

## 23 AUGUST (3 PM) (SOLUTION)

1. (3)

2. (4) As,  $47 + \sqrt{64} = 55$

Similarly,  $46 + \sqrt{49} = 53$

3. (4)

4. (4)  $Y \xrightarrow{-1} X \xrightarrow{-1} W \xrightarrow{-1} V \xrightarrow{-1} U$

$T \xrightarrow{+2} V \xrightarrow{+2} X \xrightarrow{+2} Z \xrightarrow{+2} B$

$U \xrightarrow{-3} R \xrightarrow{-3} O \xrightarrow{-3} C \xrightarrow{-3} I$

$Q \xrightarrow{+4} U \xrightarrow{+4} Y \xrightarrow{+4} C \xrightarrow{+4} G$

5. (1) Pedology is the study of 'soil' whereas 'Pomology' is the study is 'Fruits'.

6. (4)  $18, 29, 42, 59, 78, 101, 130$

$\begin{matrix} \nearrow +11 \\ \nearrow +13 \\ \nearrow +17 \\ \nearrow +19 \\ \nearrow +23 \\ \nearrow +29 \end{matrix}$   
 $\begin{matrix} +2 & +4 & +2 & +4 & +6 \end{matrix}$

7. (3) 8. (4)

9. (4) No. of odd days between 15 June 2012 to 30 June 2012 = 15 days =  $\frac{15}{7} = 2$  days

No. of odd days between July 2012 + Dec 2012 = 2 days

No. of odd days between 2013 to 2019 = 1 day

No. of odd days between 1 January 2020 to 19 July 2020 =  $\frac{32}{7} = 4$  days

Total odd days =  $\frac{2+2+1+4}{7} = 2$  days

∴ Required day = Wednesday + 2 = Friday

10. (3) As,  $24 \times \frac{44}{8} = 132$

Similarly,  $26 \times \frac{56}{8} = 182$

11. (2)

12. (2) Timid is different from other.

Timid sky and nerrous

Energised → To make same body enthusiastic

No statgic → Feeling or Inspiring

Excited → Showing happiness

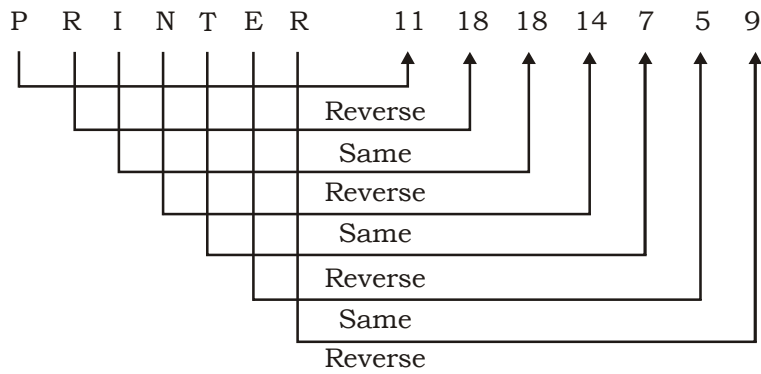
13. (2) (1)  $C \xrightarrow{+4} P \xrightarrow{+6} V \xrightarrow{+8} D$

(2)  $C \xrightarrow{+3} O \xrightarrow{+6} U \xrightarrow{+6} C$

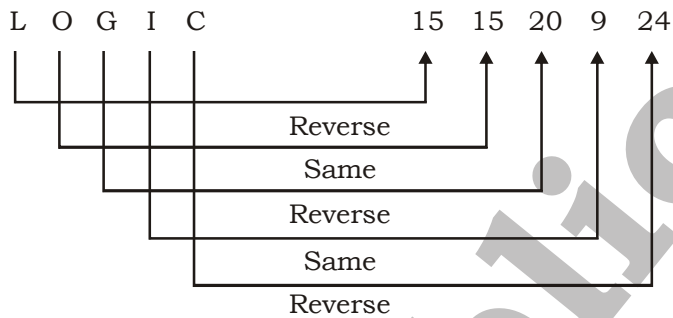
(3)  $B \xrightarrow{+4} F \xrightarrow{+6} C \xrightarrow{+8} T$

(4)  $T \xrightarrow{+4} X \xrightarrow{+6} D \xrightarrow{+8} C$

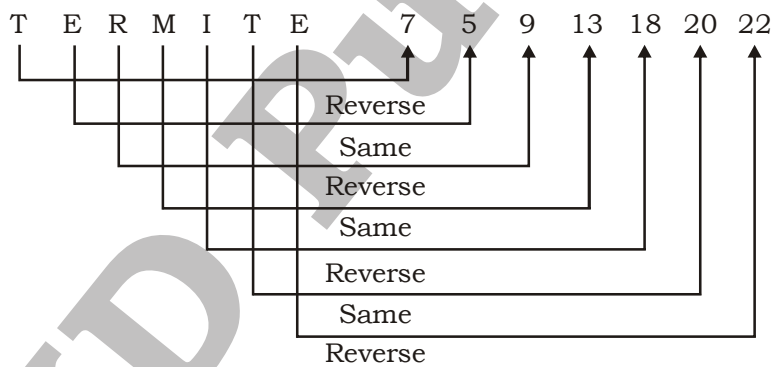
14. (1) Except option (1), second number is divisible by first number.  
 15. (2)  
 16. (2) As,



And,

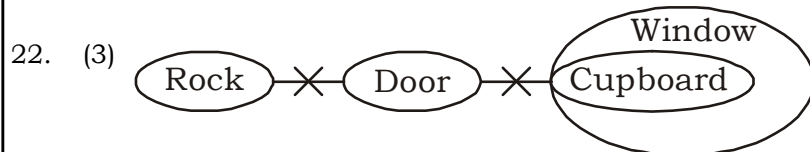


Similarly,



17. (1) 5.Callous → 3.Cardiac → 1.Cardinal → 6.Careless → 4.Carrot → 2.Cartography  
 18. (1)  $14 * 7 * 33 * 133 * 19 * 130$   
 From option (1)  
 $14 \times 7 + 39 - 133 \div 19 = 130$   
 $98 + 39 - 7 = 130$   
 $137 - 7 = 130$   
 $130 = 130$   
 19. (3) As,  $(25 - 3)^2 + 1 = 485$   
 and,  $(21 - 3)^2 + 1 = \mathbf{325}$   
 Similarly,  $(23 - 3)^2 + 1 = 401$   
 20. (3)

21. (4) As, coerce is related to persuade  
Similarly, angry is related to Furious.



Hence, only conclusion II follows.

23. (1)
- |                 |                 |                 |                 |     |                 |                 |                 |                 |                 |
|-----------------|-----------------|-----------------|-----------------|-----|-----------------|-----------------|-----------------|-----------------|-----------------|
| D               | A               | R               | K               | and | S               | O               | U               | N               | D               |
| ↓ <sup>+1</sup> | ↓ <sup>+1</sup> | ↓ <sup>+1</sup> | ↓ <sup>+1</sup> |     | ↓ <sup>-1</sup> | ↓ <sup>-1</sup> | ↓ <sup>-1</sup> | ↓ <sup>-1</sup> | ↓ <sup>-1</sup> |
| C               | B               | Q               | J               |     | R               | P               | T               | O               | C               |
- 
- |                 |                 |                 |                 |                 |
|-----------------|-----------------|-----------------|-----------------|-----------------|
| T               | O               | X               | I               | C               |
| ↓ <sup>-1</sup> | ↓ <sup>-1</sup> | ↓ <sup>-1</sup> | ↓ <sup>-1</sup> | ↓ <sup>-1</sup> |
| R               | P               | T               | O               | C               |

24. (4)
- 

Hence  $k$  is the father is law's of  $T$ .

25. (3) J P C L D J P C M D J P C N D J P C Q D
27. (1) The eardrum is like a stretched rubber sheet
28. (2) Ostrich, Emu, Kiwi all are flightless birds.
29. (4) Akbar declared or issued Mahzarnama to take all the religious matters into his own hands. This made him supreme in the religious matters. He issued Mahzarnama to curb the dominance of Ulema. It was written by Faizi in 1579.
31. (3) The new symbol is an amalgamation of Devanagari 'Ra' and the Roman 'R' without the stem. The new symbol designed by D Udaya Kumar, a post-graduate of IIT Bombay was finally selected by the Union Cabinet on 15th July 2010.
32. (4) Gotamiputa S?taka?i, IAST: Gautam?putra ?atakar?i) was a ruler of the Satavahana Empire in present-day Deccan region of India.
33. (2) In January 2021, the prison department of Maharashtra announced jail Tourism at the Yerawada jail where Indian independence activists like M.K Gandhi, Bal Gangadhar Tilak, Vallabhbhai Patel Subhashchandra Bose, Sarojini Naidu, Jawaharlal Nehru were imprisoned.
34. (3) Prime Minister Narendra Modi on Saturday launched the country's first seaplane service between the Statue of Unity near Kevadiya in Gujarat's Narmada district and Sabarmati Riverfront in Ahmedabad.
35. (4) Dalkhai: Mainly dalkhai is named after a goddess "dalkhai Devi". Though Dusserah is the occasion of Sambalpuri folk dance Dalkhai, it's the most popular folk-dance of Odisha, its performance is very common on all other festivals such as Bhaijiuntia, Phagun Puni, Nuakhai, etc.
36. (4) Potassium permanganate has a molar mass of 158.04 g/mol. This figure is obtained by adding the individual molar masses of four oxygen atoms, one manganese atom and one potassium atom, all available on the Periodic Table of the Elements (see the "Additional Resources" section).
38. (4) Explosive wicketkeeper Rishabh Pant, who was not picked for the first game, hit the winning runs as he completed a match-winning 89.

42. (2) Jaundice is a yellow color of the skin and eyes that results from excess bilirubin deposited in the skin, and dark urine results from excess bilirubin excreted by the kidneys.
43. (2) A law was sought to limit such frequent defections in India. In 1985, the Tenth Schedule of the 52nd amendment to the Constitution of India was passed by the Parliament of India to achieve this.
44. (1) The Battle of Khanwa was fought near the village of Khanwa, in Bharatpur District of Rajasthan, on March 16, 1527. It was fought between the forces of the first Mughal Emperor Babur and the Rajput forces led by Rana Sanga of Mewar, after the Battle of Panipat.
47. (2) After a general election and formation of a new government, a list of senior Lok Sabha members prepared by the Legislative Section is submitted to the Minister of Parliamentary Affairs, who selects a pro tem speaker.
48. (3) The rebellion began on 10 May 1857 in the form of a mutiny of sepoys of the Company's army in the garrison town of Meerut, 40 mi (64 km) northeast of Delhi.
49. (1) The lowest temperature at which a substance catches fire is called its ignition temperature.
50. (4) Former India goalkeeper Prasanta Dora passes away. Prasanta was one of the few to have represented the big three of Kolkata... Former India and Mohun Bagan goalkeeper Prasanta Dora has passed away at the age of 44.
51. (2) Ratio of time taken = 7 : 5  
Total work = 35

$$(X + Y)\text{'s 1 day work} = \frac{35}{7} + \frac{35}{5} = 12$$

$$X\text{'s completes the work is} = \frac{70}{35} \times 12 \times 7 = 168$$

$$Y\text{'s completes the work is} = \frac{70}{35} \times 12 \times 5 = 120$$

$$X \text{ complete the work} = \frac{42}{108} = \frac{1}{4}$$

$$\text{Remaining work} = \frac{3}{4}$$

$$\therefore Y \text{ alone complete the work in } \frac{3}{4} \times 120 = 90 \text{ days}$$

52. (2)  $\sin \alpha + \sin \beta = \cos \alpha + \cos \beta = x$   
 $\alpha = 90^\circ; \beta = 0^\circ$

$$\therefore \sin \alpha + \cos \alpha = 1 + 0 = 1$$

53. (1)  $89x64287y$  is divisible by 72.  
 $87y$  is divisible by 8, then  $y = 2$   
 $89x64287y$  is divisible by 9, then  $x = 8$  and  $y = 2$   
 $\therefore 3x + 2y = 3 \times 8 + 2 \times 2 = 28$

54. (3) Let income = 100  
Expenditure = 85  
Saving = 15

$$\text{Saving} = 15 \times \frac{160}{100} = 24$$

$$\text{New income} = 126$$

$$\text{New expenditure} = 102$$

$$x\% = \left( \frac{102 - 85}{85} \times 100 \right) \% = 20\%$$

55. (4) Let the length of train be  $x$ .  
ATQ,

$$\frac{x}{(48 + 12) \times \frac{5}{18}} = 18$$

$$x = \frac{18 \times 180}{18} = 180$$

$$\text{Related speed} = \frac{180}{12} = 15 \text{ m/s} = 15 \times \frac{18}{5} = 54 \text{ km/hr}$$

$$\therefore \text{Speed of woman} = 54 - 48 = 6 \text{ km/hr}$$

56. (4) Perimeter of lawn = 1232  
 $r = 1232$

$$r = \frac{1232}{44} \times 7 = 196 \text{ m}$$

$$\therefore \text{Area of path} = \pi(R^2 - r^2) = \frac{22}{7} (399) \times 7 = 8778 \text{ m}^2$$

57. (4)  $A = 30800 \left(1 + \frac{10}{100}\right)^2 = ₹ 37268$

$$P = 37268 - 13268 = ₹ 24000$$

$$A = 24000 \left(1 + \frac{10}{100}\right) = ₹ 26400$$

58. (1) Total CP = ₹ 1800

$$SP_1 = 1800 \times \frac{40}{100} \times \frac{85}{100} = 612$$

$$SP_2 = 1080 \times \frac{1}{3} \times \frac{120}{100} = 432$$

$$\text{Total SP} = 612 + 432 = 1044$$

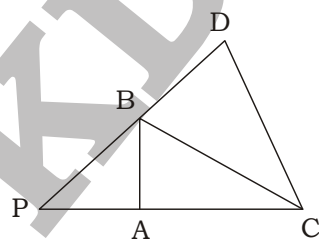
$$\text{Total SP} = 1800 \times \frac{110}{100} = ₹ 1980$$

$$\text{Remaining CP} = 1800 - 1080 = ₹ 720$$

$$\text{Remaining SP} = 1980 - 1044 = ₹ 936$$

$$\text{Profit \%} = \left( \frac{936 - 720}{720} \times 100 \right) \% = 30\%$$

59. (4)



$$AP \times PC = DP \times BP$$

$$8 \times 4 = 3.2 \times BP$$

$$BP = \frac{3.2}{3.2} = 10 \text{ cm}$$

$$\therefore BD = 10 - 3.2 = 6.8$$

60. (3)

61. (4) Required % =  $\left(\frac{80}{128} \times 100\right)\% = 62.5\%$ .

62. (2)  $\frac{54 - x}{42 - x} = \frac{22 - x}{21 - x}$   
 $1134 - 54x - 21x + x^2 = 1078 - 49x - 22x + x^2$   
 $1034 - 1074 = 4x$   
 $x = \frac{56}{4} = 14$

$\therefore$  Required ratio =  $\frac{8x - 25}{7x - 26} = \frac{8 \times 14 - 25}{7 \times 14 - 26} = \frac{87}{72} = 29 : 24$

63. (2) Required ratio =  $(250 + 350 + 325) : (475 + 600 + 525) = 925 : 1600 = 37 : 64$

64. (1) MP = ₹ 190

SP = ₹  $180 \times \frac{80}{100} = ₹ 144$

CP =  $\frac{144}{125} \times 100 = ₹ 115.20$

65. (2)  $(2x + y)^3 - (x - 2y)^3 = (x + 3y)(Ax^2 + By^2 + cxy)$   
 $8x^3 + y^3 + 12xy + 6xy^2 - (x^3 - 8y^3 - 6x^2y + 12xy^2)$   
 $= (x + 3y)(Ax^2 + By^2 + cxy)$   
 $8x^3 + y^3 + 12xy + 6xy^2 - x^3 + 8y^3 + 6x^2y - 12xy^2 = (x + 3y)(Ax^2 + By^2 + Cxy)$   
 $8x^3 + 9y^3 + 12xy + 12x^2y - 6xy^2 = (x + 3y)(Ax^2 + By^2 + Cxy)$   
 $7x^3 + 9y^3 + 12xy + 12x^2y - 6xy^2 = Ax^3 + Bxy^2 + Cx^2y + 3Ax^2y + 3By^3 + 3ay^2$   
 $A = 7, B = -6, C = 12$   
 $\therefore A + 2B + C = 7 + 2 \times -6 + 12 = 7$

66. (4)  $\frac{AB}{AC} = \frac{BD}{DC}$

$\frac{12}{15} = \frac{BC - DC}{DC}$

$\frac{12}{15} = \frac{180}{DC} - 1$

$\frac{18}{DC} = \frac{27}{15}$

$DC = \frac{18 \times 15}{27} = 10 \text{ cm}$

67. (1) Let the no. of children be  $x$ , when 5 children joins, the average weight =  $\frac{40 \times 6 + 5 \times 36}{x + 5}$

when 5 children leave, the average weight =  $\frac{40x - 5 \times 43.2}{x - 5}$

ATQ,

$\frac{40x + 180}{x + 5} = \frac{40x - 216}{x - 5}$

$40x^2 - 200x + 180x - 900 = 40x^2 - 216x + 200x$   
 $- 1080 - 20x - 900 = - 10x - 1080$

$4x = 1080$

$x = 45$

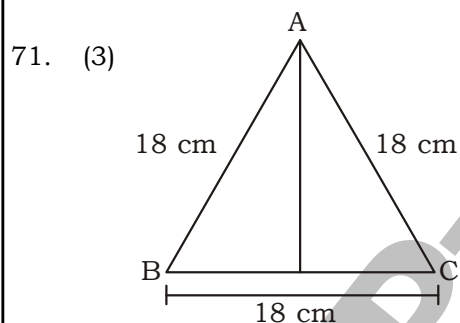
68. (4) Required sum =  $\frac{132+138+135}{3} + \frac{105+145}{2} = \frac{405}{3} + \frac{250}{2} = 135 + 125 = 260$

69. (3)  $\operatorname{cosec}(60^\circ + A) - \sec(60^\circ + A) + \frac{\operatorname{cosec} 41^\circ}{\sec 41^\circ}$   
 $= \operatorname{cosec}[90^\circ - (30^\circ - A)] - \sec(30^\circ - A) + \frac{\operatorname{cosec}(90 - 41^\circ)}{\sec 41^\circ}$   
 $= \sec(30^\circ - A) - \sec(30^\circ - A) + \frac{\sec 41^\circ}{\sec 41^\circ} = 0 + 1 = 1$

70. (4)  $9(a^2 + b^2) + c^2 + 20 = 12(a + 2b)$   
 $9a^2 + 9b^2 + c^2 + 20 = 12a + 24b$   
 $(3a)^2 + (2)^2 - 2 \times 3a \times 2 + (3b)^2 + (4)^2 - 24b + c^2 = 0$   
 $(3a - 2)^2 + (3b - 4)^2 + c^2 = 0$

$a = \frac{2}{3}, b = \frac{4}{3}, c = 0$

$\therefore \sqrt{6a + 9b + 2c} = \sqrt{6 \times \frac{2}{3} + 9 \times \frac{4}{3} + 2 \times 0}$   
 $= \sqrt{4 + 12} = 4$

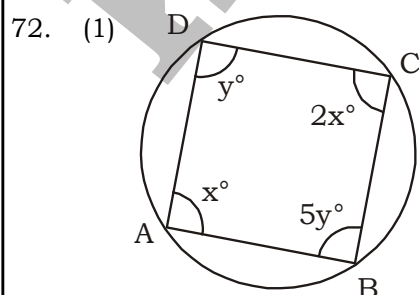


$9AD^2 = 7AB^2$  (By theorem)

$9AD^2 = 7 \times 18 \times 18$

$AD^2 = \frac{7 \times 18 \times 18}{9} = 14 \times 18$

$AD = \sqrt{14 \times 18} = 6\sqrt{7} \text{ cm}$



$$x + 2x = 180^\circ$$

$$x = 60^\circ$$

$$y + 5y = 180^\circ$$

$$y = 30^\circ$$

$$\therefore 3x - y = 3 \times 60^\circ - 30^\circ = 150^\circ$$

73. (2) Total no. of students enrolled for VC in institute A, B and D is 2015 =  $130 + 138 + 122 = 390$   
Total no. of students enrolled in institute C and E in 2018 =  $135 + 145 = 280$

$$\therefore \text{Required \%} = \left( \frac{390 - 280}{280} \times 100 \right) \% = 39.3\%$$

74. (4)  $54 \div 160 + 3 \times [12 \div 4 \text{ of } \{6 \times 3 \div (11 - 2)\}] \div (12 \div 8 \times 2)$

$$= 54 \div 48 \times [12 \div 40\% \{6 \times 3 \div 9\}] \div \left( \frac{12}{8} \times 2 \right)$$

$$= 54 \div 48 \times [12 \div 4] \div 3$$

$$= \frac{54}{48} \times \frac{12}{8} \times \frac{1}{3} = \frac{9}{16}$$

75. (3)  $\frac{-1}{1 - \sin \theta} + \frac{1}{1 + \sin \theta} = 4 \sec \theta$

$$\frac{1 + \sin \theta + 1 - \sin \theta}{1 - \cos^2 \theta} = \frac{4}{\cos \theta}$$

$$\frac{2}{\cos^2 \theta} = \frac{4}{\cos \theta}$$

$$\cos \theta = \frac{1}{2}$$

$$\cos \theta = \cos 60^\circ \quad \theta = 60^\circ$$

$$\cot \theta + \operatorname{cosec} \theta = \cot 60^\circ + \operatorname{cosec} 60^\circ$$

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

## MEANINGS IN ALPHABETICAL ORDER

| Words           | Meaning in English                                                                                                                                             | Meaning in Hindi |
|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|
| Cacophony       | a harsh discordant mixture of sounds                                                                                                                           | कोलाहल           |
| Deceive         | (of a person) cause (someone) to believe something that is not true, typically in order to gain some personal advantage                                        | धोखा देना        |
| Deprived        | suffering a severe and damaging lack of basic material and cultural benefits                                                                                   | वंचित            |
| Discord         | disagreement between people                                                                                                                                    | कलह              |
| Flourish        | (of a person, animal, or other living organism) grow or develop in a healthy or vigorous way, especially as the result of a particularly favorable environment | फलना-फूलना       |
| Impeccable      | (of behavior, performance, or appearance) in accordance with the highest standards of propriety; faultless                                                     | त्रुटिहीन        |
| Impervious      | not allowing fluid to pass through                                                                                                                             | प्रबल            |
| Impoverished    | (of a person or area) made poor                                                                                                                                | गरीब             |
| Incandescent    | emitting light as a result of being heated                                                                                                                     | गरमागरम          |
| Insulate        | protect (something) by interposing material that prevents the loss of heat or the intrusion of sound                                                           | बचाना            |
| Intensification | the action of making or becoming more intense                                                                                                                  | उत्कटता, गहनता   |
| Melody          | a sequence of single notes that is musically satisfying                                                                                                        | राग              |
| Mysterious      | difficult or impossible to understand, explain, or identify                                                                                                    | रहस्यमय          |
| Offspring       | a person's child or children                                                                                                                                   | वंशज             |
| Ramify          | form branches or offshoots                                                                                                                                     | डालियां फैलना    |
| Shimmer         | shine with a soft tremulous light                                                                                                                              | टिमटिमाना        |
| Staggered       | walk or move unsteadily, as if about to fall                                                                                                                   | कपित             |
| Stunned         | so shocked that one is temporarily unable to react; astonished                                                                                                 | दंग रह           |
| Uncanny         | strange or mysterious, especially in an unsettling way                                                                                                         | अलौकिक           |

## 23 AUGUST (3 PM) (ANSWER KEY)

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

77. (4) 'Little' is used for uncountable noun i.e, 'information'.  
 88. (4) Remove 'same' , or use 'alike'.  
 89. (1) The correct spelling of Incandesent is Incandescent.  
 92. (1) The correct spelling of Reciept is Receipt.  
 94. (3) Insert a verb 'starts' before 'cutting'.