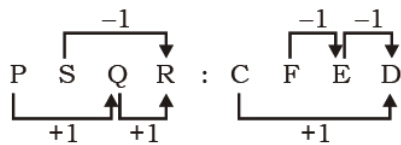
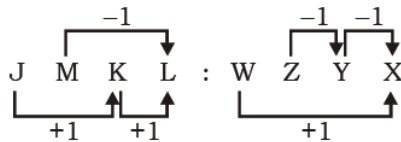


SSC PRE MOCK TEST – 3 (SOLUTION)

1. (D) As,



Similarly,



2. (A) As, $61 = (4)^3 - 3$

$$121 = (5)^3 - 4$$

$$\text{and } 337 = (7)^3 - 6$$

$$\text{Therefore, } ? = (6)^3 - 5 = 211$$

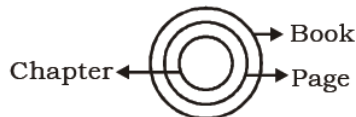
3. (D) As Wick is a part of Candle, similarly Wheel is a part of Bicycle.

4. (C) All except Sword strike the target from a distance.

5. (C) All except ROAD have only one vowel.

6. (B) All except Hammer have a pointed end.

7. (D)



8. (B) $3 \times 1 + 2 = 5$ (V)

$$5 \times 2 + 3 = 13$$
 (XIII)

$$13 \times 3 + 4 = 43$$
 (XXXIII)

$$43 \times 4 + 5 = 177$$
 (CLXXVII)

9. (A) 208 106 50 29 9.5

$$\begin{array}{cccc} \frac{208}{2} + 2 & \frac{106}{2} - 3 & \frac{50}{2} + 4 & \frac{29}{2} - 5 \\ = 104 + 2 & = 53 - 3 & = 25 + 4 & = 14.5 - 5 \end{array}$$

10. (C) Given words are arranged as per their order in english alphabet from right to left.

$$11. (B) \frac{12 \times 9}{27} = 4 \quad \frac{28 \times 16}{14} = 32$$

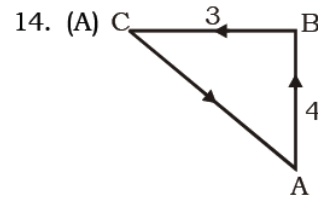
$$\frac{18 \times 12}{36} = 6 \quad \frac{57 \times 32}{48} = 38$$

12. (B) LCM (36, 12, 48) = 144

$$\text{LCM (16, 24, 32)} = 96$$

$$\text{LCM (96, 36, 24)} = 288$$

13. (C)



Required distance

$$= AC = \sqrt{AB^2 + BC^2} = \sqrt{4^2 + 3^2} = 5 \text{ km}$$

$$\therefore \text{Total distance covered} = 3 + 4 + 5 = 12 \text{ km}$$

15. (D) $2 \rightarrow 1 \rightarrow 4 \rightarrow 3$

16. (D) From the given data,

$$X = Y + 4 \quad \dots(i)$$

$$Y = 2Z \quad \dots(ii)$$

$$X + Y + Z = 34 \quad \dots(iii)$$

By solving (i), (ii) and (iii) we get,

$$Y = 12$$

$$\text{Therefore, } X = Y + 4 = 12 + 4 = 16.$$

Thus, X is **16 years** old.

17. (C) $8 = \sqrt[3]{16} + \sqrt[3]{64} = 4 + 4$

$$12 = \sqrt[3]{81} + \sqrt[3]{27} = 9 + 3$$

$$11 = \sqrt[3]{25} + \sqrt[3]{216} = 5 + 6$$

18. (A) $(16 + 12)(16 - 12) = 28 \times 4 = 112$

$$(16 + 9)(16 - 9) = 25 \times 7 = 175$$

$$(12 + 9)(12 - 9) = 21 \times 3 = 63$$

19. (B) $I \Rightarrow \times$, $You \Rightarrow \div$, $We \Rightarrow -$, $He \Rightarrow +$

$$8 I 12 He 16 You 2 We 10 = ?$$

$$\Rightarrow ? = 8 \times 12 + 16 \div 2 - 10$$

$$\Rightarrow ? = 96 + 8 - 10 = 94$$

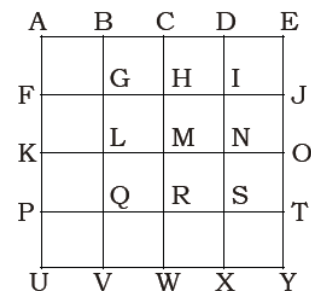
20. (A) Total number of girls in the row

$$= 11 + 11 - 1 = 21$$

21. (D)

22. (D)

23. (B) The figure may be labelled as shown.



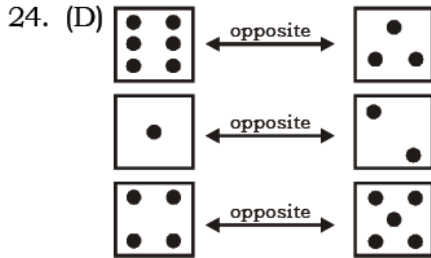
Simple squares are ABGF, BCHG, CDIH, DEJI, FGLK, GHML, HINM, IJON, KLQP, LMRQ, MNSR, NOTS, PQVU, QRWV, RSXW and STYX i.e. 16 in number.

Squares composed of four components each are ACMK, BDNL, CEOM, FHRP, GISQ, HJTR, KMWU, LNXV and MOYW i.e. 9 in number.

Squares composed of nine components each are ADSP, BETQ, FIXU and GJYV i.e. 4 in number.

There is one square AEYU composed of sixteen components.

There are $16 + 9 + 4 + 1 = 30$ squares in the given figure.



25. (D)

51. (B)

$$\sqrt{\frac{\sqrt{36} - \sqrt{24} + \sqrt{24} - \sqrt{16}}{5 + \sqrt{9}}}$$

$$= \sqrt{\frac{6 - 4}{5 + \sqrt{9}}} = \sqrt{\frac{2}{8}} = \frac{1}{2}$$

52. (C) Let the highest score be x .
Then, lowest score = $(x - 150)$
Then, $(50 \times 40) - [x + (x - 150)] = 38 \times 48$
 $\Rightarrow 2x = 2000 + 150 - 1824$
 $\Rightarrow 2x = 326$
 $\Rightarrow x = 163$

\therefore Lowest score = $163 - 150 = 13$

53. (D) Let original income = ₹ 100
Then, expenditure = ₹ 75
and savings = ₹ 25
New income = ₹ 150

$$\text{New expenditure} = ₹ \left(\frac{110}{100} \times 75 \right) = ₹ \frac{165}{2}$$

$$\text{New savings} = ₹ \left(150 - \frac{165}{2} \right) = ₹ \frac{135}{2}$$

$$\text{Increase in savings} = ₹ \left(\frac{135}{2} - 25 \right) = ₹ \frac{85}{2}$$

$$\therefore \text{Increase \%} = \left(\frac{85}{2} \times \frac{1}{25} \times 100 \right) \% = 170\%$$

54. (A) $5 \tan \theta = 4 \Rightarrow \tan \theta = \frac{4}{5}$

$$\text{Now, } \frac{7 \sin \theta - 4 \cos \theta}{7 \sin \theta + 4 \cos \theta} = \frac{7 \tan \theta - 4}{7 \tan \theta + 4}$$

$$= \frac{7 \times \frac{4}{5} - 4}{7 \times \frac{4}{5} + 4} = \frac{\frac{8}{5}}{\frac{48}{5}} = \frac{1}{6}$$

55. (C) Originally, let the number of boys and girls in the college be $7x$ and $8x$ respectively. Their increased numbers are (120% of $7x$) and (110% of $8x$).

$$\text{i.e. } \left(\frac{125}{100} \times 7x \right) \text{ and } \left(\frac{115}{100} \times 8x \right)$$

$$\text{i.e. } \frac{875x}{5} \text{ and } \frac{920x}{5}$$

$$\therefore \text{Required ratio} = 875 : 920 = 175 : 184$$

56. (C) Let cost price = ₹ 100

$$\text{Then, } \frac{1}{3} \text{ of (Marked Price)} = 80$$

$$\Rightarrow \text{Marked Price} = ₹ 240$$

$$\therefore \text{Required ratio} = 240 : 100 = 12 : 5$$

57. (A) Let the speed of the stream be x m/h. Then,
Speed downstream = $(8 + x)$ m/h,
Speed upstream = $(8 - x)$ m/h

$$\therefore \frac{60}{(8 - x)} - \frac{60}{(8 + x)} = 4$$

Put $x = 2$, then it will satisfy the equation

$$\Rightarrow \frac{60}{8 - 2} - \frac{60}{8 + 2} = \frac{60}{6} - \frac{60}{10}$$

$$\Rightarrow 10 - 6 = 4$$

$$\Rightarrow 4 = 4$$

$$\therefore \text{Speed of Stream} = 2 \text{ miles/hr}$$

58. (B) Product of numbers = $11 \times 385 = 4235$

Let the numbers be $11a$ and $11b$.

$$\text{Then, } 11a \times 11b = 4235$$

$$\Rightarrow ab = 35$$

Now, co-primes with product 35 are (1, 35) and (5, 7)

So, the numbers are $(11 \times 1, 11 \times 35)$ and $(11 \times 5, 11 \times 7)$

Since one number lies between 75 and 125, the suitable pair is (55, 77)

Required number = 77.

Hence, Sum of the digits = $7 + 7 = 14$

59. (B) Let the price be 100

$$\begin{array}{ccccccc} 100 & & 140 & & 126 & & 113.40 \\ & \nearrow & & \searrow & \nearrow & \searrow & \\ & +40\% & & -10\% & & -10\% & \end{array}$$

$$\text{So, increase in price} = 13.4\%$$

60. (B) Let speed of the car be x km/h

$$\text{Then, speed of the train} = \frac{150}{100}x$$

$$= \left(\frac{3}{2}x\right) \text{ km/h}$$

$$\therefore \frac{60}{x} - \frac{60}{\frac{3}{2}x} = \frac{125}{10 \times 60}$$

$$\Rightarrow \frac{60}{x} - \frac{40}{x} = \frac{5}{24}$$

$$\Rightarrow x = \left(\frac{20 \times 24}{5}\right) = 96 \text{ km/h}$$

\therefore Speed of the car = **96 km/h**

61. (B) Let the base of triangle be decreased by $x\%$.
ATQ,

$$20 - x - \frac{20x}{100} = 0$$

$$\Rightarrow x + \frac{x}{5} = 20$$

$$\Rightarrow \frac{6x}{5} = 20 \Rightarrow x = \frac{50}{3} = 16\frac{2}{3}\%$$

\therefore Required percentage = **16 $\frac{2}{3}$ %**

62. (D) Volume of the new cube = Sum of volumes of all five cubes

$$\therefore a^3 = a_1^3 + a_2^3 + a_3^3 + a_4^3 + a_5^3$$

$$\Rightarrow a = \sqrt[3]{a_1^3 + a_2^3 + a_3^3 + a_4^3 + a_5^3}$$

$$= \sqrt[3]{9^3 + 6^3 + 3^3 + 3^3 + 1^3} \text{ cm}$$

$$= \sqrt[3]{729 + 216 + 27 + 27 + 1} \text{ cm} = \sqrt[3]{1000} \text{ cm}$$

$$= 10 \text{ cm}$$

\therefore Required Area = $6 \times 10^2 = \mathbf{600 \text{ cm}^2}$

63. (C) Given $x = \frac{\sqrt{3}}{2}$

$$\text{then, } \frac{\sqrt{1+x}}{1+\sqrt{1+x}} \times \frac{1-\sqrt{1+x}}{1-\sqrt{1+x}} + \frac{\sqrt{1-x}}{1-\sqrt{1-x}} \times$$

$$\frac{1+\sqrt{1-x}}{1+\sqrt{1-x}}$$

$$= \frac{\sqrt{1+x}-1-x}{1-1-x} + \frac{\sqrt{1-x}+1-x}{1-1+x}$$

$$= \frac{\sqrt{1-x}+1-x}{x} - \frac{\sqrt{1+x}-1-x}{x}$$

$$= \frac{\sqrt{1-x}+1-x-\sqrt{1+x}+1+x}{x}$$

$$= \frac{2+\sqrt{1-x}-\sqrt{1+x}}{x}$$

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

$$= \frac{2+\frac{\sqrt{4-2\sqrt{3}}}{2}-\frac{\sqrt{4+2\sqrt{3}}}{2}}{\frac{\sqrt{3}}{2}}$$

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

$$\therefore \left(\frac{\sqrt{1+x}}{1+\sqrt{1+x}} + \frac{\sqrt{1-x}}{1-\sqrt{1-x}}\right)^2 = \left(\frac{2}{\sqrt{3}}\right)^2 = \frac{4}{3}$$

64. (B) ATQ,

$$x = \sec 300^\circ$$

$$= \sec (360^\circ - 300^\circ) = \sec 60^\circ = 2$$

65. (D) ATQ,

$$x = \cos \left(-\frac{11\pi}{6}\right) = \cos 330^\circ$$

$$[\cos(-\theta) = \cos \theta]$$

$$= \cos (360^\circ - 30^\circ) = \cos 30^\circ = \frac{\sqrt{3}}{2}$$

66. (B) ATQ,

$$\frac{y_2 - y_1}{x_2 - x_1} = \text{slope}$$

$$\Rightarrow \frac{1+2}{x-7} = \frac{-3}{10}$$

$$\Rightarrow 30 = -3x + 21 \Rightarrow x = -3$$

67. (B) ATQ,

$$(11 - K)^2 + (-5 - 0)^2 = 13^2$$

$$\Rightarrow (11 - K)^2 = 13^2 - 5^2 = (12)^2$$

$$\Rightarrow 11 - K = -12 \text{ or } 11 - K = +12$$

$$\Rightarrow K = -1 \text{ or } K = 23$$

Hence, $K = \mathbf{-1, 23}$

68. (B)

69. (B) ATQ,

$$l = b + 5$$

$$\text{then, } lb = b(b + 5) = 150$$

$$\Rightarrow b^2 + 5b - 150 = 0$$

$$\Rightarrow (b + 15)(b - 10) = 0$$

$$\Rightarrow b = -15 \text{ or } b = 10$$

but breadth cannot be negative

So, Required perimeter = $2(l + b) = \mathbf{50 \text{ cm}}$

70. (D) ATQ,
 Required Area = $(3 + 4 + 5) \times 8$
 $= \mathbf{96 \text{ cm}^2}$

71. (A) ATQ,
 $180^\circ = x + x + 66^\circ$
 $\Rightarrow 2x = (180^\circ - 66^\circ) = 114^\circ$
 $\Rightarrow x = 57^\circ$
 Hence, Required angles = $\mathbf{57^\circ \text{ and } 123^\circ}$

72. (B) ATQ,
 $xy = \frac{-9}{10}$ and, $x + y = \frac{-13}{40}$ -----(i)

$\Rightarrow (x + y)^2 - (x - y)^2 = 4xy$

$\Rightarrow \left(\frac{13}{40}\right)^2 - (x - y)^2 = 4 \times \frac{-9}{10}$

$\Rightarrow (x - y)^2 = \left(\frac{13}{40}\right)^2 + \frac{36}{10}$

$\Rightarrow (x - y)^2 = \frac{169 + 5760}{1600} = \left(\frac{77}{40}\right)^2$

$\Rightarrow (x - y) = 77/40$ -----(ii)
 form equation (i) and (ii)

$x = \frac{32}{40} = \frac{4}{5}$ and $y = -\frac{45}{40} = -\frac{9}{8}$

Hence, Required Friction = $\frac{4}{5}, \frac{-9}{8}$

73. (A) ATQ,
 Required Percentage = $\frac{36}{360} \times 100$
 $= \mathbf{10}$

74. (C) ATQ,
 Required Ratio = $72 : 54$
 $= \mathbf{4 : 3}$

75. (C) ATQ,
 Required average
 $= \frac{(36 + 72 + 108)}{360} \times 100 \times \frac{1}{3} = \mathbf{20}$

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