WBCS (Main) Exam Paper – VI Practice Set
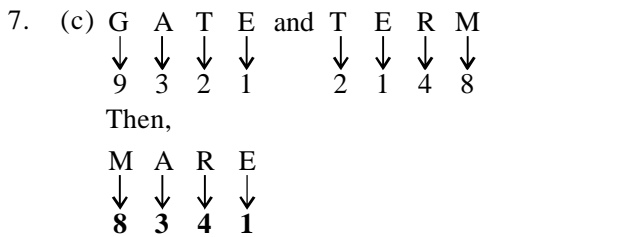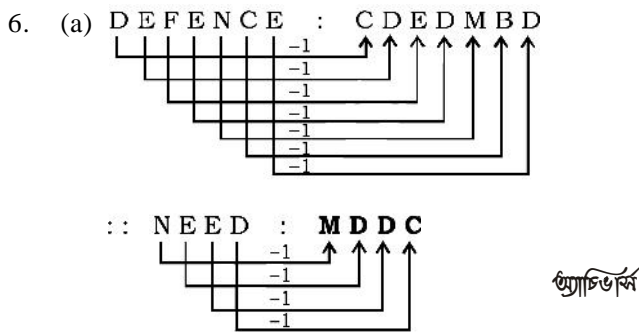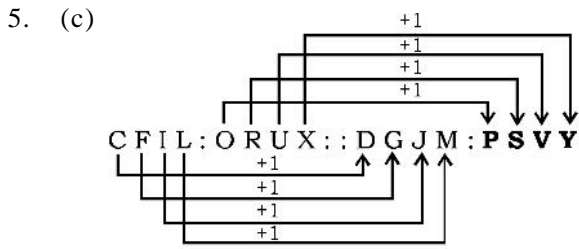
Answers with Explanation

1. (c) "Leg" is used when "Knee" is folded. Similarly, "Arm" is used when "Elbow" is folded.

2. (c) Interrupt is related to speak. Similarly, Interfere is related to **collision**.

3. (d) Money is a part of property. Similarly, pity is a part of **merciful**.

4. (a) 18 : 52 :: 12 : **34**

    $\lfloor$ (18×3)–2 ↑ $\lfloor$ (12×3)–2 ↑

5. (c)

C F I L : O R U X :: D G J M : **P S V Y**

6. (a)

D E F E N C E : C D E D M B D

:: N E E D : **M D D C**

7. (c)

G A T E   and   T E R M
↓ ↓ ↓ ↓   ↓ ↓ ↓ ↓
9 3 2 1   2 1 4 8

Then,

M A R E
↓ ↓ ↓ ↓
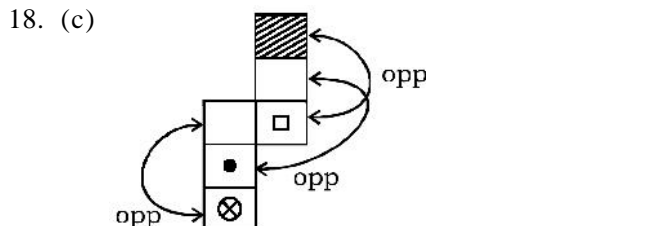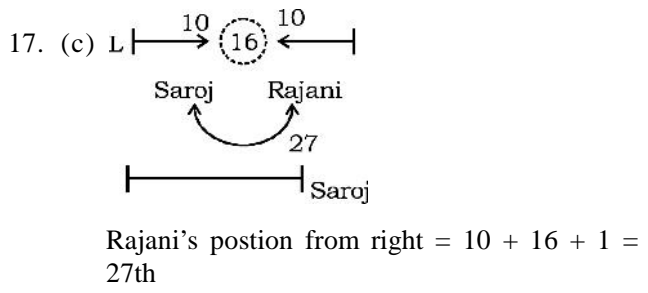**8** **3** **4** **1**

8. (d) a c **d** / b d **e** / c e **f** / d f **g** / e g h

9. (b)

he (is) /waiting\ there = (la) pa ro /ta\ ...(i)

there (is) the train = zo ro ji (la) ...(ii)

/waiting\ at the station = ma /ta\ fu ji ...(iii)

Is this a station = fu bi ri vi ...(iv)

10. (d) All other are parts of the body.

11. (c) All other are capital cities, except option (c).
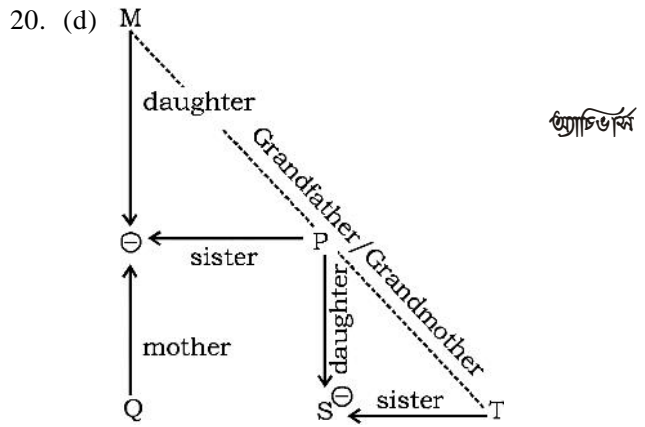
12. (d) Grain, Pound and Ton is the measurement of mass, while miles is the measurment of length.

13. (b) When both the hands will be in a same line (not equinoctial) between 2 and 3 O' clock, then q = 180°

Time = [H1 × 30) + q] $\dfrac{2}{11}$ minutes

= (2 × 30 + 180) $\dfrac{2}{11}$ minutes

= (60 + 180) $\dfrac{2}{11}$ (on taking positive sign)

$= 240 \times \dfrac{2}{11} = \dfrac{480}{11} = 43\dfrac{7}{11}$ minutes

Hence, required time = 2 hours $43\dfrac{7}{11}$ minutes

14. (c)

Crime	Arrest	Judgement	Punishment	Prison
4	3	5	1	2

15. (a) 11 × 5 = 55
13 × 5 = 65
3 × 9 = 27
Similarly,
3 × 27 = 81

16. (b) (8 × 6) + (5 × 3) = 63
(9 × 3) + (2 × 7) = 41
Similarly,
(5 × 8) + (6 × 7) = **82**

17. (c)

L ⟶10⟶ (16) ⟵10⟵
Saroj   Rajani
27
Saroj

Rajani's postion from right = 10 + 16 + 1 = 27th

18. (c)

19. (a) 72 × 9 ÷ 9 − 6 + 2
= 72 ÷ 9 + 9 × 6 − 2
= 8 + 54 − 2 = **60**

20. (d)

21. (b)

Sharp	Shock	Socks	Snooker	Sound
4	3	5	2	1

22. (a) 165 195 255 285 345 **375**
$+30$ ↑ $+60$ ↑ $+30$ ↑ $+60$ ↑ $+30$ ↑

23. (c) 2 3 5 9 17 **33**
$+1$ ↑ $+2$ ↑ $+4$ ↑ $+8$ ↑ $+16$ ↑

24. (a)
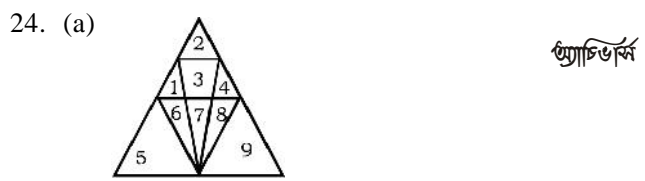
There are 18 triangles are in the above figure, like –
1, 2, 4, 5, 6, 7, 8, 9, (6, 7), (7, 8), (4, 8), (1, 6), (3, 7), (4, 8, 9), (1, 6, 5), (6, 7, 8), (1, 2, 3, 4) and (2, 5, 9)

25. (a)
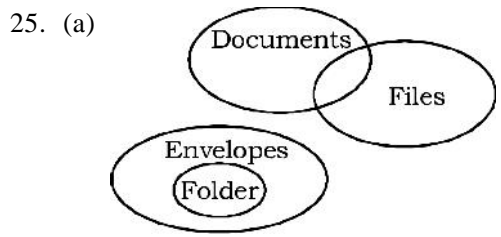
Conclusion - I - ✓
          II - ×
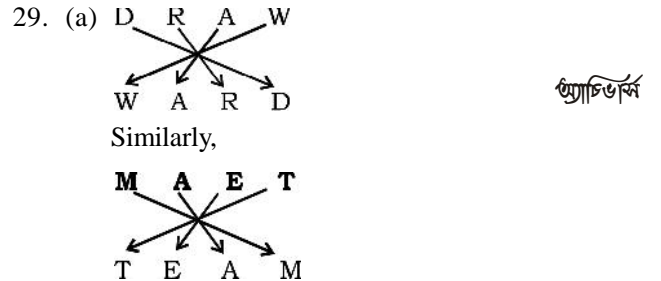
26. (c) D G L S : A D I P :: C F K R : **Z C H O**
-3 ↑ ↑ ↑ ↑ -3 ↑ ↑ ↑
-3 -3
-3 -3
-3 -3

27. (b) C A G E : 3 1 7 5 :: **H I D E** : 8 9 4 5
Place Value ↑ ↑ ↑
Place Value
Place Value
Place Value

28. (d)

P B X O : V Q N D :: **V D N P** : L R T F

29. (a)

D R A W
W A R D

Similarly,

M A E T
T E A M

30. (a) (a) 8 – 15
is not a perfect square number.
(b) 25 – 36
↓   ↓
5^2 6^2
(c) 49 – 64
↓   ↓
7^2 8^2
(d) 81 – 100
↓   ↓
9^2 10^2

31. (a) **5 7 3**   2 8 6
5+3=8   2+6=8
2 6 4   4 7 3
2+4=6   4+3=7

32. (c) Guitar, Violin and Veena have strings, while flute is stringless.

33. (d)

34. (d)

	Anita	Geeta	Seeta	Neeta
Dancing	√	√	×	√
Music	√	√	√	×
Painting	×	√	√	√
Debate	√	×	√	√

35. (c) $7 + 3 = (10)^2 = 100$
$5 + 6 = (11)^2 = 121$
$6 + 3 = (9)^2 = 81$
Similarly,
$6 + 11 = (17)^2 =$ **289**

36. (b) $1 + 17 = 16 + 2 = 18$
$5 + 19 = 18 + 6 = 24$
Similarly,
$3 + 15 =$ **14** $+ 4 = 18$

37. (c) MANTEL

38. (d) ab**a**c/b**a**ca/**ab**ac/baca/aba**c**/**baca**

39. (d) 8   29   113   449   **1793**
$×4–3$ ↑ $×4–3$ ↑ $×4–3$ ↑ $×4–3$ ↑

40. (a) $25 \div 5 - 10 + 1 \times 100 + 5 = 100$
41. (c) FRIEND
42. (c)
43. (b) 685785436**81**98546**82**96**81**368536 অ্যাচিভার্স
44. (a)
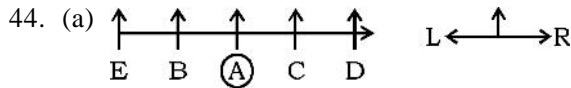
45. (c)
46. (d) Laxmi > Leela > Meenu > Hari > **Lata**
47. (d)
48. (c)
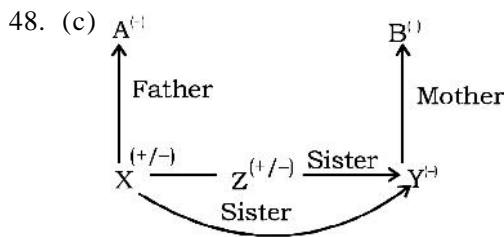
49. (a)
50. (b)
51. (c) $\left(\sqrt{x+y}\right)^2 x + y$

$\left(\sqrt{x}+\sqrt{y}\right)^2 = x + y + 2\sqrt{xy}$ অ্যাচিভার্স

Here $x + y \le x + y + 2\sqrt{xy}$

Clearly, $\sqrt{x+y} \le \sqrt{x} + \sqrt{y}$

52. (c) Let the marked price be ₹ x, then

$x = 312 \times \dfrac{145}{100} \times \dfrac{100}{78}$

$x = \dfrac{312 \times 145}{78}$

$x = 4 \times 145 = ₹\ 580$

53. (a) Marked price of the phone = ₹ 1500
S.P. after allowing discount of 10% = 90% of 1500

$= \dfrac{1500 \times 90}{100} = ₹\ 1350$

Second discount = ₹ (1350 − 1300) = ₹ 50
Let the second discount be x%.
x% of 1350 = 50

$x = \dfrac{50 \times 100}{1350} = \dfrac{100}{27} = 3\dfrac{19}{27}\%$

54. (a) Let the pirce of watch be = ₹ x

So, $1.2x = \dfrac{x}{3} + 52$

$3.6x - x = 3 \times 52$ অ্যাচিভার্স
$2.6x = 3 \times 52$

$x = \dfrac{3 \times 52}{2.6} = 60$

The price of watch = ₹ 60

55. (c) $x\left(7 - \dfrac{8}{x}\right) = \dfrac{7}{x}$

$7x - 8 = \dfrac{7}{x}$

$7x - \dfrac{7}{x} = 8$ অ্যাচিভার্স

$x - \dfrac{1}{x} = \dfrac{8}{7}$

$x^2 + \dfrac{1}{x^2} = \left(x - \dfrac{1}{x}\right)^2 + 2$

$= \left(\dfrac{8}{7}\right)^2 + 2 = \dfrac{64}{49} + 2$

$= 1\dfrac{15}{49} + 2 = 3\dfrac{15}{49}$

56. (a) $\sqrt{(4)^2 + \left(\sqrt{5}\right)^2 - 2 \times 4\sqrt{5}} = \sqrt{5a} - b$

$= \sqrt{\left(4 - \sqrt{5}\right)^2} = \sqrt{5a} - b$

$4 - \sqrt{5} = \sqrt{5a} - b$
a = −1 , b = −4
a + b = − 1 + (−4) অ্যাচিভার্স
a + b = − 5

57. (b) $a^3 - b^3$
$= (a - b)(a^2 + b^2 + ab)$
$45 = 3(a^2 + b^2 + ab)$
$15 = a^2 + b^2 + ab$
$a^2 - 2ab + b^2 + 3ab = 15$
$(a - b)^2 + 3ab = 15$
$3ab = 6$
$ab = 2$
$a^2 + b^2 = (a - b)^2 + 2ab$
$= 9 + 2(2) = 13$

58. (a) Work done by A and B in the 4 days =

$4 \times \left(\dfrac{1}{16} + \dfrac{1}{20}\right) = 4 \times \dfrac{9}{80} = \dfrac{9}{20}$ অ্যাচিভার্স

The work done by C in 4 days $= \dfrac{11}{20}$ i.e $\left(1 - \dfrac{9}{20}\right)$

∴ C will complete in $\dfrac{80}{11}$ days

∴ Ratio of wages $= \dfrac{1}{16} : \dfrac{1}{20} : \dfrac{11}{80} = 5 : 4 : 11$

∴ Amount received by B $= \dfrac{4}{20} \times 800 = ₹\ 160$

59. (c) Incomes of A and B = ₹ 5x and 6x
Expenses of A and B = ₹ 2y and 3y
∴ 5x − 2y = 330   (i)
6x − 3y = 330   (ii)

5x − 2y = 330
4x − 2y = 220
subtract
x = 110
∴ Total income = 6x + 5x = 11x
= 11 × 110 = ₹ 1210

60. (a) Chiku 1 hour's work $= \dfrac{35}{7} = 5$ pages

Deepti 1 hour's work $= \dfrac{54}{9} = 6$ pages
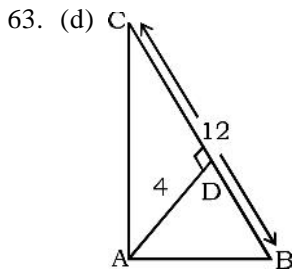
1 hour's work of both = 5 + 6 = 11 pages

∴ Required time $= \dfrac{88}{11}$ hrs = 8 hours

61. (b) $8 - \dfrac{5}{1 + \dfrac{1}{4 + \dfrac{5}{16}}} = 8 - \dfrac{5}{1 + \dfrac{16}{69}}$

$= 8 - \dfrac{5}{\dfrac{85}{69}} = \dfrac{8 \times 85 - 5 \times 69}{85}$

$= \dfrac{680 - 345}{85} = \dfrac{335}{85} = \dfrac{67}{17}$

62. (c) Let the present age of the child = x years
Sum of the present ages of husband and wife
= 2 × (22 + 5) = 54 years
Sum of the present ages of the family
member = 3 × 19 = 57 years
ATQ, 54 + x = 57 years
x = 3 years
Present age of child = 3 years

63. (d)

AD = 4 cm
BC = 12 cm

$\cot B + \cot C = \dfrac{BA}{AC} + \dfrac{AC}{BA} = \dfrac{AB^2 + AC^2}{AB \times AC}$

[∵ AB² + AC² = BC²]

$= \dfrac{BC^2}{AB \times AC}$ [∵ AB × AC = AD × BC]

$= \dfrac{BC^2}{AD \times BC} = \dfrac{BC}{AD} = \dfrac{12}{4} = 3$ cm

64. (c) The number of families
= 25 + 15 + 35 + 10 + 20 + 30 + 20 + 45
+ 35 + 30 = 265

65. (b) Required number of families
= 45 + 35 + 30 = 110

66. (d) Required number of families
= 35 + 15 + 25 = 75

67. (c) Required number of families
= 20 + 30 = 50

68. (a) Let the number is −
x, x + 2, x + 4, x + 6
ATQ,
3 × x = 2 × (x + 6)
3x − 2x = 12
x = 12
Third number = 12 + 4 = 16

69. (b) Let x be the required natural number.

Then, $\dfrac{8x}{3} - \dfrac{8x}{13} = 480$

$8x \left(\dfrac{1}{3} - \dfrac{1}{13} \right) = 480$

$x \times \dfrac{10}{39} = 60$

x = 234
∴ The number is 234

70. (b) S.I. for 1 year $= \dfrac{700}{2} = ₹ 350$

∴ S.I. for 1 year on = ₹ 350 = 770 − 700
= ₹ 70

∴ Rate $= \left(\dfrac{S.I. \times 100}{P \times T} \right) = \dfrac{70 \times 100}{350 \times 1} = 20\%$

∴ Rate = 20%

71. (c) Let cost price = ₹ 100
Marked price = ₹ 140

Discount (20%) $= 140 \times \dfrac{80}{100} = ₹ 112$

Percentage Profit $= \dfrac{112 - 100}{100} \times 100 = 12\%$

72. (d) (6.23)³ + 3 × 11 × 4.77 × 6.23 + (4.77)³
= (6.23)² + (6.23 + 4.77) × 14.77 × 6.23 +
(4.77)³
= (6.23 + 4.77)³
[∵ a³ + b³ + 3ab (a + b) = (a + b)]
= (11.00)³ = 1331

73. (d) M.P (1 − % d) = C.P (1 + % g)

$\Rightarrow MP \left[\dfrac{87.5}{100} \right] = 1470 \left[\dfrac{110}{100} \right]$

$$\therefore \text{MP} = \frac{1470 \times 110}{87.5} = ₹ \ 1,848$$

74. (a) The average age of 3 students = 15 yrs.
∴ sum of their ages = 15 × 3 = 45 yrs.
Their ages are in proportion = 2 : 3 : 4
Let the multiple of their ages = x yrs
According to question:-
$2x + 3x + 4x = 45$

$$x = \frac{45}{9} = 5$$

∴ The age of the eldest student
= 4 × 5 = 20 yrs.

75. (a) Average speed = 48 km/hr
time = 6 hr 30 minutes = 6.5 hours.
∴ Total distance = 48 × 6.5 = 312 km
Now, Time taken to travel 180 km with speed of 48 km/hr ;-

$$t_1 = \frac{180}{48} = 3.75 \text{ hour}$$

Now, Remaining distance = 312 – 180 = 132 km time taken to travel 132 km with speed to 33 km/hr

$$t_2 = \frac{132}{33} = 4 \text{ hour}$$

∴ total time = $t_1 + t_2$ = 3.75 + 4 = 7.75 hour
= 7 hour 45 minutes

76. (c) Let money received by C = ₹ x
then money received By B = ₹ (x + 6)
then money received by A = ₹ (x + 6 + 7)
A.T.Q
x + x + 6 + x + 13 = 76
x = ₹ 19
Required ratio = 32 : 25 : 19

77. (b) $x = y$
So, $k^3 - 3k^2 = 1 - 3k$
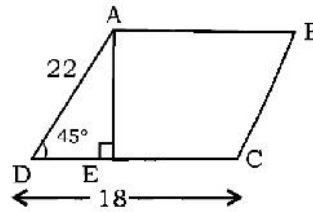$k^3 - 3k^2 + 3k - 1 = 0$
$(k - 1)^3 = 0 \Rightarrow k = 1$

78. (a) A   12 ———— 5
   \>60
   B   15 ———— 4
Work done in 5 days = (5 + 4) × 5 = 45
Remaining work was finished by A in

$$= \frac{60 - 45}{5} = 3 \text{ days}$$

79. (b) In ΔAED

$$\frac{\text{AE}}{\text{AD}} = \sin 45°$$

$$\text{AE} = \frac{1}{\sqrt{2}} \times 22$$

$$\text{AE} = 11\sqrt{2} \text{ cm}$$

The area of parallelogram = base × height
= 18 × 11$\sqrt{2}$ cm²
= 198$\sqrt{2}$ cm²

80. (b)
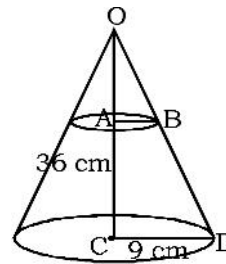
The height of upper part of the cone

$$= \frac{1}{3} \times 36 = 12 \text{ cm}$$

OA = 12 cm
ΔOAB ~ ΔOCD

$$\frac{\text{OA}}{\text{OC}} = \frac{\text{AB}}{\text{CD}}$$

$$\frac{12}{36} = \frac{\text{AB}}{9}$$

AB = 3cm

The volume of the upper part $= \frac{1}{3}\pi r^2 h$

$$= \frac{1}{3} \times \frac{22}{7} \times 3 \times 3 \times 12$$

$$= \frac{22 \times 36}{7} = 113.14 \text{ cm}^3$$

81. (c) The speed of flowing water = 4km/hr.

$$= \frac{4 \times 1000}{60} = \frac{200}{3} \text{m / min}$$

The length of the water stored in one min in the river $= \frac{200}{3}$m

The volume of the water = lbh

$$= \frac{200}{3} \times 6 \times 34$$

$$= 200 \times 68 = 13600 \ m^3$$

82. (d) The difference of numbers = 2963 – 1312 = 1651

Now, 1651 = 13 × 127 (product of two prime numbers)

∴ Required three digit number = 127

Sum of three digit number = 1 + 2 + 7 = 10

83. (c) Profit percent $= \frac{12}{44-12} \times 100$

$$= \frac{12}{32} \times 100 = 37\frac{1}{2}\%$$

84. (a) Let total number of students = $5x$

The number of adult boys

$$= 5x \times \frac{3}{5} \times \frac{80}{100} = 2.4x$$

The number of adult girls

$$= 5x \times \frac{2}{5} \times \frac{75}{100} = 1.5x$$

Required percentage

$$= \frac{5x - (2.4x + 1.5x)}{5x} \times 100 = 22\%$$

85. (c) Highest score + lowest score + 28 × 38 = 30 × 40

Highest score + lowest score = 136

Highest score – lowest score = 100

Lowest score $= \frac{36}{2} = 18$

86. (b) The ages of A, B and C is $5x$, $8x$ and $9x$ years respectively.

Age of A + age of C = 56 years

$5x + 9x = 56$ years

$x = 4$

The age of B = 8 × 4 = 32 years

87. (d) $2x = 3y = 4z$

$x : y : z = \frac{1}{2} : \frac{1}{3} : \frac{1}{4} = 6 : 4 : 3$

88. (b) Required ratio

$$= \frac{2}{4} : \frac{3}{5} : \frac{4}{5} = \frac{1}{2} : 1 : \frac{4}{5} = 5:10:8$$

89. (b) Let distance be D km

$$\therefore \frac{D}{16} - \frac{D}{24} = \frac{2}{60} = \frac{1}{30}$$

$$\frac{3D - 2D}{48} = \frac{1}{30}$$

$$D = \frac{48}{30}$$

D = 1.6 km

90. (c) $\frac{a}{b} = \frac{4}{7}$ and $\frac{c}{b} = \frac{3}{7}$

$$\frac{a}{c} = \frac{a}{b} \times \frac{b}{c} = \frac{4}{7} \times \frac{7}{3}$$
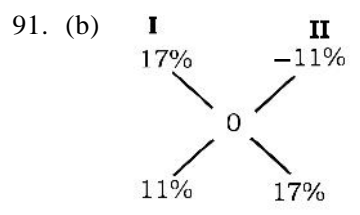
$$\frac{a}{c} = \frac{4}{3}$$

Multiply by $\frac{3}{2}$ on both side

$$\frac{3a}{2c} = \frac{2}{1}$$

Apply C & D on both side

$$\frac{3a + 2c}{3a - 2c} = \frac{2+1}{2-1}$$

$$\frac{3a + 2c}{3a - 2c} = 3$$

91. (b)

```
        I              II
      17%            −11%
              O
      11%            17%
```

11	:	17	=	28
↓ × 1711		↓ × 1711		↓ × 1711
₹18821		₹29087		₹47908

∴ cost price of the T.V. = ₹ 18821 & ₹ 29087

92. (c) Ratio of time taken by them to cover equal distance.

A	:	B	:	C
1	:	3	:	3
1	:	1	:	4
1	:	3	:	12

(combined ratio of time taken by them)

Given, C = 84 minutes

If C take 12 mintues then time taken by A = 1 minutes

If C take 84 mintues then time taken by A

$$= \frac{1}{12} \times 84 = 7 \text{ minutes}$$

93. (b) Winner → 53% votes

Loser → 47% votes

53% of votes cast – 47% of vote cast = 132

6% of votes cast = 1320 votes

100% of votes cast $= \dfrac{1320}{6} \times 100 = 22000$

88% of voter listed in voter list = 22000

100% of voter listed in voter list

$= \dfrac{22000 \times 100}{88} = 25000$

∴ Total no. of voter listed in voter list = 25000

94. (c) A + B + C = 207

A = 3B, A = 5C

$A + \dfrac{B}{3} + \dfrac{A}{5} = 207$
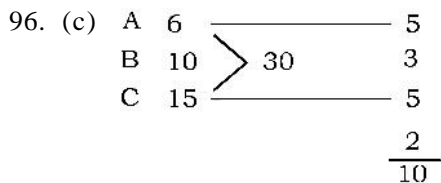
$\dfrac{15A + 5A + 3A}{15} = 207$

$\dfrac{23A}{15} = 207$

$A = 135$

$B = \dfrac{A}{3} = \dfrac{135}{3} = 45$

$C = \dfrac{135}{3} = 27$

∴ A = 135, B = 45, C = 27

∴ Smallest number = 27

95. (a)

96. (c)

A   6 ——————— 5
B   10 ⟩ 30   3
C   15 ——————— 5
                 $\dfrac{2}{10}$

Time taken by them to finish the work

$= \dfrac{30}{10} = 3$ days

Then, The sum of their wages for 2 days

$= 300 \times \dfrac{2}{3} = $ ₹ 200

97. (a) a = (4011),   b = 3989

ab = (4011) 3989

= (4000 + 11) (4000 – 11)

= (4000)² – (11)²

= 15999879

98. (a)
```
      8    18    40    86   [176]   370   752
                           180
      8×2+2 18×2+4 40×2+6 86×2+8 180×2+10 370×2+12
```

99. (d) Let the number be 4x and 7x

Then, $\dfrac{4x - 8}{7x + 4} = \dfrac{1}{4}$

16x – 32 = 7x + 4

9x = 36

x = 4

Sum of number = 16 + 28 = 44

100. (b) Let each instalment be ₹ x.

$\left(x + \dfrac{x \times 8 \times 1}{100} \right) + \left(x + \dfrac{x \times 8 \times 2}{100} \right) + x = 6384$

$\left(x + \dfrac{2x}{25} \right) + \left(x + \dfrac{4x}{25} \right) + x = 6384$

$\dfrac{27x}{25} + \dfrac{29x}{25} + x = 6384$

$\dfrac{81x}{25} = 6384$

$x = \dfrac{6384 \times 25}{81}$

x = ₹ 1970. 37

——— ★★★ ———