RRB NTPC Graduate Level CBT-I Official Paper (Held On: 10 Jun, 2025 Shift 1) (Previous Year Paper)

RRB Group D • 2025 • 100 questions • 90 minutes • Answer key and solutions

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Q1. Which of the following Articles of the Constitution of India prohibits human trafficking?

(a) Article 21
(b) Article 19
(c) Article 23
(d) Article 24

Q2. What should come in place of the question mark (?) in the given series?

49 55 63 73 85 99 ?

(a) 129
(b) 115
(c) 111
(d) 120

Q3. What was the estimated capital expenditure of the Ministry of Road Transport and Highways in India for the financial year 2024-25?

(a) Rs. 1.50 lakh crore
(b) Rs. 2.72 lakh crore
(c) Rs. 2.00 lakh crore
(d) Rs. 3.00 lakh crore

Q4. Simplify the following:

47 + 49/7 + 65 - 27

(a) 65
(b) 108
(c) 116
(d) 92

Q5. C is the third proportional of 57 and B. If B is the sum of the first three even natural numbers, then find the value of C. (Rounded off to two decimal places)

(a) 1.33
(b) 0.65
(c) 0.07
(d) 2.53

Q6. UB 15 is related to SF 11 in a certain way. In the same way, IO 8 is related to GS 4. To which of the given options is EL 3 related, following the same logic?

(a) RD −7
(b) BD −9
(c) CP −1
(d) ED −5

Q7. What was the theme of the 8th Indian Ocean Conference?

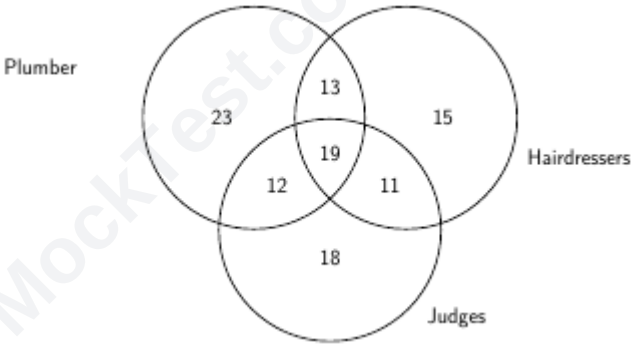
(a) Voyage to New Horizons of Maritime Partnership
(b) Sustainable Development in the Indian Ocean
(c) Maritime Security and Cooperation
(d) Blue Economy and Regional Integration

Q8. What will come in the place of the question mark (?) in the following equation, if '+' and '−' are interchanged and '×' and '÷' are interchanged?

127 ÷ 5 + 707 × 7 − 38 = ?

(a) 576
(b) 571
(c) 572
(d) 575

Q9. Study the given Venn diagram carefully and answer the question that follows.



The numbers in different sections indicate the number of persons. How many plumbers are there who are also hairdressers and judges?

(a) 19
(b) 11
(c) 23
(d) 12

Q10. In a certain code language, 'eat healthy food' is coded as 'xy zd uv' and 'food is essential' is coded as 'uv aq bc'. How is 'food' coded in the given language?

(a) aq
(b) xy
(c) zd
(d) uv

Q11. The marked price of a bed is Rs. 744, which is 31% above the cost price. If the profit percentage is 9%. Find the discount percentage. (rounded off to two decimal places)

(a) 18.65%
(b) 14.59%
(c) 15.52%
(d) 16.79%

Q12. The Utkal Plains are situated along which part of India's coastal plain?

(a) Eastern Coastal Plain
(b) Konkan Coast
(c) Western Coastal Plain
(d) Malabar Coast

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Q13. 3 Refer to the following number and symbol series and answer the question that follows. Counting to be done from left to right only.

(Left) 9 8 3 1 4 6 # 6 4 6 * % & $ @ 9 1 % 1 % # £ (Right)

How many such numbers are there each of which is immediately preceded by a number and also immediately followed by a symbol?

(a) 4
(b) 3
(c) 5
(d) 2

Q14. The Takht-i-Bahi inscription is associated with which region?

(a) Gujarat
(b) Agra
(c) Kannauj
(d) Gandhara

Q15. The 'Reclining Statue of Lord Vishnu' is found in which of the following caves?

(a) Elephanta caves
(b) Ajanta caves
(c) Ellora caves
(d) Undavalli caves

Q16. X, Y and Z invest a sum in the ratio 45 : 37 : 71 respectively. If they earned total profit of Rs. 2,790 at the end of year, then what is the difference between the share of Y and Z?

(a) Rs. 728
(b) Rs. 599
(c) Rs. 620
(d) Rs. 644

Q17. In a certain code language, ‘HEIR’ is coded as ‘2468’ and ‘EASY’ is coded as ‘1327’. What is the code for ‘E’ in the given code language?

(a) 1
(b) 7
(c) 2
(d) 4

Q18. The average of eight numbers is 124. Find the least number if it is one-sixteenth of the sum of the numbers.

(a) 64
(b) 63
(c) 62
(d) 65

Q19. For what value of k do the quadratic equations: $2x^2 - 5x + 3 = 0$ and $4x^2 - (k+1)x + 6 = 0$, have both roots common?

(a) 9
(b) 5
(c) 11
(d) 7

Q20. Which of the following letter-clusters should replace # and % so that the pattern and relationship followed between the letter-cluster pair on the left side of :: is the same as that on the right side of :: ?

: KSM :: OWQ : %

(a) = LTM, % = NVP
(b) = LTN, % = NVP
(c) = LTN, % = NUP
(d) = LTN, % = NVO

Q21. Which of the following is not an 'Avanaddha Vadya'?

(a) Dhol
(b) Tabla
(c) Damru
(d) Manjira

Q22. The first Law Commission in India was headed by _____.

(a) Lord Cornwallis
(b) Lord Hastings
(c) Lord Macaulay
(d) Sir Elijah Impey

Q23. Arijit Singh received the Padma Shri in 2025 in which of the following fields?

(a) Literature
(b) Art
(c) Sports
(d) Social Work

Q24. A group of numbers and symbols is coded using letter codes as per the codes given below and the conditions that follow. Study the given codes and conditions and answer the question that follows.

Note: If none of the conditions apply, then codes for the respective number/symbol are to be followed directly as given in the table.

Letter	F	T	E	P	A	U	X
Code	7	$	@	9	2	%	6

Conditions:

1. If the 1st letter is a vowel and the last letter is a consonant, their codes are to be interchanged.
2. If the 2nd letter is a vowel and the last letter is a consonant, both are to be coded as ‘W’.
3. If the 3rd and 4th letters are consonants, both are to be coded as the code for the 3rd letter.
4. If the 1st and 2nd letters are vowels, then both are to be coded as ‘Q’.

What will be the code for the following group? EPTFU

(a) @ 9 $ $ %
(b) @ 9 W W %
(c) @ $ $ 7 %
(d) @ 9 7 7 %

Q25. A chord AB is drawn in a circle with centre O and radius 6 cm. If the shortest distance between the centre and the chord is 4.5 cm, then find the length of chord AB.

(a) 3√7 cm
(b) 2√7 cm
(c) √7 cm
(d) 4√7 cm

Q26. Judicial review is essential to:

(a) reduce the workload of courts
(b) increase executive powers
(c) replace parliamentary sovereignty
(d) uphold the supremacy of the Constitution

Q27. Which Windows OS tool is used to change the system date and time?

(a) Device Manager
(b) File Explorer
(c) Control Panel
(d) Task Manager

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Q28. I, J, K, L, M, N and R are sitting around a circular table facing the centre of the table. K sits fourth to the right of L. Only two people sit between M and I when counted from the left of M. J sits third to the left of R. N is an immediate neighbour of R and I. How many people between K and N when counted from the left of N?

(a) Two
(b) Four
(c) One
(d) Three

Q29. Town C is to the east of Town D. Town E is to the north of Town C. Town F is to the south of Town E. Town G is to the west of Town F. Town D is to the north-east of Town G. What is the position of Town C with respect to Town F?

(a) South
(b) East
(c) West
(d) North

Q30. Jon ranked 24th from the top and 16th from the bottom in his class. How many students are there in his class?

(a) 40
(b) 38
(c) 39
(d) 37

Q31. Find the area of a regular hexagon whose side measures $16\sqrt{2}$ cm

(a) $768\sqrt{3}$ cm²
(b) $786\sqrt{3}$ cm²
(c) $876\sqrt{3}$ cm²
(d) $867\sqrt{3}$ cm²

Q32. A person saves 50% of his income. If his expenditure is Rs. 320, then his income (in Rs.) is:

(a) 600
(b) 160
(c) 680
(d) 640

Q33. The downstream speed is 41 km/hr and the upstream speed is 20.5 km/hr. It takes a boat a total of 13 hours to go to a place and come back. What is the total distance travelled by the boat?

(a) 1066/3 km
(b) 533/3 km
(c) 1086/3 km
(d) 529/4 km

Q34. Based on the English alphabetical order, three of the following four letter-cluster pairs are alike in a certain way and thus form a group. Which letter-cluster pair DOES NOT belong to that group? (Note: The odd one out is not based on the number of consonants/vowels or their position in the letter cluster)

(a) PS - NQ
(b) KN - IL
(c) EH - CF
(d) GJ - FK

Q35. Select the set in which the numbers are related in the same way as are the numbers of the following sets.

(NOTE: Operations should be performed on the whole numbers, without breaking down the numbers into their constituent digits. E.g. 13 – Operations on 13 such as adding/subtracting/multiplying to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed.)

(43, 48, 5)

(49, 70, 21)

(a) (20, 34, 14)

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(b) (45, 52, 4)
(c) (48, 71, 20)
(d) (36, 52, 13)

Q36. Which industry is closely associated with 'cluster development' and the second-largest sector in terms of job creation in India after agriculture?
(a) Automobile
(b) Textile and apparel
(c) Steel
(d) Pharmaceuticals

Q37. P, Q, R, S, T, U and V are sitting around a circular table facing the centre. R sits third to the left of Q. P sits second to the left of T. Both U and P are immediate neighbours of Q. V is not an immediate neighbour of R. How many people sit between T and U when counted from the left of T?
(a) 4
(b) 3
(c) 1
(d) 2

Q38. The synapse's effectiveness in transmitting nerve impulses is most critically determined by which of the following?
(a) The diameter of the axon
(b) The concentration of neurotransmitter and the number of receptors in the postsynaptic membrane
(c) The length of the dendritic arborisation
(d) The presence of myelin sheaths along the dendrites

Q39. In March 2025, NITI Aayog released the 'Trade Watch – Quarterly (July-September [Q2] FY25)' report. According to this report, which of the following commodities entered India's top ten imports due to rising infrastructure demand?
(a) Copper
(b) Zinc
(c) Aluminium
(d) Nickel

Q40. In 1892, the Indian National Congress passed a significant resolution at its Allahabad Session, which was a demand for the inclusion of Indians in which of the following?
(a) Provincial Assemblies
(b) Legislative Council
(c) Viceroy's Council
(d) Civil Services

Q41. Two pipes can fill a cistern, individually, in 35 min and 15 min, respectively. There is a pipe located at the bottom of the cistern to empty it. If all the three pipes are opened simultaneously, then the empty cistern gets filled in 42 min. How long will the pipe at the bottom of the cistern take to empty the completely filled cistern if no other pipe is then open?
(a) 5 min
(b) 8 min
(c) 17 min
(d) 14 min

Q42. Which transport system is most efficient in terms of energy consumption per tonne-km in India?
(a) Airways
(b) Roadways
(c) Inland waterways
(d) Railways

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Q43. What should come in place of the question mark (?) in the given series based on the English alphabetical order?
GEB IGD KIF MKH ?

(a) ONJ
(b) OMI
(c) OMJ
(d) ONI

Q44. Which Indian city is most influenced by retreating monsoon rainfall?

(a) Bhopal
(b) Chennai
(c) Jaipur
(d) Mumbai

Q45. According to the IMF's April 2025 Global Financial Stability Report, how much did global stock returns decline on average during major geopolitical risk events?

(a) 01%
(b) 3.2%
(c) 1.5%
(d) 2.5%

Q46. Which method CANNOT be used to create a new slide in MS PowerPoint 365?

(a) Pressing Ctrl + M
(b) Clicking 'New Slide' on the Home tab
(c) Right-clicking in the slide sorter pane and selecting 'New Slide'
(d) Pressing Ctrl + N

Q47. The role of the Himalayas in shaping India's climate includes all, EXCEPT which of the following?

(a) Blocking cold winds from Central Asia
(b) Acting as a barrier to southwest monsoon winds
(c) Contributing to snowfall in northern India
(d) Creating convection currents

Q48. The angle of elevation of the top of a hill from a point on the ground is 60?. If the hill is 171 m high, find the distance from the given point to the top of the hill.

(a) 114√3 m
(b) 342 m
(c) 114√2 m
(d) 171√2 m

Q49. A right triangle with sides 56 cm, 42 cm and 70 cm is rotated about the side of 56 cm to form a cone. The total surface area (in cm2) of the cone so formed is:

(a) 5760π
(b) 4704π
(c) 3446π
(d) 7056π

Q50. What will be the difference in population 3 years ago and 2 years ago of a town whose current population of 1,60,000 is increasing at a rate of 25% every year?

(a) 20,830
(b) 20,480
(c) 19,930
(d) 19,730

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Q51. Find the simple interest (in Rs.) on Rs. 900 at an interest rate of 6% per month in 12 months.

(a) 54
(b) 74
(c) 648
(d) 108

Q52. In March 2025, which day was celebrated to promote the use of generic medicines?

(a) Bharat Medicine Day
(b) Generic Drug Day
(c) Health Security Day
(d) Jan Aushadhi Diwas

Q53. Consider the following statements regarding the Five-Year Plans of India. Which of these statements is/are correct?

1. The First Five-Year Plan was based on the Harrod-Domar model and it prioritised agricultural development to address food security.

2. The Second Five-Year Plan, known as the Mahalanobis Plan, focussed on rapid industrialisation.

(a) Neither Statement 1 nor Statement 2
(b) Statement 2 only
(c) Both Statement 1 and Statement 2
(d) Statement 1 only

Q54. Which type of wave is a sound wave in air?

(a) Longitudinal
(b) Transverse
(c) Standing
(d) Electromagnetic

Q55. In a certain code language,

'A + B' means 'A is the mother of B',

'A – B' means 'A is the brother of B',

'A × B' means 'A is the wife of B' and

'A ÷ B' means 'A is the father of B'.

How is M related to Q if 'M – N + O ÷ P × Q'?

(a) Wife's father's mother's brother
(b) Wife's father's father
(c) Wife's mother's brother
(d) Wife's mother's father

Q56. Which DRDO lab conducted a successful laser weapon test in April 2025?

(a) CAIR (Centre for Artificial Intelligence & Robotics)
(b) NPOL (Naval Physical & Oceanographic Laboratory)
(c) CHESS (Centre for High Energy Systems and Sciences)
(d) ADE (Aeronautical Development Establishment)

Q57. E, X, P, A, N, and D live on six different floors of the same building. The lowermost floor is numbered as 1 and the topmost floor is numbered as 6. Only one person lives above D. Only A lives below P. E lives on an even numbered floor. X lives on a floor above D.

How many people live below N?

(a) Two
(b) One
(c) Three
(d) Zero

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Q58. M, N, O, P, Y and Z live on six different floors of the same building. The lowermost floor in the building is numbered 1, the floor above it, number 2 and so on till the topmost floor is numbered 6. O lives on an even numbered floor but not on floor number 4. Only two people live between O and Z. Y lives on an odd numbered floor but not on the lowermost floor. Only two people live between Y and M. P lives immediately below Y. How many people live between N and P?

(a) Two
(b) One
(c) Four
(d) Three

Q59. Given that 12^(0.36) = x, 12^(0.64) = y and x^z = y^4, then the value of z is close to:

(a) 6.89
(b) 9.48
(c) 7.11
(d) 5.52

Q60. The arithmetic mean of the observations 69, 60, 39, 58, 55, 31, 84, 64 and 80 is:

(a) 60
(b) 53
(c) 50
(d) 59

Q61. What happens if you paste text into MS-PowerPoint 2019 with the Keep Source Formatting option?

(a) The text is converted into an image.
(b) The text adopts the destination slide's theme fonts/colors.
(c) The text retains its original formatting from the source.
(d) The text size automatically adjusts to fit the slide.

Q62. By selling an article for Rs. 112, a man loses 30%. At what price (in Rs.) should he sell it to gain 15%?

(a) 174
(b) 194
(c) 204
(d) 184

Q63. If 'A' stands for '÷', 'B' stands for '×', 'C' stands for '+' and 'D' stands for '−', then the resultant of which of the following would be 75?

(a) 84 C 12 D 76 A 36 B 4
(b) 84 B 12 C 76 D 36 A 4
(c) 84 A 12 D 76 C 36 B 4
(d) 84 D 12 A 76 B 36 C 4

Q64. The sides of a rectangular field are 11 m and 14 m long. Its area is equal to the area of a circular field. What is the circumference (in m) of the circular field?

Take π = 22/7

(a) 79
(b) 19
(c) 85
(d) 44

Q65. In May 2025, which state / union territory Cabinet approved Rs. 3.21 crore to conduct five cloud-seeding trials for combating the air pollution?

(a) Chandigarh
(b) Haryana
(c) Bihar
(d) Delhi

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Q66. The simplified value of 139 - 15 × (11 + 4) + 52 is:

(a) -34
(b) -33
(c) -24
(d) -25

Q67. A can do a certain work at the same time in which B and C together can do it. If A and B together can do it in 7 days and C alone in 9 days, then B alone can do it in _____ days.

(a) 126
(b) 252
(c) 189
(d) 63

Q68. What should come in place of the question mark (?) in the given series?

201, 200, 197, 192, 185, ?

(a) 187
(b) 176
(c) 185
(d) 184

Q69. Who among the following was awarded with the prestigious Lifetime Achievement Award for research in Diabetes in July 2024?

(a) Jitin Prasada
(b) Pankaj Chaudhary
(c) Piyush Goyal
(d) Dr. Jitendra Singh

Q70. If you want to save a workbook in MS Excel 365 so that only viewing is allowed and editing is restricted, which feature should you use?

(a) Read Aloud
(b) Read-Only Mode
(c) Print Layout
(d) Freeze Panes

Q71. Which keyboard shortcut opens the Print dialog box in MS Excel 365?

(a) Ctrl + O
(b) Ctrl + S
(c) Ctrl + N
(d) Ctrl + P

Q72. If + means −, − means ×, × means ÷, and ÷ means +, what will come in place of the question mark (?) in the following equation?

15 – 3 ÷ 5 + 18 × 6 = ?

(a) 50
(b) 57
(c) 47
(d) 40

Q73. In the following triads, each group of letters is related to the subsequent one following a certain logic. Select from the given options, the one that follows the same logic.

GEAN - NAGE - GAEN

MAKE - EKMA - MKAE

(a) FOWL - LWFO - FWOL
(b) TURN - URTN - URNT
(c) BEAN - NABE - EABN

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(d) BOLD - BLOD - DLOB

Q74. Which of the following countries will now co-host the rescheduled 2026 Rugby League World Cup along with Australia?

(a) Tonga
(b) Samoa
(c) Fiji
(d) Papua New Guinea

Q75. Which of the following letter-clusters should replace # and % so that the pattern and relationship followed between the letter-cluster pair on the left side of :: is the same as that on the right side of :: ?

: LQT :: ZEH : %

(a) = ODW, % = OIE
(b) = OTW, % = WBE
(c) = LKO, % = WYE
(d) = OHD, % = LDK

Q76. What provision was introduced by the Sixty-fifth Amendment Act of 1990 for the welfare of Scheduled Castes and Scheduled Tribes?

(a) A single special officer
(b) A new reservation policy
(c) A multi-member National Commission
(d) A ministry for tribal affairs

Q77. Train A, running at a speed of 32 km/hr, takes 33 seconds to completely cross train B, running at 28 km/hr in the opposite direction. The length of train B is 1.5 times the length of train A. Train B crosses a bridge completely in 54 seconds. What is the length of the bridge (in m)?

(a) 90
(b) 109
(c) 154
(d) 177

Q78. What should come in place of the question mark (?) in the given series based on the English alphabetical order?

IPK PWR WDY DKF ?

(a) RMK
(b) KMR
(c) KRM
(d) RKM

Q79. Mr. Y starts from Point B and drives 4 km towards the south. He then takes a left turn, drives 7 km, turns right and drives 7 km. He then takes a left turn and drives 9 km. He takes a final left turn, drives 11 km and stops at Point A. How far (shortest distance) and towards which direction should he drive in order to reach Point B again? (All turns are 90 degree turns only unless specified.)

(a) 16 km towards the east
(b) 11 km towards the north
(c) 7 km towards the south
(d) 16 km towards the west

Q80. If $x + 1/x = 15$, then the value of $x^3 + 1/(x^3)$ is:

(a) 3267
(b) 3298
(c) 3311
(d) 3330

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Q81. After 51 litres of petrol was poured into an empty storage tank, it was still 1% empty. How much petrol (in litres, rounded off to two decimal places) must be poured into the storage tank in order to fill it?

(a) 51.52
(b) 50.52
(c) 52.05
(d) 52.52

Q82. What happens if a municipality in India is dissolved before completing its full term?

(a) The municipality ceases to exist.
(b) The previous municipal council is reinstated.
(c) The central government takes over governance.
(d) A new election must be held within 6 months

Q83. The average of first 12 natural numbers is:

(a) 7
(b) 7.5
(c) 6
(d) 6.5

Q84. Refer to the following number and symbol series and answer the question that follows. Counting to be done from left to right only.

(Left) € 3 © 3 $ % % 5 5 £ € 4 * € 3 7 5 & 8 2 5 * (Right)

How many such symbols are there each of which is immediately preceded by a number and also immediately followed by a number?

(a) 3
(b) 2
(c) 4
(d) 1

Q85. The concept of Lok Adalat draws inspiration from the _____.

(a) American arbitration system
(b) ancient Indian dispute resolution
(c) Roman legal system
(d) British jury system

Q86. After allowing a discount of 76%, the value of a ceiling fan is Rs. 3,330. If no discount is allowed, then the shopkeeper gains 50%. Find the cost price (in Rs.) of the ceiling fan.

(a) 9,247
(b) 9,252
(c) 9,248
(d) 9,250

Q87. Roots of which of the following revolts lied in the fact that the British deprived the tribals of their traditional rights over the toddy trees?

(a) Khasi Rebellion
(b) Telanga Kharia Revolt
(c) Koya revolt
(d) Manjhi Revolt

Q88. In early 2025, the Defence Research and Development Organisation (DRDO) achieved a milestone by developing a laser weapon system. What is the power output of this system?

(a) 30 kilowatts
(b) 10 kilowatts
(c) 20 kilowatts
(d) 40 kilowatts

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Q89. In November 2024, the Indian government introduced the Broadcasting Services (Regulation) Bill, 2024. Which of the following is a key feature of this bill?

(a) Abolishment of the Cable Television Networks (Regulation) Act, 1995, without replacement
(b) Complete deregulation of satellite television channels
(c) Mandatory registration of digital news broadcasters and content creators
(d) Exemption of OTT platforms from any regulatory oversight

Q90. Refer to the following number and symbol series and answer the question that follows. Counting to be done from left to right only.

(Left) 8 $ 7 & 3 Ω 9 # 1 8 £ 6 @ & % 4 6 @ * 4 5 (Right)

How many such symbols are there each of which is immediately preceded by an even number and also immediately followed by an odd number?

(a) One
(b) Three
(c) Two
(d) Four

Q91. When 1063, 2815 and 3451 are divided by the greatest number x, the remainder in each case is y. What is the value of (3x − 14y)?

(a) −65
(b) −66
(c) −60
(d) −62

Q92. Based on the English alphabetical order, three of the following four letter-clusters are alike in a certain way and thus form a group. Which letter-cluster DOES NOT belong to that group?

(Note: The odd one out is not based on the number of consonants/vowels or their position in the letter-cluster.)

(a) NVQ
(b) PXR
(c) HPK
(d) LTO

Q93. 3 years ago from now, the age of father was 30 years more than twice his son's age. After how many years, from now, will he be twice his son's age?

(a) 23
(b) 27
(c) 24
(d) 29

Q94. If 2 is added to each even digit and 1 is subtracted from each odd digit in the number 2614759, what will be the sum of the digits which are sixth from the left and first from the right in the new number thus formed?

(a) 14
(b) 10
(c) 12
(d) 6

Q95. The mean and the mode of a data set are 33.9 and 40.1, respectively. Find the median of the data, using the empirical formula. (Round off your answer to two decimal places.)

(a) 36.27
(b) 35.33
(c) 34.66
(d) 35.97

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Q96. Where are the elements such as neptunium and plutonium found?

(a) Pitchblende
(b) Granite
(c) Seawater
(d) Coal

Q97. X is directly proportional to A^2 and A is inversely proportional to Y. If X is 39 when Y is 20, find X when Y is 2.

(a) 3901
(b) 3897
(c) 3900
(d) 3902

Q98. The Tonnage Tax Scheme, seen in Union Budget 2025-26, is associated with taxing which sector?

(a) Telecom companies
(b) Digital companies
(c) Manufacturing companies
(d) Shipping activities

Q99. Who succeeded Dhruvasena?

(a) Dronasimha
(b) Shiladitya
(c) Guhasena
(d) Dharapatta

Q100. Which of the following statements regarding the National Mission on Edible Oils - Oil Palm (NMEO-OP) is/are correct?

1. A new Centrally Sponsored Scheme, namely, National Mission on Edible Oils - Oil Palm (NMEO-OP) was launched by the Government of India in 2021.

2. It aims to promote oil palm cultivation for making the country Aatma Nirbhar in edible oils with special focus on North-Eastern States and A&N Islands.

3. The Mission aims to bring additional area of 6.5 lakh ha under Oil Palm plantation in the next 5 years, from 2025-26 to 2030-31.

(a) 1, 2 and 3
(b) Only 1 and 2
(c) Only 2 and 3
(d) Only 2

ANSWER KEY

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

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SOLUTIONS

Q1. Answer: (c) Article 23

The correct answer is Article 23.

Key Points

• Article 23 of the Indian Constitution explicitly prohibits human trafficking, forced labor, and other forms of exploitation.

• This provision applies to both citizens and non-citizens, ensuring universal protection against exploitation.

• Under Article 23, acts such as begar (compulsory labor without payment) are outlawed, emphasizing dignity and equality.

• Article 23 is enforceable by law, and violations can lead to punitive actions under relevant legislations such as the Immoral Traffic (Prevention) Act, 1956.

• This article is a part of the Fundamental Rights section, which guarantees civil liberties to all individuals against state and private exploitation.

Additional Information

• Human Trafficking:

• Refers to the illegal trade of humans for exploitation such as forced labor, sexual slavery, or commercial sexual exploitation.

• Globally recognized as a serious crime and violation of human rights under international laws such as the Palermo Protocol.

• Immoral Traffic (Prevention) Act, 1956:

• A key legislation in India aimed at preventing and combating human trafficking.

• Provides measures for rescue, rehabilitation, and prosecution of offenders involved in trafficking.

• Article 24:

• Prohibits the employment of children below the age of 14 years in hazardous occupations such as factories and mines.

• Complements Article 23 by addressing exploitation specific to child labor.

• Fundamental Rights:

• Article 23 is a part of the Fundamental Rights enshrined in Part III of the Constitution.

• These rights are enforceable by the judiciary and protect against exploitation and discrimination.

Q2. Answer: (b) 115

The logic followed here is:

Thus, the Missing number is 115.

Hence, the correct answer is "Option 2".

Q3. Answer: (b) Rs. 2.72 lakh crore

The correct answer is Rs. 2.72 lakh crore.

Key Points

• The Ministry of Road Transport and Highways (MoRTH) in India had an estimated capital expenditure of Rs. 2.72 lakh crore for the financial year 2024-25.

• This allocation aimed to accelerate the construction of national highways and improve road infrastructure across the country.

• The increased budget allocation was part of the Indian government's focus on enhancing connectivity and supporting economic growth.

• The capital expenditure for MoRTH has been steadily increasing in recent years, reflecting the government's commitment to infrastructure development.

• This funding supports projects such as the Bharatmala Pariyojana, aimed at developing economic corridors and expressways.

Additional Information

• Bharatmala Pariyojana:

• A flagship program launched by the Indian government to develop highways and economic corridors across the country.

• It aims to improve freight movement, reduce travel time, and enhance overall connectivity.

• The program includes the construction of expressways, bridges, and bypasses to boost infrastructure.

• National Infrastructure Pipeline (NIP):

• The NIP is a government initiative aimed at providing world-class infrastructure across India.

• It includes projects in sectors like transportation, energy, water, and communication.

• Road infrastructure plays a significant role in the NIP, with substantial funding allocated to MoRTH projects.

• Gati Shakti Master Plan:

• Launched by the Indian government to integrate and coordinate infrastructure projects for seamless connectivity.

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• This initiative focuses on the synergy between road, rail, air, and waterways for effective logistics management.
• Public-Private Partnerships (PPP) in Road Infrastructure:
• India extensively uses PPP models for road construction and maintenance to ensure efficient project execution.
• PPP models like Build-Operate-Transfer (BOT) and Hybrid Annuity Model (HAM) are widely adopted.

Q4. Answer: (d) 92

Given:
47 + (49)/(7) + 65 - 27
Calculations:
47 + (49 ÷ 7) + 65 - 27
=> 47 + 7 + 65 - 27
=> 54 + 65 - 27
=> 119 - 27
=> 92
Therefore The correct answer is option (4).

Q5. Answer: (d) 2.53

Shortcut Trick
First three even natural numbers (B) = 2 + 4 + 6 = 12.
Third proportional C = $B^2 \div A = 12^2 \div 57$.
C = 144 ÷ 57 ≈ 2.5263...
Therefore The correct answer is 2.53.
Alternate Method
Given:
First number (A) = 57
Second number (B) = Sum of first three even natural numbers
Third proportional = C
Calculations:
=> B = 2 + 4 + 6 = 12
=> For third proportional: A/B = B/C
=> 57/12 = 12/C
=> C = (12 × 12) ÷ 57
=> C = 144 ÷ 57
=> C = 2.526315...
=> C ≈ 2.53 (Rounded off to two decimal places)
Therefore The correct answer is 2.53.
Additional Information
Third Proportional
If three quantities a, b, and c are in continued proportion (a:b = b:c), then c is called the third proportional, calculated as $c = b^2/a$.
Mean Proportional
The mean proportional between two numbers a and b is √(a × b).
Sum of First n Even Numbers
The sum of the first n even natural numbers is given by the formula n(n + 1).

Q6. Answer: (c) CP −1

The logic followed in this pattern involves a consistent alphabetical shift for the letters and an arithmetic operation for the numbers:
For 'UB 15' related to 'SF 11':
For 'IO 8' related to 'GS 4':
Applying the same logic to 'EL 3':
Thus, EL 3 is related to CP -1.
Hence, the correct answer is "Option 3".

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Q7. Answer: (a) Voyage to New Horizons of Maritime Partnership

The correct answer is Voyage to New Horizons of Maritime Partnership.

Key Points

• The theme of the 8th Indian Ocean Conference was Voyage to New Horizons of Maritime Partnership.

• The event focused on fostering collaboration among Indian Ocean Region (IOR) nations to ensure maritime security, economic growth, and sustainable development.

• It emphasized the importance of strengthening maritime partnerships for regional stability and global peace.

• The Indian Ocean Conference serves as a key platform for dialogue on geopolitical and economic challenges in the Indian Ocean Region.

• The conference brought together policymakers, academics, and industry leaders from across the globe to address pressing maritime issues.

Additional Information

• Indian Ocean Region (IOR)

• The Indian Ocean Region is a strategically significant area encompassing 38 countries bordering the Indian Ocean.

• It is vital for global trade, with nearly half of the world's container traffic passing through it.

• The region plays a crucial role in energy security, as it connects major oil-producing nations to energy-consuming markets.

• Maritime Security

• Maritime security refers to measures taken to protect seas and oceans from threats like piracy, terrorism, and illegal fishing.

• It ensures safe navigation, trade, and sustainable use of marine resources.

• Blue Economy

• The Blue Economy involves the sustainable use of ocean resources for economic growth, improved livelihoods, and ocean ecosystem health.

• Key sectors include fisheries, aquaculture, maritime transport, renewable energy, and tourism.

• Indian Ocean Conference

• The Indian Ocean Conference was first held in 2016 and has become a significant forum for discussing regional challenges.

• The conference aims to enhance cooperation among Indian Ocean states and stakeholders.

Q8. Answer: (c) 572

Given interchange rules:

• '+' and '−' are interchanged.

• '×' and '÷' are interchanged.

The given equation is:

127 ÷ 5 + 707 × 7 − 38 = ?

Replace the operators with their corresponding new meanings:

127 × 5 − 707 ÷ 7 + 38 = ?

Now, we solve the equation following the BODMAS rule:

= 127 × 5 − 707 ÷ 7 + 38

= 635 − 101 + 38

= 534 + 38

= 572

Hence, the correct answer is "Option 3".

Q9. Answer: (a) 19

The shaded part shows that the plumbers are there who are also hairdressers and judges.

Thus, the plumbers are there who are also hairdressers and judges is "19".

Hence, the correct answer is "Option 1".

Q10. Answer: (d) uv

The given code language is:

Thus, 'food' is coded as 'uv'.

Hence, the correct answer is "Option 4".

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Q11. Answer: (d) 16.79%

Shortcut Trick

Use the relation between Marked Price (MP) and Cost Price (CP): MP/CP = (100 + Profit%)/(100 − Discount%).

Given: MP is 31% above CP, so MP/CP = 131/100.

Profit% = 9%. Let Discount% be D.

131/100 = (100 + 9)/(100 − D) => 131/100 = 109/(100 − D).

100 − D = (109 × 100) ÷ 131 => 100 − D ≈ 83.206.

D = 100 − 83.206 = 16.79%.

Therefore The correct answer is 16.79%.

Alternate Method

Given: Marked Price (MP) = Rs. 744, MP = 131% of CP, Profit = 9%.

Formulas: CP = MP ÷ (1 + Markup%), SP = CP × (1 + Profit%), Discount% = (MP − SP) ÷ MP × 100.

=> Cost Price (CP) = 744 ÷ 1.31 ≈ 567.9389

=> Selling Price (SP) = CP × 1.09 ≈ 567.9389 × 1.09 ≈ 619.0534

=> Discount Amount = MP − SP = 744 − 619.0534 = 124.9466

=> Discount % = (124.9466 ÷ 744) × 100 ≈ 16.7938%

Therefore The correct answer is 16.79%.

Additional Information

Marked Price and Discount

The Marked Price is the price listed on the label. Discount is always calculated on the Marked Price: SP = MP − (Discount% of MP).

Markup Percentage

Markup is the extra amount added to the Cost Price to reach the Marked Price. Formula: Markup% = [(MP − CP) ÷ CP] × 100.

Q12. Answer: (a) Eastern Coastal Plain

The correct answer is Eastern Coastal Plain.

Key Points

• The Utkal Plains are located along the eastern coast of India, forming part of the larger Eastern Coastal Plain.

• The region lies primarily in the state of Odisha and is bordered by the Bay of Bengal to the east.

• The Utkal Plains are characterized by fertile alluvial soil, making them suitable for agriculture, particularly rice cultivation.

• This region is known for its major rivers, such as the Mahanadi, Brahmani, and Baitarani, which contribute to the area's fertility.

• Coastal features like beaches, dunes, and deltas are prominent in the Utkal Plains, shaping its unique geographical and ecological profile.

Additional Information

• Eastern Coastal Plain:

• The Eastern Coastal Plain stretches from the suburbs of West Bengal to Tamil Nadu, covering states like Odisha, Andhra Pradesh, and parts of Puducherry.

• It is broader and more fertile compared to the Western Coastal Plain, with prominent deltas like the Ganga-Brahmaputra, Mahanadi, Godavari, Krishna, and Kaveri.

• The plain is known for its rich biodiversity, including mangroves, estuaries, and lagoons such as the Chilika Lake in Odisha.

• Utkal Plains' Significance:

• The region is rich in minerals like bauxite and iron ore, fostering industrial development in Odisha.

• It is home to cultural landmarks such as the famous Jagannath Temple in Puri and the Sun Temple in Konark.

• Coastal Plains of India:

• India's coastal plains are divided into the Eastern Coastal Plain and the Western Coastal Plain.

• The Eastern Coastal Plain is wider, while the Western Coastal Plain is narrower and interrupted by the Western Ghats.

• Rivers of Odisha:

• Major rivers such as the Mahanadi, Brahmani, and Subarnarekha support agriculture and irrigation in Odisha.

• The Mahanadi River forms a vast delta before emptying into the Bay of Bengal.

Q13. Answer: (b) 3

Given series:

9 8 3 1 4 6 # 6 4 6 * % & $ @ 9 1 % 1 % # £

Condition to be checked:

Number → Number → Symbol

9 8 3 1 4 6 # 6 4 6 * % & $ @ 9 1 % 1 % # £

There are three such numbers in the above arrangement (4 6 #, 4 6 *, 9 1 %).

Hence, the correct answer is "Option 2".

Q14. Answer: (d) Gandhara

The correct answer is Gandhara.

Key Points

• The Takht-i-Bahi inscription is linked to the ancient region of Gandhara, which was located in the present-day areas of northern Pakistan and eastern Afghanistan.

• Takht-i-Bahi is a Buddhist monastic complex known for its historical and archaeological significance, recognized as a UNESCO World Heritage Site in 1980.

• The inscription and site date back to the Kushan period, reflecting the flourishing of Buddhism in Gandhara during this era.

• Gandhara was a key center for the dissemination of Buddhist art, culture, and teachings, heavily influenced by Greek and Hellenistic styles due to Alexander the Great's incursions into the region.

• Takht-i-Bahi remains one of the most well-preserved monastic complexes from the Gandhara period, providing valuable insights into ancient Buddhist practices and architecture.

Additional Information

• Gandhara Art

• Gandhara art is known for its fusion of Indian and Hellenistic influences, creating unique representations of Buddhist iconography.

• It played a significant role in the development of Buddhist sculpture, particularly the depiction of the Buddha in human form.

• The art is characterized by intricate carvings, reliefs, and statues made from stone, stucco, and clay.

• Kushan Empire

• The Kushan Empire ruled over Gandhara during the 1st-3rd centuries CE, promoting Buddhism and trade along the Silk Road.

• Kushan rulers, such as Kanishka, were instrumental in spreading Buddhism to Central Asia and China.

• UNESCO World Heritage Status

• Takht-i-Bahi was declared a UNESCO World Heritage Site in 1980 due to its historical, cultural, and architectural importance.

• The site includes stupas, monastic cells, meditation halls, and assembly areas, showcasing the monastic lifestyle of ancient Buddhist practitioners.

• Buddhist Monastic Practices

• Buddhist monasteries like Takht-i-Bahi served as centers for religious education, meditation, and community welfare.

• Monks followed strict routines of study and meditation while adhering to the teachings of the Buddha.

• Such sites were funded by local rulers, merchants, and pilgrims who supported the spread of Buddhism.

Q15. Answer: (d) Undavalli caves

The correct answer is Undavalli caves.

Key Points

• The "Reclining Statue of Lord Vishnu" is located in the Undavalli caves, situated in the Guntur district of Andhra Pradesh, India.

• This statue is a prominent example of ancient Indian rock-cut architecture, carved out of a single block of granite.

• The statue depicts Lord Vishnu in a reclining posture, also known as Anantasayana, resting on the serpent Adishesha.

• The Undavalli caves date back to the 4th-5th century CE and were originally associated with Buddhist monks before being adapted for Hindu worship.

• The caves are classified as monolithic rock-cut architecture and are considered a significant heritage site in South India.

Additional Information

• Undavalli Caves:

• The caves are a fine example of Gupta period architecture, which reflects the transition from Buddhism to Hinduism in ancient India.

• They are multi-storied caves, with the largest one containing the iconic statue of Lord Vishnu in a reclining posture.

• The caves were initially built as Buddhist monasteries and later converted into Hindu temples.

• The site is under the protection of the Archaeological Survey of India (ASI).

• Reclining Vishnu (Anantasayana):

• The posture symbolizes Lord Vishnu resting on the serpent Adishesha, representing cosmic balance and preservation.

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• It is a recurring theme in Hindu temple sculptures, signifying the sustainer of the universe.
• Rock-Cut Architecture:
• This architectural style involves carving temples, monasteries, or sculptures directly out of natural rock formations.
• Famous examples in India include the Ajanta caves, Ellora caves, and Elephanta caves.
• Other Important Caves in India:
• Ajanta Caves: Known for Buddhist frescoes and paintings.
• Ellora Caves: Famous for Hindu, Jain, and Buddhist rock-cut temples, including the Kailasa temple.
• Elephanta Caves: Located near Mumbai, showcasing Hindu Shaivite sculptures.

Q16. Answer: (c) Rs. 620

Shortcut Trick

Ratio of Investment (X : Y : Z) = 45 : 37 : 71.

Total ratio units = 45 + 37 + 71 = 153 units.

Difference between Y and Z = 71 − 37 = 34 units.

Given, 153 units = Rs. 2,790 => 1 unit = 2,790 ÷ 153 = Rs. 18.235 (approx) — Wait, checking 2790 ÷ 153: 153 × 10 = 1530; 2790 ÷ 153 = 18.235 is incorrect, let's re-calculate: 153 × 20 = 3060. 2790 ÷ 153 ≈ 18.23. Let's use unitary method: (2790 ÷ 153) × 34 = Rs. 620.

Therefore The correct answer is Rs. 620.

Alternate Method

Given → Investment Ratio X:Y:Z = 45:37:71 | Total Profit = Rs. 2,790 | Time period is same.

Formulas: Profit Share prop. to Investment × Time | Share = (Individual Ratio ÷ Total Ratio) × Total Profit.

=> Sum of ratios = 45 + 37 + 71 = 153.

=> Value of 1 unit = 2,790 ÷ 153.

=> 153 × 1 = 153; 2790 − 1530 = 1260. 153 × 18.235... (Recalculating: 2790 × 34 ÷ 153).

=> 2790 and 153 are both divisible by 9: 153 ÷ 9 = 17; 2790 ÷ 9 = 310.

=> Difference = (310 ÷ 17) × 34.

=> Difference = 310 × (34 ÷ 17) = 310 × 2 = Rs. 620.

Therefore The correct answer is Rs. 620.

Additional Information

Partnership Basics

When the time period of investment is the same for all partners, the Profit is distributed directly in the ratio of their Investments.

Variable Time Period

If time periods differ, Profit Ratio = (Capital1 × Time1) : (Capital2 × Time2).

Q17. Answer: (c) 2

The given code language is:

Thus, 'E' is coded as '2'.

Hence, the correct answer is "Option 3".

Q18. Answer: (c) 62

Shortcut Trick

Given the average of 8 numbers is 124.

Relationship: Least number = (1/16) × Total Sum.

Since Total Sum = Average × Count, we have:

Least number = (124 × 8) ÷ 16 = 124 ÷ 2 = 62.

Therefore The correct answer is 62.

Alternate Method

Given:

Average of the set = 124

Total count of numbers (n) = 8

Formula Used:

Sum of all numbers = Average × Total numbers

Calculations:

=> Sum of the eight numbers = 124 × 8

=> Sum = 992

=> According to the question, Least number = (1/16) × Sum

=> Least number = 992 ÷ 16

=> Least number = 62

Therefore The correct answer is 62.

Additional Information

Arithmetic Mean Formula

The average (Arithmetic Mean) of 'n' observations x1, x2, ..., x_n is given by (Σx_i) ÷ n.

Sum Property

If you know the average and the number of items, the total sum is always Average × Count.

Weighted Average

When two groups with averages A1 and A2 and sizes n1 and n2 are combined, the combined average is (n1A1 + n2A2) ÷ (n1 + n2).

Q19. Answer: (a) 9

Shortcut Trick

For two quadratic equations to have both roots common, the ratio of their corresponding coefficients must be equal.

Compare coefficients: 2/4 = −5/−(k+1) = 3/6

Simplify the ratios: 1/2 = 5/(k+1)

Cross-multiply: k + 1 = 10 => k = 9

Therefore The correct answer is 9.

Alternate Method

Given:

Equation 1: $2x^2 - 5x + 3 = 0$

Equation 2: $4x^2 - (k+1)x + 6 = 0$

Formula Used:

For equations $a1x^2 + b1x + c1 = 0$ and $a2x^2 + b2x + c2 = 0$ to have both roots common, the condition is:

a1/a2 = b1/b2 = c1/c2

Calculations:

Identify the coefficients from both equations:

=> a1 = 2, b1 = −5, c1 = 3

=> a2 = 4, b2 = −(k+1), c2 = 6

Applying the common root condition:

=> 2/4 = −5 / (−(k+1)) = 3/6

=> 1/2 = 5 / (k+1)

=> k + 1 = 5 × 2

=> k + 1 = 10

=> k = 10 − 1

=> k = 9

Therefore The correct answer is 9.

Additional Information

Condition for One Common Root

If two quadratic equations have only one root in common, the condition is $(c1a2 - c2a1)^2 = (a1b2 - a2b1)(b1c2 - b2c1)$.

Nature of Roots

The discriminant $D = b^2 - 4ac$ determines the nature: D > 0 (real/distinct), D = 0 (real/equal), D < 0 (imaginary/complex).

Sum and Product of Roots

For a standard quadratic equation $ax^2 + bx + c = 0$, the sum of roots is −b/a and the product of roots is c/a.

Q20. Answer: (b) = LTN, % = NVP

Given:

: KSM :: OWQ : %

Option 1) # = LTM, % = NVP

For # (LTM) to KSM

For OWQ to % (NVP)

Since the pattern for LTM to KSM (-1, -1, 0) is not the same as the pattern for OWQ to NVP (-1, -1, -1), Option 1 is incorrect.

Option 2) # = LTN, % = NVP

For # (LTN) to KSM

For OWQ to % (NVP)

Since the pattern for LTN to KSM (-1, -1, -1) is the same as the pattern for OWQ to NVP (-1, -1, -1), Option 2 is correct.

Option 3) # = LTN, % = NUP

For # (LTN) to KSM

For OWQ to % (NUP)

Since the pattern for LTN to KSM (-1, -1, -1) is not the same as the pattern for OWQ to NUP (-1, -2, -1), Option 3 is incorrect.

Option 4) # = LTN, % = NVO

For # (LTN) to KSM

For OWQ to % (NVO)

Since the pattern for LTN to KSM (-1, -1, -1) is not the same as the pattern for OWQ to NVO (-1, -1, -2), Option 4 is incorrect.

Hence, the correct answer is "Option 2".

Q21. Answer: (d) Manjira

The correct answer is Manjira.

Key Points

• Manjira is a pair of small hand cymbals, commonly used in Indian devotional and folk music.

• Manjira is classified as an Idiophone instrument, which produces sound primarily by the vibration of the instrument itself, without the use of strings or membranes.

• Unlike Avanaddha Vadya (membranophones), Manjira does not have a stretched membrane that is struck to produce sound.

• Avanaddha Vadya refers to percussion instruments like Dhol, Tabla, and Damru, which use a tightly stretched membrane to create sound when struck or played.

• Manjira is not categorized as an Avanaddha Vadya because it lacks the defining characteristic of a stretched membrane.

Additional Information

• Avanaddha Vadya:

• These are percussion instruments that produce sound by striking a stretched membrane.

• Examples include Tabla, Dhol, Damru, Mridangam, and Pakhawaj.

• They are an integral part of Indian classical and folk music.

• Idiophones:

• Instruments that produce sound by vibrating themselves, without the use of strings or membranes.

• Examples include Manjira, Ghungroo, and Jal Tarang.

• They are primarily used in folk and devotional music in India.

• Membranophones vs. Idiophones:

• Membranophones (like Tabla) use a stretched membrane for sound production, while Idiophones (like Manjira) rely on the material of the instrument itself.

• These classifications are part of the Hornbostel-Sachs system of musical instrument categorization.

• Manjira in Indian Music:

• Manjira is often used in bhajans, kirtans, and traditional folk dances.

• Its bright, metallic sound complements vocals and other instruments in devotional settings.

Q22. Answer: (c) Lord Macaulay

The correct answer is Lord Macaulay.

Key Points

• The first Law Commission in India was established in 1834 under the Charter Act of 1833.

• Lord Thomas Babington Macaulay was appointed as the Chairman of the First Law Commission.

• The Commission was tasked with codifying Indian laws and making them uniform across the country.

• One of its significant achievements was the drafting of the Indian Penal Code (IPC), which was later enacted in 1860.

• The work done by the Law Commission under Macaulay laid the foundation for the modernization of the Indian legal system.

Additional Information

• Charter Act of 1833:

• This Act was a landmark legislation by the British Parliament that centralized legislative authority in India.

• It marked the beginning of law codification in India and led to the formation of the First Law Commission.

• The Act also abolished the East India Company's monopoly on trade.

• Indian Penal Code (IPC):

• The IPC was drafted by the First Law Commission under Lord Macaulay's leadership.

• It serves as the primary criminal code for India, covering offenses and their punishments.

• Enacted in 1860, it has undergone several amendments but remains a cornerstone of Indian criminal law.

• Law Commission of India:

• It is an executive body established by the Government of India to recommend legal reforms.

• The Commission was first formed during British rule and continues to function in post-independence India.

• It is reconstituted every few years to study specific legal issues and suggest amendments or new laws.

• Lord Macaulay's Contribution:

• Besides legal reforms, Macaulay is known for his role in introducing English education in India.

• His famous "Minute on Education" argued for the promotion of English as the medium of instruction.

• He played a critical role in shaping the administrative and legal landscape during British rule in India.

Q23. Answer: (b) Art

The correct answer is Art.

Key Points

• Arijit Singh, one of India's most acclaimed playback singers, was awarded the Padma Shri in 2025 for his contributions to the field of Art.

• The Padma Shri is the fourth-highest civilian award in India, granted for distinguished contributions across various fields such as art, literature, sports, and social work.

• Arijit Singh is renowned for his soulful voice and versatility in singing, contributing significantly to Indian music and Bollywood soundtracks.

• His popular songs include "Tum Hi Ho," "Channa Mereya," and "Ae Dil Hai Mushkil," which have earned him widespread recognition and numerous awards.

• The recognition underscores his role in elevating Indian music on both national and international platforms.

Additional Information

• Padma Awards:

• Instituted in 1954, the Padma Awards are among the highest civilian honors in India.

• They are categorized into three levels: Padma Vibhushan (highest), Padma Bhushan, and Padma Shri.

• Awarded in various disciplines such as art, literature, science, social work, and public affairs.

• The awards are announced annually on Republic Day (January 26).

• Contributions to Art:

• Art encompasses various forms like music, dance, painting, sculpture, and cinema.

• Artists play a vital role in preserving cultural heritage and fostering creativity.

• Recognition through awards like the Padma Shri encourages individuals to excel in their artistic pursuits.

• Arijit Singh's Impact:

• Arijit Singh's music resonates with diverse audiences due to its emotional depth and technical brilliance.

• He has received numerous awards including Filmfare Awards and IIFA Awards for Best Playback Singer.

• His work spans various genres, from romantic ballads to upbeat tracks, showcasing his versatility.

• Bollywood Music Industry:

• Bollywood music is integral to Indian cinema, often driving its popularity and success.

• Playback singers like Arijit Singh play a pivotal role in shaping the musical landscape of films.

• The industry has produced globally recognized talent, contributing to India's soft power.

Q24. Answer: (a) @ 9 $ $ %

Letter	F	T	E	P	A	U	X
Code	7	$	@	9	2	%	6

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Given- E P T F U

Rule No. (1): This condition does not apply because the last letter (U) is a vowel, not a consonant.

Rule No. (2): This condition does not apply because the 2nd letter (P) is a consonant, not a vowel.

Rule No. (3): This condition applies because the 3rd letter (T) is a consonant and the 4th letter (F) is also a consonant. So, both will be coded as the code for the 3rd letter (T).

Rule No. (4): This condition does not apply because the 2nd letter (P) is a consonant, not a vowel.

Based on the applicable rule (3), the 3rd and 4th elements will be coded as the code for the 3rd letter.

The code for E is @.

The code for P is 9.

The code for T is $.

So, T will be coded as $.

The code for F is 7.

But, due to rule (3), F will also be coded as $ (the code for T).

The code for U is %.

Thus, 'E P T F U' is coded as → @ 9 $ $ %.

Hence, the correct answer is "Option 1".

Q25. Answer: (a) 3√7 cm

Shortcut Trick

Length of chord AB = 2 × √(Radius² − Distance²)

=> AB = 2 × √(6² − 4.5²)

=> AB = 2 × √(36 − 20.25)

=> AB = 2 × √15.75 = 2 × √(63/4)

=> AB = 2 × (3√7 / 2) = 3√7 cm

Therefore The correct answer is 3√7 cm.

Alternate Method

Given: Radius (OA) = 6 cm, Shortest distance (OM) = 4.5 cm.

Formula Used: In a right-angled triangle, Hypotenuse² = Base² + Perpendicular².

In right-angled triangle OMA, where M is the midpoint of chord AB:

=> $OA^2 = OM^2 + AM^2$

=> $6^2 = 4.5^2 + AM^2$

=> $36 = 20.25 + AM^2$

=> $AM^2 = 36 - 20.25 = 15.75$

=> AM = √15.75 = √(63/4) = 3√7 / 2 cm

Since the perpendicular from the centre bisects the chord:

=> AB = 2 × AM

=> AB = 2 × (3√7 / 2) = 3√7 cm

Therefore The correct answer is 3√7 cm.

Additional Information

Perpendicular Bisector Property

The perpendicular drawn from the centre of a circle to a chord always bisects the chord into two equal parts.

Pythagorean Relation in Circles

For any circle, the radius (r), the distance from the centre (d), and the chord length (L) are related by: $r^2 = d^2 + (L/2)^2$.

Shortest Distance

The shortest distance between a point (centre) and a line (chord) is always the perpendicular distance.

Q26. Answer: (d) uphold the supremacy of the Constitution

The correct answer is uphold the supremacy of the Constitution.

Key Points

• Judicial review is a mechanism to ensure that laws and executive actions comply with the provisions of the Constitution, thereby upholding its supremacy.

• It empowers the judiciary to invalidate laws or actions by the legislature and executive if they violate constitutional principles.

• The concept of judicial review is derived from the principle of the separation of powers and checks and balances in governance.

• Judicial review safeguards fundamental rights and ensures accountability of the government to constitutional norms.
• This principle is integral to democratic governance and prevents arbitrary use of power by any branch of the government.

Additional Information

• Judicial Review:
• The term refers to the authority of the courts to examine the constitutionality of legislative acts and executive decisions.
• Judicial review originated in the United States through the landmark case Marbury v. Madison (1803).
• In India, judicial review is an essential feature of the Constitution under Articles 13, 32, and 226.
• It is a part of the basic structure doctrine established by the Supreme Court in the Keshavananda Bharati case (1973).
• Supremacy of the Constitution:
• The Constitution is the highest legal authority in India, and all laws and actions must conform to it.
• Article 141 ensures that judgments of the Supreme Court are binding on all courts in India.
• The concept reinforces the rule of law and prevents autocratic governance.
• Separation of Powers:
• It is a governance principle dividing powers among the legislature, executive, and judiciary.
• Judicial review acts as a check on the legislature and executive to maintain balance.
• Fundamental Rights:
• Judicial review ensures protection against violations of fundamental rights enshrined under Part III of the Constitution.
• Examples include the right to equality, freedom of speech, and protection against discrimination.

Q27. Answer: (c) Control Panel

The correct answer is Control Panel.

Key Points

• The Control Panel in Windows OS is a centralized interface for managing system settings and configurations, including date and time changes.
• To change the system date and time, users can navigate to Control Panel > Date and Time > Change Date and Time.
• The Date and Time settings allow users to adjust the system clock, time zone, and synchronization settings with internet time servers.
• Control Panel has been a core feature in Windows OS since its early versions, providing access to hardware, software, and user account management tools.
• In newer Windows versions (e.g., Windows 10/11), date and time settings can also be accessed through the Settings app, but Control Panel remains a legacy tool for advanced configurations.

Additional Information

• Device Manager:
• This tool is used to manage hardware devices connected to the system.
• It allows users to update drivers, disable/enable devices, and troubleshoot hardware issues.
• File Explorer:
• A file management tool used to browse, organize, and manage files and folders on the system.
• It does not provide access to system settings like date and time.
• Task Manager:
• Primarily used for monitoring system performance, managing running processes, and controlling startup programs.
• It does not offer options to modify system settings like date and time.
• Settings App:
• Introduced in Windows 8 and improved in Windows 10/11, it provides a modern interface for managing system configurations.
• It includes a section for Date and Time settings, offering a streamlined alternative to the legacy Control Panel.

Q28. Answer: (b) Four

Given: I, J, K, L, M, N and R are sitting around a circular table facing the centre of the table.

K sits fourth to the right of L, N is an immediate neighbour of R and I. Only two people sit between M and I when counted from the left of M.

J sits third to the left of R. N is an immediate neighbour of R and I.

Thus, Only 4 people between K and N when counted from the left of N.

Hence, the correct answer is "Option 2".

Q29. Answer: (d) North

Given:

Town C is to the east of Town D.

Town E is to the north of Town C.

Town F is to the south of Town E.

Town G is to the west of Town F.

Town D is to the north-east of Town G

Thus, the position of Town C with respect to Town F is North.

Hence, the correct answer is "Option 4".

Q30. Answer: (c) 39

Given:

Jon's rank from the top = 24th.

Jon's rank from the bottom = 16th.

Total persons = (Rank from Top) + (Rank from Bottom) - 1

Total students = 24 + 16 - 1

= 40 - 1

= 39

Thus, there are 39 students in the class.

Hence, the correct answer is "Option 3".

Q31. Answer: (a) 768√3 cm²

Shortcut Trick

Area of Regular Hexagon = 6 × (Area of equilateral triangle)

Area = 1.5 × √3 × side²

Area = 1.5 × √3 × (16√2)² = 1.5 × √3 × 512

Area = 768√3 cm²

Therefore The correct answer is 768√3 cm².

Alternate Method

Given: Side (a) of regular hexagon = 16√2 cm

Formula Used: Area = [3√3 ÷ 2] × a²

=> Area = [3√3 ÷ 2] × (16√2)²

=> Area = [3√3 ÷ 2] × (256 × 2)

=> Area = [3√3 ÷ 2] × 512

=> Area = 3√3 × 256

=> Area = 768√3 cm²

Therefore The correct answer is 768√3 cm².

Additional Information

Properties of Regular Hexagon

A regular hexagon consists of 6 equilateral triangles. All internal angles are 120° and the sum of interior angles is 720°.

Perimeter of Hexagon

The perimeter of a regular hexagon with side a is given by the formula P = 6a.

Inradius and Circumradius

Circumradius (R) = a and Inradius (r) = (√3 ÷ 2) × a.

Q32. Answer: (d) 640

Shortcut Trick

Savings = 50% → Expenditure = 100% − 50% = 50%.

Since Savings = Expenditure, then 50% = Rs. 320.

Total Income (100%) = 320 × 2 = Rs. 640.

Therefore The correct answer is Rs. 640.

Alternate Method

Given:

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Savings Percentage = 50%
Expenditure = Rs. 320
Formula Used:
Income = Expenditure + Savings
Calculations:
=> Let the Total Income be x.
=> Savings = 50% of x = 0.5x
=> Expenditure = Income − Savings
=> 320 = x − 0.5x
=> 0.5x = 320
=> x = 320 ÷ 0.5
=> x = 640
Therefore The correct answer is Rs. 640.
Additional Information
Percentage Change
Income change can be calculated using the formula: % Change = (New Value − Old Value) ÷ Old Value × 100.
Base Value Concept
In income problems, the Total Income is always considered as the base (100%) for calculations of savings and expenditure.
Successive Percentage
If income increases by a% and then b%, effective increase = (a + b + ab/100)%.

Q33. Answer: (a) 1066/3 km

Shortcut Trick
Total distance = 2 × [(Downstream Speed × Upstream Speed) ÷ (Downstream Speed + Upstream Speed)] × Total Time
Total distance = 2 × [(41 × 20.5) ÷ (41 + 20.5)] × 13
Total distance = 2 × [(41 × 20.5) ÷ 61.5] × 13 = 2 × (41 ÷ 3) × 13
Total distance = 1066/3 km
Therefore The correct answer is 1066/3 km.
Alternate Method
Given:
Downstream Speed (u) = 41 km/hr
Upstream Speed (v) = 20.5 km/hr
Total Time (T) = 13 hours
Formula Used:
Time = Distance ÷ Speed
Total Distance = 2 × One-way Distance (D)
Calculations:
=> Total Time = (D ÷ u) + (D ÷ v)
=> 13 = (D ÷ 41) + (D ÷ 20.5)
=> 13 = (D + 2D) ÷ 41
=> 13 = 3D ÷ 41
=> 3D = 13 × 41 = 533
=> D = 533/3 km
=> Total distance travelled = 2 × D = 2 × (533/3)
=> Total distance = 1066/3 km
Therefore The correct answer is 1066/3 km.
Additional Information
Speed of Boat and Stream
Speed of boat in still water (x) = (Downstream + Upstream) ÷ 2. Speed of stream (y) = (Downstream − Upstream) ÷ 2.
Average Speed for Round Trip
Average Speed = (2 × u × v) ÷ (u + v). Total Distance = Average Speed × Total Time.
Relative Speed in Water

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Downstream speed = Speed of boat + Speed of current. Upstream speed = Speed of boat − Speed of current.

Q34. Answer: (d) GJ - FK

The logic followed here is.

Option (1) 'PS - NQ':

Option (2) 'KN - IL':

Option (3) 'EH - CF':

Option (4) 'GJ - FK':

Hence, the correct answer is "Option 4".

Q35. Answer: (a) (20, 34, 14)

The logic followed here is:

Logic: 3rd number = 2nd number - 1st number.

For, (43, 48, 5)

=> 48 - 43 = 5.

For, (49, 70, 21)

=> 70 - 49 = 21.

Option 1) (20, 34, 14)

=> 34 - 20 = 14.

Here, logic followed.

Option 2) (45, 52, 4)

=> 52 - 45 = 7 ≠ 4.

Here, logic not followed.

Option 3) (48, 71, 20)

=> 71 - 48 = 23 ≠ 20.

Here, logic not followed.

Option 4) (36, 52, 13)

=> 52 - 36 = 16 ≠ 13.

Here, logic not followed.

Hence, the correct answer is "Option 1".

Q36. Answer: (b) Textile and apparel

The correct answer is Textile and Apparel.

Key Points

• The textile and apparel industry is the second-largest sector in India in terms of job creation, after agriculture.

• Cluster development is a widely used strategy in this sector to promote competitiveness and regional specialization.

• The Indian textile and apparel industry contributes significantly to the GDP, export earnings, and employment generation.

• India is one of the world's largest producers of textiles and garments, with a strong presence in cotton, silk, and jute production.

• The industry is highly labor-intensive, employing over 45 million people directly and around 60 million indirectly.

Additional Information

• Cluster Development

• Cluster development involves grouping enterprises within a specific geographic location to promote shared resources, collaboration, and innovation.

• It enhances productivity, competitiveness, and economies of scale for small and medium enterprises (SMEs).

• This approach is particularly effective in labor-intensive industries like textiles and apparel.

• Contribution to Exports

• The textile and apparel industry accounts for approximately 12% of India’s total export earnings.

• India is a leading exporter of cotton textiles, garments, and home furnishings globally.

• Government Initiatives

• Programs like Integrated Textile Parks and Technology Upgradation Fund Scheme (TUFS) aim to support the industry.

• The National Technical Textiles Mission was launched to enhance the use of technical textiles in India.

• Employment Generation

• The textile sector is a major source of employment, providing jobs to millions, particularly women in rural areas.

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• It plays a critical role in poverty alleviation and rural development in India.

Q37. Answer: (b) 3

Given: P, Q, R, S, T, U and V are sitting around a circular table facing the centre.

R sits third to the left of Q. P sits second to the left of T.

Both U and P are immediate neighbours of Q. V is not an immediate neighbour of R.

Thus, Only 3 people sit between T and U when counted from the left of T

Hence, the correct answer is "option 2".

Q38. Answer: (b) The concentration of neurotransmitter and the number of receptors in the postsynaptic membrane

The correct answer is The concentration of neurotransmitter and the number of receptors in the postsynaptic membrane.

Key Points

• The synaptic transmission is critically dependent on the concentration of neurotransmitters released by the presynaptic neuron into the synaptic cleft.

• The number and sensitivity of receptors on the postsynaptic membrane determine how effectively the neurotransmitter can bind and initiate a response.

• Neurotransmitter availability is regulated by mechanisms such as reuptake, enzymatic degradation, and diffusion, which directly influence synaptic effectiveness.

• Higher receptor density on the postsynaptic membrane enhances signal transmission, while receptor downregulation can reduce synaptic efficiency.

• Synaptic plasticity, including changes in receptor number and neurotransmitter concentration, is fundamental to learning and memory processes.

Additional Information

• Neurotransmitter:

• Neurotransmitters are chemical messengers released by neurons to transmit signals across a synapse to another neuron, muscle cell, or gland cell.

• Examples include dopamine, serotonin, acetylcholine, and glutamate.

• They can be excitatory (promote action potential) or inhibitory (reduce action potential).

• Postsynaptic Receptors:

• Receptors on the postsynaptic membrane can be ionotropic (directly linked to ion channels) or metabotropic (indirectly linked through second messengers).

• The binding of neurotransmitters to these receptors initiates various cellular responses.

• Synaptic Plasticity:

• Synaptic plasticity refers to the ability of synapses to strengthen or weaken over time, based on activity levels.

• It plays a crucial role in learning, memory, and adaptive neural responses.

• Reuptake and Enzymatic Degradation:

• Reuptake involves the removal of neurotransmitters from the synaptic cleft by transporter proteins.

• Enzymatic degradation breaks down neurotransmitters to terminate their activity in the synaptic cleft.

Q39. Answer: (a) Copper

The correct answer is Copper.

Key Points

• According to the NITI Aayog's 'Trade Watch – Quarterly (July-September [Q2] FY25)' report, copper entered India’s top ten imports due to increased infrastructure demand.

• Copper is widely used in construction, electrical wiring, and industrial applications, making it critical for infrastructure projects.

• The global demand for copper has surged due to its use in renewable energy systems, such as solar panels and wind turbines, aligning with India's green energy goals.

• India's domestic copper production has declined in recent years, prompting higher imports to meet growing infrastructure needs.

• The report highlights that India's focus on urbanization and industrial expansion has contributed to the increased demand for copper imports.

Additional Information

• Copper and Infrastructure Development

• Copper is a highly conductive metal used extensively in electrical systems, including power transmission and distribution.

• It is a preferred material for plumbing, roofing, and cladding in construction projects.

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• The rising demand for energy-efficient solutions has further increased copper usage in electric vehicles (EVs) and renewable energy projects.

• India's Copper Industry

• India has witnessed a decline in domestic copper production since the closure of Sterlite Copper's smelter in 2018, leading to increased reliance on imports.

• Major copper-consuming industries in India include power, construction, and transportation.

• India imports copper from countries like Chile, Japan, and China to meet domestic requirements.

• Global Copper Demand Trends

• The global push towards decarbonization and renewable energy has significantly increased copper demand.

• Electric vehicles use approximately four times more copper than traditional vehicles, further driving demand.

• Copper is essential for developing smart grids and advanced infrastructure systems worldwide.

• Trade and Economic Implications

• Increased imports of copper may widen India's trade deficit in the short term.

• Strategic investments in domestic copper production and recycling could reduce dependency on imports.

• The rise in infrastructure projects is expected to boost economic growth despite higher import costs.

Q40. Answer: (b) Legislative Council

The correct answer is Legislative Council.

Key Points

• In 1892, during the Allahabad Session of the Indian National Congress, a resolution was passed demanding increased representation of Indians in the Legislative Council.

• The resolution was part of the early phase of the Congress, which focused on constitutional reforms and political representation.

• The demands aimed at ensuring that Indians had a voice in the governance of the country under British rule.

• This resolution marked a significant step in the gradual evolution of the Indian National Congress's political objectives.

• Such demands eventually laid the groundwork for subsequent reforms like the Indian Councils Act of 1892, which allowed limited Indian participation in the legislative process.

Additional Information

• Indian Councils Act of 1892

• The Indian Councils Act of 1892 was an important legislative reform introduced by the British government.

• It expanded the powers of Legislative Councils, allowing members to ask questions on the budget and other public matters.

• While the Act was limited in scope, it was a small step toward involving Indians in governance.

• Indian National Congress (INC)

• The INC was founded in 1885 by Allan Octavian Hume, Dadabhai Naoroji, and Dinshaw Wacha.

• In its early years, the Congress focused on moderate demands, such as representation in councils and administrative reforms.

• Allahabad Session of 1892

• This session reflected the growing demand for political rights among Indians.

• It highlighted the role of the Congress in articulating constitutional demands during the pre-Gandhian era.

• Viceroy's Legislative Council

• Under British rule, the Viceroy's Legislative Council was the primary legislative body.

• Indians were initially excluded but were gradually allowed limited participation following persistent demands.

Q41. Answer: (d) 14 min

Shortcut Trick

Let the pipes be A, B and C (waste pipe).

Total Work (LCM of 35, 15, 42) = 210 units.

Efficiency: A = 6, B = 14, A + B − C = 5.

Efficiency of Waste Pipe C = (6 + 14) − 5 = 15 units/min.

Time taken by C to empty = 210 ÷ 15 = 14 min.

Therefore The correct answer is 14 min.

Alternate Method

Pipe	Time (min)	Total Work	Efficiency
A (Filling)	35	210	6

B (Filling)	15	14	
A + B − C	42	5	

=> Let efficiency of emptying pipe be C.

=> Total efficiency = Efficiency of A + Efficiency of B − Efficiency of C

=> 5 = 6 + 14 − C

=> 5 = 20 − C

=> C = 20 − 5 = 15 units/min

=> Time taken by pipe C to empty the cistern = Total Work ÷ Efficiency of C

=> Time = 210 ÷ 15 = 14 min

Therefore The correct answer is 14 min.

Additional Information

Net Efficiency Concept

For a cistern with inlet and outlet pipes, Net efficiency = ∑(Inlet efficiencies) − ∑(Outlet efficiencies). If net efficiency is positive, the tank fills; if negative, the tank empties.

Time and Work Relation

Time taken to complete a task is inversely proportional to efficiency: Time = Total Work ÷ Efficiency. In pipes and cisterns, capacity of the tank acts as the Total Work.

Q42. Answer: (c) Inland waterways

The correct answer is Inland waterways.

Key Points

• Inland waterways are the most energy-efficient mode of transport in India in terms of energy consumption per tonne-km.

• This mode of transport consumes significantly less fuel compared to roadways, railways, and airways, making it environmentally friendly and cost-effective.

• India has a vast network of rivers and canals that are utilized for inland waterway transport, with major waterways designated under the National Waterways Act, 2016.

• Waterways are particularly suitable for transporting heavy goods such as coal, iron ore, and cement, which are not time-sensitive.

• The Inland Waterways Authority of India (IWAI) is responsible for developing and regulating inland waterways in the country.

Additional Information

• Energy Efficiency in Transport:

• Energy consumption per tonne-km is a critical metric for evaluating the efficiency of transport systems.

• Inland waterways use less fuel per tonne-km compared to roadways and railways, making them the most efficient mode of transport.

• National Waterways:

• India has five major National Waterways (NW1 to NW5) under active development for cargo and passenger transport.

• NW1 (Ganga River) and NW2 (Brahmaputra River) are the most prominent waterways.

• Challenges of Inland Waterways:

• Infrastructure development, dredging, and maintaining navigable depth are key challenges.

• Seasonal variations in water levels can impact operations.

• Advantages of Inland Waterways:

• Reduces road congestion and air pollution.

• Lower operating costs make it ideal for bulk goods transport.

• Promotes sustainable and eco-friendly logistics solutions.

Q43. Answer: (c) OMJ

The logic followed here is:

Thus, 'OMJ' will be the next in the series.

Hence, the correct answer is "Option 3".

Q44. Answer: (b) Chennai

The correct answer is Chennai.

Key Points

• Chennai, located on the southeastern coast of India, receives significant rainfall during the retreating monsoon season (October to December).

• The retreating monsoon (also known as the Northeast Monsoon) is characterized by winds blowing from the northeast direction, bringing rainfall to Tamil Nadu and adjoining areas.

• Unlike most parts of India, which receive rainfall during the Southwest Monsoon (June to September), Tamil Nadu, particularly Chennai, relies heavily on the retreating monsoon for its annual rainfall.

• Chennai experiences cyclonic activity in the Bay of Bengal during this period, contributing to intense and sudden rainfall events.

• Nearly 48% of Tamil Nadu's annual rainfall is attributed to the retreating monsoon, with Chennai being a significant beneficiary.

Additional Information

• Southwest vs. Northeast Monsoon:

• The Southwest Monsoon (June-September) brings rainfall to most parts of India, while the Northeast Monsoon (October-December) predominantly affects Tamil Nadu, coastal Andhra Pradesh, and parts of Kerala and Karnataka.

• The Southwest Monsoon is driven by southwesterly winds, whereas the Northeast Monsoon is powered by northeasterly winds.

• Role of Bay of Bengal:

• The Bay of Bengal plays a critical role during the retreating monsoon, as cyclonic storms often form here, intensifying rainfall along the southeastern coast of India.

• Chennai frequently experiences heavy downpours due to depressions or cyclones originating in the Bay of Bengal.

• Climate of Tamil Nadu:

• Tamil Nadu has a tropical climate, and the retreating monsoon is vital for agriculture, water resources, and drinking water supply in the region.

• The state's dependency on the Northeast Monsoon makes it unique compared to other Indian states.

• Terminology:

• Retreating Monsoon: The period when monsoon winds retreat southward, starting from northern India and moving towards the Bay of Bengal.

• Northeast Monsoon: Another term for the retreating monsoon, specifically referring to the rainfall caused by northeasterly winds.

Q45. Answer: (a) 01%

The correct answer is 01%.

Key Points

• According to the IMF's April 2025 Global Financial Stability Report, global stock returns declined on average by 01% during major geopolitical risk events.

• Major geopolitical risk events often trigger uncertainty in financial markets, leading to a decline in investor confidence.

• This 01% decline is an average value, indicating the general sensitivity of global stock markets to geopolitical events.

• Such declines are often short-term, but they highlight the interconnectedness of global financial markets with geopolitical stability.

• The report emphasizes the need for robust risk management strategies to mitigate the impact of such events on financial stability.

Additional Information

• Geopolitical Risk:

• Geopolitical risk refers to the uncertainty or instability caused by political events, conflicts, or policy changes that impact global markets.

• Examples of geopolitical events include wars, trade disputes, sanctions, and political upheavals.

• IMF Global Financial Stability Report:

• This biannual report assesses the stability of global financial markets and highlights key risks and vulnerabilities.

• It provides insights into macroeconomic policies, financial market developments, and emerging trends.

• Impact of Geopolitical Risks on Markets:

• Geopolitical risks can lead to fluctuations in stock markets, currency values, and commodity prices.

• They often affect investor sentiment, leading to reduced capital flows and increased market volatility.

• Risk Mitigation Strategies:

• To counter the effects of geopolitical risks, investors and policymakers use strategies such as diversification, hedging, and regulatory reforms.

• Central banks and governments often intervene to stabilize markets during periods of heightened geopolitical risks.

Q46. Answer: (d) Pressing Ctrl + N

The correct answer is Pressing Ctrl + N.

Key Points

• Pressing Ctrl + N in MS PowerPoint creates a new presentation, not a new slide within an existing presentation.

• To add a new slide in MS PowerPoint, you can use Ctrl + M, which is a shortcut specifically for creating new slides.

• The 'New Slide' option located under the Home tab on the ribbon allows users to add a new slide to the presentation.

• Right-clicking within the slide sorter pane and selecting 'New Slide' is a valid method to add new slides.

• Ctrl + N is often confused with commands for adding slides but is exclusively intended for creating a brand new presentation file.

Additional Information

• Slide Shortcuts in MS PowerPoint:

• Ctrl + M: Adds a new slide to the current presentation.

• Ctrl + D: Duplicates the currently selected slide.

• Ctrl + Shift + Up/Down: Moves slides within the slide sorter pane.

• Understanding Ctrl + N:

• Function: Used to create a new presentation in MS PowerPoint, not a new slide.

• It is also applicable in other Microsoft Office applications, such as Word and Excel, to create new documents or workbooks.

• Slide Sorter Pane:

• Located on the left side of the PowerPoint interface, it displays a thumbnail view of all slides.

• Allows users to rearrange slides, delete slides, or add new slides by right-clicking.

• Ribbon Interface:

• The ribbon is the toolbar at the top of MS PowerPoint containing tabs such as Home, Insert, Design, etc.

• The 'New Slide' option under the Home tab is one of the most commonly used methods to add slides.

Q47. Answer: (d) Creating convection currents

The correct answer is Creating convection currents.

Key Points

• The Himalayas act as a natural barrier that blocks the cold winds from Central Asia, preventing extreme cold conditions in northern India during winters.

• They obstruct the southwest monsoon winds, forcing them to shed moisture, which results in heavy rainfall in the Indian subcontinent.

• The Himalayan peaks contribute to snowfall in northern India, especially in regions like Himachal Pradesh, Jammu & Kashmir, and Uttarakhand.

• While the Himalayas influence wind movement and precipitation, they do not directly create convection currents, which are primarily a result of temperature differentials between the Earth's surface and the atmosphere.

Additional Information

• Himalayas' Role in Climate:

• The Himalayas influence India's climate by forming a barrier that blocks cold winds and traps warm air.

• They play a significant role in the monsoon system by obstructing monsoon winds and causing orographic rainfall.

• Convection Currents:

• These are vertical movements of air or fluids caused by temperature differences.

• They are a key mechanism in atmospheric and oceanic circulations but are not directly tied to the Himalayas' role in India's climate.

• Orographic Rainfall:

• This occurs when moist air ascends a mountain range, cools, and condenses, leading to rainfall.

• The Himalayas play a crucial role in causing orographic rainfall during the southwest monsoon season.

• Natural Climate Barrier:

• The Himalayas protect the Indian subcontinent from the cold Siberian winds, maintaining a relatively warmer climate in northern India.

Q48. Answer: (a) 114√3 m

Shortcut Trick

In a 30°−60°−90° triangle, the ratio of sides opposite to the angles is 1 : √3 : 2.

Side opposite to 60° (Height) → √3 units = 171 m.

Side opposite to 90° (Hypotenuse/Distance to top) → 2 units.

Value of 1 unit = 171/√3 = 57√3 m.

Value of 2 units = 2 × 57√3 = 114√3 m.

Therefore The correct answer is 114√3 m.

Alternate Method

Given:

Height of hill (AB) = 171 m

Angle of elevation (θ) = 60°

Formula used: sin θ = Perpendicular / Hypotenuse

=> sin 60° = Height / Distance to top

=> √3 / 2 = 171 / d

=> d = (171 × 2) / √3

=> d = 342 / √3

=> d = (342 × √3) / 3

=> d = 114√3 m

Therefore The correct answer is 114√3 m.

Additional Information

Trigonometric Ratios

For a right-angled triangle, sin θ = P/H, cos θ = B/H, and tan θ = P/B. These are essential for finding heights and distances.

Standard Values

Important values: sin 60° = √3/2, cos 60° = 1/2, and tan 60° = √3.

Angle of Elevation vs Depression

The Angle of Elevation is measured upwards from the horizontal, while the Angle of Depression is measured downwards. Numerically, they are equal due to alternate interior angles.

Q49. Answer: (b) 4704π

Shortcut Trick

When a right triangle is rotated about a side, that side becomes the height (h) and the other perpendicular side becomes the radius (r).

Rotation about 56 cm side => Height (h) = 56 cm and Radius (r) = 42 cm.

Slant height (l) is the hypotenuse = 70 cm.

Total Surface Area = πr(l + r) = π × 42 × (70 + 42) = π × 42 × 112 = 4704π cm².

Therefore The correct answer is 4704π cm².

Alternate Method

Given: sides of right triangle = 56 cm, 42 cm, 70 cm. Rotated about the 56 cm side.

Formula Used: Total Surface Area (TSA) of Cone = πr² + πrl = πr(r + l)

=> Radius (r) of the cone = 42 cm

=> Slant Height (l) of the cone = 70 cm

=> Total Surface Area = π × 42 × (42 + 70)

=> Total Surface Area = π × 42 × 112

=> Total Surface Area = 4704π cm²

Therefore The correct answer is 4704π cm².

Additional Information

Slant Height of Cone

The relationship between slant height (l), radius (r), and height (h) is given by $l^2 = r^2 + h^2$.

Curved Surface Area

The area of the curved surface of a cone is πrl, where r is the radius and l is the slant height.

Volume of Cone

The volume of a cone is $(1/3)\pi r^2 h$, which is exactly one-third of the volume of a cylinder with the same base and height.

Q50. Answer: (b) 20,480

Shortcut Trick

Rate of increase = 25% = 1/4. Population ratio (Previous Year : Current Year) = 4 : 5.

Population 3 years ago = 1,60,000 × $(4/5)^3$ = 1,60,000 × 64/125 = 81,920.
Population 2 years ago = 81,920 × (5/4) = 1,02,400.
Difference = 1,02,400 − 81,920 = 20,480.
Therefore The correct answer is 20,480.
Alternate Method
Given: Current Population (P) = 1,60,000, Rate (R) = 25%, Time (n) = 3 years.
Formula: $P_{(ago)} = P / (1 + R/100)^n$
=> Population 3 years ago = 1,60,000 / $(1 + 25/100)^3$
=> 1,60,000 / $(5/4)^3$ = 1,60,000 × (64/125) = 1280 × 64 = 81,920
=> Population 2 years ago = 1,60,000 / $(1 + 25/100)^2$
=> 1,60,000 / $(5/4)^2$ = 1,60,000 × (16/25) = 6400 × 16 = 1,02,400
=> Required Difference = 1,02,400 − 81,920 = 20,480
Therefore The correct answer is 20,480.
Additional Information
Population Growth Formula
For constant growth, Future Population = P × $(1 + R/100)^n$, where P is the current value.
Successive Percentage Change
The net change for two years with rates R1 and R2 is (R1 + R2 + R1R2/100)%.
Depreciation Rule
If the value decreases, use the formula Value = P × $(1 − R/100)^n$.

Q51. Answer: (c) 648

Shortcut Trick
Total interest percentage for 12 months = 6% × 12 = 72%
Simple Interest = 72% of Principal
SI = 72% of 900 = 72 × 9 = 648
Therefore The correct answer is Rs. 648.
Alternate Method
Given:
Principal (P) = Rs. 900
Rate of interest (R) = 6% per month
Time period (T) = 12 months
Formula Used:
Simple Interest (SI) = (P × R × T) ÷ 100
Calculations:
=> SI = (900 × 6 × 12) ÷ 100
=> SI = 9 × 6 × 12
=> SI = 54 × 12
=> SI = 648
Therefore The correct answer is Rs. 648.
Additional Information
Total Amount Formula
The total Amount (A) after the interest period is the sum of the Principal and the Simple Interest: A = P + SI.
Unit Consistency Rule
Always ensure that the Rate (R) and Time (T) are in the same unit (e.g., both monthly or both annual) before applying the formula.
Simple Interest vs Compound Interest
In Simple Interest, interest is calculated only on the initial principal, whereas in Compound Interest, interest is calculated on the principal plus the accumulated interest of previous periods.

Q52. Answer: (d) Jan Aushadhi Diwas

The correct answer is Jan Aushadhi Diwas.
Key Points

• Jan Aushadhi Diwas is celebrated annually on March 7th to create awareness and promote the use of generic medicines.

• The initiative is part of the Pradhan Mantri Bhartiya Janaushadhi Pariyojana (PMBJP), a government scheme launched to provide affordable and quality medicines to all citizens.

• Generic medicines, which are distributed through Jan Aushadhi Kendras, are 50% to 90% cheaper than branded medicines, ensuring affordability for the general public.

• Jan Aushadhi Kendras serve as a crucial step towards accessible healthcare by offering medicines at reduced costs, benefiting especially the economically weaker sections.

• In March 2025, Jan Aushadhi Diwas was celebrated to emphasize the role of generic medicines in reducing healthcare costs and improving accessibility across India.

Additional Information

• Generic Medicines:

• Generic medicines are drugs that are chemically identical to branded drugs but are sold under their chemical name rather than a brand name.

• They are approved by the regulatory authorities for their efficacy, safety, and quality.

• Generic medicines help reduce the financial burden of healthcare on the population.

• Pradhan Mantri Bhartiya Janaushadhi Pariyojana (PMBJP):

• Launched in 2008 and revamped under the leadership of PM Narendra Modi, PMBJP aims to provide affordable medicines through a network of Jan Aushadhi Kendras.

• These Kendras are functional across the country, with over 9,000 outlets as of 2023.

• The program ensures the availability of quality medicines certified by the Bureau of Pharma PSUs of India (BPPI).

• Health Impact:

• Jan Aushadhi Kendras play a critical role in improving healthcare access for low-income and rural communities.

• They contribute towards reducing the financial stress related to medical expenses, enabling better health outcomes.

• Awareness Campaigns:

• Events like Jan Aushadhi Diwas are used to spread information about generic medicines and their benefits.

• These campaigns aim to break misconceptions about the efficacy of generic drugs and encourage public trust.

Q53. Answer: (c) Both Statement 1 and Statement 2

The correct answer is Option 3: Both Statement 1 and Statement 2.

Key Points

• Statement 1 is correct: The First Five-Year Plan (1951-1956) was based on the Harrod-Domar growth model and emphasised agricultural development to address food shortages and achieve food security.

• The plan focused on agriculture, irrigation, and land reforms to rebuild the agrarian economy after independence.

• Statement 2 is correct: The Second Five-Year Plan (1956-1961), also known as the Mahalanobis Plan, prioritised industrialisation, particularly heavy industries, to build the foundation for long-term economic growth.

• The Mahalanobis Model advocated increasing the share of investment in industries producing capital goods, with a focus on public sector enterprises.

• Both plans played a crucial role in shaping India's economic development trajectory during its early years of independence.

Additional Information

• Harrod-Domar Model: This economic model emphasises the relationship between savings, investment, and economic growth. It was chosen for the First Five-Year Plan to address India's immediate post-independence challenges, like food shortages and inflation.

• Mahalanobis Model: Named after economist P.C. Mahalanobis, this model guided the Second Five-Year Plan. It prioritised capital goods industries to create a base for self-reliant economic growth.

• Five-Year Plans: India adopted the concept of centralised economic planning inspired by the Soviet Union. The Planning Commission was established in 1950 to oversee the formulation and implementation of these plans.

• Public Sector Focus: The Second Five-Year Plan emphasised public sector enterprises to achieve industrialisation, reduce dependency on imports, and create infrastructure for long-term growth.

• Transition to NITI Aayog: The Planning Commission was replaced by NITI Aayog in 2015. The five-year planning framework was discontinued, and a more decentralised approach to planning was adopted.

Q54. Answer: (a) Longitudinal

The correct answer is Longitudinal.

Key Points

• Sound waves in air are longitudinal waves, where the particles of the medium move in the same direction as the wave

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propagation.

• In a longitudinal wave, particles oscillate back and forth along the direction of energy transfer, resulting in compressions (high-pressure regions) and rarefactions (low-pressure regions).

• Sound cannot propagate through a vacuum as it requires a material medium like air, water, or solid for the transmission of vibrations.

• Examples of longitudinal waves include sound waves, seismic P-waves, and pressure waves in fluids.

• The speed of sound in air depends on temperature, pressure, and humidity, with an average speed of approximately 343 m/s at 20°C.

Additional Information

• Longitudinal Waves

• These waves consist of compressions and rarefactions, with energy transfer occurring parallel to particle motion.

• The wavelength in a longitudinal wave is the distance between two consecutive compressions or rarefactions.

• Transverse Waves

• In transverse waves, particles of the medium oscillate perpendicular to the direction of wave propagation.

• Examples include electromagnetic waves (e.g., light) and water surface waves.

• Sound Wave Properties

• Frequency: Determines the pitch of the sound and is measured in Hertz (Hz).

• Amplitude: Relates to the loudness or intensity of the sound.

• Speed: Depends on the medium's density and elasticity.

• Electromagnetic Waves

• Unlike sound waves, electromagnetic waves (e.g., light, radio waves) do not require a medium for propagation and can travel through a vacuum.

Q55. Answer: (a) Wife's father's mother's brother

A is				
Symbol	•	–	×	÷
Meaning	Mother	Brother	Wife	Father
of B				

Given Expression: M – N + O ÷ P × Q

M – N: M is the brother of N.

N + O: N is the mother of O.

O ÷ P: O is the father of P.

P × Q: P is the wife of Q.

According to the given information Family Tree Representation:

Therefore, M is Wife's father's mother's brother of Q.

Hence, the correct answer is "Option 1"

Q56. Answer: (c) CHESS (Centre for High Energy Systems and Sciences)

The correct answer is CHESS (Centre for High Energy Systems and Sciences).

Key Points

• CHESS (Centre for High Energy Systems and Sciences) is a premier DRDO lab responsible for research in high-energy systems, including advanced laser systems.

• In April 2025, CHESS successfully conducted a test of a laser weapon, marking a significant advancement in India's directed energy weapon (DEW) capabilities.

• This laser weapon test is part of India's efforts to develop indigenous DEWs for use in air defense, counter-drone systems, and other strategic applications.

• CHESS has been working on developing laser systems capable of targeting and neutralizing threats with high precision and minimal collateral damage.

• The success of this test showcases India's growing capabilities in futuristic defense technologies, aligning with the "Atmanirbhar Bharat" (self-reliant India) initiative.

Additional Information

• Directed Energy Weapons (DEWs):

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• DEWs use focused energy in the form of lasers, microwaves, or particle beams to damage or neutralize enemy targets.
• They provide advantages such as precision targeting, reduced collateral damage, and cost-effectiveness compared to traditional munitions.
• DEWs can be used for applications such as missile defense, counter-drone systems, and disabling electronic systems.
• DRDO (Defence Research and Development Organisation):
• DRDO is India's premier defense R&D agency, under the Ministry of Defence, established in 1958.
• It is tasked with developing cutting-edge technologies for the Indian Armed Forces.
• DRDO's research spans multiple domains, including missiles, radars, electronic warfare, and advanced weapon systems.
• CHESS (Centre for High Energy Systems and Sciences):
• Located in Hyderabad, CHESS is a DRDO lab specializing in high-energy systems and directed energy weapons.
• It collaborates with other DRDO labs and academic institutions to develop advanced technologies for the Indian military.
• India's Laser Weapon Program:
• India has been investing in laser weapons for applications such as missile defense, counter-drone operations, and air defense.
• CHESS and other DRDO labs are actively working on developing high-power lasers to address emerging security threats.

Q57. Answer: (a) Two

Given: E, X, P, A, N, and D live on six different floors of the same building. The lowermost floor in the building is numbered 1, the floor above it, number 2 and so on, till the topmost floor is numbered 6.

1) Only one person lives above D.

2) Only A lives below P.

3) X lives on a floor above D.

6	**X**
5	D
4	
3	
2	P
1	A

4) E lives on an even numbered floor.

The last remaining person is N, and the only remaining floor is 3. So N lives on Floor 3.

6	**X**
5	D
4	E
3	N
2	P
1	A

N lives on Floor 3.

Therefore, Two people live below N.

Hence, the correct answer is "Option 1".

Q58. Answer: (a) Two

Given: M, N, O, P, Y and Z live on six different floors of the same building.

1) O lives on an even numbered floor but not on floor number 4.

2) Only two people live between O and Z.

• Case 1: O lives on Floor 2.

• Case 2: O lives on Floor 6.

3) Y lives on an odd numbered floor but not on the lowermost floor.

4) P lives immediately below Y.

This means Y and P form a consecutive block [Y, P].

Case 1 for O:

If O is on Floor 2 and Z is on Floor 5.

6	
5	Z
4	
3	
2	O
1	

Now, place Y and P. Y must be on an odd floor (3 or 5), not 1. Floor 5 is taken by Z. If Y is on Floor 3, then P would be on Floor 2. However, O is already on Floor 2. This creates a contradiction. Therefore, Case 1 (O on Floor 2) is not possible.

Case 2 for O:

If O is on Floor 6 and Z is on Floor 3..

6	**O**
5	Y
4	P
3	Z
2	
1	

5) Only two people live between Y and M.

The only remaining person is N, and the only remaining floor is 1. So N lives on Floor 1.

6	**O**
5	Y
4	P
3	Z
2	M
1	N

N lives on Floor 1 and P lives on Floor 4.

Therefore, Two people live between N and P.

Hence, the correct answer is "Option 1".

Q59. Answer: (c) 7.11

Given:

x = 12^(0.36)

y = 12^(0.64)

x^z = y^4

Formula used:

Exponent rules: a^m × aⁿ = a^(m+n)

Calculation:

Substitute x and y into the equation:

=> (12^(0.36))^z = (12^(0.64))^4

=> 12^(0.36z) = 12^(4 × 0.64)

=> 12^(0.36z) = 12^(2.56)

Since bases are equal, equate exponents:

=> 0.36z = 2.56

=> z = 2.56 ÷ 0.36

=> z ≈ 7.11

Therefore The correct answer is option (3).

Q60. Answer: (a) 60

Shortcut Trick

Assume an assumed mean of 60 and calculate deviations.

Net deviation = +9 + 0 − 21 − 2 − 5 − 29 + 24 + 4 + 20 = 0.

Actual Mean = Assumed Mean + (Net Deviation ÷ Total Observations).

Mean = 60 + (0 ÷ 9) = 60.

Therefore The correct answer is 60.

Alternate Method

Given observations: 69, 60, 39, 58, 55, 31, 84, 64, 80

Number of observations (n): 9

Formula Used: Arithmetic Mean (μ) = (Sum of all observations) ÷ (Total number of observations)

=> Sum (Σx) = 69 + 60 + 39 + 58 + 55 + 31 + 84 + 64 + 80

=> Sum (Σx) = 540

=> Mean = 540 ÷ 9

=> Mean = 60

Therefore The correct answer is 60.

Additional Information

Properties of Arithmetic Mean

The sum of deviations of items from their arithmetic mean is always zero, i.e., Σ(x_i − μ) = 0.

Effect of Change in Origin

If a constant value 'k' is added to or subtracted from every observation, the mean will also be increased or decreased by 'k'.

Weighted Arithmetic Mean

When observations have varying levels of importance, the Weighted Mean is calculated as Σw_ix_i ÷ Σw_i, where w represents the weight.

Q61. Answer: (c) The text retains its original formatting from the source.

The correct answer is The text retains its original formatting from the source..

Key Points

• Keep Source Formatting is one of the paste options available in MS-PowerPoint 2019 to retain the original look of the copied text.

• When text is pasted using this option, it preserves the font style, size, color, and other formatting from the source document.

• This feature is useful when the copied text has specific formatting that needs to remain unchanged on the destination slide.

• The pasted text does not adopt the theme fonts or colors of the destination slide but retains its original formatting.

• Users can access this option by right-clicking on the slide and selecting "Paste Options," followed by "Keep Source Formatting."

Additional Information

• Paste Options in MS-PowerPoint:

• Keep Source Formatting: Retains the original formatting of the text from the source.

• Use Destination Theme: Adopts the theme fonts and colors of the destination slide.

• Picture: Converts the copied text into an image.

• Text Only: Pastes the text without any formatting.

• Theme Fonts and Colors:

• These are predefined fonts and colors associated with the slide's design.

• Using the destination theme ensures uniformity across all slides in a presentation.

• Automatic Text Adjustment:

• MS-PowerPoint can automatically resize text to fit within placeholders.

• This feature is called "AutoFit" and can be enabled or disabled as needed.

• Clipboard Functionality:

• The clipboard temporarily stores copied text or objects for pasting.

• In MS-PowerPoint, users can access advanced clipboard options for formatting control.

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Q62. Answer: (d) 184

Shortcut Trick

Identify that Selling Price 1 (SP1) represents 70% of Cost Price (CP).

Required Selling Price 2 (SP2) must represent 115% of CP.

Ratio of SP1 to SP2 = 70 : 115 = 14 : 23.

Given 14 units = Rs. 112, then 1 unit = Rs. 8.

Therefore, 23 units = 23 × 8 = Rs. 184.

Therefore The correct answer is Rs. 184.

Alternate Method

Given → SP1 = Rs. 112, Loss% = 30%, Desired Gain% = 15%.

Formulas: CP = SP × 100 ÷ (100 − Loss%) | SP = CP × (100 + Gain%) ÷ 100.

=> CP = 112 × 100 ÷ (100 − 30) = 112 × 100 ÷ 70 = Rs. 160.

=> New SP = 160 × (100 + 15) ÷ 100 = 160 × 115 ÷ 100.

=> New SP = 16 × 11.5 = Rs. 184.

Therefore The correct answer is Rs. 184.

Additional Information

Cost Price and Profit/Loss

Cost Price is always considered as 100% in percentage-based calculations unless specified otherwise.

Relation between SPs

When CP is constant, SP1 ÷ (100 − L1%) = SP2 ÷ (100 + G2%).

Q63. Answer: (c) 84 A 12 D 76 C 36 B 4

BODMAS Rule:

According to the question, the letters are interchanged with mathematical operators as follows:

Letter	A	B	C	D
Operator	÷	×	•	−

1) 84 C 12 D 76 A 36 B 4

Equation: 84 + 12 − 76 ÷ 36 × 4

=> 84 + 12 − 76 ÷ 36 × 4

=> 84 + 12 − 2.11 × 4

=> 84 + 12 − 8.44

=> 96 − 8.44

=> 87.56 ≠ 75 (Incorrect)

2) 84 B 12 C 76 D 36 A 4

Equation: 84 × 12 + 76 − 36 ÷ 4

=> 84 × 12 + 76 − 36 ÷ 4

=> 1008 + 76 − 36 ÷ 4

=> 1008 + 76 − 9

=> 1084 − 9

=> 1075 ≠ 75 (Incorrect)

3) 84 A 12 D 76 C 36 B 4

Equation: 84 ÷ 12 − 76 + 36 × 4

=> 84 ÷ 12 − 76 + 36 × 4

=> 7 − 76 + 36 × 4

=> 7 − 76 + 144

=> −69 + 144

=> 75 = 75 (Correct)

4) 84 D 12 A 76 B 36 C 4

Equation: 84 − 12 ÷ 76 × 36 + 4

=> 84 − 12 ÷ 76 × 36 + 4

=> 84 − 0.16 × 36 + 4

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=> 84 − 5.76 + 4

=> 78.24 + 4

=> 82.24 ≠ 75 (Incorrect)

Hence, the correct answer is "Option 3".

Q64. Answer: (d) 44

Shortcut Trick

Area of rectangular field = 11 × 14 = 154 m².

Area of circular field = πr² = 154.

Since 154 is a standard value for a circle with radius (r) = 7 m.

Circumference = 2πr = 2 × (22/7) × 7 = 44 m.

Therefore The correct answer is 44 m.

Alternate Method

Given: Length (l) = 14 m, Breadth (b) = 11 m, Area of Circle = Area of Rectangle.

Formula Used: Area of rectangle = l × b; Area of circle = πr²; Circumference = 2πr.

=> Area of rectangular field = 14 × 11 = 154 m²

=> Area of circular field = πr² = 154

=> (22/7) × r² = 154

=> r² = (154 × 7) ÷ 22

=> r² = 7 × 7 => r = 7 m

=> Circumference = 2 × (22/7) × 7

=> Circumference = 44 m

Therefore The correct answer is 44 m.

Additional Information

Area and Circumference of Circle

Area = πr² and Circumference = 2πr, where r is the radius of the circle.

Rectangular Area

Area of a rectangle is the product of its length and breadth (L × B).

Standard Circle Values

For r = 7, Area = 154 and Circumference = 44. For r = 14, Area = 616 and Circumference = 88.

Q65. Answer: (d) Delhi

The correct answer is Delhi.

Key Points

• In May 2025, the Delhi Cabinet approved Rs. 3.21 crore to conduct five cloud-seeding trials aimed at combating air pollution.

• The initiative focuses on artificial rain creation through cloud-seeding technology to mitigate pollution levels in the capital city.

• Cloud-seeding involves dispersing substances like silver iodide or sodium chloride into the atmosphere to enhance precipitation.

• This is part of Delhi's broader efforts to address the severe air pollution issues the region faces, especially during winter months.

• The trials are being conducted in collaboration with expert agencies and scientists to ensure effective implementation and monitoring.

Additional Information

• Cloud-Seeding Technology:

• It is a weather modification technique that aims to enhance rainfall by dispersing substances into the clouds.

• Commonly used agents include silver iodide, potassium iodide, and dry ice.

• It is widely used in regions facing droughts or high pollution levels to improve air quality and water availability.

• Air Pollution in Delhi:

• Delhi is one of the most polluted cities globally, with PM2.5 and PM10 levels often exceeding safe limits.

• Major contributors include vehicular emissions, industrial activities, and stubble burning in neighboring states.

• Air pollution peaks during winter due to temperature inversion and reduced wind speeds.

• Health Impacts of Air Pollution:

• Prolonged exposure to high pollution levels can lead to respiratory issues, cardiovascular diseases, and reduced life expectancy.

• Children and the elderly are particularly vulnerable to air pollution-related health risks.

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• Improving air quality has direct benefits for public health and economic productivity.

• Government Measures to Combat Pollution:

• Delhi has implemented measures like the Odd-Even vehicle scheme, expansion of public transport, and promotion of electric vehicles.

• Installation of smog towers and air purifiers in high-pollution zones has been prioritized.

• Collaborative efforts with neighboring states to manage stubble burning are ongoing.

Q66. Answer: (a) -34

Given:

Expression: 139 - 15 × (11 + 4) + 52

Calculation:

139 - 15 × (11 + 4) + 52

=> 139 - 15 × 15 + 52

=> 139 - 225 + 52

=> (139 + 52) - 225

=> 191 - 225

=> -34

Therefore The correct answer is option (1).

Q67. Answer: (d) 63

Shortcut Trick

Total efficiency of A + B + C = (1/7) + (1/9) = 16/63 units per day.

Given Efficiency of A = Efficiency of (B + C).

Therefore Efficiency of A = (1/2) × (16/63) = 8/63.

Efficiency of B = Efficiency of (A + B) − Efficiency of A = (1/7) − (8/63) = (9 − 8)/63 = 1/63.

Therefore The correct answer is 63 days.

Alternate Method

Given: Time taken by (A + B) = 7 days, Time taken by C = 9 days.

Person	Days	Total Work	Efficiency
A + B	7	63	9
C	9	7	

=> Combined Efficiency of A + B + C = 9 + 7 = 16 units/day.

=> Since A = B + C, then A + (B + C) = A + A = 2A.

=> 2 × Efficiency of A = 16 => Efficiency of A = 8 units/day.

=> Efficiency of B = Efficiency of (A + B) − Efficiency of A = 9 − 8 = 1 unit/day.

=> Time taken by B alone = Total Work ÷ Efficiency of B = 63 ÷ 1 = 63 days.

Therefore The correct answer is 63 days.

Additional Information

Work and Efficiency Relation

Efficiency is inversely proportional to time. Total Work = Efficiency × Time.

LCM Method

To find Total Work, take the LCM of the individual days taken by the workers to complete the work.

Combined Work Formula

If two people work together with efficiencies E1 and E2, their combined time T = Total Work ÷ (E1 + E2).

Q68. Answer: (b) 176

The logic followed here is:

Thus, the missing number 176.

Hence, the correct answer is "Option 2".

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Q69. Answer: (d) Dr. Jitendra Singh

The correct answer is Dr. Jitendra Singh.

Key Points

• Dr. Jitendra Singh, a renowned diabetologist and an active researcher in diabetes, was awarded the prestigious Lifetime Achievement Award for research in Diabetes in July 2024.

• The award recognizes his significant contributions to the field of diabetes management, treatment, and prevention strategies over the years.

• Dr. Jitendra Singh has authored numerous research papers and publications on the subject, providing valuable insights into diabetes care.

• He has also played a pivotal role in promoting awareness about diabetes and its complications in India.

• This recognition highlights his lifelong dedication to improving the lives of individuals affected by diabetes through both clinical practice and research.

Additional Information

• Diabetes Overview:

• Diabetes is a chronic condition characterized by high blood sugar levels due to the body's inability to produce or effectively use insulin.

• There are three main types of diabetes: Type 1, Type 2, and gestational diabetes.

• Type 2 diabetes is the most common form, often linked to lifestyle factors such as diet and physical activity.

• Impact of Diabetes in India:

• India is considered the diabetes capital of the world, with over 77 million people diagnosed with diabetes as of 2023.

• The rising prevalence of diabetes has been attributed to urbanization, sedentary lifestyles, and unhealthy dietary habits.

• Importance of Research in Diabetes:

• Research plays a critical role in developing new treatments, understanding genetic predispositions, and creating effective prevention strategies.

• Advancements in diabetes research have led to innovations such as insulin analogs, continuous glucose monitoring systems, and artificial pancreas technology.

• Government Initiatives in India:

• Programs like the National Programme for Prevention and Control of Cancer, Diabetes, Cardiovascular Diseases, and Stroke (NPCDCS) aim to combat diabetes and related disorders.

• Awareness campaigns and free screening initiatives are regularly conducted to educate the public and promote early diagnosis.

Q70. Answer: (b) Read-Only Mode

The correct answer is Read-Only Mode.

Key Points

• Read-Only Mode in MS Excel allows users to open and view a workbook while restricting editing and modifications.

• This feature is useful for sharing sensitive data that needs to be protected from unauthorized changes.

• To enable Read-Only Mode, you can save the workbook and select the "Tools > General Options" in the Save As dialog box, then set a password for editing.

• Users can view the file without entering the password, but they cannot make changes unless they have the editing password.

• Read-Only Mode ensures data integrity and helps prevent accidental or intentional modifications.

Additional Information

• Protected View:

• Files opened from potentially unsafe locations (e.g., email attachments) are opened in Protected View to prevent malicious content from affecting your system.

• Protected View allows viewing but blocks editing until explicitly enabled by the user.

• Workbook Password Protection:

• Excel allows users to set passwords to restrict access to the workbook or worksheet.

• Passwords can be set for opening and/or editing the file.

• Track Changes Feature:

• Excel provides the "Track Changes" feature to monitor modifications made to a workbook collaboratively.

• It helps identify who made edits and what changes were made.

• Freeze Panes:

• This feature is used to lock specific rows or columns while scrolling through a worksheet.

• It enhances visibility but does not provide security or restrict editing.

Q71. Answer: (d) Ctrl + P

The correct answer is Ctrl + P.

Key Points

• Ctrl + P is the universal shortcut used to open the Print dialog box in most Microsoft Office applications, including MS Excel 365.

• Using this shortcut allows users to configure printing settings such as selecting the printer, adjusting page orientation, and specifying print ranges.

• It is a time-saving alternative to navigating through the "File" menu to access the print feature.

• This shortcut is also consistent across different versions of MS Excel, making it easy for users to remember and use.

• In addition to Ctrl + P, Excel also provides options to customize printing through the "Page Layout" tab for advanced settings.

Additional Information

• Keyboard Shortcuts in Excel

• Keyboard shortcuts are combinations of keys that perform a specific function, saving time and enhancing productivity.

• Examples include Ctrl + S (Save), Ctrl + N (New Workbook), and Ctrl + O (Open).

• Using shortcuts reduces dependency on the mouse and accelerates workflow in Excel.

• Print Features in Excel

• The Print dialog box in Excel allows users to select specific sheets, ranges, or the entire workbook for printing.

• Advanced options include "Print Selection," "Print Area," and "Fit to Page" for customized outputs.

• The "Print Preview" option helps users ensure proper formatting before finalizing the print.

• Page Layout and Printing

• The "Page Layout" tab in Excel provides options to set margins, orientation (portrait/landscape), and scaling for printing.

• Headers and footers, gridlines, and print titles can also be configured here.

• Excel 365 Features

• MS Excel 365 is part of Microsoft 365 and offers cloud-based functionality for real-time collaboration.

• It includes various tools such as Power Query, advanced charting options, and AI-driven insights to enhance usability.

• Printing features in Excel 365 remain consistent with earlier versions but include enhanced compatibility with cloud printers.

Q72. Answer: (c) 47

BODMAS Rule:

According to the question, the signs are interchanged as follows:

Original Symbol	**•**	**−**	**×**	**÷**
New Symbol	−	×	÷	•

Now, given the equation: 15 − 3 ÷ 5 + 18 × 6 = ?

After interchanging the specified signs, the new equation is:

15 × 3 + 5 − 18 ÷ 6 = ?

Perform operations according to BODMAS:

=> 15 × 3 + 5 − 18 ÷ 6

=> 45 + 5 − 18 ÷ 6

=> 45 + 5 − 3

=> 50 − 3

=> 47

Hence, the correct answer is "Option 3".

Q73. Answer: (a) FOWL - LWFO - FWOL

The logic followed here is:

For, GEAN - NAGE - GAEN

For, MAKE - EKMA - MKAE

Similarly,

FOWL - LWFO - FWOL

Hence, the correct answer is "Option 1".

Q74. Answer: (d) Papua New Guinea

The correct answer is Papua New Guinea.

Key Points

• The 2026 Rugby League World Cup was initially awarded to France, but due to financial challenges, it was reallocated to new hosts.

• Australia and Papua New Guinea will co-host the rescheduled tournament in 2026.

• Papua New Guinea is one of the few countries where rugby league is the national sport and enjoys a massive following.

• The inclusion of Papua New Guinea as a co-host highlights its strong rugby league culture and the region's importance to the sport.

• The event will feature both men's and women's tournaments, promoting inclusivity and global participation in the sport.

Additional Information

• Rugby League World Cup:

• The Rugby League World Cup is an international tournament organized by the International Rugby League (IRL).

• The first Rugby League World Cup was held in 1954 in France, making it the oldest rugby world championship.

• The competition features national teams from around the world, with Australia traditionally being the dominant team.

• Papua New Guinea's Rugby League Culture:

• Rugby league is the national sport of Papua New Guinea, with deep cultural and social significance.

• The country has a professional rugby league team, the PNG Hunters, which competes in the Queensland Cup in Australia.

• 2026 Rugby League World Cup:

• The tournament will feature men's, women's, and wheelchair competitions.

• It aims to expand the global appeal of rugby league while emphasizing diversity and inclusivity.

• Hosting matches in both Australia and Papua New Guinea will help grow the sport's presence in the Asia-Pacific region.

• International Rugby League (IRL):

• The IRL is the global governing body for rugby league, responsible for organizing international tournaments.

• The IRL works to develop the sport globally, focusing on emerging markets and grassroots initiatives.

Q75. Answer: (b) = OTW, % = WBE

Given:

: LQT :: ZEH : %

Option 1) # = ODW, % = OIE

For # (ODW) to LQT

For ZEH to % (OIE)

Since the pattern for ODW to LQT (-3, +13, -3) is not the same as the pattern for ZEH to OIE (-11, +4, -3), Option 1 is incorrect.

Option 2) # = OTW, % = WBE

For # (OTW) to LQT

For ZEH to % (WBE)

Since the pattern for OTW to LQT (-3, -3, -3) is the same as the pattern for ZEH to WBE (-3, -3, -3), Option 2 is correct.

Option 3) # = LKO, % = WYE

For # (LKO) to LQT

For ZEH to % (WYE)

Since the pattern for LKO to LQT (0, +6, +5) is not the same as the pattern for ZEH to WYE (-3, +20, -3), Option 3 is incorrect.

Option 4) # = OHD, % = LDK

For # (OHD) to LQT

For ZEH to % (LDK)

Since the pattern for OHD to LQT (-3, +9, +16) is not the same as the pattern for ZEH to LDK (-14, -1, +3), Option 4 is incorrect.

Hence, the correct answer is "Option 2".

Q76. Answer: (c) A multi-member National Commission

The correct answer is A multi-member National Commission.

Key Points

• The Sixty-fifth Amendment Act of 1990 established a multi-member National Commission for Scheduled Castes and Scheduled Tribes to ensure their welfare and development.

• This amendment replaced the single Special Officer for Scheduled Castes and Scheduled Tribes with a full-fledged National

Commission.

• The commission was tasked with investigating and monitoring matters related to safeguards provided to Scheduled Castes and Scheduled Tribes under the Constitution.

• It also evaluates the progress of various schemes implemented for the upliftment of SC/ST communities.

• The commission submits annual reports to the President of India, who forwards them to Parliament for discussion and action.

Additional Information

• Scheduled Castes and Scheduled Tribes:

• These are historically disadvantaged communities recognized in the Indian Constitution for special measures to ensure their social, educational, and economic development.

• Scheduled Castes are communities traditionally subjected to social discrimination, while Scheduled Tribes represent indigenous groups living in remote areas.

• National Commission for Scheduled Castes:

• In 2004, the National Commission for SC/ST was bifurcated into two separate commissions: the National Commission for Scheduled Castes and the National Commission for Scheduled Tribes.

• The National Commission for Scheduled Castes focuses exclusively on issues related to Scheduled Castes.

• National Commission for Scheduled Tribes:

• The National Commission for Scheduled Tribes was established under Article 338A of the Indian Constitution.

• It monitors safeguards related to STs, advises on policies, and evaluates the development of tribal communities.

• Constitutional Safeguards for SC/ST:

• Article 46: Promotes educational and economic interests of SCs/STs.

• Article 17: Abolishes "untouchability" and forbids its practice.

• Article 15(4): Allows the state to make special provisions for SCs/STs in education.

Q77. Answer: (a) 90

Shortcut Trick

Relative speed in opposite direction = 32 + 28 = 60 km/hr = 60 × (5/18) = 50/3 m/s.

Total distance (L_A + L_B) = Speed × Time = (50/3) × 33 = 550 m.

Since L_B = 1.5 L_A, Total = 2.5 L_A = 550 => L_A = 220 m and L_B = 330 m.

Distance covered by B in 54s = (28 × 5/18) × 54 = 420 m.

Length of Bridge = Total Distance − L_B = 420 − 330 = 90 m.

Therefore The correct answer is 90 m.

Alternate Method

Given: Speed_A = 32 km/hr, Speed_B = 28 km/hr, Time_(crossing) = 33 s, L_B = 1.5 L_A, Time_(bridge) = 54 s.

Formula: Relative Speed (Opposite) = S1 + S2 | Distance = Speed × Time

=> Relative Speed = (32 + 28) × 5/18 = 60 × 5/18 = 50/3 m/s

=> L_A + L_B = (50/3) × 33 = 550 m

=> L_A + 1.5 L_A = 550 => 2.5 L_A = 550 => L_A = 220 m

=> Length of Train B (L_B) = 1.5 × 220 = 330 m

=> Speed of Train B in m/s = 28 × 5/18 = 70/9 m/s

=> Total distance (Train B + Bridge) = (70/9) × 54 = 420 m

=> Length of Bridge = 420 − 330 = 90 m

Therefore The correct answer is 90 m.

Additional Information

Relative Speed Concept

When two objects move in opposite directions, their relative speed is S1 + S2. In the same direction, it is |S1 − S2|.

Crossing Objects

When a train crosses a bridge or another train, the total distance covered is the sum of their lengths (L1 + L2).

Unit Conversion

To convert km/hr to m/s, multiply by 5/18. To convert m/s to km/hr, multiply by 18/5.

Q78. Answer: (c) KRM

The logic followed here is:

Thus, 'KRM' will be the next in the series.

Hence, the correct answer is "Option 3".

Q79. Answer: (d) 16 km towards the west

Given:

Mr. Y starts from Point B and drives 4 km towards the south.

He then takes a left turn, drives 7 km, turns right and drives 7 km.

He then takes a left turn and drives 9 km. He takes a final left turn, drives 11 km and stops at Point A.

Thus, he drive 16 km towards the west in order to reach Point B again.

Hence, the correct answer is "Option 4".

Q80. Answer: (d) 3330

Shortcut Trick

If $x + 1/x = k$, then $x^3 + 1/x^3 = k^3 - 3k$.

Given that $k = 15$.

Substituting the value: $15^3 - 3 \times 15$

Value = $3375 - 45 = 3330$.

Therefore The correct answer is 3330.

Alternate Method

Given:

$x + 1/x = 15$

Formula Used:

Using the Algebraic Identity: $(a + b)^3 = a^3 + b^3 + 3ab(a + b)$

Calculation:

=> Cube both sides of the given equation:

=> $(x + 1/x)^3 = 15^3$

=> $x^3 + (1/x)^3 + 3 \times x \times (1/x) \times (x + 1/x) = 3375$

=> $x^3 + 1/x^3 + 3(15) = 3375$

=> $x^3 + 1/x^3 + 45 = 3375$

=> $x^3 + 1/x^3 = 3375 - 45$

=> $x^3 + 1/x^3 = 3330$

Therefore The correct answer is 3330.

Additional Information

Square Identity

If $x + 1/x = k$, then the value of $x^2 + 1/x^2 = k^2 - 2$.

Negative Sign Identity

If $x - 1/x = k$, then the value of $x^3 - 1/x^3 = k^3 + 3k$.

Higher Powers

To find $x^4 + 1/x^4$, first find $x^2 + 1/x^2 = m$, then use the formula $m^2 - 2$.

Q81. Answer: (a) 51.52

Shortcut Trick

If the tank is still 1% empty after pouring 51 litres, it means the tank is 99% full.

Therefore, 99% of total capacity = 51 litres.

To fill the remaining 1% empty space, we need to add 1% of the total capacity.

Required petrol = $51 \div 99 \approx 0.51515...$ litres.

Total petrol in filled tank = $51 + 0.51515 = 51.52$ litres.

Therefore The correct answer is 51.52 litres.

Alternate Method

Let the total capacity of the storage tank be x litres.

Since the tank is 1% empty, it is filled up to 100% − 1% = 99% of its total capacity.

=> 99% of x = 51

=> $0.99 \times x = 51$

=> $x = 51 \div 0.99$

=> x ≈ 51.5152 litres

=> Total petrol required to fill the tank completely = 51.52 litres

Therefore The correct answer is 51.52 litres.

Additional Information

Percentage Representation

Any whole quantity is represented as 100%. If a part is missing by y%, then the present quantity is (100 − y)% of the total quantity.

Unitary Method for Percentages

If p% of a value is equivalent to A, then 100% of the value is calculated as (A ÷ p) × 100.

Q82. Answer: (d) A new election must be held within 6 months

The correct answer is A new election must be held within 6 months.

Key Points

• If a municipality in India is dissolved before completing its five-year term, a new election must be held within six months, as per Article 243U of the Indian Constitution.

• This provision ensures the continuity of local self-governance and prevents prolonged governance gaps.

• However, if the remaining term of the dissolved municipality is less than six months, elections are not mandatory.

• The State Election Commission is responsible for conducting these elections in accordance with the constitutional mandate.

• During the interim period, the state government may appoint an administrator or a special officer to manage the municipality's affairs.

Additional Information

• Article 243U:

• It specifies the duration of municipalities, setting a fixed term of five years from the date of their first meeting.

• It mandates that elections must be conducted before the expiration of the term or within six months of dissolution.

• State Election Commission (SEC):

• A constitutional body empowered to supervise, direct, and control municipal and panchayat elections at the state level.

• It operates independently of the Election Commission of India.

• Municipality:

• It is an urban local body established to govern a city or town with a population exceeding a specified threshold.

• It functions under the 74th Constitutional Amendment Act, 1992.

• Interim Administration:

• Upon municipal dissolution, the state government may appoint an administrator to oversee day-to-day operations until elections are held.

• This ensures that essential public services and governance functions continue uninterrupted.

Q83. Answer: (d) 6.5

Shortcut Trick

The average of the first n natural numbers is the middle value, given by the formula: (n + 1) ÷ 2.

For the first 12 natural numbers, n = 12.

Average = (12 + 1) ÷ 2 = 13 ÷ 2 = 6.5

Therefore The correct answer is 6.5.

Alternate Method

Given: Total numbers (n) = 12 (1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12)

Formula Used: Sum of first n natural numbers = [n × (n + 1)] ÷ 2 | Average = Sum ÷ n

=> Sum = [12 × (12 + 1)] ÷ 2

=> Sum = [12 × 13] ÷ 2 = 156 ÷ 2 = 78

=> Average = Total Sum ÷ Total count

=> Average = 78 ÷ 12

=> Average = 6.5

Therefore The correct answer is 6.5.

Additional Information

Average of AP Series

For any Arithmetic Progression, the average is simply (First Term + Last Term) ÷ 2.

Sum of first n Natural Numbers

The total sum is calculated as S_n = n(n + 1) ÷ 2.

Average of Even and Odd Numbers

The average of the first n even numbers is (n + 1), and the average of the first n odd numbers is n.

Q84. Answer: (b) 2

Given series:

€ 3 © 3 $ % % 5 5 £ € 4 * € 3 7 5 & 8 2 5 *

Condition to be checked:

Number → Symbol → Number

€ 3 © 3 $ % % 5 5 £ € 4 * € 3 7 5 & 8 2 5 *

There are two such symbols in the above arrangement (3 © 3, 5 & 8).

Hence, the correct answer is "Option 2".

Q85. Answer: (b) ancient Indian dispute resolution

The correct answer is ancient Indian dispute resolution.

Key Points

• Lok Adalat is an alternative dispute resolution mechanism inspired by the ancient Indian system of dispute resolution, which emphasized amicable settlement of conflicts through dialogue and consensus.

• The concept is rooted in traditional practices such as panchayats and public assemblies where disputes were resolved by community leaders or elders.

• The modern Lok Adalat system was institutionalized in India under the Legal Services Authorities Act, 1987 to provide an informal and cost-effective mechanism for dispute resolution.

• Lok Adalats are organized by National Legal Services Authority (NALSA) and State Legal Services Authorities to ensure justice is accessible to all, especially marginalized communities.

• These courts have the power to resolve cases related to civil disputes, matrimonial issues, and compoundable criminal cases, with decisions being legally binding on the parties.

Additional Information

• Legal Services Authorities Act, 1987

• This Act provides the framework for the establishment of Lok Adalats across India.

• Under the Act, awards made by Lok Adalats are final, binding, and enforceable as decrees of a civil court.

• The Act aims to ensure free legal aid and promote justice for weaker sections of society.

• Key Features of Lok Adalat

• Cases resolved in Lok Adalats are settled amicably without any lengthy litigation process.

• Parties are not required to pay court fees, and if a case is settled in Lok Adalat, the court fee paid earlier is refunded.

• These courts are known for their simplicity and speedy resolution of disputes.

• Panchayat System in Ancient India

• In ancient India, village-level panchayats were responsible for resolving disputes through collective wisdom and consensus.

• Panchayats emphasized fairness, impartiality, and community welfare in their decisions.

• Role of National Legal Services Authority (NALSA)

• NALSA was constituted under the Legal Services Authorities Act to oversee and implement legal services programs across India.

• It plays a key role in organizing Lok Adalats and ensuring justice delivery to underprivileged groups.

Q86. Answer: (d) 9,250

Shortcut Trick

Selling Price (SP) = 24% of Marked Price (MP) = 3,330.

MP = (3,330 ÷ 24) × 100 = 13,875.

If no discount, SP = MP = 13,875 at 50% profit.

150% of CP = 13,875.

CP = 13,875 ÷ 1.5 = 9,250.

Therefore The correct answer is 9,250.

Alternate Method

Given → Discount = 76%, SP = 3,330, Profit% (at MP) = 50%.

Formulas: SP = MP × (100 − D%) ÷ 100 | CP = SP ÷ (1 + P ÷ 100).

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=> First, find the Marked Price (MP): 3,330 = MP × (100 − 76) ÷ 100.

=> 3,330 = MP × (24 ÷ 100) => MP = (3,330 × 100) ÷ 24 = 13,875.

=> If no discount is allowed, New SP = MP = 13,875.

=> At this price, Profit is 50%. Let Cost Price (CP) be x.

=> 1.50 × x = 13,875.

=> x = 13,875 ÷ 1.50 = 9,250.

Therefore The correct answer is 9,250.

Additional Information

Relationship between CP and MP

The ratio of CP to MP can be expressed as CP/MP = (100 − Discount%) / (100 + Profit%).

Marked Price (MP)

MP is the price listed on the label. Discount is always calculated on the MP, whereas Profit or Loss is calculated on the CP.

Q87. Answer: (c) Koya revolt

The correct answer is Koya Revolt.

Key Points

• The Koya Revolt (1879-1880) was led by tribal leaders like Tomma Dora and others against British colonial policies.

• The immediate trigger for the revolt was the deprivation of traditional rights over toddy trees, which were a crucial livelihood resource for the Koya tribes.

• British policies, including imposition of taxes and restrictions on forest resources, deeply affected the tribal communities.

• The Koya tribes, along with other tribal groups, revolted to protect their land, resources, and cultural autonomy.

• The revolt was suppressed by the British, but it remains a significant event in the history of tribal resistance against colonial exploitation.

Additional Information

• Toddy Trees:

• Toddy trees, such as palm and date trees, were a key source of livelihood for tribal communities.

• They were used for producing toddy, a traditional fermented drink, and were also economically significant.

• British policies restricting access to these trees disrupted the tribal economy.

• Impact of British Colonial Policies:

• Colonial administration introduced land revenue systems and forest laws that marginalized tribal communities.

• Tribals were forced to pay taxes and lost access to traditional resources like forests and toddy trees.

• These policies led to widespread dissatisfaction and revolts among tribal groups.

• Tribal Resistance Movements:

• Several tribal revolts occurred during British rule, including the Santhal Rebellion (1855-56) and the Munda Rebellion (1899-1900).

• These movements often aimed to protect tribal lands and resources from colonial exploitation.

• Legacy of Tribal Revolts:

• Tribal revolts like the Koya Revolt highlighted the colonial exploitation of indigenous communities.

• These revolts are remembered as important struggles for self-determination and rights of tribal groups in India.

Q88. Answer: (a) 30 kilowatts

The correct answer is 30 kilowatts.

Key Points

• The Defence Research and Development Organisation (DRDO) achieved a significant milestone in early 2025 by developing a 30-kilowatt laser weapon system.

• This high-energy laser weapon system is designed to provide precision targeting capabilities for defense applications.

• The laser weapon system is capable of neutralizing enemy drones, missiles, and small aerial threats with pinpoint accuracy.

• It is a part of India’s growing efforts to develop indigenous directed-energy weapons (DEWs) for modern warfare.

• The system's development aligns with India’s “Atmanirbhar Bharat” (self-reliance) initiative in the defense sector.

Additional Information

• Laser Weapon System (LWS):

• Laser weapons use focused beams of light to deliver energy to a target, causing damage or disruption.

• They are categorized as directed-energy weapons (DEWs) and are known for their precision and speed.

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• These systems are increasingly being adopted worldwide for countering drones, missiles, and other high-speed threats.
• Directed-Energy Weapons (DEWs):
• DEWs are weapons that emit energy in a focused direction without the use of traditional projectiles.
• Examples include lasers, microwaves, and particle beams.
• They are valued for their speed, accuracy, and reduced collateral damage compared to conventional weapons.
• Applications of Laser Weapons:
• Counter-drone operations to disable or destroy enemy UAVs.
• Neutralizing incoming missiles and rockets with high-precision targeting.
• Used in surveillance, target designation, and electronic warfare scenarios.
• DRDO's Role in Defense Innovation:
• DRDO is India's premier agency for research and development in defense technologies.
• It focuses on areas such as aerospace, armaments, electronics, and advanced weapon systems.
• DRDO has been instrumental in advancing India's self-reliance in defense through indigenous projects like the laser weapon system.

Q89. Answer: (c) Mandatory registration of digital news broadcasters and content creators

The correct answer is Mandatory registration of digital news broadcasters and content creators.

Key Points

• The Broadcasting Services (Regulation) Bill, 2024, introduced in November 2024, seeks to regulate the broadcasting industry, including digital content creators and news broadcasters.
• The bill mandates compulsory registration for digital news broadcasters and online content creators, ensuring accountability and adherence to guidelines.
• It aims to establish a regulatory framework to monitor digital content to prevent misinformation and uphold content standards.
• Digital platforms and broadcasters will be required to comply with content codes and ethical guidelines under the supervision of a designated regulatory body.
• The bill addresses the growing influence of digital news and its role in shaping public opinion, thereby safeguarding democratic values.

Additional Information

• Cable Television Networks (Regulation) Act, 1995:
• It was enacted to regulate cable television networks and ensure the operation of cable services within prescribed norms.
• The act mandated cable operators to follow a programming code and advertising code as specified by the government.
• The Broadcasting Services (Regulation) Bill, 2024, proposes changes to adapt to the modern digital landscape.
• OTT Platforms Regulation:
• Over-the-top (OTT) platforms have grown significantly, offering content directly to consumers via the internet.
• While the 2024 bill does not exempt OTT platforms from oversight, it provides a framework for their regulation.
• Regulation ensures that OTT platforms adhere to ethical content creation and distribution practices.
• Digital News Broadcasting:
• Digital news broadcasting refers to the dissemination of news and information via online platforms and social media.
• Its increasing popularity necessitates regulatory measures to ensure factual accuracy and prevent the spread of misinformation.
• Content Code and Ethical Guidelines:
• The bill introduces content codes and ethical guidelines to maintain high standards in broadcasting.
• These guidelines ensure that broadcasters and creators comply with rules related to decency, fairness, and accuracy.

Q90. Answer: (a) One

Given series:

8 $ 7 & 3 Ω 9 # 1 8 £ 6 @ & % 4 6 @ * 4 5

Condition to be checked:

Even Number → Symbol → Odd Number

8 $ 7 & 3 Ω 9 # 1 8 £ 6 @ & % 4 6 @ * 4 5

There is one such symbol in the above arrangement (8 $ 7).

Hence, the correct answer is "Option 1".

Q91. Answer: (d) −62

Shortcut Trick

For the same remainder y, x is the HCF of the differences of the numbers.

Differences: |2815 − 1063| = 1752, |3451 − 2815| = 636, |3451 − 1063| = 2388.

x = HCF(1752, 636, 2388) = 12.

y = Remainder when 1063 ÷ 12 → 1063 = 12 × 88 + 7 Therefore y = 7.

Value = 3(12) − 14(7) = 36 − 98 = −62.

Therefore The correct answer is −62.

Alternate Method

Given: Numbers are 1063, 2815, and 3451. Greatest divisor is x and constant remainder is y.

Formula Used: x = HCF(|a−b|, |b−c|, |c−a|)

=> Step 1: Find differences between the numbers:

=> 2815 − 1063 = 1752

=> 3451 − 2815 = 636

=> Step 2: Find HCF of 1752 and 636:

=> 1752 = 636 × 2 + 480

=> 636 = 480 × 1 + 156

=> 480 = 156 × 3 + 12

=> 156 = 12 × 13 + 0

=> Therefore x = 12

=> Step 3: Find remainder y:

=> 1063 ÷ 12 => Quotient = 88, Remainder = 1063 − (12 × 88) = 1063 − 1056 = 7

=> Therefore y = 7

=> Step 4: Calculate 3x − 14y:

=> 3(12) − 14(7) = 36 − 98 = −62

Therefore The correct answer is −62.

Additional Information

HCF with Constant Remainder

When numbers a, b, and c are divided by x to leave the same remainder, x is always a factor of (a−b), (b−c), and (c−a).

Euclidean Algorithm

A fast method to find HCF by repeated division: HCF(a, b) = HCF(b, a mod b) until the remainder becomes zero.

Finding the Remainder

Once the divisor x is found, the remainder y is calculated using the property: Number = (x × Quotient) + y.

Q92. Answer: (b) PXR

The logic followed here is:

Option (1): NVQ

Option (2): PXR

Option (3): HPK

Option (4): LTO

The letter-cluster that DOES NOT belong to the group is: PXR

Hence, the correct answer is "Option (2)"

Q93. Answer: (b) 27

Shortcut Trick

Let the age of son 3 years ago be x.

Father's age then = 2x + 30.

Age difference = (2x + 30) − x = x + 30.

Difference in ages remains constant throughout life.

When father is twice the son's age, the difference (x + 30) must equal the son's age then.

Son's age then = x + 30. Current age of son = x + 3. Years from now = (x + 30) − (x + 3) = 27.

Therefore The correct answer is 27 years.

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Alternate Method

Given: 3 years ago, Father's age = 2 × Son's age + 30.

Formula: Age difference is constant.

=> Let Son's age 3 years ago = $S_{(-3)}$ and Father's age = $F_{(-3)}$.

=> $F_{(-3)} = 2 \times S_{(-3)} + 30$

=> Age Difference (D) = $F_{(-3)} - S_{(-3)} = (2 \times S_{(-3)} + 30) - S_{(-3)} = S_{(-3)} + 30$.

=> Let after T years from now, $F_T = 2 \times S_T$.

=> Difference (D) = $F_T - S_T = 2S_T - S_T = S_T$.

=> $S_T = S_{(-3)} + 30$.

=> Since S_T is the age after T years from present, and $S_{(-3)}$ was age 3 years before present:

=> $S_T = S_{(present)} + T = (S_{(-3)} + 3) + T$.

=> $S_{(-3)} + 30 = S_{(-3)} + 3 + T$.

=> $T = 30 - 3 = 27$.

Therefore The correct answer is 27 years.

Additional Information

Constant Age Difference

The difference between the ages of two people remains constant at any point in time.

Ratio of Ages

When the age of one person is n times the age of another, the age difference is equal to (n−1) × the younger person's age.

Time Displacement

If current age is x, then age 'a' years ago is (x − a) and age 'b' years later is (x + b).

Q94. Answer: (c) 12

Given:

2 is added to each even digit and 1 is subtracted from each odd digit in the number 2614759.

Given	**2**	**6**	**1**	**4**	**7**	**5**	**9**
Operation	+2	+2	-1	+2	-1	-1	-1
New number	4	8	0	6	6	4	8

The new number formed is 4806648.

The sixth digit from the left is 4.

The first digit from the right (last digit) is 8.

The sum of these two digits is 4 + 8 = 12.

Hence, the correct answer is "Option 3".

Q95. Answer: (d) 35.97

Shortcut Trick

Apply the Empirical Formula: 3 × Median = Mode + 2 × Mean.

3 × Median = 40.1 + 2 × 33.9

3 × Median = 40.1 + 67.8 = 107.9

Median = 107.9 ÷ 3 = 35.966...

Rounding to two decimal places, we get 35.97.

Therefore The correct answer is 35.97.

Alternate Method

Given:

Mean = 33.9

Mode = 40.1

Formula Used:

Mode = 3(Median) − 2(Mean)

Calculations:

=> 40.1 = 3 × Median − 2 × 33.9

=> 40.1 = 3 × Median − 67.8

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=> 3 × Median = 40.1 + 67.8

=> 3 × Median = 107.9

=> Median = 107.9 ÷ 3

=> Median = 35.9666...

=> Median ≈ 35.97

Therefore The correct answer is 35.97.

Additional Information

Empirical Relationship

For a moderately skewed distribution, the relationship is Mode = 3 × Median − 2 × Mean.

Symmetric Distribution

In a perfectly Symmetric Distribution, the values of Mean, Median, and Mode are all equal (Mean = Median = Mode).

Skewness Identification

If Mode > Median > Mean, the distribution is Negatively Skewed (skewed to the left). If Mean > Median > Mode, it is Positively Skewed.

Q96. Answer: (a) Pitchblende

The correct answer is Pitchblende.

Key Points

• Neptunium and plutonium are radioactive elements that belong to the actinide series in the periodic table.

• Pitchblende, also known as uraninite, is a naturally occurring mineral that primarily contains uranium oxides and is the primary source of these elements.

• Neptunium and plutonium are found as trace elements in pitchblende due to the decay and nuclear processes involving uranium isotopes.

• Pitchblende is mined in regions with uranium deposits, such as Canada, the United States, and parts of Africa.

• The discovery of neptunium and plutonium was closely tied to research on uranium and its decay products, which are often extracted from pitchblende for scientific and industrial purposes.

Additional Information

• Pitchblende:

• It is a mineral that contains uranium as its primary constituent and traces of thorium, radium, and other radioactive elements.

• Pitchblende is black and has a high density, making it a significant source for extracting uranium and its decay products.

• Neptunium:

• It is a transuranic element with the atomic number 93 and symbol Np.

• Neptunium is formed as a byproduct in nuclear reactors or from uranium-238 undergoing neutron capture.

• Plutonium:

• It is a transuranic element with the atomic number 94 and symbol Pu.

• Plutonium is used as a fuel in nuclear reactors and as a key component in nuclear weapons.

• Actinide Series:

• The actinide series consists of 15 elements, from actinium to lawrencium, characterized by their radioactive nature.

• These elements are typically found in minerals like pitchblende and monazite sand.

• Radioactive Decay:

• It is the process by which unstable atomic nuclei lose energy by emitting radiation.

• Uranium in pitchblende undergoes radioactive decay to produce elements like radium, polonium, neptunium, and plutonium.

Q97. Answer: (c) 3900

Shortcut Trick

Given X prop. to A^2 and A prop. to 1/Y.

By substitution, X prop. to $(1/Y)^2$, which means X prop. to $1/Y^2$.

Hence, $X1 \times Y1^2 = X2 \times Y2^2$.

Calculation: $39 \times 20^2 = X2 \times 2^2$ => $39 \times 400 = X2 \times 4$ => X2 = 3900.

Therefore The correct answer is 3900.

Alternate Method

Given:

Relation 1: $X = k1A^2$

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Relation 2: $A = k_2/Y$

Calculations:

=> Substitute A in the first equation: $X = k_1(k_2/Y)^2$

=> $X = (k_1k_2^2) / Y^2$

=> Let $K = k_1k_2^2$, so $X = K/Y^2$

=> $39 = K / 20^2$ => $K = 39 \times 400 = 15600$

=> For Y = 2: $X = 15600 / 2^2$

=> $X = 15600 / 4$

=> $X = 3900$

Therefore The correct answer is 3900.

Additional Information

Direct Proportion

When two variables change in the same ratio, such that $X/Y = k$ (constant).

Inverse Proportion

When the product of two variables is constant, such that $X \times Y = k$ (constant).

Chain Rule in Variation

If X prop. to Y and Y prop. to Z, then X prop. to Z. If X prop. to Y^n and Y prop. to 1/Z, then X prop. to $1/Z^n$.

Q98. Answer: (d) Shipping activities

The correct answer is Shipping activities.

Key Points

• The Tonnage Tax Scheme is a specialized taxation policy aimed at shipping companies, providing a simplified and concessional tax regime.

• Under this scheme, shipping companies are taxed based on the tonnage capacity of their ships rather than their profits, ensuring stability in tax liabilities.

• The objective is to promote the growth of the shipping sector by reducing the compliance burden and incentivizing investments in maritime activities.

• Introduced in India in 2004, the scheme aligns with global practices adopted in countries like the UK and Singapore to enhance competitiveness in international shipping.

• In the Union Budget 2025-26, further emphasis was placed on expanding and strengthening shipping activities under the Tonnage Tax Scheme to bolster India's maritime trade.

Additional Information

• Tonnage Tax:

• A taxation mechanism where shipping companies are taxed on the basis of the net tonnage of their vessels rather than their actual income or profits.

• It offers predictability and reduces administrative complexities in tax calculations for shipping operators.

• Significance for India:

• India's shipping industry plays a crucial role in global trade, handling approximately 95% of the country's trade by volume.

• The Tonnage Tax Scheme helps Indian shipping companies compete globally by ensuring a level playing field.

• Global Practices:

• Countries like the UK, Singapore, and Japan have implemented similar tonnage tax regimes to attract shipping businesses and enhance their maritime economies.

• These policies align with international norms, encouraging investment and fleet expansion.

• Maritime Development in India:

• India has launched several initiatives, such as the Sagarmala Project, to modernize ports and improve the efficiency of maritime logistics.

• The Tonnage Tax Scheme complements these efforts by supporting long-term growth in shipping and maritime trade.

Q99. Answer: (d) Dharapatta

The correct answer is Dharapatta.

Key Points

• Dharapatta succeeded Dhruvasena Baladitya II, who was a ruler of the Maitraka dynasty in Gujarat.

• The Maitraka dynasty was established in the 5th century CE and ruled western India with Vallabhi (modern-day Gujarat) as its capital.

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• Dharapatta continued the legacy of the Maitraka rulers, known for their contributions to education and administration in the region.

• The Maitraka rulers were followers of Buddhism and Hinduism, and Dharapatta, like his predecessors, played a significant role in promoting these religions.

• The dynasty's decline began with the invasions by Arabs and other external forces in the 8th century CE.

Additional Information

• Maitraka Dynasty

• The Maitraka dynasty ruled Gujarat and parts of western India between the 5th and 8th centuries CE.

• They were originally vassals of the Gupta Empire before declaring independence.

• The dynasty is known for establishing Vallabhi University, a renowned center of learning during its time.

• Dhruvasena Baladitya II

• Dhruvasena Baladitya II was one of the prominent rulers of the Maitraka dynasty.

• He was known for his administrative capabilities and patronage of Buddhism.

• Vallabhi University

• Vallabhi University was an ancient center of learning during the Maitraka period.

• It attracted scholars from across India and was considered on par with Nalanda University.

• Arab Invasions

• The decline of the Maitraka dynasty was hastened by invasions from Arab forces.

• These invasions disrupted the stability and administration of the region.

Q100. Answer: (b) Only 1 and 2

The correct answer is Only 1 and 2.

Key Points

• The National Mission on Edible Oils - Oil Palm (NMEO-OP) is a Centrally Sponsored Scheme launched in 2021 by the Government of India.

• The mission aims to reduce India's dependency on imported edible oils by promoting domestic oil palm cultivation.

• The focus areas of the scheme include the North-Eastern States and the Andaman & Nicobar Islands, which have favorable conditions for oil palm farming.

• The scheme includes financial assistance to farmers for planting material, maintenance, and intercropping, as well as subsidies for processing units.

• The statement regarding bringing an additional area of 6.5 lakh hectares under oil palm plantation from 2025-26 to 2030-31 is incorrect; the scheme aims to achieve this target by 2025-26.

Additional Information

• Edible Oil Import Dependency

• India is one of the largest importers of edible oils, importing nearly 60% of its consumption annually.

• Oil palm has the highest oil yield per hectare compared to other oilseed crops, making it a crucial crop for reducing import dependency.

• Focus on Sustainability

• The NMEO-OP emphasizes environmentally sustainable practices for oil palm cultivation to ensure long-term benefits for farmers and ecosystems.

• It includes measures to avoid deforestation and protect biodiversity in cultivation areas.

• Government Support under NMEO-OP

• The scheme provides financial assistance for planting material, maintenance of plantations, and setting up oil palm processing units.

• Price Assurance Mechanism ensures minimum support prices for farmers, reducing their financial risks.

• Global Context

• Countries like Indonesia and Malaysia dominate global palm oil production, contributing over 80% of the world's supply.

• India's NMEO-OP is aimed at enhancing domestic production to compete with these global players.

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