

SSC MOCK TEST – 33(SOLUTION)

1. (A) $78 \Rightarrow 7 \times 8 = 56 \Rightarrow \frac{56}{2} = 28$

$84 \Rightarrow 8 \times 4 = 32 \Rightarrow \frac{32}{2} = 16$

2. (B) M N C O P O R S
 1 2 3 4 1 2 3 4
 N C O M O R S P
 2 3 4 1 2 3 4 1

3. (B) Physics is related to science and History is related to **Social science**.

4. (B) $34 \Rightarrow 3^4 = 81$
 $25 \Rightarrow 2^5 = 32$

5. (D) $328 \Rightarrow 8^2 \times 3 = 64 \times 3 = 192 \Rightarrow 328 - 192$
 $215 \Rightarrow 5^1 \times 2 = 10 \Rightarrow 215 - 10$

$342 \Rightarrow 2^4 \times 3 = 16 \times 3 = 48 \Rightarrow 342 - 48$

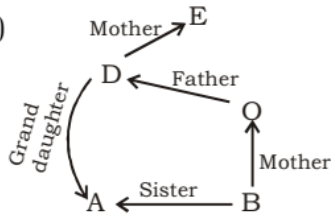
$235 \Rightarrow 5^3 \times 2 = 125 \times 2 = 250 \neq 258 \Rightarrow 235 - 258$

6. (C) Except **Anil Kapoor**, others are from the same family group.

7. (A) Except PQRS, in others atleast one vowel is present.

8. (D) **256** is the only number for which cube root is not possible.

9. (D)



10. (D) Neither conclusion (1) nor (2) follows

11. (D) $12 \times 18 = 24 \times 9$, $16 \times 24 = 8 \times 48$,
 $15 \times 8 = 24 \times 5$

12. (B) $83 \Rightarrow 8^3 = 512 \Rightarrow \frac{512}{2} = 256$

$42 \Rightarrow 4^2 = 16 \Rightarrow \frac{16}{2} = 8$

$63 \Rightarrow 6^3 \Rightarrow 216 \Rightarrow \frac{216}{2} = 108$

13. (B) $12 \times 6 + 18 \times 4 = 144 \Rightarrow \sqrt{144} = 12$

$18 \times 8 + 36 \times 5 = 144 + 180 = 324 \Rightarrow \sqrt{324} = 18$

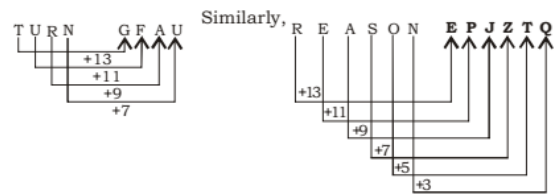
$5 \times 8 + 10 \times 6 = 40 + 60 = 100 \Rightarrow \sqrt{100} = 10$

14. (*) Yellow \rightarrow Green

Red \rightarrow Blue

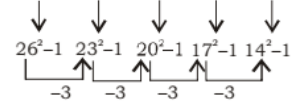
Pink \rightarrow Violet

15. (B) As,



16. (C) **MASTER**

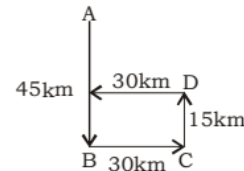
17. (B) 675 528 399 288 **195**



18. (B) 45 67 111 199 **375**
 $\times 2 - 23$ $\times 2 - 23$ $\times 2 - 23$ $\times 2 - 23$

19. (D) Tree \rightarrow Branch \rightarrow Leaves \rightarrow Flower \rightarrow Fruit

20. (B)



21. (A) Number of days between 10 January, 2016 and 15 September, 2016

= $21 + 29 + 31 + 30 + 31 + 30 + 31 + 31 + 15 = 249$

then, day on 15th September, 2016 = $\frac{249}{7}$

= $35 \frac{4}{7}$

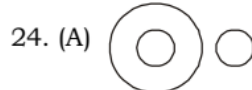
= 35 weeks + 4 days = 4 days = **Thursday**

22. (B)

I False

II False

23. (C)



25. (C)

51. (A) $(l - b) = 23$ and $2(l + b) = 206$ or $(l + b) = 103$.
we get: $l = 63$ and $b = 40$.

$$\therefore \text{Required Area} = (l \times b) = (63 \times 40) \text{ m}^2 = \mathbf{2520 \text{ m}^2}$$

52. (B) S.I. = Rs. $(15500 - 12500) = ₹3000$.

$$\therefore \text{Required Rate} = \left[\frac{100 \times 3000}{12500 \times 4} \right] \% = \mathbf{6\%}$$

53. (D) L.C.M of 6, 9, 15 and 18 is 90.

Let required number be $90k + 4$, which is multiple of 7.

Least value of k for which $(90k + 4)$ is divisible by 7 is $k = 4$

$$\therefore \text{Required number} = (90 \times 4) + 4 = \mathbf{364}$$

54. (C) C.P. of 1 Orange = Rs. $\left[\frac{350}{100} \right] = \text{Rs } 3.50$

$$\text{S.P. of 1 Orange} = \text{Rs.} \left[\frac{48}{12} \right] = \text{Rs. } 4$$

$$\therefore \text{Required profit}\% = \left[\frac{0.50}{3.50} \times 100 \right] \%$$

$$= \frac{100}{7} \% = \mathbf{14 \frac{2}{7} \%}$$

$$55. (B) \left[\sqrt{x} - \frac{1}{\sqrt{x}} \right]^2 = x + \frac{1}{x} - 2$$

$$= (3 + 2\sqrt{2}) + \frac{1}{(3 + 2\sqrt{2})} - 2$$

$$= (3 + 2\sqrt{2}) + \frac{1}{(3 + 2\sqrt{2})} \times \frac{(3 - 2\sqrt{2})}{(3 + 2\sqrt{2})} - 2 = 4$$

$$\therefore \left(\sqrt{x} - \frac{1}{\sqrt{x}} \right) = \mathbf{2}$$

56. (C) Let C.P. = Rs 100 then, profit = Rs 32(
S.P. = Rs 420

New C.P. = 125% of Rs. 100 = Rs. 125

New S.P. = Rs 420

Profit = Rs. $(420 - 125) = \text{Rs } 295$

$$\therefore \text{Required percentage} = \left[\frac{295}{420} \times 100\% \right]$$

$$= \frac{1475}{21} \% = \mathbf{70\%}$$

57. (A) P can complete the work in (12×8) hrs. = 96 hrs.

Q can complete the work in (8×10) hrs. = 80 hrs

$$\therefore \text{P's 1 hour's work} = \frac{1}{96} \text{ and Q's 1 hour's work} = \frac{1}{80}$$

$$(P + Q)'s \text{ 1 hour's work} = \left[\frac{1}{96} + \frac{1}{80} \right] = \frac{11}{480}$$

So, both P and Q will finish the work in $\left[\frac{480}{11} \right]$ hrs

$$\therefore \text{Number of days of 8 hours each} = \left[\frac{480}{11} \times \frac{1}{8} \right]$$

$$= \frac{60}{11} \text{ days} = \mathbf{5 \frac{5}{11} \text{ days}}$$

58. (C) Ratio of times taken by A and B = 125 : 100 = 5 : 4
Suppose B takes x days to do the work.

$$5 : 4 :: 20 : x \Rightarrow x = \left[\frac{4 \times 20}{5} \right] = 16$$

Hence, B takes **16 days** to complete the work.

59. (C) Let ten's and unit's digits be $2x$ and x respectively

$$\text{Then, } (10 \times 2x + x) - (10x + 2x) = 36$$

$$\Rightarrow 9x = 36$$

$$\Rightarrow x = 4$$

$$\therefore \text{Required difference} = (2x + x) - (2x - x) = 2x = \mathbf{8}$$

60. (D) $\frac{4}{15} A = \frac{2}{5} B$

$$\Rightarrow A = \left[\frac{2}{5} \times \frac{15}{4} \right] B$$

$$\Rightarrow A = \frac{3}{2} B$$

$$\Rightarrow \frac{A}{B} = \frac{3}{2}$$

$$\Rightarrow A : B = 3 : 2$$

$$\therefore \text{B's share} = \text{Rs} = \left[1210 \times \frac{2}{5} \right] = \mathbf{₹484}$$

61. (C) ATQ,

$$\frac{1}{x} + \frac{1}{y} + \frac{1}{z} = 0$$

$$\Rightarrow xy + yz + zx = 0$$

$$\text{Again, } (x + y + z)^2 = x^2 + y^2 + z^2 + 2(xy + yz + zx)$$

$$\Rightarrow 121 = x^2 + y^2 + z^2$$

$$\text{then, } x^3 + y^3 + z^3 - 3xyz =$$

$$(x + y + z)(x^2 + y^2 + z^2 - xy - yz - zx)$$

$$= 11 \times 121 = \mathbf{1331}$$

62. (D) ATQ,

$$x^4 + \frac{1}{x^4} = 119$$

then,

$$\Rightarrow x^2 + \frac{1}{x^2} = 11$$

then, square root on both side

$$\Rightarrow x - \frac{1}{x} = 3$$

then, taking cube on both side

$$\Rightarrow x^3 - \frac{1}{x^3} = 3^3 + 3 \times 3 = \mathbf{36}$$

63. (A) ATQ,

$$x = 2 - y$$

$$x^2 = 3 + y^2$$

$$\Rightarrow (2 - y)^2 = 3 + y^2$$

$$\Rightarrow 4 + y^2 - 4y = 3 + y^2$$

$$\Rightarrow y = \frac{1}{4} \Rightarrow x = 2 - \frac{1}{4} = \frac{7}{4}$$

$$\text{Hence } xy = \frac{1}{4} \times \frac{7}{4} = \frac{\mathbf{7}}{\mathbf{16}}$$

64. (C) ATQ,

$$x + \frac{1}{(x+7)} = 0$$

$$\Rightarrow x + 7 + \frac{1}{x+7} = 7$$

Squaring on both sides

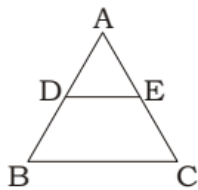
$$(x+7)^2 + \frac{1}{(x+7)^2} = 7^2 - 2$$

Square root on both side.

$$(x+7) - \frac{1}{(x+7)} = \sqrt{47-2}$$

$$\Rightarrow x - \frac{1}{x+7} = \mathbf{3\sqrt{5} - 7}$$

65. (A) ATQ,



$$\angle ADE = \angle ABC \text{ and } \angle AED = \angle BCA$$

then, $\triangle ADE \sim \triangle ABC$ ($\because DE \parallel BC$)

$$\Rightarrow \frac{DE}{BC} = \frac{AD}{AB} = \frac{5}{5+3} = \frac{5}{8}$$

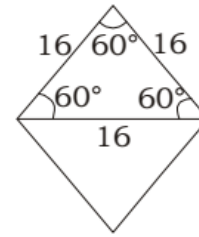
$$\Rightarrow \frac{DE}{BC} = \frac{\mathbf{5}}{\mathbf{8}}$$

66. (D) ATQ,



$$\angle ADC = 180^\circ - (90^\circ - 23^\circ) = \mathbf{113^\circ}$$

67. (B) ATQ,



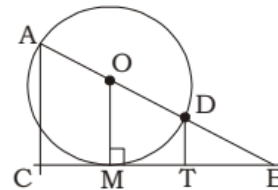
$$\text{then, } 2 \times \frac{\sqrt{3}}{4} \times 16 \times 16 = \frac{d_1 \times 16}{2}$$

$$\Rightarrow d_1 = 16\sqrt{3}$$

Hence, Area of equilateral triangle

$$= \frac{\sqrt{3}}{4} \times 16\sqrt{3} \times 16\sqrt{3} = \mathbf{192\sqrt{3} \text{ cm}^2}$$

68. (A) $\triangle ABC \sim \triangle OBM$



$$\Rightarrow \frac{OB}{AB} = \frac{OM}{AC} \Rightarrow \frac{OB}{5+OB} = \frac{5}{9}$$

$$\Rightarrow 9OB = 25 - 5OB$$

$$\Rightarrow OB = \frac{25}{4}$$

Again,

$$\triangle ABC \sim \triangle DBT \Rightarrow \frac{AC}{DT} = \frac{AB}{DB}$$

$$\Rightarrow \frac{9}{DT} = \frac{5 + \frac{25}{4}}{\frac{25}{4} - 5} \Rightarrow DT = \frac{45}{\frac{4}{5} \times \frac{1}{9}}$$

$$\Rightarrow DT = 1 \text{ cm}$$

Hence, $DT = \mathbf{1 \text{ cm}}$

69. (A) ATQ,

$$(\operatorname{cosec} A + \sin A)(\operatorname{cosec} A - \sin A)$$

$$= (\operatorname{cosec}^2 A - \sin^2 A)$$

$$= 1 + \cot^2 A - 1 + \cos^2 A$$

$$= \mathbf{\cot^2 A + \cos^2 A}$$

70. (C) ATQ,

$$\tan 75^\circ = \tan (45^\circ + 30^\circ)$$

$$= \frac{\tan 45^\circ + \tan 30^\circ}{1 - \tan 45^\circ \tan 30^\circ}$$

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

71. (C) ATQ,

$$\frac{\sin 2A}{\cos 2A} \times \cot 2A = \frac{\sin 2A}{\cos 2A} \times \frac{\cos 2A}{\sin 2A} = \mathbf{1}$$

72. (B) ATQ,

$$\begin{aligned} \text{Total literate people} &= 600000 \times \frac{63}{100} \times \frac{1}{2} \\ &= \mathbf{37800} \end{aligned}$$

73. (C) ATQ, Ratio

Literate male of city 2 : Literate female of city 6

$$\frac{220000 \times 675}{100} \times \frac{7}{11} : \frac{200000 \times 58}{100} \times \frac{3}{5}$$

$$\mathbf{595} : \mathbf{348}$$

74. (A) ATQ,

Total population of city 5

$$= 259210 \times \frac{16}{7} \times \frac{100}{92} = \mathbf{644000}$$

75. (A) ATQ,

$$\begin{aligned} \text{Literate people in city 1} &= 250000 \times \frac{80}{100} \\ &= 200000 \end{aligned}$$

$$\begin{aligned} \text{Literate people in city 2} &= 200000 \times \frac{85}{100} \\ &= 170000 \end{aligned}$$

$$\begin{aligned} \text{Literate people in city 3} &= 220000 \times \frac{78}{100} \\ &= 171600 \end{aligned}$$

$$\begin{aligned} \text{Literate people in city 4} &= 300000 \times \frac{63}{100} \\ &= 189000 \end{aligned}$$

$$\begin{aligned} \text{Literate people in city 5} &= 150000 \times \frac{92}{100} \\ &= 138000 \end{aligned}$$

$$\begin{aligned} \text{Literate people in city 6} &= 400000 \times \frac{58}{100} \\ &= 232000 \end{aligned}$$

Hence,

City 6 > city 1 > city 4 > city 3 > city 2 > city 5 is correct order.

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