SSC MOCK TEST - 377 (SOLUTION)

1. (4) Telescope is invented by Galileo, while Bulb is invented by Edison.

2. (2) As, $96 \Rightarrow (9 - 1) \times (6 - 1) = 40$
    And, $43 \Rightarrow (4 - 1) \times (3 - 1) = 6$
    Similarly, $87 \Rightarrow (8 - 1) \times (7 - 1) = 42$

3. (3) As, $\sqrt{16} \times 25 = 100$
    And, $\sqrt{49} \times 44 = 308$
    Similarly, $\sqrt{25} \times 34 = 170$

4. (4) (1) $34 \Rightarrow (3 + 4) \times 5 = 35$ (2) $59 \Rightarrow (5 + 9) \times 5 = 70$
    (3) $78 \Rightarrow (7 + 8) \times 5 = 75$ (4) $44 \Rightarrow (4 + 4) \times 5 = 40 \neq 80$
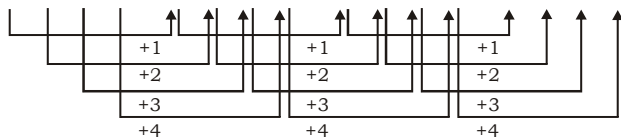
5. (3) Except Japan, others are Western Countries.

6. (1) $312 \times \dfrac{3}{4} = 234$

    $234 \times \dfrac{3}{4} = 175.5$

    $175.5 \times \dfrac{3}{4} = 131.625$

    $131.625 \times \dfrac{3}{4} = 98.71875$

7. (3)

8. (1)

    Hence, the boy is the brother of Tarun.

9. (3) Let the Sonal's age be $10x + y$.
    Monal's age = $10y + x$
    ATQ,

    $(10y + x + 10x + y) \times \dfrac{1}{11} = (10y + x - 10x - y)$

    $(11y + 11x) \times \dfrac{1}{11} = 9y - 9x$

$x + y = 9y - 9x$

$10x = 8y$

$$\frac{x}{y} = \frac{8}{10} = \frac{4}{5}$$

Age of Sonal = $10x + y = 10 \times 4 + 5 = 45$ years

10.   (2) c**n**dla/**c**mdl**b**/cl**d**lc/c**k** dld

11.   (4) As,

M   O   N   I   T   O   R
↓   ↓   ↓   │   ↓   ↓   ↓
(13 + 15 + 14) │ (20 + 15 + 18)
    42   │   53
                ↓
                9

$\Rightarrow (53 - 42) \times 9 = 99$

And,

R   O   A   S   T   E   R
↓   ↓   ↓   │   ↓   ↓   ↓
(18 + 15 + 1) │ (20 + 5 + 18)
    34   │   43
               ↓
               19

$\Rightarrow (43 - 34) \times 19 = 171$

Similarly,

T   A   B   L   E   T   S
↓   ↓   ↓   │   ↓   ↓   ↓
(20 + 1 + 2) │ (5 + 20 + 19)
    23   │   44
                ↓
                12

$\Rightarrow (44 - 23) \times 12 = 252$

12.   (3) **In first row,**

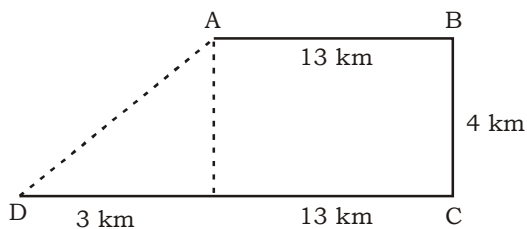128 + 326 + 112 = 566 $\Rightarrow$ 566 × (5 + 6 + 6) = 9622

In second row,

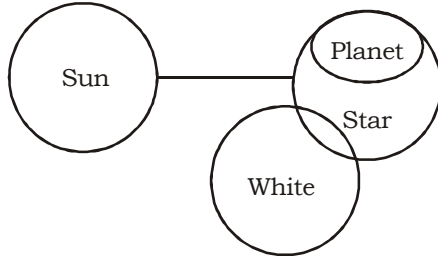224 + 113 + 125 = 462 $\Rightarrow$ 462 × (4 + 6 + 2) = 5544

In third row,

195 + 525 + 612 = 1332 $\Rightarrow$ 1332 × (1 + 3 + 3 + 2) = 11988

13.   (2)


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        A              B
          ┌──────────────┐
          │  13 km       │
          │              │ 4 km
          │              │
     ┌────┘              │
   D   3 km    13 km    C
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Shortest distance = $\sqrt{4^2 + 3^2} = 5\,\text{km}$

14. (3)   15. (3)

16. (3) 2. Seed → 5. Plant → 1. Tree → 3. Flower → 4. Fruit

17. (2)

    I. Doubt   II. Doubt   III. True

    Hence, either conclusion I or II and III follow.

18. (2)

19. (4) S > T > W > V

    Hence, V is the lightest.

20. (1) 76 ÷ 4 + 25 × 18 – 19 = 450

    Change 4 and 19,

    76 ÷ 19 + 25 × 18 – 4 = 450

    4 + 25 × 18 – 4 = 450

    4 + 450 – 4 = 450

    450 = 450

21. (2) As, MOUNTAIN ⇒ AIOUMNNT

    Similarly, UNIVERSITY ⇒ EIIUNRSTVY

    Note: FIRST of all, the vowel arranged in alphabetical order and after that remaining consonant is arranged in alphabetical order after that.

22. (1)   23. (2)   24. (3)   25. (3)

26. (1) In 1951, the Jawahar Tunnel was constructed at Banihal Pass, which made it possible to travel between Srinagar and Jammu throughout the year.

27. (3) Shivasamudram Falls is situated on the river Kaveri.

28. (1) The Nubra Valley is located in Ladakh, this valley has been formed by the Nubra River originating from the Siachen Glacier.

29. (2) Tawang belongs to Arunachal Pradesh of India. It is believed that the sixth Dalai Lama belonging to Tibetan Buddhism was born here.

30. (2) The Quwwat-ul-Islam mosque was built by Qutubuddin Aibak. he also laid the foundation of Qutub Minar in Delhi.

31. (3) Jaunpur is known as the Shiraz of India because of the cultural advancement that took place under the Sharqi rulers.

32. (2) Bukka I took the title of founder of Veda Marg pratishthapak, its reign was between 1356 and 1370.

33. (3) Palmerston was the Prime Minister of Britain at the time of the Revolt of 1857.

34. (2) Hornbill festival is celebrated in Nagaland.

35. (1) Kathakali classical dance belongs to Kerala.

36. (2) Osteoporosis is a disease caused by vitamin D deficiency in which the bones of an adult person become weak.

37. (3) Agni-5 is India's intercontinental ballistic missile with a range of 5500 km.

38. (3) Light year is the unit of distance. The value of 1 light year is 94.6 trillion kilometres.

39. (2) Quinine is obtained from the bark of cinchona, it is used in the treatment of malaria.

40. (3) The Tenth List of the Constitution deals with anti-defection leaders which were added by the 52nd Constitutional Amendment.

41. (4) The National Commission for Backward Classes was given constitutional status under the 102nd Constitutional Amendment.

42. (3) The provision of Concurrent List in the Indian Constitution has been taken from Australia, both the Center and the State have the power to legislate on the subjects included in the Concurrent List.

43. (2) A total of 10 fundamental duties were added to the Indian constitution under the 42nd constitutional amendment and 11th fundamental duty were added under the 86th constitutional amendment.

44. (3) DY Chandrachud is the 50th Chief Justice of India who has been appointed after the retirement of Justice UU Lalit as Chief Justice.

45. (3) Currently there are 9 members in the New Development Bank, which include Brazil, Russia, India, China, South Africa, Bangladesh, the United Arab Emirates, Uruguay and Egypt.

46. (2) A sensitisation workshop on G-20 Environment and Climate Sustainability is being organised in Bengaluru.

47. (1) Astana, the capital city of Kazakhstan is set to host the FIDE World Chess Championship Match during April-May 2023.

48. (4) Most people have four parathyroid glands, with two parathyroid glands lying behind each 'wing' of the thyroid gland.

49. (1) The Bengal Sati Regulation, or Regulation XVII, in India under East India Company rule, by the Governor-General Lord William Bentinck, which made the practice of sati or suttee illegal in all jurisdictions of India and subject to prosecution.

50. (1) India shares borders with several sovereign countries; it shares land borders with China, Bhutan, Nepal, and Pakistan in the north or north-west, and with Bangladesh and Myanmar in the east.

51. (2) Total of 4 numbers = 104 × 4 = 416

Let the first number be x.

ATQ,

$$x + \frac{10x}{3} = 416$$

$$\frac{3x + 10x}{3} = 416$$

$$13x = 416 \times 3$$

$$x = \frac{416 \times 3}{13} = 96$$

∴ First number = 96

52. (4) Let the principal be ₹ 100.

As the rate of interest is half-yearly. So rate will get half and time will get double.

ATQ,

$$A = P\left(1 + \frac{R}{100}\right)^T$$

$$A = 100\left(1 + \frac{2}{2 \times 100}\right)^{2 \times 1}$$

$$A = 100 \times \frac{106}{100} \times \frac{106}{100} = ₹ \, 112.36$$

CI = 112.36 – 100 = ₹ 12.36

So, effective rate of interest $= \left(12.36 \times \frac{100}{100}\right)\% = 12.36\%$

53. (2) Let the usual speed = 3x

New speed = $\frac{5}{3} \times 3x = 5x$

Ratio between usual speed and new speed = 3 : 5

Ratio between usual time and new time = 5 : 3

ATQ,

(5 – 3)units = 15 minutes

2 units = $\frac{15}{2}$ minutes

∴ Usual time = $\frac{15}{2} \times 5$ = 37.5 minutes

54. (3) CD = CP (Tangent from same point)

BE = BP (Tangent from same point)

AE = AD (Tangent from same point)

AD = AC + CD = AC + CP

AE = AB + BE = AB + BP

AE + AD = AC + CP + AB + BP

2AD = AC + AB + (CP + BP)

2AD = AB + AC + BC

$$AD = \frac{AB + AC + BC}{2} = \frac{8 + 4 + 4}{2} = 8 \, cm$$

55. (1) Let the radius of cylinder be r cm and height be h cm.

ATQ,

$$2\pi rh + 2\pi r^2 = 231$$

Again, $2\pi rh = \frac{2}{3} \times 231 = 154$

$$2\pi r^2 = 231 - 154$$

$$2 \times \frac{22}{7} \times r^2 = 77$$

$$r^2 = \frac{77 \times 7}{22 \times 2} = \frac{49}{2 \times 2}$$

$$r = \frac{7}{2} cm$$

$$2\pi rh = 154$$

$2 \times \dfrac{22}{7} \times \dfrac{7}{2} \times h = 154$

22h = 154

$h = \dfrac{154}{22} = 7 \text{ cm}$

Volume of the cylinder = $\left(\dfrac{22}{7} \times \dfrac{7}{2} \times \dfrac{7}{2} \times 7 \right) \text{cu.cm.} = 269.5 \text{ cu.cm}$

56. (3) $2\pi (R - r) = 154$

      r = 28 cm

      ATQ,

      $2\pi (R - r) = 154$

      $2 \times \dfrac{22}{7} (R - 28) = 154$

      $\dfrac{2}{7} (R - 28) = 7$

      $R - 28 = \dfrac{49}{2}$

      R = 24.5 + 28 = 52.5

      Area of the region between the two circles = $\pi \left(R^2 - r^2 \right)$

      $= \dfrac{22}{7} \left(52.5^2 - 28^2 \right) = \dfrac{22}{7} \times 80.5 \times 24.5 = 6198.5 \text{ cm}^2$

57. (2) $\sin\theta + \mathrm{cosec}\,\theta = 9$

      Cubing both sides,

      $\sin^3\theta + \mathrm{cosec}^3\theta + 3(\sin\theta \times \mathrm{cosec}\,\theta)(\sin\theta + \mathrm{cosec}\,\theta) = 729$
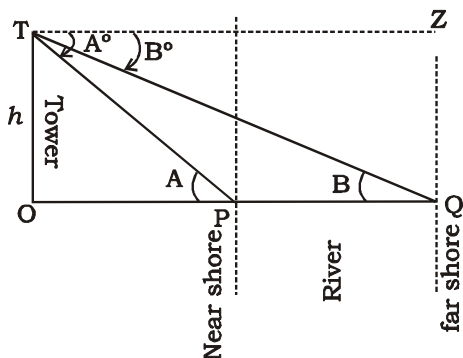
      $\sin^3\theta + \mathrm{cosec}^3\theta + 3 \times 9 = 729$

      $\sin^3\theta + \mathrm{cosec}^3\theta = 729 - 27$

    ∴ $\sin^3\theta + \mathrm{cosec}^3\theta = 702$

58. (4) Let OT = height of tower = h metres

      PQ = width of the river

Where,

P = point of the near shore to tower.

Q = point of the far shore to the tower.

$\angle ZTA = A°$ (angle of depression)

$\angle ZTQ = B°$ (angle of depression)

Then,

$\angle ZTA = \angle TPO = A°$

$\angle ZTQ = \angle TQO = B°$

Now,

In $\triangle TOP$, $\tan A = \dfrac{h}{OP}$

$OP = h \cot A$ ……. (i)

In $\triangle TQO$, $\tan B = \dfrac{h}{OQ} = \dfrac{h}{OP + OQ}$ …….(ii)

From (i) and (ii),

$PQ = h(\cot B - \cot A)$

59. (3)

	A		B		C
Efficiency	3	:	2	:	6
Number of days	2	:	3	:	1

Number of days taken by A = 12

Number of days taken by B = 18 and

Number of days taken by C = 6

1 day's work of (A + B) = $\dfrac{5}{36}$

1 day's work of (B + C) = $\dfrac{8}{36}$

1 day's work (C + A) = $\dfrac{9}{36}$

Day	1	2	3	4	5	6
	5/36	8/36	9/36	5/36	8/36	1/36

35/36

In 5 days total work done = $\dfrac{35}{36}$

Now, the rest of work $\left(i.e. \dfrac{1}{36}\right)$ is done by AC.

Number of days taken by AC for the rest of the work = $\dfrac{\dfrac{1}{36}}{\dfrac{9}{36}}$

There, total time taken to complete the work = $5 + \dfrac{1}{9} = 5\dfrac{1}{9}$ days

60. (1) Let number of persons buying the tickets.
On the three days are $2x$, $5x$ and $13x$ respectively.
Number of total tickets bought = $20x$
Then from question,
Total cost of tickets = $15 \times 2x + 7.5 \times 5x + 2.5 \times 13x$
= $(30 + 37.5 + 32.5)x = (100.0)x = ₹ 100x$

$\therefore$ Average cost of ticket per person = $\dfrac{100x}{20x}$ = ₹ 5

61. (4) Let the age's of three children be x_1, x_2 and x_3 years.
Then,

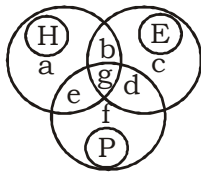$$\dfrac{x_1 + x_2 + x_3}{3} = \dfrac{20}{100}\left(\dfrac{26 + x_3}{2}\right)$$

$$\dfrac{x_1 + x_2 + x_3}{3} = \dfrac{26 + x_3}{10} \qquad \text{...... (i)}$$

Also,
$M + x_1 = 39$ ...... (ii)
From Equation (i) and (ii), we cannot determine the value of x_2.

62. (4) Given, $b + c + d + g = 23$ ..... (i)

$a + b + g + e = 15$ ....(ii)
$e + f + g + d = 18$ ......(iii)
and $a + b + c + d + e + f + g = 50$ ...... (iv)
Solving Equation (i), (ii),. (iii) and (iv)
$b = 3$, $f = 6$, $d = 6$, $c = 9$ and $g = 5$

63. (3) Mangoes of ₹ 20 are available for ₹ 19.

Hence, discount = $\left(\dfrac{1}{20} \times 100\right)\% = 5\%$

If one gets mangoes of ₹ 20 for ₹ 18, then discount = $\left(\dfrac{2}{20} \times 100\right)\% = 10\%$

$\therefore$ Required integer = $\left(\dfrac{2}{20} \times 27\right) = 2.7 \approx 3$

64. (3) If the time taken by B to complete the work be x days.
Time taken by A to complete the work = (x + 5) days
ATQ,

$$\dfrac{1}{x} + \dfrac{1}{x-5} = \dfrac{9}{100}$$

$$\dfrac{x-5+x}{x^2 - 5x} = \dfrac{9}{100}$$

$9x^2 - 45x = 200x - 500$
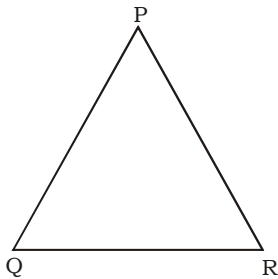
$9x^2 - 245x + 500 = 0$

$9x^2 - 225x - 20x + 500 = 0$

$9x(x - 25) - 20(x - 25) = 0$

$(9x - 20)(x - 25) = 0$

$x = 25$, because $x \neq \dfrac{20}{9}$

∴ Time taken by B to complete the work alone is 25 days.

65. (4)

$\angle P + \angle Q = 145°$

$\angle R = 180° - 145° = 35°$

$\angle R + 2\angle Q = 180°$

$2\angle Q = 180° - 35° = 145°$

$\angle Q = \dfrac{145°}{2} = 72.5° = \angle P = \angle Q = \angle R$

∴ RP > PQ

66. (1) Volume of rectangular block = $21 \times 77 \times 24$ cm³

Let the radius of sphere be r cm,

$\dfrac{4}{3}\pi r^3 = 21 \times 77 \times 24$

$r^3 = \dfrac{21 \times 77 \times 24 \times 3 \times 7}{4 \times 22}$

$r^3 = 3^3 \times 7^3$

$r = 3 \times 7 = 21$ cm

67. (1) $\dfrac{\left[2\sin(45° + \theta).\sin(45° - \theta)\right]}{\cos 2\theta}$

$= \dfrac{\left[2\sin 45° \cos\theta + \cos 45° \sin\theta\right].\left[\sin 45° \cos\theta - \cos 45° \sin\theta\right]}{\cos 2\theta}$

$= \dfrac{2\left[\dfrac{1}{\sqrt{2}}(\cos\theta + \sin\theta)\dfrac{1}{\sqrt{2}}(\cos\theta - \sin\theta)\right]}{\cos^2\theta - \sin^2\theta}$

$= 2 \times \dfrac{1}{2} \times \dfrac{\cos^2\theta - \sin^2\theta}{\cos^2\theta - \sin^2\theta} = 2$
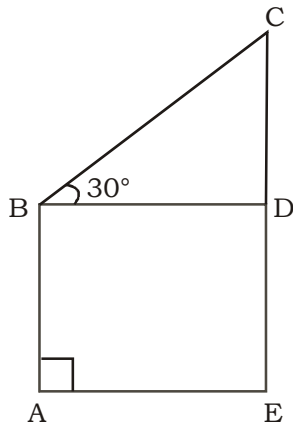
68. (3) Let the length of each train be x m.

Speed of first train = $\dfrac{x}{24}$ m/s

Speed of second train = $\dfrac{x}{16}$ m/s

ATQ,

$$\dfrac{x + x}{\dfrac{x}{24} + \dfrac{x}{16}} = \dfrac{2x}{\dfrac{2x + 3x}{48}}$$

$$= \dfrac{2x}{5x} \times 48 = 19.2 \text{ seconds}$$

69. (2)

Let AB is the observer and CE is thw tower.

AB = DE = 1.4 m

BD = AE = $25\sqrt{3}$ m

In ABCD,

$$\tan 30° = \dfrac{CD}{BD}$$

$$\dfrac{1}{\sqrt{3}} = \dfrac{CD}{25\sqrt{3}}$$

CD = 25 m

Now, CE = CD + DE = 25 + 1.4 = 26.4 m

∴ Height of tower = 26.4 m

70. (4) $x = \dfrac{2\sqrt{6}}{\sqrt{3} + \sqrt{2}} \times \dfrac{\sqrt{3} - \sqrt{2}}{\sqrt{3} - \sqrt{2}}$

$x = 2\sqrt{18} - 2\sqrt{12} = 6\sqrt{2} - 4\sqrt{3}$ ....(i)

$\dfrac{x + \sqrt{2}}{x - \sqrt{2}} + \dfrac{x + \sqrt{3}}{x - \sqrt{3}}$

$$= \frac{6\sqrt{2} - 4\sqrt{3} + \sqrt{2}}{6\sqrt{2} - 4\sqrt{3} - \sqrt{2}} + \frac{6\sqrt{2} - 4\sqrt{3} + \sqrt{3}}{6\sqrt{2} - 4\sqrt{3} - \sqrt{3}} \qquad \text{[From (ii)]}$$

$$= \frac{7\sqrt{2} - 4\sqrt{3}}{5\sqrt{2} - 4\sqrt{3}} + \frac{6\sqrt{2} - 3\sqrt{3}}{6\sqrt{2} - 5\sqrt{3}}$$

$$= \frac{\left(84 - 35\sqrt{6} - 24\sqrt{6} + 60\right) + \left(60 - 15\sqrt{6} - 24\sqrt{6} + 36\right)}{60 - 25\sqrt{6} - 24\sqrt{6} + 60}$$

$$= \frac{240 - 98\sqrt{6}}{120 - 49\sqrt{6}} = \frac{2\left(120 - 49\sqrt{6}\right)}{120 - 49\sqrt{6}} = 2$$

71. (3) Total number of visitors in museum P and Q together on Saturday

$$= 140 \times \frac{105}{100} + \frac{60}{100} \times 85 = 140 \times \frac{21}{20} + \frac{3}{5} \times 85 = 147 + 51 = 198$$

72. (2) Required% decrease $= \frac{160 - 112}{160} \times 100 = 48 \times \frac{5}{8} = 30\%$

73. (4) Required difference = (P + Q) – (M + N)
Tuesday = (145 + 167) – (121 + 115) = 312 – 236 = 76

74. (2) Required ratio $= \frac{(N+P)\,\text{Tuesday}}{(M+Q)\,\text{Wednesday}} = \frac{115 + 125}{85 + 168}$

$$= \frac{240}{252} = \frac{125}{126} = \frac{20}{21} = 20:21$$

75. (2) Required average $= \frac{141 + 128 + 79}{3} = \frac{348}{3} = 116$

MEANINGS IN ALPHABETICAL ORDER

Addict	a person who is addicted to a particular substance, typically an illegal drug	आदी होना
Aquarium	a transparent tank of water in which fish and other water creatures and plants are kept	मछलीघर
Aviary	a large cage, building, or enclosure for keeping birds in	पक्षीशाल
Barren	(of land) too poor to produce much or any vegetation	बंजर
Compete	strive to gain or win something by defeating or establishing superiority over others who are trying to do the same	स्पर्धा करना
Comply	(of a person or group) act in accordance with a wish or command	अनुपालन करना
Conform	comply with rules, standards, or laws	अनुरूप
Diminish	make or become less	घटाना
Escalation	a rapid increase; a rise	वृद्धि
Inadvertent	not resulting from or achieved through deliberate planning	बेपरवाह
Infertile	(of a person, animal, or plant) unable to reproduce	अनुपजाऊ
Insane	in a state of mind which prevents normal perception, behavior, or social interaction; seriously mentally ill	विक्षिप्त
Leisure	free time आराम	
Lush	(of vegetation) growing luxuriantly रसीला	
Malignant	(of a disease) very virulent or infectious घातक	
Poignant	evoking a keen sense of sadness or regret	मार्मिक
Prevalent	widespread in a particular area or at a particular time	प्रचलित
Sanatorium	an establishment for the medical treatment of people who are convalescing or have a chronic illness	सेहतगाह
Teetotaller	a person who never drinks alcohol	जो नशे में हो
Weird	suggesting something supernatural; uncanny	अजीब

SSC MOCK TEST - 377 (ANSWER KEY)

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

76. (2) The correct answer is (2). The sentence is in passive voice.

Active voice: Subject + was/were + V_1 + ing + object

Passive voice: Object+ was/were + being + V_3 + (by + subject)

Correct sentence: Bags and purses were thoroughly checked at the entrance to the stadium.

77. (1) The correct answer is (1). The sentence talks about a past event. Use 'parted' instead of 'part.'

Correct sentence: He parted the grass at the place where he had seen the deer.

84. (2) The correct spelling is 'Relevant'.

85. (3) The correct spelling is 'Weird'.

88. (3) The correct answer is (3). The sentence is talking about past. Use of 'hasn't been use' is wrong.

Correct sentence: It was a second hand car but it hadn't been used much.

89. (3) The correct answer is (3). In this sentence the question tag is wrong. With 'have,' 'haven't they' will be right.

Correct sentence: The medicines have arrived, haven't they?