (b) Only I is true
(c) Only II is true (d) Only III is true
(e) Only I and III are true

59. **Statements:** V % H, H @ F, F δ E
Conclusions: I. F @ V
II. F ★ V
III. E % H
(a) Only either I or II is true
(b) Only III is true
(c) Only I and II are true
(d) All I, II and III are true
(e) Only either I or II and III are true

60. **Statements:** W © T, T δ N, N % D
Conclusions: I. D ★ T
II. W © N
III. D @ T
(a) None is true (b) Only I is true
(c) Only II is true (d) Only III is true
(e) Only I and II are true

DIRECTIONS (Qs. 61-63) : Use the information given below to answer.

(i) There is a group of 5 persons A, B, C, D and E
(ii) In the group there is one badminton player, one chess player and one tennis player
(iii) A and D are unmarried ladies and do not play any games
(iv) No lady is a chess player or a badminton player
(v) There is a married couple in the group of which E is the husband
(vi) B is the brother of C and is neither a chess player nor a tennis player

61. Which of the group has only ladies?
(a) ABC (b) BCD
(c) CDE (d) CDA
(e) None of these

62. Who is the tennis player?
(a) B (b) C
(c) D (d) E
(e) None of these

63. Who is the wife of E?
(a) A (b) B
(c) D (d) C
(e) None of these

64. Consider the following statements and answer the question.
M, N, O and P are all different individuals
M is the daughter of N.
N is the son of O
O is the father of P.
Which among the following statements is contradictory to the above premises?
(a) P is the father of M.
(b) O has three children.
(c) M has one brother.
(d) M is the granddaughter of O.
(e) None of these

65. In a row of twenty five children Raman is 14^{th} from the right end. Varun is third to the left of Raman. What is Varun's position from the left end of the row?
(a) Eighth (b) Nineth
(c) Seventh (d) Tenth
(e) None of these

66. A man starts walking in south and walks for 7 km, then turns left and walks for 2 km, Then, once again turns left and walks for 12 km, turns left one more time and walks for 2 km. How much distance he has to cover to reach the starting point?
(a) 7km (b) 12km
(c) 4km (d) 5km
(e) None of these

67. Pointing to a boy, Mamta said, "he is the only son of my father-in-law's only child." How is the boy related to Mamta?
(a) Brother (b) Daughter
(c) Son (d) Husband
(e) None of these

68. If A is to the South of B and C is to the East of B, in what direction is A with respect to?
(a) North-East (b) North-West
(c) South-East (d) South-West
(e) None of these

69. A man walks 40 meters towards north. Then turning to his right, he walks 50 meter. Then turning to his left, he walks 30 meters. Again he turns to his left and walks 40 meters. How far is he from initial position?
(a) $40\sqrt{2}$ (b) $50\sqrt{2}$
(c) $60\sqrt{2}$ (d) $50\sqrt{3}$
(e) None of these

70. Read the following information carefully to answer the following question:
A * B means A is the sister of B
A ÷ B means A is the brother of B
A + B means A is the father of B
A - B means A is the mother of B
What is the relation between Q and S in 'P + Q ÷ R - S'?
(a) Q is the aunt of S
(b) Q is the uncle of S
(c) Q is the mother of S
(d) Q is the father of S
(e) None of these

DIRECITONS(Qs 71-75) : Study the following information carefully to answer the given questions.

Eight people M, N, O, P, Q, R, S and T are sitting in a straight line with equal distances between each other,but not necessarily in the same order. Some of them are facing North and some of them are facing south.

- M sits at one of the extreme ends of the line. Only three people sit between M and S. Q sits exactly between M and S.
- T sits third to the right of Q. N is an immediate neighbour of T and faces south. O sits second to the right of R. O is not an immediate neighbour of S.
- Immediate neighbour of S face opposite directions(i.e. if one neighbour faces North then the other neighbour faces south and Vice-Versa)
- M and P face the same direction as Q(i.e if Q faces north then M and P also face North and Vice-Versa). Both the immediate neighbours of Q face south.

71. In the given arrangement, if two people come and sit to the immediate left of Q, how many people will sit between R and O?
(a) Two (b) Three
(c) Four (d) More than four
(e) One

72. Who amongst the following sits third to the right of R?
(a) M (b) Q
(c) Other than those given as options
(d) N
(e) S

73. How many people face North as per the given arrangement?
(a) Two (b) Three
(c) Four (d) More than four
(e) One

74. Four of the following five are alike in a certain way based upon their seating arrangement and so form a group. Which of the following does not belong to the group?
(a) QO (b) MR
(c) NR (d) OS
(e) PS

75. Who amongst the following sits at extreme right end of row?
(a) O (b) R
(c) T (d) P
(e) M

DIRECTIONS (Qs. 76-80) : Each of the questions below consists of a question and two statements numbered I and II given below it. You have to decide whether the data provided in the statements are sufficient to answer the question. Read both the statements and give answer.

(a) if the data in statement I alone are sufficient to answer the question, while the data in statement II alone are not sufficient to answer the question.
(b) if the data in statement II alone are sufficient to answer the question, while the data in statement I alone are not sufficient to anwer the question.
(c) if the data either in statement I alone or in statement II alone are sufficient to answer the question.
(d) if the data even in both statements I and II together are not sufficient to answer the question.
(e) if the data in both statements I and II together are necessary to answer the question.

76. Which bag amongst P, Q, R, S and T is the heaviest?
I. Bag Q is heavier than R and S. Bag T is heavier than only bag P.
II. Only three bags are lighter than R. The weight of bag Q is 50 kg, which is 2 kg more than bag R.

77. Are all the five friends – A, B, C, D and E – who are seated around a circular table facing the centre?
I. A sits to the left of B. B faces the centre. D and E are immediate neighbours of each other. C sits second to the right of E.
II. D sits second to right of C. C faces the centre. Both E and A are immediate neighbours of D. B sits second to the right of A.

78. In a college, five different subjects, viz Physics, Chemistry, Botany, Zoology and Mathematics, are taught on five different days of the same week, starting from Monday and ending on Friday. Is Chemistry taught on Wednesday?
I. Two subjects are taught between Zoology and Mathematics. Mathematics is taught before Zoology. Chemistry is taught on the day immediately next to the day when Physics is taught. Botany is not taught on Friday.
II. Three lectures are scheduled between the lectures of Botany and Zoology. Mathematics is taught immediately before Physics.

79. Is it 9 o'clock now?
I. After half an hour, the minute and the hour hands of the clock will make an angle of exactly 90° with each other.
II. Exactly 15 minutes ago, the hour and the minute hands of the clock coincided with each other.

80. Is F granddaughter of B?
I. B is the father of M. M is the sister of T. T is the mother of F.
II. S is the son of F. V is the daughter of F. R is the brother of T.

HINTS & EXPLANATIONS

1. (b) C. P. of 56 kg rice = $(26 \times 20 + 30 \times 36)$
$= ₹(520 + 1080) = ₹1600$
S. P. of 56 kg rice = $56 \times 30 = ₹1680$

$$\text{Profit \%} = \frac{80}{1600} \times 100 = 5\%$$

2. (b) Area of towel = $l \times b = 100\text{ cm} \times 50\text{ cm} = 5000\text{ cm}^2$
Now, length decreased by 20% and breadth decreased by 10%
$l' = 100 - 20\%\text{ of }100 = 80\text{cm}$
$b' = 50 - 10\%\text{ of }50 = 45\text{cm}$
New area $= l' \times b' = 80\text{cm} \times 45\text{cm} = 3600\text{cm}^2$
Change in area $= (5000 - 3600)\text{ cm}^2 = 1400\text{ cm}^2$

$$\text{\% change in area} = \frac{1400}{5000} \times 100 = 28\%$$

3. (b) Let A and B represent the sets of students who passed in English and Mathematics respectively.
If 15% of candidates failed in both, then 85% passed at least one of the exams.
Then, the total number of students passed in one or both subjects
$= (A \cup B) = n(A) + n(B) = n(A \cap B)$
$0.85 = 0.75 + 0.65 - n(A \cap B)$
$n(A \cap B) = 1.40 - 0.85 = 0.55$
0.55% of number of students = 495

$$\therefore \quad \text{Number of students} = \frac{495}{55} \times 100 = 900$$

4. (b) Let son aged 19 years getting ₹x and son aged 17 years getting $(88400 - x)$.
At the age of 21, both will get equal amount

$$x\left(1 + \frac{10}{100}\right)^2 = (88400 - x)\left(1 + \frac{10}{100}\right)^4$$

$\Rightarrow \frac{121x}{100} = (88400 - x) \times \frac{121}{100} \times \frac{121}{100}$

$\Rightarrow 100x = 88400 \times 121 - 121x$

$\Rightarrow 221x = 88400 \times 121$

$\Rightarrow x = \frac{88400 \times 121}{221} = 48400$

x = ₹48400

5. (c) Let x and y be the rate of sugar per Kg and quantity of sugar.

$xy = \left(x + \frac{20}{100} \times x\right) y'$

$xy = \frac{6x}{5} y'$

$y' = \frac{5}{6} y = y - \frac{y}{6}$

Reduction in consumption $= \frac{100}{6} = 16\frac{2}{3}\%$

6. (d) $R - Q = R - T \Rightarrow Q = T$. Also, $R + T = 50 \Rightarrow R + Q = 50$. So, (R – Q) cannot be determined.

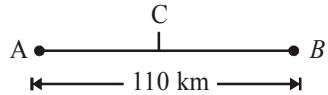
7. (e) The word 'SIGNATURE' contains 9 different letters. When that vowels IAUE are taken together, they can be supposed to form an entity, treated as one letter. Then, the letters to be arranged are SGNTR (IAUE) These 6 letters can be arranged in ${}^6P_6 = 6! = 720$ ways. The vowels in the group (IAUE) can be arranged themselves in ${}^4P_4 = 4! = 24$ ways.
∴ Required number of words = (720 × 24) = 17280.

8. (d) Net filling in 1 min $= \frac{1}{5} + \frac{1}{7} - \frac{1}{3} = \frac{21 + 15 - 35}{105} = \frac{1}{105}$

The tub will be full in 105 min.

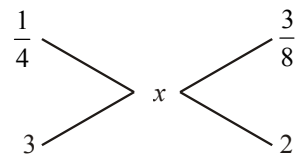
9. (a) Distance between two points = 110 km
Relative speed = 60 + 40 = 100 km/h
Time after which they meet

$= \frac{\text{Total distance}}{\text{Relative speed}} = \frac{110}{100} = 1.10\text{ h}$



Distance covered by *A* in 1.10 h = *AC* = 60 × 1.10 = 66 km
Remaining distance = *BC* = 110 – 66 = 44 km
Required ratio = *AC* : *BC* = 66 : 44 = 3 : 2

10. (d) By alligation method,



$\therefore \frac{\frac{3}{8} - x}{x - \frac{1}{4}} = \frac{3}{2}$

$\Rightarrow \frac{3}{4} - 2x = 3x - \frac{3}{4}$

$\Rightarrow 5x = \frac{6}{4} = \frac{3}{2}$

$\therefore x = \frac{3}{10}$

11. (a) These are the possibilities

1 girl 3 boys $\Rightarrow {}^5C_1 \times {}^6C_3$

2 girls 2 boys $\Rightarrow {}^5C_2 \times {}^6C_2$

3 girls 1 boys $\Rightarrow {}^5C_3 \times {}^6C_1$

4 girls $\Rightarrow {}^5C_4$

∴ Total number of ways = 5 × 20 + 10 × 15 + 10 × 6 + 5
= 100 + 150 + 60 + 5 = 315

12. (d) 18 days
Shyam alone worked 10 days. So work done by him

$= \frac{10}{40} = \frac{1}{4}$

∴ (Ravi + Shyam) have done

$1 - \frac{1}{4} = \frac{3}{4}$ of the work.

(Ravi + Shyam) do $\frac{3}{4}$ of the work in $24 \times \frac{3}{4} = 18$ days

13. (d) Let the age of A = 6*x* years
Let the age of B = 7*x* years
$6x \times 7x = 672$

$x^2 = \frac{672}{42} = 16 \ \therefore x = 4$

Age of A after 6 years = 30 years
Age of B after 6 years = 34 years
Required ratio = 30 : 34 = 15 : 17

14. (c) Let the ages of the mother and daughter be 7x and x years respectively.

$\therefore$ Four years ago, $\frac{7x - 4}{x - 4} = \frac{19}{1}$

$\Rightarrow 19x - 76 = 7x - 4$

$\Rightarrow 12x = 72 = x = 6$

∴ Mother's age after four years
= 7x + 4 = 7 × 6 + 4 = 46 years

15. (d) Required time = LCM of 12, 18 and 20 seconds.
180 seconds = 3 minutes

16. (b) $\sqrt{11449} \times \sqrt{6241} - (54)^2 = \sqrt{?} + (74)^2$

$\Rightarrow \sqrt{?} = 107 \times 79 - 2916 - 5476$
$= 8453 - 2916 - 5476 = 61$
$\therefore ? = (61)^2 = 3721$

17. (c) $? = \left[\left(3\sqrt{8} + \sqrt{8}\right) \times \left(8\sqrt{8} + 7\sqrt{8}\right)\right] - 98$

$= \left(4\sqrt{8} \times 15\sqrt{8}\right) - 98 = (60 \times 8) - 98 = 480 - 98 = 382$

18. (a) $3463 \times 295 - 18611 = ? + 5883$
$\therefore ? = 1021585 - 18611 - 5883 = 997091$

19. (d) $? = \frac{28}{65} \times \frac{195}{308} \div \frac{39}{44} + \frac{5}{26} = \frac{28}{65} \times \frac{195}{308} \times \frac{44}{39} + \frac{5}{26}$

$= \frac{4}{13} + \frac{5}{26} = \frac{8 + 5}{26} = \frac{13}{26} = \frac{1}{2}$

20. (c) $? + 1147.69 = (23.1)^2 + (48.6)^2 - (39.8)^2$
$\therefore ? = 533.61 + 2361.96 - 1584.04 - 1147.69 = 163.84$

21. (e) The given number series is based on the following pattern:

9050 5675 3478 2147 1418 1075 1077 950

$-(15)^3$ $-(13)^3$ $-(11)^3$ $-(9)^3$ $-(7)^3$ $-(5)^3$

Hence, the number 1077 is wrong and it should be replaced by 1075.

22. (d) The given number series is based on the following pattern :

7 12 40 222 1744 1742 17390 208608

$\times 2-(2\times 1)$ $\times 4-(4\times 2)$ $\times 6-(6\times 3)$ $\times 8-(8\times 4)$ $\times 10-(10\times 5)$ $\times 12-(12\times 6)$

Hence, the number 1742 is wrong and it should be replaced by 1744.

23. (c) The given number series is based on the following pattern:

6 91 582 584 2935 11756 35277 70558

$\times 7+(7)^2$ $\times 6+(6)^2$ $\times 5+(5)^2$ $\times 4+(4)^2$ $\times 3+(3)^2$ $\times 2+(2)^2$

Hence, the number 584 is wrong and it should be replaced by 582.

24. (d) The given number series is based on the following pattern.

1 4 27 25 256 3125 46656 823543

$(1)^1$ $(2)^2$ $(3)^3$ $(4)^4$ $(5)^5$ $(6)^6$ $(7)^7$

Hence, the number 25 is wrong and it should be replaced by 27.

25. (b) The given number series is based on the following pattern :

8424 4212 2106 1053 1051 526.5 263.25 131.625

$\times\frac{1}{2}$ $\times\frac{1}{2}$ $\times\frac{1}{2}$ $\times\frac{1}{2}$ $\times\frac{1}{2}$ $\times\frac{1}{2}$

Hence, the number 1051 is wrong and it should be replaced by 1053.

26. (e) $?\div 21.003=\sqrt[3]{4663}+349$

$\Rightarrow ?\div 21=17+349=366$

$\therefore \quad ?=366\times 21=7686\approx 7680$

27. (c) $?=4331\times\frac{39.897}{100}+5003\times\frac{58.779}{100}$

$=4330\times\frac{40}{100}+5000\times\frac{59}{100}$

$=1732+2950=4682\approx 4700$

28. (c) $?=59.88\div 12.21\times 6.35$

$=60\div 12\times 6=60\times\frac{1}{12}\times 6\approx 30$

29. (e) $?=43931.03\div 2111.02\times 401.04$

$\simeq 43930\div 2110\times 400$

$=43930\times\frac{1}{2110}\times 400\approx 8300$

30. (b) $?=\sqrt{6354}\times 34.993\approx 80\times 35=2800$

31. (e) 32. (c) 33. (e) 34. (b) 35. (b)

36. (c) Amount $=\frac{14800}{0.18+0.19}=40,000$

37. (a) Required difference

$=1.2\left\{\left(1+\frac{9}{100}\right)^2-1\right\}-\frac{1.2\times 10\times 2}{100}$

38. (e) Required sum

$=(25000+2375\times 2)(1.09)(1.09)=₹35345.97$

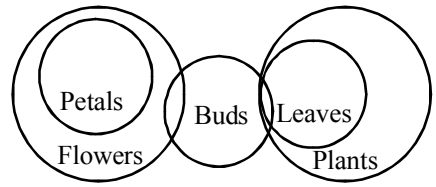
39. (d) Required difference = SI – CI

$=₹9450-₹7488=1962$

40. (a) Required Interest =

$30\times\frac{19}{2}\times 2\times\frac{10^3}{10^2}+48+10^3\left\{(1.09)^2-1\right\}$

41. (b) According to question,



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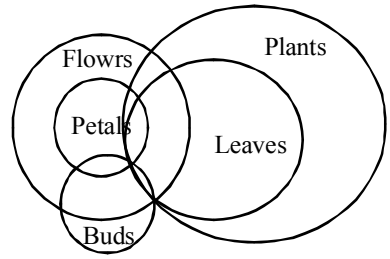
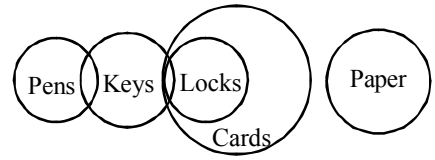


Conclusions I. false

II. false
III. false
or

Hence, only either II or III follows.

42. (d) According to question



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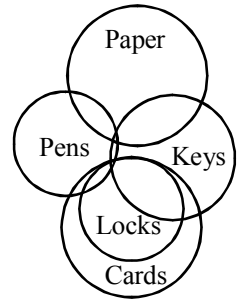


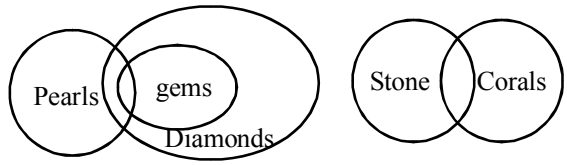
Conclusions I. True

II. True

III. True

Hence, All conclusions follow.

43. (e) According to question,



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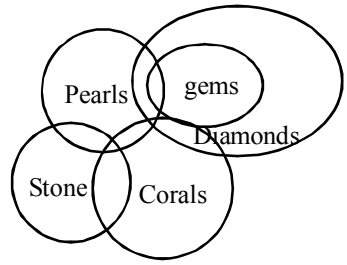
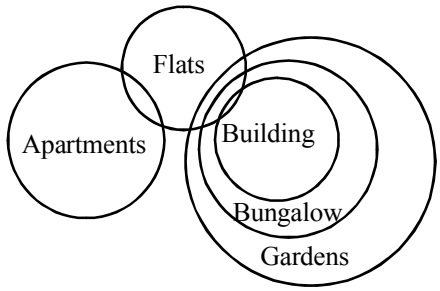


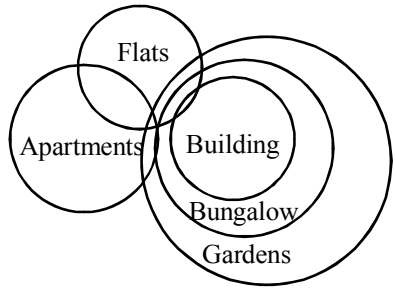
Conclusion I. False, II. True, III. False or

Hence, only conclusions II and either I or III follow.

44. (a) According to question,



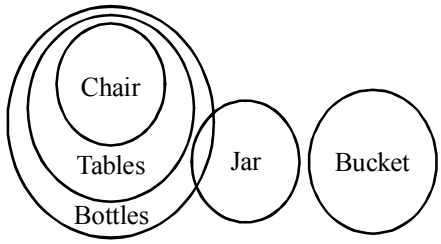
Or



Conclusions I. ✓, II. X, III. X

Hence, only conclusion I follows.

45. (c) According to question,



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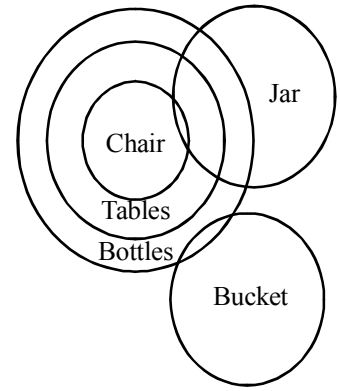
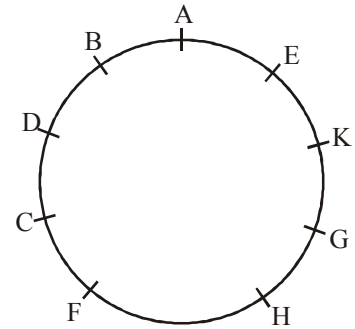


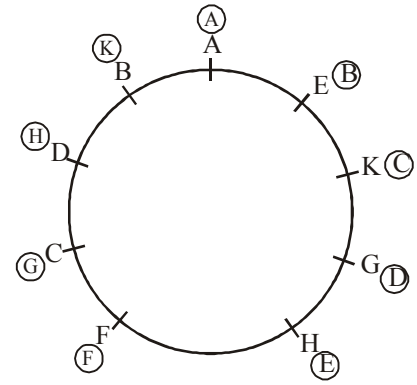
Conclusions, I. ✓, II. ✓, III. ✓

Hence, All I, II and III follow.

(46-50) :



46. (d)
47. (d)
48. (b)



49. (a) H is second to the right of C.
B is second to the right of E.
G is second to the right of F.

50. (c) DC, DB ⇒ Immediate neighbours of D.
DF, DA ⇒ F is second to the right of D.
A is second to the right of D.
Therefore, ? = DH
H is third to the right of D.

51. (a) P1%TR A 5#DM7K★EG28$H314VU6F ⋕9Z
In the above series there is no consonant symbol-consonant sequence.

52. (e) Except it in each choice second and third elements are second to the left of first elements and third to the right of first element respectively.

53. (a) We have to look for digit- vowel-consonant sequence in the following series.
P1%TR A 5#DM7K★EG28$H314VU6F⋕9Z
There is no such sequence.

54. (d)

55. (d) After changing the series becomes as follows:
P1%TR A 5#DM7K★EG28Z9⋕F6UV413H$
Now, eigth element to the right of eleventh from the left, i.e., 9.

56. (d) $R \le K$ ... (i); $K < M$ ... (ii); $M = J$ ... (iii) Combining these, we get $R \le K < M = J$
Hence $J > K$ and I follows.
Also, $M > R$ and II follows.
Again, $R < J$ and III follows.

57. (c) $Z = M$ ... (i); $M > K$ ... (ii); $K < F$ ... (iii)
Combining these, we get $Z = M > K < F$
From this F and Z can't be compared. Neither can F and M.
Hence, I and III do not follow. But $K < Z$ and II follows.

58. (b) $B < J$ ... (i); $J \ge W$... (ii); $W > M$ ... (iii)
Combining these, we get $B < J \ge W > M$.
Hence $M < J$ and I follows.
But W and B can't be compared. Neither can B and M.
Hence II and III do not follow.

59. (e) $V \ge H$ ... (i); $H = F$ ... (ii); $F \le E$ ... (iii)
Combining these, we get.
$V \ge H = F \le E$. Hence $V \ge F$.
Which means either I ($F = V$) or II ($F < V$) follows.
Again, $E \ge H$. Hence III follows.

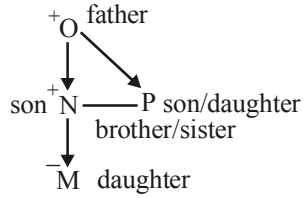
60. (a) $W > T$ ... (i); $T \le N$ ... (ii); $N \ge D$ ... (iii)
No comparisons can be made.

(61-63):

	Badminton	Chess	Tennis	Gender	Marriage status	Relation
A	×	×	×	F	Unmarried	
B	✓	×	×	M		Brother of C
C	×	×	✓	F	Married with E	
D	×	×	×	F	Unmarried	
E		✓		M		Husband C + E

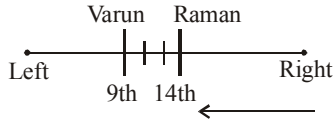
61. (d) ACD is the group of ladies.
62. (b) It is clear from above table.
63. (d) It is clear from above table.

64. (a)



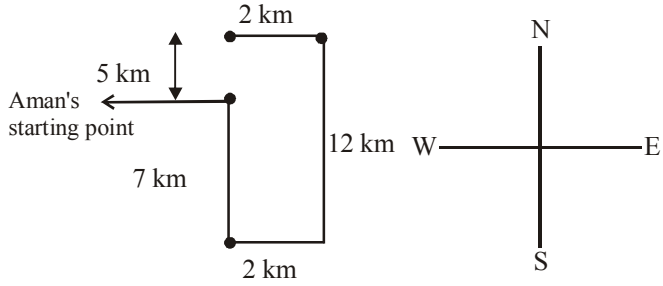
From above relation diagram, P is the sibling of M's father.

65. (b)

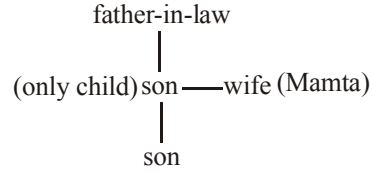


As Raman is 14th from right. So Varun will be 17th from right. So there are 8 people (25 – 17) to the left of Varun. He is at the nineth position.

66. (d) Aman has taken a rectangular path as is clear from the diagram below.

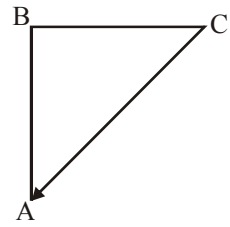


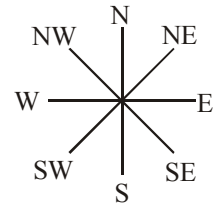
67. (c)



Mamta's father-in-law's only child is Mamta's husband and only child's only son is her husband's only son i.e. Mamta's son.

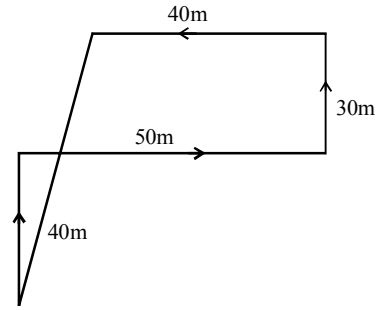
68. (d)





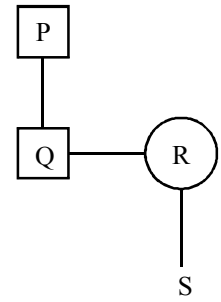
Hence, A is to south west of C.

69. (b) $50\sqrt{2}$



Distance $= \sqrt{(70)^2 + (10)^2} = \sqrt{5000} = 50\sqrt{2}$

70. (b) Q is the uncle of S



71. (b) 72. (a) 73. (c) 74. (a) 75. (d)

Solutions (76-80) :

76. (c) **Using statement I :**
$Q > R$, $S > T > P$
Q is the heaviest.
Using statement II :
$Q > R > S, T, P$
Q is the heaviest.

77. (b) 78. (c) 79. (c) 80. (d)

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

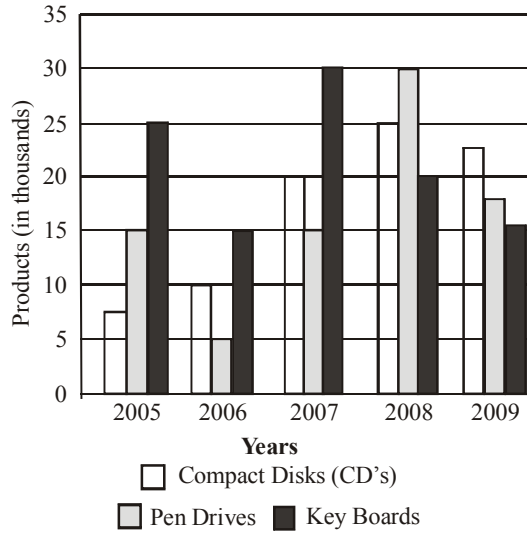
33. Under the new technique, which stage of Software development is most expensive for Mulayam Software company?
(a) Testing (b) Specification
(c) Coding (d) Design
(e) None of these

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.

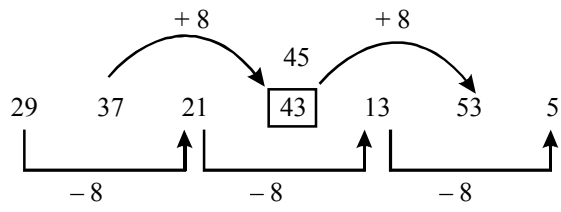
$$\because R=\left(\frac{100\times 156}{800\times 3}\right)\%=6.5\%$$

New rate = (6.5 + 4) = 10.5%

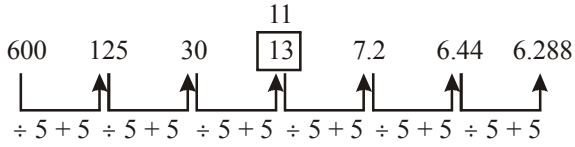
$$\text{New, S.I} = ₹\left(\frac{800\times 10.5\times 3}{100}\right)=₹ 252$$

∴ New amount = 800 + 252 = 1052

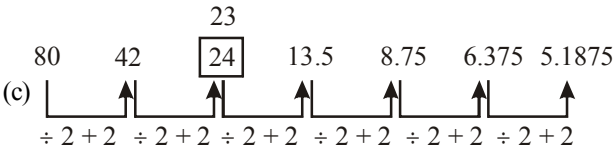
16. (e)



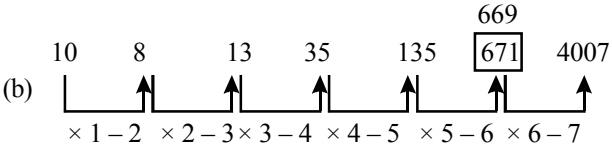
17. (e)



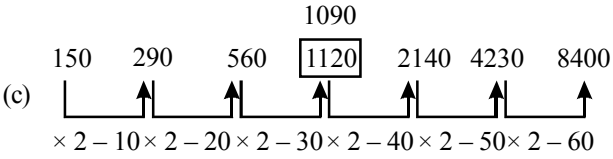
18. (c)



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
$=105000$

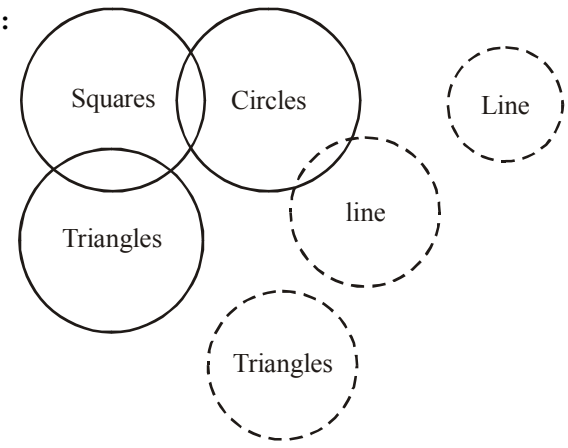
37. (b) Average number of produced pen-drives
$=\left(\frac{15+5+15+30+17.5}{5}\right)$ thousand $=16500$

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

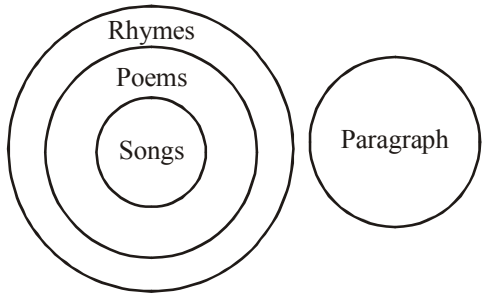
41-42:



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

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

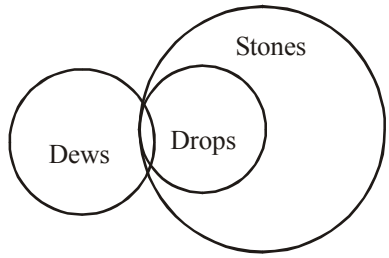
43-44:



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

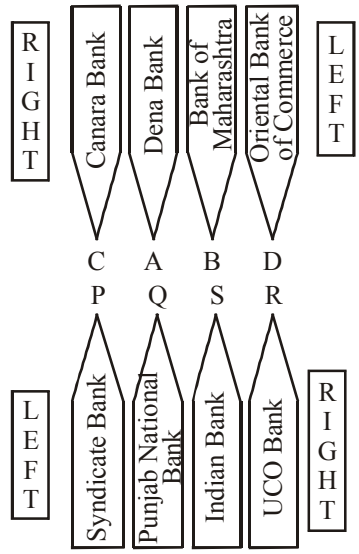
44. (b) Conclusion I - False
Conclusion II - True

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.

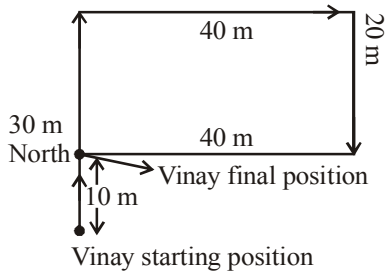
67. (e) **Statements** $M \geq K$, $K > N$, $N \leq R$, $R < W$
So, $M \geq K > N \leq R < W$
Conclusions:
I. $W < K$ (False)
II. $M \geq R$ (False)
III. $K > W$ (False)
IV. $M > N$ (True)
So, only IV is true.

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.

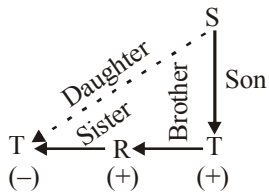
71. (b)



He is 10 m from his original position.

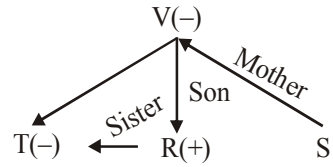
72. (c)

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



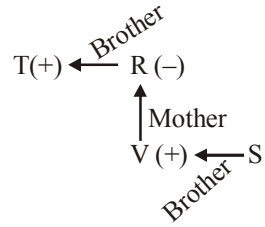
Clearly, T is sister of S's son V, hence T is daughter of S.

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.

PRACTICE SET 19

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 question mark (?) in the following questions?

1. $\left[\left(5\sqrt{7}+\sqrt{7}\right)\times\left(4\sqrt{7}+8\sqrt{7}\right)\right]-(19)^2=?$

(a) 143 (b) $72\sqrt{7}$
(c) 134 (d) $70\sqrt{7}$
(e) None of these

2. $\frac{0.23-0.023}{.0023\div 23}=?$

(a) 0.207 (b) 207
(c) 2070 (d) 0.0207
(e) None of these

3. $\sqrt{33124}\times\sqrt{2601}-(83)^2=(?)^2+(37)^2$

(a) 37 (b) 33
(c) 34 (d) 28
(e) None of these

4. $5\frac{17}{37}\times 4\frac{51}{52}\times 11\frac{1}{7}+2\frac{3}{4}=?$

(a) 303.75 (b) 305.75
(c) $303\frac{3}{4}$ (d) $308\frac{1}{4}$
(e) None of these

5. $\frac{\sqrt{32}+\sqrt{48}}{\sqrt{8}+\sqrt{12}}=?$

(a) $\sqrt{2}$ (b) 2
(c) 4 (d) 8
(e) None of these

6. If the compound interest on a certain sum of money for 3 years at 10% p.a. be ₹ 993, what would be the simple interest ?

(a) ₹ 800 (b) ₹ 950
(c) ₹ 900 (d) ₹ 1000
(e) None of these

7. How much water must be added to 100 cc of 80% solution of boric acid to reduce it to a 50% solution ?

(a) 20 cc (b) 40 cc
(c) 80 cc (d) 60 cc
(e) None of these

8. Successive discounts of 20% and 15% are equivalent to a single discount of

(a) 35% (b) 32%
(c) 17.5% (d) 22.5%
(e) None of these

9. Two cars start together in the same direction from the same place. The first goes with a uniform speed of 10 km/h. The second goes at a speed of 8 km/h in the first hour and increases its speed by $\frac{1}{2}$ km with each succeeding hour. After how many hours will the second car overtake the first one, if both go non-stop?

(a) 9 hours (b) 5 hours
(c) 7 hours (d) 8 hours
(e) None of these

10. 24 men working 8 hours a day can finish a work in 10 days. Working at the rate of 10 hours a day, the number of men required to finish the same work in 6 days is
(a) 30 (b) 32
(c) 34 (d) 36
(e) None of these

11. Three cubes of a metal are of edges 3 cm, 4 cm and 5 cm. These are melted together and from the melted material, another cube is formed. The edge of this cube is :
(a) 8 cm (b) 10 cm
(c) 9 cm (d) 6 cm
(e) None of these

12. If $x : y = 1 : 3$, $y : z = 5 : k$, $z : t = 2 : 5$ and $t : x = 3 : 4$, then what is the value of k ?
(a) 1/2 (b) 1/3
(c) 2 (d) 3
(e) None of these

13. Two lots of onions with equal quantity, one costing ₹ 10 per kg and the other costing ₹15 per kg, are mixed together and whole lot is sold at ₹ 15 per kg. What is the profit or loss?
(a) 10% loss (b) 10% profit
(c) 20% profit (d) 20% loss
(e) None of these

14. Present ages of X and Y are in the ratio 5 : 6 respectively. Seven years hence this ratio will become 6 : 7 respectively. What is X's present age in years?
(a) 35 (b) 42
(c) 49 (d) Cannot be determined
(e) None of these

15. In how many ways can 21 books on English and 19 books on Hindi be placed in a row on a shelf so that two books on Hindi may not be together?
(a) 3990 (b) 1540
(c) 1995 (d) 3672
(e) None of these

DIRECTIONS (Qs. 16-20) : In each of the following questions a number series is given. A number in the series is expressed by letter 'N'. You have to find out the number in the place of 'N' and use the number to find out the value in the place of the question mark in the equation following the series.

16. 68 68.5 69.5 71 N 75.5 78.5
$N \times 121 + ? = 10000$
(a) 1160 (b) 1200
(c) 1150 (d) 1180
(e) None of these

17. 19 20 24 33 49 74 N 159
$N^2 \div 10000 = ?$
(a) 121.0 (b) 12.1
(c) 1.21 (d) 0.121
(e) None of these

18. 51 43 N 30 25 21 18
$N^2 - 2N = ?$
(a) 1155 (b) 1224
(c) 1295 (d) 1368
(e) None of these

19. 2 5 14 41 122 365 N
$N - 16\frac{2}{3}\%$ of $5670 - (?)^2 = 10^2$
(a) 7 (b) $\sqrt{149}$ (c) 49 (d) $\sqrt{7}$
(e) None of these

20. 510 254 N 62 30 14 6
$40\%\,N + ? = 9^2$
(a) 31.4 (b) 29.8 (c) 50.4 (d) 30.6
(e) None of these

DIRECTIONS (Qs. 21-25): Find out the *approximate* value which should replace the question mark (?) in the following questions. (You are not expected to find out the exact value).

21. $196.1 \times 196.1 \times 196.1 \times 4.01 \times 4.01 \times 4.001 \times 4.999 \times 4.999 = 196.1^3 \times 4 \times ?$
(a) 100 (b) 16 (c) 10 (d) 64
(e) 32

22. $\frac{2}{7} \times \frac{1}{8} + \frac{3}{7} \div \frac{6}{14} = ?$
(a) $\frac{2}{56}$ (b) $\frac{3}{56}$ (c) 1 (d) 2.5
(e) $\frac{50}{60}$

23. $10.1^{.201} + 2.9^{3.001} = ?$
(a) 130 (b) 160 (c) 115 (d) 147
(e) None of these

24. $\sqrt{1999.9997} = 4.76 \times ?$
(a) 11 (b) 45 (c) 49 (d) 6
(e) 9

25. 23% of $4011 + \frac{1}{7}$ of $5555 = ?$
(a) 7000 (b) 1900 (c) 9022 (d) 1700
(e) 1450

DIRECTIONS (Q. 26-30) : In the following number series only one number is wrong. Find out the wrong number.

26. 3 7 16 35 72 153 312
(a) 7 (b) 153
(c) 35 (d) 72
(e) 16

27. 18 20 23 32 48 73 109
(a) 20 (b) 23
(c) 32 (d) 48
(e) 73

28. 7 4 5 9 20 51 160.5
(a) 4 (b) 5
(c) 9 (d) 20
(e) 51

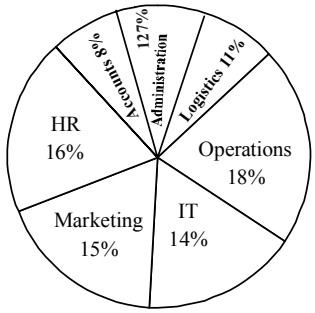
29. 6 10 14 34 66 130 258
(a) 10 (b) 14
(c) 34 (d) 66
(e) 130

30. 2 7 30 138 524 1557 3102
(a) 7 (b) 30
(c) 138 (d) 524
(e) 1557

DIRECTIONS (Qs. 31-35): Study the following information carefully to answer these questions.

Percentage of employees in various departments of an organization and these male-female ratio

Total No. of Employees = 2500



Ratio– Male : Female

Department	Male : Female
Administration	7 : 5
Accounts	2 : 3
HR	5 : 3
Marketing	7 : 8
IT	3 : 4
Operations	5 : 4
Logistics	6 : 5
Printing	2 : 1

31. What is the ratio of male employees in Administration to those in Printing Department?
(a) 7 : 4 (b) 4 : 7
(c) 3 : 4 (d) 7 : 3
(e) None of these

32. What is the difference between the total number of employees in IT and that in Operations Department?
(a) 75 (b) 150
(c) 100 (d) 50
(e) None of these

33. What is the ratio of the total number of males in HR and Marketing to the total number of females in these two departments?
(a) 13 : 15 (b) 15 : 13
(c) 13 : 17 (d) 17 : 14
(e) None of these

34. How many female employees are there in the HR Departments?
(a) 250 (b) 120
(c) 125 (d) 150
(e) None of these

35. What is the difference between the numbers of male and female employees in Logistics Department?
(a) 50 (b) 25
(c) 75 (d) 100
(e) None of these

DIRECTIONS (Qs. 36-40) : These questions are based on the table and information given below.

The amount of money invested (in rupees crore) in the core infrastructure areas of two districts, Chittoor and Khammam, in Andhra Pradesh, is as follows :

Chittoor District			Khammam District		
Core Area	2014	2015	Core Area	2014	2015
Electricity	815.2	1054.2	Electricity	2065.8	2365.1
Chemical	389.5	476.7	Chemical	745.3	986.4
Thermal	632.4	565.9	Thermal	1232.7	1026.3
Solar	468.1	589.6	Solar	1363.5	1792.1
Nuclear	617.9	803.1	Nuclear	1674.3	2182.1
Total	**2923.1**	**3489.5**	**Total**	**7081.6**	**8352**

36. By what percent was the total investment in the two districts more in 2015 as compared to that in 2014?
(a) 14% (b) 21%
(c) 24% (d) 18%
(e) None of these

37. Approximately how many times the total investment in Chittoor was the total investment in Khammam?
(a) 2.8 (b) 2.0
(c) 2.4 (d) 1.4
(e) None of these

38. The investment in Electricity and Thermal Energy in 2014 in these two districts formed what percent of the total investment made in that year ?
(a) 41% (b) 47%
(c) 52% (d) 55%
(e) None of these

39. In Khammam district, the investment in which area in 2014 showed the highest percent increase over the investment made in that area in 2014?
(a) Electricity (b) Chemical
(c) Solar (d) Nuclear
(e) None of these

40. If the total investment in Khammam shows the same rate of increase in 2016, as it had shown from 2014 to 2015, what approximately would be the total investment in Khammam in 2016 (in ₹ crore?)
(a) 9, 850 (b) 10, 020
(c) 9, 170 (d) 8, 540
(e) None of these

REASONING ABILITY

DIRECTIONS (Qs. 41-43) : Study the following information carefully to answer the questions that follow.

There are six persons A, B, C, D, E and F. C is the sister of F. B is the brother of E's husband. D is the father of A and grandfather of F. There are two fathers, three brothers and a mother in the group.

41. Who is the mother ?
(a) A (b) B
(c) D (d) E
(e) None of these

42. Who is E's husband ?
(a) B (b) C
(c) A (d) F
(e) None of these

43. How many male members are there in the group?
(a) One (b) Two
(c) Three (d) Four
(e) None of these

DIRECTIONS (Qs. 44-48) : In each question below are two/three statements followed by two conclusions numbered I and II. You have to take the given statements to be true even if they seem to be at variance with commonly known facts and then decide which of the given conclusions logically follows from the given statements disregarding commonly known facts. Give answer

(a) If only conclusion I follows.
(b) If only conclusion II follows.
(c) If either conclusion I or conclusion II follows.
(d) If neither conclusion I nor conclusion II follows.
(e) If both conclusion I and conclusion II follow.

44-45: Statements : All buildings are houses.
No house is an apartment.
All apartments are flats.

44. Conclusions : I. No flat is a house.
II. No building is an apartment.

45. Conclusions : I. All buildings being flats is a possibility.
II. All apartments being building is a possibility.

46-47 : Statements : Some oceans are seas.
All oceans are rivers.
No river is a canal.

46. Conclusions : I. All rivers can never be oceans.
II. All canals being oceans is a possibility.

47. Conclusions : I. No ocean is a canal.
II. At least some seas are rivers.

48-: Statements : No day is night.
All nights are noon.
No noon is an evening.

48. Conclusions : I. No day is noon.
II. No day is an evening.

DIRECTIONS (Qs. 49-53) : Study the following paragraph and then answer the questions that follow.

Five golfers C, D, E, F and G play a series of matches in which the following are always true of the results. Either C is the last and G is the 1st or C is the 1st and G is the last. D finishes ahead of E. Every golfer plays in and finishes every match. There are no ties in any match, i.e. no two players ever finish in the same position in a match.

49. Which of the following cannot be true ?
(a) E finishes second.
(b) F finishes second.
(c) E finishes ahead of F.
(d) F finishes ahead of D.
(e) None of these

50. If D finishes third, then which of the following must be true?
(a) G finishes first.
(b) E finishes ahead of F.
(c) F finishes ahead of E.
(d) F finishes behind D.
(e) None of these

51. If C finishes first, then in how many different orders is it possible for the other golfers to finish?
(a) 1
(b) 2
(c) 3
(d) 4
(e) None of these

52. Which of the following additional conditions make it certain that F finishes second ?
(a) C finishes ahead of D.
(b) D finishes ahead of F.
(c) F finishes ahead of D.
(d) D finishes behind G.
(e) None of these

53. If exactly one golfer finishes between C and D, then which of the following must be true?
(a) C finishes first. (b) G finishes first.
(c) F finishes third. (d) E finished fourth.
(e) None of these

DIRECTIONS (Qs. 54-58): Study the following sequence carefully and answer the questions given below:

M E 5 P B 2 A 7 K N 9 T R U 4 6 I J D F 1 Q 3 W 8 V I S Z

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

55. If the order of the first twenty letters/numbrs in the above sequence is reversed and the remaining letters/numbers are kept unchanged, which of the following will be the fourteenth letter/number from the right end after the rearrangement?
(a) B (b) 6
(c) 2 (d) 1
(e) None of these

56. Which of the follwing letter/number is the eighth to the left of the nineteenth letter/number from the left end?
(a) N (b) T
(c) 1 (d) D
(e) None of these

57. Four of the following five are alike in a certain way with regard to their position in the above sequence and so form a group. Which is the one that **does not** belong to that group?
(a) WIQ (b) PAE
(c) NR7 (d) 4JR
(e) D16

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

DIRECTIONS (59-63) : In a certain code language, the symbol for '0' is '#' and for '1' is '$'. There are no other symbols for numbers greater than one. The numbers greater than one, are to be written only by using the two symbols given above. The value of symbol for '1' doubles itself every time it shifts one place to the left.

0 is written as #,
1 is written as $,
2 is written as $#,
3 is written as $$,
4 is written as $## and so on,

59. Which number will represent the code $$$$?
(a) 11 (b) 12
(c) 13 (d) 14
(e) 15

60. Which of the following will represent number17?
(a) #$$## (b) $$#$$
(c) $###$ (d) ###$#
(e) None of these

61. Which of following will represent number 7?
(a) $$$$ - $##$ (b) $##$ - ###$
(c) $### - ###$ (d) #$$$- $$#$
(e) None of these

62. Which of the following will represent the value of ($### + $# ÷ #$#)?
(a) 8 (b) 9
(c) 5 (d) 4
(e) None of these

63. Which of the following will represent the value of ($#$# + #$#$)?
(a) 11 (b) 12
(c) 13 (d) 15
(e) 18

DIRECTIONS (Qs. 64-68) Read the following passage carefully and answer the Question given below it.

Six friends Ajay, Vijay, Pardeep, Sachin, Nikhil and Kamal married within a year in the months of February, April, July, September, November and December and in the cities of Manila, Mysore, Chennai, Delhi, Mumbai and Kolkata, but not necessarily following the above order. The bride's names were Geeta, Jasmine, Mala, Yakshika, Nagma and Nasreen, once again not following any order. The following are some facts about their weddings.
Pardeep's wedding took place in Chennai; however he was not married to Geeta or Nasreen. Ajay's wedding took place in Manila and Nikhil's in Delhi; however neither of them was married to Jasmine or Yakshika. The wedding in Kolkata took place in February. Mala's wedding took place in April, but not in Manila. Geeta and Nagma got married in February and November and in Chennai and Kolkata but not necessarily following the above order. Sachin visited Mysore or Kolkata after his marriage in December. Kamal was married to Jasmine to September

64. Mala's husband is
(a) Ajay (b) Vijay
(c) Nikhil (d) Sachin
(e) Pardeep

65. Vijay's wedding took place in
(a) Mysore (b) Mumbai
(c) Kolkata (d) Delhi
(e) Chennai

66. In Mumbai, the wedding of one of the friends took place in the month of
(a) April (b) September
(c) November (d) December
(e) July

67. Kamal's wedding was held in
(a) Mysore (b) Chennai
(c) Kolkata (d) Delhi
(e) Mumbai

68. Which among the following is couple?
(a) Ajay- Jasmine (b) Kamal- Nasreen
(c) Vijay- Geeta (d) Kamal - Yakshika
(e) Sachin- Nagma

DIRECTIONS (Qs.69-73): Study the following information to answer the given questions

P&Q means P is neither greater than nor equal to Q
P%Q means P is neither smaller than nor greater than Q
P*Q means P is not greater Q
P$Q means P is greater than Q
P@Q means P is either greater than or equal to Q
Give answer:
(a) Only I is true (b) Only II is true
(c) Either I or II true (d) Neither I nor II is true
(e) Both I and II are true

69. U $ Y @ W * K; W % X @ Z
I. U $ K II. Z * K

70. G @ H $ J * K; H $ M; J $ U
I. H $ U II. M & G

71. L * K & J @ U; J *T*R
I. T $ L II. U * R

72. P @ Q @ W % S @ L; Y * S
I. Y $ P II. Y % P

73. G @ H $ J *K; H $ M; J $ U
I. M & K II. K $ U

74. In a certain code SYSTEM is written as NVGHBS then in the same code how FRACTION is written?
(a) MRGLXZUI (b) MGRLXZUI
(c) MLRGZXUI (d) MLRGXZIU
(e) None of these

75. In a row of 50 students, A is fourteenth from the left end and B is tenth from the right end. How many students are there in between A and C if C is eight to the left of B?
(a) 14 (b) 16
(c) 18 (d) 20
(e) None of these

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

Eight people L, M, N, O, P, Q, R and S are sitting around a circular table with equal distance
between each other but not necessarily in the same order. Some of them are facing the centre while some are facing outside.(i.e away from the centre)

- M sits third to the left of L. Only three people sit between M and S. P sits to the immediate right of S.
- Immediate neighbours of P face opposite directions(i.e. if one neighbour faces the centre then the other neighbour faces outside and vice-versa.) Only one person sit between P and O.
- R sits second to the right of O. Both R and N face the same direction as S.(i.e if S faces the centre then R and N also faces the centre and vice-versa.)
- Immediate neighbours of Q faces opposite directions(i.e if one neighbour faces the centre then the other neighbour faces outside and Vice-versa.)
- P does not face outside. O faces a direction opposite to that of M.

76. How many people sit between L and Q when counted from the left of Q?
(a) Five (b) None
(c) Four (d) One
(e) Two

77. Which of the following statements is true as per the given arrangement?
(a) Q faces the centre
(b) Only three people sit between P and L
(c) R sits to the immediate right of N
(d) None of the given options is true
(e) N is an immediate neighbour of O

78. Who amongst the following sits third to the left of P?
(a) Q (b) N
(c) M (d) L
(e) R

79. How many people face the centre as per the given arrangement?
(a) Four (b) One
(c) Two (d) Three
(e) More than four

80. What will come in place of question mark (?) in the given series based on the positions as given in the arrangement?
PS LR MP SM ?
(a) ON (b) SO
(c) NQ (d) OL
(e) LS

HINTS & EXPLANATIONS

1. (a) $\left[\left(5\sqrt{7}+\sqrt{7}\right)\times\left(4\sqrt{7}+8\sqrt{7}\right)\right]-(19)^2=?$

$\Rightarrow (6\sqrt{7}\times 12\sqrt{7})-(361)=?$

$\Rightarrow 72\times\sqrt{7}\times\sqrt{7}-361=?$

$\therefore ?=504-361=143$

2. (c) Given Expression =

$$\frac{\frac{0.207}{0.0023}}{23}=\frac{0.207}{0.0001}=\frac{0.2070}{0.0001}=2070.$$

3. (e) $\sqrt{33124}\times\sqrt{2601}-(83)^2=(?)^2+(37)^2$

$\Rightarrow (?)^2=\sqrt{33124}\times\sqrt{2601}-(83)^2-(37)^2$

$\Rightarrow (?)^2=182\times 51-6889-1369$

$\Rightarrow (?)^2=9282-6889-1369$

$\Rightarrow (?)^2=1024$

$\therefore ?=\sqrt{1024}=32$

4. (b) $5\frac{17}{37}\times 4\frac{51}{52}\times 11\frac{1}{7}+2\frac{3}{4}=?$

$\Rightarrow\left(\frac{202}{37}\times\frac{259}{52}\times\frac{78}{7}\right)+\left(\frac{11}{4}\right)=?$

$\Rightarrow 303+\frac{11}{4}=?$

$\therefore ?=\frac{1223}{4}=305.75$

5. (b) $\frac{\sqrt{32}+\sqrt{48}}{\sqrt{8}+\sqrt{12}}=\frac{\sqrt{16\times 2}+\sqrt{16\times 3}}{\sqrt{4\times 2}+\sqrt{4\times 3}}=\frac{4\sqrt{2}+4\sqrt{3}}{2\sqrt{2}+2\sqrt{3}}$

$=\frac{4(\sqrt{2}+\sqrt{3})}{2(\sqrt{2}+\sqrt{3})}=2$

6. (c) Let Principal = ₹ P

$P\left(1+\frac{10}{100}\right)^3-P=993 \Rightarrow\left(\frac{11}{10}\times\frac{11}{10}\times\frac{11}{10}-1\right)P=993$

$\Rightarrow\left(\frac{1331-1000}{1000}\right)P=993$ or ,

$P=\frac{993\times 1000}{331}=3000$

$\therefore$ Simple interest = ₹$\left(\frac{3000\times 3\times 10}{100}\right)$ = ₹ 900

7. (d) Concentration of boric acid = 80% = 80 cc

Quantity of water = 20 cc

Let x cc of water be added to get the concentration of 50%.

$\Rightarrow\frac{80}{100+x}=\frac{50}{100}$ or $\frac{80}{100+x}=\frac{1}{2}$ or $x=60$ cc

8. (b) Successive discounts of 20% and 15% on ₹ 100 yields to

$100\times 0.8\times 0.85=$ ₹ 68

$\therefore$ Single discount = $(100-68)=32\%$

9. (a) Let the second car overtakes the first car after t hours.

Distance covered by the first car = Distance covered by the second car.

$\Rightarrow 10\,t=8+\left(8+\frac{1}{2}\right)+\left(8+\frac{2}{2}\right)+.....+\left(8+\frac{t-1}{2}\right)$

or $10t=8t+\frac{1}{2}[1+2+....+(t-1)]$

or $10t=8t+\frac{1}{2}\frac{t(t-1)}{2}$ or $2t=\frac{1}{4}(t^2-t)$

$\Rightarrow t=9$ hrs. $[t\neq 0]$

10. (b) $m_1\times d_1\times t_1\times w_2=m_2\times d_2\times t_2\times w_1$

$24\times 10\times 8\times 1=m_2\times 6\times 10\times 1$

$\Rightarrow m_2=\frac{24\times 10\times 8}{6\times 10}=32$ men

11. (d) Let edge of the new cube = x cm.

Volume of the newly formed figure (cube)

= sum of volume of smaller cubes.

i.e. $(x)^3=(3)^3+(4)^3+(5)^3=27+64+125=216\Rightarrow x=6$ cm

12. (a) Given, $x : y = 1 : 3$, $y : z = 5 : k$, $z : t = 2 : 5$

$t : x = 3 : 4$

$\frac{x}{y}\times\frac{y}{z}\times\frac{z}{t}\times\frac{t}{x}=1$

$\Rightarrow\frac{1}{3}\times\frac{5}{k}\times\frac{2}{5}\times\frac{3}{4}=1\Rightarrow\frac{1}{2}=k$

$\therefore k=\frac{1}{2}$

13. (c) Let each lot of onion contains x kg onion, then total cost price of these two lots together
$= 10x + 15x = 25x$
Selling price of whole lot $= 15 \times (x + x)$
$= 15 \times 2x = 30x$

$$\text{Profit percentage} = \frac{30x - 25x}{25x} \times 100$$

$$= \frac{5x}{25x} \times 100 = 20\%$$

14. (a) Let the present ages of X and Y be 5x years and 6x years respectively.

Then, $\frac{5x+7}{6x+7} = \frac{6}{7} \Leftrightarrow 7(5x + 7) = 6(6x + 7) \Leftrightarrow x = 7.$

15. (b) In order that two books on Hindi are never together, we must place all these books as under:
X E X E X E X ..... X E X
where E denotes the position of an English book and X that of a Hindi book.
Since there are 21 books on English, the number of places marked X are therefore, 22.
Now, 19 places out of 22 can be chosen in $^{22}C_{19} = {}^{22}C_3 = \frac{22 \times 21 \times 20}{3 \times 2 \times 1} = 1540$ ways.
Hence, the required number of ways = 1540.

16. (e) The series is $+0.5, +1, +(a)\ 5, +2, ...$

17. (c) The series is $+1^2, +2^2, +3^2, +4^2, ...$

18. (b) The series is $-8, -7, -6, -5, ...$

19. (a) The series is $\times 3 - 1$ in each term.

20. (d) The series is $\div 2 - 1$ in each term.

21. (a) $196.1 \times 196.1 \times 196.1 \times 4.01 \times 4.01 \times 4.001 \times 4.999 \times 4.999$
$= (196.1)^3 \times 4 \times ?$
or $4 \times ? = 4.01 \times 4.001 \times 4.999 \times 4.999$ or $? = 4 \times 5 \times 5 = 100$

22. (c) $? = \frac{2}{7} \times \frac{1}{8} + \frac{3}{7} \times \frac{14}{6} = \frac{1}{28} + 1 = 1\frac{1}{28} = 1$

23. (a) $? = (10.1)^{2.01} + (2.9)^{3.001} = (10)^2 + (3)^3 = 100 + 27 = 130$

24. (e) $4.76 \times ? = \sqrt{1999.9997}$
$4.76 \times ? = 44.72$ or $? = 9$

25. (d) $? = 23\%$ of $4011 + \frac{1}{7}$ of $5555 = 922.53 \div 79357 = 1700$

26. (d) The series is
$\times 2 + 1, \times 2 + 2, \times 2 + 3,$
$\times 2 + 4, \times 2 + 5$

27. (a) The series is
$18 + 1^2 = 19$
$19 + 2^2 = 23$
$23 + 3^2 = 32$
$32 + 4^2 = 48$
$48 + 5^2 = 73$
$73 + 6^2 = 109$

28. (e) The series is $\times 0.5 + 0.5,$
$\times 1 + 1, \times 1.5 + 1.5, \times 2 + 2,$
$\times 2.5 + 2.5, \times 3 + 3$

29. (b) The series is
$\times 2 - 2, \times 2 - 2, \times 2 - 2, \times 2 - 2, \ldots$

30. (c) $(2 - 1) \times 7 = 7; (7 - 2) \times 6 = 30;$
$(30 - 3) \times 5 = 135; (135 - 4) \times 4$
$= 524;$
$(524 - 5) \times 3 = 1557; (1557 - 6) \times 2$
$= 3102$

31. (a) $\text{Ratio} = 12 \times \frac{7}{12} : 6 \times \frac{2}{3} = 7 : 4$

32. (c) 4% of $2500 = 100$

33. (d) $\text{Ratio} = \left(16 \times \frac{5}{8} + 15 \times \frac{7}{5}\right) : \left(16 \times \frac{3}{8} + 15 \times \frac{8}{15}\right) = 17 : 14$

34. (d) $\frac{3}{8} \times 16 \times 25 = 150$

35. (b) $2500 \times \frac{11}{100}\left[\frac{6}{11} - \frac{5}{11}\right] = 25$

36. (d) Total investment in 2014 = 2923.1 + 7081.6 = 10004.7
Total investment in 2015 = 3489.5 + 8352.0 = 11,841.5

$$\therefore \%\ \text{increase} = \frac{11841.5 - 10,004.7}{10,004.7} \times 100 = 18.36\%$$

37. (c) Total investment in Chittor = 6412.6
Total investment in Khammam = 15433.6

$$\therefore \frac{\text{Total investment in Khammam}}{\text{Total investment in Chittor}} = \frac{15433.6}{6412.6} = 2.40$$

38. (b) Investment in electricity & thermal energy in 2014 in two districts $= 815.2 + 632.4 + 2065.8 + 1232.7$
$= 4746.1$
% in terms of total investment

$$= \frac{4746.1}{10,004.7} \times 100 = 47.43\%$$

39. (b) % increase in Khammam district in the area of

$$\text{Electricity} = \frac{2365.1 - 2065.8}{2065.8} \times 100 = 14.5\%$$

$$\text{Chemical} = \frac{986.4 - 745.3}{745.3} \times 100 = 32.34\%$$

$$\text{Solar} = \frac{1792.1 - 1363.5}{1363.5} \times 100 = 31.43\%$$

$$\text{Nuclear} = \frac{2182.1 - 1674.3}{1674.3} \times 100 = 30.32$$

Hence highest increase is in the area of chemical

40. (a) % increase in investment from 2014 to 2015

$$= \frac{8352 - 7081.6}{7081.6} = 17.93\%$$

$\therefore$ Total investment in 2016 = 1.1793×8352

= ₹ 9850 crores

41. (d) A's wife E is the mother.

42. (c) A is the husband of E.

43. (d) Clearly there are four male members A, B, D and F.

(44-45) : All buildings are houses + No house is an apartment = A + E = E = No building is an apartment (i). Again, No house is an apartment + All apartments are flats = E + A = O* = Some flats are not house (ii). Again, No building is an apartment + All apartments are flats = E + A = O* = Some flats are not buildings (iii).

44. (b) Conclusion (i) above is the conclusion II.

45. (a)

(46-47) : Some oceans are seas (I) $\rightarrow$ conversion $\rightarrow$ Some seas are oceans (I) + All oceans are rivers = I + A = I = Some seas are rivers (i). Again, All ocean are rivers + No river is a canal = A + E = E = No oceans is a canal (ii). Again, Some seas are rivers + No river is a canal = I + E = O* = Some canals are not seas (iii).

46. (d) All rivers can never be oceans $\rightarrow$ implication $\rightarrow$ Some rivers are oceans. This conclusion is the converse of the given premise "All oceans are rivers."

47. (e) Conclusion II is the above conclusion (ii). Conclusion I is the above conclusion (i).

(48): No day is night + All night are noon = E + A = O* = Some noon are not days (i). Again, All nights are noon + No noon is an evening = A + E = E = No night is an evening (ii).

48. (d) None follows.

49. (a) Either C or G has to be first and D has to come before E. Hence, E cannot, finish second.

50. (c) F finishes second when D finishes third. Thus F finishes ahead of E.

51. (c) In the event of C finishing first, G finishes last and we will have the following three possible ordering of finishes.

CFDEG, CDEFG and CDFEG.

52 (c) When F finishes ahead of D, than F will definitely finish at the second place.

53. (d) When there is exactly one golfer between C and D, then E finishes at the fourth place.

54. (e) Four

M E 5 P B 2 A 7 K N **9** T R U 4 6 I J D F **1** Q **3** W **8** V I S Z

55. (a) F D J I 6 4 U R T 9 N K 7 A 2 B P 5 E M 1 Q 3 W 8 V I S Z

56. (e) Eighth to the left of the nineteenth letter/number from the left $\Rightarrow (19 - 8) =$ 11th letter/number from left. Hence, required element is 9.

57. (e) Except it second element in each group is third to the right of first element while third element of each group is second to the left of first element of the respective group.

58. (a) There are no such vowels.

59. (e) $(1\times23)+(1\times22)+(1\times21)+(1\times20)$

$=8+4+2+1=15$

60. (c) 17 can be written in binary form as follows:

$=(1\times24)+(0\times23)+(0\times22)+(0\times21)+(1\times20)$

= $###$

61. (c) $###$ = $(1\times23)+(0\times22)+(0\times21)+(0\times20)=8+0+0+0=8$

###$ = $(0\times23)+(0\times22)(0\times21)+(1\times20)=0+0+0+1=1$

$### - ###$ = 8-1=7

62. (b) $###$ = $(1\times23)+(0x22)+(0x21)+(0x20)=8+0+0+0=8$

$# = $(1\times21)+(0x\ 20)=2+0=2$

#$# = $(0x22)+(1\times21)+(0x\ 20)=0+2+0=2$

($### + $# ÷ #$#) = 8+2÷2 = 8+1 = 9

63. (d) $#$# = $(1\times23)+(0x22)+(1\times21)+(0x20)=10$

#$#$ = $(0\times23)+(1\times22)+(0x21)+(1\times20)=5$

($#$# + #$#$) = 10+5= 15

64. (c)

65. (c)

66. (b)

67. (e)

68. (c)

69. (b) Only II is true

$U < Y \geq W \geq K$; $W = X \leq Z$

U>K => False

$Z \leq K$ => True

70. (e) Both I and II are true
$G \geq H > J \leq K$; $H > M$; $J > U$
$H > U$ => true
$M < G$ => true

71. (e) Both I and II are true
$L \leq K < J \leq U$; $J \leq T \leq R$
$T < L$ => true
U ? R => true

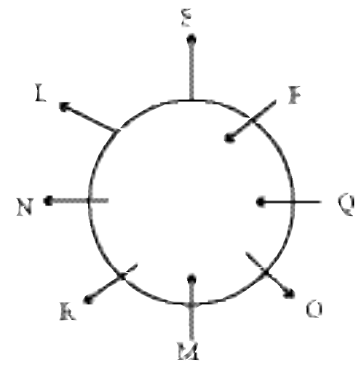
72 (c) Either I or II true
$P \geq Q \geq W = S \geq L$; $Y \leq S$
$Y < P$
$Y = P$

73. (b) Only II is true
$G \geq H > J \leq K$; $H > M$; $J > U$
$M < K$ => false
$K > U$ => true

74. (d) MLRGXZIU
First reverse the word and then write complement of each letter, like M+N = 27, A+Z =27 and so on.

75. (c) 18

(76-80)



76. (c)
77. (a)
78. (c)
79. (d)
80. (a)

PRACTICE SET 20

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. 1-5) : What should come in place of the question mark (?) in the following questions ?

1. $\sqrt[3]{13824} \times \sqrt{?} = 864$

(a) 1296 (b) 1156
(c) 1600 (d) 1024
(e) None of these

2. 60% of 20% of $\frac{3}{5}$ th of ? = 450

(a) 6200 (b) 6240
(c) 6150 (d) 6275
(e) None of these

3. $196 \times 948 \div 158 = ?$

(a) 1156 (b) 1200
(c) 1188 (d) 1176
(e) None of these

4. $(91)^2 + (41)^2 - \sqrt{?} = 9858$

(a) 11236 (b) 10816
(c) 10404 (d) 9604
(e) None of these

5. $(2640 \div 48) \times (2240 \div 35) = ?$

(a) 3520 (b) 3515
(c) 3495 (d) 3490
(e) None of these

DIRECTIONS (Qs. 6-10): In the following questions, two Equations I and II are given. You have to solve both the equation and Give Answer.

(a) If x > y
(b) If x ≥ y
(c) If x < y
(d) If x ≤ y
(e) If x = y or the relationship cannot be established.

6. I. $\sqrt{289x} + \sqrt{25} = 0$ II. $\sqrt{676y} + 10 = 0$

7. I. $8x^2 - 78x + 169 = 0$ II. $20y^2 - 117y + 169 = 0$

8. I. $\frac{15}{\sqrt{x}} + \frac{9}{\sqrt{x}} = 11\sqrt{x}$ II. $\frac{\sqrt{y}}{4} + \frac{5\sqrt{y}}{12} = \frac{1}{\sqrt{y}}$

9. I. $\frac{8}{\sqrt{x}} + \frac{6}{\sqrt{x}} = \sqrt{x}$ II. $y^3 - \frac{(14)^2}{\sqrt{y}} = 0$

10. I. $x^2 - 7x + 12 = 0$ II. $y^2 + y - 12 = 0$

DIRECTIONS (Qs. 11-15): What should come in place of question mark (?) in the following number series ?

11. 121 117 108 92 67 ?

(a) 31 (b) 29
(c) 41 (d) 37
(e) None of these

12. 50 26 14 ? 5 3.5

(a) 6 (b) 8
(c) 10 (d) 12
(e) None of these

13. 3 23 43 ? 83 103

(a) 33 (b) 53
(c) 63 (d) 73
(e) None of these

14. 748 737 715 682 638 ?
(a) 594 (b) 572
(c) 581 (d) 563
(e) None of these

15. 1 9 25 49 81 ? 169
(a) 100 (b) 64
(c) 81 (d) 121
(e) None of these

16. The ratio of ducks and frogs in a pond is 37 : 39 respectively. The average number of ducks and frogs in the pond is 152. What is the number of frogs in the pond ?
(a) 148 (b) 152
(c) 156 (d) 144
(e) None of these

17. The number of employees in Companies A, B and C are in a ratio of 4 : 5 : 6 respectively. If the number of employees in the Companies is increased by 25%, 30% and 50% respectively, what will be the new ratio of employees working in Companies A, B and C respectively ?
(a) 13 : 10 : 18 (b) 10 : 13 : 17
(c) 13 : 15 : 18 (d) Cannot be determined
(e) None of these

18. A box contains 5 green, 4 yellow and 3 white marbles. Three marbles are drawn at random. What is the probability that they are not of the same colour?
(a) $\frac{3}{44}$ (b) $\frac{3}{55}$
(c) $\frac{52}{55}$ (d) $\frac{41}{44}$
(e) None of these

19. The total of the ages of Jayant, Prem and Saransh is 93 years. Ten years ago, the ratio of their ages was 2 : 3 : 4. What is the present age of Saransh?
(a) 24 years (b) 32 years
(c) 34 years (d) 38 years
(e) None of these

20. A man invested ₹ 1000 on a simple interest at a certain rate and ₹ 1500 at 2% higher rate. The total interest in three years is ₹ 390. What is the rate of interest for ₹ 1000?
(a) 4% (b) 5%
(c) 6% (d) 8%
(e) None of these

21. A person can do a job as fast as his two sons working together. If one son does the job in 6 days and the other in 12 days, how many days does it take the father to do the job?
(a) 9 days (b) 6 days
(c) 4 days (d) 3 days
(e) None of these

22. A bike travels a distance of 200 km at a constant speed. If the speed of the bike is increased by 5 km/h, the journey would have taken 2 h less. What is the speed of the bike?
(a) 30 km/h (b) 25 km/h
(c) 20 km/h (d) 15 km/h
(e) None of these

23. In what ratio must a grocer mix two varieties of tea worth Rs. 60 a kg and Rs. 65 a kg so that by selling the mixture at Rs. 68.20 a kg he may gain 10%?
(a) 3 : 2 (b) 3 : 4
(c) 3 : 5 (d) 4 : 5
(e) None of these

24. In how many ways can the letters of the word 'LEADER' be arranged?
(a) 72 (b) 144
(c) 360 (d) 720
(e) None of these

25. A and B invest in a business in the ratio 3 : 2. If 5% of the total profit goes to charity and A's share is Rs. 855, the total profit is:
(a) Rs. 142 (b) Rs. 1500
(c) Rs. 1537.50 (d) Rs. 1576
(e) None of these

DIRECTIONS (Q. 26-30): What approximate value should come in place of the question mark (?) in the following questions?

26. $724.998 \div 24.048 \div 14.954 = ?$
(a) 8 (b) 13
(c) 2 (d) 10
(e) 16

27. $\sqrt[3]{84900} = ?$
(a) 56 (b) 44
(c) 67 (d) 33
(e) 21

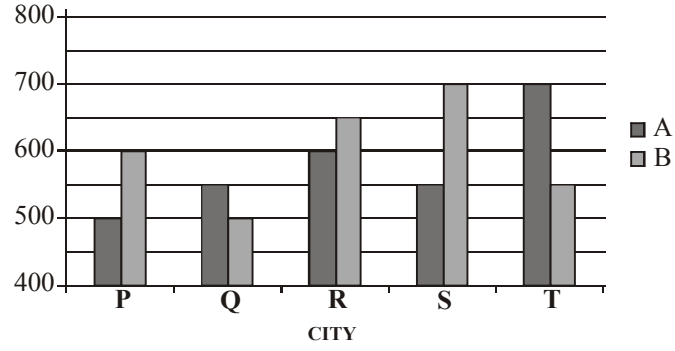
28. $\{(52)^2 + (45)^2\} \div ? = 8$
(a) 611.345 (b) 487.225
(c) 591.125 (d) 372.425
(e) None of these

29. ? % of 658 + 40% of 845 = 568.3
(a) 46 (b) 42
(c) 38 (d) 35
(e) None of these

30. $(64)^4 \div (8)^5 = ?$
(a) $(8)^{12}$ (b) $(8)^8$
(c) $(8)^4$ (d) $(8)^2$
(e) None of these

DIRECTIONS (Qs. 31-35) : Study the following graph Dcarefully and answer the questions that follow :

The graph given below represents the number of users of two broadband services A and B across 5 cities P, Q, R, S and T.



31. What is the total number of users of brand B across all five cities together ?
(a) 2700 (b) 3000
(c) 3100 (d) 2900
(e) 3200

32. The number of users of brand A in city T is what percent of the number of users of brand B in City Q ?
(a) 150 (b) 110
(c) 140 (d) 160
(e) 120

33. What is the average number of users of brand A across all five cities together ?
(a) 560 (b) 570
(c) 580 (d) 590
(e) 550

34. What is the difference between the total number of users of Brand A and B together in city R and the total number of users of brand A and B together in city P ?
(a) 170 (b) 140
(c) 130 (d) 150
(e) 160

35. What is the respective ratio of the number of users of brand A in city P to the number of users of brand B in city S ?
(a) 5 : 7 (b) 4 : 7
(c) 2 : 5 (d) 3 : 4
(e) 5 : 6

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

Monthly Expenditure (in thousands) by five people on Rent, Food, Children's Education, Clothes and Travelling

Expenditure → People ↓	Rent	Food	Children's Education	Clothes	Travelling
A	12.5	7.50	6.52	3.30	4.72
B	16.0	8.55	8.38	2.75	5.86
C	13.8	11.40	12.60	6.30	9.30
D	9.65	17.80	9.95	8.40	7.85
E	14.5	9.00	10.25	3.90	5.42

36. What is the total monthly expenditure made by D on rent, B on clothes and E on travelling together?
(a) ₹18,720 (b) ₹1,78,200
(c) ₹17,800 (d) ₹1,84,720
(e) None of these

37. What is the average monthly expenditure on food by all the people together?
(a) ₹1,08,500 (b) ₹10,850
(c) ₹54,250 (d) ₹52,450
(e) None of these

38. Whose monthly expenditure on all the heads together is the lowest among them?
(a) A (b) B
(c) C (d) D
(e) F

39. If the monthly expenditure of C on children's education is increased by 5%, then what will be his yearly expenditure on children's education?
(a) ₹1,58,760 (b) ₹15,87,600
(c) ₹13,230 (d) ₹1,32,300
(e) None of these

40. What is the ratio of the monthly expenditure made by A on travelling to the monthly expenditure made by D on clothes?
(a) 57 : 105 (b) 105 : 59
(c) 37 : 103 (d) 59 : 105
(e) None of these

DIRECTIONS (Qs 41-45) : Read both the conclusions and then decide which of the given conclusions logically follows from the given statements disregarding commonly known facts.

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

41. **Statements:** All orchids are flowers.
Some orchids are beautiful.
Conclusions: I. Some flowers are beautiful.
II. All beautiful are flowers.

42. **Statements:** Some herbs are not plants.
All herbs are shrubs.
Conclusions: I. All shrubs are plants is not a possibility.
II. All plants are shrubs is not a possibility.

43. **Statements:** Some medicines are tablets.
Some medicines are not effective.
Conclusions: I. Some tablets are effective.
II. No effective thing is a tablet.

44. **Statements:** All chocolates are sweets.
Some sweets are not harmful.
Conclusions: I. Some chocolates are harmful is a possibility.
II. All harmful are chocolates is a possibility.

45. **Statements:** All fashionable are addicts.
All addicts are noteworthy.
Conclusions: I. No noteworthy is fashionable.
II. Some noteworthy are fashionable

REASONING ABILITY

DIRECTIONS (Qs. 46-50) : In the following questions, the symbols %, *, @, $ and # are used with the following meaning as illustrated below :

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

46. **Statements :** T$K, K#R, R*M
Conclusions : I. M*K
II . M % T
III. M$K
(a) All follows
(b) Only either I or III follows
(c) Only either I or II follows
(d) Only either II or III follows
(e) None of these

47. **Statements :** M%R, R#T, T*N
Conclusions : I. N*R
II . N$R
III . N$M

(a) All follows
(b) Either I or II follows
(c) Either I or II and III follows
(d) Either I or III and II follows
(e) None of these

48. **Statements :** V@M, A$M, R#V
Conclusions : I. R#A
II . V@A
III. R$M
(a) Only I follows (b) Only II follows
(c) Only III follows (d) None follows
(e) All follow

49. **Statements :** B*D, D@H, H%F
Conclusions : I. B*F
II . B$F
III. D$F
(a) None follows
(b) Only either I or II follows
(c) Only either I or II and III follows
(d) Only III follows
(e) All follow

50. **Statements :** J#N, K@N, T$K
Conclusions : I . J%T
II. T$N
III . N@J
(a) None follows (b) Only I or II follow
(c) Only I and III follow (d) Only II and III follow
(e) All follow

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

(i) There is a family of 5 persons A, B, C, D and E.
(ii) They are working as a doctor, a teacher, a trader, a lawyer and a farmer.
(iii) B, an unmarried teacher, is the daughter of A.
(iv) E, a lawyer, is the brother of C.
(v) C is the husband of the only married couple in the family.
(vi) Daughter-in-law of A is a doctor.

51. Which of the following is a group of female members in the family ?
(a) A and D (b) D and E
(c) A, C and E (d) B and D
(e) None of these

52. Which of the following is the married couple ?
(a) A and B (b) C and D
(c) A and D (d) B and C
(e) None of these

53. Which of the following is a group of male members in the family ?
(a) A, B and C (b) B and D
(c) C and E (d) A, C and D
(e) None of these

54. Who is the doctor in the family ?
(a) A (b) B
(c) C (d) D
(e) None of these

55. Who is the trader in the family ?
(a) A (b) B
(c) C (d) D
(e) None of these

DIRECTIONS (Qs. 56-60): Answer these questions referring to the symbol-letter-number sequence given below:
E G 4 B H 7 5 @ K 8 D N £ Q Z $ W 3 C 1 9 * 1 B 2 S 6

56. How many such consonants are threre in the above sequence which are immediately preceded by a symbol and immediately followed by a digit ?
(a) One (b) Two
(c) None (d) Three
(e) More than three

57. What should come in place of the question mark (?) in the following sequence ?
4H@, KDQ, ?, ILS
(a) ZW1 (b) NQ$
(c) @8N (d) $W9
(e) None of these

58. Which of the following is exactly in the midway between the ninth from left end and the seventh from right end ?
(a) Q (b) Z
(c) $ (d) W
(e) None of these

59. If the first fifteen elements are written in the reverse order then which of the following will be seventh to the left of twelfth element from right end ?
(a) 7 (b) @
(c) 5 (d) K
(e) None of these

60. How many such digits are there in the above sequence which are immediately preceded as well as followed by digits ?
(a) None (b) One
(c) Two (d) Three
(e) None of these

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

In a certain code, 'always create new ideas' is written as 'ba ri sha gi', 'ideas and new thoughts' is written as 'fa gi ma ri', 'create thoughts and insights' is written as 'ma jo ba fa', and 'new and better solutions' is written as 'ki ri to fa'.

61. What is the code for 'ideas'?
(a) sha (b) ba
(c) gi (d) ma
(e) Cannot be determined

62. What does 'fa' stand for?
(a) thoughts (b) insights
(c) new (d) and
(e) solutions

63. 'fa lo ba' could be a code for which of the following?
(a) thoughts and action (b) create and innovate
(c) ideas and thoughts (d) create new solutions
(e) always better ideas

64. What is the code for 'new'?
(a) ki (b) ri
(c) to (d) fa
(e) ba

65. Which of the following may represent 'insights always better'?
(a) jo ki to (b) ki to ri
(c) sha jo ri (d) to sha jo
(e) sha to ba

DIRECTIONS (Qs. 66-70): Study the following information carefully to answer the given questions.

Eight family members P, Q, R, S, T, U, V and W are sitting around a circular table but not necessarily in the same order.Some of them are females and some of them are males. All of them are related to each other in same way or the other.Some of them are facing the centre while some of them are facing outside(i.e. Opposite to the centre).

- T sits second to the right of the Q. Q faces the centre. Only two people sit between T and R. R is the daughter of P. No female is an immediate neighbour of R.
- W is not an immediate neighbour of Q. W is the wife of U. U sits third to the right of W. S is neither an immediate neighbour of W nor T.
- R's brother sits to her immediate right. Neither Q nor U is the brother of R. P's wife sits to the immediate right of T. P sits second to the left of his wife.
- Only three people sit between P and his brother. Both the immediate neighbours of R face opposite directions.(i.e if one neighbour faces the centre then the other neighbour faces outside and Vice-Versa)
- R's husband sits to the immediate right of V. T and U face a direction opposite to that of P(i.e if P faces the centre then T and U face outside and Vice-Versa)

66. How many people sit between Q and V's daughter when counted from the left of Q?
(a) None (b) Three
(c) Four (d) Two
(e) One

67. If it is given that Q is the father of V, then what is the position of Q with respect to Q's son in law?
(a) Immediate Right (b) Second to the left
(c) Third to the Right (d) Third to the left
(e) Second to the Right

68. Which of the following statements regarding V is definitely correct?
(a) V is the sister of T
(b) V sits second to the right of U
(c) Q and P are immediate neighbours of V
(d) None of the given options is correct
(e) V is the sister-in-law of U.

69. Who amongst the following faces the centre?
(a) R (b) T
(c) V (d) P
(e) W

70. Who amongst the following sits exactly between R and P when counted from the left of P?
(a) U (b) S
(c) W (d) T
(e) Q

DIRECTIONS (Qs. 71-75): Read the following information carefully to answer the following questions.

There are six persons P, Q, R, S, T and U in a family. There are two fathers, three brothers and a mother in the family. R is the sister of U. Q is the brother of T's husband. S is the father of P and grandfather of U.

71. Who is the mother in the family?
(a) P (b) R
(c) T (d) S
(e) None of these

72. How many males are there in the family?
(a) one (b) two
(c) three (d) four
(e) None of these

73. How is U related to T?
(a) son (b) daughter
(c) niece (d) nephew
(e) None of these

74. Which of the following is the group of brothers?
(a) SUQ (b) SPQ
(c) PQU (d) SQU
(e) None of these

75. Riya starts walking in the north direction and after walking some distance she took a left turn followed by a right turn. After that she took two consecutive left turn, now she is walking in which direction?
(a) south (b) north
(c) east (d) west
(e) None of these

DIRECTIONS (Qs. 76-80) :Study the following information Carefully to answer the given questions

P, Q, R, S, T, U, V, W and X are sitting in a straight line, facing North. Three of them are not males. Two females sit adjacent to each other. Q is fourth to the left of V, who is second to the right of R, who is not the immediate neighbour of P.

- U is fourth to the right of R and is second to the left of X. S is not an immediate neighbour of either X or Q.
- S is not male. One of the persons sitting on the extreme ends is a female. T is not an immediate neighbour of either V or U.
- No female is an immediate neighbour of U. W does not sit second to the left of P. The immediate neighbour of S are male

76. Which of the following is a group of females ?
(a) QTS (b) TXP
(c) SVR (d) UWX
(e) None of these

77. Who is sitting to the immediate left of S ?
(a) V (b) Q
(c) W (d) R
(e) None of these

78. In which of the following combinations is the third person sitting between the first and the second person ?
(a) PWU (b) QTR
(c) RST (d) WUP
(e) None of these

79. If Q and R, V and U interchange their position then how many persons are sitting between R and V ?
(a) Four (b) Five
(c) Six (d) Two
(e) None of these

80. Who among the following sits third to the left of P ?
(a) W (b) V
(c) R (d) X
(e) None of these

HINTS & EXPLANATIONS

1. (a) $\sqrt[3]{13824} \times \sqrt{?} = 864$

$\sqrt[3]{24 \times 24 \times 24} \times \sqrt{?} = 864$

$\Rightarrow 24 \times \sqrt{?} = 864$

$\Rightarrow \sqrt{?} = \frac{864}{24} = 36$

$\therefore ? = 36 \times 36 = 1296$

2. (e) $\frac{60}{100} \times \frac{20}{100} \times \frac{3}{5} \times ? = 450$

$\Rightarrow \frac{9}{125} \times ? = 450$

$\Rightarrow ? = \frac{450 \times 125}{9} = 6250$

3. (d) $? = 196 \times 948 \div 158 = \frac{196 \times 948}{158} = 1176$

4. (b) $(91)^2 + (41)^2 - \sqrt{?} = 9858$

$\Rightarrow 8281 + 1681 - \sqrt{?} = 9858$

$\Rightarrow \sqrt{?} = 9962 - 9858 = 104$

$\therefore ? = 104 \times 104 = 10816$

5. (a) $? = (2640 \div 48) \times (2240 \div 35)$

$= 55 \times 64 = 3520$

6. (c) I. $\sqrt{289x} + \sqrt{25} = 0$

$\Rightarrow \sqrt{289x} = -\sqrt{25}$

Squaring on both sides, we get

$289x = 25$

$x = \frac{25}{289}$

II. $\sqrt{676} + 10 = 0$

$\Rightarrow \sqrt{676y} = -10$

Squaring both sides, we get

$676y = 100$

$y = \frac{100}{676}$

$\therefore y > x$

7. (b) I. $8x^2 - 78x + 169 = 0$

$8x^2 - 52x - 26x + 169 = 0$

$4x(2x - 13)(2x - 13) = 0$

$(2x - 13)(4x - 13) = 0$

II. $20y^2 - 117y + 169 = 0$

$\Rightarrow 20y^2 - 52y - 65y + 169 = 0$

$\Rightarrow 4y(5y - 3) - 13(5y - 13) = 0$

$\Rightarrow 5y - 13)(4y - 13) = 0$

$\therefore y = \frac{13}{5} \text{ or } \frac{13}{4} = 2.6$

or 3.25 $\therefore x \geq y$

8. (a) I. $\frac{15}{\sqrt{x}} + \frac{9}{\sqrt{x}} = 11\sqrt{x}$

$\frac{15 + 9}{\sqrt{x}} = 11\sqrt{x}$

$24 = 11x$

$\therefore x = \frac{24}{11}$

II. $\sqrt{\frac{y}{4}} + \frac{5\sqrt{y}}{12} = \frac{1}{\sqrt{y}}$

$\frac{3\sqrt{y} + 5\sqrt{y}}{12} = \frac{1}{\sqrt{y}}$

$\Rightarrow 8y = 12$

$y = \frac{12}{8} = \frac{3}{2} = 1.5$

$\therefore x > y$

9. (a) I. $\frac{8}{\sqrt{x}} + \frac{6}{\sqrt{x}} = \sqrt{x}$

$\frac{14}{\sqrt{x}} = \sqrt{x}$

$x = 14$

II. $y^3 - \frac{(14)^2}{\sqrt{y}} = 0$ or, $y^3 = \frac{(14)^2}{\sqrt{y}}$

$\Rightarrow y^{3+\frac{1}{2}} = (14)^2$

$y^{7/2} = (14)^2$

$\therefore x > y$

10. (b) I. $x^2 - 7x + 12 = 0$

$x^2 - 3x - 4x + 12 = 0$

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

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

$x = 3, 4$

II. $y^2 + y - 12 = 0$

$y^2 + 4y - 3y - 12 = 0$

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

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

$y = 3, -4$

$\therefore x \geq y$

11. (a) 121 117 108 92 67 [31]

-2^2 -3^2 -4^2 -5^2 -6^2

12. (b) 50 26 14 [8] 5 3.5

÷2+1 ÷2+1 ÷2+1 ÷2+1 ÷2+1

13. (c) 3 23 43 [63] 83 103

+20 +20 +20 +20 +20

14. (e) 748 737 715 682 638 [583]

−11 −22 −33 −44 −55

15. (d) 1 9 25 49 81 [121] 169

1^2 3^2 5^2 7^2 9^2 11^2 13^2

16. (c) Let the number of ducks and frogs in the pond be 37x and 39x respectively.

ATQ,

$$\frac{37x + 39x}{2} = 152$$

$$\Rightarrow \quad 38x = 152 \quad \Rightarrow \quad x = \frac{152}{38} = 4$$

$\therefore$ Number of frogs = 39x

$= 39 \times 4 = 156$

17. (e) The number of employees in companies A, B and C be 4x, 5x and 6x respectively

After increase in the number of employees, required ratio will be

$$= 4x \times \frac{125}{100} : 5x \times \frac{130}{100} : 6x \times \frac{150}{100}$$

$= 4 \times 25 : 5 \times 26 : 6 \times 30$

$= 10 : 13 : 18$

18. (d) Let S be the sample space. Then.

n (S) = number of ways of drawing 3 marbles out of 12

$$= {}^{12}C_3 \frac{(12 \times 11 \times 10)}{(3 \times 2 \times 1)} = 220.$$

Let E be the event of drawing 3 balls of the same colour.

Then, E = event of drawing (3 balls out of 5) or (3 balls out of 4) or (3 balls out of 3)

$\Rightarrow$ n (E) $= ({}^5C_3 + {}^4C_3 + {}^3C_3) = ({}^5C_2 + {}^4C_1 + {}^4C_1 + 1)$

$$= \frac{(5 \times 4)}{(2 \times 1)} + 4 + 1 = 15.$$

$$\Rightarrow \text{P (E)} = \frac{\text{n(E)}}{\text{n(S)}} = \frac{15}{220} = \frac{3}{44}.$$

$$\therefore \text{ Required probability} = \left(1 - \frac{3}{44}\right) = \frac{41}{44}.$$

19. (d) Let the ages of Jayant, Prem and Saransh 10 years ago be 2*x*, 3*x* and 4*x* years respectively.

Then,

$(2x + 10) + (3x + 10) + (4x + 10) = 93 \Leftrightarrow 9x = 63 \Leftrightarrow x = 7$

20. (a) Let a man invest ₹ 1000 at a rate *R*%

According to question,

$$\frac{1000 \times R \times 3}{100} + \frac{1500 \times (R+2) \times 3}{100} = 390$$

$\Rightarrow \quad 30R + 45R + 90 = 390$

$\Rightarrow \quad 75R = 300$

$\Rightarrow \quad R = 4\%$

21. (c) One day's work of first son = $\frac{1}{6}$

One day's work of second son = $\frac{1}{12}$

$\therefore$ One day's work of them working together

$$= \frac{1}{6} + \frac{1}{12} = \frac{2+1}{12} = \frac{1}{4}$$

Father will finish the work in 4 days.

22 (c) Let the speed of bike = v km/h

$\therefore$ Time taken to cover 200 km at a speed of *v* km/*h* = $\frac{200}{v}h$

New speed of bike = $(v + 5)$ km/h

$\therefore$ Time taken to cover 200 km at a speed of

$$\text{(v + 5) km/h} = \frac{200}{v+5}$$

According to question, $\frac{200}{v} - \frac{200}{v+5} = 2$

$$\Rightarrow \frac{(v+5-v)200}{v^2+5v} = 2 \Rightarrow 500 \text{ v}^2 + 5\text{v}$$

$\Rightarrow v^2 + 5v - 500 = 0 \Rightarrow v^2 + 25v - 20v - 500 = 0$

$\Rightarrow v(v+25) - 20(v+25) = 0$

$\Rightarrow (v-20)(v+25) = 0 \quad (\because v \neq -25)$

$\therefore \quad v = 20\text{km/h}$

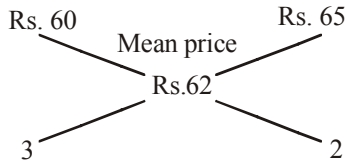
So the original speed of a bike is 20 km/h

23. (a) S.P. of 1 kg of the mixture is Rs. 100 per kg.

C.P. of 1 kg of the mixture = Rs. $\left(\frac{100}{110}\times 68.20\right)$ = Rs.62.

By the rule of allegation, we have:

Cost of 1 kg tea of 1st kind Cost of 1 kg tea of 2nd kind



$\therefore$ Required Ratio = 3 : 2.

24. (c) The word 'LEADER' contains 6 letters, namely 1L, 2E, 1 A, 1D and 1R

$\therefore$ Required number of ways

$= \frac{5!}{(1!)\,(2!)\,(1!)\,(1!)\,(2!)} = 360.$

25. (b) Let the total profit be Rs. 100.

After paying to charity, A's share = Rs. $\left(95\times\frac{3}{5}\right)$ = Rs 57.

It A's share is Rs. 57, total profit = Rs. 100

If A's share is Rs. 855, total profit = $\left(\frac{100}{57}\times 855\right)$ = 1500.

26. (c) $? = 724.998 \div 24.048 \div 14.954$

$= 724.998 \times \frac{1}{24.048} \times \frac{1}{14.954}$

$= 2.0160461589 \approx 2$

27. (b) $? = \sqrt[3]{84900} \approx 44$

28. (c) $? = \frac{\left\{(52)^2 + (45)^2\right\}}{8} = \frac{2704 + 2025}{8}$

$= \frac{4729}{8} = 591.125$

29. (d) $? = \frac{568.3 - 40\% \times 845}{6.58}$

$= \frac{568.3 - 338}{6.58}$

$= \frac{230.3}{6.58} = 35$

30. (e) $? = (64)^4 \div (8)^5 = (8^2)^4 \div (8)^5$

$= (8)^{2\times 4} \div (8)^5 = (8)^8 \div (8)^5 = 8^3$

31. (b) Total number of users of brand B across all Five cities

$= 600 + 500 + 650 + 700 + 550 = 3000$

32. (c) 700 = x% of 500

$700 = \frac{x\times 500}{100} \Rightarrow x = \frac{700}{5} = 140$

33. (c) Required average $= \frac{500 + 550 + 600 + 550 + 700}{5}$

$= 580$

34. (d) Required difference = 1250 – 1100 = 150

35. (a) Required Ratio $= \frac{500}{700} = 5:7$

36. (e) D on rent = 9.65×10^3; B on clothes = 2.75×10^3; E on travelling = 5.42×10^3

Total expenditure = 17.82×10^3 = ₹ 17820

37. (b) Reqd. Average

$= \frac{7500 + 8550 + 11400 + 17800 + 9000}{5}$

= Rs. 10850

38. (a) Between two possible options (a) and (b), B's expenditure is less than A's is clothes only.

Expenditures on remaining heads are more than their A's counterparts.

39. (a) Increased expenditure of C on children's education

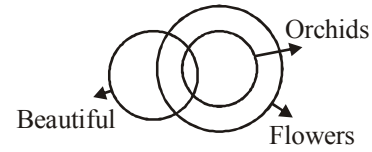
$= 12.60 \times \frac{105}{100}$

Yearly expenditure = $12.6 \times \frac{21}{20} \times 12 \times 1000$

= ₹ 1,58,760

40. (d) Required ratio = $\frac{4.72}{8.40} = \frac{472}{840} = 59 : 105.$

41. (a) The given statements can be represented by using the following basic diagram.



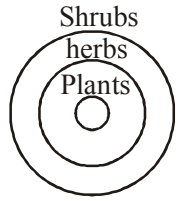
I. is affirmative and follows.

II. is affirmative and does not follow.

$\therefore$ Only I follows. Choice (1)

42. (a) I. "All shrubs are plants" cannot be represented using venn diagrams.

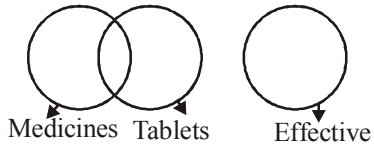
II. "All plants are shrubs" can be represented as follows.



∴ II does not follows.

∴ Only I follows. Choice (a)

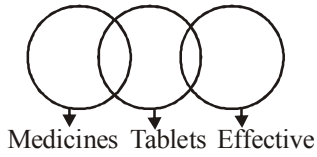
43. (c) The given statements can be represented by using the following basic diagram.



I. is affirmative and does not follow.

II. is negative and follows.

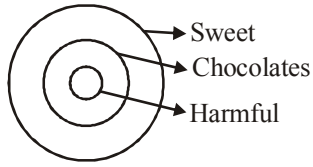
Hence, we try to negate II. ~ of II is 'some effective are tablets'. Which can be shown by using the following alternative diagram.



~ II is also true, hence II does not follow.

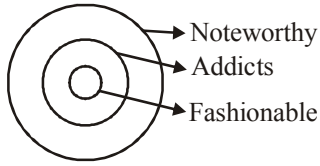
But ~ of II is I itself. Hence either I or II follows.

44. (e) (I) and (II) can be represented as follows.



∴ Both I and II follow.

45. (b) The given statements can be represented by using the following diagram.



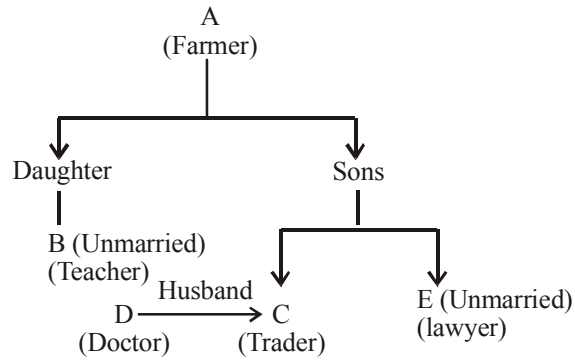
I. is negative and does not follow.

II. is affirmative and follows.

∴ Only II follows.

46. (b) 47. (c) 48. (d) 49. (b) 50. (d)

For (Qs. 51-55) :



51. (d) 52. (b) 53. (c) 54. (d) 55. (c) 56. (b)

57. (a) The first, second and third element of each group is sixth element to the right of the respective element of previous group as given in all in the sequence.

58. (b) There are 27 elements in all in the sequence.

So, (27 – 9 – 7) = 11 elements are between the 9th from left and 7th from right.

Hence, (9 + 6 =) 15th element from the left and will be the required answer.

59. (c) 7th to the left of 12th from right

= (12 + 7) = 19th from right

= (27 – 19 + 1) = 9th from left

But the first 15 elements are reversed.

= (15 – 9 + 1 =) 7th from left in the original sequence = 5.

60. (a) For the condition to be fulfilled, three digits should be together but it is not so in the given sequence.

(61-65) :

'always create new ideas' → 'ba ri sha gi' ... (1)

'ideas and new thoughts' → 'fa gi ma ri' ...(2)

'create thoughts and insights' → 'ma jo ba fa' ...(3)

'new and better solutions' → 'ki ri to fa' . ..(4)

Using (1) and (4),

new → ri

Using (1), (2) and (4),

ideas → gi

and → fa

thoughts → ma

Using (1) and (3),

create → ba

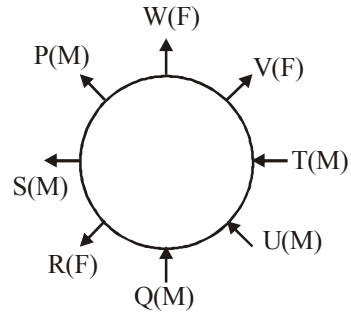
always → sha

insights → jo

better solutions → ki to

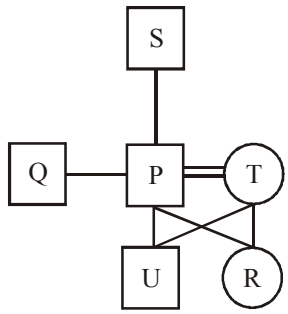
61. (a) 62. (d) 63. (a) 64. (d) 65. (b)

(66-70) :



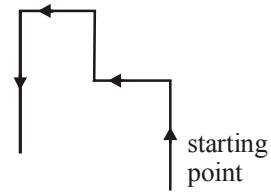
66. (a) 67. (d) 68. (b) 69. (b) 70. (b)

(71-75) :

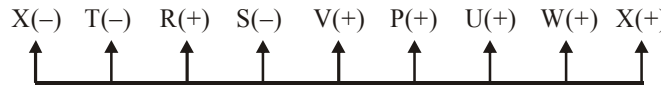


71. (c) 72. (d) 73. (a) 74. (c)

75. (a) south



(76-80) :



76. (a) 77. (d) 79. (a) 78. (b) 80. (c)