

SSC MOCK TEST - 307 (SOLUTION)

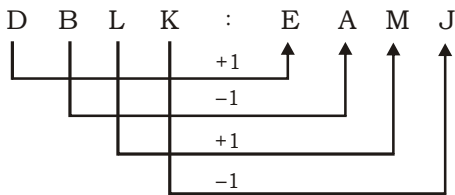
1. (D) As,

$$52 \Rightarrow (5 + 2)^2 - (5 - 2)^2 = 40$$

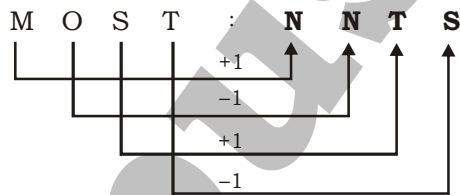
Similarly,

$$75 \Rightarrow (7 + 5)^2 - (7 - 5)^2 = \mathbf{140}$$

2. (C) As,



Similarly,



3. (D) (A) $8 \times 2 = 16$

(B) $6 \times 3 = 18$

(C) $8 \times 3 = 24$

(D) $9 \times 4 = 36 \neq 38$

4. (D) Except Narora, others are coal fields.

5. (A) Angle made by an hour hand in 1 hour is 30° and in 1 minute is $\frac{1}{2}^\circ$.

When the time is 10 : 40, the angle made by an hour hand = $10 \times 30 + 40 \times \frac{1}{2} = 320^\circ$

Angle made by minute hand in 1 minute = 6°

So, angle made by minute hand in 40 minutes = $40 \times 6 = 240^\circ$

\therefore Angle between minute hand and hour hand at 10 : 40 = $320^\circ - 240^\circ = 80^\circ$

6. (B) $13 + 1^2 = 14$

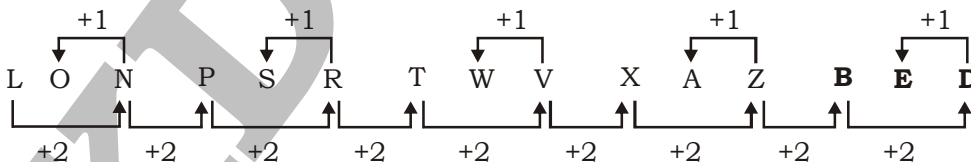
$14 + 2^2 = 22$

$22 + 3^2 = 31$

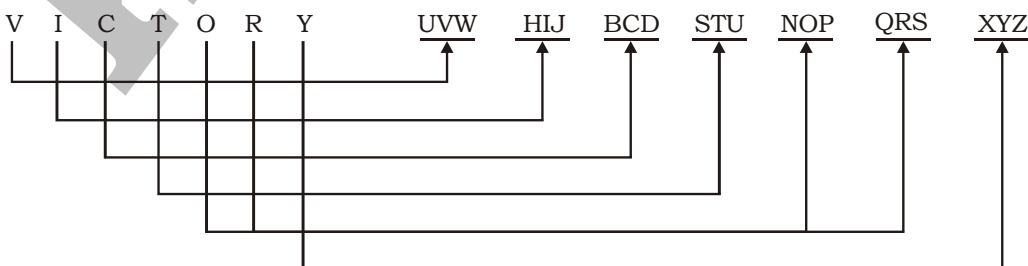
$31 + 4^2 = 95$

$95 + 5^2 = \mathbf{120}$

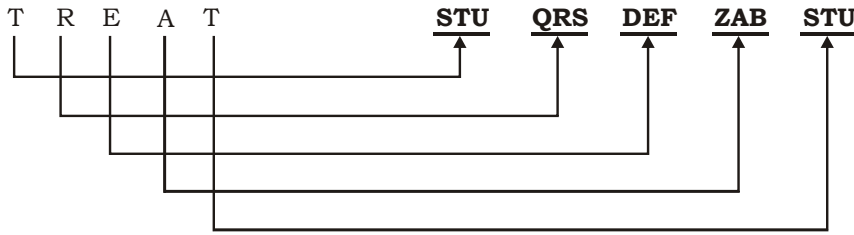
7. (D)



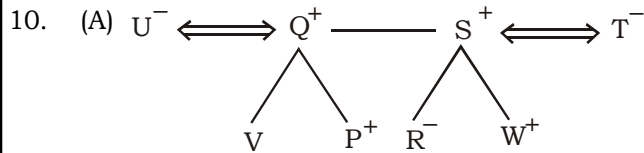
8. (B) As,



Similarly,



9. (C) As,
 $4 \times 2 + 1 = 9$
 $9 \times 5 = 45$
 Similarly,
 $8 \times 2 + 1 = 17$
 $17 \times 5 = 85$



Hence, W is the nephew of U.

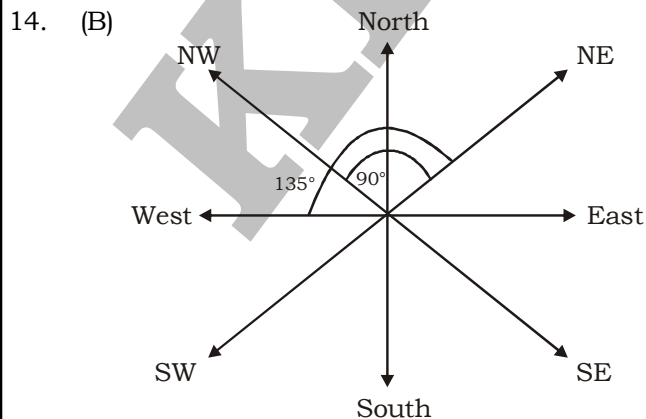
11. (A) cbadbc/cbadbc/cbadbc
 12. (B) **In first row,**
 $(18 - 13)^2 = 25$
In second row,
 $(17 - 16)^2 = 1$
In third row,
 $(31 - 25)^2 = 36$

13. (C) $12 - 6 \div 12 \times 6 + 6 = 9$
 After changing the signs,
 $12 + 6 \div 12 \times 6 - 6 = 9$

$$12 + \frac{6}{12} \times 6 - 6 = 9$$

$$12 + 3 - 6 = 9$$

$$9 = 9$$



There is 90° angle between North-West and North-East and 135° angle between North-East and West.

So, final direction will be West.

15. (B) 3. Sand → 2. Iron → 1. Gold → 5. Diamond → 4. Platinum

All the given words represent substances can be arranged in increasing of their cost.

16. (A) Let the age of son twenty years ago be x years.

Age of father twenty years ago be $12x$ years.

Present age of son = $(x + 20)$ years

Present age of father = $(12x + 20)$ years

ATQ,

$$(x + 20) \times 2 = 12x + 20$$

$$2x + 40 = 12x + 20$$

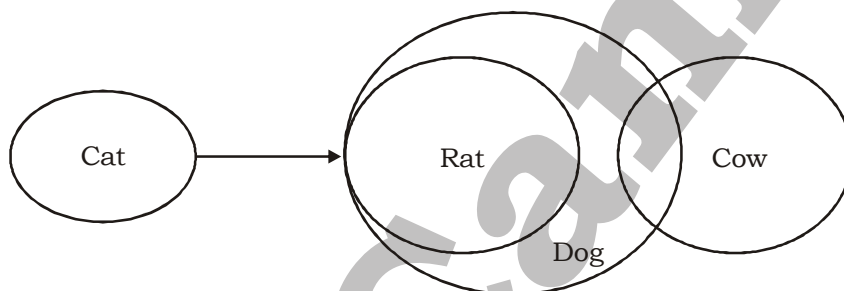
$$12x - 2x = 40 - 20$$

$$10x = 20$$

$$x = \frac{20}{10} = 2 \text{ years}$$

Sum of present age of father and son = $(12 \times 2 + 20) + (2 + 20) = 44 + 22 = 66$ years

17. (B)



I. False II. Doubt III. Doubt

Hence, Only either conclusion II or III follow.

18. (C) 19. (A) 20. (A) 21. (C) 22. (A) 23. (C) 24. (C)

25. (D)

27. (A) The highest peak of Maharashtra and the Sahyadri mountains is Kalsubai Shikhar, a part of the Kalsubai Harishchandragad sanctuary. The peak lies at an altitude of 1,646 meters or 5,400 feet.

28. (C) The Vaghela's were the last Hindu kings to rule large parts of Gujarat, with capital Dholka before the Alauddin Khilji's army conquest of the region. In 1304, a second attack by Alauddin's forces defeated Karandev, the last ruler of the Vaghela Dynasty of Gujarat and permanently ended the Vaghela dynasty.

29. (B) Maharaja Ranjit Singh is well-known for the golden beautification of the Harmandir Sahib Gurdwara in Amritsar, famously known as the Golden Temple. He is also known as the Sher-e-Punjab (Lion of Punjab) for his bravery and is respected as one of the most revered heroes in the Indian history.

31. (A) The main use of litmus is to test whether a solution is acidic or basic. Light-blue litmus paper turns red under acidic conditions, and red litmus paper turns blue under basic or alkaline conditions, with the color change occurring over the pH range 4.5-8.3 at 25 °C (77 °F). Neutral litmus paper is purple.

32. (C) The transportation of food from the leaves to the other parts of the plant takes place through the vascular tissue called phloem.

33. (A) A decrease in demand and an increase in supply will cause a fall in equilibrium price, but the effect on equilibrium quantity cannot be determined. 1. For any quantity, consumers now place a lower value on the good, and producers are willing to accept a lower price; therefore, price will fall.
34. (C) The lower house of a parliament or Lok sabha is called a Popular Chamber because it is composed of representatives of the people chosen by direct election on the basis of universal adult suffrage.
35. (B) Sodium carbonate (Na_2CO_3), also known as soda ash is a sodium product primarily used to make detergents and soaps. Sodium carbonate (Na_2CO_3) is an inorganic compound found in large natural deposits and mines.
36. (C) Chhattisgarh govt to provide ₹6,000 annually to 12 lakh landless labourers. The Chhattisgarh government has launched the 'Rajiv Gandhi Grameen Bhumihin Majdur Nyay Yojana', with the provision of ₹200 crores benefiting 12 lakh landless families.
37. (B) A substantial increase in capital expenditure or revenue deficit leads to fiscal deficit.
38. (C) The butterfly (colloquially shortened to fly) is a swimming stroke swum on the chest, with both arms moving symmetrically, accompanied by the butterfly kick (also known as the "dolphin kick").
39. (B) There shall be a Governor for each state (Articles 153 of the Constitution of India). The executive power of the State shall be vested in the Governor and shall be exercised by him either directly or through officers subordinate to him in accordance with the Constitution of India (Article 154).
40. (A) Ravi Shastri was the first Indian batsman to hit six consecutive sixes in first-class cricket. He scored six sixes in an over against left-arm spinner Tilak Raj in the year 1984 in a Ranji Trophy match between Bombay and Baroda.
42. (D) China is the top country by wheat production in the world. As of 2020, wheat production in China was 134,250 thousand tonnes that accounts for 20.65% of the world's wheat production.
43. (C) Nyishi is one of the major ethnic groups and major tribes in the northeastern state of Arunachal Pradesh. It is also known by the name Bangni and Dafla in some areas of Arunachal Pradesh.
44. (A) The International Day of Happiness aims to make people around the world realize the importance of happiness within their lives.
48. (D) Muhammad Ali Jinnah was given the title 'Quaid-i-Azam'. Quaid-i-Azam means Great Leader. He was also known by the name Baba-i-Quam, which means The Father of the Nation. He served as the leader of All-Indian Muslim League and also as the Governor-General of Pakistan.
49. (C) One nibble is equal to 4 bits.
50. (A) Telangana has launched the Dalit Bandhu scheme at Salapalli village in Huzurnagar Assembly Constituency.
51. (A) Cost price of computer = ₹ 17500
Spent on transport = ₹ 300
Spent on installation = ₹ 600
Total cost price of computer = $17500 + 300 + 600 = ₹ 18400$
- ∴ Selling price of computer = $18400 \times \frac{124}{100} = ₹ 22816$
52. (C) Let the maximum marks be x.
ATQ,
$$x \times \frac{45}{100} = 715 + 95$$
$$45x = 810 \times 100$$
$$x = \frac{810 \times 100}{45} = 1800$$

53. (B) Let the work done by 1 man in 1 day = 1 unit
 Total work done = $225 \times 30 + 345 \times (80 - 30) = 6750 + 17250 = 24000$ unit
 If contractor had not added extra workers, then 225 workers will have to completed the

$$\text{dam} = \frac{24000}{225} = \frac{320}{3} \text{ days}$$

$$\text{So, required difference} = \frac{320}{3} - 80 = \frac{80}{3} \text{ days} = 26\frac{2}{3} \text{ days}$$

54. (A) Quantity of low quality rice = $450 \times \frac{20}{100} = 90$ kg

Let x units of good quantity of rice should be added to mixture.

ATQ,

$$\frac{90}{450 + x} = \frac{8}{100}$$

$$8x + 3600 = 9000$$

$$8x = 5400$$

$$x = \frac{5400}{8} = 675 \text{ kg}$$

55. (C) $8\frac{3}{4} \div \left[5\frac{1}{6} \div \left\{ 5\frac{2}{3} - \left(2\frac{1}{2} + \frac{3}{4} \right) \right\} \right] = \frac{35}{4} \div \left[\frac{31}{6} \div \left\{ \frac{17}{3} - \left(\frac{5}{2} + \frac{3}{4} \right) \right\} \right]$

$$= \frac{35}{4} \div \left[\frac{31}{6} \div \left\{ \frac{17}{3} - \left(\frac{10+3}{4} \right) \right\} \right] = \frac{35}{4} \div \left[\frac{31}{6} \div \left\{ \frac{17}{3} - \frac{13}{4} \right\} \right]$$

$$= \frac{35}{4} \div \left[\frac{31}{6} \div \left\{ \frac{68-39}{12} \right\} \right] = \frac{35}{4} \div \left[\frac{31}{6} \times \frac{12}{29} \right]$$

$$= \frac{35}{4} \div \frac{62}{29} = \frac{35}{4} \times \frac{29}{62} = \frac{1015}{248}$$

56. (D) $(a - b)^3 = a^3 - b^3 - 3ab(a - b)$

$$6^3 = 306 - 3ab(6)$$

$$216 = 306 - 18ab$$

$$18ab = 90$$

$$ab = \frac{90}{18} = 5$$

$$(a + b)^2 = (a - b)^2 + 4ab$$

$$(a + b)^2 = 6^2 + 4 \times 5$$

$$(a + b)^2 = 56$$

$$\therefore (a + b)^2 - ab = 56 - 5 = 51$$

57. (C) Let there are 26 numbers and value of each number is 1, then we can say sum of all the 26 numbers is 26 and another 27th number, whose value is - 26.

$$\text{Average of all the 27 numbers} = \frac{26 - 26}{27} = 0$$

Now, we can say there are 26 numbers may be greater than 0.



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58. (A) Arc of sector = $2\pi r \times \frac{60}{360^\circ} = \frac{\pi r}{3}$

The Arc of the sector will work as the perimeter of the base of cone.

Let the radius of the cone be R.

$$2\pi R = \frac{\pi r}{3}$$

$$R = \frac{r}{6}$$

Further, the radius of the sector will be equal to the slant height of the cone.

Therefore, $l = r$

Now, $l^2 = h^2 + r^2$

$$h^2 = r^2 - \frac{r^2}{36}$$

$$h^2 = \frac{35r^2}{36}$$

$$h = \frac{\sqrt{35}}{6} r$$

59. (B) CI for n^{th} year is given by = $\frac{PR}{100} \left(1 + \frac{R}{100}\right)^{n-1}$

For 3rd year CI = $\frac{PR}{100} \left(1 + \frac{R}{100}\right)^{3-1}$

$$125 = \frac{PR}{100} \left(1 + \frac{R}{100}\right)^2 \dots\dots\dots(i)$$

For 4th year CI = $\frac{PR}{100} \left(1 + \frac{R}{100}\right)^{4-1}$

$$135 = \frac{PR}{100} \left(1 + \frac{R}{100}\right)^3 \dots\dots\dots(ii)$$

Dividing equation (ii) by equation (i), we get

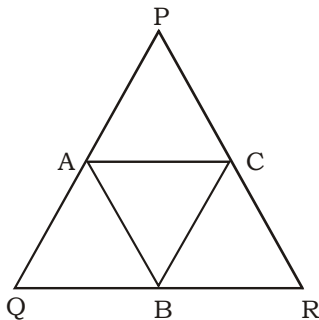
$$\frac{135}{125} = \frac{\frac{PR}{100} \left(1 + \frac{R}{100}\right)^3}{\frac{PR}{100} \left(1 + \frac{R}{100}\right)^2}$$

$$\frac{27}{25} = \left(1 + \frac{R}{100}\right)$$

$$\frac{R}{100} = \frac{27}{25} - 1$$

$$R = \frac{2}{25} \times 100 = 8\%$$

60. (A)



PQR is an equilateral triangle and A, B and C are the mid-points of side PQ, QR and PR respectively.

Side of triangle PQR = 12 cm

We know that,

$$\text{ar}(\Delta PAC) = \text{ar}(\Delta BCR) = \text{ar}(\Delta AQB) = \text{ar}(\Delta ABC)$$

$$\therefore \text{Area of } \Delta ABC = \frac{1}{4} \times \text{ar.}(\Delta PQR) = \frac{1}{4} \times \frac{\sqrt{3}}{4} \times (12)^2$$

$$= \frac{1}{4} \times \frac{\sqrt{3}}{4} \times 144 = 9\sqrt{3} \text{ cm}^2$$

61. (C) $2 \sin \theta = 5 \cos \theta$

$$\frac{\sin \theta}{\cos \theta} = \frac{5}{2}$$

Now,

$$\frac{\sin \theta + \cos \theta}{\sin \theta - \cos \theta}$$

Dividing numerator and denominator by $\cos \theta$, we get

$$\frac{\frac{\sin \theta}{\cos \theta} + \frac{\cos \theta}{\cos \theta}}{\frac{\sin \theta}{\cos \theta} - \frac{\cos \theta}{\cos \theta}} = \frac{\frac{5}{2} + 1}{\frac{5}{2} - 1} = \frac{\frac{7}{2}}{\frac{3}{2}} = \frac{7}{3}$$

62. (B) Let the income of A and B is $6x$ and $3x$ respectively and expenditure of A and B is $4y$ and $3y$ respectively.

ATQ,

$$6x - 4y = 800 \quad \dots(i)$$

$$5x - 3y = 800 \quad \dots(ii)$$

Multiply equation (i) by 5 and equation (ii) by 6 and subtracting, we get

$$30x - 20y - 30x + 18y = 4000 - 4800$$

$$-2y = -800$$

$$y = 400$$

Put the value of x in equation (i), we get

$$6x - 4 \times 400 = 800$$

$$6x = 2400$$

$$x = 400$$

$$\therefore \text{Sum of monthly income of A and B} = (6x + 5x) = 11x \\ = 11 \times 400 = ₹ 4400$$

63. (C) Mangoes of ₹ 20 are available for ₹ 19.

$$\text{Hence, discount} = \left(\frac{1}{20} \times 100\right)\% = 5\%$$

$$\text{If one gets mangoes of ₹ 20 for ₹ 18, then discount} = \left(\frac{2}{20} \times 100\right)\% = 10\%$$

$$\therefore \text{Required integer} = \left(\frac{2}{20} \times 27\right) = 2.7 \neq 3$$

64. (C) If the time taken by B to complete the work be x days,
Time taken by A to complete the work = $(x - 5)$ days
ATQ,

$$\frac{1}{x} + \frac{1}{x-5} = \frac{9}{100}$$

$$\frac{x-5+x}{x^2-5x} = \frac{9}{100}$$

$$9x^2 - 45x = 200x - 500$$

$$9x^2 - 245x + 500 = 0$$

$$9x^2 - 225x - 20x + 500 = 0$$

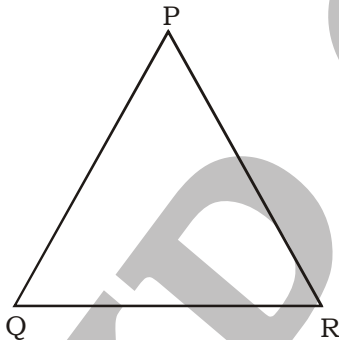
$$9x(x-25) - 20(x-25) = 0$$

$$(9x-20)(x-25) = 0$$

$$x = 25, \text{ because } x \neq \frac{20}{9}$$

\therefore Time taken by B to complete the work alone is 25 days.

65. (D)



$$\angle P + \angle Q = 145^\circ$$

$$\angle R = 180^\circ - 145^\circ = 35^\circ$$

$$\angle R + 2\angle Q = 180^\circ$$

$$2\angle Q = 180^\circ - 35^\circ = 145^\circ$$

$$\angle Q = \frac{145^\circ}{2} = 72.5^\circ = \angle P$$

$$\angle Q = \angle R$$

\therefore $RP > PQ$

66. (A) Volume of rectangular block = $21 \times 77 \times 24 \text{ cm}^3$

Let the radius of sphere be $r \text{ cm}$,

$$\frac{4}{3}\pi r^3 = 21 \times 77 \times 24$$

$$r^3 = \frac{21 \times 77 \times 24 \times 3 \times 7}{4 \times 22}$$

$$r^3 = 3^3 \times 7^3$$

$$\therefore r = 3 \times 7 = 21 \text{ cm}$$

67. (A) Third proportion to $\left(\frac{x}{y} + \frac{y}{x}\right)$ and $\sqrt{x^2 + y^2}$

$$= \frac{(\sqrt{x^2 + y^2})^2}{\frac{x}{y} + \frac{y}{x}} = \frac{x^2 + y^2}{\frac{xy}{xy}} = \frac{xy(x^2 + y^2)}{x^2 + y^2} = xy$$

68. (C) $A + B + C = \pi$

$$\frac{A+B}{2} = \frac{\pi}{2} - \frac{C}{2}$$

$$\sin\left(\frac{A+B}{2}\right) = \sin\left(\frac{\pi}{2} - \frac{C}{2}\right) = \cos\frac{C}{2}$$

Similarly,

$$\cos\left(\frac{A+B}{2}\right) = \sin\frac{C}{2}$$

$$\cot\left(\frac{A+B}{2}\right) = \tan\frac{C}{2}$$

$$\tan\left(\frac{A+B}{2}\right) = \cot\frac{C}{2}$$

69. (B) Let C be 100.

$$\text{Then, } B = 80 \text{ and } A = 80 \times \frac{8}{5} = 128$$

$$2A : 3B : 5C = 2 \times 128 : 3 \times 80 : 5 \times 100 \\ = 256 : 240 : 500 = 64 : 60 : 125$$

70. (B) $a^2 + a + 1 = 0$

$$(a-1)(a^2 + a + 1) = 0 \quad (a-1)$$

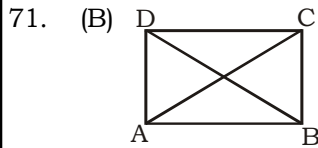
$$a^3 - 1^3 = 0$$

$$a^3 = 1$$

$$(a^3)^3 = 1^3$$

$$a^9 = 1$$

$$\therefore a^9 + 2 = 1 + 2 = 3$$



Given,

ABCD is a Rectangle.

Then,

$$AB^2 + BC^2 + CD^2 + DA^2 = AC^2 + BD^2$$

72. (A) Required% = $\frac{350}{350 + 400 + 450} \times 100 = \left(\frac{350}{1200} \times 100 \right) \% = 29.16\%$

73. (B) Total number of students = $300 + 350 + 275 + 400 + 275 + 250 + 400 + 325 + 375 + 250 + 400 + 450 + 250 + 300 + 500 = 5100$

Total number of students in commerce = $250 + 400 + 325 + 375 + 250 = 1600$

\therefore Required% = $\left(\frac{1600}{5100} \times 100 \right) \% = 31.37\%$

74. (A) Required ratio = $(300 + 350 + 275 + 400 + 275) : (250 + 400 + 325 + 375 + 250)$
 $= (1600 : 1600) = 1 : 1$

75. (C) Total number of students in all the five colleges = 5100
 Total number of students in college B = 1200

\therefore Required angle = $\left(\frac{1200}{5100} \times 360^\circ \right) = 84.70^\circ \approx 85^\circ$

MEANINGS IN ALPHABETICAL ORDER

Appalling	causing shock or dismay; horrific	भय उत्पन्न करने वाला
Collide	hit with force when moving	टकराना
Cope	(of a person) deal effectively with something difficult	सामना
Cosmopolitan	including or containing people from many different countries	विश्ववादी
Delinquent	(typically of a young person or that person's behavior) showing or characterized by a tendency to commit crime, particularly minor crime	अपराधी
Edifice	a building, especially a large, imposing one	भवन
Formidable	inspiring fear or respect through being impressively large, powerful, intense, or capable	दुर्जेय
Grim	forbidding or uninviting	विकट
Haunting	poignant and evocative; difficult to ignore or forget	भूतिया
Hypothetical	of, based on, or serving as a hypothesis	काल्पनिक
Identical	similar in every detail; exactly alike	समान
Immense	extremely large or great, especially in scale or degree	अत्यधिक
Indistinguishable	not able to be identified as different or distinct	अविवेच्य
Ominous	giving the impression that something bad or unpleasant is going to happen; threatening	अमंगल
Philanthropist	a person who seeks to promote the welfare of others, especially by the generous donation of money to good causes	लोकोपकारक
Prodigious	remarkably or impressively great in extent, size, or degree	विलक्षण
Scary	frightening; causing fear	डरावना
Spire	a tapering conical or pyramidal structure on the top of a building, typically a church tower	शिखर
Trivial	of little value or importance	मामूली

SSC MOCK TEST - 307 (ANSWER KEY)

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

76. (A) 'Quarter' is a noun and 'quarterly' is adjective/adverb. The noun 'results' should be preceded by adjective 'quarterly'.
77. (B) If the second event occurs immediately after the first, we can express that idea using the structure no sooner ... than. / hardly or scarcely...when./ As soon as, 'when' should be replaced with than.
90. (B) The correct spelling of 'Disclaimer' is 'Disclaimer'.
91. (C) The correct spelling of 'Monument' is 'Monument'.