

24 AUGUST (3 PM) (SOLUTION)

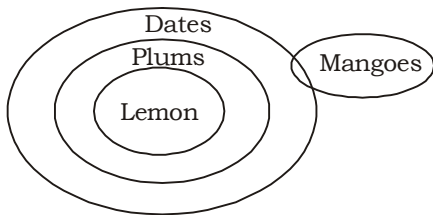
1. (1) $C \xrightarrow{+5} H \xrightarrow{0} H \xrightarrow{+5} M \xrightarrow{+3} M$
 $L \xrightarrow{0} L \xrightarrow{+5} Q \xrightarrow{0} Q \xrightarrow{+5} V$
 $A \xrightarrow{+5} V \xrightarrow{0} V \xrightarrow{-5} Q \xrightarrow{0} Q$
 $P \xrightarrow{0} P \xrightarrow{-5} K \xrightarrow{0} K \xrightarrow{-5} F$

2. (4) (1) $R \xrightarrow{+5} V$, $E \xrightarrow{+6} K$
 (2) $G \xrightarrow{+4} K$, $P \xrightarrow{+6} V$
 (3) $C \xrightarrow{+4} G$, $T \xrightarrow{+6} Z$
 (4) $N \xrightarrow{+4} R$, $I \xrightarrow{+7} P$

3. (3)

4. (3) Except Respect, others are similar.

5. (3)



Both conclusion III and IV follow

6. (2) $21 \xrightarrow{\times 33} 693$
 $24 \xrightarrow{\times 33} 792$

7. (4)

8. (4) Here two series are included in the series.

$68 \xrightarrow{-5} 63 \xrightarrow{-6} 57 \xrightarrow{-7} 50 \xrightarrow{-8} 42 \xrightarrow{-9} 33$
 $3 \xrightarrow{\times 2 - 3} 3 \xrightarrow{\times 2 + 3} 9 \xrightarrow{\times 2 - 3} 15 \xrightarrow{\times 2 + 3} 33 \xrightarrow{\times 2 - 3} 63$

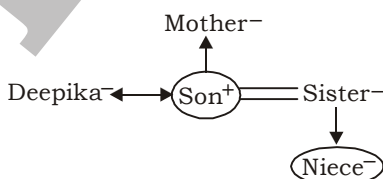
9. (4) (1) $5 \times 4 + 4 = 24$
 (2) $7 \times 4 + 2 = 30$
 (3) $6 \times 4 + 2 = 26$
 (4) $8 \times 4 + 2 = 34$

10. (2)

11. (3) $512 * 32 * 9 * 100 * 6 * 25 * 2$
 From option (4),
 $512 \div 32 \times 9 - 100 + 6 = 25 \times 2$
 $16 \times 9 - 100 + 6 = 50$
 $144 - 100 + 6 = 50$
 $50 = 50$

12. (2) 13. (4)

14. (4)



$\therefore$ That girls mother has sister-in-law's of Deepika.

15. (3)

16. (3) As, $\begin{array}{ccccccc} M & O & N & T & H & L & Y \\ \downarrow +5 & \downarrow +5 & \downarrow +5 & \downarrow +5 & \downarrow +5 & \downarrow +5 & \downarrow +5 \\ R & J & S & O & M & G & D \end{array}$
 $\leftarrow \begin{array}{ccccccc} D & G & M & O & S & J & R \end{array}$ Opposite sequence

Similarly,

$\begin{array}{ccccccc} H & E & A & D & I & N & G \\ \downarrow +5 & \downarrow +5 & \downarrow +5 & \downarrow +5 & \downarrow +5 & \downarrow +5 & \downarrow +5 \\ M & Z & F & Y & N & I & L \end{array}$
 $\leftarrow \begin{array}{ccccccc} L & I & N & Y & F & Z & M \end{array}$ Opposite sequence

17. (3)

18. (3)

	Aswath	:	Sunita	:	Ramdin
Income $\rightarrow$	12x	:	9x	:	7x
Expenditure $\rightarrow$	15y	:	9y	:	8y

ATQ,

$$12x \times \frac{75}{100} = 15y$$

$$\frac{x}{y} = \frac{5}{3}$$

Now,

Income $\rightarrow$	60	:	45	:	35
Expenditure $\rightarrow$	45	:	27	:	24
$\therefore$ Salary $\rightarrow$	15	:	18	:	11

19. (1)

20. (1) t, d, p, q, n, t, l

21. (1) 'Tripoli' is the capital of 'Libya' where as 'Dublin' is the capital of 'Ireland'.

22. (1) As, I $\rightarrow 23 \times 3 + 3 = 72$

$$\text{II} \rightarrow 32 \times 4 + 4 = 132$$

Similarly,

$$\text{III} \rightarrow 16 \times 5 + 5 = \mathbf{85}$$

23. (3) Course is a grounds where the sport of Golf is played, whereas A velodrome is an arena for track cycling where cycling race is to be conduct.

24. (1)

25. (4) 5. Perturb. 4. Pheumonia 2. Precision 3. Puberty 1. publicity

26. (4) Siddhartha Mohanty took charge as the new Managing Director of Life Insurance Corporation of India on February 1. "He was appointed as Managing Director vide Government of India notification dated January 20, 2021," LIC said in a statement.

27. (2) Netaji Subhas Chandra Bose 125th Birth Anniversary: Govt Declares 23rd January as Parakram Diwas. New Delhi: The Narendra Modi government on Monday announced to commemorate Netaji Subhas Chandra Bose's 125th birth anniversary on January 23 as Parakram Diwas (day of valour).

28. (3) Jindal South West (JSW) Steel has appointed Indian cricketer Rishabh Pant as its brand ambassador.

29. (3) The Periodic Law, as we know it today owes its development to the Russian chemist, Dmitri Mendeleev (1834-1907) and the German chemist, Lothar Meyer (1830-1895). Working independently, both the chemists in 1869 two members.

30. (2) Gita Mittal has been appointed as the first woman Chairperson of the Broadcasting Content Complaints Council (BCCC), an independent, self-regulatory body for general entertainment channels set up by the Indian Broadcasting Foundation (IBF).

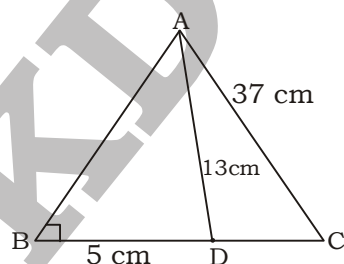
31. (4) The launch of the first sounding rocket from Thumba near Thiruvananthapuram, Kerala on 21 November 1963, marked the beginning of the Indian Space Programme .

32. (4) Terrace cultivation, method of growing crops on sides of hills or mountains by planting on graduated terraces built into the slope. Though labour-intensive, the method has been employed effectively to maximize arable land area in variable terrains and to reduce soil erosion and water loss.

33. (4) Akbarnama, written by a learned courtier of Akbar, Abul Fazl, describes the increase of literature during the reign of Akbar. Abul Fazl served as the court chronicler at the Mughal court and also a personal confidant of Akbar.
34. (1) The Ministry of Youth Affairs and Sports started a flagship program called Target Olympic Podium Scheme (TOPS) in 2014
35. (3) The Raman Effect deals with scattering of light by molecules of a medium when they are excited to vibrational energy levels.
38. (2) It is 40 km² (15.4 sq mi) in area, the only floating park in the world, located in North East India, and an integral part of Loktak Lake.
39. (2) Article 265 of the Constitution of India says that "No tax shall be levied or collected except by authority of law".
40. (3) Kakori Conspiracy, also called Kakori Conspiracy Case or Kakori Train Robbery, armed robbery on August 9, 1925, of a train in what is now central Uttar Pradesh state, north-central India, and the subsequent court trial instituted by the government of British India against more than two dozen men accused of involvement,
42. (2) The Paradoxical Prime Minister: Narendra Modi And His India is a 2018 non-fiction book written by senior leader of the Indian National Congress, Shashi Tharoor, about the Prime Minister of India, Narendra Modi.
43. (1) Part-xx Article 368 (1) of the Constitution of India grants constituent power to make formal amendments and empowers Parliament to amend the Constitution by way of addition, variation or repeal of any provision according to the procedure laid down therein, which is different from the procedure for ordinary legislation.
44. (3) The Hemis Festival is one of the most important and colorful festivals of Ladakh, which is celebrated at the Hemis Monastery. Dedicated to Lord Padmasambhava, this 2-day festival falls on the 10th day of the Tibetan Lunar month.
45. (3) A dream can be explained as a succession of sensations, emotions, ideas, and images that occur involuntarily in a person's mind during certain stages of sleep. ... Interestingly, the scientific study of dreams is known as Oneirology.
46. (4) The third phase of Pradhan Mantri Kaushal Vikas Yojana was launched on January 15, 2021 in 600 districts across all states of India. The third phase will be spearheaded by the Ministry of Skill Development and Entrepreneurship (MSDE). It will focus on new-age India and COVID-related skills.
47. (2) Harisena, also called Harishena or Hirisena, was a 4th-century Sanskrit poet, panegyrist, and government minister. He was an important figure in the court of Gupta emperor, Samudragupta. His most famous poem, written c. 345 C.E., describes the bravery of Samudragupta and is inscribed on the Allahabad Pillar.
48. (2) UNESCO has announced that Mumbai and Hyderabad have been included in its network of 'Creative Cities' on the occasion of World Cities Day 2019 on Thursday.

51. (4) Required means = $50 \times \frac{54}{100} + 150 \times \frac{64}{100} + 80 \times \frac{55}{100} + 75 \times \frac{72}{100} + 100 \times \frac{85}{100}$
 $= 27 + 96 + 44 + 54 + 85 = 306$

52. (2)



In $\triangle ABD$,

$$AB = \sqrt{13^2 - 5^2} = 12 \text{ cm}$$

In $\triangle ABC$,

$$BC = \sqrt{37^2 - 12^2} = 35 \text{ cm}$$

$$\therefore DC = 35 - 5 = 30 \text{ cm}$$

53. (1) Required total sum = $\frac{5535}{41} \times 91 = ₹12285$

54. (2) Efficiency of A, B and C = 2 : 6 : 9
Ratio of their time taken = 27 : 9 : 6
Let total work = 54

$$\text{Time taken by A, B and C} = \frac{54}{\frac{54}{27} + \frac{54}{9} + \frac{54}{6}} = \frac{54}{17}$$

$$\frac{54}{17} \rightarrow 4$$

$$27 \rightarrow \frac{4}{54} \times 27 \times 17 = 34 \text{ days}$$

Time taken by A alone = 34 days

55. (2) Let the speed of river be x km.
ATQ,

$$\frac{150}{20+x} + \frac{150}{20-x} = 16$$

$$\frac{3000 - 150x + 3000 + 150x}{400 - x^2} = 16$$

$$6000 = 6400 - 16x^2$$

$$16x^2 = 400$$

$$x = \sqrt{\frac{400}{16}} = 5 \text{ km/hr}$$

56. (3) CP = ₹920

$$SP = 920 \times \frac{120}{100} = ₹1104$$

$$\text{Discount} = 172 - 1104 = ₹368$$

$$\therefore x = \left(\frac{368}{1472} \times 1000 \right) \% = 25\%$$

57. (2) $\left(\frac{3}{4} - \frac{1}{4} \div \frac{1}{4} \text{ of } \frac{2}{5} \right) \div \left(\frac{3}{4} \div \frac{2}{3} \text{ of } \frac{3}{5} \right)$

$$= \left(\frac{3}{4} - \frac{1}{4} \div \frac{1}{10} \right) \div \left(\frac{3}{4} \div \frac{2}{5} \right)$$

$$= \left(\frac{3}{4} - \frac{1}{4} \times 10 \right) \div \left(\frac{3}{4} \times \frac{2}{5} \right)$$

$$= \frac{-7}{4} \times \frac{10}{3} = -\frac{35}{3}$$

58. (3) Take option (3),

$$\text{Decrease}\% = \left(\frac{\frac{4}{3} - \frac{3}{4}}{\frac{3}{4}} \times 100 \right) = \left(\frac{7}{12} \times \frac{3}{4} \times 100 \right) \% = \frac{175}{4} \%$$

Hence, $\frac{4}{3}$ is right answer.

$$59. \quad (3) \quad \frac{(\sin \theta + \sec \theta)^2 + (\cos \theta + \operatorname{cosec} \theta)^2}{(1 + \sec \theta \operatorname{cosec} \theta)^2}$$

$$= \frac{\sin^2 \theta + \sec^2 \theta + 2 \sin \theta \sec \theta + \cos^2 \theta + \operatorname{cosec}^2 \theta + 2 \cos \theta \operatorname{cosec} \theta}{1 + \sec^2 \theta \cos^2 \theta + 2 \sec \theta \cos \theta}$$

$$= \frac{1 + \sec^2 \theta \cos^2 \theta + 2 \sec \theta \cos \theta}{1 + \sec^2 \theta \cos^2 \theta + 2 \sec \theta \cos \theta} \quad (\because \sec^2 \theta + \cos^2 \theta = \sec^2 \theta \cos^2 \theta)$$

$$= 1$$

$$60. \quad (4) \quad x^4 - 62x^2 + 1 = 0$$

$$x^2 + \frac{1}{x^2} = 62$$

$$\left(x + \frac{1}{x}\right) - 2 \times x \times \frac{1}{x} = 62$$

$$x + \frac{1}{x} = \sqrt{64} = 8$$

Now,

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

$$8^3 = x^3 + \frac{1}{x^3} + 3 \times 8$$

$$x^3 + \frac{1}{x^3} = 512 - 24$$

$$\therefore x^3 + x - 3 = 488$$

$$61. \quad (2) \quad 6 \times (\text{side})^2 = 13.5$$

$$\text{side} = \sqrt{\frac{13.5}{6}} = 1.5 \text{ cm}$$

$$\therefore \text{Diagonal} = \sqrt{3} \times \text{side} = 1.5\sqrt{3} \text{ cm}$$

$$62. \quad (1) \quad x^8 - 34x^4 + 1 = 0$$

$$x^4 + \frac{1}{x^4} = 34$$

$$\left(x^2 + \frac{1}{x^2}\right)^2 + 2 \times x^2 \times \frac{1}{x^2} = 34$$

$$x^2 + \frac{1}{x^2} = \sqrt{36} = 6$$

$$\left(x + \frac{1}{x}\right)^2 - 2 \times x \times \frac{1}{x} = 6$$

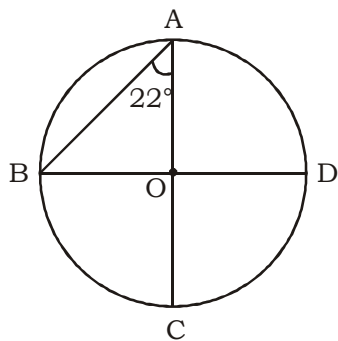
$$x + \frac{1}{x} = \sqrt{8} = 2\sqrt{2}$$

$$\text{Now, } \left(x + \frac{1}{x}\right)^3 = (2\sqrt{2})^3$$

$$x^3 + \frac{1}{x^3} + 3 \times x \times \frac{1}{x} \left(x + \frac{1}{x}\right) = 16\sqrt{2}$$

$$x^3 + \frac{1}{x^3} = 16\sqrt{2} - 2\sqrt{2} = 14\sqrt{2}$$

63. (4)



In $\triangle AOB$,

$$\angle OAB + \angle OBA + \angle AOB = 180^\circ$$

$$22^\circ + 22^\circ + \angle AOB = 180^\circ \quad (\angle OAB = \angle OBA \text{ as, } OA = OB)$$

$$\angle AOB = 136^\circ$$

$$\angle COD = \angle AOB = 136^\circ \quad (\text{Vertically opposite angle})$$

$$\therefore \angle COD = 136^\circ$$

64. (3) $2 + 4 + 6 + \dots + 48$

$$S_n = \frac{4}{2}[2 \times 2 + (24 - 1)2] = 12[4 + 46]$$

$$= 12 \times 50 = 600$$

$$\therefore \text{Required average} = \frac{600 + 5 + 15 + 25 + 35 + 45}{28} = \frac{785}{28} = 25.8$$

65. (4) $\frac{\sin \theta + \cos \theta}{\sin \theta - \cos \theta} = 5$

$$\sin \theta + \cos \theta = 5 \sin \theta - 5 \cos \theta$$

$$6 \cos \theta = 4 \sin \theta$$

$$\frac{\sin \theta}{\cos \theta} = \frac{6}{4} = \frac{3}{2}$$

$$\tan \theta = \frac{3}{2} = \frac{p}{b}$$

$$h = \sqrt{3^2 + 2^2} = \sqrt{13}$$

$$\frac{4 \sin^2 \theta + 3}{2 \cos^2 \theta + 2} = \frac{4 \times \left(\frac{3}{\sqrt{13}}\right)^2 + 3}{2 \times \left(\frac{2}{\sqrt{13}}\right)^2 + 2}$$

$$= \frac{4 \times \frac{9}{13} + 3}{2 \times \frac{4}{13} + 2} = \frac{\frac{36}{13} + 3}{\frac{8}{13} + 2} = \frac{75}{34}$$

66. (2) $AC = 9 \text{ cm}$

$$AD = 9 - 3 = 6 \text{ cm}$$

$$BD = \sqrt{6 \times 3} = 3\sqrt{2} \text{ cm}$$

$$AB = \sqrt{(3\sqrt{2})^2 + 6^2} = \sqrt{18 + 36} = \sqrt{54} = 3\sqrt{6}$$

67. (2) $\sec 31^\circ = x$

$$\sin^2 59^\circ + \frac{1}{\sec^2 31^\circ} - \frac{1}{\sin^2 59^\circ \operatorname{cosec} 259^\circ}$$

$$= \sin^2(90^\circ - 31^\circ) + \frac{1}{\sec^2 31^\circ} - 1$$

$$= \cos^2 31^\circ + \frac{1}{\sec^2 31^\circ} - 1$$

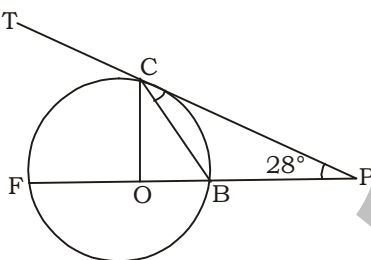
$$= \frac{1}{\sec^2 31^\circ} + \frac{1}{\sec^2 31^\circ} - 1$$

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

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

68. (1) In the year 2016 = $\left(\frac{1400-1250}{1250} \times 100\right)\% = 12\%$

69. (2)



In $\triangle OCP$,

$$\angle OCP + \angle OPT + \angle COP = 180^\circ$$

$$90^\circ + 28^\circ + \angle COP = 180^\circ$$

$$\angle COP = 180^\circ - 118^\circ = 62^\circ$$

In $\triangle OCB$,

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

$$x + x + 62^\circ = 180^\circ$$

(Let $\angle OCB = \angle OBC = x^\circ$)

$$x = \frac{180^\circ - 62^\circ}{2} = 59^\circ$$

$$\angle OCB + \angle BCP = 90^\circ$$

$$\therefore \angle BCP = 90^\circ - 59^\circ = 31^\circ$$

70. (2)

71. (3) $\left(5 - \frac{x^2}{3}\right)^3 = 125 - \frac{x^8}{27} - 3 \times 5 \times \frac{x^2}{3} \left(5 - \frac{x^2}{3}\right)$

$$= 125 - \frac{x^8}{27} - \frac{25x^2}{3} + \frac{5x^4}{3}$$

$$\therefore \text{Coefficient of } x^2 = -25$$

72. (4) $P = ₹ 12000$

Time = 18 month = $1\frac{1}{2}$ years

$R = 20\%$

$$CI = 12000 \left(1 + \frac{20}{100} \right) \left(\frac{1 + \frac{20}{2}}{100} \right) - 12000$$

$$= 12000 \times \frac{6}{5} \times \frac{11}{10} - 12000 = ₹ 3840$$

$P = ₹ 12000$

$T = 1\frac{1}{2}$ years = 3 half yearly

$R = 20\% = 10\%$ half. yearly

$$CI = 12000 \left(1 + \frac{10}{100} \right)^3 - 12000$$

$$= 12000 \times \frac{11}{10} \times \frac{11}{10} \times \frac{11}{10} - 12000 = ₹ 3972$$

$\therefore$ Required difference = $3972 - 3840 = ₹ 132$

73. (4) Marks obtained by C, D and F in science = $\frac{80}{100} \times (85 + 75 + 65) = \frac{80}{100} \times 225 = 180$

Marks obtained by B in Science, Hindi and Social Studies

$$= 80 \times \frac{75}{100} + 75 \times \frac{68}{100} + 100 \times \frac{49}{100}$$

$$= 60 + 51 + 49 = 160$$

$\therefore$ Required% = $\left(\frac{180 - 160}{160} \times 100 \right) \% = 12.5\%$

74. (2) Required difference = $(1650 + 1075 + 1280) - (2375 - 1085)$
 $= 4005 - 3460 = 545$

75. (3) $SP = ₹ 455$

Let the loss be ₹ x

ATQ,

$$455 + x = 490 - 4x$$

$$5x = 490 - 455$$

$$x = \frac{35}{5} = ₹ 7$$

$$CP = 455 + 7 = ₹ 462$$

$\therefore SP = 462 \times \frac{125}{100} = ₹ 577.50$

MEANINGS IN ALPHABETICAL ORDER

Words	Meaning in English	Meaning in Hindi
Anarchy	a state of disorder due to absence or nonrecognition of authority	अराजकता
Archaic	very old or old-fashioned	प्राचीन
Bombastic	high-sounding but with little meaning; inflated	आडंबरपूर्ण
Chauffeur	a person employed to drive a private or rented automobile	ड्राइवर
Controlled	not showing emotion; having one's feelings under control	को नियंत्रित
Excited	very enthusiastic and eager	जोश में
Exciting	causing great enthusiasm and eagerness	उत्तेजित करने वाला
Humdrum	lacking excitement or variety; dull; monotonous	नीरस
Lively	full of life and energy; active and outgoing	जीवंत
Restrained	characterized by reserve or moderation; unemotional or dispassionate	संयमित
Prediction	a thing predicted; a forecast	भविष्यवाणी
Presentation	the giving of something to someone, especially as part of a formal ceremony	प्रस्तुतीकरण
Rhetoric	the art of effective or persuasive speaking or writing, especially the use of figures of speech and other compositional techniques	बक्रपटुता

24 AUGUST (3 PM) (ANSWER KEY)

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

78. (3) Use possessive pronoun 'his' for a 'Raman'.
80. (3) Replace kept at by kept under.
84. (4) The correct spelling of Tyrany is Tyranny.
87. (2) Replace 'through' by 'to'.
91. (4) The correct of Spech is Speech.
94. (4) A collective noun takes a singular auxiliary verb.