SSC MOCK TEST - 440 (SOLUTION)
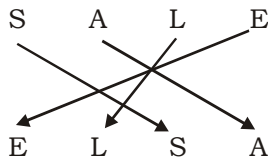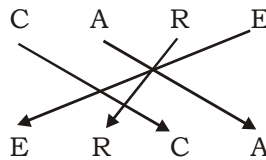
1. (1) Horse has Hoof, while Cat has Paw.

2. (2) As,   Similarly,

S   A   L   E   C   A   R   E

E   L   S   A   E   R   C   A

3. (2) (1) $542 \rightarrow 5 \times 4 \times 2 = 40$

   (2) $363 \rightarrow 3 \times 6 \times 3 = 54 \neq 56$

   (3) $462 \rightarrow 4 \times 6 \times 2 = 48$

   (4) $632 \rightarrow 6 \times 3 \times 2 = 36$

4. (4) Lizard, Turtle and Snake are reptile, while Bat is a mammal.

5. (2) As,   Similarly,

   $F \xrightarrow{+2} H$ $G \xrightarrow{+2} I$

   $R \xrightarrow{-2} P$ $R \xrightarrow{-2} P$

   $A \xrightarrow{+2} C$ $E \xrightarrow{+2} G$

   $M \xrightarrow{-2} K$ $A \xrightarrow{-2} Y$

   $E \xrightarrow{+2} G$ $T \xrightarrow{+2} V$

6. (1) 3   8   19   42   89   **184**

   $\times 2+2$ $\times 2+3$ $\times 2+4$ $\times 2+5$ $\times 2+6$

7. (4)

   $\overset{-1}{T\ S\ Q}$ $\overset{-1}{P\ O\ M}$ $\overset{-1}{K\ J\ H}$ $\overset{-1}{Y\ X\ V}$

   -3 -3 -3 -3

8. (4) Madhav's birthday (Sunday) $\rightarrow$ 2nd April

   Total odd days's from 2nd April to 28th October

   2nd April + May + June + July + August + September + 28th October

   $= \dfrac{28}{7} + \dfrac{31}{7} + \dfrac{30}{7} + \dfrac{31}{7} + \dfrac{31}{7} + \dfrac{30}{7} + \dfrac{28}{7}$ $= \dfrac{0+3+2+3+3+2+0}{7} = \dfrac{13}{7} = 6$ days

   $\therefore$ Required day = Sunday + 6 day = Saturday

9. (3) As, $6 \times 8 \times 4 = 192$

   Similarly, $11 \times 9 \times 4 = 396$

10. (2) p**p**qqr**r**/ppq**q**rr/**p**pq**qr**r

11. (4)

12. (1) $4 \times 3.5 = 14$

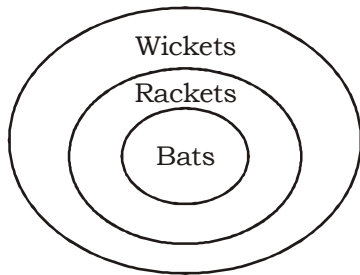 $6 \times 3.5 = 21$

   $12 \times 3.5 = 42$

   $20 \times 3.5 = $ **70**

13. (2) $8 × 3 ÷ 4 + 9 – 5 = 16$

After changing 5 and 3,

$8 × 5 ÷ 4 + 9 – 3 = 16$

$8 × \dfrac{5}{4} + 9 – 3 = 16$

$10 + 9 – 3 = 16$

$16 = 16$

14. (1)   5. Owner $\rightarrow$ 3. General Manager $\rightarrow$ 1. Manager 4. $\rightarrow$ Supervisor $\rightarrow$ 2. Worker

15. (3)   Now, number of boys in the line = 12 + 6 – 1 = 17

Number of boy to be added = 30 – 17 = 13

16. (3)   26 × 7 = 182

29 × 7 = 203
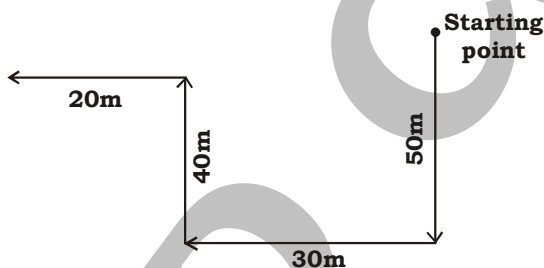
38 × 7 = 266

17. (1)

I. True   II. Can't say

Hence, only conclusion I follows.
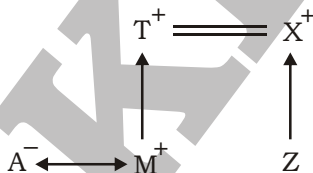
18. (2)   19. (3)

20. (2)

Hence, she is in South-West direction with respect to starting point.

21. (3)

Hence A is sister in law of Z.

22. (4)   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**

23. (3)   24. (2)   25. (4)

27. (4) The area of Andhra Pradesh is 160,205 sq km, area of Gujarat is 196,024 sq km, the area of Karnataka is 191, 791 sq km and Tamil Nadu is 130, 058 sq km.

28. (4) According to Article 368, an amendment of the Constitution may be initiated only by the introduction of a Bill for the purpose in either House of Parliament, and when the Bill is passed in each House by a majority of the total membership of that House present it shall be presented to the President who shall give his assent to the Bill and thereupon the Constitution shall stand amended in accordance with the terms of the Bill.

30. (2) Human body has different resistances. When dry, resistance is 100,000 ohms and when wet because of sweat or water, resistance is only 1,000 ohms.

31. (1) The Karnataka government mandates a 33% reservation for women in outsourced government services and posts, aligning with the existing quota policy for permanent positions.

32. (4) Recombinant DNA is DNA sequences, which result from bringing genetic material from different sources. The genes can be transferred between any species that is across differents species of plants, from animals to plants and from micro organisms to higher organisms.

33. (2) The book "Band, Bajaa, Boys!" has been authored by Rachna Singh, an HR and marketing consultant. This book explores the many hilarious shades of small town life, with an underlying theme of rejection.

34. (3) General To Lam was elected president of Vietnam by the National Assembly on May 22, 2024, succeeding Vo Van Thuong who resigned amid a corruption crackdown. To Lam, previously the public security minister since 2016, led the anti-corruption campaign known as "blazing furnace." The Communist Party member will serve until 2026. The National Assembly, with 500 members, elects the president and vice president every five years.

35. (4) The executive in a Parliamentary system is responsible to the legislature for all its actions. The ministers are answerable to the Parliament and responsible to the Lok Sabha. The Council of Ministers remains in office as long as they enjoy the support and confidence of the Lok Sabha.

37. (1) Organic farming is a production system of crops which avoids the use of synthetic and chemical inputs like fertilizers, pesticides, growth regulators and livestock feed additives.

38. (2) Gopi Thotakura, an Indian expatriate, became the first Indian space tourist and the second Indian in space on Blue Origin's NS-25 mission. The mission, New Shepard's seventh human spaceflight, included six crew members, among them Gopi Thotakura.

39. (3) Distribution of power between the Centre and the States in the Indian Constitution is based on the Government of India Act. 1935.

40. (2) A simple machine is a mechanical device that changes the direction or magnitude of a force. In general, they can be defined as the simplest mechanisms that use mechanical advantage to multiply force. Thus, simple machine helps us in doing same amount of work with lesser force. Few examples of simple machines are pulley, lever, wheel, screw, etc.

41. (4) Ethylene glycol solutions are marketed as "permanent anti-freeze", and is used as anti-freeze agent for the automobile engine in cold countries where temperature is below zero degree centigrade.

42. (2) Body piercing or getting one's body tattooed may cost one a huge priceInfection of Hepatitis B and C virus is absolutely possible. The needle used in the act may just be infected with the said virus causing liver disease, which in its ultimate stage often turns cancerous. This is deemed to happen if the needle is not properly sterilized.

47. (1) International Development Association (IDA) , is that part of the World Bank that helps the world's poorest countries. It complements the World Bank's other lending arm— the International Bank for Reconstruction and Development (IBRD) which serves middle-income countries with capital investment and advisory services. IDA was created in 1960.

49. (1) Ticks and mites are categorized under Arachnids of phylum Arthopoda of animal kigdom.

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

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

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

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

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

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

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

Cubing both sides,

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

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

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

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

52. (2) 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

53. (1) As much time A travels 1 km at the same time distance travelled by B = 1000 – (90 + 70)
= 1000 – 160 = 840 m
As we know that the if time is constant then the ratio of distance is equal to the ratio of speed.
So, ratio of speed of A and B = (1000 : 840) = 25 : 21

54. (1)   Let the efficiency of B be x works/day.

Efficiency of A = 3x works/day

Efficiency of A and B together = (x + 3x) works/day = 4x works/day

Efficiency of C = $\left(\dfrac{4x}{4}\right)$ works / day = x works / day

Ratio of share of A, B and C in earning = Ratio of efficiency of A, B and C

= 3x : x : x = 3 : 1 : 1

55. (1)   Average rainfall of first four days = 0.80 inch

Sum of rainfall of first four days = 0.80 × 4 = 3.20 inch

Average rainfall of first six days = 1 inch

Sum of rainfall of first six days = (1 × 6) = 6 inch

Sum of rainfall of fifth and sixth days = (6 – 3.20) inches = 2.8 inches

Rainfall of sixth day = $2.8 \times \dfrac{3}{3+4} = 1.2$ inches

56. (1)   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 × 3 × 4 × 2) = 336 cm²

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

57. (2)   We know that each face of cube is a square.

Perimeter of square face = 32 cm

Side of cube = $\dfrac{\text{Perimeter}}{4} = \dfrac{32\,cm}{4} = 8\,cm$

Volume of cube = (side)³ = (8 cm)³ = 512 cm³

58. (3)   Put θ = 0°

xcosθ – sinθ = 1

xcos0° – sin0° = 1

x = 1

Put the value θ and x in x² + (1 + x²)sinθ

(1)² + [1+ (1)²]sin0° = 1 + 0 = 1

59. (4)   3 sinθ = 2cos²θ

3sinθ = 2(1 – sin²θ)   [∵ cos²θ + sin²θ = 1]

2sin²θ + 3 sinθ – 2 = 0

2 sin²θ + 4sinθ – sinθ - 2 = 0

2 sinθ(sinθ + 2) – 1 (sinθ + 2) = 0

(2 sinθ – 1) (sinθ + 2) = 0

$\sin\theta = \dfrac{1}{2}$ or –2 (–2 is not possible)

$\sin\theta = \dfrac{1}{2}$

$\sin\theta = \sin 30°$

$\theta = 30°$

∴ $\tan^2\theta + \sec^2\theta - \csc^2\theta$

= $\tan^2 30° + \sec^2 30° - \csc^2 30°$

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

$\left(\dfrac{1}{3} + \dfrac{4}{3} - 4\right) = \dfrac{-7}{3}$

60. (3)
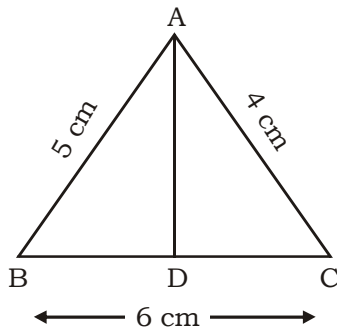
Let BD = x cm

CD = (6 – x) cm

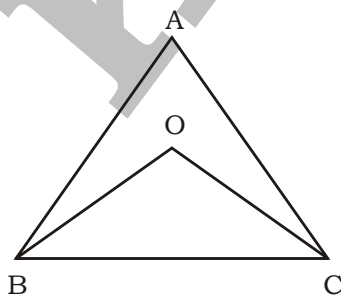We know that from angle bisector theorem,

$\dfrac{AB}{BD} = \dfrac{AC}{CD}$

$\dfrac{5}{x} = \dfrac{4}{6-x}$

30 – 5x = 4x

9x = 30

$x = \dfrac{30}{9} = \dfrac{10}{3} = 3\dfrac{1}{3}$ cm

61.(1)

We know that

$$\angle BOC = 90° + \frac{\angle A}{2}$$

$$118° = 90° + \frac{\angle A}{2}$$

$$28° = \frac{\angle A}{2}$$

$$\angle A = (28° \times 2) = 56°$$

62. (3)   We know that,

Area of Δ = inradius × semi-perimeter

$$30 \text{ cm}^2 = 6 \times \frac{\text{perimeter}}{2}$$

$$30 \text{ cm}^2 = 3 \times \text{perimeter}$$

$$\text{Perimeter} = \frac{30}{3}\text{cm} = 10\,\text{cm}$$

63. (2)
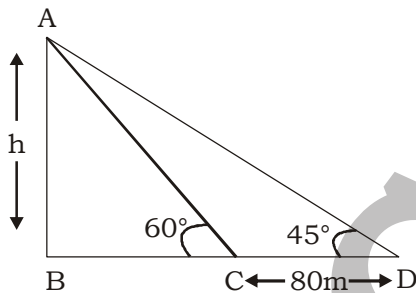
Let the height of tower be h m.

In ΔABC,

$$\tan 60° = \frac{AB}{BC}$$

$$\sqrt{3} = \frac{h}{BC}$$

$$BC = \frac{h}{\sqrt{3}}\,\text{m}$$

In ΔABD,

$$\tan 45° = \frac{AB}{BD}$$

$$1 = \frac{h}{\frac{h}{\sqrt{3}} + 80}$$

$$\frac{h}{\sqrt{3}} + 80 = h$$

$$h - \frac{h}{\sqrt{3}} = 80$$

$$h\left(\frac{\sqrt{3} - 1}{\sqrt{3}}\right) = 80$$

$$h = \frac{80\sqrt{3}}{(\sqrt{3} - 1)} = \frac{80\sqrt{3}(\sqrt{3} + 1)}{3 - 1}$$

$$= 120 + 40\sqrt{3} = 40(3 + \sqrt{3})\,\text{m}$$

64. (4)   Factors of 50 are 1, 2, 5, 10, 25 and 50.

Marbles in the 50th box will be kept by 1st, 2nd, 5th, 10th, 25th and 50th person.

So, the total number of marbles = (1 + 2 + 5 + 10 + 25 + 50) = 93

65. (4) $x^2 - y^2 = 56$

$(x + y)(x - y) = 56$

$(x - y) = 7$ ....(i)

$x + y = 8$ ....(ii)

Adding equation (i) and (ii) we get,

$x + y = 8$
$\underline{x - y = 7}$
$2x = 15$
$x = 7.5$

Put value of x in equation (ii),

$y = 8 - 7.5 = 0.5$

Now, average of 3x and 2y.

$$\frac{3 \times 7.5 + 2 \times 0.5}{5} = \frac{22.5 + 1}{5} = \frac{23.5}{5} = 4.7$$

66. (1)   Total production of TVS motorcycles during 2010 to 2013 = 28 + 30 + 23 + 25 = 106 thousand

Total production of BMW motorcycles during 2010, 2011 and 2014

= 15 + 18 + 20 = 53 thousand

Required more percentage = $\frac{106 - 53}{53} \times 100 = 100\%$

67. (3)   Total production of motor cycles in 2012 = 53 + 37 + 35 + 23 + 12 = 160 thousand

Required angle = $\frac{360}{160} \times 12 = 27°$

68. (2)   Total production of Bajaj in 2010 = 45

Total production of Honda in 2011 = 45

Total production of TVS in 2011 and 2013 = 30 + 25 = 55

Total production of Bajaj in 2014 = 45

Required Ratio = (45 + 45) : (55 + 45) = 90 : 100 = 9 : 10

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

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

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

70. (1) Speed of boat in downstream = (5 + 1) = 6 km/h
Speed of boat in upstream = (5 – 1) = 4 km/h
Let the distance be 'D' km
ATQ,

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

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

$D = \dfrac{12}{5} \text{km} = 2.4 \text{ km}$

71. (1) $7.6 - (8.4 \div 1.4 \times 6) + 10 \times 4 \div 1$
$= 7.6 - (6 \times 6) + 40$
$= 7.6 - 36 + 40 = 7.6 + 4 = 11.6$
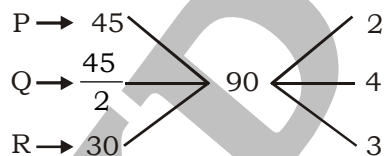
72. (2) Let the efficiency of P be x work/day.
Efficiency of Q = (x × 2) = 2x work/day.

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

$$\begin{array}{ccc}
P \rightarrow 45 & & 2 \\
Q \rightarrow \dfrac{45}{2} & \searrow 90 \swarrow & 4 \\
R \rightarrow 30 & & 3 \\
\end{array}$$

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

73. (2) 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

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

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

75. (3) 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

MEANINGS IN ALPHABETICAL ORDER

Anarchy	a state of disorder due to absence or nonrecognition of authority	अराजकता
Audible	able to be heard	सुनाई देने योग्य
Budgetary	relating to or in accordance with an estimate of income and expenditure	बजट
Decency	behaviour that conforms to accepted standards of morality or respectability	शिष्टता
Faint	(of a sight, smell, or sound) barely perceptible	बेहोश
Imprudent	not showing care for the consequences of an action; rash	ढीठ
Integration	the action or process of integrating	एकीकरण
Liability	the state of being responsible for something, especially by law	देयता
Modesty	the quality or state of being unassuming or moderate in the estimation of one's abilities	नम्रता
Mutiny	an open rebellion against the proper authorities, especially by soldiers or sailors against their officers	गदर
Negligent	failing to take proper care in doing something	लापरवाह
Rebellion	an act of violent or open resistance to an established government or ruler	विद्रोह
Shivering	shaking slightly and uncontrollably as a result of being cold, frightened, or excited	कांपना
Symmetry	the quality of being made up of exactly similar parts facing each other or around an axis	समरूपता
Vanity	excessive pride in or admiration of one's own appearance or achievements	घमंड

SSC MOCK TEST - 440 (ANSWER KEY)

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

76. (1) 'Teachers' is a plural noun. Use the verb 'teach.'
Correct sentence: All our teachers teach us very well but the mathematics teacher is the best.

77. (3) Like 'a kilo of', two kilos of', use the correct expression 'a bunch of.'
Correct sentence: Please give me a kilo of potatoes, two kilos of tomatoes and a bunch of coriander leaves.