ANSWER SET - 63

01. (1) **02.** (3) **03.** (1) **04.** (2) **05.** (4)
06. (4) **07.** (4) **08.** (1) **09.** (1) **10.** (2)
11. (1) **12.** (3) **13.** (1) **14.** (3) **15.** (4)
16. (3) **17.** (2) **18.** (2) **19.** (2) **20.** (2)
21. (2) **22.** (2) **23.** (1) **24.** (3) **25.** (2)
26. (3) **27.** (4) **28.** (3) **29.** (3) **30.** (4)
31. (3) **32.** (4) **33.** (3) **34.** (4) **35.** (4)
36. (4) **37.** (3) **38.** (3) **39.** (1) **40.** (3)
41. (4) **42.** (4) **43.** (3) **44.** (3) **45.** (4)
46. (4) **47.** (4) **48.** (4) **49.** (2) **50.** (2)
51. (1) **52.** (1) **53.** (3) **54.** (1) **55.** (3)
56. (3) **57.** (3) **58.** (1) **59.** (4) **60.** (1)
61. (4) **62.** (4) **63.** (4) **64.** (1) **65.** (2)
66. (4) **67.** (1) **68.** (3) **69.** (4) **70.** (4)
71. (3) **72.** (2) **73.** (4) **74.** (4) **75.** (1)
76. (4) **77.** (4) **78.** (4) **79.** (3) **80.** (3)
81. (4) **82.** (1) **83.** (2) **84.** (4) **85.** (2)
86. (4) **87.** (3) **88.** (4) **89.** (3) **90.** (2)
91. (3) **92.** (1) **93.** (3) **94.** (2) **95.** (4)
96. (2) **97.** (3) **98.** (1) **99.** (4) **100.**(1)

EXPLANATION - 63

1. (1) Magazine is related to editor and drama is related to director.

2. (3) As, ACEG $\xrightarrow{+8}$ IKMO

Similarly, QSUW $\xrightarrow{+8}$ **YACE**

3. (1) 12 $\Rightarrow$ (12 + 1) × 3 = 39
15 $\Rightarrow$ (15 + 1) × 3 = **48**

4. (2) Except 'Battery', others are used for lightening purpose.

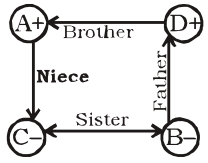
5. (4) CA $\Rightarrow$ 3 – 1 = 2
FD $\Rightarrow$ 6 – 4 = 2
KI $\Rightarrow$ 11 – 9 = 2
TQ $\Rightarrow$ 20 – 17 = 3

6. (4) 73 61 57 69 47 59 **42** **29**
(+12, +12, +12, +13)

7. (4) Scarf $\rightarrow$ Scene $\rightarrow$ Shell $\rightarrow$ Stream $\rightarrow$ Survey.

8. (1) DCB HGF **LKJ** PON
(−4, +4, +4)

9. (1) 4 9 16 25 36 **49**
2^2 3^2 4^2 5^2 6^2 7^2

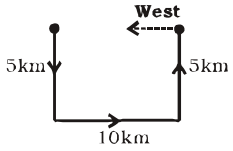
10. (2)


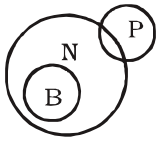
11. (1) N R **O** P M
12. (3) S A L U T E
13. (1) SUN = 19 + 21 + 14 = 54
CAKE = 3 + 1+ 11 + 5 = 20
MISTAKE =13 + 9 + 19 + 20 + 1 + 11 + 5 = 78

14. (3) 128 + 9 – 16 × 4
After changing the signs as per the given details,
128 × 9 + 16 ÷ 4 = 128 × 9 + 4
= 1152 + 4
= 1156

15. (4) As, 6 × 2 × 9 $\Rightarrow$ 69,
a b c bac
8 × 7 × 1 $\Rightarrow$ 781
a b c bac
Similarly, 4 × 1 × 3 $\Rightarrow$ **143**
a b c **bac**

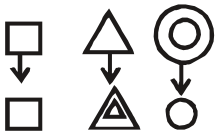
16. (3) 9 × 3 × 3 = 81
11 × 4 × 4 =176
13 × 7 × 5 = **455**

17. (2)


18. (2)


I. ×
II. ✓
$\therefore$ Only conclusion II follows.

19. (2) From figure (i) and (iii), we have,



$\therefore$ The face opposite to "○" is ◎

20. (2)
21. (2)
22. (2)
23. (1)
24. (3)

25. (2) S E N T
22 32 65 78

51. (1) **C.P.** **S.P.**
100 $\xrightarrow{+33\%}$ 133

Market price $= \frac{133}{95} \times 100$
= ₹ 140
Hence, percentage above cost price
= 140 – 100
= 40

52. (1) Longest side = $\frac{280}{14} \times 5$
= 100m

53. (3) $x^2 + 5x + 6 = 0$
$x^2 + 6 = -5x$
Then,
$\frac{2x}{x^2 - 7x + 6} = \frac{2x}{-7x - 5x} = \frac{2x}{-12x} = \frac{1}{-6}$

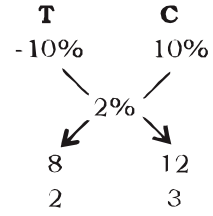
54. (1) a + b = 5.....(i)
a – b = 3.....(ii)
From (i) and (ii),
a = 4 & b = 1
$\therefore$ $a^2 + b^2$
$\Rightarrow$ 16 + 1 = 17

55. (3) $\text{cosec}^2 60^\circ + \sec^2 60^\circ - \cot^2 60^\circ + \tan^2 30^\circ$

$\frac{4}{3} + 4 - \frac{1}{3} + \frac{1}{3} = \frac{16}{3} = 5\frac{1}{3}$

56. (3) Total profit percentage

$= \frac{10}{500} \times 100 = 2$



C.P of chair $= \frac{500}{5} \times 3$
= ₹ 300

57. (3) $x = a + \frac{1}{a}$

$\Rightarrow x^2 = a^2 + \frac{1}{a^2} + 2$

$y = a - \frac{1}{a}$

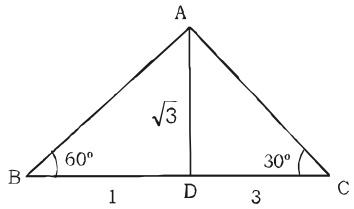
$\Rightarrow y^2 = a^2 + \frac{1}{a^2} - 2$

$x^2 - y^2 = 4$
Squaring both sides,
$x^4 + y^4 - 2x^2y^2 = 16$

58. (1) In ΔABC and ΔDEF,
$\angle A = \angle F = 50^\circ$
$\angle B = \angle E = 70^\circ$
$\angle C = \angle D = 60^\circ$
Then, $\Delta ABC \sim \Delta FED$

59. (4) $2^{x+4} - 2^{x+2} = 3$
$\Rightarrow 2^x (2^4 - 2^2) = 3$
$\Rightarrow 2^x (16 - 4) = 3$

$\Rightarrow 2^x = \frac{1}{4}$
$\Rightarrow 2^x = 2^{-2}$
$\Rightarrow x = -2$

60. (1)


$\sqrt{3}$ units = 75

4 units = $\frac{75}{\sqrt{3}} \times 4 = 173.2$ m

$\therefore$ Distance between two points = 173.2m

61. (4) Sum $= \frac{(C.I. - S.I.) \times 100 \times 100}{R \times R}$

$= \frac{20 \times 100 \times 100}{5 \times 5}$

= ₹ 8000

62.(4)

	L_1		L_2	
Present	3	:	4	→ 1 unit = 3 years
After 3 year	4	:	5	

$\therefore L_1 \rightarrow 3 \times 3 = 9$ years

and $L_2 \rightarrow 4 \times 3 = 12$ years

After 21 years, ratio of their ages

L_1		L_2
9 + 21	:	12 + 21
30	:	33
10	:	11

63.(4) 25 × C.P. = 20 × S.P.

$\Rightarrow \frac{CP}{SP} = \frac{20}{25}$

Required Profit = $\frac{5}{20} \times 100$

= 25%

64. (1) Rate $= \frac{280 \times 100}{400 \times 10} = 7\%$

65. (2) a + b = 2c

$\Rightarrow$ b – c = c – a ...(i)

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

$= \frac{a}{a-c} + \frac{c}{c-a}$ [From equation (i)]

$= \frac{a}{a-c} - \frac{c}{a-c} = \frac{a-c}{a-c} = 1$

66. (4) We know that the circumcentre of the triangle lying on equidistant from the vertices of the triangle.

$\therefore$ P is the circumcentre of Δ

67. (1) $\sin\theta + \cos\theta = 1$

$\Rightarrow (\sin\theta + \cos\theta)^2 = 12$

$\Rightarrow \sin^2\theta + \cos^2\theta + 2\sin\theta\cos\theta = 1$

$\Rightarrow 1 + 2\sin\theta\cos\theta = 1$

$\Rightarrow 2\sin\theta\cos\theta = 0$

$\therefore \sin\theta\cos\theta = 0$

68. (3) $\frac{a^2}{b+c} + \frac{b^2}{c+a} = \frac{c^2}{a+b} = 1$

$a^2 = b + c$

Adding 'a' both sides,

$a + a^2 = a + b + c$

$\Rightarrow a(a + 1) = a + b + c$

$\Rightarrow a + 1 = \frac{a+b+c}{a}$

Similarly, $b + 1 = \frac{a+b+c}{b}$

and, $c + 1 = \frac{a+b+c}{c}$

Put the value of (a + 1), (b + 1), and (c + 1),

$\frac{2}{1+a} + \frac{2}{1+b} + \frac{2}{1+c}$

$= \frac{2a}{a+b+c} + \frac{2b}{a+b+c} + \frac{2c}{a+b+c}$

$= \frac{2(a+b+c)}{a+b+c} = 2$

69. (4) $2x + \frac{2}{x} = 3$

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

Taking cube on both sides,

$x^3 + \frac{1}{x^3} + 3 \times x \times \frac{1}{x} \times \frac{3}{2} = \frac{27}{8}$

$\Rightarrow x^3 + \frac{1}{x^3} = \frac{27}{8} - \frac{9}{2} = -\frac{9}{8}$

Adding '2' both sides,

$x^3 + \frac{1}{x^3} + 2 = 2 - \frac{9}{8} \Rightarrow = \frac{7}{8}$

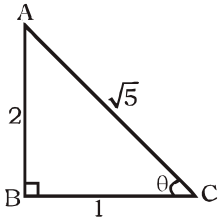
70. (4) $\frac{\sin\theta + \cos\theta}{\sin\theta - \cos\theta} = \frac{3}{1}$

Apply componendo and dividendo Rule,

$\Rightarrow \frac{\sin\theta + \cos\theta + \sin\theta - \cos\theta}{\sin\theta + \cos\theta - \sin\theta + \cos\theta}$

$= \frac{3+1}{3-1}$

$\Rightarrow \frac{2\sin\theta}{2\cos\theta} = \frac{4}{2} \Rightarrow \tan\theta = 2$



Now, $\sin^4\theta - \cos^4\theta$

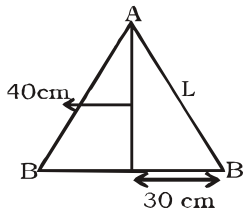
$= (\sin^2\theta + \cos^2\theta)(\sin^2\theta - \cos^2\theta)$

$\Rightarrow \sin^2\theta - \cos^2\theta$

$= \left(\frac{2}{\sqrt{5}}\right)^2 - \left(\frac{1}{\sqrt{5}}\right)^2$

$\Rightarrow \frac{4}{5} - \frac{1}{5} = \frac{3}{5}$

71. (3)



$L = \sqrt{30^2 + 40^2}$

$\Rightarrow$ L = 50 cm

A.T.Q,

$\Rightarrow 4\pi r^2 = \pi \times 30 \times 50$

$\Rightarrow 4r^2 = 30 \times 50$

$\Rightarrow r = 5\sqrt{15}$cm

72. (2) Number of students who failed in maths = 15

73. (4) Total number of students in the class

= 15 + 20 + 40 + 50 + 10 = 135

74. (4) Number of students who passed

= 135 – 15 = 120

Required Percentage

$= \frac{120}{135} \times 100$

$= \frac{2400}{27}$

$= \frac{800}{9} = 88\frac{8}{9}$

75. (1) 90% marks of 50 = 45

The number of students who have got A^+

= 10

79. (3) Here the subject (a variety) is singular hence it will agree with singular verb (distracts). Replace 'distract' with 'distracts'.

80. (3) 'Cyclone' leaves 'a trail of misery' not 'trial of misery'. Hence replace 'trial' with 'trail'. 'Trail' means 'a series of objects left behind by the passage of someone or something'.

82. (1) For 'university' article 'a' is used. 'An' is used with word that starts with vowel sound'. 'University' starts with 'yu' sound.

91. (3) Adverb is used to qualify an adjective. Hence replace adjective (real) with adverb (really).

95. (4) If all three persons or two out of three persons come in a singular sentence. The order is 231 or 23 or 31. (2-second person, 3-third person, 1-first person)