## SSC MOCK TEST - 321 (SOLUTION)
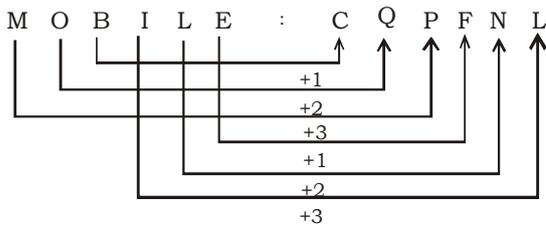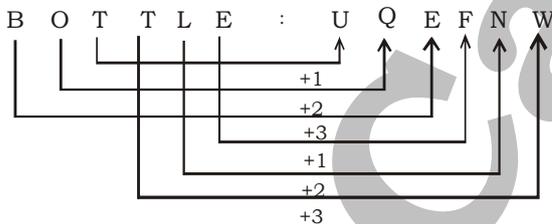
1. (A) As,

   $18 \Rightarrow 18 \times 3 = 54 \Rightarrow 45$

   Similarly,

   $17 \Rightarrow 17 \times 3 = 51 \Rightarrow 15$

2. (A) Taka is a currency of Bangladesh, while won is the currency of Korea.

3. (D) (A) $37 \Rightarrow 3 \times 7 = 21$ (Divisible by 3)

   (B) $93 \Rightarrow 9 \times 3 = 27$ (Divisible by 3)

   (C) $13 \Rightarrow 1 \times 3 = 3$ (Divisible by 3)

   (D) $77 \Rightarrow 7 \times 7 = 49$ (Not divisible by 3)

4. (B) All except Small Pox are caused by bacteria, while Small Pox is caused by virus.
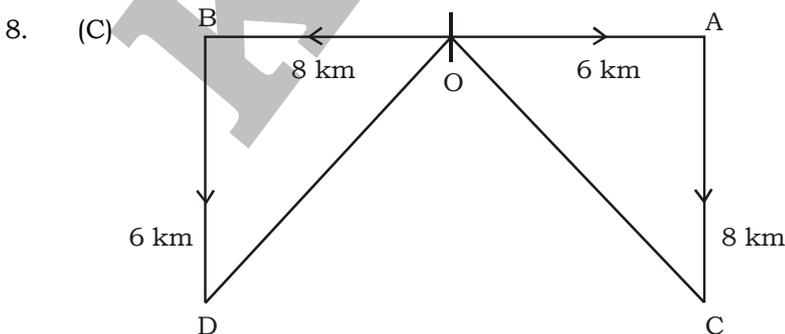
5. (B) As,



   Similarly,



6. (B)



7. (B) $20 + 18 = 38$

   $38 + 9 = 47$

   $47 + 4.5 = 51.5$

   $51.5 + 2.25 = \mathbf{53.75}$

8. (C)

A and B starts from point O, A first goes 6 m to A then 8 m in to right at C.

$OC = \sqrt{8^2 + 6^2} = \sqrt{64 + 36} = \sqrt{100} = 10$    (By Pythagoras theorem)

B first goes 8 km up to B then his left 6 km up to D

$OD = \sqrt{8^2 + 6^2} = \sqrt{64 + 36} = \sqrt{100} = 10$    (By Pythagoras theorem)

Hence, both are 10 km far from the starting point O.

9. (C) As, 68 – 17 = 51 $\Rightarrow$ 5 + 1 = 6

Similarly, 72 – 14 = 58 $\Rightarrow$ 5 + 8 = 13

10. (B) d**l**jc**g**/dlj**c**g/d**l**jc**g**

11. (A)

12. (D) **In the first column,**

$4^2 + 9^2 = 97 \Rightarrow 97 \times 2 = 194$

**In the second column,**

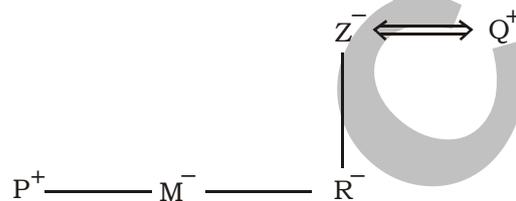$6^2 + 7^2 = 85 \Rightarrow 85 \times 2 = 170$

**In the third column,**

$8^2 + 4^2 = 80 \Rightarrow 80 \times 2 = 160$

13. (C) $72 \div 3 + 4 \times 9 - 8 = 12$

After changing 3 and 9 to each other,

$72 \div 9 + 4 \times 3 - 8 = 12$

$8 + 12 - 8 = 12$

$12 = 12$

14. (B)

15. (C) 2. Cerebellum $\rightarrow$ 4. Ceremonious $\rightarrow$ 5. Certainty $\rightarrow$ 1. Certificate $\rightarrow$ 3. Cervical

16. (A)

$$Z^- \Longleftrightarrow Q^+$$
$$|$$
$$P^+ \text{———} M^- \text{———} R^-$$

Hence, P is the son of Q.

17. (B)
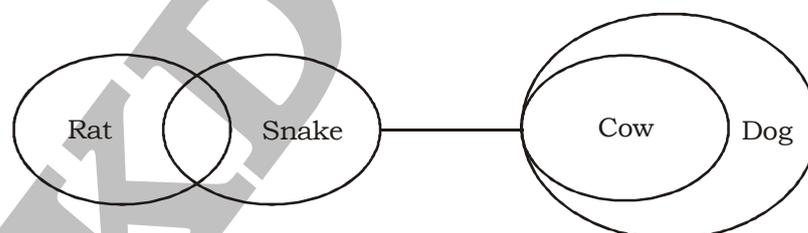
I. False     II. False     III. False

Hence, no conclusions follows.

18. (D)     19. (D)

20. (C) As, $17 + 2^3 = 25$

$25 + 3^3 = 52$

Similarly, $18 + 2^3 = 26$

$26 + 3^3 = 53$

21. (A) As, MAMMAL $\Rightarrow$ 13 + 1 + 13 + 13 + 1 + 12 = 53 $\Rightarrow$ 53 + $6^2$ = 89

    And, ANIMAL $\Rightarrow$ 1 + 14 + 9 + 13 + 1 + 12 = 50 $\Rightarrow$ 50 + $6^2$ = 86

    Similarly, MOBILE $\Rightarrow$ 13 + 15 + 2 + 9 + 12 + 5 = 53 $\Rightarrow$ 53 + $6^2$ = 89

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

26. (A) The most common animal figure found at all the Harappan sites is unihorn bull.

27. (B) Astronauts, who have seen the earth from space, say that the earth appears blue in colour. It is because of the presence of water. Earth is, therefore, also called Blue Planet.

28. (B) Alexandria and Port Said (Egypt) and Benghazi (Liby(A) are in the western side of Suez Canal whereas Suez is at the eastern entry point nearest to Mumbai. Suez Canal is 160 km long man-made canal which cuts through the isthmus between Egypt and Sinai Peninsula.

32. (C) Article three of the Constitution of India states that Parliament may legally enlarge the territory of any State, reduce the territory of any State, alter the boundaries of any State, and even change the name of any State. So, the correct answer is option C.

33. (C) Garo, Khasi, Jaintia hills are part of Meghalaya plateau. These hills are formed in the same age as Malwa plateau.

34. (D) Lunar caustic is a salt of silver (Ag). Silver was called 'Luna' by the ancient alchemists, who associated silver with the moon. 'Caustic' means being able to corrode organic tissue by chemical action.

35. (D) Catherine Russell, an assistant to US President Joe Biden, has been appointed as the next head of the UN children's agency UNICEF.

36. (C) About 25% of produced oxalic acid will be used as a mordant in dyeing processes. It is also used in bleaches, especially for pulpwood, and for rust removal and other cleaning, in baking powder, and as a third reagent in silica analysis instruments.

38. (C) A 'black hole' is a body in space which does not allow any radiation to come out. ... Notes: A black hole is a region of spacetime exhibiting gravitational acceleration so strong that nothing-no particles or even electromagnetic radiation such as light-can escape from it.

39. (C) Historical Perspective. After the development of the germ theory of disease by Louis Pasteur, the French-Algerian physician Charles Louis Alphonse Laveran examined and described malarial organisms in the red blood cells of his patients in 1870.

40. (D) Ian Macpherson is an Irish writer and performer. He is best known for his stand-up comedy (especially alternative comedy) and for his comic novels including Deep Probings: The Autobiography of a Genius.

42. (D) Arjuna Awards were instituted in 1961 by the Government of India to recognise outstanding achievement in national sports.

44. (B) The 8th of September was proclaimed International Literacy Day by UNESCO in 1966 to remind the international community of the importance of literacy for individuals, communities and societies, and the need for intensified efforts towards more literate societies.

47. (C) The states mainly producing mulberry silk are Andhra Pradesh, Karnataka, Tamil Nadu, West Bengal, and Jammu & Kashmir. Among all these, Karnataka is the major producer of mulberry silk in India.

48. (A) The Championships, Wimbledon, commonly known simply as Wimbledon or The Championships, is the oldest tennis tournament in the world and is widely regarded as the most prestigious.

49. (B) Machine Language: A program written in the form of Os & Is are called machine language.

50. (B) Telangana is currently witnessing cases of Covidengue, which occurs when a COVID-19 patient is infected with the Dengue virus.
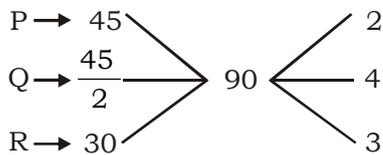
51. (B) Let the efficiency of P be x work/day

Efficiency of Q = (x × 2) = 2x work/day

Efficiency of R = $\left(\dfrac{x + 2x}{2}\right) = \dfrac{3x}{2}$ work/day

Total work $= 30 \times \dfrac{3x}{2} = 45x$

Time taken by P to complete the work $= \dfrac{45x}{x} = 45$ days

Time taken by Q to complete the work $= \dfrac{45x}{2x} = \dfrac{45}{2}$ days

P ⟶ 45 ⟍ ⟋ 2
Q ⟶ $\dfrac{45}{2}$ ⟶ 90 ⟵ 4
R ⟶ 30 ⟋ ⟍ 3

Time taken by P, Q and R together to complete the work $= \dfrac{90}{2 + 4 + 3} = \dfrac{90}{9} = 10$ days

52. (B) Equivalent discount% $= 20\% + 10\% - \dfrac{20 \times 10}{100}\% = 28\%$

ATQ,
(100 – 28)% = ₹ 1800
72% = ₹ 1800

$100\% = \left(\dfrac{1800}{72} \times 100\right) = ₹\ 2500$

∴ Marked price of article = ₹ 2500

53. (C) $\dfrac{\left(10^3 + 9^3\right)^{512}}{12^3} = \dfrac{(1000 + 729)^{512}}{1728}$

$\dfrac{(1729)^{512}}{1728}$ remainder $\Rightarrow (1)^{512} = 1$

54. (D) Sum of temperature of Sunday + Monday + Tuesday = (30 × 3)°C = 90°C ........(i)

Sum of temperature of Monday + Tuesday + Wednesday = (27 × 3)°C = 81°C ........(ii)

Subtract equation (ii) from (i),

Sunday – Wednesday = 9°C

$\Rightarrow$ Sunday $- \dfrac{2}{3}$ Sunday = 9°C

$\Rightarrow \dfrac{\text{Sunday}}{3} = 9°C$

∴ Sunday = 27°C

Temperature of Wednesday $= \left(27° \times \dfrac{2}{3}\right) = 18°C$

55. **(A)** Let the Sanjur's salary be ₹ 100

Ankit's salary = ₹ 100 + 50% of 100 = ₹ 150

After increment,

Ankit's salary = ₹ 150 + 30% of ₹ 150 = ₹ 195

Sanjur's salary = ₹ 100 + 25% of ₹ 100 = ₹ 125

Required% = $\left(\dfrac{195 - 125}{125} \times 100\right)\% = 56\%$

56. **(C)** Principal = ₹ 2000

Rate = 12% p.a

Time = 3 years

$S.I = \dfrac{P \times R \times T}{100} = \left(\dfrac{2000 \times 12 \times 3}{100}\right) = ₹\ 720$

Rate = 10% p.a

$C.I = P\left(1 + \dfrac{R}{100}\right)^{T} - P$

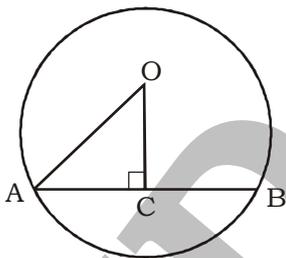$= 2000\left(1 + \dfrac{10}{100}\right)^{3} - 2000 = ₹\ 662$

Required difference = ₹ 720 – ₹ 662 = ₹ 58

57. **(D)** Let 'a' and 'b' be 2x and 3x respectively

$\therefore \quad \dfrac{4a + 3b}{5a - 2b} = \dfrac{4 \times 2x + 3 \times 3x}{5 \times 2x - 2 \times 3x} = \dfrac{8x + 9x}{10x - 6x}$

$= \dfrac{17x}{4x} = \dfrac{17}{4} = 17 : 4$

58. **(C)**



OC = 7 cm

OA = 25 cm (radius)

AB = chord

We know that perpendicular drawn from the centre bisects the chord.

In $\triangle OAC$,

$OA^2 = AC^2 + OC^2$ (Phythagoras theorem)

$(25)^2 = AC^2 + (7)^2$

$\sqrt{625 - 49} = AC$

$AC = \sqrt{576} = 24\,cm$

AB = 2 × AC = 2 × 24 cm = 48 cm

59. (C) (A) $\sqrt{99} - \sqrt{97} = \dfrac{\left(\sqrt{99} - \sqrt{97}\right)\left(\sqrt{99} + \sqrt{97}\right)}{\sqrt{99} + \sqrt{97}}$

$= \dfrac{99 - 97}{\sqrt{99} + \sqrt{97}} = \dfrac{2}{\sqrt{99} + \sqrt{97}}$

(B) $\sqrt{26} - \sqrt{24} = \dfrac{\left(\sqrt{26} - \sqrt{24}\right)\left(\sqrt{26} + \sqrt{24}\right)}{\sqrt{26} + \sqrt{24}}$
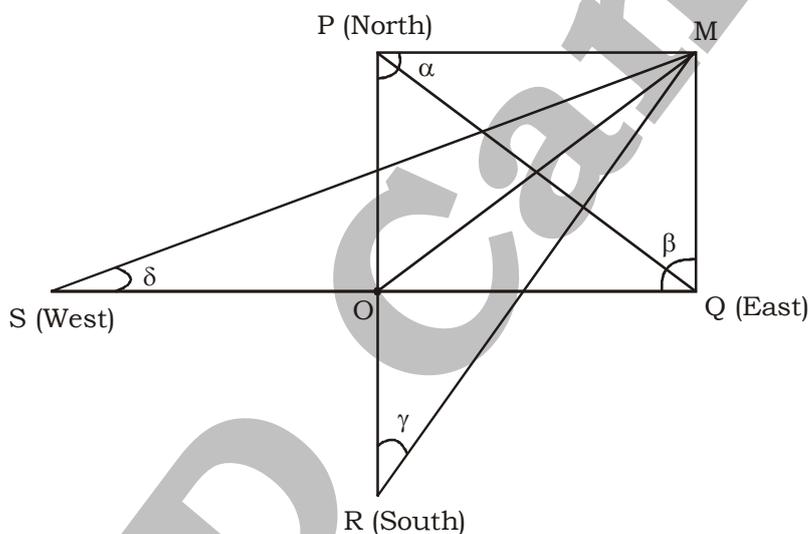
$= \dfrac{26 - 24}{\sqrt{26} + \sqrt{24}} = \dfrac{2}{\sqrt{26} + \sqrt{24}}$

(C) $\sqrt{3} - 1 = \dfrac{\left(\sqrt{3} - 1\right)\left(\sqrt{3} + 1\right)}{\sqrt{3} + 1} = \dfrac{3 - 1}{\sqrt{3} + 1} = \dfrac{2}{\sqrt{3} + 1}$

(D) $\sqrt{101} - \sqrt{99} = \dfrac{\left(\sqrt{101} - \sqrt{99}\right)\left(\sqrt{101} - \sqrt{99}\right)}{\sqrt{101} + \sqrt{99}} = \dfrac{2}{\sqrt{101} + \sqrt{99}}$

So, the $\sqrt{3} - 1$ is greatest number.

60. (C)



Let height of clock tower be h.

In $\triangle OMP$,

$\cot\alpha = \dfrac{OP}{OM} = \dfrac{OP}{h}$

$OP = h\cot\alpha$ .......(i)

In $\triangle OMQ$,

$\cot\beta = \dfrac{OQ}{OM} = \dfrac{OQ}{h}$

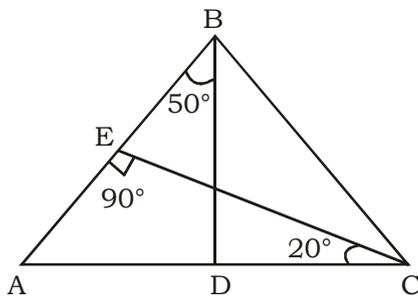$OQ = h\cot\beta$ .......(ii)

In $\Delta POQ$,

$PQ^2 = OP^2 + OQ^2$

$PQ^2 = h^2 \cot^2 \alpha + h^2 \cot^2 \beta$

Similarly,

$RS^2 = h^2 \cot^2 \gamma + h^2 \cot^2 \delta$

So, $\dfrac{PQ^2}{RS^2} = \dfrac{\cot^2 \alpha + \cot^2 \beta}{\cot^2 \gamma + \cot^2 \delta}$

61.  (B)



In $\Delta CAE$,

$\angle CAE = 180° - (90° + 20°)$

$= 180° - 110° = 70°$

In $\Delta ABD$,

$\angle BDA = 180° - (70° + 50°)$

$= 180° - 120° = 60°$

62.  (A)  In radius of circle $= \dfrac{\text{area of } \Delta}{\text{semiperimeter of } \Delta}$

a = 26;　　　b = 28;　　　c = 30

$s = \dfrac{a + b + c}{2} = \dfrac{26 + 28 + 30}{2} = \dfrac{84}{2} = 42\,cm$

Area of $\Delta = \sqrt{s(s-a)(s-b)(s-c)} = \sqrt{42(42-26)(42-28)(42-30)}$

$= \sqrt{14 \times 3 \times 16 \times 14 \times 3 \times 4}$

$= (14 \times 3 \times 4 \times 2)\ cm^2 = 336\ cm^2$

In radius of circle $= \left(\dfrac{336}{42}\right) cm = 8\,cm$

63. (D) $x^4 + \dfrac{1}{x^4} = 34$

$\left(x^2 + \dfrac{1}{x^2}\right)^2 - 2 = 34$

$\left(x^2 + \dfrac{1}{x^2}\right)^2 = 36$

$x^2 + \dfrac{1}{x^2} = 6$

$\left(x - \dfrac{1}{x}\right)^2 + 2 = 6$

$\left(x - \dfrac{1}{x}\right)^2 = 4$

$\left(x - \dfrac{1}{x}\right) = 2$

Cubing both sides,

$\left(x - \dfrac{1}{x}\right)^3 = 8$

$x^3 - \dfrac{1}{x^3} - 3x \times \dfrac{1}{x}\left(x - \dfrac{1}{x}\right) = 8$

$x^3 - \dfrac{1}{x^3} - 3 \times 2 = 8$

$x^3 - \dfrac{1}{x^3} = 14$

64. (B) Let the number be 5x and 6x respectively.

HCF of number = x

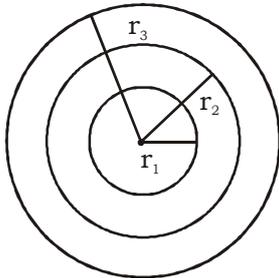LCM of number = 30x

x = 16

Numbers = (5 × 16), (6 × 16) = 80, 96

Smallest number = 80

65. (A) Average number for which train stop = $\dfrac{\text{Speed without stoppage} - \text{Speed with stoppage}}{\text{Speed without stoppage}}$

$= \left(\dfrac{60 - 45}{60}\right) \text{hours} = \dfrac{15}{60} \text{hours}$

$= \left(\dfrac{15}{60} \times 60\right) \text{minutes} = 15 \text{ minutes}$

66. **(D)**



Let the radius of circle be 4x, 5x and 7x.

Area between the two inner circles = $\pi r_2^2 - \pi r_1^2$

= $\pi \left(5^2 - 4^2\right) = 9\pi \, cm^2$

Area between the two outer circles = $\pi r_3^2 - \pi r_2^2$

= $\pi \left(7^2 - 5^2\right) = 24\pi \, cm^2$

Required ratio = $(9\pi : 24\pi) = 3 : 8$

67. **(B)** $5\sin\theta - 3\cos\theta = x$ ..........(i)

$3\sin\theta + 5\cos\theta = 5$ ..........(ii)

Squaring both equation and adding,

$(5\sin\theta - 3\cos\theta)^2 + (3\sin\theta + 5\cos\theta)^2 = x^2 + 25$

$25\sin^2\theta + 9\cos^2\theta - 30\sin\theta\cos\theta + 9\sin^2\theta + 25\cos^2\theta + 30\sin\theta\cos\theta = x^2 + 25$

$34(\sin^2\theta + \cos^2\theta) = x^2 + 25$

$34 = x^2 + 25$

$x^2 = 34 - 25 = 9$

$x = \sqrt{9} = \pm 3$

68. **(D)** Ratio of investment of A, B and C = $\dfrac{1}{4} : \dfrac{1}{3} : \dfrac{1}{6} = 3 : 4 : 2$

Let the investment of A, B and C be ₹ 3x, ₹ 4x and ₹ 2x respectively.

Ratio of profit = $\left(3x \times 4 + \dfrac{3x}{2} \times 8\right) : \left(4x \times 6 + \dfrac{4x}{3} \times 6\right) : (2x \times 12)$

= 24x : 32x : 24x = 3 : 4 : 3

Profit of A = ₹$14000 \times \dfrac{3}{3+4+3} = $₹$4200$

Profit of B = ₹$14000 \times \dfrac{4}{3+4+3} = $₹$5600$

Profit of C = ₹$14000 \times \dfrac{3}{3+4+3} = $₹$4200$

69. (C) $(a + b + c)^2 = a^2 + b^2 + c^2 + 2(ab + bc + ca)$

$(2)^2 = 26 + 2(ab + bc + ca)$

$4 - 26 = 2(ab + bc + ca)$

$ab + bc + ca = -11$

$a^3 + b^3 + c^3 - 3abc = (a + b + c)(a^2 + b^2 + c^2 - ab - bc - ca)$

$= 2[26 - (-11)] = 2 \times 37 = 74$

70. (A) Speed of boat in downstream $= (5 + 1)$km/h $= 6$ km/h

Speed of boat in upstream $= (5 - 1)$km/h $= 4$ km/h

Let the distance be 'D' km.

ATQ,

$$\frac{D}{6} + \frac{D}{4} = 1$$

$$\frac{2D + 3D}{12} = 1$$

$$D = \frac{12}{5}\,km = 2.4\,km$$

71. (A) $7.6 - (8.4 \div 1.4 \times 6) + 10 \times 4 \div 1$

$= 7.6 - (6 \times 6) + 40$

$= 7.6 - 36 + 40 = 7.6 + 4 = 11.6$

72. (A) Required% $= \dfrac{350}{350 + 400 + 450} \times 100$

$= \left(\dfrac{350}{1200} \times 100\right)\% = 29.2\%$

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 $= 250 + 400 + 325 + 375 + 250 = 1600$

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

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 $= 1200$

Required angle $= \left(\dfrac{1200}{5100} \times 360°\right) = 84.70° \approx 85°$

# MEANINGS IN ALPHABETICAL ORDER

| | | |
|---|---|---|
| Alimony | a husband's or wife's court-ordered provision for a spouse after separation or divorce | गुजारा–भत्ता |
| Aromatic | having a pleasant and distinctive smell | सुगन्धित |
| Assassin | a murderer of an important person in a surprise attack for political or religious reasons | हत्यारा |
| Befit | be appropriate for | के अनुकूल |
| Clad | clothed | कपड़े पहने हुए |
| Commensurate | corresponding in size or degree; in proportion | (किसी वस्तु) के अनुरूप |
| Condole | express sympathy for (someone) | दुःख में हमदर्दी दिखाना |
| Console | comfort (someone) at a time of grief or disappointment | सांत्वना देना |
| Fable | a short story, typically with animals as characters, conveying a moral | जानवरों के किरदारों वाली एक नीति कथा |
| Fiasco | a complete failure | असफलता |
| Kleptomaniac | a person who cannot control their desire to steal things, usually because of a medical condition | वह व्यक्ति जो आमतौर पर अपनी चिकित्सीय स्थिति के कारण चीज़ों को चोरी करने की अपनी इच्छा को नियंत्रित नहीं कर सकता हो |
| Optometrist | A person who has a profession of examining the eyes for visual defects and prescribing corrective lenses | आँखों के लिए लेंस बनाने वाला |
| Pantheist | one who practice a doctrine that equates God with the forces and laws of the universe | वह ब्रह्मांड की शक्तियों और उसके को भगवान मानता है |
| Parsimony | extreme unwillingness to spend money or use resources | मितव्ययिता |
| Pedantic | showing much knowledge | पांडित्य पूर्ण |
| Perennial | lasting or existing for a long or apparently infinite time | चिरस्थायी |
| Philanderer | a man who readily or frequently enters into casual sexual relationships with women | स्त्री लोलुप |
| Rhetoric | the art of effective or persuasive speaking or writing | वाकपटु |
| Tart | sharp or acid in taste | खट्टा |
| Verbatim | in exactly the same words | शब्दशः |

# SSC MOCK TEST - 321 (ANSWER KEY)

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

76. (D) No error

77. (A) 'Bacteria' is a plural noun, hence it is followed by a plural verb. Change 'is' into 'are'.

86. (C) Verb 'prefer' is followed by 'to'.

87. (C) No improvement. 'Taxes' is Third Person Plural Noun, therefore, 'they' should be used for it.

90. (B) The correct spelling of 'Optomatrist' is 'Optometrist'.

91. (B) The correct spelling of 'Perenial' is 'Perennial'.