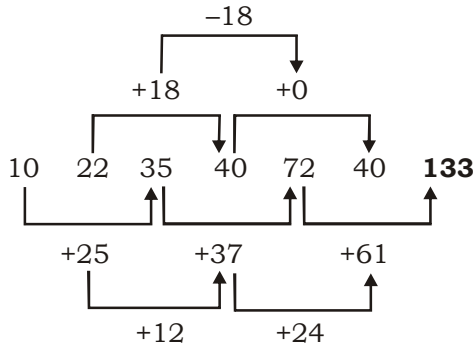


16 AUGUST (9 AM) (SOLUTION)

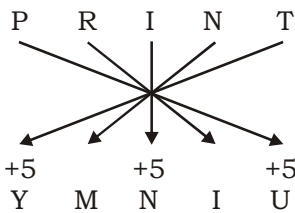
1. (3)



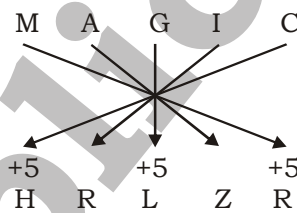
2. (4)

3. (1) First, Third and Fifth letters are moved 5 steps forward and Second and Fourth letters are coded according to the equivalent opposite letter of a particular letter of the word.

As,



Similarly,



4. (1) UACBD T / UACBD T / UACBD T / UACBD T

5. (4) As, $(6 + 9) \times (9 - 6) = 45$

Similarly, $(8 + 10) \times (10 - 8) = 36$

6. (2) 7. (4) 8. (2)

9. (2) The sound of Leaves is Rustle, while the sound of Owl is Hoot.

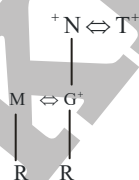
10. (1) 2 → Solitary → 3. Solution → 5. Solvent → 4. Sophisticate → 1. Sorting

11. (3) (A) $\begin{matrix} L & N & J & I \\ \uparrow & \uparrow & \uparrow & \uparrow \\ \square & \square & \square & \square \\ +2 & +1 & & \end{matrix}$ (B) $\begin{matrix} R & T & P & O \\ \uparrow & \uparrow & \uparrow & \uparrow \\ \square & \square & \square & \square \\ +2 & +1 & & \end{matrix}$ (C) $\begin{matrix} F & H & D & B \\ \uparrow & \uparrow & \uparrow & \uparrow \\ \square & \square & \square & \square \\ +2 & +2 & & \end{matrix}$ (D) $\begin{matrix} D & F & B & A \\ \uparrow & \uparrow & \uparrow & \uparrow \\ \square & \square & \square & \square \\ +2 & +1 & & \end{matrix}$

12. (4)

13. (2) Anger is related to Emotion, while Pomegranate is related to Fruit.

14. (4)



Hence, T is not paternal grand father of M.

15. (4)

16. (4) (1) $27 : 181 \Rightarrow 27 \times 7 - 8 = 181$

(2) $21 : 139 \Rightarrow 21 \times 7 - 8 = 139$

(3) $25 : 167 \Rightarrow 25 \times 7 - 8 = 167$

(4) $15 : 197 \Rightarrow 15 \times 7 - 8 = 97 \approx 197$

17. (4) For, 17 April 2014

Date = 17

Code for month = 6

Code for Century = 6

2014 = 2000 + 14

For, 2000 it is 6

For, 14 it is 14

And, $14 \div 4 = 3$

Adding all these = $17 + 6 + 6 + 14 + 3 = 46$

$46 \div 7 = 4$ (here we consider the remainder)

4 is the code for Thursday.

17 April 2014 is Thursday.

18. (3) As,

F	R	E	N	C	H
↕	↕	↕	↕	↕	↕
U	I	V	M	X	S
↓	↓	↓	↓	↓	↓
21	9	22	13	24	19

+ 6 = 114

And,

L	O	S	S
↕	↕	↕	↕
O	L	H	H
↓	↓	↓	↓
15	12	8	8

+ 4 = 47

Similarly,

C	O	U	R	S	E
↕	↕	↕	↕	↕	↕
X	L	F	I	H	V
↓	↓	↓	↓	↓	↓
24	12	6	9	8	22

+ 6 = 87

19. (4) $36 \times 81 \div 9 - (88 \div 4) + 14 + (22 + 7) = 169$

After changing 36 and 14 to each other.

$$14 \times 81 \div 9 - (88 \div 4) + 36 + (22 + 7) = 169$$

$$\frac{14 \times 81}{9} - 22 + 36 + 29 = 169$$

$$126 - 22 + 36 + 29 = 169$$

$$169 = 169$$

20. (2)

21. (3) As, $16 \times \left(\frac{16}{2} + 1\right) = 144$

Similarly, $28 \times \left(\frac{28}{2} + 1\right) = 420$

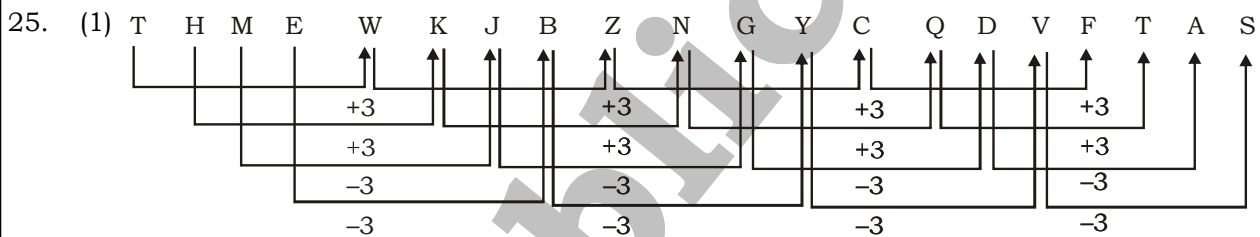
22. (2) Except Empathy, others are synonyms of each other.

23. (4)

24. (3) 

I. False II. False III. True IV. False

Hence only conclusion III follows.



26. (B) Rickets is a condition that affects bone development in children. It causes bone pain, poor growth and soft, weak bones that can lead to bone deformities. Adults can experience a similar condition, which is known as osteomalacia or soft bones.

28. (B) Bhikaji Cama unfurled the first version of the Indian national flag-a tricolour of green, saffron, and red stripes-at the International Socialist Congress held at Stuttgart, Germany, in 1907. India will wake up to its 75th Independence Day on Sunday

29. (C) Common global water-related diseases caused by parasites include Guinea worm, schistosomiasis, amebiasis, cryptosporidiosis (Crypto), and giardiasis. People become infected with these diseases when they swallow or have contact with water that has been contaminated by certain parasites

30. (B) Krishnadeva Raya composed a work on statecraft known as the Amuktamalyada in. Kannada.

31. (A) A Chinaman bowler is basically a left arm spin bowler who brings the ball into a right handed batsman using his wrist as the source of spin. Usually a left arm spin bowler spins the ball away from a right handed batsman , called orthodox left arm spin.

33. (C) Tectonics. Convergent plate boundaries are locations where lithospheric plates are moving towards one another. The plate collisions that occur in these areas can produce earthquakes, volcanic activity, and crustal deformation.

34. (A) India and Russia were declared joint winners of the 2020 Online FIDE Chess Olympiad after the final was marred by internet disconnection last night.

35. (A) The National Girl Child Day is celebrated in India every year on January 24. The Ministry of Women and Child Development, Government of India initiated this celebration in 2008.

41. (B) This Article gives power to the President to constitute a joint forum of the Centre and States called the GST Council. The GST Council is an apex member committee to modify, reconcile or to procure any law or regulation based on the context of Goods and Services Tax in India.

42. (B) The main goal of the new model is to re-frame economic problems and set new goals. In this model, an economy is considered prosperous when all twelve social foundations are met without overshooting any of the nine ecological ceilings.

45. (C) The Appointments Committee of the Cabinet (ACC) has approved the appointment of Sanjeev Kumar as the new Chairman & Managing Director (CMD) of Telecommunications Consultants India Limited (TCIL).
47. (A) The halogen elements have seven valence electrons in their outermost electron shell. Therefore, when these elements can receive an electron from another atom, they form very stable compounds since their outermost shell is full.
49. (D) A major new collection of essays by Ramachandra Guha, *Democrats and Dissenters* is a work of rigorous scholarship on topics of compelling contemporary interest, written with *Insight and wit*.
50. (C) The water-soluble vitamins include ascorbic acid (vitamin C), thiamin, riboflavin, niacin, vitamin B6 (pyridoxine, pyridoxal, and pyridoxamine), folacin, vitamin B12, biotin, and pantothenic acid.
51. (4) $\left(2x - \frac{3}{x}\right)^2 = 2^2$
- $$4x^2 + \frac{9}{x^2} - 2 \times 2x \times \frac{3}{x} = 4$$
- $$4x^2 + \frac{9}{x^2} = 4 + 12 = 16$$
- Squaring both sides,
- $$16x^2 + \frac{81}{x^4} + 2 \times 4x^2 \times \frac{9}{x^2} = 256$$
- $$\therefore 16x^2 + \frac{9}{x^4} = 256 - 72 = 184$$
52. (4) Total number of trees planted in Ahmedabad = 2500 + 2300 + 2400 + 1950 + 2100 = 11250
Total number of trees planted in Pune = 1800 + 1850 + 1840 + 1900 + 2000 = 9390
 $\therefore$ Required more trees = 11250 - 9390 = 1860
53. (1) Required % = $\left(\frac{1250 - 12300}{12500} \times 100\right)\% = 1.6\%$
54. (3) Required ratio = $(135 + 138 + 147) : (142 + 138) = 420 : 280 = 3 : 2$
55. (1) $x + y + z = 2$
 $xy + yz + zx = -11$
- $$x^3 + y^3 + z^3 - 3xyz = (x + y + z)(x^2 + y^2 + z^2 - xy - yz - zx)$$
- $$(x + y + z)^2 = x^2 + y^2 + z^2 + 2(xy + yz + zx)$$
- $$(2)^2 = x^2 + y^2 + z^2 + 2(-11)$$
- $$x^2 + y^2 + z^2 = 26$$
- Now,
- $$x^3 + y^3 + z^3 - 3xyz = 2[26 - (-11)] = 2 \times 37 = 74$$
56. (3) Let the present age of mother and daughter be $7x$ and x years.
ATQ,
- $$\frac{7x + 5}{x + 5} = \frac{4}{1}$$
- $$7x + 5 = 4x + 20$$
- $$3x = 15$$
- $$x = 5$$
- $\therefore$ Required difference = $(7x - x) = 6x = 6 \times 5 = 30$ years

57. (3) Let the amount of loss = x

$$\text{Profit} = x \times \frac{120}{100} = 1.2x$$

ATQ,

$$(216 + x) = 246.80 - 1.2x$$

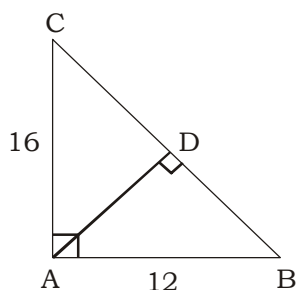
$$2.2x = 30.8$$

$$x = \frac{30.8}{2.2} = 14$$

$$\text{CP} = 216 + 14 = 230$$

$$\text{Loss}\% = \left(\frac{230 - 220.75}{230} \times 100 \right) \% = 4\%$$

58. (4)



$$AB^2 + AC^2 = BC^2$$

$$12^2 + 16^2 = BC^2$$

$$144 + 256 = BC^2$$

$$400 = BC^2$$

$$BC = 20$$

Now, using similarity of triangle ABC and DBA.

$$\frac{BC}{AB} = \frac{AB}{BD} = \frac{AC}{AD}$$

$$\text{Length of BD} = \frac{AB \times AB}{BC} = \frac{12 \times 12}{20} = 7.2 \text{ cm}$$

59. (3) A can do a certain work in 15 days.

$$\text{B can do a certain work in } \frac{15}{125} \times 100 = 12 \text{ days}$$

Let the total work = 60 unit

$$\text{A's day work} = \frac{60}{15} = 4 \text{ units}$$

$$\text{B's 1 day work} = \frac{60}{12} = 5 \text{ units}$$

$$(A+B)'S \text{ 4 days work} = (4 + 5) \times 4 = 36 \text{ units}$$

$$\text{Remaining work} = 60 - 36 = 24 \text{ unit}$$

$$\text{C's 1 day work} = \frac{24}{8} = 3 \text{ units}$$

$$\therefore (A + B + C) \text{ together complete the work} = \frac{60}{12} = 5 \text{ days}$$

60. (2) $P = 7500$

$A = 9075$

$R = 10\%$

Now,

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

$$9075 = 7500 \left(1 + \frac{10}{100} \right)^t$$

$$\frac{9075}{7500} = \left(\frac{11}{10} \right)^t$$

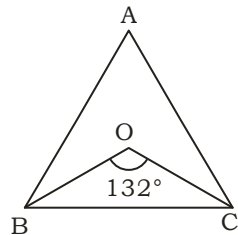
$$\frac{121}{100} = \left(\frac{11}{10} \right)^t$$

$$\left(\frac{11}{10} \right)^2 = \left(\frac{11}{10} \right)^t$$

$T = 2$ years

$$\therefore SI = \frac{7500 \times 2 \times 10}{100} = 1500$$

61. (2)



In $\triangle BOC$,

$$\angle BOC + \angle OBC + \angle OCB = 180^\circ \quad (\text{Angle sum property of } \triangle)$$

$$132^\circ + \angle OBC + \angle OCB = 180^\circ$$

$$\angle OBC + \angle OCB = 180^\circ - 132^\circ = 48^\circ$$

$$\frac{1}{2} \angle B + \frac{1}{2} \angle C = 48^\circ$$

$$\angle B + \angle C = 96^\circ$$

Now,

In $\triangle ABC$,

$$\angle A + \angle B + \angle C = 180^\circ$$

$$\angle A = 180^\circ - 96^\circ = 84^\circ$$

62. (4) $MP = 10000$

$SP = 6120$

$$SP \text{ after } 20\% \text{ and } 10\% = 10000 \times \frac{80}{100} \times \frac{90}{100} = 7200$$

$$\text{Value of } k = \left(\frac{7200 - 6120}{7200} \times 100 \right) \% = 15\%$$

Now, discount = $(20 + 15) = 35\%$

$$\text{Required } SP = 10000 \times \frac{65}{100} = 6500$$

63. (1) $1 + 2 \tan^2 \theta + 2 \sin \theta \sec^2 \theta$

Put the value of $\theta = 45^\circ$

$$1 + 2 \tan^2 45^\circ + 2 \sin 45^\circ \times \sec^2 45^\circ$$

$$1 + 2 \times 1 + 2 \times \frac{1}{\sqrt{2}} \times (\sqrt{2})^2 = 1 + 2 + \frac{4}{\sqrt{2}}$$

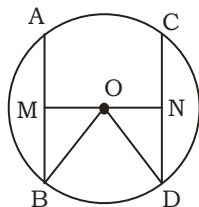
$$= 3 + \frac{4}{\sqrt{2}} = 3 + 2\sqrt{2}$$

From option (1),

$$\frac{1 + \sin \theta}{1 - \sin \theta} = \frac{1 + \sin 45^\circ}{1 - \sin 45^\circ} = \frac{1 + \frac{1}{\sqrt{2}}}{1 - \frac{1}{\sqrt{2}}} = \frac{\sqrt{2} + 1}{\sqrt{2} - 1} \times \frac{\sqrt{2} + 1}{\sqrt{2} + 1}$$

$$= 2 + 1 + 2\sqrt{2} = 3 + 2\sqrt{2}$$

64. (1)



$$OB = 5 \text{ cm}$$

$$AB = 6 \text{ cm}$$

$$BM = 3 \text{ cm}$$

In $\triangle MOB$,

$$OM = \sqrt{5^2 - 3^2} = 4 \text{ cm}$$

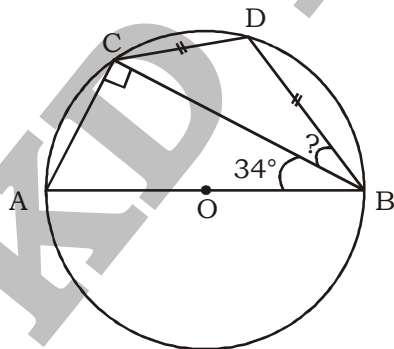
$$ON = 7 - 4 = 3 \text{ cm}$$

In $\triangle OND$

$$DN = \sqrt{5^2 - 3^2} = 4 \text{ cm}$$

$$\therefore CD = 4 \times 2 = 8 \text{ cm}$$

65. (2)



$$\angle ACB = 90^\circ$$

In $\triangle BCD$

$$\angle B = \angle C = x \quad (BD = CD)$$

In cyclic quadrilateral ABDC,

$$\angle ACD + \angle DBA = 180^\circ$$

$$90^\circ + x + 34^\circ + x = 180^\circ$$

$$2x = 180^\circ - 124^\circ = 56^\circ$$

$$x = \frac{56}{2} = 28^\circ$$

$$\therefore \text{DBC} = 28^\circ$$

66. (1) Total of 22 numbers = $37.5 \times 22 = 825$

$$\text{Total of first and last 12 numbers} = 40.6 \times 12 + 35.4 \times 12 = 487.12 + 424.8 = 911.92$$

$$\text{Sum of 11}^{\text{th}} \text{ and } 12^{\text{th}} \text{ number} = 911.92 - 825 = 86.92$$

$$\therefore \text{Required average} = \frac{825 - 86.92}{20} = 36.9$$

67. (3) $\frac{\operatorname{cosec} \theta + \cot \theta}{\operatorname{cosec} \theta - \cot \theta} = 7$

$$7 \operatorname{cosec} \theta - 2 \cot \theta = \operatorname{cosec} \theta + \cot \theta$$

$$6 \operatorname{cosec} \theta = 8 \cot \theta$$

$$\frac{6}{\sin \theta} = \frac{8 \cos \theta}{\sin \theta}$$

$$\cos \theta = \frac{6}{8} = \frac{3}{4}$$

$$\cos^2 \theta = \frac{9}{16}$$

$$1 - \sin^2 \theta = \frac{9}{16}$$

$$\sin^2 \theta = 1 - \frac{9}{16} = \frac{7}{16}$$

$$\therefore \frac{4 \sin^2 \theta - 1}{4 \sin^2 \theta + 5} = \frac{4 \times \frac{7}{16} - 1}{4 \times \frac{7}{16} + 5} = \frac{\frac{7}{4} - 1}{\frac{7}{4} + 5} = \frac{\frac{3}{4}}{\frac{27}{4}} = \frac{3}{27} = \frac{1}{9}$$

68. (1) To check the divisibility by 88, it should be divisible by 11.

Difference of sum of alternative terms should be 0

$$5 + 4 + 3 = x + 2 + y$$

$$x + y = 10$$

To check the divisibility by 88, it should be divisible by 8

Last three digit should be divisible by 8

23y should be divisible by 8

For least value of y = 2, 23y is divisible by 8

For y = 2 and x = 8

$$\text{The value of } (5x - 8y) = (5 \times 8 - 8 \times 2) = 24$$

69. (2) Let the normal speed is x km/hr.

ATQ,

$$\frac{75}{x} + \frac{90}{x+10} = 3$$

$$\frac{75x + 750 + 90x}{x(x+10)} = 3$$

$$165x + 750 = 3x^2 + 30x$$

$$3x^2 - 135x - 750 = 0$$

$$x^2 - 45x - 250 = 0$$

$$x^2 - 50x + 5x - 250 = 0$$

$$x(x - 50) + 5(x - 50) = 0$$

$$(x + 5)(x - 50) = 0$$

$$x = 50 \text{ km/hr}$$

$$\therefore \text{Required time} = \frac{300}{50} = 6 \text{ hours}$$

$$70. (2) \frac{52 - 1170 \div 26 + 13 \times 2}{2 + 1\frac{1}{8} \text{ of } 2 - 1\frac{1}{4}} = \frac{52 - 45 + 26}{2 + \frac{9}{8} \text{ of } 2 - \frac{5}{4}}$$

$$= \frac{78 - 45}{2 + \frac{9}{4} - \frac{5}{4}} = \frac{33}{\frac{8+9-5}{4}} = \frac{33 \times 4}{12} = 11$$

$$71. (4) 3\cos^2 \theta - 4\sin \theta + 1 = 0$$

$$3(1 - \sin^2 \theta) - 4\sin \theta + 1 = 0$$

$$3 - 3\sin^2 \theta - 4\sin \theta + 1 = 0$$

$$3\sin^2 \theta + 4\sin \theta - 4 = 0$$

$$3\sin^2 \theta + 6\sin \theta - 2\sin \theta - 4 = 0$$

$$3\sin \theta(\sin \theta + 2) - 2(\sin \theta + 2) = 0$$

$$(3\sin \theta - 2)(\sin \theta + 2) = 0$$

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

$$\cos \theta = \sqrt{1 - \frac{4}{9}} = \sqrt{\frac{5}{9}} = \frac{\sqrt{5}}{3}$$

$$\tan \theta = \frac{2}{3} \times \frac{3}{\sqrt{5}} = \frac{2}{\sqrt{5}}$$

$$\sec \theta = \frac{3}{\sqrt{5}}$$

$$\therefore \tan \theta + \sec \theta = \frac{2}{\sqrt{5}} + \frac{3}{\sqrt{5}} = \frac{5}{\sqrt{5}} = \sqrt{5}$$

$$72. (3) \text{ Let the income of C} = 100$$

$$\text{B's income} = 100 \times \frac{237.5}{100} = 237.5$$

$$\text{A's income} = 237.50 \times \frac{70}{100} = 166.25$$

$$\therefore \text{Income of C} = \frac{28500}{71.25} \times 100 = 40000$$

73. (4) Total number of students enrolled for VC in institute C in 2013, 2014 and 2017
 $= 125 + 120 + 140 = 385$

Total number of students enrolled in all the five institute in 2018
 $= 140 + 142 + 135 + 138 + 145 = 700$

$$\therefore \text{Required \%} = \left(\frac{385}{700} \times 100 \right) \% = 55\%$$

74. (3) $a^3 + b^3 = 405$ and $a + b = 9$

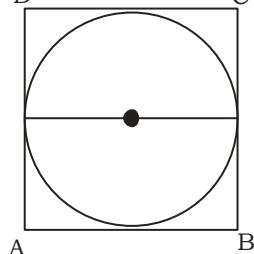
$$(a + b)^3 = a^3 + b^3 + 3ab(a + b)$$

$$9^3 = 405 + 3ab \times 9$$

$$27ab = 729 - 405$$

$$ab = \frac{324}{27} = 12$$

75. (4) D C



Area of square $= 784 \text{ cm}^2$

Side $= \sqrt{784} = 28 \text{ cm}$

Diameter of circle $= 28 \text{ cm}$

Radius $= 14 \text{ cm}$

$$\therefore \text{Area of circle} = \pi r^2 = \frac{22}{7} \times 14 \times 14 = 616 \text{ cm}^2$$

MEANINGS IN ALPHABETICAL ORDER

Words	Meaning in English	Meaning in Hindi
Anxious	experiencing worry, unease, or nervousness, typically about an imminent event or something with an uncertain outcome	चिंतित
Arbitrary	based on random choice or personal whim, rather than any reason or system	मनमाना
Assault	make a physical attack on	हमला करना
Bountiful	large in quantity; abundant	प्रचुर
Enlargement	the action or state of enlarging or being enlarged	इजाफा
Lethal	sufficient to cause death	जानलेवा
Mimic	imitate (someone or their actions or words), especially in order to entertain or ridicule	नकली
Moisture	water or other liquid diffused in a small quantity as vapor, within a solid, or condensed on a surface	नमी
Numerous	great in number; many	अनेक
Perspective	The art of drawing solid objects on a two-dimensional surface so as to give the right impression of their height, width, depth	परिप्रेक्ष्य
Scrutinize	examine or inspect closely and thoroughly	ताकना
Surrender	cease resistance to an enemy or opponent and submit to their authority	आत्मसमर्पण
Toxic	poisonous	बिषैला
Transmit	cause (something) to pass on from one place or person to another	संचारित
Venomous	(of animals, especially snakes, or their parts) secreting venom; capable of injecting venom by means of a bite or sting	विषैला मोटा

16 AUGUST (9 AM) (ANSWER KEY)

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

79. (2) 'too much noisy' is replaced by 'too noisy'.

83. (2) The subject of the sentence is 'Writing' i.e, singular noun. Hence, 'has' should be used instead of 'have'.

86. (2) The correct spelling of Vishious is Vicious.

91. (1) The plural of 'teacher' is 'teachers'. An Apostrophe is used to show possession.