

20 AUGUST (12 PM) (SOLUTION)

1. (4)
2. (2) As,

P R I V A T E

I	P	R	V	A	E	T	→ Alphabetical order
↓	×2	×2	×2	↓	↓	×2	
9	32	36	44	1	5	40	

And,

S H O R T E N

H	O	S	R	E	N	T	→ Alphabetical order
×2	×2	×2	×2	↓	×2	×2	
16	15	38	36	5	28	40	

Similarly,

R E F U S A L

E	F	R	U	A	L	S	→ Alphabetical order
↓	×2	×2	↓	↓	×2	×2	
5	12	36	21	1	24	38	

3. (1) $I \xleftrightarrow{\text{Opposite}} R \quad F \xleftrightarrow{\text{Opposite}} U$
 $N \xleftrightarrow{-7} G \quad L \xleftrightarrow{-7} E$
 $E \xleftrightarrow{\text{Opposite}} V \quad O \xleftrightarrow{\text{Opposite}} L$
 $R \xleftrightarrow{-7} K \quad W \xleftrightarrow{-7} P$
 $T \xleftrightarrow{\text{Opposite}} G \quad E \xleftrightarrow{\text{Opposite}} V$
 $I \xleftrightarrow{-7} B \quad R \xleftrightarrow{-7} K$
 $A \xleftrightarrow{\text{Opposite}} Z$

4. (4) $m \mathbf{l} t q \mathbf{r} / m \mathbf{l} \mathbf{t} q r / m \mathbf{l} t q \mathbf{r} / m \mathbf{l} t \mathbf{q} r$

5. (4) As, $7^3 + 4^2 = 359$

Similarly, $8^3 + 6^2 = 548$

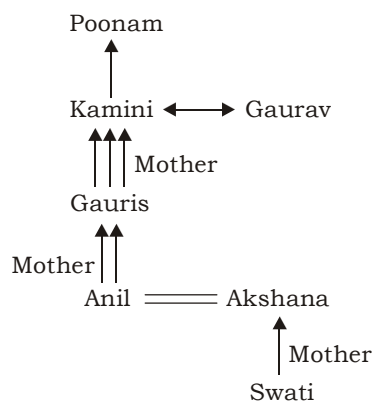
6. (1) 5. Relatable → 3. Related → 2. Relation → 1. Relativ → 4. Relative.

7. (2)

		+3		+3		
18,	3,	36,	6,	54,	9,	72
+18		+18		+18		

8. (2)

9. (1)



Hence Swati is grand-daughter of Gaurav.

10. (1)

11. (2) Hinder, Impede and Forbid are synonyms words but permit is different.

Hinder – To make it more difficult for some one.

Permit – To allow some body to do something.

12. (1)

Now Alakhya's age = 6 years

So, now Alakhya's father age = 25 + 6 = 31 years

Alakhya's mother age = 31 – 2 = 29 years

At the mairrage time Alakhya's mother age = 29 – 6 – 1 = 22 years

13. (2)

$$8 \times 9 = \frac{72}{3} = 24$$

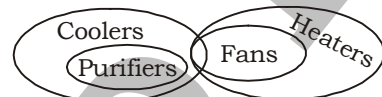
$$18 \times 19 = \frac{342}{3} = 114$$

$$12 \times 13 = \frac{156}{3} = 52$$

14. (3)

D $\xrightarrow{+5}$ I $\xrightarrow{+5}$ N $\xrightarrow{+5}$ S $\xrightarrow{+5}$ X
 V $\xrightarrow{-2}$ T $\xrightarrow{-2}$ R $\xrightarrow{-2}$ P $\xrightarrow{-2}$ N
 G $\xrightarrow{+6}$ M $\xrightarrow{+6}$ S $\xrightarrow{+6}$ Y $\xrightarrow{+6}$ E

15. (3)



Only conclusion III follows.

16. (4)

$$221 * 17 * 12 * 130 * 24 * 50$$

From option (4)

$$221 \div 17 \times 12 - 130 + 24 = 50$$

$$13 \times 12 - 130 + 24 = 50$$

$$156 - 130 + 24 = 50$$

$$26 + 24 = 50$$

$$50 = 50$$

17. (3)

A baby of 'cat' is called 'kitten' similarly 'baby' of cow is called 'calf'.

18. (4)

19. (2)

$$(1) 373 - 255 = 118$$

$$(2) 191 - 177 = 14$$

$$(3) 797 - 679 = 118$$

$$(4) 727 - 609 = 118$$

20. (2)

21. (4) (1) $S \xrightarrow{-3} P \xrightarrow{-3} M \xrightarrow{-3} J$
 (2) $C \xrightarrow{-3} Z \xrightarrow{-3} W \xrightarrow{-3} T$
 (3) $P \xrightarrow{-3} M \xrightarrow{-3} J \xrightarrow{-3} G$
 (4) $G \xrightarrow{-3} D \xrightarrow{-3} A \xrightarrow{-4} W$
22. (2) As 'Elated' and 'Dejected' are opposite to each other where as, 'Alleviate' and 'Aggravate' are opposite to each other.
23. (4) 24. (3)
25. (1) $(13 - 7)^2 - 1 = 35$
 $(14 - 9)^2 - 1 = 24$
 $(24 - 13)^2 - 1 = 120$
28. (2) Rahul Dravid holds the record for the most number of catches (210) taken by a non-wicketkeeper.
29. (1) As of October 2012, he holds the record for the most catches taken by a player (non-wicket-keeper) in Test cricket, with 210. Dravid holds a unique record of never getting out for a Golden duck in the 286 Test innings which he has played.
30. (4) Sidhu Murmu and Kanhu Murmu were brothers and the leaders of the Santhal rebellion, which started in 1855, in present-day Jharkhand and Bengal (Purulia and Bankura) in eastern India against both the British colonial authority and the corrupt 'zamindari' system.
31. (2) Shashi Tharoor is a former UN under-secretary-general, a Congress MP in India, the author of twenty-three books, and the recipient of literary awards including a Commonwealth Writers' Prize. His Inglorious Empire: What the British Did to India was a Sunday Times bestseller and a Financial Times Book of the Year.
32. (4) 'Abode of Love'- a collection of short stories written by Narendra Modi. Charismatic, a great orator, successful Chief Minister of Gujarat and the most promising PM candidate is probably how one would sum up Narendra Modi.
35. (3) San Janv or São João is an annual Catholic festival celebrated on June 24 in Goa in an unusual manner: After Mass, young Goan Catholic men leap into and swim in local wells, streams and ponds as a tribute to St. John the Baptist.
40. (4) Since it is one of the three open trading border posts between India and China, Nathu La Pass has played a key role in the Sino-Indian Trade. It has also shortened the distance between the important Buddhist and Hindu pilgrimage sites, thus strengthening the economy and improving border relations with China.
41. (3) Axis Bank launches "Wear N Pay" contactless payment wearable devices
43. (4) India's first Lithium refinery which will process Lithium ore to produce battery-grade material will be set up in Gujarat. Manikaran Power Limited, one of the country's largest power trading and renewable energy companies will be investing over Rs 1,000 crore to set up this refinery.
44. (3) It was founded by the philologist William Jones on 15 January 1784 in a meeting presided over by Justice Robert Chambers in Calcutta, the then capital of the British Raj.
45. (3) Collagen is the major insoluble fibrous protein in the extracellular matrix and in connective tissue. In fact, it is the single most abundant protein in the animal kingdom.
48. (2) Dadabhai Naoroji, (4 September 1825 - 30 June 1917) also known as the "Grand Old Man of India" and "Unofficial Ambassador of India", was an Indian political leader, merchant, scholar and writer who was a Liberal Party Member of Parliament in the United Kingdom House of Commons between 1892 and 1895 and the first Asian ...
49. (2) India attends the 11th session of Petersberg Climate Dialogue. Union Minister of Environment, Forest and Climate change, Prakash Javadekar representing India in the first virtual Petersberg Climate Dialogue. The dialogue was hosted by Germany. It was co-chaired by the United Kingdom.
51. (1) Let the no. of male = x

No. of female = $15280 - x$
 ATQ,

$$x \times \frac{125}{100} + (15280 - x) \times \frac{115}{100} = 18428$$

$$\frac{125x}{100} + 17572 - \frac{115x}{100} = 18428$$

$$\frac{10x}{100} = 856$$

$$x = 8560$$

$$\text{No. of female} = 15280 - 8560 = 6720$$

$$\therefore \text{Required difference} = 8560 - 6720 = 1840$$

52. (1) CP = ₹ 1680

$$SP = 1680 \times \frac{125}{100} = ₹ 2100$$

$$MP = \frac{2100}{84} \times 100 = ₹ 2500$$

53. (2) Let the smallest angles be x° .

$$\text{Largest angle} = x + 50^\circ$$

$$\text{Third angle} = x + 25^\circ$$

ATQ,

$$x + x + 25^\circ + x + 50^\circ = 180^\circ$$

$$3x = 105^\circ$$

$$x = 35^\circ$$

$$\therefore \text{Largest angle} = 35 + 50 = 85^\circ$$

54. (3) $\sqrt{x} - \frac{1}{\sqrt{x}} = \sqrt{7}$

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

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

$$\therefore x^2 + \frac{1}{x^2} = 79$$

55. (4) Required total = $75 \times \frac{80}{100} + 80 \times \frac{55}{100} + 100 \times \frac{68}{100} + 50 \times \frac{66}{100} + 150 \times \frac{84}{100}$
 $= 60 + 44 + 68 + 33 + 126 = 331$

56. (3) $\cos (2\theta + 54^\circ) = \sin \theta$

$$\sin [90^\circ - (2\theta + 54^\circ)] = \sin \theta$$

$$90^\circ - 2\theta - 54^\circ = \theta$$

$$3\theta = 36$$

$$\theta = 12^\circ$$

$$\therefore \frac{1}{\cot 5\theta + \sec \frac{5\theta}{2}} = \frac{1}{\cot 60^\circ + \sec 30^\circ}$$

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

57. (4) Required ratio = $(36 + 48) : (57 + 55) = 84 : 112 = 3 : 4$

58. (3) $2 \cos^2 \theta - 5 \cos \theta + 2 = 0$

$$2 \cos^2 \theta - 4 \cos \theta - \cos \theta + 2 = 0$$

$$2 \cos \theta (\cos \theta - 2) - 1 (\cos \theta - 2) = 0$$

$$(2 \cos \theta - 1) (\cos \theta - 2) = 0$$

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

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

$$\theta = 60^\circ$$

$$\therefore \sec \theta + \tan \theta = \sec 60^\circ + \tan 60^\circ = 2 + \sqrt{3}$$

59. (2) Let the speed of boat in still water be u km/hr and speed of stream v km/hr.

ATQ,

$$\frac{5}{u+v} + \frac{15}{2(u-v)} = \frac{45}{60} \quad \dots(i)$$

$$\frac{5}{u+v} + \frac{2.5}{u-v} = \frac{25}{60} \quad \dots(ii)$$

Let $u + v = x$ and $u - v = y$

$$5x + 7.5y = \frac{3}{4} \quad \dots(iii)$$

$$5x + 2.5y = \frac{5}{12} \quad \dots(iv)$$

Subtracting (i) and (ii),

$$5y = \frac{4}{12}$$

$$y = \frac{4}{60} = \frac{1}{15}$$

Put the value of y in (iii),

$$5x + 7.5 \times \frac{1}{15} = \frac{3}{4}$$

$$5x = \frac{3}{4} - \frac{1}{2}$$

$$x = \frac{1}{20}$$

Now, $\frac{1}{u+v} = \frac{1}{x} = \frac{1}{20}$

$$u + v = 20 \quad \dots(v)$$

and $\frac{1}{u-v} = \frac{x}{y} = \frac{1}{15}$

$$u - v = 15 \quad \dots(vi)$$

Adding equation (v) and (vi),

$$2u = 35$$

$$u = 17.5 \text{ km/hr}$$

Put the value of u in (v),

$$v = 20 - 17.5 = 2.5 \text{ km/hr}$$

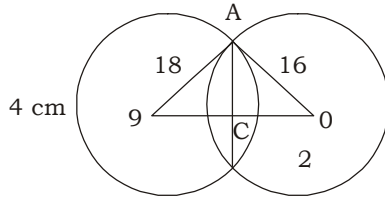
$$\therefore \text{Required time} = \frac{6}{20} \times 60 = 18 \text{ minutes}$$

60. (3) $CI = 30000 \left(1 + \frac{15}{100}\right)^2 \left(1 \times \frac{15}{100} \times \frac{2}{3}\right) - 30000$

$$= 30000 \times \frac{115}{100} \times \frac{115}{100} \times \frac{110}{100} - 30000 = ₹ 13642.50$$

61. (1) LCM of 5, 35, 39 and 65 = 1365
Largest 5 digits number = 99645
 $\therefore$ Sum = 9 + 9 + 6 + 4 + 5 = 33

62. (2)



In ΔAO_1C ,

$$O_1C = \sqrt{18^2 + 5^2} = \sqrt{324 - 10}$$

$$= \sqrt{224} = 4\sqrt{14} \text{ cm}$$

In ΔAO_2C ,

$$O_2C = \sqrt{16^2 - 10^2} = 2\sqrt{39} \text{ cm}$$

$$\therefore O_1C_2 = (4\sqrt{14} + 2\sqrt{39}) \text{ cm}$$

63. (1) Width = x
Height = 10x
Length = 80x
Volume = 51.2 m³
 $80x + 10x + x = 51.2$

$$x^3 = \frac{51.2}{800}$$

$$x = \sqrt[3]{0.064} = 0.4 \text{ m}$$

$$\text{Length} = 32 \text{ m}$$

$$\text{Width} = 0.4 \text{ m}$$

$$\text{Height} = 4 \text{ m}$$

$$\therefore \text{Required cost} = 32 \times 4 \times 100 = ₹ 12800$$

64. (1) Let income of A and B be 4x and 5y and expenditure of A and B be 3y and 8y.
 $4x = 8y$

$$\frac{x}{y} = \frac{8}{4}$$

$$x : y = 2 : 1$$

$$\text{Saving of A} = 4x - 3y$$

$$\text{Saving of B} = 5x - 8y$$

$$\therefore \text{Ratio} = (4 \times 2 - 3 \times 1) : (5 \times 2 - 8) = 5 : 2$$

65. (4) $(56\sqrt{7} x^3 - 2\sqrt{2} y^3) \div (2\sqrt{7} - \sqrt{2} y) = Ax^2 + By^2 + Cxy$

$$(2\sqrt{7} x - \sqrt{2} y)^3 [(2\sqrt{7} x)^2 + (\sqrt{2} y)^2 + 8\sqrt{7} x \times \sqrt{2} y] \div (2\sqrt{7} x - \sqrt{2} y) = Ax^2 + By^2 - Cxy$$

$$(28x^2 + 2y^2 + 2\sqrt{14} xy) = Ax^2 + By^2 - Cxy$$

$$A = 28, B = 2 \text{ and } C = -2\sqrt{14}$$

$$\therefore A + B - \sqrt{14}C = 28 + 2 - \sqrt{14} \times -2\sqrt{14} = 58$$

66. (2) $\frac{x}{y} + \frac{y}{x} = 2$

$$\frac{x^2 + y^2}{xy} = \frac{2}{1}$$

$$x^2 + y^2 - 2xy = 0$$

$$(x - y)^2 = x^2 + y^2 - 2xy = 0$$

67. (4) Let the capacity = 50 litres

$$(A + B)'s\ 2\ \text{wore wore} = \left(\frac{80}{10} + \frac{80}{10}\right) \times 2 = 26\ \text{litres}$$

In 12 hours 78 litres filled.

last 2 litres was filled by $\frac{2}{5}$ hours by B.

$$\therefore \text{Total time} = 12 + \frac{2}{5} = 12\frac{2}{5}\ \text{hours}$$

68. (2) $15 \div 3\ \text{of}\ 2 \times 4 + 9 \div 18\ \text{of}\ 2 \times 3 - 4 \div 8 \times 2$
 $= 15 \div 5 \times 4 + 9 \div 36 \times 3 - 4 \div 8 \times 2$

$$= 10 + \frac{3}{4} - 1 = 9\frac{3}{4}$$

69. (1) Let the CP of second item be ₹ 120.

SP of first item = ₹ 120

$$\text{CP of first item} = \frac{120}{120} \times 100 = ₹\ 100$$

$$\text{SP of second item} = 120 \times \frac{30}{100} = ₹\ 108$$

$$\text{Total CP} = 120 + 100 = ₹\ 220$$

$$\text{Total SP} = 120 + 108 = ₹\ 228$$

$$\text{Profit \%} = \left(\frac{8}{220} \times 100\right)\% = 3\frac{7}{11}\%$$

70. (2) Average salary of remaining 50 employees = $\frac{29900 \times 60 - 90000 \times 2 - 65000 \times 8}{50}$

$$= \frac{1794000 - 180000 - 520000}{50} = ₹\ 21880$$

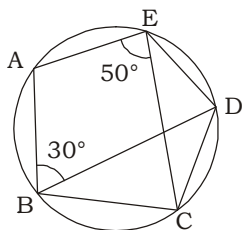
71. (4) $\cot \theta = \frac{15}{8} = \frac{q}{p}$

$$p = \sqrt{15^2 + 8^2} = 17$$

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

$$= \frac{\left(1 - \frac{15}{17}\right)\left(2 + 2 \times \frac{15}{17}\right)}{\left(2 - 2 \times \frac{8}{17}\right)\left(1 + \frac{8}{17}\right)} = \frac{\frac{2}{17} \times \frac{64}{17}}{\frac{18}{17} \times \frac{25}{17}} = \frac{64}{225}$$

72. (2)



$$\therefore \angle CBD = 50^\circ - 30^\circ = 20^\circ$$

73. (2) Required % = $\left(\frac{24}{50} \times 100\right) = 48\%$

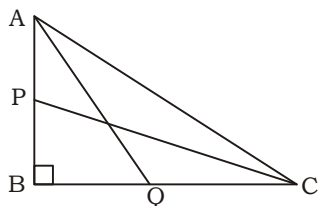
74. (3) Total marks by Amit in subjects A, B and C = $75 \times \frac{64}{100} + 80 \times \frac{65}{100} + 100 \times \frac{80}{100}$

$$= 48 + 52 + 80 = 180$$

$$\text{Total marks by Vitram in subject B, C, D and E} = 56 + 73 + 42 + 129 = 300$$

$$\therefore \text{Required \%} = \left(\frac{300 - 180}{300} \times 100\right) \% = 40\%$$

75. (4)



$$AQ^2 + CP^2 = AC^2 + PQ^2 \quad (\text{By theorem})$$

$$11^2 + 8^2 = 13^2 + PQ^2$$

$$121 + 64 = 169 + PQ^2$$

$$PQ^2 = 185 - 169$$

$$PQ^2 = 185 - 169$$

$$PQ = \sqrt{16} = 4 \text{ cm}$$

MEANINGS IN ALPHABETICAL ORDER

Words	Meaning in English	Meaning in Hindi
Applause	approval or praise expressed by clapping	वाहवाही
Axiom	a statement or proposition which is regarded as being established, accepted, or self-evidently true	स्वयंसिद्ध
Censure	express severe disapproval of (someone or something), especially in a formal statement	निंदा
Endorsed	declare one's public approval or support of	समर्थन किया
Inventory	a complete list of items such as property, goods in stock, or the contents of a building	सूची
Pragmatic	dealing with things sensibly and realistically in a way that is based on practical rather than theoretical considerations	व्यावहारिक
Quixotic	exceedingly idealistic; unrealistic and impractical	विलक्षण
Transpire	occur; happen	मालूम
Triumph	a great victory or achievement	विजयोल्लास

20 AUGUST (12 PM) (ANSWER KEY)

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

78. (3) The correct spelling of Dictionary is Dictionary.
81. (4) 'Herd' is a collective noun and thus it is singular.
86. (1) Replace 'on' by 'in'.
88. (4) Use 'lives' for the subject 'my brother'.
89. (3) The correct spelling of Adviseable is Advisable.
93. (2) Singular subject i.e, 'Sunil' will take singular auxiliary verb.