

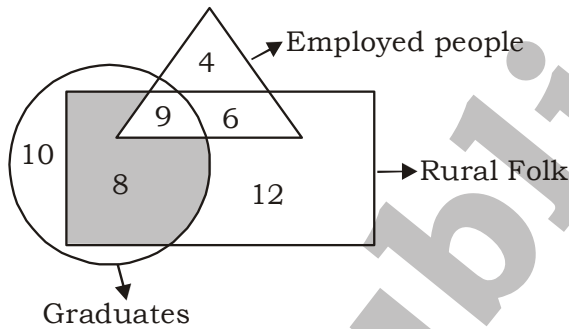
24 AUGUST (12 PM) (SOLUTION)

1. (2) Study of Tissues is called Histology and Herpetology is the study of Amphibians.
2. (3)
3. (1) As, $59 \times 2 = 118$ and $59 \times 5 = 294$
Similarly, $17 \times 2 = 34$ and $17 \times 5 = 85$
4. (2) Allahabad High court is in the Uttar Pradesh and Patna High court is in Bihar.
5. (2) 6. (4)
7. (4) $4096 \xrightarrow{+4} 1024 \xrightarrow{+4} 256 \xrightarrow{+4} 64 \xrightarrow{+4} 16$
8. (2)
9. (1) Keyboard, Microphone and Webcam are input devices, whereas Plotter is output device.
10. (1) In option 2, 3 and 4 follow the same pattern.

i.e.,

(1) 36, 353 ↑ ↑ 6^2 $7^3 + 10$	(2) 49, 512 ↑ ↑ 7^2 8^3
(3) 25, 353 ↑ ↑ 6^2 6^3	(4) 64, 729 ↑ ↑ 8^2 9^3

11. (3) q p l t r q p l t r q p l t r q p l t r
12. (2)



13. (2) $R \xrightarrow{+1} S \xrightarrow{+1} J \xrightarrow{+1} U \xrightarrow{+1} V$
 $O \xrightarrow{-2} M \xrightarrow{-2} K \xrightarrow{-2} I \xrightarrow{-2} G$
 $A \xrightarrow{+3} D \xrightarrow{+3} G \xrightarrow{+3} J \xrightarrow{+3} M$
 $D \xrightarrow{-4} Z \xrightarrow{-4} V \xrightarrow{-4} R \xrightarrow{-4} N$
14. (1) (1) $W \xrightarrow{-5} R \xrightarrow{-3} O$
 (2) $H \xrightarrow{-4} D \xrightarrow{-3} A$
 (3) $P \xrightarrow{-4} L \xrightarrow{-3} I$
 (4) $L \xrightarrow{-4} H \xrightarrow{-3} E$
15. (3) 2. Independent → 3. Intentional → 5. Interactive → 1. Interchangeable → 4. Interesting.
16. (2)

$$\begin{array}{r} \text{I} \quad \text{II} \quad \text{III} \\ 3 : 4 \\ 5 : 6 \end{array}$$

$$\frac{15}{20} = \frac{20}{24}$$

ATQ,

$$24x - 15x = 1125$$

$$9x = 1125$$

$$x = 125$$

$$\text{Second number} = 20x = 20 \times 125$$

$$\text{Third number} = 24x = 24 \times 125$$

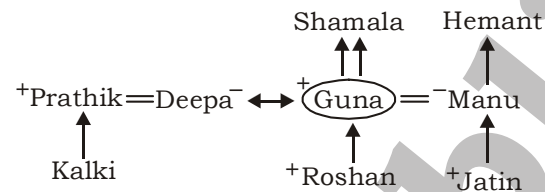
$$\text{Required Average} = \frac{20 \times 125 + 24 \times 125}{2} = \frac{44 \times 125}{2} = 2750$$

17. (2)
18. (2) As, And, Similarly,
- | | | |
|------------------------------------|------------------------------------|------------------------------------|
| $O_{15} \xrightarrow{\times 1} 15$ | $T_{20} \xrightarrow{\times 1} 20$ | $S_{19} \xrightarrow{\times 1} 19$ |
| $N_{14} \xrightarrow{\times 2} 28$ | $W_{23} \xrightarrow{\times 2} 46$ | $I_9 \xrightarrow{\times 2} 18$ |
| $E_5 \xrightarrow{\times 3} 15$ | $O_{15} \xrightarrow{\times 3} 45$ | $X_{24} \xrightarrow{\times 3} 72$ |

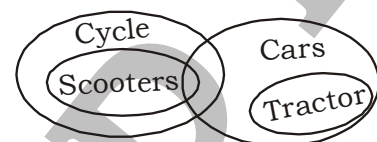
19. (3)
20. (4) $135 * 15 * 3 * 2 * 13 * 16$
 From option (4),
 $135 \div 15 \times 3 + 2 - 13 = 16$
 $9 \times 3 + 2 - 13 = 16$
 $16 = 16$

21. (2) As, And, Similarly,
- | | | |
|------------------------|------------------------|------------------------|
| $R \xrightarrow{+5} W$ | $A \xrightarrow{+5} F$ | $M \xrightarrow{+5} R$ |
| $I \xrightarrow{+3} L$ | $M \xrightarrow{+3} P$ | $I \xrightarrow{+3} L$ |
| $T \xrightarrow{+5} Y$ | $A \xrightarrow{+5} F$ | $R \xrightarrow{+5} W$ |
| $U \xrightarrow{+3} X$ | $N \xrightarrow{+3} Q$ | $A \xrightarrow{+3} D$ |

22. (4) As, $9^2 + (9 + 1) = 81 + 10 = 91$
 Similarly $= (13)^2 + (13 + 1) = 169 + 14 = 183$

23. (4)
- 
- Hemanth is father of Roshan's father.

24. (4) As,
- $12 \xrightarrow{\times 5} 60, 84$
 $16 \xrightarrow{\times 5} 80, 112$
- Similarly, from option (4)

25. (3)
- 

Only conclusion II follows.

27. (3) Amitav Ghosh is the author of ten highly acclaimed works of fiction and non-fiction which include the Booker Prize shortlisted Sea of Poppies (book one of the Ibis Trilogy), River of Smoke, The Glass Palace and The Shadow Lines.
29. (2) National Voters' Day is celebrated all over the country on January 25 every year since 2011 to mark the Foundation day of Election Commission of India, which was established on this day in the year 1950.
30. (4) The Fundamental Duties of citizens were added to the Constitution by the 42nd Amendment in 1976, upon the recommendations of the Swaran Singh Committee that was constituted by the Government.
32. (1) RBI becomes first central bank in the world to reach 1 mn followers on Twitter. The Reserve Bank of India has reached one million followers on Twitter. With this, the central bank of India is now the first-ever such bank in the world to have reached these many followers in the micro-blogging site.

34. (1) On the birth anniversary of Sardar Patel, the Indian government declared National Unity Day to honour his hardships and sacrifices as the country's first Deputy Prime Minister.
35. (3) Marsh gas, which is also called methane, is produced by the anaerobic bacterial decomposition of vegetable matter and the rumen of herbivorous animals under water.
36. (4) Vikramashila was founded by Pala king Dharmapala in the late 8th or early 9th century. It prospered for about four centuries before it was destroyed by Bakhtiyar Khilji along with the other major centres of Buddhism in India around 1193.
43. (1) The Skill Mission launched by the Prime Minister on 15 July 2015, has gathered tremendous steam under the guidance of Dr.
44. (4) Hima Das (born 9 January 2000), nicknamed Dhing Express, is an Indian sprinter from the state of Assam.
45. (2) A natural admixture mineral of Zinc carbonate and hydrous Zinc silicate. Because the two ores are very similar and often occur together, the name calamine was given to the mixture but also incorrectly used for the separate minerals. ... Calamine lotion is used as a skin protectant and salve.
46. (1) Geologic media capable of yielding sufficient quantities of water to wells or springs are referred to as aquifers, whereas media with relatively low K values are referred to as confining units or aquitards.
49. (2) Economies of scale refer to the proportionate saving in costs gained by an increased level of production.
50. (1) The first polio vaccine, known as inactivated poliovirus vaccine (IPV) or Salk vaccine, was developed in the early 1950s by American physician Jonas Salk.
51. (3) $x - \frac{2}{x} = 15$
 $\left(x - \frac{2}{x}\right)^2 = 225$
 $x^2 + \frac{4}{x^2} = 225 + 4$
 $\therefore x^2 + \frac{4}{x^2} = 229$
52. (1) Required ratio = $(42 + 42 + 32) : (43 + 30 + 41) = 116 : 114 = 58 : 57$
53. (2) $y - 2x = 9000 \times \frac{165}{360} - 2 \times 9000 \times \frac{64.2}{360} = 915$
54. (4) $4a067b$ is divisible by 11.
 $(4 + 0 + 7) - (a + 6 + b)$ is divisible by 11 or 0
 $11 - (6 + a + b)$ is divisible by 11 or 0
 $5 - (a + b)$ is divisible by 11 or 0
 $a + b = 5$ and 16
Sum of all possible values of $(a + b) = 5 + 16 = 21$
55. (3) Gaurav has = 140
Avinash = 112
Chetan = $\frac{140}{140} \times 100 = 100$
Required% = $\left(\frac{12}{112} \times 100\right) = 10.7\%$
56. (4) Average of first ten positive odd numbers = $\frac{1+3+5+7+9+11+13+15+17+19}{10}$
 $= \frac{100}{10} = 10$
Average of first ten positive even numbers
 $= \frac{2+4+6+8+10+12+14+16+18+20+22+24+26+28+30}{10} = \frac{440}{15} = 16$
 $\therefore$ Product = $10 \times 16 = 160$

57. (2) Let, MP = ₹100

$$SP_1 = 100 \times \frac{75}{100} = ₹ 75$$

$$SP_2 = 100 \times \frac{80}{100} \times \frac{95}{100} = ₹ 76$$

ATQ,
(76 - 75) → 320

$$100 \rightarrow \frac{320}{1} \times 100 = ₹ 32000$$

58. (1) Diagonal of square = $3 \times \frac{5}{60} = \frac{1}{4}$ km = 250 m

$$\sqrt{2} \times \text{side} = 250$$

$$\text{side} = \frac{250}{\sqrt{2}} \text{ m}$$

$$\therefore \text{Area} = \left(\frac{250}{\sqrt{2}} \right)^2 = 31250 \text{ m}^2$$

59. (3) Required ratio = (325 + 275 + 150) : (300 + 275 + 250) = 750 : 825 = 10 : 11

60. (1) Required% = $\left(\frac{180}{400} \times 100 \right)\% = 45\%$

61. (2) $\sin^2 60^\circ + \cos^2 30^\circ - \sin^2 45^\circ - 3\sin^2 90^\circ$

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

$$= \frac{3}{4} + \frac{3}{4} - \frac{1}{2} - 3$$

$$= \frac{3+3-2-12}{4} = \frac{-8}{4} = -2$$

62. (4) Let speed of fastest train be x km/hr and speed of slowest train be y km/hr.
ATQ,

$$\frac{45}{x-y} = \frac{9}{2} \quad \dots(i)$$

$$\frac{45}{x-y} = \frac{27}{60} = \frac{9}{20} \quad \dots(ii)$$

$$9x - 9y = 90 \quad \dots(iii)$$

$$9x + 9y = 900 \quad \dots(iv)$$

Adding equation (i) and (ii)

$$9x - 9y + 9x + 9y = 90 + 900$$

$$18x = 990$$

$$x = \frac{990}{18} = 55 \text{ km/hr}$$

63. (3) $A = \left(1 + \frac{R}{100} \right)^T$

$$\left[12000 \left(1 + \frac{R}{100} \right)^1 - 4800 \right] \left(1 + \frac{R}{100} \right)^1 = 9240$$

$$[12000 + 120R - 4800] \left(1 + \frac{R}{100} \right) = 9240$$

$$120R + 7200 + 1.2R^2 + 72R = 9240$$

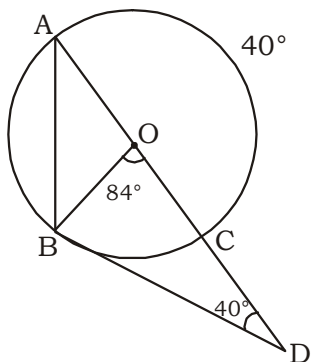
$$1.2R^2 + 192R - 2040 = 0$$

$$\begin{aligned}
 R^2 + 160R - 1700 &= 0 \\
 R^2 + 170R - 10R - 1700 &= 0 \\
 R(R - 170) - R(R + 170) &= 0 \\
 (R + 170)(R - 10) &= 0 \\
 R &= 10\% \quad (\because R \neq -170\%)
 \end{aligned}$$

$$\begin{aligned}
 64. \quad (4) \quad & \frac{7}{2} \div \frac{1}{10} \text{ of } \frac{2}{3} - \frac{5}{3} \times \frac{5}{10} + \frac{5}{8} \div \frac{3}{4} \text{ of } \frac{2}{3} \\
 &= \frac{7}{2} \times \frac{15}{1} - \frac{5}{3} \times \frac{5}{10} + \frac{5}{8} \times \frac{2}{1} \\
 &= \frac{35}{4} - \frac{25}{30} + \frac{5}{4} \\
 &= \frac{525 - 50 + 75}{60} \\
 &= \frac{510}{60} = 8\frac{1}{2}
 \end{aligned}$$

65. (3)

66. (3)



$$\begin{aligned}
 \angle AOB &= 180^\circ - 84^\circ = 96^\circ \\
 \text{In } \triangle AOB, \\
 \angle AOB + \angle AAB + \angle OBA &= 180^\circ \\
 96^\circ + 2\angle OBA &= 180^\circ \\
 \angle OBA &= \frac{180^\circ - 96^\circ}{2} = \frac{84^\circ}{2} = 42^\circ \\
 \text{In } \triangle BOD, \\
 \angle DBO &= 180^\circ - 84^\circ - 40^\circ = 56^\circ \\
 \therefore \angle ABD &= \angle OBA + \angle DBO = 42^\circ + 56^\circ = 98^\circ
 \end{aligned}$$

$$\begin{aligned}
 67. \quad (1) \quad & 8x^3 - y^3 + 6xy \\
 &= 8x^3 - (2x + 1)^3 + 6x(2x + 1) \\
 &= 8x^3 - [8x^3 + 1 + 6x(2x + 1)] + 12x^2 + 6x \\
 &= 8x^3 - [8x^3 + 1 + 12x^2 + 6x] + 12x^2 + 6x \\
 &= 8x^3 - 8x^3 - 1 - 12x^2 + 6x + 12x^2 + 6x = -1
 \end{aligned}$$

$$68. \quad (3) \quad \text{Total work} = 18 \times 14 = 252$$

$$3W = 2M$$

$$\frac{M}{W} = \frac{3}{2}$$

$$5M + 6W = 9M$$

$$\text{work completed in 4 days} = 9 \times 4 = 36$$

$$\text{Remaining work} = 252 - 36 = 216$$

$$\text{Required time} = \frac{216}{12} = 18 \text{ days}$$

$$\therefore \text{Total time} = 18 + 4 = 22 \text{ days}$$

$$69. (2) \frac{\sec^2 60^\circ \cdot \cos^2 45^\circ + \operatorname{cosec}^2 30^\circ}{\cot 30^\circ \sec^2 45^\circ - \operatorname{cosec}^2 30^\circ \tan 45^\circ} = \frac{(2)^2 \times \left(\frac{1}{\sqrt{2}}\right)^2 + (2)^2}{\sqrt{3} \times (\sqrt{2})^2 - (2)^2 \times 1} = \frac{2+4}{2\sqrt{3}-4}$$

$$= \frac{6 \times (2\sqrt{3}+4)}{(2\sqrt{3}-4)(2\sqrt{3}+4)} = \frac{12\sqrt{3}+24}{-4} = \frac{12\sqrt{3}+2}{-4} = -3(2+\sqrt{3})$$

70. (4) Let the monthly sadness of Anu and Rumud be $19x$ and $17x$.
ATQ,

$$\frac{19x+2000}{17x+1000} = \frac{8}{7}$$

$$133x + 14000 = 136x + 8000$$

$$3x = 6000$$

$$x = 2000$$

$$\therefore \text{Present salary of Kumud} = 17 \times 2000 = ₹ 34000$$

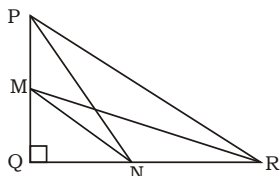
71. (4) Let the MP = ₹ 5

$$S.P = 5 \times \frac{4}{5} = ₹ 4$$

$$CP = \frac{4}{\frac{290}{3}} \times 100 = \frac{4 \times 300}{290} = ₹ \frac{120}{29}$$

$$\text{Profit}\% = \left(\frac{5 - \frac{120}{29}}{\frac{120}{29}} \times 100 \right) \% = \left(\frac{25}{120} \times 100 \right) \% \approx 20\%$$

72. (2)



PN = 9 cm, MR = 7 cm, and MN = 3 cm

$$PN^2 + MR^2 = PR^2 + MN^2 \quad (\text{By theorem})$$

$$9^2 + 7^2 = PR^2 + 3^2$$

$$81 + 49 = PR^2 + 9$$

$$PR^2 = 130 - 9$$

$$\therefore PR = \sqrt{121} = 11 \text{ cm}$$

73. (3)

74. (1) Let each tangent be k and radius be r .

$$OP = 2r$$

$$\text{Clearly, } \angle AOP = \arccos \frac{\cos r}{2r} = 60^\circ$$

Hence $\angle AOB = 120^\circ$, angles at PoTs are 90°

So, $\angle APB = 60^\circ$

Proves that quadrilateral AOBP is cyclic.

By Ptolemy's First Theorem,

$$2r \times 10 = APr + APr$$

$$AP = 10 \text{ cm}$$

75. (2)

$$\sin^2 \theta = 2\sin \theta - 1$$

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

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

$$\sin \theta (\sin \theta - 1) - 1 (\sin \theta - 1) = 0$$

$$(\sin \theta - 1) (\sin \theta - 1) = 0$$

$$\sin \theta = 1$$

$$\sin \theta = \sin 90^\circ$$

$$\theta = 90^\circ$$

$$\therefore \frac{1 + \operatorname{cosec} \theta}{1 - \cos \theta} = \frac{1 + \operatorname{cosec} 90^\circ}{1 - \cos 90^\circ} = \frac{1+1}{1-0} = 2$$

MEANINGS IN ALPHABETICAL ORDER

<i>Words</i>	<i>Meaning in English</i>	<i>Meaning in Hindi</i>
Abstain	restrain oneself from doing or enjoying something	बचना
Apparent	clearly visible or understood; obvious	स्पष्ट
Barbaric	savagely cruel; exceedingly brutal	असभ्य
Cadence	a modulation or inflection of the voice	ताल
Homicide	मानव हत्या	
Plaintive	sounding sad and mournful	दर्दनाक

24 AUGUST (12 PM) (ANSWER KEY)

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

77. (2) The correct spelling of Neice is Niece.
81. (2) Since the sentence is in passive voice, change 'notify' into 'notified'.
83. (1) Use 'sharp' instead of 'sharpest' as there is no comparison between.
90. (2) 'News' is a singular noun.
92. (1) The correct spelling of Playright is Playwright.
95. (2) Here, a noun is needed. Also, 'from' is used as a preposition with 'warmth'.