SSC MOCK TEST - 400 (SOLUTION)

1. **(4)** Telescope is used to observe Distant objects, similarly Microscope is used to observe Tiny objects.

2. **(3)** As, $(7 – 2)^3 + (7 – 2) = 130$
   And, $(9 – 2)^3 + (9 – 2) = 350$
   Similarly, $(11 – 2)^3 + (11 – 2) = 738$

3. **(2)** Except Euphoria, others are negative word.

4. **(4)** (1) I + J + U = 9 + 10 + 21 = 40
   (2) G + M + T = 7 + 13 + 20 = 40
   (3) N + M + M = 14 + 13 + 13 = 40
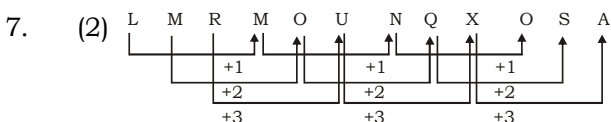   (4) V + T + Q = 22 + 20 + 17 = 59 $\neq$ 40

5. **(1)** As,   And,

L	A	P	T	O	P
12	1	16	20	15	16

   Rev. | Rev. | Rev.

15	1	11	20	12	16
+1	+1	+1	+1	+1	+1
16	2	12	21	13	17

N	O	T	E
14	15	20	5

   Rev. | Rev.

13	15	7	5
+1	+1	+1	+1
14	16	8	6

   Similarly,

A	D	A	P	T	O	R
1	4	1	16	20	15	18

   Rev. | Rev. | Rev. | Rev.

26	4	26	16	7	15	9
+1	+1	+1	+1	+1	+1	+1
27	5	27	17	8	16	10

6. **(2)** 14 × 2 – 2 = 26
   26 × 2 – 2 = 50
   50 × 2 – 2 = 98
   98 × 2 – 2 = 194

7. **(2)**

   L M R M O U N Q X O S A
   +1   +1   +1   +1
   +2   +2   +2
   +3   +3   +3

8. **(3)** As, 95 – (9 – 5) = 91
   91 – (9 – 1) = 83
   Similarly, 72 – (7 – 2) = 67
   67 – (6 – 7) = 68

9. **(2)** The possible arrangement may be
   1. V > R > Q > S > T > U > P
   And 2. V > Q > R > S > T > U > P
   Arrangement 1 available in options.

10. (4) d**a**bcf/**a**bcfd/b**c**fda/cf**d**ab

11. (2)

12. (1) **In the first row,**
    $57 - (49 \div 7) = 50$
    In the second row,
    $68 - (35 \div 7) = 63$
    In the third row,
    $93 - (\mathbf{77} \div 7) = 82$

13. (2) $144 + 12 \times 16 \div 4 - 15 = 181$
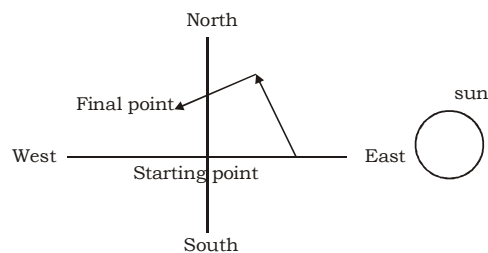   Change + and ÷ ,
    $144 \div 12 \times 16 + 4 - 15 = 181$
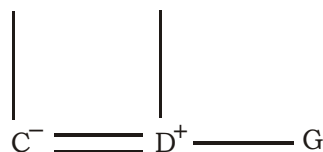 $12 \times 16 + 4 - 15 = 181$
    $192 + 4 - 15 = 181$
    $181 = 181$

14. (3)

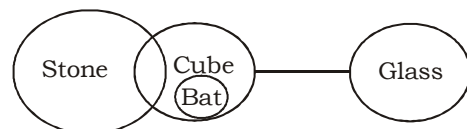   From the above figure, final position is in the North-West of his initial position.

15. (2)

    D is the Brother of G.

16. (2) 2. President $\rightarrow$ 1. Vice President $\rightarrow$ 4. Prime Minister $\rightarrow$ 3. Speaker $\rightarrow$ 5. Member of Parliament

17. (1)

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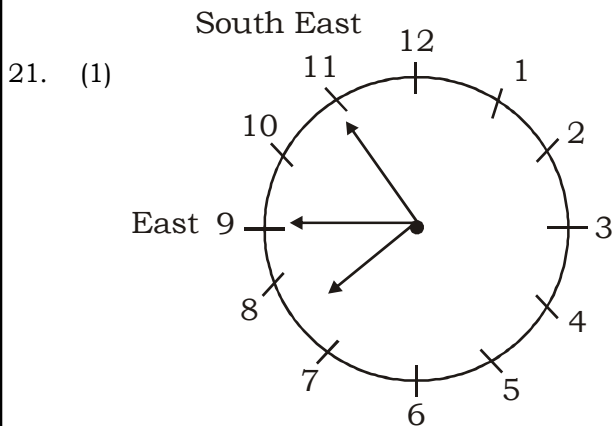   Hence, only conclusion I and II follow.

18. (2)   19. (3)

20. (4) Number of odd days in 2000 years = 0
    Number of odd days from 2001 to 2005 = 1 + 1 + 1 + 2 + 1 = 6 days
    Number of odd days from 1 January to 28 May 2006 = 3 + 0 + 3 + 2 + 0 = 8 days
    Total odd days = 6 + 8 = 14 days, i.e. 0 odd day
    So, 28 May 2006 was Sunday.

21. (1)

22. (2)   23. (1)   24. (4)   25. (2)

27. (3) Dadabhai Naoroji's mentioned the concept of drain of wealth from India during British rule in his book Poverty and Un-British Rule in India.

30. (2) The largest ethnic groups in North Africa are Arabs. Berbers are considered the second largest after the Arabs in western North Africa. The region is predominantly Muslim with a Jewish minority in Morocco and Tunisia, and significant Christian minority—the Copts—in Egypt, Algeria, Morocco, Libya, and Tunisia.

31. (4) The Palk Strait is a strait between the Tamil Nadu State of India and the Mannar District of the Northern Province of the Island Nation of Sri Lanka. The Palk Strait isolates India from Sri Lanka.

32. (1) The formal title of the amendment is the Constitution (First Amendment) Act, 1951. It was moved by the then Prime Minister of India, Jawaharlal Nehru, on 10 May 1951 and enacted by Parliament on 18 June 1951.

33. (3) This sum is simply referred to as the total mechanical energy (abbreviated TME). TME = PE + KE. The total mechanical energy remains constant during freefall.

35. (2) Robert Brown discovered the nucleus of the cell in 1804. The nucleus is a membrane-bound organelle present in eukaryotic cells.

36. (1) Robots stole the spotlight at the 'AI for Good Global Summit' conference held in Geneva, leaving the audience in awe of their capabilities and diverse perspectives.

37. (2) Aryabhata was India's first satellite, named after the famous Indian astronomer. It was launched on 19 April 1975 from Kapustin Yar, a Soviet rocket launch and development site in Astrakhan Oblast using a Kosmos-3M launch vehicle.

39. (2) The Secretary-General is appointed by the General Assembly, on the recommendation of the Security Council.

40. (4) Sangeet Academy is responsible for fostering the development of dance, drama and music in India.

41. (2) The Jnanpith Award is the oldest and the highest Indian literary award presented annually by the Bharatiya Jnanpith to an author for their "outstanding contribution towards literature".

43. (1) A seismograph is a primary earthquake measuring instrument. The seismograph produces a digital graphic recording of the ground motion caused by the seismic waves.

44. (1) Bahmani kingdom was a Muslim state of the Deccan in southern India and was one of the great medieval Indian kingdoms. It was founded by Alauddin Hasan Bahaman Shah in 1347. It was the first Independent Islamic Kingdom in South India.

45. (3) On 6 October 1839, Debendranath Tagore established Tattvaranjini Sabha which was shortly thereafter renamed the Tattwabodhini ('Truth-seekers') Sabha.

47. (3) Oxalic acid as mentioned above is mainly used for the toughest cleaning duties. The acid features bleach-like qualities and can be used for things like removing rust and stains on objects and metals. This acid is found in some quantity in several cleaning products, detergents and bleaches.

48. (2) Enzymes are produced by microorganisms. These microorganisms can be modified to produce enzymes with much better yield properties and purity. Such GMMs (genetically modified micro-organisms) are however not part of the final enzyme product.

50. (1) Medicare last week agreed to cover the new drug Leqembi, the first medication proven to slow the progression of Alzheimer's disease, following the U.S. Food and Drug Administration's green light of the pricey drug.

51. (1) $a^3 - b^3 = 189$

$a - b = 3$

Now,

$(a - b)^3 = a^3 - b^3 - 3ab(a - b)$

$3^3 = 189 - 3ab (3)$

$27 = 189 - 9ab$

$9ab = 189 - 27$

$ab = \dfrac{162}{9} = 18$

$\therefore (a - b)^2 - ab$

$= (3)^2 - 18 = 9 - 18 = - 9$

52. (3) $9\dfrac{3}{4} \div \left[2\dfrac{1}{6} \div \left\{ 4\dfrac{1}{3} - \left(2\dfrac{1}{2} + \dfrac{3}{4} \right) \right\} \right]$

$= \dfrac{39}{4} \div \left[\dfrac{13}{6} \div \left\{ \dfrac{13}{3} - \left(\dfrac{5}{2} + \dfrac{3}{4} \right) \right\} \right]$

$= \dfrac{39}{4} \div \left[\dfrac{13}{6} \div \left\{ \dfrac{13}{3} - \left(\dfrac{10 + 3}{4} \right) \right\} \right]$

$= \dfrac{39}{4} \div \left[\dfrac{13}{6} \div \left\{ \dfrac{13}{3} - \dfrac{13}{4} \right\} \right]$

$= \dfrac{39}{4} \div \left[\dfrac{13}{6} \div \left\{ \dfrac{52 - 39}{12} \right\} \right]$

$= \dfrac{39}{4} \div \left[\dfrac{13}{6} \div \dfrac{13}{12} \right]$

$= \dfrac{39}{4} \div \left[\dfrac{13}{6} \times \dfrac{12}{13} \right]$

$= \dfrac{39}{4} \div 2 = \dfrac{39}{4} \times \dfrac{1}{2}$

$= \dfrac{39}{8} = 4\dfrac{7}{8}$

53. (2) 3 men = 1 woman

1 man = 2 boys

Now, 4 men + 6 women + 10 boys

= 4 men + 18 men + 5 men

= 27 men = 9 women

In 6 days, 9 women can complete the work.

∴ In 3 days $\dfrac{9 \times 6}{3} = 18$ women complete the work.

54. (2) $\dfrac{2\sin\theta - \cos\theta}{\cos\theta + \sin\theta} = 1$

$\dfrac{\dfrac{2\sin\theta - \cos\theta}{\sin\theta}}{\dfrac{\cos\theta + \sin\theta}{\sin\theta}} = 1$ (Dividing numerator and denominator by sinθ)

$\dfrac{2 - \cot\theta}{1 + \cot\theta} = 1$

2 – cot θ = 1 + cot θ

2cot θ = 1

cot θ = $\dfrac{1}{2}$

55. (2) Let the marked price be ₹ x.
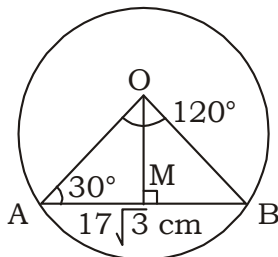
Selling price = ₹ 576

ATQ,

$x \times \dfrac{80}{100} \times \dfrac{75}{100}$ = ₹ 576

$x \times \dfrac{4}{5} \times \dfrac{3}{4}$ = ₹ 576

$x = \dfrac{576 \times 20}{12}$ = ₹ 960

56. (4)

Draw OM ⊥ AB

OM ⊥ AB

AM = MB = $\dfrac{1}{2}$ × 17$\sqrt{3}$ cm

In ΔOAM,

$$\frac{AM}{AO} = \cos 30°$$

$$\frac{17\sqrt{3}}{2} \times \frac{1}{AO} = \frac{\sqrt{3}}{2}$$

AO = 17 cm

Radius of the circle = 17 cm

57. (2) First candidates secured 40% votes.

Second candidates secured 60% votes.

Let the total number of votes polled be x.

ATQ,

$$x \times \frac{60}{100} - x \times \frac{40}{100} = 596$$

$$\frac{20x}{100} = 596$$

$$x = \frac{596 \times 100}{20} = 2980$$

58. (3) Let the sum lent at 8% be ₹ x.

Sum lent at 12% = ₹ (3000 – x)

ATQ,

$$\frac{x \times 8 \times 5}{100} + \frac{(3000 - x) \times 12 \times 5}{100} = 1600$$

$$\frac{40x}{100} + \frac{180000 - 60x}{100} = 1600$$

$$\frac{40x - 60x + 180000}{100} = 1600$$

–20x + 180000 = 160000

20x = 180000 – 160000

$$x = \frac{20000}{20} = ₹ 1000$$

∴ Required ratio = 1000 : (3000 – 1000) = 1000 : 2000 = 1 : 2

59. (4) ATQ,

When B runs 200 m, A runs 190 m.

When B runs 180 m, A runs $= \frac{190}{200} \times 180 = 171$ m

When C runs 200 m, B runs 180 m.
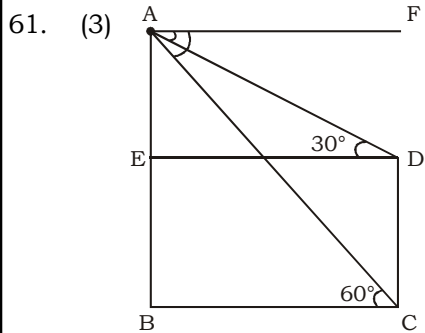
Hence, C will give a start to A by (200 – 171) = 29 m

60. (2) $\dfrac{4x-3}{x}+\dfrac{4y-3}{y}+\dfrac{4z-3}{z}=0$

$\dfrac{4x}{x}-\dfrac{3}{x}+\dfrac{4y}{y}-\dfrac{3}{y}+\dfrac{4z}{z}-\dfrac{3}{z}=0$

$\dfrac{3}{x}+\dfrac{3}{y}+\dfrac{3}{z}=4+4+4$

$\dfrac{1}{x}+\dfrac{1}{y}+\dfrac{1}{z}=\dfrac{12}{3}$

$\therefore\quad \dfrac{1}{x}+\dfrac{1}{y}+\dfrac{1}{z}=4$

61. (3)

Let AB is tower.

AB = 150 m

$\angle ADE = 30°$

$\angle ACB = 60°$

In $\triangle ABC$,

$\tan 60° = \dfrac{AB}{BC}$

$\sqrt{3} = \dfrac{150}{BC}$

$BC = \dfrac{150}{\sqrt{3}}$ m

In $\triangle ADE$,

$\tan 30° = \dfrac{AE}{DE}$

$\dfrac{1}{\sqrt{3}} = \dfrac{AE}{\dfrac{150}{\sqrt{3}}}$ $(\because\ BC = DE)$
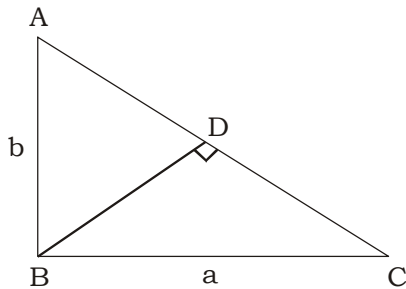
$AE = \dfrac{150}{3} = 50$ m

BE = AB – AE

BE = 150 – 50 = 100 m

BE = CD

CD = 100 m

∴ Height of the house = 100 m

62. (2)

BC = a, AC = b

$AB = \sqrt{AC^2 + BC^2} = \sqrt{b^2 + a^2}$

Area of $\triangle ABC = \dfrac{1}{2} \times BC \times AC = \dfrac{1}{2}ab$

Again area of $\triangle ABC = \dfrac{1}{2} \times AB \times CD = \dfrac{1}{2} \times \sqrt{a^2 + b^2} \times p$

ATQ,

$\dfrac{1}{2}ab = \dfrac{1}{2}\sqrt{a^2 + b^2} \times p$

$ab = \sqrt{a^2 + b^2} \times p$

On squaring both sides, we get

a²b² = (a² + b²)p²

$\dfrac{1}{p^2} = \dfrac{a^2 + b^2}{a^2 b^2}$

$\dfrac{1}{p^2} = \dfrac{a^2}{a^2 b^2} + \dfrac{b^2}{a^2 b^2}$

$\dfrac{1}{p^2} = \dfrac{1}{b^2} + \dfrac{1}{a^2}$

∴ $\dfrac{1}{p^2} = \dfrac{1}{a^2} + \dfrac{1}{b^2}$

63. (4) Let the LCM and HCF be x and y respectively.

Now, x = 4y

ATQ,

y + 4y = 125

5y = 125

y = 25

x = 4 × 25 = 100

∴ Second number = $\dfrac{LCM \times HCF}{First \ nubmer} = \dfrac{100 \times 25}{100} = 25$

64. (1) Pipe A can fill the tank in 12 hours.
Pipe B can fill the tank in 16 hours.
Pipe C can empty the tank in 30 hours.
Let the capacity of tank be 240 litres.

Pipe A can fill the tank in 1 hour = $\dfrac{240}{12}$ = 20 litres

Pipe B can fill the tank in 1 hour = $\dfrac{240}{16}$ = 15 litres

Pipe C can empty the tank in 1 hour = $\dfrac{240}{30}$ = 8 litres

Pipe A, B and C together can fill the tank in first 8 hours = 8 × (20 + 15 – 8) = 216 litres
Remaining capacity = 240 – 216 = 24 litres
Pipe B and C can together can fill the tank in 1 hour = (15 – 8) = 7 litres

∴ Required time to fill the remaining part of tank = $\dfrac{24}{7} = 3\dfrac{3}{7}$ hours

65. (4) Let the original speed = x km/hr

Speed after increase = $x \times \dfrac{9}{5} = \dfrac{9x}{5}$ km / hr

Let the distance be D km.
ATQ,

$$\dfrac{D}{x} - \dfrac{D}{\dfrac{9x}{5}} = \dfrac{30}{60}$$

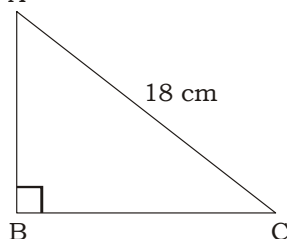$$\dfrac{D}{x} - \dfrac{5D}{9x} = \dfrac{1}{2}$$

$$\dfrac{9D - 5D}{9x} = \dfrac{1}{2}$$

$$\dfrac{4D}{9x} = \dfrac{1}{2}$$

$$x = \dfrac{8D}{9} \text{ km/hr}$$

∴ Required time = $\dfrac{D}{\dfrac{8D}{9}} = \dfrac{D}{8D} \times 9 = \dfrac{9}{8}$ hours

66. (1) A

Given that :

AB + BC + AC = 40 cm

AC = 18 cm

Now, AB + BC = 40 – 18 = 22 cm

In right $\triangle$ABC,

$AB^2 + BC^2 = AC^2$ (By pythagoras theorem)

$AB^2 + BC^2 = 18^2$

$AB^2 + BC^2 = 324$ cm

Now,

$(AB + BC)^2 = AB^2 + BC^2 + 2AB.BC$

$(22)^2 = 324 + 2AB.BC$

$484 = 324 + 2AB.BC$

$2AB.BC = 484 – 324$

$AB \times BC = \dfrac{160}{2}$ = 80 cm

$\therefore$ Area of $\triangle ABC = \dfrac{1}{2} \times AB \times BC = \dfrac{1}{2} \times 80$ = 40 cm^2

67.　(2) Let the principal be P.

CP – SP for 2 years = $P\left(\dfrac{R}{100}\right)^2$

$867 = P\left(\dfrac{17}{100}\right)^2$

$P = \dfrac{867 \times 100 \times 100}{17 \times 17}$ = ₹ 30000

$\therefore$ CI $= P\left(1 + \dfrac{R}{100}\right)^2 - P$

$= 30000\left(1 + \dfrac{17}{100}\right)^2 - 30000$

$= 30000 \times \dfrac{117}{100} \times \dfrac{117}{100} - 30000$

$= 41067 – 30000 = ₹ 11067$

68.　(3) Ratio of their profit = 25000 × 12 : 30000 × 9 : 45000 × 5

= 5 × 12 : 6 × 9 : 9 × 5 = 20 : 18 : 15

$\therefore$ Share of C in the profit = $\dfrac{13250}{20 + 18 + 15} \times 15$ = ₹ 3750

69. (2) $\cot\theta = \dfrac{1}{\sqrt{3}}$

   $\cot\theta = \cot 60°$

   $\theta = 60°$

   Now,

   $$\dfrac{2-\sin^2\theta}{1-\cos^2\theta} + \left(\cosec^2\theta - \sec\theta\right)$$

   $$\dfrac{2-\sin^2 60°}{1-\cos^2 60°} + \left(\cosec^2 60° - \sec 60°\right)$$

   $$= \dfrac{2-\left(\dfrac{\sqrt{3}}{2}\right)^2}{1-\left(\dfrac{1}{2}\right)^2} + \left[\left(\dfrac{2}{\sqrt{3}}\right)^2 - 2\right] = \dfrac{2-\dfrac{3}{4}}{1-\dfrac{1}{4}} + \left(\dfrac{4}{3} - 2\right)$$

   $$= \dfrac{\dfrac{5}{4}}{\dfrac{3}{4}} + \left(\dfrac{4-6}{3}\right) = \dfrac{5}{3} - \dfrac{2}{3} = \dfrac{3}{3} = 1$$

70. (1) Let the cost price of an article be ₹ 100.

   $$SP = 100 \times \dfrac{86.5}{100} = ₹\ 86.50$$

   $$\text{Second SP} = 100 \times \dfrac{109.5}{100} = ₹\ 109.50$$

   ATQ,

   $(109.50 - 86.50) \rightarrow ₹\ 552$

   $23 \rightarrow ₹\ 552$

   $\therefore\ 100 \rightarrow \dfrac{552}{23} \times 100 = ₹\ 2400$

71. (1) Average number of scooters produced per year (in thousands)

   $$= \dfrac{115+108+149+102+101}{5} = \dfrac{575}{5} = 115$$

   Clearly, it was in the year 1985.

72. (3) Decrease percentage in factory Q = $\left(\dfrac{20-15}{20} \times 100\right)\% = 25\%$

   Decrease percentage in factory R = $\left(\dfrac{16-12}{16} \times 100\right)\% = 25\%$

   Decrease percentage in factory T = $\left(\dfrac{41-35}{41} \times 100\right)\% = 14.63\%$

   Required answer is factory Q and R.

73. (2) Required ratio = $\dfrac{20}{40}$ = 1 : 2

74. (3) It was maximum in the year 1987.

75. (2) Number of scooters produced by factory Q in the year 1986 = 23 thousands

Total number of scooters produced by all the factories in the year 1985 = 115 thousands

Required percentage = $\left(\dfrac{23}{115} \times 100\right)\%$ = 20%

MEANINGS IN ALPHABETICAL ORDER

Abundance	a very large quantity of something	प्रचुरता
Arrogance	the quality of being arrogant	अभिमान
Belligerent	hostile and aggressive	युद्धरत
Clumsy	awkward in movement or in handling things	अनाड़ी
Cynicism	an inclination to believe that people are motivated purely by self-interest; scepticism	कुटिलता
Dainty	delicately small and pretty	सुंदर
Ferocious	savagely fierce, cruel, or violent	क्रूर
Hallucination	an experience involving the apparent perception of something not present	माया
Hinder	create difficulties for (someone or something), resulting in delay or obstruction	बाधा पहुंचाना
Humility	a modest or low view of one's own importance; humbleness	विनम्रता
Hyperbole	exaggerated statements or claims not meant to be taken literally	अतिशयोक्ति
Illusion	a thing that is or is likely to be wrongly perceived or interpreted by the senses	माया
Impede	delay or prevent (someone or something) by obstructing them; hinder	बाधा डालना
Lucid	expressed clearly; easy to understand	स्पष्ट अर्थ का
Meekness	the fact or condition of being meek; submissiveness	नम्रता
Mendacious	not telling the truth; lying	मिथ्या
Mercenary	(of a person or their behaviour) primarily concerned with making money at the expense of ethics	किराये का
Murky	dark and gloomy, especially due to thick mist	फीका
Obstruct	block (an opening, path, road, etc.); be or get in the way of	रोकना
Optimism	hopefulness and confidence about the future or the successful outcome of something	आर्शीवाद
Pernicious	having a harmful effect, especially in a gradual or subtle way	हानिकारक
Truant	a student who stays away from school without leave or explanation	कामचोर

SSC MOCK TEST - 400 (ANSWER KEY)

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

76. (3) "fell" will be come in place of "had fallen".

77. (2) "the car was sent by the driver" will be come in place of the driver sent the car.