

SSC PRE MOCK TEST – 28 (SOLUTION)

1. (C) Sanitation keeps illness away and care keeps accident away.

2. (A) As, G r t k K t r G
a b c d d c b a

Similarly, F j b H **H b j F**
a b c d d c b a

3. (B) As, $\begin{matrix} 20 & & 11 \\ & \swarrow & \nearrow \\ & -2+1 & \end{matrix}$

Similarly,

$\begin{matrix} 102 & & 52 \\ & \swarrow & \nearrow \\ & -2+1 & \end{matrix}$

4. (D) Chemical formula is possible only for water (H₂O).

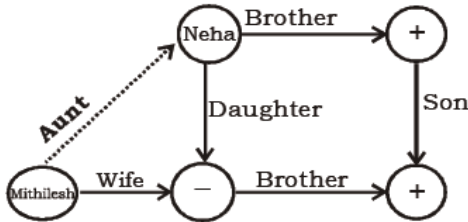
5. (B) $\begin{matrix} E C B Y & G E D A & W U T O \\ \downarrow \downarrow \downarrow \downarrow & \downarrow \downarrow \downarrow \downarrow & \downarrow \downarrow \downarrow \downarrow \\ -2 -1 -3 & -2 -1 -3 & -2 -1 -3 \\ R T U X \\ \downarrow \downarrow \downarrow \downarrow \\ +3 +1 +3 \end{matrix}$

6. (A) $\begin{matrix} 52 & 61 & 43 & 54 & 72 & 83 & 18 & 29 \\ \downarrow & \downarrow & \downarrow & \downarrow & \downarrow & \downarrow & \downarrow & \downarrow \\ +9 & +11 & +11 & +11 & +11 & +11 & +11 & +11 \end{matrix}$

7. (B) Franchise → Frantic → Fraternity → Fraudulent → Fraught

8. (A) H I J H / H I J H / H I J H / H I J H

9. (A)



10. (C) $X > W > Y - (i)$

$Z > Y - (ii)$

From (i) and (ii), we have, Y is the shortest among all.

11. (B)

$\begin{matrix} & -3 & & -3 & & -3 & & -3 \\ & \downarrow & & \downarrow & & \downarrow & & \downarrow \\ C A R & G C O & K E L & O G I & S I F \\ \uparrow \uparrow \uparrow \uparrow & \uparrow \uparrow \uparrow \uparrow & \uparrow \uparrow \uparrow \uparrow & \uparrow \uparrow \uparrow \uparrow & \uparrow \uparrow \uparrow \uparrow \\ +4 & +4 & +4 & +4 & +4 & +4 & +4 & +4 \\ \downarrow \downarrow \downarrow \downarrow & \downarrow \downarrow \downarrow \downarrow & \downarrow \downarrow \downarrow \downarrow & \downarrow \downarrow \downarrow \downarrow & \downarrow \downarrow \downarrow \downarrow \\ +2 & +2 & +2 & +2 & +2 & +2 & +2 & +2 \end{matrix}$

12. (A) $\begin{matrix} 100 & 50 & 52 & 26 & 28 & 14 & 16 & 8 \\ \downarrow & \downarrow & \downarrow & \downarrow & \downarrow & \downarrow & \downarrow & \downarrow \\ +2 & +2 & +2 & +2 & +2 & +2 & +2 & +2 \end{matrix}$

13. (C) PAVEMENT

14. (A) $\begin{matrix} S Y S T E M \\ \downarrow \downarrow \downarrow \downarrow \downarrow \downarrow \\ R X R S D L \end{matrix}$

C O R R E C T
 $\begin{matrix} \downarrow \downarrow \downarrow \downarrow \downarrow \downarrow \downarrow \\ B N Q Q D B S \end{matrix}$

15. (B) 9 A 2 B 6 D 4 C 2

$9 + 2 \times 6 - 4 \div 2$

After putting the signs as per the given details,

$9 + 12 - 2$

$= 19$

16. (B) $4 \times 3 \Rightarrow 4 + 3 = 7 \Rightarrow 7 \times 2 = 14$

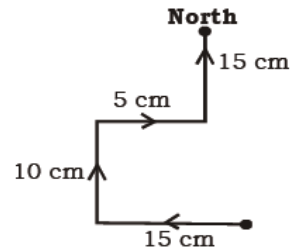
$5 \times 4 \Rightarrow 5 + 4 = 9 \Rightarrow 9 \times 2 = 18$

$6 \times 5 \Rightarrow 6 + 5 = 11 \Rightarrow 11 \times 2 = 22$

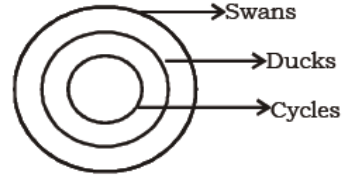
$7 \times 6 \Rightarrow 7 + 6 = 13 \Rightarrow 13 \times 2 = 26$

17. (B) $12 = 8 + 4, 100 = 44 + 56$

18. (A)



19. (B)



I. ×

II. ✓

∴ Only conclusion II follows

20. (D) 21. (D) 22. (A) 23. (C) 24. (D) 25. (D)

$$51. (C) \text{ Total discount} = ₹ (820 - 570.72) \\ = ₹ 249.28$$

$$\text{First discount} = 820 \times \frac{20}{100} = ₹ 164$$

$$\therefore \text{Second discount} = ₹ (249.28 - 164) = ₹ 85.28$$

$$\text{Price of the article after the first discount} \\ = ₹ (820 - 164) = ₹ 656$$

If the second discount be $x\%$, then $x\%$ of 656 = 85.28

$$\Rightarrow x = \frac{85.28 \times 100}{656} = \mathbf{13\%}$$

52. (D) Part of the tank filled in 3 minutes by pipes P and Q

$$= 3 \left(\frac{1}{12} + \frac{1}{15} \right) = 3 \left(\frac{5+4}{60} \right) = \frac{3 \times 9}{60} = \frac{9}{20}$$

$$\text{Remaining part} = 1 - \frac{9}{20} = \frac{11}{20}$$

$$\therefore \text{Time taken by Q} = \frac{11}{20} \times 15 = \frac{33}{4}$$

$$= \mathbf{8 \frac{1}{4} \text{ minutes}}$$

53. (A) Number of books in each stack

$$= \text{HCF of } 336, 240, 96 = 48$$

$$240) 336 \quad (1)$$

$$\underline{240}$$

$$96) 240 \quad (2)$$

$$\underline{192}$$

$$48) 96 \quad (2)$$

$$\underline{96}$$

\times

$$48) 96 \quad (2)$$

$$\underline{96}$$

\times

\therefore Total number of stacks

$$= \frac{336}{48} + \frac{240}{48} + \frac{96}{48}$$

$$= 7 + 5 + 2 = \mathbf{14}$$

54. (A) Volume of the block = $(10 \times 5 \times 2) \text{ cm}^3$

$$= 100 \text{ cm}^3.$$

Volume of the cone carved out

$$= \left(\frac{1}{3} \times \frac{22}{7} \times 3 \times 3 \times 7 \right) \text{ cm}^3 = 66 \text{ cm}^3$$

$$\therefore \text{Wood wasted} = (100 - 66)\% = 34\%$$

$$55. (D) \text{ Cost price of article} = ₹ \left(\frac{100}{95} \times 4085 \right) \\ = ₹ \mathbf{4300}$$

$$56. (A) 5 \tan \theta = 4 \Rightarrow \tan \theta = \frac{4}{5} = \frac{\text{Perpendicular}}{\text{Base}}$$

$$\text{Now, } \frac{5 \sin \theta - 3 \cos \theta}{5 \sin \theta + 3 \cos \theta} = \frac{5 \tan \theta - 3}{5 \tan \theta + 3}$$

$$= \frac{5 \times \frac{4}{5} - 3}{5 \times \frac{4}{5} + 3} = \frac{\mathbf{1}}{\mathbf{7}}$$

57. (A) Let the speed of the stream be x miles/hr. Then,

Speed downstream = $(10 + x)$ miles/hr.

Speed upstream = $(10 - x)$ miles/hr.

$$\therefore \frac{36}{(10 - x)} - \frac{36}{(10 + x)} = \frac{90}{60}$$

$$\Leftrightarrow 72x \times 60 = 90(100 - x^2)$$

$$\Leftrightarrow x^2 + 48x - 100 = 0$$

$$\Leftrightarrow (x + 50)(x - 2) = 0$$

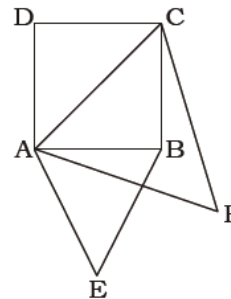
$$\Leftrightarrow x = \mathbf{2 \text{ mile/hr.}}$$

$$58. (C) \frac{\sin 2\theta + \sin \theta}{\cos 2\theta + \cos \theta + 1} = \frac{2 \sin \theta \cdot \cos \theta + \sin \theta}{2 \cos^2 \theta - 1 + \cos \theta + 1}$$

$$= \frac{\sin \theta(2 \cos \theta + 1)}{2 \cos^2 \theta + \cos \theta} = \frac{\sin \theta(2 \cos \theta + 1)}{\cos \theta(2 \cos \theta + 1)} = \frac{\sin \theta}{\cos \theta}$$

$$= \mathbf{\tan \theta}$$

59. (C)



$$\text{Here } AC^2 = 2AB^2$$

As $\triangle ABE$ and $\triangle ABC$ are equiangular

so $\triangle ABE \sim \triangle ABC$

[The ratio of the areas of two similar triangles is equal to the ratio of the square of their corresponding sides]

$$\frac{\text{area of } (\triangle ABE)}{\text{area of } (\triangle ACF)} = \frac{AB^2}{AC^2} = \frac{AB^2}{2AB^2} = \frac{\mathbf{1}}{\mathbf{2}}$$

60. (D) Let cost price = ₹ 100

Then, $\frac{2}{5}$ of Marked Price Selling price = 75

$$\Rightarrow \text{Marked Price} = ₹ \left(\frac{75 \times 5}{2} \right) = ₹ \frac{375}{2}$$

$$\therefore \text{Required ratio} = \frac{375}{2} : 100$$

$$= 375 : 200 = \mathbf{15 : 8}$$

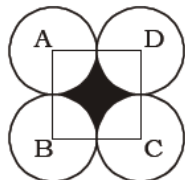
61. (B) Let x is the no. of individuals who were covered. then,
 Percentage of uncertain individuals
 $= [100 - (20 + 60)]\% = 20\%$
 $\therefore 60\%$ of $x - 20\%$ of $x = 720$
 $\Leftrightarrow 40\%$ of $x = 720$
 $\Leftrightarrow \frac{40}{100}x = 720 \Leftrightarrow x = \left(\frac{720 \times 100}{40}\right) = \mathbf{1800}$

62. (D) ATQ,

$$\begin{aligned} & \frac{13}{4} \times \frac{2}{3} - \left(\frac{9}{4} - \frac{5}{3}\right) \times \frac{3}{4} \\ &= \frac{13}{6} - \left(\frac{27-20}{12}\right) \times \frac{3}{4} \\ &= \frac{13}{6} - \frac{7}{12} \times \frac{3}{4} = \frac{13}{6} - \frac{7}{16} \\ &= \frac{104-21}{48} = \frac{\mathbf{83}}{\mathbf{48}} \end{aligned}$$

63. (A) $\frac{x}{y} + \frac{y}{x} = -2 \Rightarrow \frac{x^2 + y^2}{xy} = -2$
 $\Rightarrow x^2 + y^2 = -2xy$
 $\Rightarrow x^2 + y^2 + 2xy = 0$
 $\Rightarrow (x + y)^2 = 0$
 $\Rightarrow x + y = 0$
 $\therefore x^3 + y^3 + 3xy(x + y) = (x + y)^3 = \mathbf{0}$

64. (B)



Area of the shaded region = Area of square of side 6 cm - 4 × a right angled sector

$$\begin{aligned} &= 36 - 4 \times \frac{\pi \times 3^2}{4} \\ &= 36 - 9\pi = \mathbf{9(4 - \pi) \text{ sq. cm}} \end{aligned}$$

65. (C) Let large number = x then
 Smaller number = $520 - x$
 ATQ,

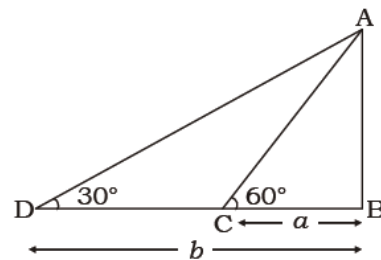
$$\begin{aligned} & \frac{96x}{100} = \frac{(520 - x)}{100} \times 112 \\ \Rightarrow & 96x = 520 \times 112 - 112x \\ \Rightarrow & 112x + 96x = 520 \times 112 \\ \Rightarrow & 208x = 520 \times 112 \\ \Rightarrow & x = \frac{520 \times 112}{208} = 280 \\ \therefore & \text{Smaller number} \\ &= 520 - 280 = \mathbf{240} \end{aligned}$$

66. (C) Let AB be the tower
 Such that
 $CB = a$ and $BD = b$
 In $\triangle ABC$

$$\tan 60^\circ = \frac{AB}{BC} = \frac{AB}{a}$$

$$\Rightarrow AB = a\sqrt{3} \dots(i)$$

In $\triangle ABD$,



$$\tan 30^\circ = \frac{AB}{BD}$$

$$\Rightarrow \frac{1}{\sqrt{3}} = \frac{AB}{b} \dots(ii)$$

From equations (i) and (ii)

$$(AB)^2 = ab \Rightarrow AB = \sqrt{ab}$$

67. (B) $m^2 - n^2 = (\tan \theta + \sin \theta)^2 - (\tan \theta - \sin \theta)^2$
 $= 4 \tan \theta \sin \theta$ [$\because (a + b)^2 - (a - b)^2 = 4ab$]

$$\text{and } 4\sqrt{mn} = 4\sqrt{(\tan \theta + \sin \theta)(\tan \theta - \sin \theta)}$$

$$= 4\sqrt{\tan^2 \theta - \sin^2 \theta}$$

$$= 4\sqrt{\frac{\sin^2 \theta}{\cos^2 \theta} - \sin^2 \theta}$$

$$= 4\sqrt{\frac{\sin^2 \theta - \sin^2 \theta \cos^2 \theta}{\cos^2 \theta}}$$

$$= 4\sqrt{\frac{\sin^2 \theta(1 - \cos^2 \theta)}{\cos^2 \theta}}$$

$$= 4\sqrt{\frac{\sin^4 \theta}{\cos^2 \theta}} = 4\frac{\sin^2 \theta}{\cos \theta}$$

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

$$\Rightarrow m^2 - n^2 = \mathbf{4\sqrt{mn}}$$

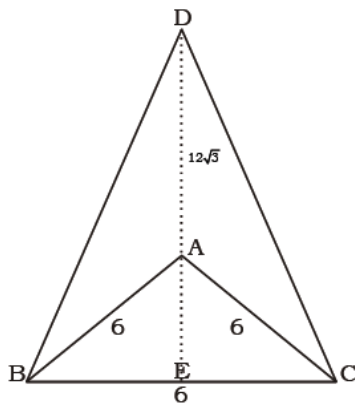
68. (C) Given series $1 + 3 + 5 + 7 + \dots + 99$
 Number of terms between 1 to 99

$$= \frac{1 + 99}{2} = 50$$

So, sum of 50 terms/odd numbers

$$= 50^2 = \mathbf{2500}$$

69. (A)



In the figure, equilateral triangle ABC is the base of the pyramid.

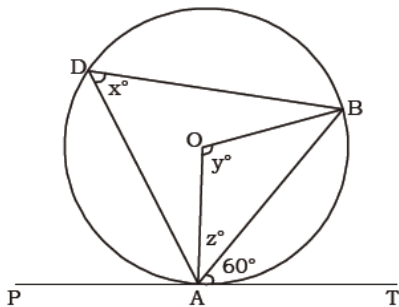
Where $AB = BC = CA = 6$ cm

⇒ Volume of the pyramid

$$= \frac{1}{3} \times \text{base area} \times \text{height}$$

$$= \frac{1}{3} \times \frac{\sqrt{3}}{4} \times 6 \times 6 \times 12\sqrt{3} = \mathbf{108 \text{ cm}^3}$$

70. (C)



∴ x° is an angle in the alternate segment for $\angle BAT$

$$\Rightarrow \angle BAT = x = 60^\circ$$

∴ y° is an angle at the centre and x° is an angle in the remaining arc

$$\Rightarrow y^\circ = x \times 2 = 120^\circ$$

∴ In $\triangle OAB$, $\angle OBA = \angle OAB = z^\circ$

$$\Rightarrow y + z + z = 180^\circ$$

$$\Rightarrow 120^\circ + 2z = 180^\circ$$

$$\Rightarrow z = \mathbf{30^\circ}$$

71. (B) Let B join the business for x months.

ATQ,

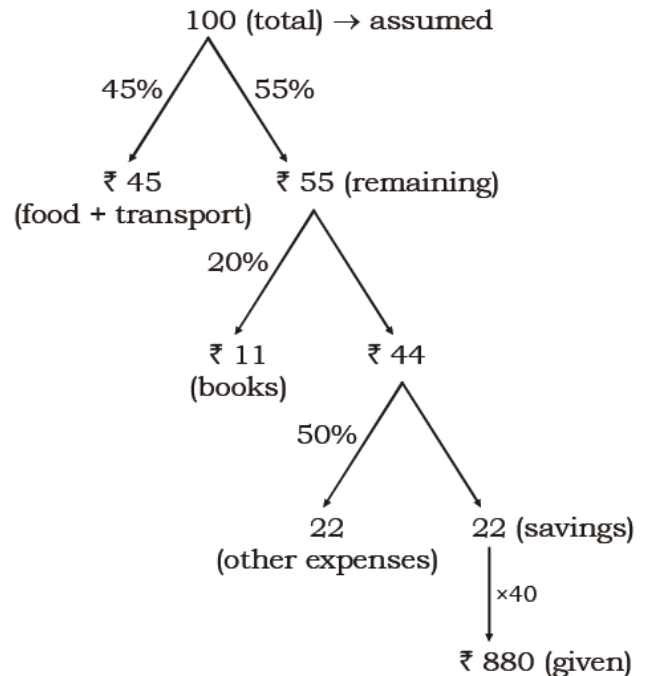
$$450 \times 12 : 300 \times x = 2 : 1$$

$$\Rightarrow \frac{5400}{300x} = \frac{2}{1}$$

$$\Rightarrow x = \mathbf{9 \text{ months}}$$

Hence, after $12 - 9 = \mathbf{3 \text{ months}}$ B joins the business.

72. (B)



$$\Rightarrow \text{Income} = 100 \times 40 = \mathbf{₹ 4000}$$

$$73. (B) \text{ Total}_B = \frac{50,000 \times 10}{100} = 5000$$

Males are 30%, so females

$$= 100 - 30 = 70\%$$

$$\text{Difference} = 70 - 30 = 40\%$$

$$\therefore \text{Required answer} = \frac{5000 \times 40}{100} = \mathbf{2000}$$

$$74. (A) \text{ Total males} = \frac{50,000}{100 \times 100} \{20 \times 50 + 10 \times 30 + 25 \times 20 + 15 \times 40 + 10 \times 60 + 20 \times 50\}$$

$$= 5\{1000 + 300 + 500 + 600 + 600 + 1000\}$$

$$= 5 \times 4000 = \mathbf{20,000}$$

75. (D) Total population in all six cities = 50,000

Total females in all six cities

$$= 50,000 - 20,000 = 30,000$$

$$\therefore \text{Required \%} = \frac{30,000}{50,000} \times 100 = 3 \times 20 = \mathbf{60\%}$$

SSC PRE MOCK TEST – 28 (ANSWER)

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