

17 AUGUST (12 PM) (SOLUTION)

1. (1) As, $(9 \times 2) + 3 = 21 \Rightarrow (21 \times 6) - 2 = 124$
 Similarly, $(17 \times 2) + 3 = 37 \Rightarrow (37 \times 6) - 2 = 220$
2. (3) Let the father's present age be x years.

$$\text{Gautam's present age} = \frac{20}{100} \times (x - 15)$$

$$\text{Gaurav's present age} = \frac{60}{100} \times (x - 10)$$

ATQ,

$$\frac{x - 15}{9} + \frac{3x - 30}{5} = 31$$

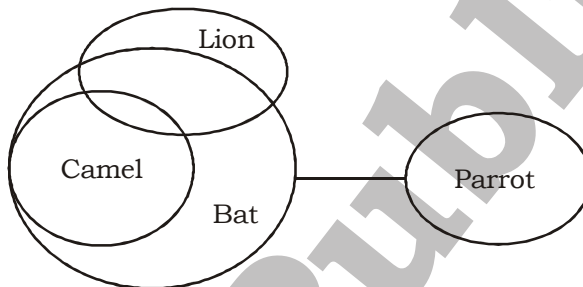
$$4x - 45 = 155$$

$$4x = 200$$

$$x = 50 \text{ years}$$

3. (2)
4. (4) Dermatologist diagnose and treat skin problem, while Neonatologist diagnose and treat infants.
5. (1)
6. (3) Sympathy is related to Affection, while Calm is related to Stamina.

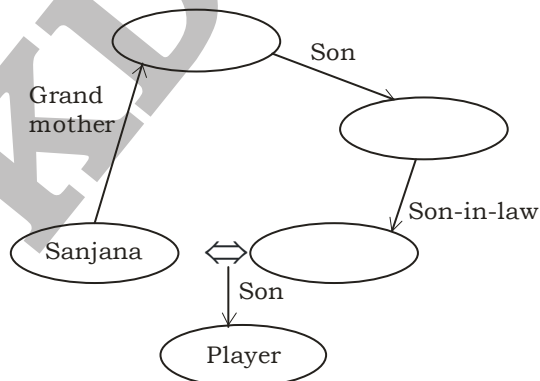
7. (4)



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

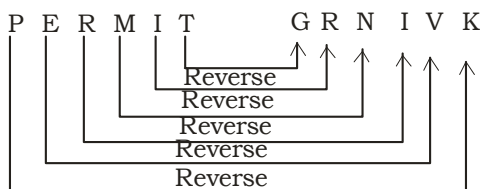
8. (1)
9. (2) 5. Ecliptic $\rightarrow$ 1. Ecology $\rightarrow$ 3. Electric $\rightarrow$ 2. Enormous $\rightarrow$ 4. Exterior

10. (4)

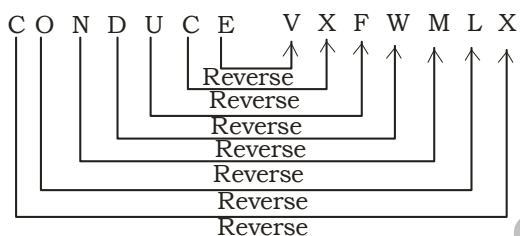


Player's father is the husband of Sanjana.

11. (2) (1) $97 - 61 = 36 \Rightarrow$ Square root number
 (2) $136 - 56 = 80 \Rightarrow$ Not a square root number
 (3) $127 - 78 = 49 \Rightarrow$ Square root number
 (4) $89 - 25 = 64 \Rightarrow$ Square root number
12. (2) 13. (2) 14. (3)
15. (2) As,



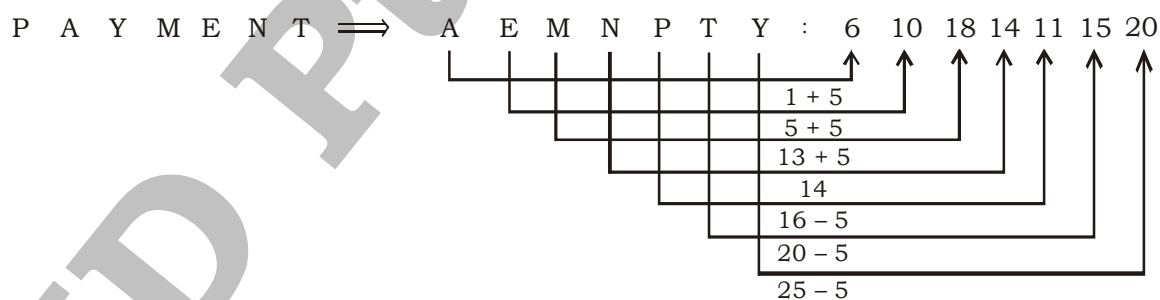
Similarly,



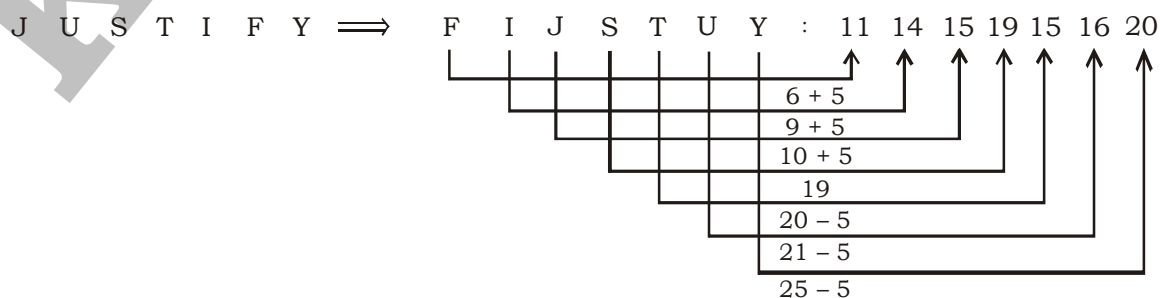
16. (3) T A L T V A G T V F G O D F B O D K B J I K W J
-

17. (4)

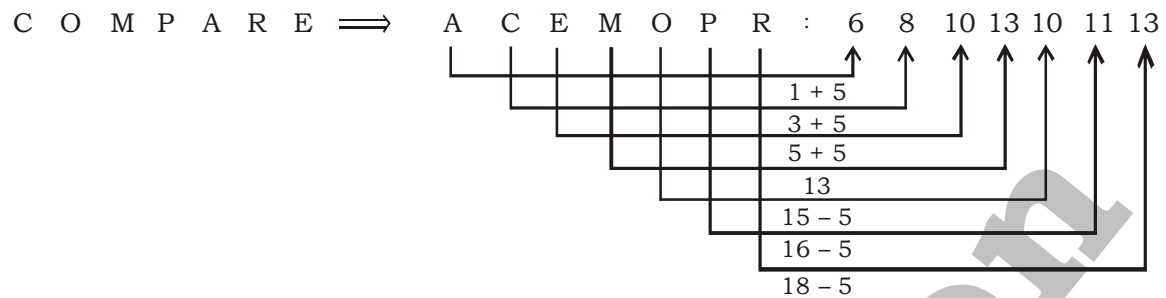
18. (1) As,



And,



Similarly,



19. (2) $18 * 12 * 4 * 5 * 6 * 53$

Put the signs

$$18 \times 12 \div 4 + 5 - 6 = 53$$

$$18 \times 3 + 5 - 6 = 53$$

$$59 - 6 = 53$$

$$53 = 53$$

20. (3) $pq\text{mdh} | pq\text{mdh} / bq\text{mdh} / pq\text{mdh}$

21. (1) As, $(12)^2 - 8 = 136$

$$\text{And, } (14)^2 - 8 = 188$$

$$\text{Similarly, } (24)^2 - 8 = 568$$

22. (1)

23. (1) $\begin{array}{ccccccc} 5 & 11 & 25 & 55 & 117 & 243 & 497 \\ \downarrow & \uparrow & \downarrow & \uparrow & \downarrow & \uparrow & \downarrow \\ \times 2+1 & \times 2+3 & \times 2+5 & \times 2+7 & \times 2+9 & \times 2+11 \end{array}$

24. (1) $\begin{array}{ccccccc} 19 & & 8 & & 12 & & 15 \\ S & \xrightarrow{\text{Opposite}} & H & \xrightarrow{+4} & L & \xrightarrow{\text{Opposite}} & O \end{array}$
- (2) $\begin{array}{ccccccc} 4 & & 23 & & 26 & & 1 \\ D & \xrightarrow{\text{Opposite}} & W & \xrightarrow{+3} & Z & \xrightarrow{\text{Opposite}} & A \end{array}$
- (3) $\begin{array}{ccccccc} 11 & & 16 & & 19 & & 8 \\ K & \xrightarrow{\text{Opposite}} & P & \xrightarrow{+3} & S & \xrightarrow{\text{Opposite}} & H \end{array}$
- (4) $\begin{array}{ccccccc} 10 & & 17 & & 20 & & 7 \\ J & \xrightarrow{\text{Opposite}} & Q & \xrightarrow{+3} & T & \xrightarrow{\text{Opposite}} & G \end{array}$

25. (4) Except Projector, others are input dance.

26. (2) The current VCOAS is Lieutenant General Chandi Prasad Mohanty who assumed the office from 1 February 2021.

27. (1) The Brahmaputra River originates in the north from Kailash ranges of Himalayas at an elevation of 5,150 m just south of the lake called Konggyu Tsho and flows for about a total length of 2,900 km. In India, it flows for 916 km

34. (2) PV Sindhu On August 25, 2019 PV Sindhu provided a long-awaited moment for Indian badminton when she beat Nozomi Okuhara of Japan to win gold at the BWF World Championships.

37. (2) Margomkali is a ritual folk art of the Syrian Christians of Kottayam and Thrissur districts.

38. (1) Val Vil Ori Festival (vizha) celebrated in a grand manner in Kollihills during the month of August (17th and 18th of Adi in Tamil Month) every year

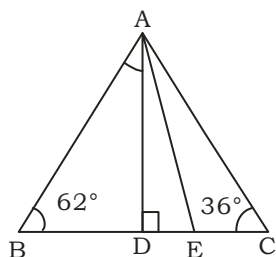
39. (4) Lake Pichola, situated in Udaipur city in the Indian state of Rajasthan, is an artificial fresh water lake, created in the year 1362 AD, named after the nearby Picholi village.

40. (2) Currently, he is the president of the Athletics Federation of India, and was elected as one of the members of council of IAAF at its 50th congress, thus becoming the first Indian to do so

41. (4) Gujarat has topped the Niti Aayog's Export Preparedness Index 2020 followed by Maharashtra and Tamil Nadu in the second and third place respectively, according to the government think tank's report released on Wednesday.

43. (1) Gravity is one major force that creates tides. In 1687, Sir Isaac Newton explained that ocean tides result from the gravitational attraction of the sun and moon on the oceans of the earth.
44. (3) Article 161 mentions the Pardoning Power of the Governor. When a convict has committed an offence against state law, the concerned punishment can be granted the pardon, reprieve, respite and remission by the Governor of the state.
46. (2) March 2016) (Learn how and when to remove this template message) In economics, factor payments are the income people receive for supplying the factors of production: land, labor, capital or entrepreneurship. Payments made of scarce resources, or the factors of production in return for productive services.
47. (3) RE-INVEST 2020, themed 'Innovations for Sustainable Energy Transition' aims to accelerate the worldwide effort to scale up development and deployment of renewable energy and connect the global investment community with Indian energy stakeholders.
48. (3) The river Giri is an important tributary of the Yamuna River. It is the main source of water in the South-Eastern Himachal Pradesh.
49. (4) Brennan, Jeff Bridges, Robert Duvall, Arthur Kennedy, Jack Nicholson, Claude Rains, and Al Pacino were nominated on four occasions, more than any other actor.

51. (2)



$$\angle A = 180^\circ - 62^\circ - 36^\circ = 82^\circ$$

$\angle BAE$ is the bisector of $\angle A$.

$$\angle BAE = \frac{82}{2} = 41^\circ$$

$$\angle BAD = 180^\circ - 62^\circ - 90^\circ = 28^\circ$$

$$\angle DAE = 41^\circ - 28^\circ = 13^\circ$$

$$\begin{aligned}
 52. \quad (4) \quad & 5\frac{1}{5} \div \left[3\frac{1}{2} - \left\{ \frac{5}{6} - \left(\frac{3}{5} + \frac{1}{10} - \frac{4}{15} \right) \right\} \right] \\
 &= \frac{26}{5} \div \left[\frac{7}{2} - \left\{ \frac{5}{6} - \left(\frac{18+3-8}{30} \right) \right\} \right] \\
 &= \frac{26}{5} \div \left[\frac{7}{2} - \left\{ \frac{5}{6} - \frac{13}{30} \right\} \right] = \frac{26}{5} \div \left[\frac{7}{2} - \left\{ \frac{25-13}{30} \right\} \right] \\
 &= \frac{26}{5} \div \left[\frac{105-12}{30} \right] = \frac{26}{5} \times \frac{30}{93} = \frac{52}{31}
 \end{aligned}$$

$$53. \quad (1) \quad x^8 - 433x^4 + 16 = 0$$

$$x^4 + \frac{16}{x^4} = 433$$

$$\left(x^2 + \frac{4}{x^2} \right)^2 = 433 + 8$$

$$x^2 + \frac{4}{x^2} = 21$$

$$\left(x + \frac{2}{x}\right)^2 = 21 + 4$$

$$\therefore x + \frac{2}{x} = 5$$

$$54. (1) (x+y)^3 + 27(x-y)^3 = (Ax-2y)(Bx^2+cxy+13y^2)$$

$$(x+y)^3 + [3(x-y)]^3 = (Ax-2y)(Bx^2+cxy+13y^2)$$

$$(x+y+3x-3y) [(x+y)^2 + (3x-3y)^2 - (x+y)(3x-3y)]$$

$$= (Ax-2y)(Bx^2+cxy+13y^2)(4x-2y)$$

$$\left[\begin{array}{l} x^2 + y^2 + 2xy + 9x^2 + 9y^2 - 18xy - \\ (3x^2 - 3xy + 3xy + 3y^2) \end{array} \right] = (Ax-2y)(Bx^2+cxy+13y^2)$$

$$(4x-2y)(7x^2+7y^2-16xy) = (Ax-2y)(Bx^2+cxy+13y^2)$$

$$A = 7, B = 7 \text{ and } C = -16$$

$$\therefore A - B - C = 4 - 7 + 16 = 13$$

$$55. (3) x^2 - \sqrt{11}x + 1 = 0$$

$$x + \frac{1}{x} = \sqrt{11}$$

$$\left(x + \frac{1}{x}\right)^2 = 11$$

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

$$x^3 + \frac{1}{x^3} = \left(x + \frac{1}{x}\right)\left(x^2 - x \times \frac{1}{x} + \frac{1}{x^2}\right)$$

$$= \sqrt{11} \times 9 = 9\sqrt{11}$$

$$56. (4) \text{ In } 2016 = \left(\frac{1290-1000}{1000} \times 100\right)\% = 29\%$$

$$\text{In } 2018 = \left(\frac{1450-1100}{1100} \times 100\right)\% = 31.8\%$$

$$57. (2) \text{ MP} = 2720$$

$$\text{SP} = 2720 \times \frac{75}{100} = 2040$$

$$\text{CP} = \frac{2040}{85} \times 100 = 2400$$

58. (4) $P = 160000$

$R = 10\%$

$T = 2 \text{ years}$

$$SI = \frac{160000 \times 10 \times 2}{100} = 32000$$

$P = 160000$

$R = 10\%$

$p.a = 5\% \text{ Semi-annually}$

$T = 2 \text{ year} = 4 \text{ semi-annually}$

$$CI = 160000 \times \left(1 + \frac{5}{100}\right)^4 - 160000$$

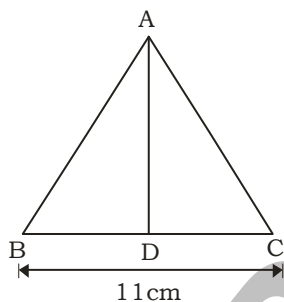
$$= 160000 \times \frac{21}{20} \times \frac{21}{20} \times \frac{21}{20} \times \frac{21}{20} - 160000 = 34481$$

$\therefore \text{Profit} = 34481 - 32000 = 2481$

59. (4) Required ratio $= 1400 \times \frac{20}{100} \times \frac{60}{100}$

$$= 1400 \times \frac{25}{100} \times \frac{80}{100} = 1200 : 2000 = 3 : 5$$

60. (3)



$BD = DC - 3$

$BC = 11\text{cm} = BD + DC$

$11 = DC - 3 + DC$

$2DC = 14$

$DC = 7\text{cm}$

$AC = 21\text{cm}$

Now, by bisector theorem,

$$\frac{AB}{AC} = \frac{BD}{DC}$$

$$\frac{AB}{21} = \frac{DC - 3}{DC}$$

$$\frac{AB}{21} = \frac{4}{7}$$

$\therefore AB = 12 \text{ cm}$

61. (1) Let monthly salary be 100

Spent on rent = 10

$$\text{Spent on transport} = 90 \times \frac{20}{100} = 18$$

$$\text{Spent on Food} = 72 \times \frac{40}{100} = 28.80$$

$$\text{Spent on bill} = 43.2 \times \frac{80}{100} = 34.56$$

Save = 8.64

ATQ,

$$8.64 \rightarrow 6480$$

$$100 \rightarrow \frac{6480}{8.64} \times 100 = 75000$$

$\therefore$ Monthly salary = 75000

62. (3) Required average = $\frac{65 \times 4 + 63 \times 7}{11} = \frac{701}{11} = 63.73\%$

63. (1) $\sin A = \frac{1}{2}$

$$\sin A = \sin 30^\circ$$

$$A = 30^\circ$$

$$\therefore \frac{\tan A - \cot A}{\sqrt{3}(1 + \cos A)} = \frac{\tan 30^\circ - \cot 30^\circ}{\sqrt{3}(1 + \cos 30^\circ)}$$

$$= \frac{\frac{1}{\sqrt{3}} - \sqrt{3}}{\sqrt{3}(1 + 2)} = \frac{\frac{1 - 3}{\sqrt{3}}}{3\sqrt{3}} = \frac{-2}{\sqrt{3}} \times \frac{3\sqrt{3}}{\sqrt{3}} = \frac{-2}{9}$$

64. (3) $\cos \theta - \sin \theta = \sqrt{3} \cos (90^\circ - \theta)$

$$\cos \theta - \sin \theta = \sqrt{3} \sin \theta$$

$$\cos \theta = \sqrt{3} \sin \theta + \sin \theta$$

$$\cos \theta = \sin \theta + (\sqrt{3} + 1) \sin \theta$$

$$\frac{\cos \theta}{\sin \theta} = \sqrt{3} + 1$$

$$\cot \theta = \sqrt{3} + 1$$

$$\tan \theta = \frac{1}{\sqrt{3} + 1}$$

$$\therefore \tan \theta - \cot \theta = \frac{1}{\sqrt{3} + 1} - \sqrt{3} + 1$$

$$= \frac{1 - (\sqrt{3} + 1)^2}{\sqrt{3} + 1} = \frac{1 + 3 - 1 + 2\sqrt{3}}{\sqrt{3} + 1} = \frac{-3 + 2\sqrt{3}}{(1 + \sqrt{3})}$$

65. (2)

66. (2) Let the capacity = 36 litres

$$\text{Tap A fills in 1 hour} = \frac{36}{12} = 3 \text{ litres}$$

$$\text{Tap B fills in 1 hours} = \frac{36}{18} = 2 \text{ litres}$$

$$\text{Tap C empty in 1 hour} \frac{36}{36} = 1 \text{ litres}$$

All the taps fill the tan in 1 hour = $(3 + 2 - 1) = 4$ litres

Remaing part = $36 - 4 = 32$ litre

$$\text{Fill the remaining part by A and B} = \frac{32}{5} = 6 \text{ hours } 24 \text{ minuts}$$

$\therefore$ Total time = 7 hours 24 minutes

67. (3) Required % = $\left(\frac{105}{125} \times 100 \right) \% = 84\%$

68. (2) Length of train = $72 \times \frac{5}{18} \times 12 = 240 \text{ m}$

$$\therefore \text{ Required time} = \frac{240 + 360}{72 \times \frac{5}{18}} = \frac{600}{20} = 30 \text{ seconds}$$

69. (4) Mean propotion = $\sqrt{1.8 \times 3.2} = 2.4$

$$\text{Third proportion} = \frac{3 \times 3}{5} = 1.8$$

$$\therefore \text{ Required difference} = 2.4 - 1.8 = 0.6$$

70. (2) Total CP = $(20 \times 45 + 25 \times 50 + 35 \times 40) + 450$
 $= 900 + 1250 + 1400 + 450 = 4000$

$$\text{Total SP} = 52.50 \times 80 = 4200$$

$$\therefore \text{ Profit \%} = \left(\frac{200}{4000} \times 100 \right) \% = 5\%$$

71. (4) $42a48b$ is divisible by 11.

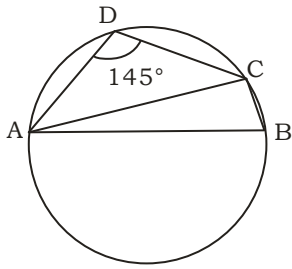
$(4 + a + 8) - (2 + 4 + 8)$ is divisible by 11 or 0.

$(12 + a - 6 - b)$ is divisible by 11 or 0

$(6 + a - b)$ is divisible by 11 or 0

So, the value of a should be 5.

72. (3)



$$\angle ADC + \angle ABC = 180^\circ$$

$$\angle ABC = 180^\circ - 145^\circ = 35^\circ$$

In $\triangle ABC$,

$$\angle ABC + \angle ACB + \angle BAC = 180^\circ$$

$$35^\circ + 90^\circ + \angle BAC = 180^\circ$$

$$\angle BAC = 180^\circ - 125^\circ = 55^\circ$$

73. (4) $\frac{1}{\cos \theta} + \frac{1}{\tan \theta - \sec \theta}$

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

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

$$= \frac{\sin \theta (1 - \sin \theta)}{\cos \theta (\sin \theta - 1)} = -\tan \theta$$

74. (1) Volume = $\frac{4}{3} \pi (3^3 - 2^3) = \frac{4}{3} \times \pi \times 19 = \frac{76\pi}{3} \text{ cm}^3$

75. (1) Required average = $\frac{2375 + 2651 + 1520 + 1085 + 859}{5} = \frac{8490}{5} = 1698$

MEANINGS IN ALPHABETICAL ORDER

Words	Meaning in English	Meaning in Hindi
Arena	a level area surrounded by seats for spectators, in which sports, entertainments, and other public events are held	अखाड़ा
Augment	make (something) greater by adding to it	बढ़ाने
Aviary	a large cage, building, or enclosure for keeping birds in	पक्षीशाल
Diminish	make or become less	घटाना
Fluctuate	rise and fall irregularly in number or amount	उतार चढ़ाव
Imagery	visually descriptive or figurative language, especially in a literary work	कल्पना
Nostalgia	a sentimental longing or wistful affection for the past, typically for a period or place with happy personal associations	उदासी
Piety	the quality of being religious or reverent	शील
Rotates	move or cause to move in a circle around an axis	घूमना
Seldom	not often; rarely	कभी-कभी
Slant	slope or lean in a particular direction; diverge or cause to diverge from the vertical or horizontal	तिरछा
Sovereignty	supreme power or authority	संप्रभुता
Sprawling	spreading out over a large area in an untidy or irregular way	विशाल
Sustain	able to be maintained at a certain rate or level	टिकाऊ
Sway	move or cause to move slowly or rhythmically backward and forward or from side to side	बोलबाला
Swing	move or cause to move back and forth or from side to side while suspended or on an axis	झूला

17 AUGUST (12 PM) (ANSWER KEY)

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

77. (4) The correct spelling of Casheir is Cashier.
78. (1) Replace 'is' by 'has', as the sentence is not in passive voice.
84. (4) A period of time takes 'for', not 'since'.
85. (2) The correct spelling of Vivedly is Vividly.
88. (3) 'Furniture' is an uncountable noun and thus takes a singular verb.
91. (2) No improvement required