SSC MOCK TEST - 402 (SOLUTION)

1. (4) Calf is the offspring of Cattle, whereas Foal is oppspring of Horse.
2. (3) As, 85 – (85 ÷ 5) = 68
    And, 75 – (75 ÷ 5) = 60
    Similarly, 45 – (45 ÷ 5) = 36
3. (2) Except Frog others are reptiles.
4. (3) (1) $9^2 + 6^2 = 117$ (2) $8^2 + 4^2 = 80$ (3) $7^2 + 2^2 = 51 \neq 55$ (4) $5^2 + 4^2 = 41$
5. (4) As,

R	E	T	A	I	L	E	R
18	5	20	1	9	12	5	18
(1+8)	5	(2+0)	1	9	(1+2)	5	(1+8)
9	5	2	1	9	3	5	9
I	E	B	A	I	C	E	I

    Similarly,

S	P	E	C	T	A	C	L	E
19	16	5	3	20	1	3	12	5
(1+9)	(1+6)	5	3	(2+0)	1	3	(1+2)	5
10	7	5	3	2	1	3	3	5
J	G	E	C	B	A	C	C	E

6. (1) 384 425 371 399 345 347 306 **269**

7. (3)

8. (4) As, $17^2 = 289$
    $(17 + 4)^2 = 441$
    $(21 + 4)^2 = 625$
    Similarly, $14^2 = 196$
    $(14 + 4)^2 = 324$
    $(18 + 4)^2 = 484$
9. (1) r**o**mdk/so**m**dj/**to**mdi/uom**d**h
10. (3) Let Number be x.
    ATQ,
    x + 22 = 2(8 + x)
    x + 22 = 16 + 2x
    2x – x = 22 – 16
    x = 3
11. (1)
12. (3) **In the first column,**
    (18 + 14) – (2 + 7) = 23
    In the second column,
    (15 + 36) – (2 + 3) = 46
    In the third column,
    (39 + 64) – (4 + 5) = 94

13. (4) $5850 \div 25 \times 2 + 13 - 219 = 706$

After changing 25 and 13,

$5850 \div 13 \times 2 + 25 - 219 = 706$

$450 \times 2 + 25 - 219 = 706$

$706 = 706$

14. (3) Odd days between 31 August 2000 and 31 August 2009 = 1 + 1 + 1 + 2 (2004 – Leap year) + 1 + 1 + 1 + 2 (2008 leap year) + 1 = 11

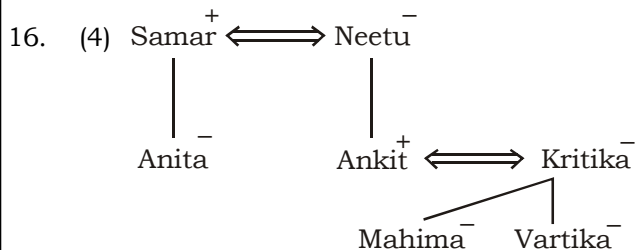Odd Days = $\dfrac{11}{7}$ $\Rightarrow$ 4

31 August 2000 = Friday

31 August 2009 = Friday + 4 = Tuesday

15. (2) As we know sun rises from east and the shadow of our body falls towards the west side.
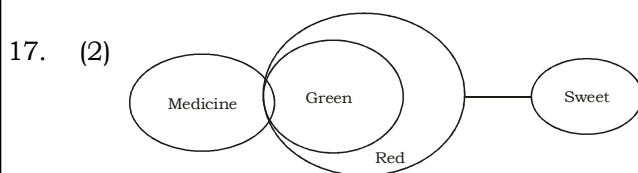
ATQ,

The shadow of Priti falls to the left of Raghav and for that to happen east direction should fall towards left of Priti and west side should fall towards right of Raghav.

Then her shadow will fall towards west and it will be on the left side of Raghav as she is standing in front of Priti, this is possible only when Priti faces the south direction and Raghav faces the north direction.

16. (4)

$$\text{Samar} \overset{+}{\Longleftrightarrow} \overset{-}{\text{Neetu}}$$

Anita$^-$ Ankit$^+$ $\Longleftrightarrow$ Kritika$^-$

Mahima$^-$ Vartika$^-$

Hence, Kritika is not daughter of Samar.

17. (2)

I. True   II. False   III. False

Hence conclusion I follows.

18. (3)   19. (4)

20. (3) As, $617 + 7^2 = 666$

$666 + 7^3 = 1009$

Similarly, $885 + 7^2 = 934$

$934 + 7^3 = 1277$

21. (1) 'sky **is** blue' → 'mud pot **sum**'

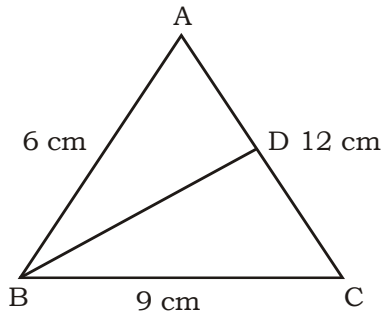'i like blue' → 'mud man log'

'I am sky' → 'man red pot'

'is' → 'sum'

22. (3)   23. (3)   24. (4)   25. (3)

26. (2) Sisodiya dynasty that ruled mewar did not surrender to emperor Akbar until and unless Jahangir defeated Rana Pratap's Son.

27. (2) The Second Buddhist Council was held at Vaishali under King Kalasoka. The Third Council was held at Paliputra under king Ashoka. The Fourth Council was held at Kashmir under the patronage of King Kanishka.

29. (2) The main vegetation types in Australia (in simplified terms) are forest, rainforest, grassland and desert. Different types of trees, shrubs and grasses grow within each of these vegetation types and are specially adapted to the soil, rainfall and temperature in each area.

30. (3) The Peninsular rivers which do not join the Arabian Sea are Godavari and Krishna.

31. (1) In India, an advocate general is a legal advisor to a state government. The post is created by the Constitution of India (vide Article 165) and corresponds to that of Attorney General for India at the union government level.

32. (4) Violet has the shortest wavelength, at around 380 nanometers, and red has the longest wavelength, at around 700 nanometers.

33. (4) Metals such as potassium and sodium react violently with cold water. The reaction is so violent and exothermic that the evolved hydrogen immediately catches fire.

34. (2) Human insulin may cause side effects. Tell your doctor if any of these symptoms are severe or do not go away: redness, swelling, and itching at the injection site. changes in the feel of your skin, skin thickening (fat build-up), or a little depression in the skin (fat breakdown)

36. (3) In a victory for the Rishi Sunak government, the U.K. House of Lords passed the Illegal Migration Bill, a law that will make it the Home Secretary's "duty" to remove illegal migrants from the U.K. and significantly change existing protections for asylum seekers.

37. (3) A software application used to locate and display Web pages. The two most popular browsers are Microsoft Internet Explorer and Netscape Navigator.

38. (1) The United Nation was established just after the End Of World War 2. On June, 26, 1945 India was the among 50 countries to sign the UN charter. After signing the UN charter on October, 30, 1945 India joined the United Nations.

40. (4) By India Today Information Desk: World No Tobacco Day is observed on May 31 every year to highlight the risk associated with the use of tobacco. In order to help reduce use and protect human health, the annual campaign raises awareness.

41. (4) The mission is named after an Indian spiritual Guru, Ramakrishna Paramahamsa. The mission was founded by Ramakrishna's chief disciple, Swami Vivekananda on 1 May 1897.

42. (4) The Moon's orbit around Earth is elliptical. The point of the orbit closest to Earth is called perigee, while the point farthest from Earth is known as apogee.

44. (3) Article 395 repeals the Indian Independence Act, 1947, and the Government of India Act, 1935, together with all enactments amending or supplementing the latter Act, but not including the Abolition of Privy Council Jurisdiction Act, 1949.

45. (3) Celsius and Fahrenheit are two temperature scales. The Fahrenheit and Celsius scales have one point at which they intersect. They are equal at –40 °C and –40 °F.

46. (3) The electrolyte is ammonium chloride in the form of a paste next to the zinc anode.

49. (2) The Asian Development Bank (ADB) on Wednesday, July 19, 2023, retained India's economic growth forecast at 6.4 per cent for the current financial year and 6.7 per cent for the next, saying robust domestic demand will continue to support the region's recovery.

51. (1)

According to angle bisector the order,

$$\frac{AB}{AC} = \frac{AD}{DC} = \frac{6}{9}$$

$$\frac{6}{9} = \frac{AD}{AC - AD}$$

$$\frac{9}{6} = \frac{AC - AD}{AD}$$

$$\frac{9}{6} = \frac{AC}{AD} - \frac{AD}{AD}$$

$$\frac{9}{6} = \frac{12}{AD} - 1$$

$$15AD = 12 \times 6$$

$$AD = \frac{12 \times 6}{15} = 4.8 \text{ cm}$$

52. (3) $\dfrac{\left[2\cot\dfrac{(\pi - A)}{2}\right]}{\left[1 + \tan^2\dfrac{(2\pi - A)}{2}\right]} = \dfrac{2\cot\left(\dfrac{\pi}{2} - \dfrac{A}{2}\right)}{1 + \tan^2\left(\pi - \dfrac{A}{2}\right)}$

$= \dfrac{2\tan\dfrac{A}{2}}{1 + \tan^2\dfrac{A}{2}} = \sin A$ $\left[\because \sin A = \dfrac{2\tan\dfrac{A}{2}}{1 + \tan^2\dfrac{A}{2}}\right]$

53. (3) There are 15 families.

Number of men = 10

Number of women = 15

Nmuber of children = 45

Let 1 man work in = x days

Then, 1 woman work in = 3x days

And, 1 child work in = 2x days

For 12 days,

Work done = $\left(\dfrac{15}{x} + \dfrac{15}{3x} + \dfrac{45}{2x}\right) \times 12 = \dfrac{510}{x}$

Work left = $1 - \dfrac{510}{x}$

When 5 family leaves,

Number of men = 10

Number of women = 10

Number of children = 30

Work is done in 36 days, i.e. 10 families work for (36 – 12) days = 24 days

Work done in 24 days = $\left(\dfrac{10}{x} + \dfrac{10}{3x} + \dfrac{30}{2x}\right) \times 24 = \dfrac{680}{x}$

$1 - \dfrac{510}{x} = \dfrac{680}{x}$

x = 1190 days

Work done by 1 family in 1 day = $\left(\dfrac{1}{x} + \dfrac{1}{3x} + \dfrac{3}{2x}\right) = \dfrac{17}{6x} = \dfrac{1}{420}$

54. (2) Let the speed of first train be x m/s and second be y m/s.

When they run in same directions,

x – y = $\dfrac{(120 + 80)}{20}$

x – y = 10 m/s   ....(i)

When they run in opposite directions,

x + y = $\dfrac{(120 + 80)}{10}$

x + y = 20 m/s   ....(ii)

On solving (i) and (ii) we get,

x – y + x + y = 10 + 20

2x = 30 m/s

x = 15 m/s

y = 5 m/s

Require ratio = 3 : 1

55. (1) For the number to be divisible by 88 it should be divisible by 8 and 11 both.

For divisibility by 8, the last three digits should be divisible by 8.

Here, 8y6 is divisible by 8 when y = 1, 5, 9

For divisibility by 11, the difference between the sum of digits at odd places and the sum of digits at even places should be divisible by 11 or 0.

(6 + 2 + 5 + 8 + 6) – (7 + 3 + x + y) = 17 – x – y

For y = 1; x = 5

For y = 5; x = 1

For y = 9; x = 8

So, x = 8 is maximum when y = 9

56. (4) ATQ,

x = Multiple of (10, 12, 15, 18) + 6

x = 180k + 6

For k = 4, the given condition is satisfied.

x = 180 × 4 + 6 = 726

The nearest square = 27 × 27 = 729

The least number should be added to x to make it a perfect square = 729 – 727 = 3

57. (3) Average of 35 numbers = 56

The average of the first 12 numbers = 52.5 and that of the last 24 numbers = 62.5

Eleventh number = Sum of first 12 numbers + Sum of last 24 numbers – Sum of 35 numbers

= 12 × 52.5 + 24 × 62.5 – 35 × 56

= 630 + 1500 – 1960 = 170

Now, sum of remaining numbers (excluding 11th number) = 1960 – 170 = 1790

Average of remaining 34 numbers = $\dfrac{1790}{34}$ = $52\dfrac{11}{17}$

58. (2) Total revenue = 13200

Let the ticket price of a water park before decrease in ticket price = 11x and number of daily visitors = 5y

And, the ticket price of a water park after decrease in ticket price = 9x and number of daily visitors = 7y

Now, according to question,

We know that:

Total revenue = price of a ticket × total number of units

Total revenue before the decrease in ticket price = (11x) × 5y

13200 = 55xy

xy = 240

Required, total revenue after the decrease in ticket price = (9x) × 7y = 63xy

= 63 × 240 = ₹15120

59. (4) $\dfrac{\cos^2\theta}{\cot^2\theta + \sin^2\theta - 1} = 3$

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

$\dfrac{\cos^2\theta}{\dfrac{\cos^2\theta}{\sin^2\theta} - \cos^2\theta} = 3$

$\dfrac{1}{\dfrac{1}{\sin^2\theta} - 1} = 3$

$\dfrac{\sin^2\theta}{1 - \sin^2\theta} = 3$

$$\sin^2 \theta = 3 - 3\sin^2 \theta$$

$$4\sin^2 \theta = 3$$

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

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

$$\sin \theta = \sin 60°$$

$$\theta = 60°$$

Now, $(\tan \theta + \operatorname{cosec} \theta) = \tan 60° + \operatorname{cosec} 60°$

$$= \sqrt{3} + \frac{2}{\sqrt{3}} = \frac{3+2}{\sqrt{3}} \times \frac{\sqrt{3}}{\sqrt{3}} = \frac{5\sqrt{3}}{3}$$

60. (4) 7 + 5 – 2 × (7 + 89) – 94 ÷ 2 + (33 ÷ 3 + 9 × 2 – 7) ÷ 11

By using BODMAS rules.

$$= 7 + 5 - 2 \times (96) - \frac{94}{2} + \left(\frac{33}{3} + 18 - 7\right) \div 11$$

$$= 7 + 5 - 192 - 47 + \frac{22}{11}$$

$$= 7 + 5 - 192 - 47 + 2 = -225$$

61. (2) Let the denomination of ₹1, ₹2, and ₹5 coins are 8x, x and 5x respectively.

ATQ,

1 × 8x + 2 × x + 5 × 5x = 420

8x + 2x + 25x = 420

35x = 420

$$x = \frac{420}{35} = 12$$

So, Number of ₹5 coins = 12 × 5 = 60

62. (2) Interest for 1 year = 22620 – 19500 = ₹ 3120

$$\text{Rate} = \frac{3120 \times 100}{19500 \times 1} = 16\%$$

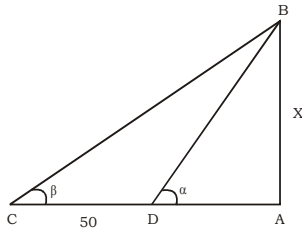63. (2) Let the capacity of the vessel be x litres.

ATQ,

$$x \times \left(1 - \frac{1}{3}\right)^4 = 15$$

$$x \times \frac{2}{3} \times \frac{2}{3} \times \frac{2}{3} \times \frac{2}{3} = 15$$

$$\frac{16x}{81} = 15$$

$$x = \frac{81 \times 15}{16} = 75.9375 \text{ litres}$$

64. (1)

Let AB is the tower of height x m and C, D are the points where the angles of elevation of the top of the tower are β and α respectively.

In ΔABD,

$$\tan\alpha = \frac{AB}{AD}$$

$$\tan\alpha = \frac{x}{AD}$$

$$AD = \frac{x}{\tan\alpha}$$

In ΔACB,

$$\tan\beta = \frac{AB}{AC}$$

$$\tan\beta = \frac{x}{\left[50 + \left(\dfrac{x}{\tan\alpha}\right)\right]}$$
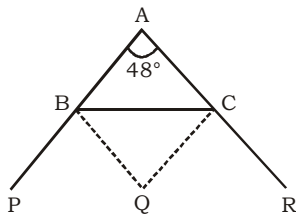
$$x = 50\tan\beta + x\left(\frac{\tan\beta}{\tan\alpha}\right)$$

$$x\left(1 - \frac{\tan\beta}{\tan\alpha}\right) = 50\tan\beta$$

$$x\left[\frac{(\tan\alpha - \tan\beta)}{\tan\alpha}\right] = 50\tan\beta$$

$$x = \frac{50\tan\alpha . \tan\beta}{(\tan\alpha - \tan\beta)}$$

65. (3)

$\angle BRC = 90 - \dfrac{1}{2}\angle A = 90 - 24 = 66°$

Required $= \dfrac{1}{2}\angle BRC = \dfrac{66}{2} = 33°$

66. (4) Let the total distance be x km.

ATQ,

$$\frac{x}{2 \times 11} + \frac{x}{2 \times 8} = \frac{19}{2}$$

$$\frac{x}{22} + \frac{x}{16} = \frac{19}{2}$$

$$\frac{8x + 11x}{176} = \frac{19}{2}$$

$$x = \frac{176}{2} = 88 \text{ km}$$

67. (3) ATQ,

$$10 + x : 23 + x : : 15 + x : 33 + x$$

$$\frac{10 + x}{23 + x} = \frac{15 + x}{33 + x}$$

$$330 + 10x + 33x + x^2 = 345 + 23x + 15x + x^2$$

$$43x - 38x = 345 - 330$$

$$x = \frac{15}{5} = 3$$

Mean proportion fo $(4x - 3)(8x + 1)$

$$= \sqrt{(4x - 3)(8x + 1)} = \sqrt{(12 - 3)(24 + 1)}$$

$$= \sqrt{9 \times 25} = 15$$

68. (1) MP of TV = ₹13500

CP of dealer after discount = $13500 \times \frac{80}{100} \times \frac{90}{100} = ₹ 9720$

Total CP after repairing cost = 9720 + 650 = ₹ 10370

SP of dealer = $10370 \times \frac{125}{100} = ₹ 12962.50$

69. (2) The given line is $2x - y = 6$

$y = 2x - 6$

It's slope = 2

The slope of the parallel line should also be 2.

Hence, the required line

m = 2 and (x, y) = (3, 2)

Equation = $\frac{y - y_1}{x . x_1} = \frac{y_2 - y_1}{x_2 - x_1}$

$$\frac{y - y_1}{x - x_1} = m$$

$y - y_1 = m (x - x_1)$

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

$y - 2 = 2x - 6$

$y = 2x - 4$

70. (3) Let the initio of investment of A and B = ₹3x and ₹4x respectively.

So profit share ratio = (3x + 3x + 400) : (4x + 4x) = (6x + 400) : (8x)

$$\frac{6x + 400}{8x} = \frac{7}{8}$$

7x = 6x + 400

x = 400

For A = 3x = 3 × 400 = ₹1200

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

Note: While adding the numbers we can take only hundreds to save our time.

So, we take first two digits only.

Total number = 64 + 58 + 28 + 48 + 27 + 25 = 250 = 25000

Now, 97.5% of 25000

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

72. (2) **Use alligation method:**

Male   Female
80   65
       71
6   9

Ratio = 2 : 3

The ratio of males to females = 2:3

∴ Required number of females in IBM India = $\frac{3}{5}$ × 2500 = 1500

73. (4) Required difference = $\dfrac{6400 + 2800 + 2500}{3} - \dfrac{2700 + 4800}{2}$

$= \dfrac{11700}{3} - \dfrac{7500}{2}$ = 3900 – 3750 = 150

74. (2) We take only two digits.

Required% = $\dfrac{64}{250}$ × 100 = 25.6%

75. (1) We take only two digits

Then, required ratio = $\dfrac{64 + 58 + 28}{48 + 27 + 25} = \dfrac{150}{100}$ = 3 : 2

MEANINGS IN ALPHABETICAL ORDER

Bandit	a robber or outlaw belonging to a gang and typically operating in an isolated or lawless area	डाकू
Battalion	a large body of troops ready for battle, especially an infantry unit forming part of a brigade typically commanded by a lieutenant colonel	बटालियन
Contemporary	living or occurring at the same time	समकालीन
Dacoit	a member of a band of armed robbers	डकैत
Determination	firmness of purpose; resoluteness	दृढ़ निश्चय
Devout	having or showing deep religious feeling or commitment	धार्मिक
Instability	lack of stability; the state of being unstable	अस्थिरता
Motive	a reason for doing something, especially one that is hidden or not obvious	प्रेरणा
Perseverance	persistence in doing something despite difficulty or delay in achieving success	दृढ़ता
Persistence	firm or obstinate continuance in a course of action in spite of difficulty or opposition	हठ
Pirate	a person who attacks and robs ships at sea	समुद्री डाकू
Pleased	feeling or showing pleasure and satisfaction, especially at an event or a situation	प्रसन्न
Proficient	competent or skilled in doing or using something	प्रवीण
Profound	(of a state, quality, or emotion) very great or intense	गहन
Reluctant	unwilling and hesitant; disinclined	अनिच्छुक
Robber	a person who commits robbery	लूटेरा
Steady	firmly fixed, supported, or balanced; not shaking or moving	नियमित
Utility	the state of being useful, profitable, or beneficial	उपयोगिता

SSC MOCK TEST - 402 (ANSWER KEY)

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

76. (4) Next to- beside, by, near, close to .

77. (2) This is a conditional sentence – use 'were' instead of 'was' example- Sheetal always treats him as if he were a child.

Replace 'was' with 'were'.

90. (2) The correct spelling is 'Contemporary'.

91. (1) The correct spelling is 'Battalion'.