REASONING ABILITY

Directions (1-5): Read the following information carefully and answer the questions given below.

Six persons J, P, Q, R, V, Z are sitting in a row. Some of them are facing north while some of them are facing south. J sits second from one of the extreme end of the row. P sits third to the right of J. R is not an immediate neighbor of P and Z. Both the immediate neighbors of V faces opposite direction. Both the Immediate neighbors of Z faces same direction. V sits second to the left of P. Q sits to the right of R. R faces north. Q faces same direction as Z.

1. Four of the following five are alike in a certain way, and so form a group. Which of the following does not belong to the group?
(a) R, V   (b) V, P   (c) J, P
(d) V, Q   (e) J, R

2. What is the position of Q with respect to Z?
(a) Second to the left   (b) Third to the right
(c) Third to the left   (d) Fifth to the right
(e) Second to the right

3. Who amongst the following sits exactly between Z and J?
(a) R   (b) P   (c) Q
(d) Both V and Q   (e) V

4. How many persons in the given arrangement are facing North?
(a) More than four   (b) Four
(c) One   (d) Three   (e) Two

5. Who is sitting 4th to the right of Q?
(a) R   (b) Z   (c) P
(d) J   (e) None of these

Directions (6-8): Some statements are given followed by two conclusions. You have to consider the statements to be true even if they seem to be at variance from commonly known facts. You have to decide which of the following conclusions follow from the given statements:

6. **Statements**: No symbol is letter.
     All expression are letter.
     Some symbols are word.
Conclusions: I. No word is letter.
     II. Some symbols being expression is possibility.
(a) Only I follows
(b) Only II follows
(c) Either I or II follows
(d) Neither I nor II follows
(e) Both I and II follow

7. **Statements:** Some logic are answers.
     All keys are answers.
Conclusions: I. All keys are logic.
     II. No keys are logic.
(a) Only I follows
(b) Only II follows
(c) Either I or II follows
(d) Neither I nor II follows
(e) Both I and II follow

8. **Statement:** All numbers are digits.
     Some numbers are points.
     Some points are marks.
Conclusions: I. Some points are digits.
     II. All marks being numbers is a possibility.
(a) Only I follows
(b) Only II follows
(c) Either I or II follows
(d) Neither I nor II follows
(e) Both I and II follow

Directions (9-13): Read the following information carefully and answer the questions given below.
Seven boxes M, N, O, P, Q, R, S are arranged one above another. Only two boxes are placed above box P. Only one box is placed between box S and P. As many as boxes are placed between box S and Q as between box Q and M. Three boxes are placed between box N and O. N is placed above O.

9. How many total numbers of boxes are placed in between box S and Q?
   (a) Two   (b) One   (c) Three
   (d) More than three   (e) None

10. Which of the following is true regarding Box N?
    (a) Three boxes are placed between box Q and N
    (b) Box N is placed below Q
    (c) Box N is placed at top
    (d) Only one box is placed above box N
    (e) No box is placed between box N and R

11. Which box is placed at top?
    (a) S   (b) N   (c) Q
    (d) R   (e) M

12. Which box is placed immediately above box Q?
    (a) M   (b) P   (c) S
    (d) N   (e) R

13. How many boxes are placed in between R and M?
    (a) Two   (b) One   (c) Three
    (d) More than three   (e) None

Directions (14-18): Answer these questions based on the following information.
In a certain code:
"arrange things in order" is coded as - "po gb ik mn"
"order for new things" is coded as - "po gb fc bv"
"new places to order" is coded as - "gb cq bv ra"
"places in unknown country" is coded as – " de ra lf ik"

14. What will be the code for "order"?
    (a) gb   (b) fc   (c) cq
    (d) ik   (e) can't be determined

15. What may be the code for "things to vanish"?
    (a) po cq hx   (b) po vm ik
    (c) cq fc ik   (d) either (a) or (b)
    (e) None of these

16. What will be the code for " arrange"?
    (a) gb   (b) mn   (c) cq
    (d) ik   (e) can't be determined

17. What may be the code for " in country"?
    (a) lf ik
    (b) de ik
    (c) po gb
    (d) either (a) or (b)
    (e) None of these

18. "bv" is the code for?
    (a) things   (b) new   (c) arrange
    (d) places   (e) None of these

Directions (19-23): Read the following information carefully and answer the questions given below.
Six persons A, C, Q, R, T, Y were born in six different months January, April, May, August, September, December of a year. Three persons were born in between A and Y. A was born before Y. No one was born in between C and A. Two persons were born in between C and R. T was born before Q.

19. Who among the following was born in May?
    (a) C   (b) A   (c) Q
    (d) T   (e) Y

20. How many persons were born between A and Q?
    (a) One   (b) Three   (c) Four
    (d) Two   (e) None of these

21. How many persons born were before R?
    (a) One   (b) Three   (c) Four
    (d) Two   (e) None of these

22. Who among the following is the oldest?
    (a) C   (b) A   (c) Q
    (d) T   (e) Y

23. Which of the following is not true regarding Y?
    (a) Four persons born between C and Y
    (b) R was born before Y
    (c) Q is born immediately after Y
    (d) Only Q was born between Y and R
    (e) No one was born after Y

24. A family consists of five members A, P, R, T, H. P is wife of A. R is the daughter of A. R has only one brother T. H is daughter-in-law of P. How is H related to R?
    (a) mother   (b) sister-in-law
    (c) daughter   (d) daughter-in-law
    (e) none of these

25. If the digits of the number "46752983" are arranged in increasing order form left to right within the number, then how many digits will remain on the same position after the applied operation?
    (a) Two   (b) One   (c) Three
    (d) Four   (e) None of these

26. How many meaningful words can be made by using letters 'A', 'E', 'L' and 'T', keeping L as the first letter of the word?
    (a) One   (b) Two   (c) Three
    (d) Four   (e) None of these

Directions (27-31): Read the following information carefully and answer the questions given below.
Point E is 15m east of point B. Point G is 20m north of point E. Point K is 10m east of point G. Point M is 30m south of point K. Point P is 20m west of point M. Point L is 10m north of point P.

27. If Point V is 10m east of point S and Point S is 10m north of point L, then what will be the distance between point E and V?
(a) 10m   (b) 15m   (c) 20m
(d) 5m   (e) 25m

28. What is the total distance between point B and L?
(a) 10m   (b) 15m   (c) 20m
(d) 5m   (e) 30m

29. If Point Z is 10m north of point M, then point what is the distance between point E and Z?
(a) 10m   (b) 15m   (c) 20m
(d) 25m   (e) 30m

30. Point K is in which direction from point P?
(a) South   (b) South-east   (c) North
(d) North-east   (e) North-west

31. Four of the following five are alike in a certain way, and so form a group. Which of the following does not belong to the group?
(a) P, L   (b) P, M   (c) G, E
(d) L, E   (e) G, B

Directions (32-36): These questions are based on the following arrangement. Study it carefully and answer the questions below it.
1 3 5 3 4 5   9 2 8 7 2 3 6 5 2 7 3 8 1 2 1 8 4 9 8 1 2 4 7 3 5 2 4 8 9 8 2 4

32. Which element is exactly midway between the seventh element from the left end and sixteenth from the right end?
(a) 8   (b) 2   (c) 5
(d) 6   (e) 7

33. How many perfect squares are there to the right of the fourteenth element from the right end?
(a) Two   (b) One   (c) Three
(d) Four   (e) more than four

34. How many perfect cubes are there in the above arrangement, each of which is immediately preceded by an odd number and immediately followed by an even number?

35. How many such odd digits are there in the given arrangement, each of which is immediately followed and preceded by an odd number?
(a) None   (b) One   (c) Two
(d) Three   (e) More than three

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

36. Which of the following element is 5th to the right of 10th from the right end?
(a) 9   (b) 8   (c) 2
(d) 1   (e) 4

Directions (37-40): Read the following information carefully and answer the questions given below.
There are six wallets A, B, C, P, Q and R, each containing different amount of money in it. Wallet B has more money than wallet Q but less than wallet P. Only wallet R has more money than wallet C. Wallet Q does not has the least amount of money. The wallet containing 3rd highest amount of money has Rs. 3000, which is Rs.1000 more than the wallet which has 2nd lowest amount of money.

37. Which of the following wallet has the least amount of money?
(a) A   (b) B   (c) C
(d) Q   (e) P

38. What may be the amount of money in wallet C?
(a) Rs. 2500   (b) Rs. 2000   (c) Rs. 3500
(d) Rs. 2250   (e) Rs. 2100

39. What may be the amount of money in wallet B, if it has Rs. 250 less than the wallet P?
(a) Rs. 2500   (b) Rs. 2750   (c) Rs. 3500
(d) Rs. 3250   (e) Rs. 2200

40. Which of the following is true regarding wallet P?
(a) Only wallet A has less money than wallet P
(b) Wallet B has more money than wallet P
(c) Wallet P has 3rd highest amount of money
(d) Wallet Q has more amount of money than P
(e) none of these

QUANTITATIVE APTITUDE

41. The upstream speed of a boat is 18 km/hr which is 500% more than the speed of stream. Find how much distance boat will cover in 3 hours while travelling in downstream.
(a) 66 km   (b) 63 km   (c) 72 km
(d) 75 km   (e) 78 km

42. If $A^2 - B^2 = 252$ and $A + B = 42$ then find the value of 'B'?
(a) 18   (b) 16   (c) 14
(d) 20   (e) 22

43. A alone can do a work in 40 days. The ratio of time taken by A and B to do the same work is 5 : 3. Then, find in how many days both will complete the work together ?
(a) 18 days   (b) 12 days   (c) 20 days
(d) 15 days   (e) 10 days

44. A train having speed of 72 km/hr crosses a pole in 18 sec and a platform in 33 sec. Find the length of platform?
(a) 320 m   (b) 300 m   (c) 330 m
(d) 360 m   (e) 350 m

45. The circumference of a circle is 66 cm. Find the approximate area of square if the radius of circle is two times of the side of a square.
(a) 18 cm²   (b) 32 cm²   (c) 25 cm²
(d) 36 cm²   (e) 28 cm²

Directions (46-50): What approximate value should come in place of question mark (?) in the following questions?

46. $\sqrt{1443.98} \div 18.98 + 328.1 = ? \times 22.01$
(a) 10   (b) 12   (c) 18
(d) 15   (e) 22

47. 29.98% of 880.001 = ? + 110.9
(a) 144   (b) 153   (c) 158
(d) 160   (e) 163

48. $(?)^2 + 255.93 = 49.932\%$ of 800.112
(a) 12   (b) 8   (c) 15
(d) 18   (e) 6

49. $\sqrt[3]{1728.01} + ? = 256.01$
(a) 230   (b) 235   (c) 238
(d) 241   (e) 244

50. 74.91% of ? = $(17.932)^2$
(a) 420   (b) 425   (c) 408
(d) 432   (e) 444

Directions (51-55):- Find the wrong number in the given number series questions.

51. 100, 118, 136, 149, 160, 167, 172
(a) 172   (b) 160   (c) 100
(d) 118   (e) 136

52. 1.5, 2.5, 6, 24, 100, 505, 3036
(a) 1.5   (b) 6   (c) 100
(d) 3036   (e) 2.5

53. 160, 80, 80, 120, 240, 600, 900
(a) 240   (b) 120   (c) 160
(d) 900   (e) 600

54. 5040, 2520, 840, 210, 42, 8, 1
(a) 8   (b) 5040   (c) 840
(d) 1   (e) 42

55. 15, 17, 26, 151, 200, 929, 1050
(a) 17   (b) 1050   (c) 15
(d) 929   (e) 26

Direction (56-60): There are total five departments in a company. There are total 90 employees in Finance department which is 25% of total employees in the company. 2/9 of the total employees of the company are working in HR department. Employees working in Sales department is 25% more than that in HR department. Ratio between employees working in Security and Housing department is 4 : 5.

56. Find number of employees working in HR department is what percent more than number of employees working in Security department?
(a) 250%   (b) 200%   (c) 150%
(d) 100%   (e) 50%

57. Find the average number of employees working in Sales, Finance and Housing department?
(a) 60   (b) 70   (c) 80
(d) 90   (e) 100

58. Number of employees in Housing department is how much more than number of employees in Security department?
(a) 10   (b) 20   (c) 30
(d) 40   (e) 50

59. In Security department, 40% are female employees then find total male employees working in Security department?
(a) 16   (b) 40   (c) 32
(d) 8   (e) 24

60. Ratio between total number of male and female employees in HR department is 2 : 3. Find total number of female employees working in HR department?
(a) 32   (b) 48   (c) 64
(d) 40   (e) 56

Directions (61-70): What value should come in place of question mark (?) in the following questions?

61. $?^2 = 4^2 + 8^2 - 31$
(a) 6   (b) 7   (c) 8
(d) 9   (e) 10

62. $13 \times 6 + ? \times 4 = 18 \times 7$
(a) 6   (b) 8   (c) 10
(d) 12   (e) 14

63. 40% of ? = 25% of 320 + 75% of 160
(a) 500   (b) 400   (c) 300
(d) 200   (e) 100

64. $11^2 + 6^2 = ? + 37$
(a) 130 (b) 110 (c) 120
(d) 140 (e) 150

65. $\frac{360}{?} = 12 \times 6 - 3^3$
(a) 9 (b) 5 (c) 6
(d) 7 (e) 8

66. $\sqrt{225} + \sqrt{441} = ?^2$
(a) 3 (b) 4 (c) 5
(d) 6 (e) 8

67. $16 \times 8 - ? = 2^6$
(a) 64 (b) 32 (c) 128
(d) 192 (e) 96

68. $16 \times 54 \div 36 + 6 = ?$
(a) $\frac{144}{7}$ (b) 30 (c) 20
(d) 24 (e) 16

69. $? = \sqrt{6 \times 3 \times 5 + 50\% \ of \ 620}$
(a) 14 (b) 16 (c) 18
(d) 10 (e) 20

70. $6^2 = \frac{18 \times 8 - ? \times 2}{3}$
(a) 36 (b) 27 (c) 18
(d) 9 (e) 54

Direction (71-75): - Table given below shows marks obtained by four students in four different subjects in an exam. Study the data carefully and answer the following questions

Subjects / Students	English	Hindi	Science	Maths
Paul	65	60	80	65
Aditya	75	75	60	75
Neeraj	85	55	95	85
Sandy	60	60	65	60

71. Marks scored by Sandy in English and Maths together is what percent of the Marks scored by Aditya and Neeraj in English together?
(a) 25% (b) 50% (c) 75%
(d) 100% (e) 125%

72. Find the ratio of total marks scored by all four students together in Hindi to total marks scored by all four students together in Science?
(a) 5 : 6 (b) 57 : 50 (c) 1 : 1
(d) 20 : 19 (e) 6 : 5

73. Total marks scored by Paul are how much more/less than total marks scored by Neeraj?
(a) 70 (b) 60 (c) 40
(d) 50 (e) 80

74. Find the average of the marks scored by Aditya in English, Hindi and Science together?
(a) 65 (b) 85 (c) 80
(d) 75 (e) 70

75. If maximum marks for each subject are 100 then find what percentage of total marks is obtained by Sandy?
(a) 64.25% (b) 61.25% (c) 67.25%
(d) 70.25% (e) 73.25%

76. An article was sold at a discount of 20% at Rs. 1020. If the article was sold at discount of Rs. 199 in place of 20% discount then find the selling price.
(a) Rs. 1066 (b) Rs. 1076 (c) Rs. 1086
(d) Rs. 1096 (e) Rs. 1094

77. The total age of A, B and C four years hence will be 98 years. Find the age of C four years hence if the present age of A and B is 32 years and 23 years respectively.
(a) 31 yr. (b) 32 yr. (c) 35 yr.
(d) 37 yr. (e) 33 yr.

78. A invests Rs. 12,000 for X months while B invests Rs. 16,000 for 9 months in a scheme. The profit share of B is Rs. 12,000 out of total profit Rs. 21,000. Then find the value of X ?
(a) 6 months (b) 9 months (c) 8 months
(d) 7 months (e) 10 months

79. A mixture of milk and water contains 60% milk and remaining water. How much water should be added (in percentage) in mixture to reverse the proportion of milk and water?
(a) 25% (b) 37.5% (c) 62.5%
(d) 75% (e) 50%

80. The simple interest on a certain sum for 2 years at 8% per annum is Rs. 225 less than the compound interest on the same sum for 2 years at 10% per annum. The sum is:
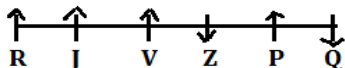(a) Rs. 3200 (b) Rs. 4200 (c) Rs. 4000
(d) Rs. 3600 (e) Rs. 4500
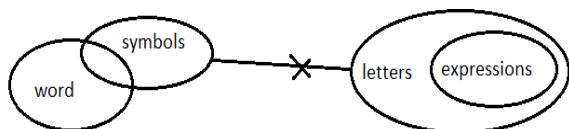
REASONING ABILITY

Direction (1-5):

R J V Z P Q

1. (d)   2. (a)   3. (e)
4. (b)   5. (d)
6. (d);

7. (d);
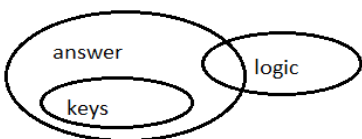
8. (e);
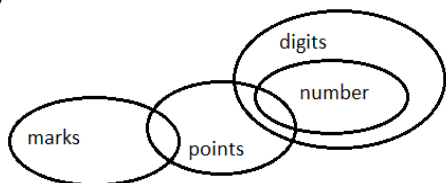
Direction (9-13):

Boxes
S
N
P
Q
R
O
M

9. (a)   10. (d)   11. (a)
12. (b)   13. (b)

Directions (14-18):

Word	Code
Places	ra
Order	gb
New	bv
To	cq
Things	po
For	fc
In	ik
Arrange	mn
Unknown/country	de/lf

14. (a)   15. (a)   16. (b)
17. (d)   18. (b)

Direction (19-23):

Months	Persons
January	C
April	A
May	T
August	R
September	Q
December	Y

19. (d)   20. (d)   21. (b)
22. (a)   23. (c)
24. (b)

$$A(+) = P(-)$$
$$|$$
$$R(-) —— T(+) = H(-)$$

25. (a)

4 6 7 5 2 9 8 3
  | | |
2 3 4 5 6 7 8 9
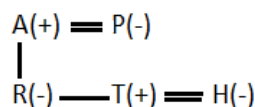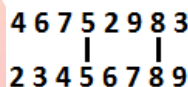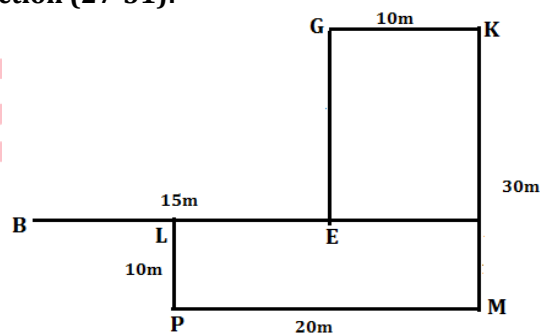
26. (b); LATE, LEAT

Direction (27-31):

27. (a)   28. (d)   29. (a)
30. (d)   31. (e)   32. (b);
33. (e);
34. (c); 184,982
35. (d); 735,135,353
36. (b);

Directions (37-40):

R > C > P (Rs. 3000) > B > Q (Rs.2000) > A

37. (a);   38. (c);   39. (b);
40. (c);

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41. (c); Let the speed of stream be x km/hr
Then,
Speed of upstream = $x \times \frac{600}{100} = 18 \Rightarrow x = 3$ km/hr
Speed of boat in still water = 18 + 3 = 21 km/hr
Distance covered in 3 hours in downstream = (21 + 3) × 3 = 72 km

42. (a); $(A + B)(A - B) = 252$
$\Rightarrow 42 \times (A - B) = 252$ [A + B = 42 given]
$\Rightarrow (A - B) = 6$ ...(i)
And A + B = 42 ...(ii)
Solve (i) and (ii), we get $\Rightarrow B = 18$

43. (d); Let the time taken by A and B be $5x$ days and $3x$ days respectively.
$\Rightarrow 5x = 40$ days $\Rightarrow x = 8$ days
B's time = 3 × 8 = 24 days
Time taken by both together to complete the work = $\frac{40 \times 24}{40 + 24}$ [use $\frac{a \times b}{a+b}$ for two persons]
=15 days.

44. (b); Speed of train = 72 km/hr
= $72 \times \frac{5}{18} = 20$ m/s
Length of train = 18 × 20 = 360 m
Length of (train + platform)
= 20 × 33 = 660 m
∴ length of platform = 660 m – 360 m = 300 m

45. (e); ATQ,
2πr = 66 cm
$\Rightarrow 2 \times \frac{22}{7} \times r = 66$ cm
$\Rightarrow r = \frac{66 \times 7}{44} = \frac{21}{2}$ cm
Side of a square = $\frac{21}{2 \times 2} = \frac{21}{4}$ cm
∴ Area of square = $(\text{side})^2 = \left(\frac{21}{4}\right)^2$
= $\frac{441}{16} \approx 28$ cm^2

46. (d); $\sqrt{1444} \div 19 + 328 = ? \times 22$
$\Rightarrow 2 + 328 = ? \times 22$
$\Rightarrow ? = \frac{330}{22} = 15$

47. (b); 30% of 880 = ? + 111
$\Rightarrow \frac{30 \times 880}{100} = ? + 111$
$\Rightarrow ? = 264 - 111 = 153.$

48. (a); $(?)^2 + 256 = \frac{50 \times 800}{100}$
$(?)^2 + 256 = 400$
$\Rightarrow (?)^2 = 144$
$\Rightarrow ? = 12$

49. (e); 12 + ? = 256
$\Rightarrow ? = 244$

50. (d); $\frac{75 \times ?}{100} = (18)^2$
$\Rightarrow \frac{75 \times ?}{100} = 324 \Rightarrow ? = \frac{324 \times 100}{75} = 432.$

51. (d);

100	119	136	149	160	167	172
+19	+17	+13	+11	+7	+5	

52. (b);

1.5	2.5	7	24	100	505	3036
×1+1	×2+2	×3+3	×4+4	×5+5	×6+6	

53. (d);

160	80	80	120	240	600	1800
×0.5	×1	×1.5	×2	×2.5	×3	

54. (a);

5040	2520	840	210	42	7	1
÷2	÷3	÷4	÷5	÷6	÷7	

55. (c);

16	17	26	151	200	929	1050
+1	+9	+125	+49	+729	+121	
1^3	3^2	5^3	7^2	9^3	11^2	

Solution (56-60): Let total employees in company be 100x
ATQ,
$\frac{25}{100} \times 100x = 90$
$\Rightarrow$ Total employees in company = $100x = 360$
Employees working in HR department
= $\frac{2}{9} \times 360 = 80$
Employees working in Sales department
= $\frac{125}{100} \times 80 = 100$
Remaining employees = $360 - 90 - 80 - 100 = 90$
Employees working in Security department
= $\frac{4}{9} \times 90 = 40$
Employees working in Housing department
= $\frac{5}{9} \times 90 = 50$

Sales	Finance	HR	Security	Housing	Total
100	90	80	40	50	360

56. (d); Required % = $\frac{80-40}{40} \times 100 = \frac{40}{40} \times 100 = 100\%$

57. (c); Required average = $\frac{100+90+50}{3} = \frac{240}{3} = 80$

58. (a); Required difference = $50 - 40 = 10$

59. (e); Total number of male employees working in Security department = $\frac{60}{100} \times 40 = 24$

60. (b); Total number of female employees working in HR department = $\frac{3}{5} \times 80 = 48$

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61. (b); $?^2 = 4^2 + 8^2 - 31$
$?^2 = 16 + 64 - 31 = 80 - 31 = 49$
$? = 7$

62. (d); $13 \times 6 + ? \times 4 = 18 \times 7$
$78 + ? \times 4 = 126$
$? = \frac{126-78}{4} = 12$

63. (a); $40\% \ of \ ? = 25\% \ of \ 320 + 75\% \ of \ 160$
$\frac{2}{5} \times ? = \frac{25}{100} \times 320 + \frac{75}{100} \times 160$
$\frac{2}{5} \times ? = 80 + 120$
$? = 200 \times \frac{5}{2} = 500$

64. (c); $11^2 + 6^2 = ? + 37$
$121 + 36 - 37 = ?$
$? = 120$

65. (e); $\frac{360}{?} = 12 \times 6 - 3^3$
$\frac{360}{?} = 72 - 27$
$? = \frac{360}{45} = 8$

66. (d); $\sqrt{225} + \sqrt{441} = ?^2$
$15 + 21 = ?^2$
$?^2 = 36$
$? = 6$

67. (a); $16 \times 8 - ? = 2^6$
$128 - 64 = ? \Rightarrow ? = 64$

68. (b); $16 \times 54 \div 36 + 6 = ?$
$? = 16 \times \frac{54}{36} + 6 = 30$

69. (e); $? = \sqrt{6 \times 3 \times 5 + 50\% \ of \ 620}$
$? = \sqrt{90 + 310} = \sqrt{400} = 20$

70. (c); $6^2 = \frac{18 \times 8 - ? \times 2}{3}$
$36 \times 3 = 144 - ? \times 2$
$? \times 2 = 144 - 108$
$? = \frac{36}{2} = 18$ **71. (c)**;   Marks scored by Sandy
in English and Maths together = 60 + 60 = 120
Marks scored by Aditya and Neeraj in English
together = 75 + 85 = 160
Required % = $\frac{120}{160} \times 100 = 75\%$

72. (a); Required ratio = $\frac{60+75+55+60}{80+60+95+65} = \frac{250}{300} = \frac{5}{6}$

73. (d); Total marks scored by Paul
= 65 + 60 + 80 + 65 = 270
Total marks scored by Neeraj
= 85 + 55 + 95 + 85 = 320
Required difference = 320 − 270 = 50

74. (e); Required average = $\frac{75+75+60}{3} = 70$

75. (b); Required % = $\frac{60+60+65+60}{400} \times 100 = 61.25\%$

76. (b); MP of article = $\frac{1020}{80} \times 100 = $ Rs. 1275
Selling price = 1275 − 199 = Rs. 1076

77. (c); Sum of present age of A, B and C
= 98 − 4 × 3
= 98 − 12 = 86 yr.
Present age of C = 86 − (32 + 23) = 31 yr.
Age of C four years hence = 31 + 4 = 35 yr.

78. (b); Profit share ratio of
A   B
$12000 \times x$ 16000×9
x   :   12
ATQ,
$\frac{x}{12} = \frac{9000}{12000}$
$\Rightarrow x = 9$ months.

79. (e); Let, total quantity = 100ℓ
Quantity of milk = $60 \ \ell$
And quantity of water = $40 \ \ell$
ATQ,
$\frac{40}{100} = \frac{60}{100+x}$
$2(100 + x) = 5 \times 60$
$200 + 2x = 300$
$2x = 100$
$x = 50 \ \ell$
Water added in % = $\frac{50}{100} \times 100 = 50\%$

80. (e); Let the sum be Rs. P.
$P\left[\frac{11}{10} \times \frac{11}{10} - 1\right] - \frac{P \times 2 \times 8}{100} = 225$
$\Rightarrow P\left[\frac{21}{100}\right] - \frac{16P}{100} = 225$
$\Rightarrow P = \frac{225 \times 100}{5} \Rightarrow P = $ Rs. 4500