

SSC Solution on 12 Jan - 010

1. (B) As, Frame surrounds a Picture. Similarly,
Binding surrounds a Book

2. (A) As, $2 \times (6)^2 = 72$
Similarly,
 $2 \times (4)^2 = 32$

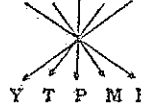
3. (D) As,

B A C K

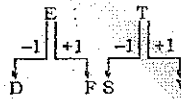
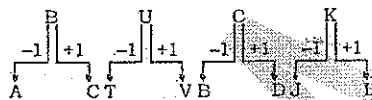


Similarly,

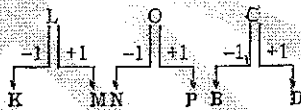
E M P T Y



4. (C) AS,



Similarly,



5. (D) 63 is not a prime number.

6. (D) Except Attack, others are synonym

7. (B) G I J M L N O R
↓ ↓ ↓ ↓ ↓ ↓
+2 +1 +3 +2 +1 +3
T R P S C E F I
↓ ↓ ↓ ↓ ↓ ↓
+1 -2 +3 +2 +1 +3

8. (D) Except YELLOW, others are primary colour.

9. (C) Extra day = 1(1993) + 1(1994) + 1(1995) + 1(1996) = 4

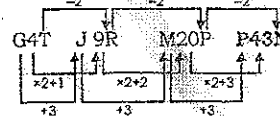
Then, Required day = Sunday + 4 = Thursday

10. (D) Magainin → Magazine → Magendie → Magistrate.

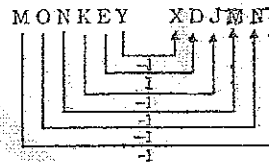
11. (C) tttttsttstt



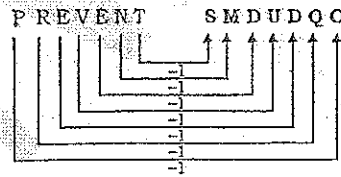
13. (B)



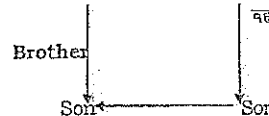
14. (D) As,



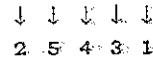
Similarly



15. (A) Aman → Grandfather



16. (D) E M P T Y



17. (C) 60 = 3 × (47 - 27)

9 = 3 × (8 - 5)

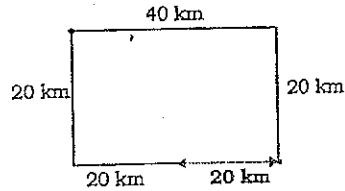
27 = 3 × (20 - 11)

18. (B) 47 = 5 × 7 + (5 + 7)

89 = 8 × 9 + (8 + 9)

53 = 5 × 8 + (8 + 5)

19. (B)

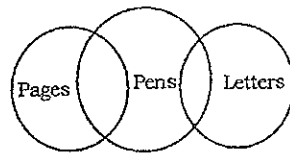


20. (B)

21. (A) Rotate to clockwise from 1

$$\frac{3}{4}, \frac{2}{5}, \frac{1}{6}$$

22. (D)



- I. False.
II. False.

23. (A)

24. (C)

25. (A)

26. (B)

Radar is an object detection system that uses electromagnetic waves to identify the range, altitude, direction, or speed of both moving and fixed objects such as aircraft, ships, motor vehicles, weather formations, and terrain.

27. (C)

S Ganesh Kumar has been appointed the new Executive Director (ED) of Reserve Bank of India (RBI). He succeeded Chandan Sinha, who has taken voluntary retirement on May 31, 2017. As Executive Director (ED), Kumar will look after the departments of Information Technology, Payment and Settlement Systems and External Investments and Operations.

28. (A)

The Three Language Formula was devised in the chief ministers conferences held during 1961. The National Commission on Education was also known as the Kothari commission. It examined and recommended a graduated formula, which was recommended by the 1968 policy.

29. (B)

Inventory refers to raw materials, work-in-process and finished goods. That are considered to be the portion of a business assets that are ready or will be ready for sale. Inventory are also represented as one of the most important assets that

most businesses possess because the turnover of inventory represents one of the primary sources of revenue generation and subsequent earnings for the company's shareholders/owners.

30. (B)

The World Milk Day (WMD) is observed every year on 1st June by the Food and Agriculture Organization (FAO) to recognize the importance of milk as a global food. The day is intended to provide an opportunity to bring attention to activities that are connected with the dairy sector. In India, the National Milk Day (NMD) is observed every year on 26th November to mark the birth anniversary of Dr. Verghese Kurien, the father of White Revolution.

32. (A)

The frog excretes urea. It is carried by blood into the kidney where it is separated and excreted.

33. (B)

Blue sapphire and ruby are obtained from natural mineral "Corundum". The chemical composition of corundum is "Aluminium oxide, Al_2O_3 ".

34. (B)

The refractive index is proportional to the wavelength so the longer the wavelength the more it refracts. Red has the longest wavelength we can see, so the red letters will appear more raised up than any other colour. Blue/violet have the shortest wavelengths, so the Blue/Violet coloured letter will appear lower than any other colour.

35. (D)

The Sri Venkateshwara National Park is located at Chittoor and Cuddapah districts in Andhra Pradesh. The total area of the park is 353 km². The park is known for its waterfalls including the Talakona, Gundalakona and Gunjana.

36. (D)

Chandragupta-I married to the daughter of Licchavis, a royal influential family. His son and successor 'Samudragupta' calls himself Licchavi-dauhitra.

37. (C)

Alaknanda river meets with the Dhauliganga river at Vishnuprayag, the Nandakini river at Nandprayag, the Pindar river at Karnaprayag, the Mandakini river at Rudraprayag and finally the Bhagirathi river at Devprayag to form the mainstream, the Ganges.

38. (A)

The reservation of 27% government jobs for other Backward Classes was declared for the first time in the year 1990 by the Vishwanath Pratap Singh government.

40. (C) The Supreme Court has special advisory jurisdiction in matters which may be specifically referred to it by the President of India under Article 143 of the Indian Constitution.
41. (D) The reaction of Calcium carbide reacts with water to producing acetylene gas and calcium hydroxide.

$$\text{CaC}_2 + 2\text{H}_2\text{O} \rightarrow \text{C}_2\text{H}_2 + \text{Ca(OH)}_2$$
42. (C) The break-even point (BEP) in economics, business, and specifically in cost accounting, is the point at which total cost and total revenue are equal i.e. there is no net loss or gain.
43. (A) The Punjab government has decided to collaborate with the United Nations Office on Drugs and Crime (UNODC) as part of its efforts to root out the drug menace in the State. The MoU will be signed between the health department, the Special Task Force (STF) on drugs and the UNODC in the second week of June 2017. It was also decided to develop a roadmap for the project implementation for which a project committee will be set up.
44. (A) Madhubani painting or Mithila painting is a style of Indian painting, practiced in the Mithila region of Bihar state, India and the adjoining parts of Terai in Nepal. Painting is done with fingers, twigs, brushes, nib-pens, and matchsticks, using natural dyes and pigments.
45. (B) River Hoover dam is a concrete and gravity dam in black canyon of the Colorado river on the border between the US states of Arizona and Nevada.
46. (B) Galaxy NGC 1277 is a small, flattened galaxy that contains one of the most massive central black holes ever found. At 17 billion solar masses, the black hole weighs an extraordinary 14% of the total galaxy mass.
48. (C) Magnesium hydroxide is an inorganic compound with the chemical formula of hydrated Mg(OH)_2 . It is often known as milk of magnesia, because of its milk-like appearance as a suspension. While magnesium hydroxide has a low solubility in water, with a K_{sp} of 1.5×10^{-11} , it is large enough that it will partially dissolve to produce ions in the solution and forming the suspension.
50. (A) Abanindranath Tagore had founded Indian Society of Oriental Art in Kolkata to revive the ancient art traditions of

India. He was the principal of government school of art and a great artist of modern India.

51. (A) ATQ,
 $(4m + 10w) \times 24 = (10m + 4w) \times 18$
 $1m = 2w \dots\dots\dots (i)$
 Word done by 18 men and 36 women

$$= \frac{(10m + 4w) \times 18}{(18m + 36w)}$$

By the equation (i),

$$= 12m \times \frac{18}{36m} = 6 \text{ days}$$

52. (D) Principal = $\frac{12500 \times 12500}{18750}$

$$= ₹8333 \frac{1}{3}$$

53. (A) $a^3 + b^3 = (a + b)(a^2 + b^2 - ab)$
 $\Rightarrow a^3 + b^3 = (a + b)(a^2 + b^2 - ab + 2ab - 2ab)$
 $\Rightarrow 28 = 4((a+b)^2 - 3ab)$
 $\Rightarrow 7 = 16 - 3ab$
 $\Rightarrow ab = 3$

Then, $(x^3 + y^3)(x + y) = x^4 + y^4 + xy(x^2 + y^2)$
 $\Rightarrow 28 \times 4 = x^4 + y^4 + 3(x^2 + y^2 + 2xy - 2xy)$
 $\Rightarrow 112 = x^4 + y^4 + 3((x^2 + y^2) - 2xy)$
 $\Rightarrow 112 = x^4 + y^4 + 3(16 - 6)$
 $\Rightarrow x^4 + y^4 = 112 - 30 = 82$

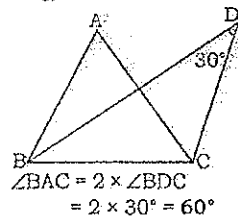
Alternate

Put $a = 3$ and $b = 1$
 $a^3 + b^3 = 28$ and $a + b = 4$
 Then, $a^4 + b^4 = 81 + 1 = 82$

- 54 (A) Required votes = $\frac{62500 \times (100 - 12) \times (100 - 52)}{100 \times 100} = 26400$

55. (C) Required average age = $\frac{37 + 32 + 7 \times 3}{2}$
 $= \frac{90}{2} = 45 \text{ years}$

56. (A) ATQ,



57. (B) ATQ,

$$\frac{16}{16 + 65} = \left(1 - \frac{8}{x}\right)^4$$

Taking 4th root on both sides

$$\Rightarrow \frac{2}{3} = 1 - \frac{8}{x}$$

$$\Rightarrow x = 24 \text{ liters}$$

58.(D) ATQ,

$$\tan A = \frac{1}{\sqrt{3}} = \tan 30^\circ$$

$$\Rightarrow A = 30^\circ$$

$$\text{Then, } \operatorname{cosec} 30^\circ + \sec(90^\circ - 30^\circ) = 2 \operatorname{cosec} 30^\circ \\ = 2 \times 2 = 4$$

$$59.(B) \text{ Total profit without charity} = \frac{990 \times 20}{11}$$

$$= ₹ 1800$$

$$\text{Total profit} = \frac{1800 \times 100}{90} = ₹ 2000$$

60.(A) ATQ,

$$\begin{array}{l} A \rightarrow 30 \\ B \rightarrow 50 \\ C \rightarrow 40 \end{array} \Rightarrow 600 \begin{array}{l} \leftarrow 20 \\ \leftarrow 12 \\ \leftarrow 15 \end{array}$$

$$\begin{aligned} 2 \text{ days work} &= A + B + A + C \\ &= 20 + 12 + 20 + 15 \\ &= 67 \text{ units} \end{aligned}$$

$$\text{Total number of pairs} = \frac{600}{67} = 8 \text{ pairs} + 64 \text{ units}$$

32 units is done by A + B on next day

$$\text{So, Remaining units done by A + C} = \frac{32}{35}$$

$$\begin{aligned} \text{Hence, Required Day} &= 8 \times 2 + 1 + \frac{32}{35} \\ &= 17 \frac{32}{35} \text{ Days} \end{aligned}$$

$$61.(C) a^2 + 8b^2 + 9c^2 = 4b(a + 3c)$$

$$\Rightarrow a^2 + 8b^2 + 9c^2 - 4ab - 12bc = 0$$

$$\Rightarrow (a^2 + 4b^2 - 4ab) + (4b^2 + 9c^2 - 12bc) = 0$$

$$\Rightarrow (a - 2b)^2 + (2b - 3c)^2 = 0$$

$$\Rightarrow \text{Either } a - 2b = 0 \text{ or } 2b - 3c = 0$$

$$\Rightarrow \frac{a}{b} = \frac{2}{1} \text{ or } \frac{b}{c} = \frac{3}{2}$$

$$\text{then } a : b : c = 6 : 3 : 2$$

$$62.(A) \text{ Required distance} = \frac{12}{60} \times (20 + 5) = 5 \text{ km}$$

$$63.(B) \text{ Required percentage} = \frac{(135 - 15)}{135} \times 100$$

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

64.(D) Total number of students

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

$$65.(A) \text{ Required Percentage} = \frac{(50 + 10) \times 100}{135}$$

$$= 44 \frac{4}{9}$$

66.(B) ATQ,

$$(x + 2)^2 = 9 \text{ and } (y + 3)^2 = 25$$

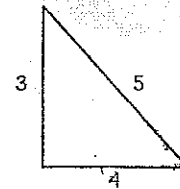
$$\Rightarrow x + 2 = \pm 3 \text{ and } y + 3 = \pm 5$$

$$\text{Then either } x = -5 \text{ or } x = 7$$

$$\text{and either } y = -8 \text{ or } y = 2$$

$$\text{Hence, maximum value} = \frac{-5}{-8} = \frac{5}{8}$$

67.(B) ATQ,



$$\tan \theta = \frac{3}{4}$$

$$\text{Then } \cos \theta = \frac{4}{5}$$

$$\text{In equation} = \frac{1 - \cos \theta}{1 + \cos \theta} = \frac{1 - \frac{4}{5}}{1 + \frac{4}{5}} = \frac{1}{9}$$

68.(C) ATQ,

$$\text{The length of AB} = \sqrt{(4 - 0)^2 + (5 - 0)^2} = \sqrt{41}$$

$$\text{The length of BC} = \sqrt{(9 - 4)^2 + (9 - 5)^2} = \sqrt{41}$$

$$\text{The length of CD} = \sqrt{(5 - 9)^2 + (4 - 9)^2} = \sqrt{41}$$

$$\text{The length of DA} = \sqrt{(0 - 5)^2 + (0 - 4)^2} = \sqrt{41}$$

\therefore All sides are equal but

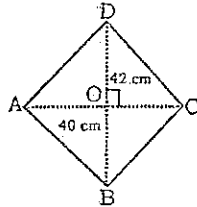
$$\begin{aligned} \text{Length of AC diagonal} &= \sqrt{(9 - 0)^2 + (9 - 0)^2} \\ &= \sqrt{162} = 9\sqrt{2} \end{aligned}$$

$$\text{Length of BD diagonal} = \sqrt{(5 - 4)^2 + (4 - 5)^2} = \sqrt{2}$$

The diagonals are not equal but sides are equal.

Hence, it is a Rhombus

69.(B) ATQ,



$$DO = 21 \text{ cm}$$

$$CO = 20 \text{ cm}$$

$$\text{then, } DC = \sqrt{21^2 + 20^2}$$

$$= 29 \text{ cm} \quad (\text{Apply Pythagoras theorem})$$

$$\text{Hence, Perimeter of Rhombus} = DC \times 4$$

$$= 29 \times 4 = 116 \text{ cm}$$

70.(B) ATQ,

Let x be the cost price

$$x \times \frac{160 \times 85}{100} = 1496$$

$$\Rightarrow x = ₹ 1100$$

$$\text{Then, profit} = 1496 - 1100 = ₹ 396$$

71.(B) ATQ,

$$\tan \theta \times \frac{\sqrt{3}}{2} = \frac{\sqrt{3}}{2}$$

$$\Rightarrow \tan \theta = 1$$

$$\Rightarrow \theta = 45^\circ$$

$$\text{Then, } \sin(45^\circ - 15^\circ) = \sin 30^\circ = \frac{1}{2}$$

72.(B) ATQ,

$$\frac{9 \times 8}{1080} = \frac{8 \times 6}{x}$$

$$\Rightarrow x = ₹ 720$$

73.(B) ATQ,

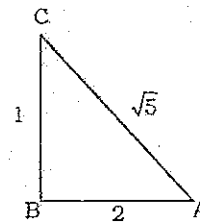
$$5x \times x = 245 \times 2$$

$$\Rightarrow x^2 = 98$$

$$\Rightarrow x = 7\sqrt{2}$$

$$\text{Then, length of plot} = 7\sqrt{2} \times 5 = 35\sqrt{2}$$

74.(D) ATQ,



$$\sin C + \cot A + \tan B$$

$$\Rightarrow = \frac{2}{\sqrt{5}} + 2 + \infty = \infty$$

75.(B) According to the property of congruent,

$$\text{area of } ABC = \text{area of } PQR$$

$$\text{Hence, area of } PQR = 72 \text{ cm}^2$$

SSC Answer key on 12 Jan - 018

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