

ANSWER SET - 17

1. (2) 2. (2) 3. (1) 4. (4) 5. (4)
6. (3) 7. (3) 8. (3) 9. (2) 10. (4)
11. (3) 12. (1) 13. (2) 14. (3) 15. (2)
16. (2) 17. (3) 18. (1) 19. (3) 20. (1)
21. (3) 22. (2) 23. (2) 24. (3) 25. (4)
26. (2) 27. (2) 28. (2) 29. (4) 30. (2)
31. (4) 32. (4) 33. (3) 34. (1) 35. (3)
36. (3) 37. (2) 38. (4) 39. (3) 40. (3)
41. (1) 42. (2) 43. (1) 44. (1) 45. (1)
46. (3) 47. (3) 48. (4) 49. (2) 50. (4)
51. (3) 52. (2) 53. (3) 54. (1) 55. (1)
56. (4) 57. (3) 58. (2) 59. (2) 60. (3)
61. (1) 62. (2) 63. (1) 64. (2) 65. (4)
66. (4) 67. (4) 68. (1) 69. (1) 70. (2)
71. (2) 72. (2) 73. (1) 74. (2) 75. (3)
76. (2) 77. (3) 78. (4) 79. (2) 80. (3)
81. (3) 82. (1) 83. (2) 84. (1) 85. (4)
86. (2) 87. (1) 88. (4) 89. (4) 90. (1)
91. (1) 92. (4) 93. (3) 94. (3) 95. (3)
96. (2) 97. (1) 98. (3) 99. (2) 100. (2)

EXPLANATION - 17

1. (2) $24 \Rightarrow 2^4 = 16$ and $32 \Rightarrow 3^2 = 9$
2. (2) $238 \Rightarrow 382$ and $416 \Rightarrow 164$

abc	bca	abc	bca
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3. (1)

A	M	N	A	M	F
↓	↓	↓	↓	↓	↓
E	N	O	E	N	G
4. (4) Cow is **herbivorous** and Bear is omnivorous.
5. (4) $3 + 8 + 5 + 6 = 22$ Divisible by 11
 $2 + 4 + 2 + 3 = 11$ Divisible by 11
 $3 + 6 + 9 + 4 = 22$ Divisible by 11
 $2 + 5 + 1 + 7 = 15$ Not Divisible by 11
6. (3) 64 is the only number for which complete square root and cubic root is possible.
 $\sqrt{36} = 6$, $\sqrt{16} = 4$, $\sqrt[3]{64} = 4$ and $\sqrt[3]{64} = 4$, $\sqrt{144} = 12$
7. (3) Expect Vijaywada, other cities are in Madhya Pradesh.
8. (3) Except (3), in other options, the first number is divisible by the second number.
9. (2) C O O L
10. (4)

Ant	Pine apple	Apple	I. ✘
			II. ✔
11. (3) $18+36 = 54$, $36+12 = 48$, $12 + 32 = 44$,
 $42 + 32 = 74$, $42 + 28 = 70$, $28 + 18 = 46$
12. (1) $12 + 18 + 26 + 24 = 80$
 $15 + 35 + 30 = 80$
 $42 + 38 = 80$
13. (2) $\frac{8}{2} = 4$, $\frac{4}{2} = 2$, $\frac{9}{3} = 3$ and $\frac{6}{2} = 3$

14. (3)
15. (2) $\frac{12 \times 6 + 9}{8 - 4} = \frac{81}{4} = 2$
16. (2) $2 \times 0.5 + 1 = 2$
 $2 \times 1 + 2 = 4$
 $4 \times 2 + 3 = 11$
 $11 \times 4 + 4 = 48$
 $48 \times 8 + 5 = 389$
17. (3)

18	35	69	120	188
↑	↑	↑	↑	↑
+17	+34	+51	+68	
	↑	↑	↑	
	+17	+17	+17	
18. (1) 123, 231, 312, 123, 231, 312
19. (3) Sumit himself is the only child of his father. So, Sumit's wife is Sumita's **mother**.
20. (1) S/S/T/SST/SSST/SSSTT
21. (3) C U P B O A R D

4	1	7	2	5	8	6	3
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22. (2) From the given dice, we can conclude that 6, 4, 1 and 2 dots appear adjacent to 3 dots. Clearly, there will be 3 dots on the face opposite the face with 5 dots.
23. (2) $(5 \times 2) + 4 - 6 = 8$
 $(4 \times 3) + 8 - 9 = 11$
 $(8 \times 4) + 1 - 7 = 26$
 $(3 \times 6) + 2 - 8 = 12$
24. (3)
25. (4) Total number of triangles = 24
51. (3)

A + B → 30	4
B + C → 24	120 — 5
C + A → 20	6

1 day work of A + B + C = 7.5 units/day
 \therefore Efficiency of B = 1.5 units/day
 Work remaining after 10 days = 45
 Time taken by B to complete the work = $\frac{45}{1.5} = 30$ days
52. (2) C.I. when interest compounded yearly

= ₹	$6250 \left(1 + \frac{4}{100} \right) \times \left(1 + \frac{1}{2} \times \frac{4}{100} \right)$
= ₹	$\left(6250 \times \frac{26}{25} \times \frac{51}{50} \right)$
= ₹	6630

C.I. when interest is compounded half yearly

= ₹	$6250 \times \left(1 + \frac{2}{100} \right)^3$
= ₹	$\left(6250 \times \frac{51}{50} \times \frac{51}{50} \times \frac{51}{50} \right)$
= ₹	6632.55

\therefore Difference = ₹ 2.55

53. (3) Average of runs of first 4 matches = 26 \Rightarrow sum of runs of first four matches = $4 \times 26 = 104$
 Average of runs of first 5 matches = 24 \Rightarrow sum of runs of first 5 matches = $24 \times 5 = 120$
 Score in fifth inning = $120 - 104 = 16$
54. (1) 5% of A + 4% of B = $\frac{2}{3}$ (6% of A + 8% of B)
 $\Rightarrow \frac{5}{100}A + \frac{4}{100}B = \frac{2}{3} \left(\frac{6}{100}A + \frac{8}{100}B \right)$
 $\Rightarrow 5A + 4B = 4A + \frac{16}{3}B$
 $\Rightarrow A = \frac{16B}{3} - \frac{4B}{1}$
 $\Rightarrow A = \frac{4}{3}B = A : B = 4 : 3 \Rightarrow \sqrt{A} : B = 2 : 3$
55. (1) Let the boat's rate upstream be x kms/h and that downstream be y kms/h Then, distance covered upstream in 8 hrs 48 min = Distance covered downstream in 4 hrs
 $\Rightarrow \left(x \times 8 \frac{4}{5} \right) = (y + 4)$
 $\Rightarrow \frac{44}{5} \times \frac{y}{x} = 4y$
 $\Rightarrow y = \frac{11}{5}x \Rightarrow \frac{y}{x} = \frac{11}{5}$
 \therefore Required Ratio = $\frac{\text{Speed of boat}}{\text{Speed of current}} = \left(\frac{y+x}{2} \right) : \left(\frac{y-x}{2} \right)$
 $= \frac{11+5}{2} : \frac{11-5}{2} = 8:3$
 \therefore Percentage decrease = $\frac{8-3}{8} \times 100\% = 62.5\%$
56. (4) Total number of votes polled = $(258 + 282 + 460) = 1000$
 As we can observe that winner received 460 votes
 \therefore Required percentage = $\left(\frac{460}{1000} \times 100 \right)\% = 46\%$
57. (3) Let the no. of students be 100
 \therefore No. of students opting both subjects = $56 + 68 - 100 = 24\%$
 \therefore Total no. of students = $\frac{100}{24} \times 36 = 150$

58. (2) $20\% = \frac{1}{5}$, $30\% = \frac{3}{10}$

Price	After loss
5	4
5	4
10	7
250	112
$\downarrow \times 14.8$	$\downarrow \times 14.8$
3700	1657.60 (After 3 years)

59. (2) $a + b + c = 0$
 $\Rightarrow a + b = -c$; $b + c = -a$; $c + a = -b$

$$\therefore \frac{a+b}{c} + \frac{b+c}{a} + \frac{c+a}{b}$$

$$= -1 - 1 - 1 = -3$$

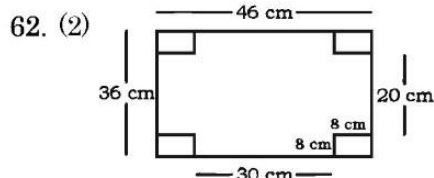
$$\frac{a}{b+c} + \frac{b}{c+a} + \frac{c}{a+b}$$

$$= 1 - 1 - 1 = -3$$

$$\therefore \text{Required result} = \sqrt{(-3) \times (-3)}$$

$$= \sqrt{9} = \pm 3$$

61. (1) $2x - 3y = 13$
 Cubing both sides,
 $8x^3 - 27y^3 - 3 \times 2x \times 3y (2x - 3y)$
 $= (13)^3$
 $\Rightarrow 8x^3 - 27y^3 - 18(14)(13) = 2197$
 $\Rightarrow 8x^3 - 27y^3 = 2197 + 3276$
 $\therefore 8x^3 - 27y^3 = 5473$



Volume of the box made of the remaining sheet
 $\Rightarrow 30 \times 20 \times 8$
 $\Rightarrow 4800 \text{ cm}^3$

63. (1) $\frac{\sin 36^\circ}{\cos 54^\circ} + \frac{\sin 54^\circ}{\cos 36^\circ}$

$$= \frac{\sin 36^\circ}{\cos(90^\circ - 36^\circ)} + \frac{\sin(90^\circ - 36^\circ)}{\cos 36^\circ}$$

$$= \frac{\sin 36^\circ}{\sin 36^\circ} + \frac{\cos 36^\circ}{\cos 36^\circ} = 1 + 1 = 2$$

$$\therefore \left(\frac{\sin 36^\circ}{\cos 54^\circ} + \frac{\sin 54^\circ}{\cos 36^\circ} \right)^2 = 4$$

66. (4) $\frac{5000 \times 5 \times r}{100} = 1250$
 $\Rightarrow r = 5\%$
 New rate = $5 + 2 = 7\%$
 New interest = $\frac{5000 \times 5 \times 7}{100}$
 $= ₹1750$
 \therefore Required difference = $1750 - 1250 = ₹500$

67. (4) $\frac{\tan \theta + \sin \theta}{\tan \theta - \sin \theta}$
 Divide Numerator and denominator by $\tan \theta$

$$= \frac{1 + \cos \theta}{1 - \cos \theta}$$

68. (1) Let the time be y months
 $7 \times 8 : 9 \times y$

$$\Rightarrow \frac{7 \times 4}{9 \times y} = \frac{8}{9}$$

$$\Rightarrow \frac{28}{9y} = \frac{8}{9}$$

$$\therefore y = \frac{28}{8} = 3\frac{1}{2} \text{ months}$$

$$\therefore \text{Required time} = 3\frac{1}{2} \text{ months}$$

69. (1) $\sin^6 \theta + \cos^6 \theta + 3 \sin^2 \theta \cos^2 \theta$
 $= [(\sin^2 \theta)^3 + (\cos^2 \theta)^3] + 3 \sin^2 \theta \cos^2 \theta$
 $= (\sin^2 \theta + \cos^2 \theta)^3 - 3 \sin^2 \theta \cos^2 \theta$
 $+ 3 \sin^2 \theta \cos^2 \theta$
 $= (1)^3 - 3 \sin^2 \theta \cos^2 \theta + 3 \sin^2 \theta \cos^2 \theta = 1$
 $\therefore \sqrt{6 \sin^2 \theta + \cos^6 \theta + 3 \sin^2 \theta \cos^2 \theta}$
 $= \sqrt{1} = 1$

70. (2) ATQ,

$$3x + \frac{1}{2x} = 3$$

On multiplying both sides by $\frac{2}{3}$,

$$2x + \frac{1}{3x} = 2$$

Cubing both sides,

$$8x^3 + \frac{1}{27x^3} + 3 \times 2x \times \frac{1}{3x} \left(2x + \frac{1}{3x} \right) = 8$$

$$\Rightarrow 8x^3 + \frac{1}{27x^3} = 8 - 4 = 4$$

72. (2) Let $C = x$

Then, $B = x + 5000$ and

$$A = x + 5000 + 4000$$

$$= x + 9000$$

$$\text{So, } x + x + 5000 + x + 9000$$

$$= 50000$$

$$\Rightarrow 3x = 36000$$

$$\Rightarrow x = 12000$$

$$A : B : C = 21000 : 17000 : 12000$$

$$= 21 : 17 : 12$$

$$\therefore \text{A's share} = ₹ \left(18000 \times \frac{17}{50} \right)$$

$$= ₹ 6120$$

73. (1) Required ratio = $\frac{2.50}{0.75} = \frac{10}{3}$

$$= 10 : 3$$

74. (2) Total loss = $1 + 0.75$
 $= 1.75 \text{ lacs}$

75. (3) Total loss = $1 + 0.75$

$$= 1.75 \text{ lacs.}$$

$$\text{Total profit} = 1.5 + 2 + 2.5 + 1.25$$

$$= 7.25 \text{ lacs.}$$

ATQ,

$$7.25 \times \frac{x}{100} = 1.75$$

$$\Rightarrow x = \frac{1.75 \times 100}{7.25} = \frac{700}{29} = 23\frac{23}{29}$$

$$\text{So, } x = 24.13$$

76. (2) 'Verdict' is a singular noun hence will take singular verb 'was'.

77. (3) When two subjects are joined by 'as well as' the verb is in accordance with the first subject. Here the first subject (My neighbour) is singular, so the verb must also be singular. Hence replace 'discuss' with 'discusses'.

81. (3) 'To have a chip on one's shoulder' means 'the act of holding a grudge or grievance that readily provokes disputes'.

82. (1) Phrasal verb 'hand in' means 'to submit'.

89. (4) Idiom 'give voice to something' means 'to express a feeling or opinion in words'.

90. (1) The sentence is constructed in past tense hence replace 'have' with 'had'.

91. (1) The increase of 'foreign exchange reserve' is a continuous process and has been happening over years. Hence present perfect continuous tense should come.

Also correct form of adverb is 'substantially'.

92. (4) Here 'advice' is a noun.

93. (3) Verb 'alarmed' takes fix preposition 'at' with it.