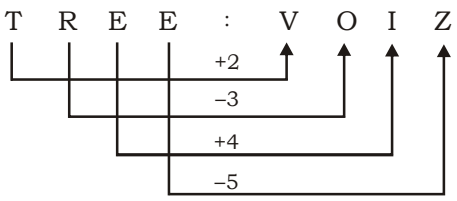
SSC MOCK TEST - 423 (SOLUTION)

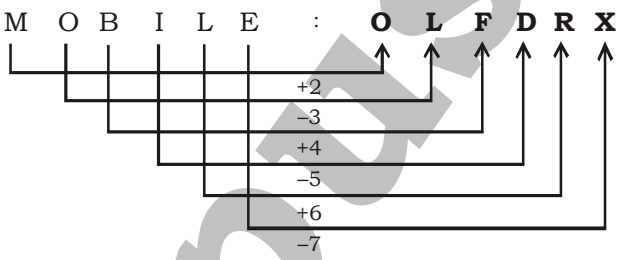
1. (1) As, $72 \Rightarrow (7 + 2)^2 = 81$

   Similarly, $143 \Rightarrow (1+ 4 + 3)^2 = 64$

2. (3) As,



Similarly,



3. (3) (1) $\sqrt{81} = 9 \Rightarrow$ Composite number (2) $\sqrt{100} = 10 \Rightarrow$ Composite number

   (3) $\sqrt{289} = 17 \Rightarrow$ **Prime number** (4) $\sqrt{225} = 15 \Rightarrow$ Composite number

4. (3) Except Rice, others are Rabi crops.

5. (2) As,

   L E S D

   @ $! #

   And,

   N A C

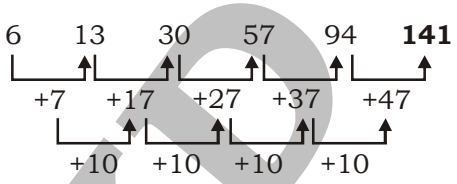
   % ? *

   Similarly,

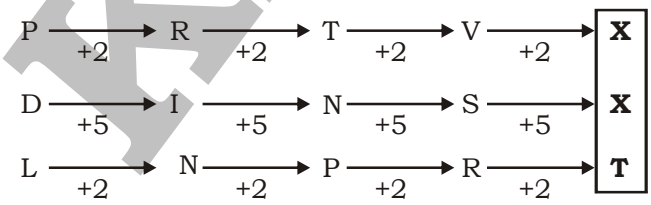
   C A N D L E S

   * ? % # @ $!

6. (4)



7. (1)

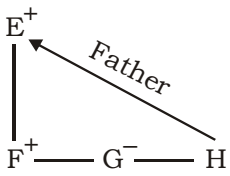


8. (3) Angle made by hour hand in 12 hours = 360°

   ∴ Angle made by hand in 8 hours 20 minutes = $\frac{360}{12} \times 8\frac{20}{60} = \frac{360}{12} \times \frac{25}{3} = 250°$

9. (2) As, $90 + 18 \times 1 = 108$
$108 + 18 \times 2 = 144$
Similarly,
$85 + 18 \times 1 = 103$
$103 + 18 \times 2 = 139$

10. (1)



Hence, E is the father of H.

11. (2) db**a**cbd/**d**ba**c**bd/**d**bac**b**d

12. (4) **In first row,**
$6^3 + 7^2 = 265$
In second row,
$9^3 + 8^2 = 793$
In third row,
$11^3 + 13^2 =$ **1500**

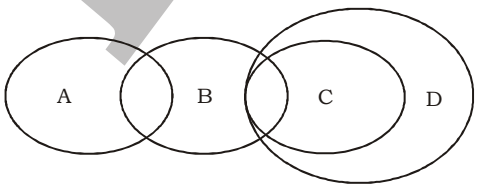
13. (2) $12 \times 6 + 5 - 24 \div 6 = 38$
After Changing the signs,
$12 + 6 \times 5 - 24 \div 6 = 38$
$12 + 30 - 4 = 38$
$42 - 4 = 38$
$38 = 38$

14. (3)

15. (3) 4. Admission → 2. College → 6. Class → 1. Learn → 5. Assessment → 3. Degree

16. (1) Let the first integer be x and second integer be y.
ATQ,
$x + y = 60$ .....(i)
$2(x - y) = 100$
$x - y = 50$ .....(ii)
Adding equation (i) and (ii), we get
$2x = 110$
$x = 55$
Put the value of x in equation (i),
$x + y = 60$
$55 + y = 60$
$y = 60 - 55 = 5$
∴ Bigger integer = 55

17. (2)



I. False II. True III. False
Hence, conclusion II follows.

18. (3) 19. (1)

20. (1) As we know that sun rises from east and shadow of our body falls towards the west side. So, the shadow of A falls to the left of B and for that to happen east direction should fall towards left of A and west side should fall towards right of A. Then his shadow will fall towards west and it will be on the left side of B as he is standing in front of A. This is possible only when faces the south direction and B faces the north direction.

21. (4) Required total number of persons in a row = 16 + 20 – 1 – 2 = 36 – 3 = 33

22. (3) 23. (2) 24. (2) 25. (4)

26. (4) Sumitra Mahajan is the second woman after Meira Kumar to be elected as the Speaker of the Lok Sabha.

28. (2) Odometer is used in Car. An odometer is a device that is used for measuring the distance travelled by a vehicle. The odometer is usually situated in the vehicle's dashboard.

30. (1) Darpan Inani is the highest-rated visually impaired chess player in India. Darpan Inani is the strongest blind player in India. he has been a bronze medalist at the 2013 World Junior Championship in Belgrade.

31. (1) Kaniska, also spelled Kanishka, Chinese Chia-ni-se-chia, (flourished 1st century ce), greatest king of the Kushan dynasty that ruled over the northern part of the Indian subcontinent, Afghanistan, and possibly areas of Central Asia north of the Kashmir region.

32. (4) Kartik Purnima is known as Hunter's Moon in the West. Kartika Purnima is a Hindu, Sikh, and Jain cultural festival celebrated on the Purnima (full moon) day of the Kartik month as per the traditional Hindu calendar.

34. (2) Fulminology is the study or science of lightning (Fakhruddin, 2010). Thunderstorm is said to be a rain shower during which a thunder is heard.

35. (2) Excise Duty is a type of tax charged on goods produced within the country.

36. (2) A rare all-white Gentoo penguin was recently spotted in Chilean Antarctica, a species exclusive to the Southern Hemisphere between 45 and 65 degrees south latitude.

37. (1) Devanagari is part of the Brahmic family of scripts of India, Nepal, Tibet, and Southeast Asia. It is a descendant of the 3rd century BCE Brahmi script, which evolved into the Nagari script which in turn gave birth to Devanagari and Nandinagari.

38. (4) Aurangzeb is known for being the emperor of India from 1658 to 1707. He was the last of the great Mughal emperors. Under him the Mughal Empire reached its greatest extent, although his policies helped lead to its dissolution.

39. (4) Passive solar heating refers to the use of the sun's energy for the heating and cooling of living spaces by exposure to the sun.

40. (3) Silao Khaja is a popular sweet food stuff of the Nalanda district of the State of Bihar prepared from wheat- flour, sugar, maida, ghee, water, cardamom and aniseeds.

41. (4) Brass, alloy of copper and zinc, of historical and enduring importance because of its hardness and workability.

42. (1) On 14 October 1919, after orders issued by the Secretary of State for India, Edwin Montagu, the Government of India announced the formation of a committee of inquiry into the events in Punjab. Referred to as the Disorders Inquiry Committee, it was later more widely known as the Hunter Commission.

44. (4) Jharkhand, one of India's newest states, was carved out of the southern portion of Bihar in 2000.

45. (4) The construction of Howrah Bridge consumed 26,500 tons of steel, out of which 23,000 tons of high-tensile alloy steel, known as Tiscrom, was supplied by Tata Steel.

46. (1) Our body creates vitamin D from direct sunlight on our skin when we're outdoors.

47. (1) The blood clotting process is a multistep activity known as coagulation. When the entire coagulation process works properly, blood holds firmly together at the site of an injury and bleeding stops.

50. (1) India's External Affairs Minister revealed that Farsi (Persian) is now classified as one of India's nine classical languages under the New Education Policy. Farsi, a key Iranian language and an Indo-European member, is the official language in Iran.

51. (1) Let the investment of C = ₹ x

Investment of B = ₹ (x + 7000)

Investment of A = ₹ (x + 7000 + 5000) = ₹ (x + 12000)

ATQ,

x + 12000 + x + 7000 = 61000

3x = 61000 – 19000

$x = \frac{42000}{3}$ = ₹ 14000

Investment of B = 14000 + 7000 = ₹ 21000

Investment of A = 14000 + 7000 + 5000 = ₹ 26000

Ratio of profit of A, B and C = 26000 : 21000 : 14000 = 26 : 21 : 14

∴ Share of A = $\frac{21350}{61} \times 26$ = ₹ 9100

52. (3) Let the sum of money investment in scheme A = ₹ x

Amount of be invested for scheme B = $\frac{x \times 16 \times 12}{100} + x = ₹ \frac{73x}{25}$

ATQ,

$$9417 = \frac{73x}{25}\left(1+\frac{15}{100}\right)^2 - \frac{73x}{25}$$

$$9417 = \frac{73x}{25}\left[\frac{529-400}{400}\right]$$

∴ $x = \frac{9417 \times 400 \times 25}{73 \times 129}$ = ₹ 10000

53. (4) Let the distance between X and Y be d km and they meet for the second time after t hours, then

(64 – 48)t = 32

16t = 32

t = 2 hours

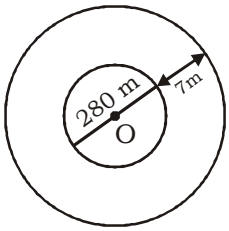
By the first meeting A and B together cover the total distance d km and by the second meeting, they together cover the total distance 3d km.

ATQ,

3d = 2(48 + 64)

$d = \frac{2 \times 112}{3} = 74\frac{2}{3}$ km

54. (4)



Radius of circular park = $\frac{280}{2}$ = 140 m

Radius of circular park with footpath = (140 + 7) = 147 m

Area of path = $\pi(R^2 - r^2)$, where R = 147 m and r = 140 m

$= \frac{22}{7}\left(147^2 - 140^2\right)$

$= \frac{22}{7} \times 287 \times 7 = 6314 \text{ m}^2$

∴ Cost of flooring the path = 6314 × 45 = ₹ 284130

55. (2) $x^2 - 4x + 1 = 0$

$x + \frac{1}{x} = 4$

Squaring both sides,

$x^2 + \frac{1}{x^2} = 14$

Again, squaring both sides,

$x^4 + \frac{1}{x^4} = 194$

$x^4(x^4 - 194) = -1$

Now, $x^9 + x^7 - 194x^5 - 194x^3$

$= x^5 (x^4 - 194) + x^3(x^4 - 194)$

$= (x^5 + x^3) (x^4 - 194)$

$= x^4\left(x + \frac{1}{x}\right)\left(x^4 - 194\right)$

$= \left(x + \frac{1}{x}\right).x^4\left(x^4 - 194\right)$

$= 4 \times -1 = -4$

56. (2) $2\sin^2\theta + 3\cos^2\theta$

$= 2\sin^2\theta + 2\cos^2\theta + \cos^2\theta$

$= 2(\sin^2\theta + \cos^2\theta) + \cos^2\theta$

$= 2 + \cos^2\theta$

Minimum value of $\cos^2\theta = 0$

∴ Required minimum value = 2 + 0 = 2

57. (3) $4 \div 24$ of $4 \times 8 + 24 \times 7 \div 14 - 3 \div 2 + 5 - 2 + 4$

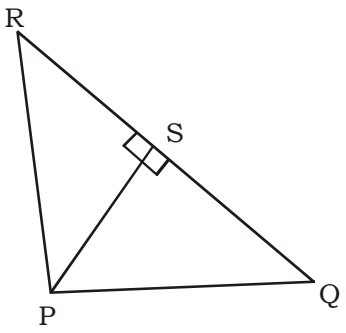
$= 4 \div 96 \times 8 + 24 \times 7 \times \frac{1}{14} - 3 \times \frac{1}{2} + 5 - 2 + 4$

$= \frac{4}{96} \times 8 + \frac{24}{2} - \frac{3}{2} + 5 - 2 + 4$

$= \frac{1}{3} + 12 - \frac{3}{2} + 7$

$= 19 + \frac{1}{3} - \frac{3}{2} = \frac{114 + 2 - 9}{6} = \frac{107}{6}$

58. (1)



In right ΔPSR and right ΔPSQ,

$PR^2 = RS^2 + PS^2$ ……(i)

$PQ^2 = PS^2 + QS^2$ ……(ii)

Adding equation (i) and (ii),

$PR^2 + PQ^2 = RS^2 + PS^2 + PS^2 + QS^2$

$PR^2 + PQ^2 = 2PS^2 + RS^2 + QS^2$

$PR^2 + PQ^2 = 2QS \times RS + RS^2 + QS^2$

$PR^2 + PQ^2 = (RS + QR)^2$

$PQ^2 + PR^2 = QR^2$

Thus, in triangle PQR, we have $PQ^2 + PR^2 = QR^2$

Hence, ΔPQR is a right triangle, right angle at P.

$\therefore \quad \angle QPR = 90°$

59. (4) Let C complete the work in x days.

(A + B)'s 1 day work = $\frac{1}{10}$

(B + C)'s 1 day work = $\frac{1}{18}$

ATQ,

A's 5 days work + B's 10 day work + C's 15 days work = 1

or, this can be written as,

(A + B)'s 5 days work + (B + C)'s 5 days work + C's 10 day work = 1

$\frac{5}{10} + \frac{5}{18} + \frac{10}{x} = 1$

$$\frac{1}{2}+\frac{5}{18}+\frac{10}{x}=1$$

$$\frac{9+5}{18}+\frac{10}{x}=1$$

$$\frac{10}{x}=1-\frac{7}{9}$$

$$\frac{10}{x}=\frac{2}{9}$$

x = 45 days

So, C can complete the work in 45 days.

Work done by B in 1 day = $\frac{1}{18}-\frac{1}{45}=\frac{1}{30}$

So, B can completes the work in 30 days.

Work done by A in 1 day = $\frac{1}{10}-\frac{1}{30}=\frac{1}{15}$

So, A can completes the work in 15 days.

Ratio of their efficiency = $\frac{1}{15}:\frac{1}{30}:\frac{1}{45}$ = 6 : 3 : 2

Number of days they worked are 5 days, 10 days and 15 days respectively.

Now, ratio of their wages = 30 : 30 : 30 = 1 : 1 : 1

$\therefore$ Wages of C = $\frac{24000}{3}\times 1$ = ₹ 8000

60. (2) Total cost price of 200 mangos = 200 × 8 = ₹ 1600

Selling price of 50 mangos = 50 × 8 × $\frac{110}{100}$ = ₹ 440

Selling price of another 50 mangos = $50\times 8\times\frac{75}{100}$ = ₹ 300

Selling price of remaining 100 mangos = $100\times 8\times\frac{120}{100}$ = ₹ 960

Total selling price of 200 mangos = 440 + 300 + 960 = ₹ 1700

$\therefore$ Profit % = $\left(\frac{1700-1600}{1600}\times 100\right)\%$ = 6.25%

61. (4) Let the number be x.

ATQ,

$$\frac{x}{\frac{5}{6}} - x \times \frac{5}{6} = 22$$

$$\frac{6x}{5} - \frac{5x}{6} = 22$$

$$\frac{36x - 25x}{30} = 22$$

$11x = 30 \times 22$

$$x = \frac{30 \times 22}{11} = 60$$

$\therefore$ 40% of the number = $60 \times \frac{40}{100}$ = 24

62. (3) Let the salary of Priti be ₹ x.

Salary of Ravi = ₹ (90000 – x)

ATQ,

$$x \times \frac{15}{100} = (90000 - x) \times \frac{30}{100}$$

$15x = 90000 \times 30 - 30x$

$45x = 90000 \times 30$

$$x = \frac{90000 \times 30}{45} = ₹\ 60000$$

$\therefore$ Salary of Priti = ₹ 60000

63. (3) Speed of boat in still water = 24 km/hr

Speed of current = 6 km/hr

Speed of upstream = (24 – 6) km/hr = 18 km/hr

Speed of downstream = (24 + 6) km/hr = 30 km/hr

Let the distance be x km.

ATQ,

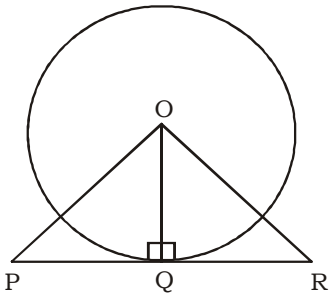
$$\frac{x}{18} + \frac{x}{30} = 4\frac{30}{60}$$

$$\frac{5x + 3x}{90} = \frac{9}{2}$$

$16x = 90 \times 9$

$$x = \frac{90 \times 9}{16} = 50.625 \text{ km}$$

64. (2)



$OQ \perp PR$

In ΔOQP,

$PQ = \sqrt{OP^2 - OQ^2} = \sqrt{10^2 - 6^2} = \sqrt{100 - 36} = 8$ cm

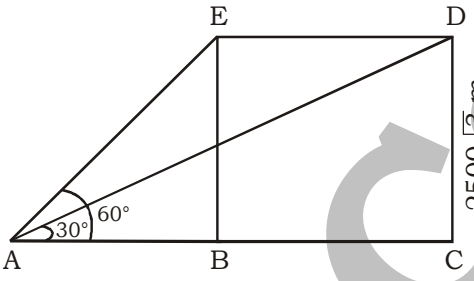
In ΔOQR,

$QR = \sqrt{OR^2 - OQ^2} = \sqrt{9^2 - 6^2}$

$= \sqrt{81 - 36} = \sqrt{45} = 3\sqrt{5}$ cm

$\therefore$ $PR = PQ + QR = \left(8 + 3\sqrt{5}\right)$ cm

65. (4)



E and D are positions of the plane.

$\angle EAB = 60°$ and $\angle DAC = 30°$

$CD = EB = 2500\sqrt{3}$ m

In ΔEAB,

$$\tan 60° = \frac{EB}{AB}$$

$$\sqrt{3} = \frac{2500\sqrt{3}}{AB}$$

$AB = 2500$ m

In ΔDAC,

$$\tan 30° = \frac{CD}{AC}$$

$$\frac{1}{\sqrt{3}} = \frac{2500\sqrt{3}}{AC}$$

AC = 2500 × 3 = 7500 m

ED = BC = AC – AB

= 7500 – 2500 = 5000 m

∴ Speed of plane = $\frac{5000}{25}$ = 200 m/s

66. (3) $\frac{xy}{x+y} = a$

$\frac{x+y}{xy} = \frac{1}{a}$

$\frac{1}{x} + \frac{1}{y} = \frac{1}{a}$

$\frac{1}{y} = \frac{1}{a} - \frac{1}{x}$ .....(i)

$\frac{xz}{x+z} = b$

$\frac{x+z}{xz} = \frac{1}{b}$

$\frac{1}{z} + \frac{1}{x} = \frac{1}{b}$

$-\frac{1}{z} = \frac{1}{x} - \frac{1}{b}$ .....(ii)

$\frac{yz}{y+z} = c$

$\frac{y+z}{yz} = \frac{1}{c}$

$\frac{1}{z} + \frac{1}{y} = \frac{1}{c}$

$\frac{1}{y} = \frac{1}{c} - \frac{1}{z}$ .....(iii)

From equation (i) and (iii),

$\frac{1}{a} - \frac{1}{x} = \frac{1}{c} - \frac{1}{z}$

$\frac{1}{a} - \frac{1}{x} = \frac{1}{c} + \frac{1}{x} - \frac{1}{b}$ [From (ii)]

$\frac{1}{x} + \frac{1}{x} = \frac{1}{a} - \frac{1}{c} + \frac{1}{b}$

$\frac{2}{x} = \frac{bc - ab + ac}{abc}$

∴ $x = \frac{2abc}{bc + ac - ab}$

67. (2) Let the present age of L and M be 3x years and 5x years respectively.

ATQ,

$5x - 3x = 8$

$2x = 8$

$x = \frac{8}{2} = 4$ years

$\therefore$ Required ratio = $(5 \times 4 + 8) : (3 \times 4 + 8) = 28 : 20 = 7 : 5$

68. (2) Ratio of number of coins = 3 : 4 : 5

Ratio of their value = $\frac{3}{2} : \frac{4}{4} : 5 = 6 : 4 : 20$

Sum of the ratio = 6 + 4 + 20 = 30

Now, value of one rupee coins = $\frac{639}{30} \times 20 = ₹\ 426$

$\therefore$ Number of one rupee coins = 426

69. (2) $25\% = \frac{1}{4}$

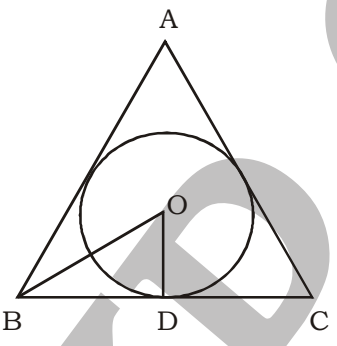
Let selling price be ₹ 4.

Losss = ₹ 1

Cost price = 4 + 1 = ₹ 5

$\therefore$ $\text{Loss}\% = \left(\frac{1}{5} \times 100\right)\% = 20\%$

70. (3)



Radius of in-circle = BD cot 60°

$= 6 \times \frac{1}{\sqrt{3}} = \frac{6}{\sqrt{3}}$ cm $= 2\sqrt{3}$ cm

Area of circle = $\pi \times 2\sqrt{3} \times 2\sqrt{3} = 12\pi\ \text{cm}^2$

Area of triangle ABC = $\frac{\sqrt{3}}{4} \times 12 \times 12 = 36\sqrt{3}\ \text{cm}^2$

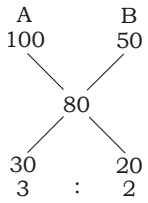
$\therefore$ Required area = $\left(36\sqrt{3} - 12\right) = 12\left(3\sqrt{3} - 1\right)\ \text{cm}^2$

71. (4) CP of 1000 kg of mixture

110000 – 30000 = ₹ 80000

CP of one kg of mixture = ₹80

By the method of alligation :



Required ratio = 3 : 2

72. (4) $\frac{3}{5}$% of total distance

40 × 3 + 60 × 4.5 = 120 + 270 = 390 km

Total distance = $\frac{390}{3}$ × 5 = 650 km

Remaining distance = 650 – 390 = 260 km

∴ Average speed = $\frac{260}{4}$ = 65 km/h

73. (2) Male population who did not visit park A = $\frac{20}{100} \times \frac{60}{100} \times 400 = 48$

Male population who visited in park A = 400 – (150 + 48) = 202

∴ Required % = $\left(\frac{202}{500} \times 100\right)\%$ = 40.4%

74. (3) Number of successful candidates in IBPS RRB in the year 2014 = $\frac{876}{12}$ × 7 = 511

Number of unsuccessful candidates in IBPS clerk in the year 2016 = $\frac{952}{17}$ × 8 = 448

∴ Required difference = 511 – 488 = 63

75. (3) Total number of students in MCA department = 48 + 58 + 58 + 46 + 44 + 54 = 308

∴ Required % = $\left(\frac{308}{290} \times 100\right)\%$ = 106.20% ≈ 106%

MEANINGS IN ALPHABETICAL ORDER

Adequate	satisfactory or acceptable in quality or quantity	पर्याप्त
Agitated	feeling or appearing troubled or nervous	उत्तेजित
Applaud	show approval or praise by clapping	सराहना
Bemoan	express discontent or sorrow over (something)	रोना
Bleed	lose blood from the body as a result of injury or illness	खून बहाना
Cackle	make a harsh, raucous sound when laughing	कुड़कुड़ाना
Ceiling	the upper interior surface of a room or other similar compartment	अधिकतम सीमा
Cluck	(of a hen) make a short, guttural sound	कुड़कुड़ाना
Commend	praise formally or officially	सराहना
Creak	(of an object or structure, typically a wooden one) make a harsh, high-pitched sound when being moved or when pressure or weight is applied	चरमराहट
Denounce	publicly declare to be wrong or evil	आरोप लगा देना
Faintly	in a faint manner; indistinctly	थोड़े बल से
Fierce	having or displaying an intense or ferocious aggressiveness	भयंकर
Genealogy	a line of descent traced continuously from an ancestor	वंशावली
Grief	deep sorrow, especially that caused by someone's death	शोक
Inept	having or showing no skill; clumsy	अयोग्य
Lament	a passionate expression of grief or sorrow	विलाप
Meager	(of something provided or available) lacking in quantity or quality	अल्प
Nimbly	in a nimble way	तीव्रता से अदाल
Psephology	the statistical study of elections and trends in voting	चुनाव विश्लेषण
Tranquil	free from disturbance; calm	शांत

SSC MOCK TEST - 423 (ANSWER KEY)

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

76. (2) Replace 'should' with 'would'.

77. (1) Omit 'will' in the part (A).

90. (3) The correct spelling of 'Yeild' is 'Yield'.

91. (1) The correct spelling of 'Occassion' is 'Occasion'.