SSC MOCK TEST - 253 (SOLUTION)

1. (C) As,

$$H_8 \xrightarrow{\div 2} D_4$$
$$J_{10} \xrightarrow{\div 2} E_5$$
$$T_{20} \xrightarrow{\div 2} J_{10}$$
$$X_{24} \xrightarrow{\div 2} L_{12}$$

Similarly,

$$N_{14} \xrightarrow{\div 2} G_7$$
$$L_{12} \xrightarrow{\div 2} F_6$$
$$D_4 \xrightarrow{\div 2} B_2$$
$$Z_{26} \xrightarrow{\div 2} M_{13}$$

2. (C) As,
    $71 \rightarrow (7 + 1) \times (7 - 1) = 8 \times 6 = 48$
    Similarly,
    $92 \rightarrow (9 + 2) \times (9 - 2) = 11 \times 7 = 77$

3. (C) Damodar river flows in Bengal, while Bhagirathi river flows in Uttrakhand.

4. (D) Except option (D), first and third letter are opposite to each other and second letter obtained from difference between the place value of first and third letter.

5. (C) Except option (C), all are follow the same pattern i.e.
    (A) (11, 137, 47) $\rightarrow$ 12 × 11 + 5 = 137 and 47 × 3 – 4 = 137
    (B) (9, 113, 39) $\rightarrow$ 12 × 9 + 5 = 113 and 39 × 3 – 4 = 113
    (C) (6, 76, 27) $\rightarrow$ 12 × 6 + 5 = 77 and 27 × 3 – 4 = 77
    (D) (7, 89, 31) $\rightarrow$ 12 × 7 + 5 = 89 and 31 × 3 – 4 = 89

6. (C) Except option (C), all are omnivorous animals.

7. (C) 2. Campaign $\rightarrow$ 5. Nomenclature $\rightarrow$ 4. Nomination $\rightarrow$ 1. Result $\rightarrow$ 3. Sworn

8. (B)

    Mother-in-law
    ↑
    Father → Sister
    ↑   ↓
    Pranjal   Son
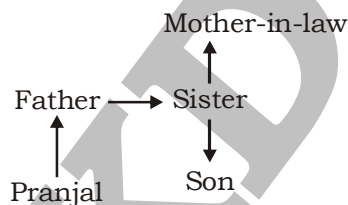
    The woman is grandmother of Pranjal.

9. (D) **675**　　136　　33　　12　　5

    ×5–5　　×4+4　　×3–3　　×2+2

10. (A) $A \xrightarrow{-1} Z \xrightarrow{+5} E$
    $X \xrightarrow{-1} W \xrightarrow{+5} C$
    $P \xrightarrow{-1} O \xrightarrow{+5} T$
    $Y \xrightarrow{-1} X \xrightarrow{+5}$ **C**

11. (D) Number 4 appears in the face opposite to the number 6.

12. (C) **From column I,**

$14 \times 25 = 350 \xrightarrow{+14} 364$

From column II,

$19 \times 25 = 475 \xrightarrow{+19} 494$

From column III,

$24 \times 25 = 600 \xrightarrow{+24} 624$

From column IV,

$\mathbf{28} \times 25 = 700 \xrightarrow{+28} 728$

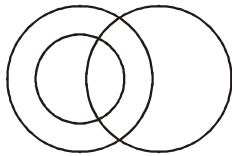13. (C) $4 \xrightarrow{\times 16} 64 \xrightarrow{\times 16} 1024 \xrightarrow{\times 16} 16384$

14. (D) As,

T	E	R	M	I	N	A	T	E
↑	↑	↑	↑	↑	↑	↑	↑	↑
20	5	18	13	9	14	1	20	5

Similarly,

P	L	A	T	I	N	U	M
↑	↑	↑	↑	↑	↑	↑	↑
16	**12**	**1**	**20**	**9**	**14**	**21**	**13**

15. (A)

16. (C) ab<u>d</u>bc/ab<u>d</u>bc/ab<u>d</u>bc

17. (B) 27

18. (C) Dinkar's birthday $\rightarrow$ 3rd April, Friday

Tanya's birthday $\rightarrow$ 25th September

Total odd days between 3rd April to 25th September.

$= \dfrac{28}{7} + \dfrac{31}{7} + \dfrac{30}{7} + \dfrac{31}{7} + \dfrac{31}{7} + \dfrac{25}{7}$

$= \dfrac{0+3+2+3+3+4}{7} = \dfrac{15}{7} = 1 \text{ odd day}$

$\therefore$ Tanya's birthday will be Friday + 2 day = Sunday

19. (B) 55 minutes covered in 60 minutes

60 minutes covered in $\dfrac{60}{55} \times 60 = 65\dfrac{5}{11}$ min

$\therefore$ Loss in 65 minutes $= \left(65\dfrac{5}{11} - 65\right) = \dfrac{720}{11} - 65 = \dfrac{720-715}{11} = \dfrac{5}{11}$

$\therefore$ Loss in 24 hours $= \dfrac{5}{11} \times \dfrac{1}{65} \times 24 \times 60 = 10.22 = 10 \text{ min (Approx)}$

20. (D) MANIA

21. (C) $24 \div 2 + 13 - 54 \times 2 = 34$

After changing the sign according the option (C),

$24 \times 2 + 13 - 54 \div 2 = 34$

$24 \times 2 + 13 - 27 = 34$

$48 + 13 - 27 = 34$

$61 - 27 = 34$

$34 = 34$

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

25. (D) 68, 33, 65, 58

26. (C) Gandhara-Mathura Art clearly exhibits the influence of Greek and Roman art. However, patrons of this art were not Greeks but Sakas and Kushanas.

28. (A) The Universe comprises Galaxies that are huge congregation of stars held together by the forces of gravity. Optical and radio telescope studies indicate the existence of about 100 billion galaxies in the visible universe. Galaxies occur in three structural forms: (i) Spiral (ii) Elliptical and (iii) Irregular. Spiral galaxies have a central nucleus with great spiraling arms trailing around them; examples include our Milky Way (formed 5 billion years after Big Bang) and the Andromeda (our nearest galaxy) galaxies. Elliptical galaxies are without spiraling arms and irregular ones have no clear shape. Latest known galaxy is the Dwarf Galaxy.

29. (C) The most effective farming method for returning minerals to the soil is Crop rotation. Crop rotation can be defined as the practice of growing several dissimilar or different crop types in the same area in sequential seasons. Crop rotation is beneficial both to the environment and to the farmer.

30. (B) Tropic of Cancer passes through middle part of India. Tropic of Cancer is an imaginary line which is at an angle of 23.50 degrees. It is North from the Equator, that passes through the middle of India.

32. (D) The main objective of Rare Disease Day is to raise awareness among the general public and decision-makers about rare diseases and their impact on the lives of patients. It is estimated that more than 300 million people are living with rare diseases.

33. (A) The metal ball can be considered to be made up of several layers of thinner ones. On heating each of these layers will increase in radius. As the innermost layer also increases its radius, the volume inside it i.e. the volume of the hollow portion will also increase.

34. (C) The aqueous solution of vinegar is called acetic acid which is represented by formula CH_3COOH.

36. (C) Sir Isaac Newton was an English mathematician and mathematician and physicist who lived from 1642-1727. The legend is that Newton discovered Gravity when he saw a falling apple while thinking about the forces of nature.

38. (C) The European Union (EU) is an economic and political union of 27 member-countries (Austria, Belgium, Bulgaria, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden and the United Kingdom) located in Europe.

40. (B) Young Indian author Kritika Pandey has won the 2020 Commonwealth Short Story Prize, for her short story 'The Great Indian Tee and Snakes'.

41. (A) The word "mesopotamia" is formed from the ancient words "meso," meaning between or in the middle of, and "potamos," meaning river. Situated in the fertile valleys between the Tigris and Euphrates rivers, the region is now home to modern-day Iraq, Kuwait, Turkey and Syria.

42. (B) Specific gravity of Saturn is less than 1.

45. (A) Shadows are formed by light, because if light shines onto an object, and the object blocks the light, the light will go sideways of the object, and therefore, a shadow is formed. Light can only travel in straight lines.

48. (D) Infectious plant diseases are caused by living (biotic) agents, or pathogens. These pathogens can be spread from an infected plant or plant debris to a healthy plant. Microorganisms that cause plant diseases include nematodes, fungi, bacteria, and mycoplasmas.

50. (B) Helium is an inert gas. It is not a metal.

51. (A) LCM of 3 , 6, 7, 14

$$
\begin{array}{r|rrrr}
2 & 3, & 6, & 7, & 14 \\
\hline
3 & 3, & 3, & 7, & 7 \\
\hline
7 & 1, & 1, & 7, & 7 \\
\hline
 & 1, & 1, & 1, & 1
\end{array}
$$

L.C.M. = $2 \times 3 \times 7 = 42$

Required number = 42

52. (D) A's 1 day work = $\dfrac{1}{16}$

B's 1 day work = $\dfrac{1}{22}$

Ratio of their efficiency = $\dfrac{1}{16} : \dfrac{1}{22} = 11 : 8$

B's share = $\dfrac{8}{19} \times 51300 = ₹\,21600$

53. (B) Let his expenditure be ₹ $39x$ and savings be $24x$.

ATQ,

$39x + 24x = 14490$

$63x = 14490$

$x = \dfrac{14490}{63} = 230$

His monthly expenditure = $39x = 39 \times 230 = ₹\,8970$

54. (B) Let the sum lent in each case be ₹ x.

$\dfrac{x \times 11 \times 2}{100} + \dfrac{x \times 12 \times 2}{100} = ₹\ 828$

$\dfrac{22x + 24x}{100} = ₹\ 828$

$46x = ₹\,82800$

$x = ₹\,1800$

55. (B) Distance between A and B = $\dfrac{t(u^2 - v^2)}{2u}$ ($t = 4$, $u = 12$, $v = 8$)

$= \dfrac{4(144 - 64)}{2 \times 12} = 13.33$ km

56. (D)
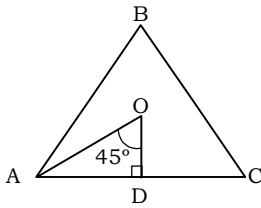
In $\triangle ABC$,

$\angle AOD = 45°$ and $\angle ODA = 90°$ ($\because OD \perp AC$)

In $\triangle AOD$,

$\angle OAD + 45° + 90° = 180°$

$\angle OAD = 45°$

$\angle BAC = 2 \times \angle OAD = 2 \times 45° = 90°$

57. (C) Centroid $= \left(\dfrac{1}{3}(x_1 + x_2 + x_3), \dfrac{1}{3}(y_1 + y_2 + y_3) \right)$

$= \left(\dfrac{1}{3}(2 + 8 - 1), \dfrac{1}{3}(4 + 11 + 3) \right)$ = (3, 6)

58. (B) (37 – 24) m, i.e. 13 m is covered in 1 min.

117 m will covered in $\left(\dfrac{1}{13} \times 117 \right)$ = 9 min

59. (B) Let the principle be ₹ x.

Time = 5 years

Simple interest = ₹ 2754

ATQ,

$2754 = \dfrac{x \times 5 \times r}{100}$

xr = ₹ 55080

Now, S.I. = $\dfrac{P \times (r + 3) \times 7}{100}$

Since there are three unknown variables in the two equations, thus it is not possible to solve it.

60. (C) Capacity of cylindrical portion of tank= $\pi r^2 h$

$= \dfrac{22}{7} \times 7 \times 7 \times 16 = 2464$ cm³

Capacity of conical portion of tank = $2 \times \left(\dfrac{1}{3} \pi r^2 h \right)$

$= 2 \times \dfrac{1}{3} \times \dfrac{22}{7} \times 7 \times 7 \times 12 = 1232$ cm³

Capacity of petrol tank = (2464 + 1232) cm³ = 3696 cm³

61. (A) $4*3 = \dfrac{4^2 - 3^2}{4^2 + 3^2}$

$= \dfrac{16 - 9}{16 + 9} = \dfrac{7}{25}$

62. (C) $\sqrt{a} + \sqrt{b} + \sqrt{c} = 0$

$\sqrt{a} + \sqrt{b} = -\sqrt{c}$

Squaring both sides,

$a + b + 2\sqrt{ab} = c$

$a + b - c = -2\sqrt{ab}$

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

$\dfrac{(a + b - c)^2}{ab} = 4$

63. (C) $x = 2\dfrac{\sqrt{10}}{7}$

$1 + x = 1 + \dfrac{2\sqrt{10}}{7}$

$= \dfrac{7 + 2\sqrt{10}}{7} = \dfrac{(\sqrt{5} + \sqrt{2})^2}{7}$

$\sqrt{1 + x} = \dfrac{\sqrt{5} + \sqrt{2}}{\sqrt{7}}$

$1 - x = 1 - \dfrac{2\sqrt{10}}{7}$

$= \dfrac{7 - 2\sqrt{10}}{7} = \dfrac{(\sqrt{5} - \sqrt{2})^2}{7}$

$\sqrt{1 - x} = \dfrac{\sqrt{5} - \sqrt{2}}{\sqrt{7}}$

$\dfrac{\sqrt{1+x} - \sqrt{1-x}}{\sqrt{1+x} + \sqrt{1-x}} = \dfrac{\dfrac{\sqrt{5} + \sqrt{2}}{\sqrt{7}} - \dfrac{\sqrt{5} - \sqrt{2}}{\sqrt{7}}}{\dfrac{\sqrt{5} + \sqrt{2}}{\sqrt{7}} + \dfrac{\sqrt{5} - \sqrt{2}}{\sqrt{7}}}$

$= \dfrac{\sqrt{5} + \sqrt{2} - \sqrt{5} + \sqrt{2}}{\sqrt{5} + \sqrt{2} + \sqrt{5} - \sqrt{2}} = \dfrac{\sqrt{2}}{\sqrt{5}}$

64. (D)

In Δ ABC,

$\angle$ABC = 180º – 85º – 75º = 20º

$\angle$AOC = 2 × $\angle$ABC = 2 × 20º = 40º

$\angle$OAC = $\frac{1}{2}$ (180º – $\angle$AOC)

= $\frac{1}{2}$ (180º – 40º) = 70º
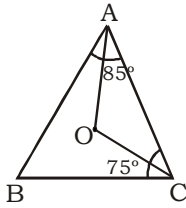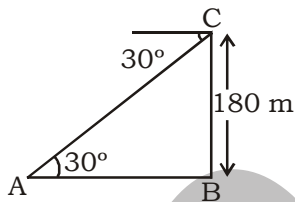
65. (D) $x = \dfrac{1 + \sin\theta}{\cos\theta}$

$\dfrac{1}{x} = \dfrac{\cos\theta}{1 + \sin\theta}$

$= \dfrac{\cos\theta}{1 + \sin\theta} \times \dfrac{1 - \sin\theta}{1 - \sin\theta}$

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

66. (B)

In Δ ABC,

$\cot 30° = \dfrac{AB}{BC}$

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

AB = 180 × $\sqrt{3}$ = $180\sqrt{3}$

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

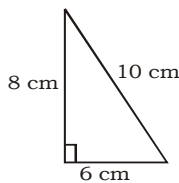67. (D) $(a^2 + 7a + 12) = (a + 3)(a + 4)$

and $(a^2 + 8a + 15) = (a + 3)(a + 5)$

HCF of $(a^2 + 7a + 12)$ and $(a^2 + 8a + 15) = (a + 3)$

68. (B) Weight of new person = 80 – 3 × 10 = 50 kg

69. (C) Total pupils wearing spectacles = $\dfrac{45}{100} \times \dfrac{20}{100} \times 600 + \dfrac{55}{100} \times \dfrac{30}{100} \times 600$

   = 54 + 99 = 153

   Required percentage = $\dfrac{153}{600} \times 100 = 25.5\%$

70. (A)

   Radius of incircle = $\dfrac{2 \times \text{Area of triangle}}{\text{Perimeter of triangle}}$

   = $\dfrac{8 \times 6}{8 + 6 + 10} = 2$ cm

   Area of incircle = $\pi r^2 = 4\pi$ cm^2

71. (A) Side of a cube = HCF of 6, 42, 45 = 3 cm

   So, least possible number of cubes = $\dfrac{6 \times 42 \times 45}{3 \times 3 \times 3} = 420$

72. (B) Required number of students = 30 + 30 + 20 + 40 = 120

73. (C) Required ratio = 60 : 50 = 6 : 5

74. (D) Required difference = (60 + 40) – (40 + 50) = 10

75. (A) Required ratio = 40 : 50 : 50 = 4 : 5 : 5

Campus

K D Campus Pvt. Ltd
1997, GROUND FLOOR OPPOSITE MUKHERJEE NAGAR POLICE STATION, OUTRAM LINES, GTB NAGAR, NEW DELHI – 09

MEANINGS IN ALPHABETICAL ORDER

Barbarians	(in ancient times) a member of a community or tribe not belonging to one of the great civilizations	असभ्य
Detrimental	tending to cause harm	हानिकारक
Hierarchy	a system or organization in which people or groups are ranked one above the other according to status or authority	अनुक्रम
Illegible	not clear enough to be read	अपठनीय
Imminent	about to happen	संभावित
Invincible	too powerful to be defeated or overcome	अपराजेय
Jabber	talk rapidly and excitedly but with little sense	बड़बड़ करना
Palatable	(of food or drink) pleasant to taste	स्वादिष्ट
Plausible	(of an argument or statement) seeming reasonable or probable	मुमकिन
Probable	likely to be the case or to happen	संभावित
Statesmanship	skill in managing public affairs	राजनीतिज्ञता
Symptom	a physical or mental feature which is regarded as indicating a condition of disease	लक्षण
Take away	to deduct; subtract	कम करना, घटाना
Take off	To rise into the air or begin flight	उड़ जाना
Take over	To assume control, management, or responsibility	अधिकार संभाल लेना
Take up	To raise; lift	उठाना
Vagabonds	a person who wanders from place to place without a home or job	घुमंतू, खानाबदोश
Yearn	have an intense feeling of longing for something	तड़पना

SSC MOCK TEST - 253 (ANSWER KEY)

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

76. (A) Change 'I and Radhika' into 'Radhika and I'. When First Person and Third Person pronouns come in a sentence, Third Person pronoun is followed by First Person pronoun.

77. (C) Replace 'and' by 'but'. 'But for' means 'without'.

87. (A) 'Help' is followed by a Gerund.

90. (D) The correct spelling of 'Passanger' is 'Passenger', 'Symptum' is 'Symptom' and 'Quarelling' is 'Quarrelling' .

91. (C) The correct spelling of 'Palatible' is 'Palatable'. 'Flexeble' is 'Flexible' and 'Invinceble' is 'Invincible'.