SSC MOCK TEST - 259 (SOLUTION)

1. (C) $7^2 + 7^2 = 98$

    $12^2 + 12^2 = $ **288**

2. (C) As,

    $L \xrightarrow{\ +4\ } P$

    $P \xrightarrow{\ +4\ } T$

    $K \xrightarrow{\ +4\ } O$

    $P \xrightarrow{\ +4\ } T$

    Similarly,

    $R \xrightarrow{\ +4\ } V$

    $U \xrightarrow{\ +4\ } Y$

    $Z \xrightarrow{\ +4\ } D$
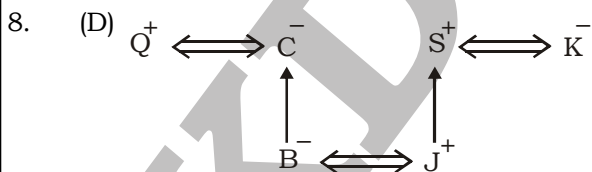
    $Y \xrightarrow{\ +4\ } C$

3. (C) Letter is related to Paragraph, while Sunlight is related to Photosynthesis.

4. (D) $6 \times 5 \Rightarrow 30 \times 3 \Rightarrow 90 - 2 = 88$

    $8 \times 5 \Rightarrow 40 \times 3 \Rightarrow 120 - 2 = 118$

    $12 \times 5 \Rightarrow 60 \times 3 \Rightarrow 180 - 2 = 178$

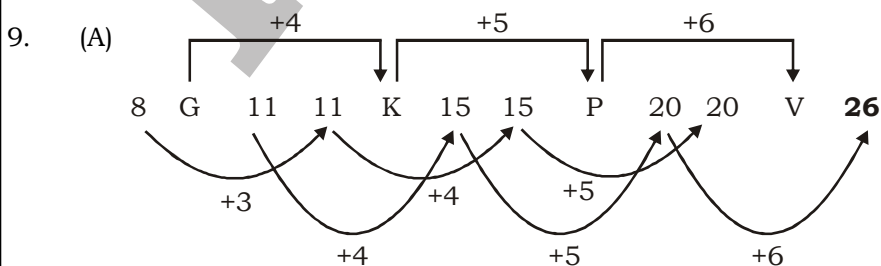 $10 \times 5 \Rightarrow 50 \times 3 \Rightarrow 150 - 2 = 148 \neq 120$

5. (B) Fan, Television and Radio is such equipment which is operated by electricity, while cell provides energy or electricity.

6. (D) $Z \xrightarrow{\ -3\ } W \xrightarrow{\ +5\ } B$

    $P \xrightarrow{\ -3\ } M \xrightarrow{\ +5\ } R$

    $D \xrightarrow{\ -3\ } A \xrightarrow{\ +5\ } F$

    $Q \xrightarrow{\ -3\ } N \xrightarrow{\ +5\ } $ **S**

7. (B) 2. Western $\rightarrow$ 3. Whatever $\rightarrow$ 5. Where $\rightarrow$ 4. Whether $\rightarrow$ 1. While

8. (D) $\overset{+}{Q} \Longleftrightarrow \overset{-}{C} \qquad \overset{+}{S} \Longleftrightarrow \overset{-}{K}$

    $\overset{-}{B} \Longleftrightarrow \overset{+}{J}$

   Hence, Q is the father-in-law of J.

9. (A)

10. (C) Black colour will come on the opposite face of red colour.

11. (B) Total maximum persons = $R_1 + R_2 + M = 13 + 15 + 11 = 39$

12. (B) I $\rightarrow$ $3^2 + 8^2 + 2^2 + 4^2 = 93$

    II $\rightarrow$ $7^2 + 9^2 + 5^2 + 1^2 = 156$

    III $\rightarrow$ $11^2 + 3^2 + 6^2 + 4^2 = $ **182**

13. (C) $(1 + 3)^2 = 16 \Rightarrow 016$

    $(1 + 6)^2 = 49 \Rightarrow 0049$

    $(4 + 9)^2 = 169 \Rightarrow 01\mathbf{6}9$

14. (C) As,

    $K_{11} \xrightarrow{\ 26-11=15\ } O$

    $U_{21} \xrightarrow{\ 26-21=5\ } E$

    $M_{13} \xrightarrow{\ 26-13=13\ } M$

    $A_1 \xrightarrow{\ 26-1=25\ } Y$

    $R_{18} \xrightarrow{\ 26-18=8\ } H$

    Similarly,

    $S_{19} \xrightarrow{\ 26-19=7\ } G$

    $A_1 \xrightarrow{\ 26-1=25\ } Y$

    $T_{20} \xrightarrow{\ 26-20=6\ } F$

    $Y_{25} \xrightarrow{\ 26-25=1\ } A$

    $A_1 \xrightarrow{\ 26-1=25\ } Y$

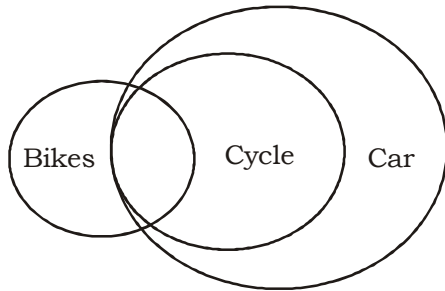 $M_{13} \xrightarrow{\ 26-13=13\ } M$

15. (C)

16. (C)
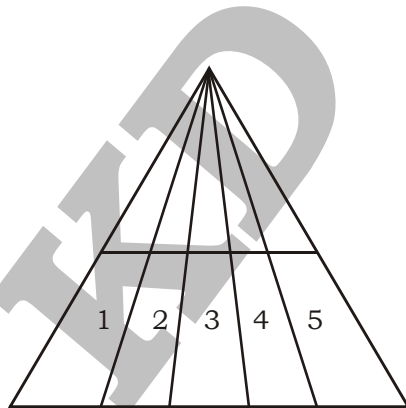
    Total number of triangles = $2(5 + 4 + 3 + 2 + 1) = 2 \times 15 = 30$

17. (D) qsu/suw/uwy/yac

18. (C) In a clock, two times minutes and hour hand make an angle 90° in each hour, except 2-3, 3-4, 8-9 and 9-10 o'clock. So, in 24 hour, 44 times it will make an angles of 90°.

19. (D)

   I. True   II.   True   III. True

Hence, all conclusions follow.

20. (C) $612 \div 36 - 12 \times 88 + 108 = 224$

After changing the signs we have,
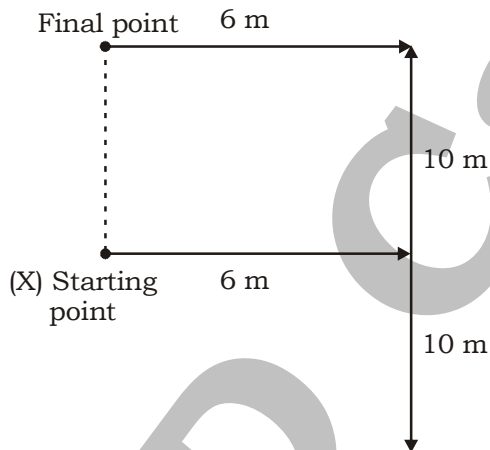
$612 \div 36 \times 12 - 88 + 108 = 224$

$17 \times 12 - 88 + 108 = 224$

$204 - 88 + 108 = 224$

$312 - 88 = 224$

$224 = 224$

21. (C)

Now he is 10 m far from starting point and is in North direction.

22. (C)

23. (C)

24. (B) The sitting arrangement is as follows:

    ●   ●   ●   ●   ●   ●
   P   X   S   Z   R   A

Therefore, right of P is X.

25. (B)

28. (B) The planet Jupiter is also called 'The Lord of Heavens'.

29. (C) East flowing major rivers of the Peninsula are, the Mahanadi, the Godavari, the Krishna and the Cauvery. They all flow eastward and join the Bay of Bengal. The Godavari is the longest peninsular river.

31. (A) The process by which heat is transferred from the hotter end to the colder end of an object is known as conduction.

32. (C) Cane sugar (sucrose) is boiled with dilute hydrochloric acid or sulphuric acid. Cane sugar is hydrolyside into equimolar mixture of glucose and fructose.

33. (B) Russia is to host a multilateral tri-services military exercise named 'Kavkaz 2020' from September 15 to September 27.

34. (D) A cell wall is a structural layer surrounding some types of cells, just outside the cell membrane. It can be tough, flexible, and sometimes rigid. It provides the cell with both structural support and protection, and also acts as a filtering mechanism.

35. (B) The Indus Waters Treaty is a water-distribution treaty between India and Pakistan, brokered by the World Bank, to use the water available in the Indus River and its tributaries.

37. (C) UNEP (United Nations Environment Programm(E) was formed in the year 1972. Its headquarters is in 'Nairobi'. Its main purpose is to promote international cooperation regarding matters related to the environment.

39. (D) The highest award for science in India - Shanti Swarup Bhatnagar Award for Science and Technology is awarded annually by Council of Scientific and Industrial Research (CSIR) for outstanding contribution in chemistry, biology, physics, engineering, geology, mathematics and machines. The award aims to recognise outstanding Indian work in science and technology. The award which was first given in 1958 is named after the founder Director of the Council of Scientific and Industrial Research, Shanti Swarup Bhatnagar.

43. (C) A peninsula is a landform surrounded by water on the majority of its border while being connected to a mainland from which it extends.

45. (A) Chakravarti Rajagopalachari, popularly known as Rajaji, was independent India's first Indian Governor General.

46. (B) The 100th death anniversary of Lokmanya Bal Gangadhar Tilak is being observed on 1st August, across the country.

47. (B) Light year is the distance travelled by light in 1 year. In one second, it travels 3×10s metres.

50. (A) Catosat-2B is an Earth observation satellite in a sun-synchronus orbit and the fourth of the Cartosat series. The satellite is the 17th satellite in the Indian Remote Sensing (IRS) satellite series to be built by the Indian Space Research Organisation.

51. (A) $\tan^4 A + \tan^2 A = 1$

$\tan^4 A (\tan^2 A + 1) = 1$

$\tan^2 A \times \sec^2 A = 1$

$\tan^2 A \times \dfrac{1}{\cos^2 A} = 1$

$\tan^2 A = \cos^2 A$

$\dfrac{\sin^2 A}{\cos^2 A} = \cos^2 A$

$\sin^2 A = \cos^4 A$

$1 - \cos^2 A = \cos^4 A$

52. (C)
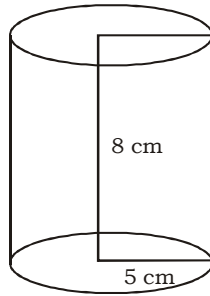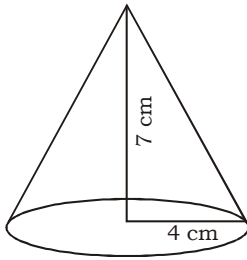
Radius of cone = 4 cm

Height = 7 cm

Volume = $\dfrac{1}{3}\pi r^2 h$ = $\dfrac{1}{3} \times \dfrac{22}{7} \times 4 \times 4 \times 7 = \dfrac{352}{3}$ cm^3

Radius of cylinder = 5 cm

Height = 8 cm

Volume = $\pi r^2 h$ = $\dfrac{22}{7} \times 5 \times 5 \times 8 = \dfrac{4400}{7}$ cm^3

∴ Required water = $\dfrac{4400}{7} - \dfrac{352}{3} = \dfrac{13200 - 2464}{21}$

= $\dfrac{10736}{21}$ = 511.24 cm^3

53. (B) Mean proportion of x and y = $\sqrt{xy}$

$\sqrt{xy}$ = 9

xy = 81

y = $\dfrac{81}{x}$ ....(i)

Third proportion of x and y = 243

∴ $y^2 = x \times 243$ ....(ii)

Put the value of y in equation (ii),

$\left(\dfrac{81}{x}\right)^2 = x \times 243$

$\dfrac{81 \times 81}{x^2} = x \times 243$

$x^3 \times 243 = 81 \times 81$

$x^3 = \dfrac{81 \times 81}{243} = 3^3$

x = 3

Put the value of x in equation (ii),

$y^2 = x \times 243$

$y^2 = 3 \times 243$

y = 27

∴ The value of x and y are 3 and 27 respectively.

54. **(B)** Cost of monthly pass = ₹ 2912

Total ticket cost of 26 day at the rate of ₹ 160 per day = 160 × 26 = ₹ 4160

Saving = 4160 – 2912 = ₹ 1248

∴ Saving% = $\left(\dfrac{1248}{4160} \times 100\right)\%$ = 30%

55. **(C)** Simple interest for two years = ₹ 2600

SI for 1 year = ₹ 1300

CI for two years = ₹ 2769

CI for 2nd year = 2769 – 1300 = ₹ 1469

If the principal = ₹ 1300, then interest for 1 year = 1469 – 1300 = ₹ 169

∴ Rate = $\dfrac{169 \times 100}{1300 \times 1}$ = 13%

56. **(A)**

$$\begin{array}{lll} A + B & 10 & 12 \\ B + C & 15 \quad 120 & 8 \\ \underline{C + A} & \underline{20} & \underline{6} \\ 2(A + B + C) & & 26 \end{array}$$

Work done by (A + B + C) in a day = 13

Work done by (A + B + C) in 2 days = 13 × 2 = 26

Work done by (B + C) in 2 days = 8 × 2 = 16

Work done by C alone is a day = 13 – 12 = 1

Time taken by C to finish the work = $\dfrac{120 - 26 - 16}{1}$ = 78 days

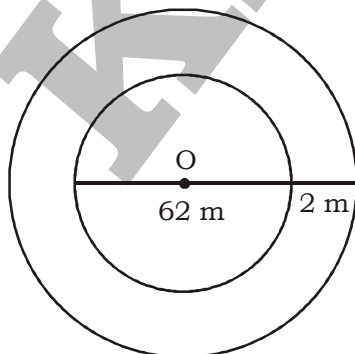57. **(B)** Distance covered = speed × time = $\dfrac{9.6}{4}$ × 10 = 24 km

58. **(D)** Seventh number = 45 × 7 + 55 × 7 – 50 × 13

= 700 – 650 = 50

59. **(A)** Number of bricks = $\dfrac{\text{Volume of the wall}}{\text{Volume of one brick}}$

= $\dfrac{(25 \times 100)(2 \times 100)\left(\dfrac{3}{4} \times 100\right)}{20 \times 10 \times \dfrac{15}{2}}$ = 25000

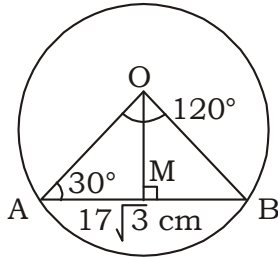60. **(A)**

Radius of the garden = 31 m

Width of the fencing wall = 2 m

Area of the land required by the wall = $\pi [r_0^2 - r_i^2] = \pi [33^2 - 31^2]$

$= \pi (33 + 31)(33 - 31) = \pi \times 64 \times 2$

$= 128 \, \pi \, m^2$

61. (D)

Draw OM $\perp$ AB

OM $\perp$ AB

AM = MB = $\dfrac{1}{2} \times 17\sqrt{3}$ cm

In ΔOAM,

$\dfrac{AM}{AO} = \cos 30°$

$\dfrac{17\sqrt{3}}{2} \times \dfrac{1}{AO} = \dfrac{\sqrt{3}}{2}$

AO = 17 cm

Radius of the circle = 17 cm

62. (D) $\because A + B + C = \pi$

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

$\tan\left(\dfrac{B + C}{2}\right) = \tan\left(\dfrac{\pi}{2} - \dfrac{A}{2}\right)$

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

63. (D) $x^2 + y^2 + 10 = 2\sqrt{2}\, x + 4\sqrt{2}\, y$

$x^2 - 2\sqrt{2}\, x + 2 + y^2 - 4\sqrt{2}\, y + 8 = 0$

$(x - \sqrt{2})^2 + (y - 2\sqrt{2})^2 = 0$

$x = \sqrt{2}$ and $y = 2\sqrt{2}$

Now, $\dfrac{x + y}{x} = \dfrac{\sqrt{2} + 2\sqrt{2}}{\sqrt{2}} = \dfrac{3}{1}$

$(x + y) : x = 3 : 1$

64. (D) $\dfrac{c}{2c+z} + \dfrac{b}{2b+y} + \dfrac{a}{2a+x} = \dfrac{cz}{2cz+z^2} + \dfrac{by}{2by+y^2} + \dfrac{ax}{2ax+x^2}$

$= \dfrac{cz}{2cz+2(ax+by)} + \dfrac{by}{2by+2(cz+ax)} + \dfrac{ax}{2ax+2(by+cz)}$

$= \dfrac{1}{2}\left[\dfrac{cz}{ax+by+cz} + \dfrac{by}{ax+by+cz} + \dfrac{ax}{ax+by+cz} \right]$

$= \dfrac{1}{2}\left[\dfrac{ax+by+cz}{ax+by+cz} \right] = \dfrac{1}{2}$

65. (D) In ΔABC,

$\tan 30° = \dfrac{BC}{AB}$

$\dfrac{1}{\sqrt{3}} = \dfrac{2\sqrt{3}}{AB}$

AB = 6 cm

$\angle ABD = 60°$

In ΔABD,

$\tan 60° = \dfrac{AD}{AB}$

$\sqrt{3} = \dfrac{AD}{6}$

AD = $6\sqrt{3}$ cm

66. (A) Number of students qualified = 45 + 50 + 40 + 35 + 10 = 180
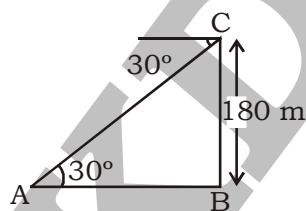67. (A) Number of students whose marks are more than 40 and less than or equal to 50 = 45
68. (D)

69. (B) Required % = $\dfrac{45+50}{200} \times 100 = 47.5\%$

70. (C) Required ratio = 85 : 20 = 17 : 4
71. (B) Let BC is a tower.

In ΔABC,

$\tan 30° = \dfrac{BC}{AB}$

$\dfrac{1}{\sqrt{3}} = \dfrac{180}{AB}$

AB = 180 × $\sqrt{3}$

∴ Distance of cat from foot of tower = 180 × $\sqrt{3}$ = $180\sqrt{3}$ m

72. **(B)** Required seconds = LCM of 48, 50 and 72

= 3600 seconds = 1 hour

They will change at 10 a.m.

73. **(B)** Let cost price = ₹ 100

Selling price = $100 + \dfrac{15}{100} \times 100 = ₹\ 115$

Printed price = $₹\left(115 \times \dfrac{100}{90}\right) = ₹\left(\dfrac{23}{18} \times 100\right)$

∴ Required ratio = $100 : \dfrac{23}{18} \times 100 = 18 : 23$

74. **(B)** Let the fraction is $\dfrac{x}{y}$.

ATQ,

$\dfrac{x-1}{y-1} = \dfrac{1}{3}$

$3x - 3 = y - 1$

$y = 3x - 2$ ....(i)

Again, $\dfrac{x+1}{y+1} = \dfrac{1}{2}$

$2x + 2 = y + 1$ ....(ii)

Substituting value of y in equation (ii),

$2x + 2 = 3x - 2 + 1$

$x = 2 + 2 - 1 = 3$

Put the value of x in equation (i),

$y = 3 \times 3 - 2 = 7$

∴ Required fraction = $\dfrac{3}{7}$

75. **(B)** Ratio = $r\,\%$

Time = n years

S.I. = $\dfrac{pnr}{25}$

S.I. = $\dfrac{\text{Principle} \times \text{Rate} \times \text{Time}}{100}$

$\dfrac{pnr}{25} = \dfrac{\text{Principle} \times r \times n}{100}$

Principle = $\dfrac{pnr}{25} \times \dfrac{100}{nr} = 4p$

MEANINGS IN ALPHABETICAL ORDER

Apathy	lack of interest, enthusiasm, or concern	उदासीनता
Complacent	self-satisfied	आत्मसंतुष्ट
Discrete	individually separate and distinct	अलग
Gloomy	dark or poorly lit	अंधेरा
Grim	forbidding or uninviting	निष्ठुर
Illicit	forbidden by law, rules, or custom	अवैध
Jubilant	feeling or expressing great happiness	प्रसन्नचित
Laudable	(of an action, idea, or goal) deserving praise and commendation	प्रशंसनीय
Paucity	the presence of something only in small or insufficient quantities	कमी
Prodigious	great in extent, size, or degree	बहुत बड़ा
Rectify	put (something) right	संशोधन करना
Reiterate	repeat or say again	दोहराना
Serenity	the state of being calm, peaceful, and untroubled	शांति
Severity	the fact or condition of being severe	तीव्रता
Superiority	the state of being superior	श्रेष्ठता
Vitality	the state of being strong and active	जीवन-शक्ति
Zeal	great energy or enthusiasm in pursuit of a cause or an objective	उत्साह

SSC MOCK TEST - 259 (ANSWER KEY)

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

76. (C) Replace 'raises' by 'rises'. 'To raise' means 'to increase the level of something', where 'To rise' means 'to go up'.

77. (A) Remove 'will'. In these conditional sentences, the first action happens to be in Simple Present Tense.

78. (D) Remove 'will'. In these conditional sentences, the first action happens to be in Simple Present Tense.

79. (A) 'Make off' means 'carry something away illicitly'.

86. (B) 'Angry' will take 'with' for someone.

90. (A) The correct spelling of 'Soldeirs' is 'Soldiers'.

91. (B) The correct spelling is 'Prodigious'.