

SSC MOCK TEST - 257 (SOLUTION)

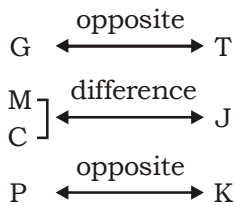
1. (C) As,

$$I_9F_6 \rightarrow \frac{96}{4} = 24$$

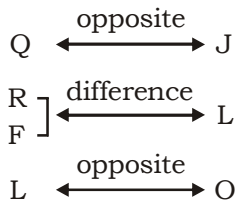
Similarly,

$$C_3F_6 \rightarrow \frac{36}{4} = 9$$

2. (B) As,



Similarly,



3. (B) As,

$$30 \times \frac{3}{2} = 45$$

Similarly,

$$60 \times \frac{3}{2} = 90$$

4. (D) Except option (D), the difference between the first and the last number is middle number.

5. (D) Hapur, Orai and Hardoi is the city of Uttar pradesh, but Mujaffarpur is a city of Bihar.

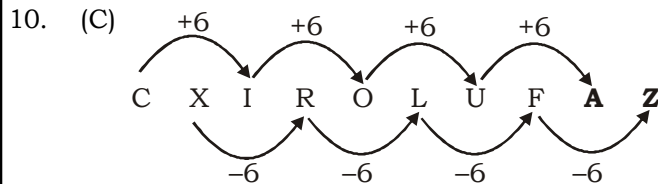
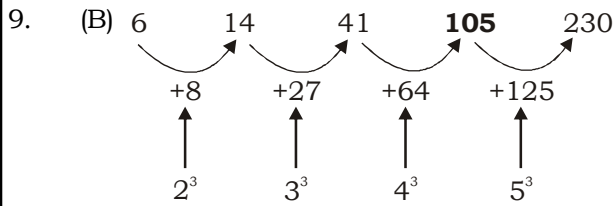
6. (D) Mango, Guava and Tamarind contains seeds, but coconut does not contain seeds.

7. (D) 3. Uncertain → 4. Uncle → 2. Unconscious → 1. Uncontrolled → 5. Underneath

8. (D) Mohan (+) ↔ Reeta



The gender of Nikhil is not known.



11. (D) '^' will be opposite face of '\$'

12. (A)
- $$0 + 1^2 = 1$$
- $$1 + 2^2 = 5$$
- $$5 + 3^2 = 14$$
- $$14 + 4^2 = 30$$
- $$30 + 5^2 = \mathbf{55}$$

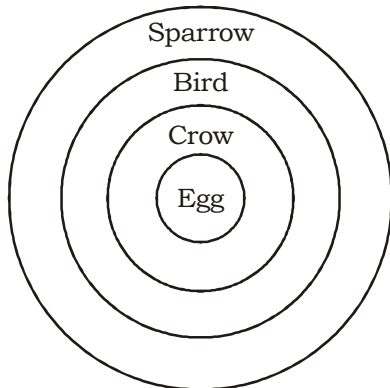
13. (B) First row,
- $$15 + \frac{90}{15} = 21$$
- Second row,
- $$25 + \frac{225}{9} = 34$$
- Third row,
- $$60 + \frac{300}{60} = 65$$

14. (C) As,
- | | | |
|---|-----------------|---|
| M | → ⁺⁴ | Q |
| Y | → ⁻⁴ | U |
| C | → ⁺⁴ | G |
| O | → ⁻⁴ | K |
| L | → ⁺⁴ | P |
| O | → ⁻⁴ | K |
| G | → ⁺⁴ | K |
| Y | → ⁻⁴ | U |

Similarly,

- | | | |
|---|-----------------|---|
| A | → ⁺⁴ | E |
| M | → ⁻⁴ | I |
| M | → ⁺⁴ | Q |
| O | → ⁻⁴ | K |
| N | → ⁺⁴ | R |
| I | → ⁻⁴ | E |
| A | → ⁺⁴ | E |

15. (B)



I. True II. True III. False

Hence, only conclusions I and II follow.

16. (A) $y\bar{x}wv/\bar{x}wvu/wv\bar{u}t$

17. (C) There are 10 triangles in the given figure.

18. (A) As,

$$G \rightarrow 7 \rightarrow 7^2 = 49$$

$$U \rightarrow 21$$

$$I \rightarrow 9$$

$$T \rightarrow 20 \rightarrow 20^2 = 400$$

$$A \rightarrow 1$$

$$R \rightarrow 18 \rightarrow 18^2 = 324$$

$$\text{Sum} = 49 + 21 + 9 + 400 + 1 + 324 = 804$$

Similarly,

$$T \rightarrow 20 \rightarrow 20^2 = 400$$

$$E \rightarrow 5$$

$$M \rightarrow 13 \rightarrow 13^2 = 169$$

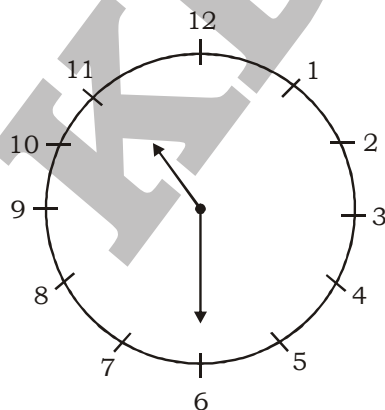
$$P \rightarrow 16 \rightarrow 16^2 = 256$$

$$E \rightarrow 5$$

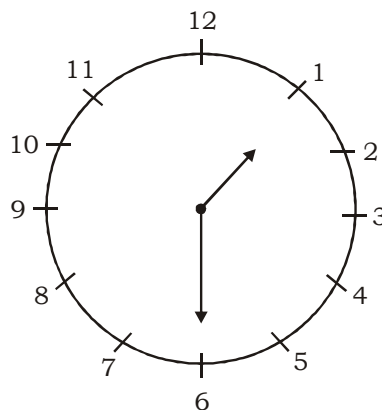
$$R \rightarrow 18 \rightarrow 18^2 = 324$$

$$\therefore \text{Sum} = 400 + 5 + 169 + 256 + 5 + 324 = \mathbf{1159}$$

19. (C)



11:30



01:30

20. (B) Total odd days between 30 January 2004 to 2 March 2004.

Odd day between 30 January 2003 to 31 December = 6 odd days

Odd days between 1 January 2004 to 2 March 2004

= January + February + 2 March = 3 + 1 + 2 = 6

Total odd days = 6 + 6 $\Rightarrow \frac{12}{7} = 5$ odd days

\therefore Required day will be = Thursday + 5 odd days = Tuesday

21. (C) $42 + 7 \times 6 \div 3 - 8 = 31$

After changing the signs we have,

= $42 \div 7 \times 6 + 3 - 8 = 31$

= $\frac{42}{7} \times 6 + 3 - 8 = 31$

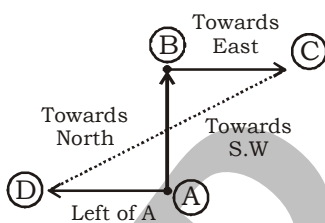
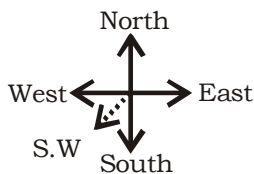
= $6 \times 6 + 3 - 8 = 31$

= $36 + 3 - 8 = 31$

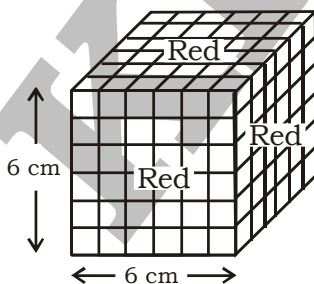
$\therefore 31 = 31$

22. (B)

23. (B)



24. (D)



Any of the small cubes can have maximum of three sides coloured. Hence, there will be no such cube whose more than three sides will be red in colour.

25. (D)

27. (C) The two pillars of Ashoka, one from Topra and another from Meerut were brought to Delhi by Firuz Shah Tughluq.
28. (D) The Moon appears to move completely around the celestial sphere once in about 27.3 days as observed from the Earth.
30. (D) Arvi earth station for satellite communication is in Gujarat. This station works to the Indian Ocean satellite, which is located over the equator at a nominal longitude of 61.4°E.
31. (C) In the 1977 general elections, the Indian populace voted her out, and the opposition party, of which Chaudhary Charan Singh was a senior leader came into power. He served as Deputy Prime Minister, Home Minister and Finance minister in the Janata government headed by Morarji Desai.
33. (C) For the first time in the world, US Technology Giants Facebook and Google will pay the media outlets of Australia for news content.
34. (C) The paste applied to the side of a match box is a mixture of phosphorus trisulphide, glass powder (or sand to cause friction and glue (binding material).
36. (C) Thorium radioactive pollutant has recently drawn attention of public due to its occurrence in the building material.
38. (B) The Association of South-East Asian Nations (ASEAN) was established on August 8, 1967 in Bangkok, Thailand, with the signing of the ASEAN Declaration (Bangkok Declaration).
39. (B) Pushkar Fair : The fair on the banks of the Pushkar Lake (Ajmer) is held in October-November. Pushkar incidentally happens to be the only place in India where Brahma Temple is located.
40. (A) Hippocrates is considered to be the father of modern medicine because in his books, which are more than 70. He described in a scientific manner, many diseases and their treatment after detailed observation. He lived about 2400 years ago.
42. (B) The ozone layer or ozone shield is a region of Earth's stratosphere that absorbs most of the Sun's ultraviolet radiation. It contains a high concentration of ozone (O₃) in relation to other parts of the atmosphere, although still small in relation to other gases in the stratosphere.
45. (C) When constant force is applied to a body, its acceleration remains constant as force is the product of mass of body and acceleration, $F=ma$, here mass is constant, force is constant thus acceleration is uniform.
46. (D) The Rajasthan government has recently increased the financial assistance given to school girls under the 'Aapki Beti' scheme and ex-gratia payment to the families of polling personnel who die during election duty.
47. (B) Alum is common alum, potassium aluminium sulphate $[K_2SO_4 \cdot Al_2(SO_4)_3 \cdot 24H_2O]$ which makes colloidal suspended impurities in water such as clay to settle down.
49. (D) Fractional distillation is the process of separation of a mixture of two or more liquids into the different fractions, which differ fairly widely in their boiling points. The liquid with a lower boiling point will be vaporized first and hence would be the distillate (first fraction) eg Ethyl alcohol has a boiling point of 78.1° C and water 100° C. When a mixture of these two liquids is heated, alcohol vaporizes first and is collected separately as the distillate.
50. (D) Beriberi is a disease caused by a vitamin B1 deficiency, also known as thiamine deficiency. There are two types of the disease: wet beriberi and dry beriberi.

51. (D) $(d + e + f)^2 = d^2 + e^2 + f^2 + 2de + 2ef + 2fd$
 $(d + e + f)^2 = d^2 + e^2 + f^2 + 2(de + ef + fd)$
 $(16)^2 = 154 + 2(de + ef + fd)$
 $256 - 154 = 2(de + ef + fd)$
 $\therefore de + ef + fd = 51$

52. (B) Total increased weight = $\frac{1}{4} \times 44 = 11$ kg
 \therefore Weight of the new man = $44 + 11 = 55$ kg

53. (A) (A + B)'s 1 day's work = $\frac{1}{16}$ ——— (i)

(B + C)'s 1 day's work = $\frac{1}{12}$ ——— (ii)

(C + A)'s 1 day's work = $\frac{1}{24}$ ——— (iii)

Adding equation (i), (ii) and (iii),

$2(A + B + C)$'s 1 day's work = $\frac{1}{16} + \frac{1}{12} + \frac{1}{24}$

= $\frac{3 + 4 + 2}{48} = \frac{9}{48}$

(A + B + C)'s 1 day's work = $\frac{9}{96}$

\therefore All three together will complete the work = $\frac{96}{9} = 10\frac{2}{3}$ days

Shortcut:-

A + B	16	}	3
B + C	12	}	4
C + A	24	}	2
$2(A + B + C)$			9

All three together will complete the work in = $\frac{48}{9} \times 2 = 10\frac{2}{3}$ days

54. (C) Let the C.P. of article be 100.

\therefore Marked price = 116

After 15% discount,

S.P. = $116 \times \frac{85}{100} = 98.6$

Loss = $100 - 98.6 = 1.4\%$

55. (B) Let the total number of students = 100

18 students speak none of the two languages.

82 students speak either Hindi or German.

Let x students speak both the languages.

ATQ,

$82 = 65 - x + x + 35 - x$

$x = 100 - 82 = 18\%$

56. (B) $S = 1 - \frac{1}{10} + \frac{1}{10^2} - \frac{1}{10^3} + \dots \infty$

It is Geometric series to infinity

$a = 1$ and common ratio $(r) = \frac{-1}{10}$

$$S_{\infty} = \frac{a}{1-r} = \frac{1}{1 - \left(\frac{-1}{10}\right)} = \frac{10}{11} = 0.\overline{90}$$

∴ The value correct up to 6 places of decimal = 0.909090

57. (C) Distance = $\frac{7 \times 8}{8-7} \times \frac{6}{60} = \frac{56}{10} = 5.6$ km

Shortcut:-

<u>Speed</u>	<u>Time</u>	<u>Actual Time</u>
7	8	+6 min late
8	7	0 min
	1 hour	6 min
	or 60 min	

Actual distance = $\frac{6}{60} \times 56 = 5.6$ km

58. (A) Volume of original cone $(V_1) = \frac{1}{3} \pi r^2 h$

Radius of new cone $(r_1) = \frac{r}{2}$

Height $(h_1) = h$

Volume $(V_2) = \frac{1}{3} \pi r_1^2 h_1 = \frac{1}{3} \pi \times \frac{r^2}{4} \times h = \frac{\pi}{12} r^2 h$

Required ratio $\left(\frac{V_2}{V_1}\right) = \frac{\pi r^2 h \times 3}{12 \times \pi r^2 h} = \frac{1}{4} = 1 : 4$

59. (A) Let sides be $15x$, $20x$ and $25x$ respectively.

∴ $(15x)^2 + (20x)^2 = (25x)^2$ (Pythagoras theorem)

∴ Δ is a right angle triangle.

Area = $\frac{1}{2} \times 15x \times 20x = 15000$

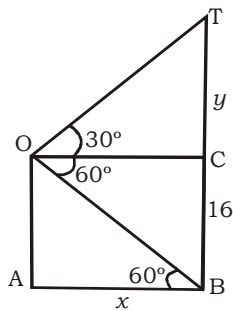
$150x^2 = 15000$

$x^2 = 100$

$x = 10$

Perimeter of triangle = $(15 + 20 + 25) \times 10 = (60) \times 10 = 600$ cm

60. (B)



In $\triangle TOC$,

$$\tan 30^\circ = \frac{y}{x}$$

$$\frac{1}{\sqrt{3}} = \frac{y}{x}$$

$$x = \sqrt{3}y$$

In $\triangle AOB$,

$$\frac{16}{x} = \tan 60^\circ$$

$$\sqrt{3} = \frac{16}{x}$$

$$16 = \sqrt{3}x$$

$$16 = \sqrt{3} \times \sqrt{3}y \quad (\because x = \sqrt{3}y)$$

$$\frac{16}{3} = y$$

$$y = 5.33$$

So, height of tower = $(16 + 5.33) = 21.33$ m

61. (C) Number of diagonals = $\left[\frac{n \times (n-1)}{2} - n \right]$

$$= \left[\frac{8 \times (8-1)}{2} - 8 \right] = 20$$

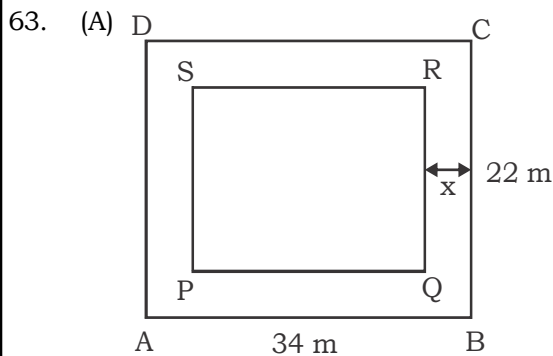
62. (A) $lb = 72$, $bh = 56$, $hl = 63$

$$(lb \times bh \times lh) = 56 \times 72 \times 63$$

$$(lbh)^2 = 56 \times 72 \times 63$$

$$lbh = \sqrt{56 \times 72 \times 63}$$

$$\text{Volume}(lbh) = 504 \text{ cm}^3$$



$$\text{Area of the field } ABCD = (34 \times 22) \text{ m}^2 = 748 \text{ m}^2$$

Let the width of the path be x meters.

$$\text{Area of PQRS without path} = (34 - 2x)(22 - 2x) \text{ m}^2$$

$$\text{Area of path} = 748 - (748 + 4x^2 - 112x)$$

$$528 = -4x^2 + 112x$$

$$4x^2 - 112x + 528 = 0$$

$$x^2 - 28x + 132 = 0$$

$$(x - 22)(x - 6) = 0$$

$$x = 6 \text{ m and } 22 \text{ m (22 m is not possible)}$$

\therefore Width of path = 6 m

64. (C) $3x - \frac{1}{3x} = 12$

$$3\left(x - \frac{1}{9x}\right) = 12$$

$$x - \frac{1}{9x} = 4$$

Squaring both sides,

$$x^2 + \frac{1}{81x^2} - 2x \times \frac{1}{9x} = 16$$

$$x^2 + \frac{1}{81x^2} = 16 + \frac{2}{9}$$

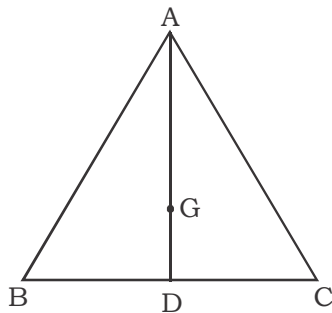
$$x^2 + \frac{1}{81x^2} = \frac{146}{9}$$

65. (A) Area of $\Delta = \frac{1}{2} \{x_1(y_2 - y_3) + x_2(y_3 - y_1) + x_3(y_1 - y_2)\}$

$$= \frac{1}{2} \{4(2 - 9) + 7(9 - 3) + 5(3 - 2)\}$$

$$= \frac{1}{2} (-28 + 42 + 5) = 9.5 \text{ sq. units}$$

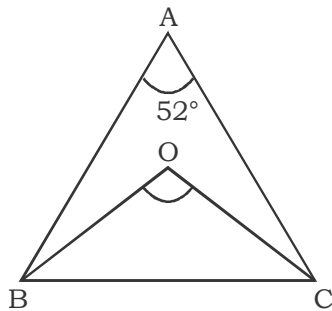
66. (A)



$$AG = 4 \text{ cm}$$

$$\text{Length of AD} = \frac{3}{2} AG = \frac{3}{2} \times 4 = 6 \text{ cm}$$

67. (C)



$$\begin{aligned} \angle BOC &= 180^\circ - \angle BAC \\ &= 180^\circ - 52^\circ = 128^\circ \end{aligned}$$

68. (B) $\tan \theta + \frac{1}{\tan \theta} = 2$

Let, $\tan \theta = 1$

$$\begin{aligned} \tan^2 \theta + \frac{1}{\tan^2 \theta} &= (1)^2 + \frac{1}{(1)^2} \\ &= 1 + 1 = 2 \end{aligned}$$

69. (C) Total interest = $(6500 + 9260) - 12000 = ₹ 3760$

ATQ,

$$\frac{12000 \times 3 \times r}{100} + \frac{12000 - 6500 \times 2 \times r}{100} = 3760$$

$$360r + 110r = 3760$$

$$470r = 3760$$

$$r = 8\%$$

70. (C) $\cos x + \cos^2 x = 1$

$$\cos x = 1 - \cos^2 x = \sin^2 x$$

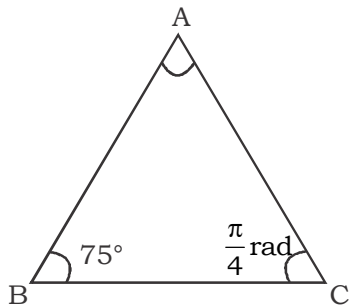
$$\therefore \sin^{12} x + 3\sin^{10} x + 3\sin^8 x + \sin^6 x - 1$$

$$= (\sin^4 x + \sin^2 x)^3 - 1$$

$$= (\cos^2 x + \sin^2 x)^3 - 1$$

$$= 1 - 1 = 0$$

71. (B)



$$\angle ABC = 75^\circ$$

$$\therefore 180^\circ = \pi \text{ radian}$$

$$\therefore 75^\circ = \frac{\pi}{180^\circ} \times 75^\circ = \frac{5\pi}{12} \text{ radian}$$

$$\angle BAC = \pi - \frac{\pi}{4} - \frac{5\pi}{12}$$

$$= \frac{12\pi - 3\pi - 5\pi}{12} = \frac{4\pi}{12} = \frac{\pi}{3} \text{ radian}$$

72. (B) Required ratio = $(21 + 18) : (36 + 32) = 39 : 68$

73. (A) Required ratio = $36 : 3 = 12 : 1$

74. (C) Total number of personnel in those categories in the year 2010 = $18 + 15 = 33$ and in the year 2014 = $25 + 31 = 56$

$$\text{Required percentage} = \frac{33}{56} \times 100 = 58.92\% \approx 59\%$$

75. (C) Required angle = $\left(\frac{31}{135} \times 350\right) = 82.67^\circ \approx 83^\circ$

MEANINGS IN ALPHABETICAL ORDER

Abridgement	a shortened version	संक्षेपण
Almanac	an annual calendar containing important dates and statistical information	पंचांग
Anachronism	something that belongs to another time	अलग समय काल का
Consensus	a general agreement	आमराय
Contagious	(of a disease) spread from one person or organism to another by direct or indirect contact	संक्रामक
Council	an advisory, deliberative, or legislative body of people formally constituted	परिषद्
Councilor	a member of a council	पार्षद
Counsel	advice	सलाह
Counselor	a person trained to give guidance on personal, social, or psychological problems	परामर्श देने वाला
Efficacy	the ability to produce a desired or intended result	प्रभाव
Envisaged	something conceived of as a possibility or a desirable future event	परिकल्पित
Fortify	strengthen (a place) with defensive works	मजबूत करना
Gravity	seriousness	गंभीरता
Hanker	feel a strong desire for or to do something	लालसा करना
Levity	a manner lacking seriousness	ओछापन
Linguistics	the scientific study of language and its structure	भाषा विज्ञान
Nadir	the lowest point	निम्नतम बिंदु
Nauseous	affected with nausea; inclined to vomit	घिनौना
Outrageous	shockingly bad or excessive	अपमानजनक
Pacification	the act of appeasing someone	शांत करना
Provocation	action that makes someone annoyed or angry	उकसावा
Semantics	the branch of linguistics and logic concerned with meaning	शब्दों के अर्थ की विद्या
Status quo	the existing state of affairs	वर्तमान स्थिति
Substance	the quality of being important, valid, or significant	महत्ता
Substantive	having a firm basis in reality and therefore important, meaningful, or considerable	मौलिक
Worrisome	causing anxiety or concern	चिंताप्रद
Zenith	the highest point	शीर्ष बिंदु

SSC MOCK TEST - 257 (ANSWER KEY)

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

76. (C) Replace 'with' by 'of/about'.
77. (B) Change 'theft' into 'thefts', as 'innumerable' will be followed by a plural noun.
90. (D) The correct spelling is 'Millennium'.
91. (A) The correct spelling is 'Questionnaire'.