SSC MOCK TEST - 394 (SOLUTION)

1. (2) As,

$78 \Rightarrow (7 + 8)^3 - (7 + 8)^2 = 3150$

Similarly,

$52 \Rightarrow (5 + 2)^3 - (5 + 2)^2 = 294$

2. (1) Waiter is related to serve, while mechanic is related to Repair.

3. (4) Except 1991, others are divisible by 3.

4. (4) (A) B D F
(2) (4) $\Rightarrow$ 2 + 6 = (6)

(B) L M Y
(12) (13) $\Rightarrow$ 12 + 13 = (25)

(C) I J S
(9) (10) $\Rightarrow$ 9 + 10 = (19)

(D) G K M
(7) (11) $\Rightarrow$ 7 + 11 ≠ (13)

5. (3) 6 14 23 35 52 76 109 153 **210**
+8 +9 +12 +17 +24 +33 +44 +57
+2 +2 +2 +2 +2 +2 +2

6. (1) B E G J L O
+3 +2 +3 +2 +3

7. (2) As,

13 + 9 + 28 = 50

Similarly,

15 + 25 + 10 = 50

8. (3) b**b**ce**f**k/b**b**c**e**fk/bb**c**efk/bbc**e**fk

9. (2) **In first row,**

$18 \times 2 = 36 \Rightarrow 36 - 1 = 35$

$35 \times 2 = 70 \Rightarrow 70 - 1 = 69$

In second row,

$25 \times 2 = 50 \Rightarrow 50 - 1 = 49$

$49 \times 2 = 98 \Rightarrow 98 - 1 = 97$

In third row,

$23 \times 2 = 46 \Rightarrow 46 - 1 =$ **45**

$45 \times 2 = 90 \Rightarrow 90 - 1 = 89$

10. (1) $78 \div 48 \times 8 + (26 \times 7) - 39 + (45 + 20) = 215$

After changing the numbers 48 and 39 to each other

$78 \div 39 \times 8 + (26 \times 7) + 48 + (45 + 20) = 215$

$2 \times 8 + 182 - 48 + 65 = 215$

$198 + 65 - 48 = 215$

$215 = 215$

11. (4) 12. (1) 13. (3)

14. (4) 28 May 2006 = (2005 years + Period from 1.1.2006 to 28.5.2006)

Odd days in 1600 years = 0

Odd days in 400 years = 0

5 years = (4 ordinary years + 1 leap year) = (4 × 1 + 1 + × 2) = 6 odd days

January + February + March + April + May = (31 + 28 + 31 + 30 + 28) = 148 days

148 days = (21 weeks + 1 day) = 1 odd day

Total number of odd days = (0 + 0 + 6 + 1) = 0 odd days

Given day is Sunday.

15. (2) As,

P E R M I T

E P M R T I

Similarly,

S U N D A Y

U S D N Y A

16. (1)

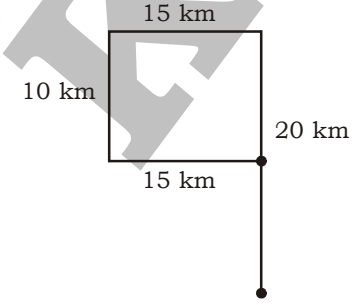
17. (4) As,

TAPERECORDER → !#&@^@?%^+@^

Similarly,

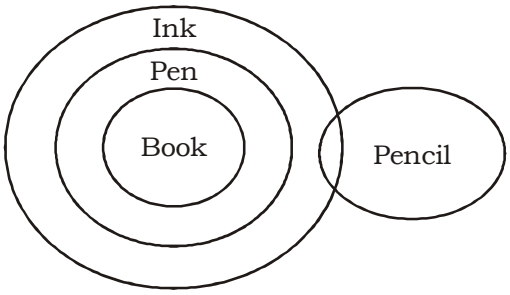
REPORTER → ^@&%^!

18. (2)



Therefore, he is in North from his house.

19. (1)



I. False II. True III. False

Hence, only conclusions II follows.

20. (3)

21. (3) Opposite faces of given cubes:

% ® #

@ ® +

& ® *

22. (2) 23. (1) 24. (1) 25. (1)

26. (4) Wheat kind of bread was their staple, perhaps baked in ovens or cooked over fire. In some places, particularly Gujarat, they also cultivated some native millets; and possibly rice does not become an important crop until Post-Harappan times.

28. (4) International Literacy Day is observed on 8 September every year to make people aware of the importance of literacy which no doubt is a matter of dignity and human rights.

30. (3) Plant cells have a cell wall, a large central vacuole, and plastids such as chloroplasts. The cell wall is a rigid layer that is found outside the cell membrane and surrounds the cell, providing structural support and protection.

31. (4) For emergency transfusions, blood group type O negative blood is the variety of blood that has the lowest risk of causing serious reactions for most people who receive it. Because of this, it's sometimes called the universal blood donor type.

32. (1) The food crops like rice, maize and wheat are consumed by humans.

33. (2) The territorial jurisdiction encompasses territorial waters up to 12 nautical miles from the closest baseline point; the Contiguous Zone stretches up to 24 nautical miles beyond the territorial waters; and the Exclusive Economic Zone of India extends up to 200 nautical miles beyond that.

34. (4) A ribosome functions as a micro-machine for making proteins. Ribosomes are composed of special proteins and nucleic acids. The TRANSLATION of information and the Linking of AMINO ACIDS are at the heart of the protein production process.

35. (2) The Atal Bhujal Yojana (Atal Jal), a central sector water conservation scheme, will continue for an additional two years beyond its original 2025 end date. It is implemented by the Ministry of Jal Shakti.

38. (4) A transistor computer, now often called a second generation computer, is a computer which uses discrete transistors instead of vacuum tubes. the first generation of electronic computers used vacuum tubes, which generated large amounts of heat, were bulky and unreliable.

41. (4) In 1953, Francis Crick and James Watson first described the molecular structure of DNA, which they called a "double helix," in the journal Nature.

44. (3) China and India are the two neighbouring countries in Asia. India shares 3488 km of border with China that runs along the states of Jammu and Kashmir, Himachal Pradesh, Sikkim, Uttarakhand and Arunachal Pradesh. Also, the Tibet Autonomous region of China touched border with India.

46. (1) On 1st November 1956, the state reorganization commission came into effect. The states reorganization act of 1956 reduced the number of states in the country from 27 to 14.

47. (4) Balban introduced the famous Persian festival of Nowruz in India to impress the nobles and people with his wealth and power. The festival is a New Year celebration of Spring Equinox.

49. (3) The Chalukyas of Kalyani were the main rivals of the Cholas dynasty in Southern India.

51. (3) $(3m + 700) \times 5 = (4m \times 600) \times 4$

$15\ m + 35w = 16m + 24w$

$1m = 11w$

Now, $3m + 700$

$= 33w + 700 = 40w$

$\therefore$ Required number of days $= \frac{40 \times 5}{10} = 20$ days

52. (4) Let the speed of train be x km/hr and length of train be y m.

ATQ,

$$\frac{y}{(x-4)\times\frac{5}{18}} = 15$$

$18y = 75x - 300$ .....(i)

And, $\frac{y}{(x-6)\times\frac{5}{18}} = 20$

$18y = 100x - 600$ .....(ii)

Compare the equation (i) and (ii),

$75x - 300 = 100x - 600$

$100x - 75x = 600 - 300$

$25x = 300$

$x = \frac{300}{25} = 12$ km/hr

53. (2) Upstream speed = 25 km/hr

Downstream speed = 35 km/hr

$\therefore$ Required time $= \frac{175}{25} + \frac{175}{35} = 7 + 5 = 12$ hours

54. (1) Quantity of low quality rice $= 450 \times \frac{20}{100} = 90$ kg

Let x units of good quantity of rice should be added to mixture.

ATQ,

$$\frac{90}{450+x} = \frac{8}{100}$$

$8x + 3600 = 9000$

$8x = 5400$

$x = \frac{5400}{8} = 675$ kg

55. (1) Let the male and female employees in KD Live be 6x and 11x respectively.

ATQ,

$$\frac{6x+24}{11x}=\frac{8}{11}$$

$66x + 264 = 88\,x$

$22\,x = 264$

$$x=\frac{264}{22}=12$$

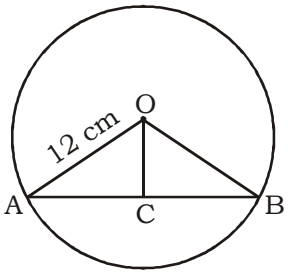
$\therefore$ Required number of male employees initially = $12 \times 6 = 72$

56. (3) $20 \div 5$ of $8 \times [9 \div 6 \times (6-3)] - (10 \div 2$ of $20)$

$= 20 \div 40 \times [9 \div 6 \times (6-3)] - (10 \div 40)$

$$=\frac{1}{2}\times\frac{9}{2}-\frac{1}{4}=\frac{8}{4}=2$$

57. (4)



Diameter of circle = 24 cm

Radius = $\frac{24}{2}$ = 12 cm

Chord AB = 20 cm

AC = BC = $\frac{20}{2}$ = 10 cm (OC bisects AB)

Now, In $\triangle AOC$,

$$OC=\sqrt{OA^2-AC^2}$$

$$=\sqrt{12^2-10^2}=\sqrt{144-100}$$

$$=\sqrt{44}=2\sqrt{11}\,\text{cm}$$

58. (3) $$\frac{\cos^2\theta}{\cot^2\theta+\sin^2\theta-1}=3$$

$$\frac{\cos^2\theta}{\cot^2\theta-\left(1-\sin^2\theta\right)}=3$$

$$\frac{\cos^2\theta}{\cot^2\theta-\cos^2\theta}=3$$

$$\frac{\cot^2\theta-\cos^2\theta}{\cos^2\theta}=\frac{1}{3}$$

$$\frac{\cot^2\theta}{\cos^2\theta} - \frac{\cos^2\theta}{\cos^2\theta} = \frac{1}{3}$$

$$\frac{\cot^2\theta}{\cos^2\theta} = 1 + \frac{1}{3}$$

$$\frac{\cot^2\theta}{\cos^2\theta} = \frac{4}{3}$$

$$\frac{\cos^2\theta}{\sin^2\theta.\cos^2\theta} = \frac{4}{3}$$

$$\frac{1}{\sin^2\theta} = \frac{4}{3}$$

$$\sin^2\theta = \frac{3}{4}$$

$$\sin\theta = \frac{\sqrt{3}}{2}$$

$\sin 6\overline{39} = \sin 60°$

$6\overline{39} = 60°$

$\therefore$ $\cot 6\overline{39} + \sec 6\overline{39} = \cot 60° + \sec 60°$

$$= \frac{1}{\sqrt{3}} + 2 = \frac{1+2\sqrt{3}}{\sqrt{3}}$$

59. (3) $(19 - x) : (28 - x) :: (55 - x) : (97 - x)$

$$\frac{19-x}{28-x} = \frac{55-x}{91-x}$$

$1729 - 19x - 91x + x^2 = 1540 - 28x - 55x + x^2$

$110 - 83x = 1729 - 1540$

$27x = 189$

$\therefore$ $x = \frac{189}{27} = 7$

60. (4) Let the marked price be ₹100.

Selling price = $100 \times \frac{75}{100}$ = ₹75

Cost price = $\frac{75}{125} \times 100$ = ₹ 60

$\therefore$ Required ratio = 60 : 75 = 4 : 5

61. (1) Total number of cars sold by dealer B in January, March and May together
= 600 + 635 + 450 = 1685

Total number of cars sold by dealer C in February, April and June together
= 635 + 540 + 740 = 1915

$\therefore$ Required ratio = 1685 : 1915 = 337 : 383

62. (3) Total number of cars sold in April by all the dealers together
= 635 + 580 + 540 + 740 + 740 = 3235

63. (4) Total number of cars sold by dealer B in all the months together
= 600 + 642 + 635 + 580 + 450 + 620 = 3527
Total number of cars sold by dealer C in all the months together
= 640 + 635 + 640 + 540 + 625 + 740 = 3820

$\therefore$ Required less% = $\left(\frac{3820-3527}{3820}\times 100\right)\% = 7.67\% \approx 8\%$

64. (1) Total number of cars sold by dealer A in January, February and March together
= 620 + 640 + 628 = 1888
Total number of cars sold by dealer E in April, May and June together
= 740 + 650 + 800 = 2190
$\therefore$ Required difference = 2190 – 1888 = 302

65. (2) Let the cost price of TV be ₹100.

Marked price = $100 \times \frac{130}{100}$ = ₹130

Selling price = $130 \times \frac{75}{100}$ = ₹97.50

Loss = 100 – 97.50 = ₹2.50

$\therefore$ Loss% = $\left(\frac{2.50}{100}\times 100\right)\% = 2.5\%$

66. (4) Perimeter of rectangular plot = 2 × (40 + 25) = 2 × 65 = 130 m
Perimeter of square plot = 4 × side
4 × side = 130

$\therefore$ Side = $\frac{130}{4}$ = 32.5 m

67. (1) If $x^4 + x^2y^2 + y^4 = 21$ and $x^2 + xy + y^2 = 7$

Formula used:

$x^4 + x^2y^2 + y^4 = (x^2 - xy + y^2)(x^2 + xy + y^2)$

Calculation:

$x^4 + x^2y^2 + y^4 = 21$ and $x^2 + xy + y^2 = 7$ .....(i)

$x^4 + x^2y^2 + y^4 = (x^2 - xy + y^2)(x^2 - xy + y^2)$

$21 = (x^2 - xy + y^2) \times 7$

$(x^2 - xy + y^2) = \frac{21}{7}$

$(x^2 - xy + y^2) = 3$ .....(2)

Equation (1) from equation (2),

$2xy = 4$

$xy = 2$

$(xy)^2 = 4$

From equation (1)

$x^2 + y^2 = 7 - 2$

$x^2 + y^2 = 5$

Now,

$$\left(\frac{1}{x^2}+\frac{1}{y^2}\right)$$

$$\frac{\left(x^2+y^2\right)}{\left(xy^2\right)}=\frac{5}{4}$$

68. (2) Let the number of clerks be x.

ATQ,

$(15000 \times 60) + (x + 8000) = (x + 60) \times 12000$

$900000 + 8000\,x = 12000\,x + 720000$

$4000\,x = 180000$

$$x = \frac{180000}{4000} = 45$$

$\therefore$ Number of clerks = 45

69. (2) Portion of the tank filled in 5 minutes = $5\left(\frac{1}{20}+\frac{1}{30}+\frac{1}{40}\right)=\frac{13}{24}$

Portion of the tank filled by B and C in the next 6 minutes = $6\left(\frac{1}{30}+\frac{1}{40}\right)=\frac{7}{20}$

Portion of the tank which is yet to be filled = $1-\left(\frac{13}{24}+\frac{7}{20}\right)=\frac{13}{120}$

Time taken by C fill the tank taking into consideration the leak as well

$$= \frac{\frac{13}{120}}{\left(\frac{1}{40}-\frac{1}{60}\right)}=\frac{13}{120}\times 120 = 13 \text{ minutes}$$

$\therefore$ Total time taken = 5 + 6 + 13 = 24 minutes

70. (4) Given,

$(1!)^{99} + (2!)^{98} + (3!)^{97} + \ldots\ldots\ldots\ldots + (99!)^1$

$= 1^{99} + 2^{98} + 6^{97} + 24^{96} + 120^{95} + 720^{94} + \ldots\ldots\ldots\ldots$

$= 1 + 4 + 6 + 6 + 0 + 0 + \ldots\ldots\ldots$

= 7 (unit digit)

71. (3) Total of 6 number = 136 × 6 = 816

Let the 6^{th} number be x.

Sum of the first 5 number = 7x

ATQ,

$7x + x = 816$

$8x = 816$

$\therefore$ $$x = \frac{816}{8} = 102$$

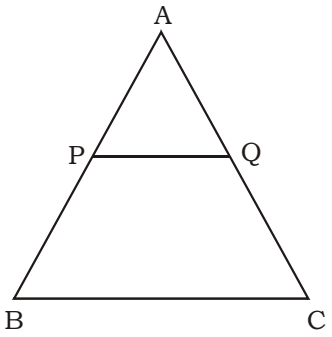
72. (1) 1005x4 is divided by 8.

Put the value of x = 0

Now, 100504 is completely divisible by 8.

$\therefore$ Required integer = 0

73. (3)



Area of quadrilateral PBCQ = 120 cm^2

AP : PB = 3 : 4

Now,

$$\frac{\text{Area of } \Delta APB}{\text{Area of } \Delta ABC} = \left(\frac{AP}{AB}\right)^2$$

$$\frac{\text{Area of } \Delta APB}{\text{Area of } \Delta ABC} = \left(\frac{3}{7}\right)^2$$

$$= \frac{\text{Area of } \Delta APB}{\text{Area of quadrilateral PBCQ} - \text{Area of } \Delta APB} = \frac{9}{49}$$

(The ratio of area of two similar AB is equal ot the square of the ratio of any pair of corresponds sides of similar triangle).

$$\frac{\text{Area of quadrilateral PBCQ} - \text{Area}(\Delta APB)}{\text{Area of}(\Delta APB)} = \frac{49}{9}$$

$$\frac{\text{Area of quadrilateral PBCQ}}{\text{Area}(\Delta APB)} - \frac{\text{Area}(\Delta APB)}{\text{Area}(\Delta APB)} = \frac{49}{9}$$

$$\frac{\text{Area of quadrilateral PBCQ}}{\text{Area}(\Delta APB)} = \frac{49}{9} - 1$$

$$\frac{120}{\text{Area}(\Delta APB)} = \frac{40}{9}$$

$\therefore$ $\text{Area}(\Delta APB) = \frac{120 \times 9}{40} = 27$ cm^2

74. (1) Volume of wall = (2500 × 800 × 50) cm^3

Volume of a brick = (25 × 15 × 12) cm^3

$\therefore$ Required number of bricks = $\frac{90}{100} \times \frac{2500 \times 800 \times 50}{25 \times 15 \times 12} = 20000$

75. (3) $\dfrac{8\sin\theta+5\cos\theta}{\sin^3\theta+2\cos^3\theta+3\cos\theta}$

Dividing numerator and denominator by $\cos\theta$,

$$\frac{\dfrac{8\sin\theta}{\cos\theta}+\dfrac{5\cos\theta}{\cos\theta}}{\dfrac{\sin^3\theta}{\cos\theta}+\dfrac{2\cos^3\theta}{\cos\theta}+\dfrac{3\cos\theta}{\cos\theta}}$$

$$\frac{8\tan\theta+5}{2\sin^2\theta+2\cos^2\theta+3}$$

$$\frac{8\tan\theta+5}{2\left(\sin^2\theta+2\cos^2\theta\right)+3}$$

$$=\frac{8\times2+5}{2\times1+3}=\frac{21}{5}$$

MEANINGS IN ALPHABETICAL ORDER

Allegory	a story, poem, or picture that can be interpreted to reveal a hidden meaning, typically a moral or political one	रुपक
Aristocratic	of, belonging to, or typical of the aristocracy	भव्य
Comply	(of a person or group) act in accordance with a wish or command	पालन करना
Conservative	averse to change or innovation and holding traditional values	अपरिवर्तनवादी
Contagious	(of a disease) spread from one person or organism to another by direct or indirect contact	संक्रामक
Dire	(of a situation or event) extremely serious or urgent	भयानक
Enmity	the state or feeling of being actively opposed or hostile to someone or something	शत्रुता
Fable	a short story, typically with animals as characters, conveying a moral	कल्पित कहानी
Fatal	causing death	घातक
Grim	forbidding or uninviting	विकट
Hostility	hostile behavior; unfriendliness or opposition	शत्रुता
Invigorate	give strength or energy to	मजबूत करना
Lethargic	affected by lethargy; sluggish and apathetic	सुस्त
Ominous	giving the impression that something bad or unpleasant is going to happen; threatening; inauspicious	अमंगल
Parable	a simple story used to illustrate a moral or spiritual lesson, as told by Jesus in the Gospels	दृष्टांत
Presumptuous	(of a person or their behavior) failing to observe the limits of what is permitted or appropriate	अभिमान
Sympathy	feelings of pity and sorrow for someone else's misfortune	सहानुभूति

SSC MOCK TEST - 394 (ANSWER KEY)

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