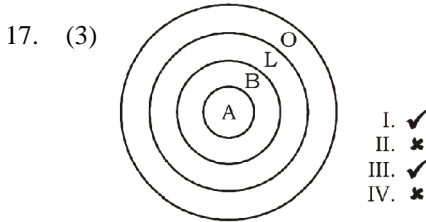




15. (2)  $5 \times 1 - 2 = 3$   
 $3 \times 2 - 3 = 3$   
 $3 \times 3 - 4 = 5$   
 $5 \times 4 - 5 = 15$   
 $15 \times 5 - 6 = 69$
16. (3)  $4 \times 1 - 2 = 2$   
 $2 \times 2 - 2 = 2$   
 $2 \times 3 - 2 = 4$   
 $4 \times 4 - 2 = 14$   
 $14 \times 5 - 2 = 68$



Only I and III follows.

18. (2)  $\sqrt[3]{3 \times 6 \times 12} = 6$   
 $\sqrt[3]{2 \times 20 \times 25} = 10$   
 $\sqrt[3]{2 \times 4 \times 64} = 8$
19. (1)  $\frac{13+12+17}{7} = 6, \frac{6+9+13}{7} = 4,$   
 $\frac{12+14+9}{7} = 5, \frac{21+13+22}{7} = 8$

20. (4) We have 30 rectangles and 5 hexagons in the given figure.
21. (1) Let the distance covered by taxi be  $x$  km.  
 Then, distance covered by car =  $(80 - x)$  km  
 $15x + 5(80 - x) = 500$   
 or,  $15x + 400 - 5x = 500$   
 or,  $10x = 100$   
 or,  $x = 10$   
 $\therefore$  Distance covered by taxi = 10 km  
 Hence, the answer is (1).

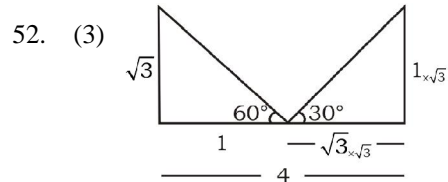
22. (2)
23. (1) As it is clear from the description, 'b' lies opposite 'd', 'c' lies opposite 'a' and 'f' lies opposite 'e'. So, when, 'c' is at the top, 'a' will be at the bottom.

24. (4) Let the number of bananas in the second bunch be  $x$ .  
 Then, number of bananas in the first bunch  
 $= x + \frac{1}{4}x = \frac{5}{4}x$   
 So,  $\frac{5}{4}x - x = 3 \Rightarrow 5x - 4x = 12 \Rightarrow x = 12$

$\therefore$  Number of bananas in first bunch =  $\left(\frac{5}{4} \times 12\right) = 15$

25. (2)

51. (3) Area of four wall =  $2 \times h(1 + b)$   
 $= 2 \times 5 (16 + 11) = 270 \text{ m}^2$   
 Total area of gate and windows  
 $= 2 \times 1 + 1 \times 0.75 \times 4 = 2 + 3 = 5 \text{ m}^2$   
 Area to be painted =  $270 - 5 = 265 \text{ m}^2$   
 $\therefore$  Required cost =  $265 \times 2.50 = \text{Rs. } 662.5$



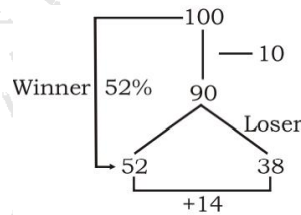
ATQ,

$\therefore \sqrt{3} = 288 \text{ m}$  (given)

and eagle flies for 24 seconds

$\therefore$  speed of eagle =  $\frac{288 \times 4}{\sqrt{3} \times 24} = 16\sqrt{3} \text{ m/sec.}$

53. (3) Let the total votes be 100  
 ATQ,



14 unit =  $(13200 - 2000)$

$= \frac{11200}{14} = 800$

Votes polled for losing candidate  
 $= 800 \times 38 - 2000$  (invalid votes) = 28400 votes.

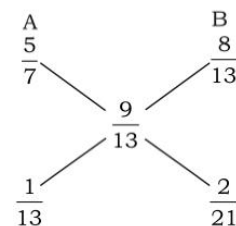
54. (1) Simple interest for 3 years =  $76.51 - 1.51 = \text{Rs. } 75$

$\therefore$  Rate % =  $\frac{75 \times 100}{1250 \times 3} = 2\%$

55. (2)  $4 \sin^2\theta + 6(1 - \sin^2\theta)$   
 $= 4 \sin^2\theta + 6 - 6 \sin^2\theta = 6 - 2 \sin^2\theta$   
 Now put the value of  $\theta = 90^\circ$   
 $\therefore 6 - 2 = 4$

56. (1) C.P. of 30 kg =  $30 \times 9.50 = \text{Rs. } 285$   
 C.P. of 40 kg =  $40 \times 8.50 = \text{Rs. } 340$   
 Total C.P. of 70 kg =  $285 + 340 = \text{Rs. } 625$   
 S.P. of 70 kg =  $70 \times 8.90 = \text{Rs. } 623$   
 Loss =  $\text{Rs. } 625 - \text{Rs. } 623 = \text{Rs. } 2$

57. (1) From alligation-



Ratio of quantity taken from vessel

A and vessel B =  $\frac{1}{13} : \frac{2}{91} = 7 : 2$ .

58. (1)  $\therefore 4x = \sec \theta \quad \therefore x = \frac{\sec \theta}{4}$   
 and  $\frac{4}{x} = \tan \theta \quad \therefore x = \frac{4}{\tan \theta}$

$$8 \left( x^2 - \frac{1}{x^2} \right) = 8 \left( \frac{\sec^2 \theta}{16} - \frac{1}{\frac{16}{\tan^2 \theta}} \right)$$

$$= 8 \left( \frac{\sec^2 \theta}{16} - \frac{\tan^2 \theta}{16} \right) = 8 \times \frac{1}{16} = \frac{1}{2}$$

59. (2)  $A \rightarrow 10 \quad \begin{matrix} \text{---} & 3 \\ \text{---} & 2 \\ \text{---} & 6 \end{matrix}$   
 $B \rightarrow 15 \quad \text{---} 30$   
 $C \rightarrow 5$

Total work by A + B in 4 min = 20  
 Total work by A + B & C in 1 min = -1  
 $\therefore$  Total time taken by C to empty the tank  
 $= \frac{20}{1} = 20$  min.

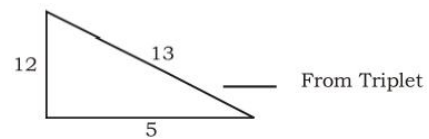
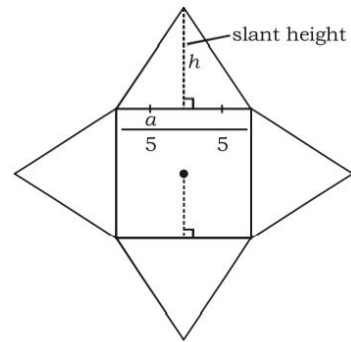
60. (1)  $x + y = 500 \quad \dots(1)$   
 Loss % =  $\frac{(20)^2}{100} = 4\%$

Total loss =  $\frac{500}{100} \times 4 = \text{Rs. } 20$   
 $\therefore$  Selling price =  $500 - 20 = \text{Rs. } 480$

61. (4)  $\tan(4\theta - 50^\circ) = \cot(50^\circ - \theta)$   
 $\tan(4\theta - 50^\circ) = \tan(90^\circ - (50^\circ - \theta))$   
 $\therefore 4\theta - 50^\circ = 90^\circ - (50^\circ - \theta)$   
 $3\theta = 90$   
 $\therefore \theta = 30$

62. (2) Value of 1 radian =  $\frac{180^\circ}{\pi}$   
 $\therefore \left( \frac{1}{2} + \frac{1}{3} \right)$  radian =  $\frac{180^\circ}{22} \times \frac{5}{6}$   
 $= \frac{180^\circ}{22} \times 7 \times \frac{5}{6} = \left( \frac{525}{11} \right)^\circ$   
 $\therefore$  Value of 3rd angle =  $180^\circ - \frac{525^\circ}{11} = \frac{1455}{11} = 132 \frac{3}{11}$

63. (2)

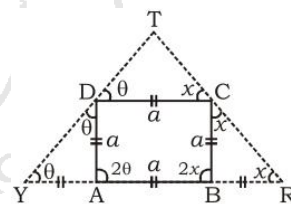


$\therefore$  S.A. =  $\frac{1}{2} \times 40 \times 12 = 240 \text{ cm}^2$ .

64. (3) Distance travelled by A

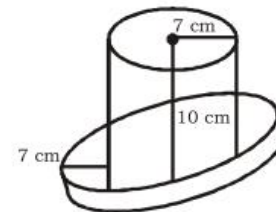
=  $2 \times \text{distance b/w two points} \times \left( \frac{a}{a+b} \right)$   
 $= 2 \times 21 \times \frac{3}{7} = 18 \text{ kms.}$

65. (3)



$\therefore 2\theta + 2x = 180^\circ$   
 $\therefore \theta + x = 90^\circ$   
 The value of  $\angle T$  will be  
 $\angle T + \theta + x = 180^\circ$   
 $\Rightarrow \angle T + 90^\circ = 180^\circ \Rightarrow \angle T = 90^\circ$ .

66. (3)



Area of the platform  
 $\pi(r_0^2 - r_1^2)$   
 $\pi r^2 h = \pi(r_0^2 - r_1^2) \times H$   
 $\Rightarrow 7^2 \times 10 = (14^2 - 7^2) \times H$   
 $\Rightarrow \frac{49 \times 10}{21 \times 7} = H \Rightarrow H = \frac{10}{3} \text{ m.}$

67. (4)  $\frac{x}{a} = (b-c), \frac{y}{b} = (c-a), \frac{z}{c} = (a-b)$   
 if  $a + b + c = 0$  then  $a^3 + b^3 + c^3 = 3abc$

$\therefore \frac{x}{a} + \frac{y}{b} + \frac{z}{c} = b-c + c-a + a-b = 0$

and  $\left(\frac{x}{a}\right)^3 + \left(\frac{y}{b}\right)^3 + \left(\frac{z}{c}\right)^3 = \frac{3xyz}{abc}$

68. (4)  $A = \tan 11^\circ \tan 29^\circ$   
 $= \tan(90^\circ - 79^\circ) \tan(90^\circ - 61^\circ)$   
 $= \cot 79^\circ \cdot \cot 61^\circ$   
 $B = 2 \cot 61^\circ \cdot \cot 79^\circ$   
 $\therefore B = 2A$

69. (3)  $\frac{\frac{1}{2}(a+b+c)[(a-b)^2 + (b-c)^2 + (c-a)^2]}{(a+b+c)}$   
 $= \frac{1}{2}[(-4)^2 + (-3)^2 + (7)^2] = \frac{1}{2} \times 74 = 37.$

70. (1) ATQ,  
 $x^2 + 1 + 2x + y^2 + 1 - 2y + z^2 = 0$   
 $(x+1)^2 + (y-1)^2 + z^2 = 0$   
 $\therefore x = -1, y = 1, z = 0$   
 Put the above value in equation-  
 $3x + 5y + 6z = 3 \times -1 + 5 \times 1 + 6 \times 0 = -3 + 5 = 2.$

71. (4) Number of students enrolled in College A in the year 2009 = 1000  
 $\therefore$  Number of students passed  
 $= 1000 \times \frac{80}{100} \times \frac{60}{100} = 480$

72. (3) Reqd. number of students =  $2290 \times \frac{70}{100} = 1603.$

73. (3) Average number of students enrolled in all colleges together in the year 2010 =  $\frac{3770}{5} = 754$

Average number of students enrolled in all colleges together in the year 2010 =  $\frac{3090}{5} = 618$

$\therefore$  Reqd. ratio =  $\frac{754}{618} = \frac{377}{309} = 377 : 309.$

74. (4) Number of students enrolled in College A in the year 2009 = 1000  
 Number of students enrolled in College B in the year 2011 = 650

$\therefore$  Reqd. % =  $\frac{350}{650} \times 100 = 53.84\% \approx 54.$

75. (4) Total number of students in the year 2010 from all the colleges = 3090

$\therefore$  Reqd. number of students = 10% of 3090 = 309.

76. (1) Replace 'will kill' by 'would kill'. The sentence is of conditional.

77. (3) Replace 'or' by 'nor', as 'neither' is followed by 'nor'.

78. (4)

79. (3) Replace 'isn't it' by 'didn't she?' as the question tag and the sentence must be in the same tense.

80. (1) Sentence starting with 'Not only' takes inversion form. Thus, it should be as 'not only did the bandit rob the person'. The structure may also be 'The bandit not only robbed .....