SSC MOCK TEST - 445 (SOLUTION)

1. (2) Plough is the tool of Farmer, while Scalpel is the tool of Surgeon.

2. (1) As, $(21 + 4)^2 = 625$

   And, $(36 + 3)^2 = 1521$

   Similarly, $(46 + 7)^2 = 2809$

3. (3) Except Bromene, others are gas.

4. (4) (1) $76 \Rightarrow (7 + 6) \times (7 – 6) = 13$ (2) $85 \Rightarrow (8 + 5) \times (8 – 5) = 39$

   (3) $94 \Rightarrow (9 + 4) \times (9 – 4) = 65$ (4) $52 \Rightarrow (5 + 2) \times (5 – 2) = 21 \ne 28$

5. (2) As, L A W M A K E R

   And, B L U E S T A R

   Similarly, K E Y B O A R D

6. (4) $1764 + 401 \times 1 = 2165$

   $2169 + 401 \times 2 = 2967$

   $2967 + 401 \times 3 = 4170$

   $4170 + 401 \times 4 = 5774$

   $5774 + 401 \times 5 = $ **7779**

7. (1)

8. (4) When hands of a clock coincides the angle between them will be zero.

   So, $\dfrac{11M – 60M}{2} = 0$

   As clock coincides after 8, then take H = 8 and here we have to find the H

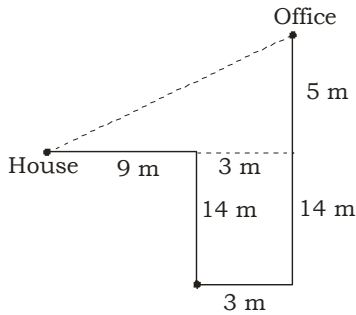   So, $\dfrac{11M – 60 \times 8}{2} = 0$

   $11M = 480$

   $M = 480 \div 11 = 43\dfrac{7}{11} \text{ past } 8$

9. (1) As, $(9 \times 7) \times (9 – 7) = 126 \Rightarrow (1 + 2 + 6) = 9$

   Similarly, $(8 \times 5) \times (8 – 5) = 120 \Rightarrow (1 + 2 + 0) = 3$

10. (1)

Shortest distance $= \sqrt{12^2 + 5^2} = \sqrt{144 + 25} = \sqrt{169} = 13\,\text{m}$

11. (1)

12. (4) **In the first row,**
$(27 + 18) – 22 = 23 \Rightarrow 23 + (2 + 3) = 28 \Rightarrow (28)^2 = 784$
In the second row,
$(19 + 14) – 13 = 20 \Rightarrow 20 + (2 + 0) = 22 \Rightarrow (22)^2 = 484$
In the third row,
$(36 + 21) – 17 = 40 \Rightarrow 40 + (4 + 0) = 44 \Rightarrow (44)^2 = 1936$

13. (1) $1936 \div 44 + 34 – 11 \times 25 = – 890$
Change 44 and 11,
$1936 \div 11 + 34 – 44 \times 25 = – 890$
$176 + 34 – 1100 = – 890$
$210 – 1100 = – 890$
$– 890 = – 890$

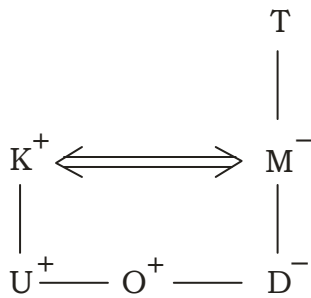14. (3) If the boy is 12th from right and 6th from the left.
Total number of boys in the line = 12 + 6 – 1 = 17
So, 15 boys should be there, if total 32 boys are in the line.
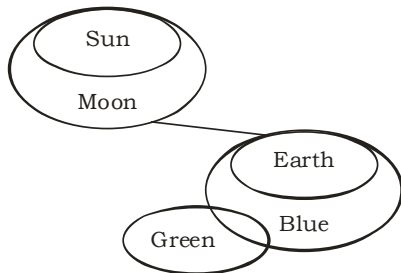
15. (2)

Hence, K is the son-in-law of T.

16. (3)

17. (2)

I. True   II. True   III. False   IV. False
Hence, conclusion I and II follow.

18. (2)   19. (2)   20. (3)

21. (3) The logic here is that –7 is subtracted from the first number to get the second number and 9 is subtracted from the second number to get the third number.

82 – 7 = 75 and 75 – 9 = 66

69 – 7 = 62 and 62 – 9 = 53

Similarly, 61 – 7 = 54 and 54 – 9 = 45

22. (2)   23. (4)   24. (2)   25. (4)

27. (4) Malik Muhammad Jayasi was an Indian Sufi poet. His best-known work is the epic poem Padmavat which is the story of king Ratan Singh, his queen Padmini of Mewar and Alauddin Khalji desire for Padmini.

28. (1) Venus, which can be seen with the unaided eye fromEarth, is the brightest planet in our Solar System. Venus was given the nickname evening star and morning star because of its bright, consistent presence.

29. (4) The location below the earth's surface where the earthquake starts is called the hypocenter, and the location directly above it on the surface of the earth is called the epicenter. Sometimes an earthquake has foreshocks.

31. (3) President of India will address his resignation letter to Vice President of India and in the absence of Vice President of India he will address it to the Chief Justice of India.

34. (1) Heparin is a natural anticoagulant of the body produced in the liver. It is normally found circulating through the bloodstream. It prevents the blood clotting in veins and arteries during normal circulation.

36. (2) The Bharat Centre of Olympic Research and Education (BCORE) was inaugurated on June 23 at Rashtriya Raksha University, Gandhinagar, Gujarat. Indian Olympic Association president PT Usha highlighted BCORE's role as a hub for knowledge, innovation, and performance in Indian sports.

37. (3) The fifth-generation computers are portable and have a huge storage capacity. The input/ output devices are keyboards, monitors, touchscreen pens, printers, light scanners, and so on. Examples are laptops, desktops, tablets, smartphones, etc.

38. (2) The headquarters of United Nations Organization (UN) is located at New York, US.

42. (4) International Labour Day or May Day is celebrated every year on May 1 in a bid to promote the rights of working class and prevent them from exploitation.

43. (3) The last of Charan Singh's major works, Economic Nightmare of India: Its Cause and Cure was published in 1981. This updated Singh's long-standing critique of the lopsided capital-intensive, industrial and urban-biased development path followed by India since Independence in 1947.

44. (3) Allama Muhammad Iqbal, composed the famous song 'Saare jaha se accha'.

47. (2) Lead pencils contain graphite (a form of carbon), not lead. Lead pencil consists of a cylinder of wood with a solid cylinder of graphite filled in the interior and the lead of the pencil is a mix of finely ground graphite and clay powders.

48. (3) AB positive blood type is known as the "universal recipient" because AB positive patients can receive red blood cells from all blood types.

49. (3) The urinary bladder is absent in Class Aves that comprises birds. They lack a urinary bladder because the waste product mostly contains uric acid that is, they are uricotelic and excrete the waste along with the feces.

50. (4) Julian Assange is heading to a courtroom in Saipan, capital of the Northern Mariana Islands, to plead guilty to a single charge and return to Australia. Saipan, located in the Western Pacific Ocean, is a US commonwealth with a history of Spanish, German, and Japanese colonization.

51. (3) $xy = -6$

$x^3 + y^3 = 19$

$\dfrac{1}{x^{-1}} + \dfrac{1}{y^{-1}} = x + y = ?$

$(x + y)^3 = x^3 + y^3 + 3xy(x + y)$

$(x + y)^3 = 19 + 3 \times (- 6) (x + y)$

Let $(x + y) = k$

$k^3 + 18k - 19 = 0$
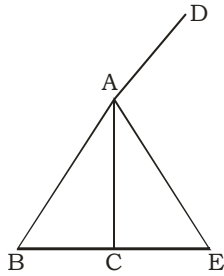
$k = 1$ satisfy the equation, so $k - 1$ is a factor.

$k^2(k - 1) + k(k - 1) + 19(k - 1) = 0$

$(k - 1)(k^2 + k + 19) = 0$

$(k - 1) = 0$

$k = 1$

52. (1)   **External angle bisector theorem:** the external bisecter of an angle of a triangle divides the opposite side externally in the ratio of the sides containing the angle.

$\dfrac{BE}{CE} = \dfrac{AB}{AC} = \dfrac{7}{4}$

Let $CE = x$ cm

$\dfrac{12 + x}{x} = \dfrac{7}{4}$

$48 + 4x = 7x$

$3x = 48$

$x = 16$ cm

∴ $CE = 16$ cm

53. (2)   CP of C = ₹2700

CP of B = $\dfrac{2700}{90} \times 100$ = ₹ 3000

∴   CP of A = $\dfrac{3000}{120} \times 100$ = ₹2500

54. (3) Let the initial investment of Sumit and Anil be 4x and 5x respectively.

Ratio of profit share = (4x + 4x + 1200) : (5x + 5x) = (8x + 1200) : 10x

ATQ,

$$\frac{8x + 1200}{10x} = \frac{75}{100}$$

$$\frac{8x + 1200}{10x} = \frac{3}{4}$$

32x + 4800 = 30x

2x = 4800

$$x = \frac{4800}{2} = 2400$$

∴ Initial investment of Sumit = 2400 × 4 = ₹9600

55. (2) Let the price of sugar be x per kg.

Then, expenditure of family = 40 × x = 40x

Increased price of sugar = x × 125% = 1.25 x

Increased expenditure = 40x × 110% = 44x

Consumption of sugar = $\frac{44x}{1.25x}$ = 35.2 kg

∴ Reduction in consumption = 40 – 35.2 = 4.8 kg

56. (2) Let speed of boat in still water = x km/h

Speed of the river = y km/hr

Boat covers a round trip journey between two points A and B in a river in if its speed in still water becomes 2 times, it would take $\frac{60}{199}$ T

ATQ,

$$\frac{D}{x + y} + \frac{D}{x - y} = T \qquad\qquad ....(i)$$

$$\frac{D}{2x + y} + \frac{D}{2x - y} = \frac{60}{199} T \qquad ....(ii)$$

Divide (i) by (ii),

$$\frac{\dfrac{2x}{(x + y)(x - y)}}{\dfrac{4x}{(2x + y)(2x - y)}} = \frac{199}{60}$$

$$\frac{(2x + y)(2x - y)}{2(x + y)(x - y)} = \frac{199}{60}$$

$$\frac{(2x + y)(2x - y)}{(x + y)(x - y)} = \frac{199}{30}$$

$30(4x^2 – y^2) = 199 (x^2 – y^2)$

$199x^2 – 30y^2 = 199x^2 – 199y^2$

$x^2 = 169$

$x = 13y$

$$\frac{x}{y} = \frac{13}{1}$$

Hence, ratio of its speed in still water to the speed of the river = 13 : 1

57. (1) Least number divisible by 8, 12, 30, 36 and 45 will be LCM of the numbers.

LCM of 8, 12, 30, 36 and 45 = $2^3 × 3^2 × 5$

However, this is not a perfect square as the power of 2 and 5 is odd.

Now, we will make it a perfect square by raising the powers of 2 and 5.

And the number (x) will be $2^4 × 3^2 × 5^2 = 3600$

∴ Sum of digits of the value of x = 3 + 6 + 0 + 0 = 90

58. (1) CI – SI = ₹1312.50

x = 12.5%

T = 3 years

CI – SI for 3 years $= P\left(\dfrac{R}{100}\right)^2\left(\dfrac{300+R}{100}\right)$

$1312.50 = P\left(\dfrac{12.5}{100}\right)^2\left(\dfrac{300+12.5}{100}\right)$

$1312.50 = P × \dfrac{1}{8} × \dfrac{1}{8} × \dfrac{312.50}{100}$

∴ $P = \dfrac{1312.50 × 64 × 100}{312.50}$ = ₹26880

59. (2) We know that,

Sum of first ten positive odd numbers = $n^2 = (10)^2 = 100$

Average of first ten positive odd numbers = $\dfrac{100}{10}$ = 10

Sum of first fifteen positive even numbers = $n(n + 1) = 15(15 + 1) = 15 × 16 = 240$

Average of first fifteen positive even numbers = $\dfrac{240}{15}$ = 16

Therefore, sum of the average of first then positive odd numbers and the average of first fifteen positive even numbers = 10 + 16 = 26

60. (3) $\sin\theta = \cos\theta$

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

$\tan\theta = 1$

$\theta = 45°$

Therefore, required value of $2\tan^2\theta + \sin^2\theta – 1 = 2 × (1)^2 + \left(\dfrac{1}{\sqrt{2}}\right)^2 – 1$
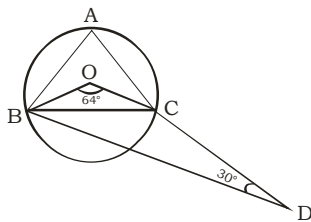
$= 2 + \dfrac{1}{2} – 1 = \dfrac{3}{2}$

61. (1) $\dfrac{4}{3} \times 7\dfrac{5}{4} \div \dfrac{11}{4} + \dfrac{5}{7}$ of $\dfrac{3}{5} \times 4\dfrac{1}{6} \div \dfrac{3}{8}$ of $\dfrac{40}{9} - \dfrac{7}{4}$

$= \dfrac{4}{3} \times \dfrac{33}{4} \times \dfrac{4}{11} + \dfrac{3}{7} \times \dfrac{25}{6} \div \dfrac{5}{3} - \dfrac{7}{4}$

$= 4 + \dfrac{3}{7} \times \dfrac{25}{6} \times \dfrac{3}{5} - \dfrac{7}{4} = 4 + \dfrac{15}{14} - \dfrac{7}{4}$

$= \dfrac{112 + 30 - 49}{28} = \dfrac{93}{28} = 3\dfrac{9}{28}$

62. (3)

We know that,

The angle subtended by an arc at the centre is double the angle subtended by it any point on the circumference of the circle.

$\angle BOC = 2 \times \angle BAC$

$64° = 2 \times \angle BAC$

$\angle BAC = 32°$

Now, In $\triangle ABD$,

$\angle BAC + \angle ABD + \angle BDA = 180°$

$32° + \angle ABD + 30° = 180°$

∴ $\angle ABD = 180° - 62° = 118°$

63. (2) p is the third proportional to 6 , 20.

6 : 30 :: 30 : p

6p = 900

p = 150

q is the fourth proportional of 4, 6, 24

4 : 6 :: 24 : q

4q = 144

q = 36

Now, 2 p + q = 2 × 150 + 36 = 336

64. (2) Let monthly income of Priti be ₹100.

Spent on grocery = ₹30

Remaining amount = 100 – 30 = ₹70

Spent on Rent = 70 × $\dfrac{15}{100}$ = ₹10.50

Now, remaining amount = 100 – (30 + 10.50) = ₹59.50

Spent on education and others $= 59.50 \times \dfrac{60}{100} = ₹35.70$

Now, saving $= 100 – (30 + 10.50 + 35.70) = ₹23.80$

∴ Spent on rent $= \dfrac{9520}{23.80} \times 10.50 = ₹4200$

65. (2) Let the unit place and tens place digit be x and y respectively.

Original number $= 10 \times y + x = 10y + x$

Number obtained by interchanging the digits $= 10 \times x + y = 10x + y$

Sum of number and a number obtained by interchanging the digits of the number $= 10y + x + 10x + y = 11x + 11y = 11(x + y)$

Hence, required factor = 11

66. (1) Ratio of milk and water = 3 : 2.

After mixture is drawn off, the new ratio = 3 : 2

After adding water (equal to mixture drawn) = 1 : 1

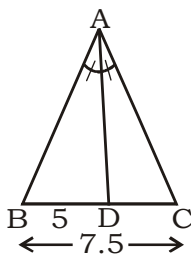Water added $= \dfrac{1}{2} - \dfrac{2}{5} = \dfrac{1}{5}$

So, mixture withdrawn $= \dfrac{1}{5}$

Original mixture added $= \dfrac{5}{5} + \dfrac{1}{5} = \dfrac{6}{5}$

Fraction of water added $= \dfrac{\dfrac{1}{5}}{\dfrac{6}{5}} = \dfrac{1}{6}$ th part

67. (4)

BD = 5 cm and BC = 7.5 cm   [Given]

CD = 7.5 – 5 = 2.5 cm

$\dfrac{AB}{AC} = \dfrac{BD}{DC}$ (interior angle bisector property of a Δ)

So, $\dfrac{AB}{AC} = \dfrac{5}{2.5} = 2 : 1$

∴ AC : AB = 1 : 2

68. (2) Required number is HCF of (690 – 10) and (875 – 25).

So, HCF of 680 and 850 is 170.

69. (2) $\sin\dfrac{\pi}{6} + \cos\dfrac{\pi}{3} - \tan^2\dfrac{\pi}{4}$

= $\sin 30° + \cos 60° - \tan^2 45°$

= $\dfrac{1}{2} + \dfrac{1}{2} - 1 = 0$

70. (3) A pipe can fill a tank = 8 hours

Time taken to fill half the tank = 4 hours

5 = (1 + 4) pipes of similar kind will fill half the tank in = $\dfrac{4}{5}$ hours = 48 minutes

So, total time taken to fill the tank = 4 hours 48 minutes

71. (2) A tap can fill a tank in 6 hours.

After half the tank is filled, i.e. after 3 hours, three more similar taps are opened.

Number of taps to fill remained half tank = 4 taps

1 tap take 3 hours to fill the tank

4 taps take 45 minutes to fill the tank

∴ Total time taken = 3 hours + 45 min = 3 hours 45 min

72. (1) Total expnditure = (32 + 12 + 10)% = 54%

Remaining salary = (100 – 54)% = 46%

Amount invested in fixed deposit on entire year = 54550 × $\dfrac{23}{100}$ × 12 = ₹1,50,558

73. (3) Required number = 25000 × $\dfrac{97.5}{100}$ = 24375

Total number = (64 + 58 + 28 + 48 + 27 + 25) × 100 = 25000
Now, 97.5% of 25000

∴ Required number of employees who use H-lB Visas and are Indians = 250 × 97.5 = 24375

74. (3) Required ratio = 900 × $\dfrac{23}{100}$: 450 × $\dfrac{44}{100}$

= 207 : 198 = 23 : 22

75. (3) Number of qualified candidates in the year 1995 = 900 × $\dfrac{64}{100}$ = 576

Number of male candidates who qualified in the year 1995 = 576 – 176 = 400

∴ Required ratio = 400 : 176 = 25 : 11

MEANINGS IN ALPHABETICAL ORDER

Accentuate	make more noticeable or prominent	बढ़ना
Anxious	experiencing worry, unease, or nervousness, typically about an imminent event or something with an uncertain outcome	चिंतित
Aristocracy	the highest class in certain societies, especially those holding hereditary titles or offices	शिष्टजन
Asceticism	severe self-discipline and avoidance of all forms of indulgence, typically for religious reasons	वैराग्य
Autocracy	a system of government by one person with absolute power	एकतंत्र
Bureaucracy	a system of government in which most of the important decisions are made by state officials rather than by elected representatives	नौकरशाही
Contemptuous	showing contempt; scornful	तिरस्कारपूर्ण
Erroneous	wrong; incorrect	गलत
Fiasco	a thing that is a complete failure, especially in a ludicrous or humiliating way	असफलता
Gorgeous	beautiful; very attractive	भव्य
Hail	pellets of frozen rain which fall in showers from cumulonimbus clouds	ओलों
Hoard	a stock or store of money or valued objects, typically one that is secret or carefully guarded	ढेर
Horde	a loosely knit small social group typically consisting of about five families	भीड़
Humility	a modest or low view of one's own importance; humbleness	विनम्रता
Hypocrisy	the practice of claiming to have moral standards or beliefs to which one's own behavior does not conform; pretense	पाखंड
Mitigate	make less severe, serious, or painful	कम करना
Oligarchy	a small group of people having control of a country, organization, or institution	कुलीनतंत्र
Paradigm	a typical example or pattern of something	आदर्श
Spontaneous	performed or occurring as a result of a sudden inner impulse or inclination and without premeditation or external stimulus	अविरल
Unnerve	make (someone) lose courage or confidence	शांत लेना

SSC MOCK TEST - 445 (ANSWER KEY)

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

76. (1) Replace 'began' with 'begun' (have + v^3).
77. (1) Replace "in spite that" with 'though'.