# SSC MOCK TEST - 310 (SOLUTION)

1. (A) As,

$63 \Rightarrow 6^3 - 3^3 = 189$

Similarly,

$85 \Rightarrow 8^3 - 5^3 = 387$

2. (B) Court is the place where Tennis is played, while Ring is the place where Boxing is played.

3. (D) (A) $138 \Rightarrow \frac{1+3+8}{3} = 4$

(B) $480 \Rightarrow \frac{4+8+0}{3} = 4$

(C) $921 \Rightarrow \frac{9+2+1}{3} = 4$

(D) $747 \Rightarrow \frac{7+4+7}{3} = 6$

4. (C) (A) D E I 4 + 5 = 9

(B) A I J 1 + 9 = 10

(C) J F R 10 + 6 ≠ 18

(D) L N Z 12 + 14 = 26

5. (B) As,

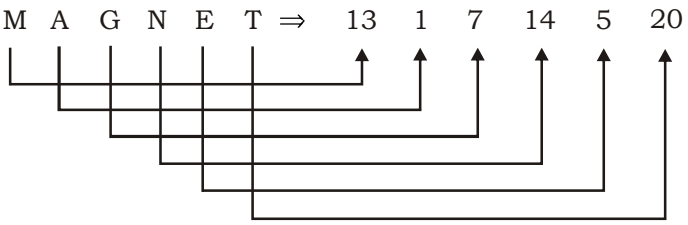
B O X 2 15 24 ⇒ (2) (1 + 5) (2 + 4)

⇒ 266

P O O R ⇒ 16 15 15 18 ⇒ (1 + 6) (1 + 5) (1 + 5) (1 + 8)

⇒ 7669

Similarly,




⇒ (1 + 3) (1) (7) (1 + 4) (5) (2 + 0)

⇒ **417552**

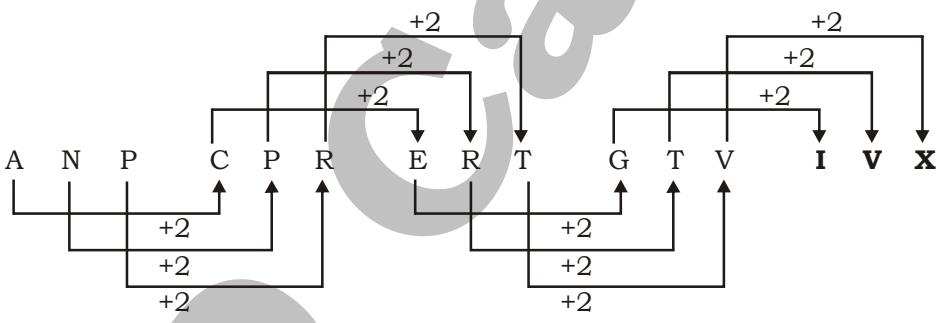
6. (A) $24 \times \frac{3}{2} = 36$

$36 \times \frac{3}{2} = 54$

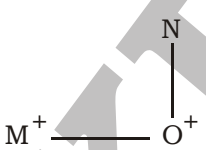
$54 \times \frac{3}{2} = 81$

$81 \times \frac{3}{2} = \frac{\mathbf{243}}{\mathbf{2}}$

7. (C)




8. (A)




Hence, M is the son of N.

9. (D) As,

$121 \Rightarrow (1 + 2 + 1)^2 = 16$

$16 \Rightarrow (1 + 6)^2 = 49$

Similarly,

$312 \Rightarrow (3 + 1 + 2)^2 = 36$

$36 \Rightarrow (3 + 6)^2 = 81$

10. (B) id**m**kj/**i**dm**k**j/idmk**j**/i**d**mkj

11. (B)

12. (C) **In first row,**

24 + (2 + 4) = 30

30 + (3 + 0) = 33

**In second row,**

38 + (3 + 8) = 49

49 + (4 + 9) = 62

**In third row,**

41 + (4 + 1) = 46

46 + (4 + 6) = **56**

13. (B) $125 \div 25 \times 4 + 3 - 5 = 78$

After Changing the numbers 25 and 5 to each other,

$125 \div 5 \times 4 + 3 - 25 = 78$

$25 \times 4 + 3 - 25 = 78$

$103 - 25 = 78$

$78 = 78$

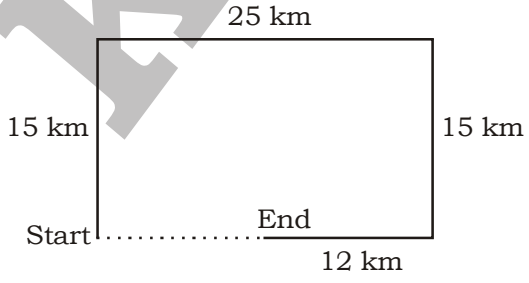
14. (A)

| Day | Teacher | Subject |
|---|---|---|
| Monday | Kartik | Social Science |
| Tuesday | Lakhan | Arts |
| Wednesday | Jemmy | Science |
| Thursday | Mohan | English |
| Friday | Onkar | Mathematics |
| Saturday | Neeraj | Hindi |

Hence, Hindi is taught on Saturday.

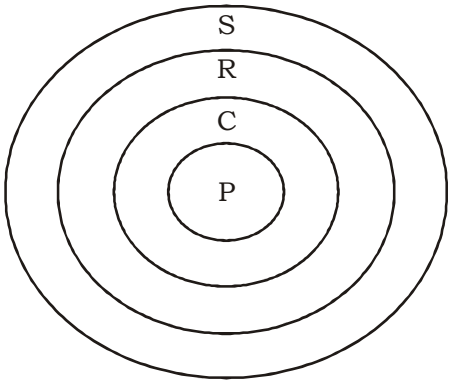
15. (B) 4. Uttar Pradesh → 2. Madhya Pradesh → 1. Andhra Pradesh → 5. Himachal Pradesh → 3. Arunachal Pradesh

16. (C)




Hence, the distance between starting point and end point is 13 km.

17. (B)

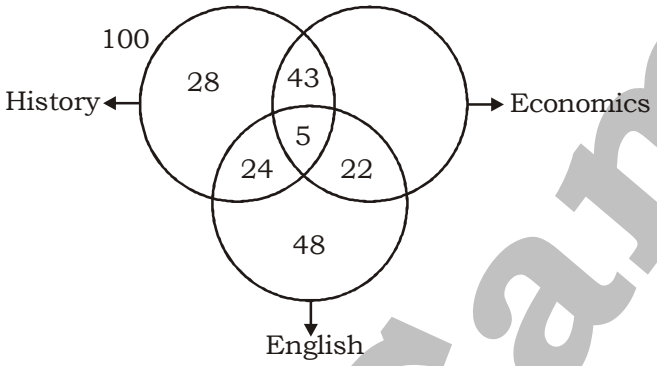



I. True II. Doubt III. Doubt IV. True

Hence, only conclusions I and IV follow.

18. (C) 19. (B)

20. (D)




Number of students passed in History and Economics = 100 – (28 + 5 + 24) = 43

Hence, Number of students passed in Economics only

= 200 – (28 + 43 + 5 + 24 + 22 + 48)

= 200 – 170 = 30

21. (A) Total ages of A, B and C = 28 × 3 = 84 years

Total ages of A, B, C and D = 26 × 4 = 104 years

Age of D = 104 – 84 = 20 years

Age of E = 20 + 2 = 22 years

Total ages of B, C, D and E = 22 × 4 = 88 years

Total ages of B, C and D = 88 – 22 = 66 years

∴ Age of A = 104 – 66 = 38 years

22. (A) 23. (B) 24. (A) 25. (D)

26. (D) The first Sayyid ruler of Delhi was Khizr Khan (reigned 1414–21), who had been governor of the Punjab.

27. (B) Arunachal Pradhesh is the most northeastern one of India. China and Arunachal Pradesh share a border, which is called McMahon Line. Also, the Republic of China claims a large part of the state.

28. (B) PM Narendra Modi is a 2019 Hindi-language biographical drama film directed by Omung Kumar, and written by Anirudh Chawla and Vivek Oberoi. The film is jointly produced by Suresh Oberoi, Sandip Ssingh, Anand Pandit, Acharya Manish under the banner of Legend Studios.

29. (C) Distillation is a process involving the conversion of a liquid into a vapor that is subsequently condensed back to liquid form. In distillation both vaporization and Condensation take place.

30. (D) Galena, also called lead glance, is the natural mineral form of lead(II) sulfide (PbS). It is the most important ore of lead and an important source of silver.

32. (C) Panchavati, or modern-day Nashik, is a city that is entirely in the state of Maharashtra. It is very crucial among the places visited by Lord Rama as it is where the crucial phase of his exile occurs. The entire Aranya Kanda of Ramayana is set in Panchavati.

33. (B) Rani-ki-Vav (the Queen's Stepwell) at Patan, Gujarat - UNESCO World Heritage Centre.

36. (A) NITI Aayog, with RMI and RMI India's support, today launched Shoonya—an initiative to promote zero-pollution delivery vehicles by working with consumers and industry.

37. (D) Paan Singh Tomar (1932 – October 1, 1981) was an Indian athlete and a seven-time national steeplechase champion during the 1950s and 1960s. He represented India at the 1958 Asian Games in Tokyo, Japan.

38. (D) Google was incorporated as a privately-held company on September 4, 1998, by founders Larry Page and Sergey Brin.

40. (D) Amortization can refer to the process of paying off debt over time in regular installments of interest and principal sufficient to repay the loan in full by its maturity date.

41. (A) Gamma rays have the highest frequency in the electromagnetic spectrum. They have a frequency of the order of about 1020 to 1022 Hz.

44. (A) West Bengal, Assam and Bihar are the major jute growing states in the country, which accounts for about 98 percent of the country's jute area and production (State of Indian Agriculture, 2016-2017).

45. (A) Osteoporosis causes bones to become weak and brittle — so brittle that a fall or even mild stresses such as bending over or coughing can cause a fracture. Osteoporosis-related fractures most commonly occur in the hip, wrist or spine. Bone is living tissue that is constantly being broken down and replaced.

47. (C) Buoyancy is the upward force that acts on the swimmer while they are in the water. The pressure from beneath the swimmer is much greater than the pressure above them which allow the swimmer to float.

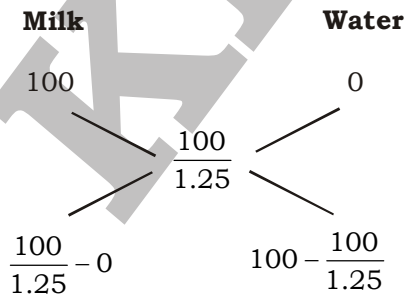
48. (D) Calcium hydroxide, also called slaked lime, $Ca(OH)_2$, is obtained by the action of water on calcium oxide.

51. (A) Let the CP of 1 litre milk = ₹ 100

SP of 1 litre milk = ₹ 100

Profit = 25%

By alligation method,




Ratio = 80 : 20 = 4 : 1

∴ Required ratio = 4 : 1

52. (C) (A + B)'s 1 day work = $\frac{1}{20}$

C's 1 day work = $\frac{1}{40}$

(A + B + C)'s 1 day work = $\frac{1}{20}+\frac{1}{40}=\frac{2+1}{40}=\frac{3}{40}$ .....(i)

A's 1 day work = (B + C)'s 1 day work ....(ii)

From (i) and (ii), we get

2 × (A's 1 day work) = $\frac{3}{40}$

Therefore, A's 1 day work = $\frac{3}{80}$

B's 1 day work = $\frac{1}{20}-\frac{3}{80}=\frac{1}{80}$

$\therefore$ B alone can do the same work in 80 days.

53. (C) Let the five consecutive odd number be x, x + 2, x + 4, x + 6 and x + 8.

ATQ,

x + x + 2 + x + 4 + x + 6 + x + 8 = 155

5x + 20 = 155

5x = 135

x = 27

Highest number = 27 + 8 = 35

Lowest number = 27

$\therefore$ Required product = 35 × 27 = 945

54. (D) Let the capacity of tank = 36 litres

Pipe A fill the tank in 1 hour = $\frac{36}{6}$ = 6 litres/hour

Pipe B fill the tank in 1 hour = $\frac{36}{12}$ = 3 litres/hour

Pipe C fill the tank in 1 hour = $\frac{36}{18}$ = 2 litres/hour

For 36 minutes the pipe B and C can fill = (3 + 2) × $\frac{36}{60}$ = 3 litres

Remaining capacity = 36 – 3 = 33 litres

Time required to fill the remaining part = $\frac{33}{11}$ = 3 hours

$\therefore$ Required total time = 3 hours 36 minutes

55. (C) Let each quantity of each sample = 100 units

Quantity of milk in first sample = $100 \times \frac{35}{100}$ = 35 units

Quantity of milk in second sample = $100 \times \frac{75}{100}$ = 75 units

Quantity of milk in mixture = $35 \times \frac{85}{100} + 75 \times \frac{15}{100}$

= 29.75 + 11.25 = 41 units

$\therefore$ Required percentage of milk in the mixture = $\left(\frac{41}{100} \times 100\right)\% = 41\%$

56. (B) $\frac{3}{4} \times 2\frac{2}{3} \div \frac{5}{9}$ of $1\frac{1}{5} + \frac{2}{23} \times 3\frac{5}{6} \div \frac{2}{7}$ of $2\frac{1}{3}$

$= \frac{3}{4} \times \frac{8}{3} \div \frac{5}{9}$ of $\frac{6}{5} + \frac{2}{23} \times \frac{23}{6} \div \frac{2}{7}$ of $\frac{7}{3}$

$= \frac{3}{4} \times \frac{8}{3} \div \frac{2}{3} + \frac{2}{23} \times \frac{23}{6} \times \frac{3}{2}$

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

57. (C) $\Delta ABC$ is right angled triangle, right angle at B.

So AC is the hypotenuse.

AC – AB = 1 (Given).....(i)

By Pythagoras theorem,

$AC^2 = AB^2 + BC^2$

$BC^2 = AC^2 - AB^2$

$7^2 = (AC - AB)(AC + AB)$

$49 = 1(AC + AB)$

$AC + AB = 49$ .....(ii)

Adding (i) and (ii) we get,

$2AC = 50$

$AC = 25$ cm

Substitute the value of AC in equation (ii), we get

$AB = 24$ cm

Now, $\cos A + \sin A = \frac{AB}{AC} + \frac{BC}{AC} = \frac{24}{25} + \frac{7}{25} = \frac{31}{25}$

$\therefore$ $\cos A + \sin A = \frac{31}{25}$

58. (A) Curved surface area of a cylinder = $2\pi rh = 254\ m^2$ .....(i)

Volume of cylinder = $\pi r^2h = 1778\ m^3$ .....(ii)

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

$$\frac{\text{Volume of cylinder}}{\text{CSA of cylinder}} = \frac{1778}{254}$$

$$\frac{\pi r^2 h}{2\pi rh} = \frac{1778}{254}$$

$$\frac{r}{2} = 7$$

$r = 7 \times 2 = 14$ cm

Diameter = $14 \times 2 = 28$ cm

Put the value of r in equation (i),

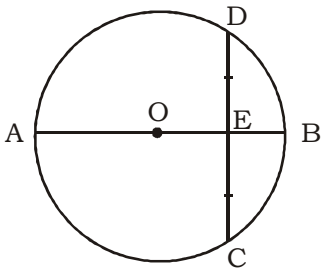
$2\pi rh = 254$

$$2 \times \frac{22}{7} \times 14 \times h = 254$$

$$h = \frac{254}{88} = 3 \text{ cm}$$

$\therefore$ Required ratio = 28 : 3

59. (B)




Let the radius of circle be r cm.

So, OC = OD = r cm

As, OB = OE + EB

r = OE + 6 (since OB is the radius and EB = 6 cm given)

OE = (r – 6) cm

We know that if a line drawn from the centre to the chord, it bisects the chord, and then it is perpendicular to the chord.

Hence,

$OE \perp CD$

In $\Delta OED$,

$OE^2 + ED^2 = OD^2$

$(r - 6)^2 + 12^2 = r^2$

$r^2 + 36 - 12r + 144 = r^2$

$12r = 180$

$$r = \frac{180}{12} = 15 \text{ cm}$$

$\therefore$ Radius of circle = 15 cm

60. (B) Total number of families whose monthly expenditure on food is ₹ 2800 or more, but below ₹ 4500 = 40 + 55 + 68 + 50 + 43 = 256

Total number of families whose monthly expenditure on food are ₹ 3200 or more but below ₹ 4800 = 55 + 68 + 50 + 43 + 41 = 257

$\therefore$ Required less% $= \left(\frac{1}{257} \times 100\right) = 0.38\%$

61. (C) $\frac{\cot\theta}{(1-\sin\theta)(\sec\theta+\tan\theta)}$

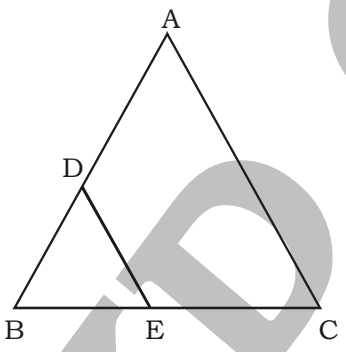
$$= \frac{\frac{\cos\theta}{\sin\theta}}{(1-\sin\theta)\left(\frac{1}{\cos\theta}+\frac{\sin\theta}{\cos\theta}\right)}$$

$$= \frac{\frac{\cos\theta}{\sin\theta}}{(1-\sin\theta)\left(\frac{1+\sin\theta}{\cos\theta}\right)}$$

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

$$= \frac{\cos^2\theta}{\sin\theta\times\cos^2\theta} = \frac{1}{\sin\theta}$$

62. (D)




$\frac{AD}{DB} = \frac{5}{3}$ (Given)

$\frac{AD}{DB} + 1 = \frac{5}{3} + 1$

$\frac{AD+DB}{DB} = \frac{5+3}{3}$

$\frac{AB}{DB} = \frac{8}{3}$ ....(i)

In $\Delta BDE$ and $\Delta ABC$,

$\angle B = \angle B$ (Common)

$\angle BAC = \angle BDE$ $[\because DE \parallel AC]$

So,

$\Delta ABC \sim \Delta BDE$ (By AA similarity criteria)

Now,

$$\frac{ar.(\Delta ABC)}{ar.(\Delta BDE)} = \frac{AB^2}{DB^2} = \frac{8^2}{3^2} = \frac{64}{9}$$

$\therefore$ $ar.(\Delta ABC) : ar.(\Delta BDE) = 64 : 9$

63. (C) Let the length of second train be x m.

Relative speed = 60 – 33 = 27 km/hr

$$= 27 \times \frac{5}{18} = 7.5 \text{ m/s}$$

ATQ,

$$\frac{350 + x}{7.5} = 120$$

350 + x = 900

$\therefore$ x = 900 – 350 = 550 m

64. (C) Simple interest = ₹ 5880

Rate = 10%

Time = $3\frac{1}{2}$ years = $\frac{7}{2}$ years

$$\text{Principal} = \frac{5880 \times 100 \times 2}{10 \times 7} = ₹ 16800$$

Now, Principal = ₹ 16800

Rate = 10%

Time = $2\frac{1}{2}$ years

$$A = 16800\left(1 + \frac{10}{100}\right)^2\left(1 + \frac{5}{100}\right)$$

$$A = 16800 \times \frac{11}{10} \times \frac{11}{10} \times \frac{21}{20} = ₹ 21344.40$$

$\therefore$ Compound interest = 21344.40 – 16800 = ₹ 4544.40

65. (B) Let p = 6, q = 5, r = 7

LCM of (6, 5, 7) = 210 and HCF = 1

mn = 210 × 1 = 210

and pqr = 6× 5 × 7 = 210

66. (A) $\sin^4\theta + \cos^4\theta = 2\sin^2\theta.\cos^2\theta$

$\sin^4\theta + \cos^4\theta - 2\sin^2\theta.\cos^2\theta = 0$

$(\sin^2\theta - \cos^2\theta)^2 = 0$

$\sin^2\theta = \cos^2\theta$

$\sin\theta = \cos\theta$

$\frac{\sin\theta}{\cos\theta} = 1$

$\therefore \tan\theta = 1$

67. (C) $\underset{300\ l}{\boxed{\begin{matrix}M:W\\5:2\end{matrix}}}$ $\underset{200\ l}{\boxed{\begin{matrix}M:W\\4:1\end{matrix}}}$ $\underset{100\ l}{\boxed{\begin{matrix}M:W\\4:1\end{matrix}}}$

$1^{st}\ 300\times\frac{1}{3} = 100 \rightarrow \text{water} = \frac{2}{7}\times 100 = \frac{200}{7}$

$2^{nd}\ 200\times\frac{1}{2} = 100 \rightarrow \text{water} = \frac{1}{5}\times 100 = 20$

$3^{rd}\ 100\times\frac{1}{7} = \frac{100}{7} \rightarrow \text{water}\ \frac{1}{5}\times\frac{100}{7} = \frac{100}{35} = \frac{20}{7}$

Total water = $\frac{200}{7} + \frac{20}{7} + 20 = \frac{360}{7}$

Total mixture = $100 + 100 + \frac{100}{7} = \frac{1500}{7}$

$\therefore$ Required percentage $= \left(\frac{\frac{360}{7}}{\frac{1500}{7}}\times 100\right)\% = 24\ \%$

68. (D) $\frac{M_1D_1T_1}{W_1} = \frac{M_2D_2T_2}{W_2}$

$\frac{12\times 6\times 240}{460} = \frac{18\times 360\times 8}{W_2}$

$\therefore W_2 = 1380$

69. (A) $[(0.87)^2 + (0.13)^2 + (0.87)\times(0.26)]^{2013}$

$[(0.87)^2 + (0.13)^2 + 2(0.87)\times(0.13)]^{2013}$

$[(0.87 + 0.13)^2]^{2013}$

$[1^2]^{2013} = 1$

70. (A) $(a - b) = 2$

Cubing both sides,

$(a - b)^3 = (2)^3$

$a^3 - b^3 - 3ab(a - b) = 8$

$152 - 3ab(2) = 8$

$-6ab = -144$

$ab = 24$

$a^3 - b^3 = 152$

Squaring both sides,

$(a^3 - b^3)^2 = (152)^2$

$a^6 + b^6 - 2a^3b^3 = 23104$

$\therefore$ $a^6 + b^6 = 23104 + 2(24)^3 = 50752$

71. (D) $8(4\ M + 6\ F) = 10(3\ M + 7\ F)$

$32\ M + 48\ F = 30\ M + 70\ F$

$2\ M = 22\ F$

$M : F = 11 : 1$

$D\ (10\ F) = 10(3\ M + 7\ F)$

$D\ (10 \times 1) = 10(3 \times 11 + 7 \times 1)$

$\therefore$ $D = 33 + 7 = 40$ days

72. (A) Required ratio = $(70 + 80 + 40) : (20 + 60 + 20) = 190 : 100 = 19 : 10$

73. (B) Total production in all the years together = $(60 + 70 + 80 + 80 + 40)$ lakh = 330 lakh

Total export in all the years together = $(20 + 30 + 60 + 70 + 20)$ lakh = 200 lakh

$\therefore$ Required difference = $(330 - 220)$ lakh = 110 lakh

74. (D) Difference of production and import in the year 2001 = $(70 - 30)$ lakh = 40 lakh

Difference of production and export in the year 2004 = $(40 - 20)$ lakh = 20 lakh

$\therefore$ Required more% = $\left(\frac{40-20}{20} \times 100\right)\%$ = 100%

75. (D) On seeing the graph, we can easily say.

$\therefore$ Required year is 2000, 2001, 2002 and 2004.

# MEANINGS IN ALPHABETICAL ORDER

| | | |
|---|---|---|
| Attic | a space or room just below the roof of a building | अटारी |
| Avert | turn away (one's eyes or thoughts) | टालना |
| Broad | having an ample distance from side to side; wide | विस्तृत |
| Commotion | a state of confused and noisy disturbance | हल्ला गुल्ला |
| Condemn | express complete disapproval of, typically in public; censure | निंदा करना |
| Conscientious | (of a person) wishing to do what is right, especially to do one's work or duty well and thoroughly | ईमानदार |
| Convenience | the state of being able to proceed with something with little effort or difficulty | सुविधा |
| Deliverance | the action of being rescued or set free | मुक्ति |
| Insist | demand something forcefully, not accepting refusal | जोर देना |
| Liberty | the state of being free within society from oppressive restrictions imposed by authority on one's way of life, behavior, or political views | स्वतंत्रता |
| Lunacy | the state of being a lunatic; insanity (not in technical use) | पागलपन |
| Observant | quick to notice things | तेज नजर |
| Prevent keep | (something) from happening or arising | रोकना |
| Provoke | stimulate or give rise to (a reaction or emotion, typically a strong or unwelcome one) in someone | उकसाना |
| Recluse | a person who lives a solitary life and tends to avoid other people | वैरागी |
| Revere | feel deep respect or admiration for (something) | सम्मान |
| Rustic | relating to the countryside; rural | देहाती |
| Scapegoat | a person who is blamed for the wrongdoings, mistakes, or faults of others, especially for reasons of expediency | बलि का बकरा |
| Separable | able to be separated or treated separately | वियोज्य |
| Stampede | a sudden panicked rush of a number of horses, cattle, or other animals | भगदड़ |

# SSC MOCK TEST - 310 (ANSWER KEY)

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

76. (D) No error

77. (B) Use 'when' instead of 'then'.

90. (A) The correct spelling of 'Conscinteous' is 'Conscientious', 'Comotion' is 'Commotion and 'Embarasment' is 'Embarrassment'.

91. (A) The correct spelling of 'Employeed' is 'Employed' is 'Rehersal' is 'Rehearsal' and 'Seperable' is 'Separable'.