RRB NTPC Graduate Level CBT-I Official Paper (Held On: 14 Jun, 2025 Shift 2) (Previous Year Paper)

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

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Q1. Narcondam Island is located in:

(a) Gulf of Mannar
(b) Arabian Sea
(c) Andaman Sea
(d) Lakshadweep

Q2. If 2 is added to each even digit and 2 is added to each odd digit in the number 7153246, what will be the sum of all the odd digits in the new number thus formed?

(a) 28
(b) 21
(c) 24
(d) 19

Q3. In a bag containing red, green, and pink tokens, the ratio of red to green tokens is 7 : 4, while the ratio of pink to red tokens is 20 : 11. What is the ratio of green to pink tokens?

(a) 9:38
(b) 11 : 35
(c) 12 : 41
(d) 12 : 37

Q4. If the eight-digit number 51880p69 is divisible by 3, then the maximum value of p is:

(a) 3
(b) 8
(c) 4
(d) 6

Q5. Which of the following statements is NOT correct with reference to the distribution of elements in the periodic table?

(a) There is a zig-zag line separating metals and non-metals.
(b) Metals are located on the left side.
(c) Metalloids are scattered randomly throughout the table.
(d) Non-metals are on the top right corner.

Q6. The speed of a boat in still water is 7 km/hr and the speed of the stream is 5 km/hr. A man rows to a place at a distance of 52.8 km and comes back to the starting point. Find the total time (in hours) taken by him.

(a) 23.6
(b) 40.6
(c) 29.9
(d) 30.8

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Q7. The greatest number that divides 152 and 181 leaving remainders 2 and 6, respectively, is:

(a) 34
(b) 35
(c) 33
(d) 25

Q8. JR 11 is related to MV 2 in a certain way. In the same way, KL 7 is related to NP -2. To which of the given options is WO 2 related, following the same logic?

(a) ZT -7
(b) AT -7
(c) AS -5
(d) ZS -7

Q9. The tripartite struggle for Kannauj was among the:

(a) Chalukyas, Palas and Rashtrakutas
(b) Cholas, Pandyas and Cheras
(c) Guptas, Hunas and Palas
(d) Palas, Gurjara-Pratiharas and Rashtrakutas

Q10. The exchange rate system was reformed to reflect market conditions. What type of exchange rate regime did India adopt post-1991?

(a) Gold standard
(b) Fixed exchange rate
(c) Managed floating exchange rate
(d) Floating exchange rate

Q11. The roots of the quadratic equation $7x^2 - 10x + 3 = 0$ are:

(a) -1 and frac37
(b) 1 and frac37
(c) 1 and - frac37
(d) -1 and - frac37

Q12. What is the primary advantage of using a Directory Acyclic Graph (DAG) structure for file systems compared to a simple tree structure?

(a) DAGs inherently provide better data security and access control.
(b) DAGs reduce disk fragmentation and improve storage efficiency.
(c) DAGs allow for faster traversal and searching of files.
(d) DAGs enable the creation of hard links, allowing a single file to have multiple directory entries.

Q13. Find the value of $(\sin^2 68° + \sin^2 22°)/(2(\cos^2 17° + \cos^2 73°))$.

(a) 1
(b) -1
(c) 0
(d) frac12

Q14. The Great Plains of India were primarily formed due to the deposition by which of the following rivers?

(a) Indus, Ganga and Brahmaputra
(b) Narmada, Tapi and Mahanadi
(c) Krishna, Godavari and Kaveri
(d) Yamuna, Sutlej and Gomti

Q15. Select the triad that follows the same pattern as that followed by the two triads given below. Both triads follow the same pattern.

QV-SX-UW

NS-PU-RT

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(a) LP-MR-OS
(b) KP-MR-OS
(c) KP-MR-OQ
(d) LP-NR-OS

Q16. The Indian High Courts Act was passed in the year _____.
(a) 1872
(b) 1909
(c) 1861
(d) 1857

Q17. If 1 is added to each odd digit and 2 is subtracted from each even digit in the number 6318574, how many digits will appear more than once in the new number thus formed?
(a) Two
(b) One
(c) Three
(d) Four

Q18. Mahesh gets a 2% increase in his sale amount in the first year and a 20% increase in the second year, and with that his present sale is Rs. 1,90,400. What was his sale (in Rs.) two years ago? (Rounded off to two decimal places.)
(a) 1,58,666.67
(b) 1,35,555.56
(c) 1,86,666.67
(d) 1,55,555.56

Q19. The shorter side of a rectangle is 24 cm less than the longer side. The numerical value of its area is equal to 8 times the numerical value of its perimeter. What is the length (in cm) of its longer side?
(a) 48
(b) 57
(c) 54
(d) 52

Q20. Which of the following keyboard shortcuts is used to insert a new slide in PowerPoint 2019?
(a) Ctrl + M
(b) Ctrl + N
(c) Ctrl + D
(d) Ctrl + K

Q21. Which of the following statements best describes the Indian Union Cabinet's role in legislation?
(a) The Cabinet is the only law-making body in India.
(b) The Cabinet gives final shape to government bills and prepares the legislative agenda.
(c) The Cabinet enacts laws without any involvement of any house of the Indian Parliament.
(d) The Cabinet has judicial authority over legislations surpassing the judiciary.

Q22. 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.)

(14, 66, 19)

(43, 134, 24)

(a) (45, 97, 4)
(b) (10, 35, 8)
(c) (6, 42, 15)
(d) (37, 81, 4)

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Q23. Which action best describes the effect of applying bullets or numbering to a selection of text in MS Word?

(a) It hides the selected content to protect it from being viewed.
(b) It converts the selected text into a structured list with symbols or numbers for better organization.
(c) It applies a background color to highlight important paragraphs.
(d) It automatically splits the document into multiple sections.

Q24. Which pair of compounds illustrates the Law of Multiple Proportions?

(a) NaOH and NaCl
(b) CaCO3 and CaCl2
(c) HCl and HBr
(d) CO and CO2

Q25. A man has invested Rs. 50,000 at a rate of 12% per annum simple interest for 4 years. Find the amount (in Rs.) that he will receive after 4 years.

(a) 24,000
(b) 25,000
(c) 75,000
(d) 74,000

Q26. MS 14 is related to OV 8 in a certain way. In the same way, NN 5 is related to PQ −1. To which of the given options is SR 6 related, following the same logic?

(a) OO 4
(b) UU 0
(c) KP 3
(d) OI 6

Q27. Each of P, Q, R, S, T, U and V has an exam on a different day of a week starting from Monday and ending on Sunday of the same week. U has an exam on Wednesday. Exactly 4 people have an exam between Q and V, neither of whom has an exam on Monday. P has an exam immediately before S, and R has an exam immediately after S. T has an exam immediately before Q. How many people have an exam before Q?

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

Q28. If 4% of x = 24, then x is equal to:

(a) 1200
(b) 600
(c) 1300
(d) 700

Q29. P, Q, R, S, T, U and V have an exam on different days of the week starting on Monday and ending on Sunday. V has an exam on Thursday. Exactly 4 people have their exam between S and U, neither of whom has an exam on Sunday. R has an exam immediately before P. T does not have an exam on Friday. S does not have an exam after P. Who among the following has an exam on Tuesday?

(a) U
(b) T
(c) S
(d) R

Q30. The channel between Minicoy and the Maldives is known as the:

(a) Equatorial Channel
(b) Ten Degree Channel
(c) Eight Degree Channel
(d) Nine Degree Channel

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Q31. The length of the base of a parallelogram is $(4x^2 - 7xy + y^2)$ m and its height is $(x + y)$ m. Find the area of parallelogram, when $x = 3$ and $y = -2$

(a) 82 m^2
(b) 48 m^2
(c) 57 m^2
(d) 69 m^2

Q32. What is the median of the following data?

72, 47, 98, 52, 20, 86, 85, 69, 59, 81, 53

(a) 68.5
(b) 70
(c) 69
(d) 69.5

Q33. The average price of three items of furniture is Rs. 15,135. If their prices are in the ratio 3 : 5 : 7, the price of the cheapest item (in Rs.) is:

(a) 3,027
(b) 9,081
(c) 7,063
(d) 5,045

Q34. Enzyme cofactors such as NAD+ function mainly by:

(a) increasing the overall concentration of the enzyme
(b) providing a binding site for competitive inhibitors
(c) acting as a permanent structural component of the enzyme
(d) lowering the activation energy by stabilising the transition state

Q35. 3 bags and 6 pens together cost Rs. 744, whereas 9 bags and 9 pens together cost Rs. 1,854. The cost of 6 bags e×ceeds the cost of 10 pens by:

(a) Rs. 567
(b) Rs. 568
(c) Rs. 564
(d) Rs. 565

Q36. How many functional items are listed in the Eleventh Schedule of the Indian Constitution for Panchayats?

(a) 11
(b) 21
(c) 29
(d) 36

Q37. In January 2025, Libia Lobo Sardesai was honoured with the Padma Shri for her historical contributions. What role did she play in Indian history?

(a) Leader in the anti-emergency protest movement
(b) Leader in the Bhoodan land reform movement
(c) Defence researcher in Post Independent India
(d) Goa’s liberation movement activist

Q38. In April 2025, in which city of India did the Central Zoo Authority (CZA) approve the city's first deer park?

(a) Noida
(b) Hisar
(c) Moradabad
(d) Faridabad

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Q39. What are the names of the venues where the Khelo India Para Games (KIPG) 2025 was held?

(a) Jawaharlal Nehru Indoor Stadium, Indira Gandhi Indoor Stadium, and Talkatora Stadium
(b) Jawaharlal Nehru Indoor Stadium and Indira Gandhi Indoor Stadium
(c) Major Dhyan Chand National Stadium, Indira Gandhi Indoor Stadium, and Dr Karni Singh Shooting Range
(d) Jawaharlal Nehru Indoor Stadium, Indira Gandhi Indoor Stadium, and Dr Karni Singh Shooting Range

Q40. A dealer marks his goods at 5% above the cost price and allows a discount of 67% on the marked price. What is his gain or loss percentage (correct to two decimal places)?

(a) 66.14% loss
(b) 65.35% loss
(c) 66.1% loss
(d) 68.42% loss

Q41. What is the setting for Alice Feeney's 2025 psychological thriller Beautiful Ugly?

(a) East Gladness, Connecticut
(b) A remote Scottish island
(c) A Nebraskan town during the Dust Bowl
(d) Prague, Czech Republic

Q42. As of April 2025, how many languages are listed in the Eighth Schedule of the Indian Constitution?

(a) 18
(b) 20
(c) 14
(d) 22

Q43. As per IMF's January 2025 report, what is the projected global headline inflation rate for 2025?

(a) 5.0%
(b) 6.0%
(c) 4.2%
(d) 6.5%

Q44. Which of the following components is/are NOT a part of the Central Processing Unit (CPU)?

(a) Control Unit (CU)
(b) Graphic Card
(c) Arithmetic Logic Unit (ALU)
(d) Registers

Q45. Which Indian freedom fighter was one of the first to openly support Marxist and communist ideologies, and played a pioneering role in the labour movement and the formation of the Communist Party of India?

(a) Pulin Das
(b) Purushottamdas
(c) Chidambaram Pillai
(d) M N Roy

Q46. This question is based on the five, three-digit numbers given below.

(Left) 823 664 309 431 175 (Right)

(Example- 697 – First digit = 6, second digit = 9 and third digit = 7)

(NOTE: All operations to be done from left to right.)

What will be the resultant if the first digit of the highest number is added to the third digit of the lowest number?

(a) 13
(b) 11
(c) 14
(d) 16

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Q47. The marked price of a laptop is Rs. 750. It sells with two successive discounts of 4% and 25%. An additional 25% discount is given on cash payment. What is the selling price (in Rs.) of the laptop on cash payment?

(a) 407
(b) 405
(c) 406
(d) 402

Q48. A tap fills a cistern in 15 hours. Another tap empties the full tank in 17 hours. How long (in hours) will it take to fill two-third of the tank, if the tank is empty initially and both the taps are open together?

(a) 170
(b) 340
(c) 85
(d) 255

Q49. 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 ::?

: USO :: LJF : %

(a) = XVI, % = IZC
(b) = IOR, % = IZC
(c) = XVR, % = IGC
(d) = ZOR, % = IQV

Q50. The number of diagonals in a regular heptagon is:

(a) 18
(b) 19
(c) 14
(d) 15

Q51. In a certain code language, ‘sit back relax’ is coded as ‘ha mi pu’ and ‘relax and enjoy’ is coded as ‘pu co lz’. How is ‘relax’ coded in the given language?

(a) mi
(b) co
(c) pu
(d) ha

Q52. Refer to the following number and symbol series and answer the question that follows.

Counting to be done from left to right only.

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

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

(a) 4
(b) 7
(c) 5
(d) 6

Q53. What should come in place of the question mark (?) in the given series based on the English alphabetical order?

OQJ MOH KMF IKD ?

(a) GIC
(b) GJC
(c) GJB
(d) GIB

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Q54. Which of the following is NOT a type of quadrilateral?

(a) Octagon
(b) Trapezoid
(c) Rhombus
(d) Kite

Q55. What should come in place of the question mark (?) in the given series?

872 870 866 860 852 ?

(a) 840
(b) 843
(c) 842
(d) 841

Q56. In a certain code language, 'FIRE' is coded as '5371' and 'ACID' is coded as '8247'.

What is the code for 'I' in the given code language?

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

Q57. In a certain code language, 'WILD' is coded as '5391' and 'DOGS' is coded as '2458'.

What is the code for 'D' in the given code language?

(a) 2
(b) 1
(c) 4
(d) 5

Q58. Find the value of √(125 + √(344 + √289)).

(a) 7
(b) 12
(c) 8
(d) 22

Q59. Globalisation refers to the integration of economies worldwide. Which of the following was a major globalisation strategy adopted by the Indian government in 1991?

(a) Imposing high export tariffs
(b) Imposing high import tariffs
(c) Reducing trade barriers and encouraging foreign investment
(d) Promoting import substitution industrialisation

Q60. What should come in place of the question mark (?) in the given series based on the English alphabetical order?

FKP DIN BGL ZEJ ?

(a) CXH
(b) CHX
(c) XCH
(d) XHC

Q61. What should come in place of the question mark (?) in the given series?

113 137 106 130 99 123 ?

(a) 110
(b) 92
(c) 116
(d) 96

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Q62. 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) TC – AY
(b) HQ – OL
(c) BK – IF
(d) PY – WT

Q63. Read the given statements and conclusions carefully. Assuming that the information given in the statements is true, even if it appears to be at variance with commonly known facts, decide which of the given conclusion(s) logically follow(s) from the statements.

Statements:

Some houses are small.

Some small are forks.

All forks are knives.

Conclusions:

(I) Some small are houses.

(II) Some forks are small.

(a) Only conclusion (I) follows
(b) Both conclusions (I) and (II) follow
(c) Only conclusion (II) follows
(d) Neither conclusion (I) nor (II) follows

Q64. If the mode of a data exceeds its mean by 20.1, then the mode exceeds the median by _____. (Use empirical formula)

(a) 3.9
(b) 4.4
(c) 18.6
(d) 13.4

Q65. Refer to the following number and symbol series and answer the question that follows.

Counting to be done from left to right only.

(NOTE: All numbers are single digit numbers only.)

(Left) 3 % 2 % 2 £ £ & © £ 1 1 8 5 $ 9 9 5 2 & 5 6 (Right)

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

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

Q66. A 100 m long train overtakes a man moving at a speed of 9 km/hr (in same direction) in 30 seconds. How much time (in seconds) will this train take to completely cross another 220 m long train, moving in the opposite direction at a speed of 51 km/hr?

(a) 34
(b) 5
(c) 10
(d) 16

Q67. By when must an employer deposit employee deductions with a co-operative society if wages are paid daily?

(a) Before the next working day
(b) Within 24 hours
(c) Before the weekly holiday

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(d) Within 7 days of deduction

Q68. In a certain code language,

'A + B' means 'A is the sister of B'

'A – B' means 'A is the brother of B'

'A × B' means 'A is the wife of B'

'A ÷ B' means 'A is the father of B'.

Based on the above, how is M related to Q if 'M ÷ N + O − P × Q'?

(a) Wife's Brother
(b) Father
(c) Brother
(d) Wife's Father

Q69. Find the average of all prime numbers between 20 and 40.

(a) 20
(b) 25
(c) 28
(d) 30

Q70. What will come in the place of the question mark '(?)' in the following equation, if '+' and '−' are interchanged and '×' and '÷' are interchanged?

116 ÷ 5 − 423 × 3 + 13 = ?

(a) 708
(b) 808
(c) 608
(d) 508

Q71. Who received a Special Citation in the 2025 Pulitzer Prizes for civil rights journalism?

(a) Nikole Hannah-Jones
(b) Ida B Wells
(c) Ta-Nehisi Coates
(d) Chuck Stone

Q72. The Amaravati Stupa had been built by which of the following rulers?

(a) Shungas
(b) Guptas
(c) Satavahana
(d) Mauryas

Q73. Ganesh starts from point A and drives 11 km towards the south. He then takes a right turn, drives 8 km, turns right and drives 15 km. He then takes a right turn and drives 12 km. He takes a final right turn, drives 4 km and stops at point P. How far (shortest distance) and towards which direction should he drive in order to reach point A again?

(All turns are 90-degree turns only unless specified.)

(a) 3 km to the west
(b) 4 km to the east
(c) 3 km to the east
(d) 4 km to the west

Q74. If 4 : 16 :: 7.3 : x and 4 : 32 :: 7 : y. What is the ratio of x to y?

(a) 73 : 140
(b) 74 : 138
(c) 71 : 141
(d) 77 : 150

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Q75. Which of the following dance forms is often accompanied by the famous song form 'Thumri'?

(a) Sattriya
(b) Kathak
(c) Kuchipudi
(d) Chhau

Q76. Which of the following is the largest Peninsular river?

(a) Godavari
(b) Narmada
(c) Mahanadi
(d) Kaveri

Q77. A water tank can be filled in 38 minutes by using 44 pipes of the same capacity. In how many minutes (rounded off to two decimal places) will the water tank be filled if we use 37 pipes of the same capacity as above?

(a) 39.05
(b) 43.91
(c) 45.19
(d) 49.75

Q78. During the 2025 defense expo, Gallium Nitride (GaN) Semiconductor Solutions was highlighted as a key advancement in which area of defense technology?

(a) Combat navigation
(b) Cybersecurity infrastructure
(c) Space communications
(d) Radar and electronic warfare systems

Q79. As per the Ministry of Finance, what percentage of India's population filed income tax returns in FY 2023-24?

(a) 66.8%
(b) 16.68%
(c) 6.68%
(d) 36.68%

Q80. Find the cost (in Rs.) of digging a cuboidal pit that is 6 m long, 64 m broad and 10 m deep at the rate of Rs. 15 per m^3.

(a) 57,598
(b) 57,602
(c) 57,600
(d) 57,591

Q81. How many times may the President of India ask the Prime Minister to have an executive recommendation reconsidered by the Cabinet?

(a) Twice
(b) Only once
(c) As many times as needed
(d) It is at the President's absolute discretion without limits.

Q82. Evaluate: $22 - [22 - \{22 - (22 - 22 \times 4)\}]$

(a) 101
(b) 92
(c) 88
(d) 111

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Q83. Each of P, Q, R, S, T, U and V has an exam on a different day of a week starting from Monday and ending on Sunday of the same week. U has an exam on Tuesday. Only two people have exams between P and U. V has an exam immediately before R but not on Saturday. T has an exam after P but before Q. How many people have exams between S and Q?

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

Q84. Arpan starts from Point A and drives 12 km towards East. He then takes a right turn, drives 8 km, turns right and drives 14 km. He then takes a right turn and drives 12 km. He takes a final right turn, drives 2 km and stops at Point P. How far (shortest distance) and towards which direction should he drive in order to reach Point A again? (All turns are 90° turns only, unless specified)

(a) 2 km to the south
(b) 3 km to the south
(c) 1 km to the south
(d) 4 km to the south

Q85. Which of the given tribal uprisings did NOT take place around the unrest during the Revolt of 1857?

(a) Rebellion of Sambalpur
(b) Naikda Movement
(c) Birsa Munda Revolt
(d) Santhal Rebellion

Q86. The mean proportional between $(18 + 10\sqrt{7})$ and $(18 - 4\sqrt{7})$

(a) $\sqrt{(44 + 108\sqrt{7})}$
(b) $\sqrt{(4 + 56\sqrt{7})}$
(c) $\sqrt{(10 + 56\sqrt{7})}$
(d) $\sqrt{(44 + 56\sqrt{7})}$

Q87. A, B, C, D, G, H and I are sitting around a circular table facing the centre of the table. Only B sits between H and A. A sits third to the left of D. G sits to the immediate left of D. C is not an immediate neighbour of A. Who sits third to the left of I?

(a) G
(b) A
(c) C
(d) H

Q88. If 1 is added to each odd digit and 2 is subtracted from each even digit in the number 7452183, then what will the difference between the highest and lowest digits in the new number thus formed be?

(a) 9
(b) 8
(c) 6
(d) 7

Q89. Which of the following statements regarding the Uttar Poorva Transformative Industrialization Scheme (UNNATI), as highlighted in Rajya Sabha Unstarred Question

(answered on 20 December 2024), is/are correct?

The total budget outlay for the UNNATI Scheme is Rs. 10,037 crores, with 60% of the outlay allocated to the North East Region.

Capital Investment Incentives in Zone A districts are higher than in Zone B districts.

The UNNATI Scheme is effective for 10 years, with an additional 8 years for meeting committed liabilities.

The UNNATI Scheme is a Central sector scheme implemented under the Ministry of Development of North Eastern Region.

(a) 2 and 3 Only

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(b) 1 and 3 Only
(c) 1, 2, 3 and 4
(d) 1 Only

Q90. A, B, C, D, E, F and G are sitting around a circular table facing the centre. B sits third to the left of C. F sits second to the left of E. B is not an immediate neighbour of E. D sits to the immediate right of A. What is the position of B with respect to G?
(a) Third to the left
(b) To the immediate left
(c) Second to the left
(d) To the immediate right

Q91. 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 is the letter-cluster pair that 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) LP - JK
(b) JN - HL
(c) OS - MQ
(d) NR - LP

Q92. In modern motherboards, which component is directly connected to the CPU to facilitate high-speed communication?
(a) GPU
(b) ROM
(c) PCB
(d) Northbridge

Q93. In April 2025, India's trade deficit with which country widened to a record $99.2 billion?
(a) The US
(b) Germany
(c) The UK
(d) China

Q94. Green Revolution technologies heavily relied on inputs and were scale-sensitive. Why did small and marginal farmers face challenges in adopting Green Revolution technologies?
(a) Excess availability of land
(b) High input costs and credit inaccessibility
(c) Limited demand for food grains
(d) Scarcity of agricultural labourers

Q95. The total length of the Northern Plain of India from west to east is approximately _____.
(a) 3500 km
(b) 3200 km
(c) 1600 km
(d) 2400 km

Q96. At what rate of interest per annum will a sum of Rs. 8,000 amount to Rs. 15,625 in 1 year and 6 months, if the interest is compounded half-yearly?
(a) 67%
(b) 70%
(c) 50%
(d) 65%

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Q97. In March 2025, India's Parliament passed the Bills of Lading Bill, 2025. What was the primary objective of this legislation?

(a) To establish new maritime boundaries
(b) To privatise major ports
(c) To modernise the 169 years old shipping law
(d) To regulate inland water transport

Q98. The evidence of the earliest cotton cultivation in the Indus valley is found at which site?

(a) Harappa
(b) Kalibangan
(c) Mehrgarh
(d) Rakhigarhi

Q99. Who among the following won the men's singles title at the Indian Open 2025 Professional Squash Association (PSA) Copper event?

(a) Abhay Singh
(b) Marwan El Shorbagy
(c) Kareem El Torkey
(d) Saurav Ghosal

Q100. A shopkeeper purchased 59 dozens of articles at the rate of Rs. 728 per dozen. He sold each one of them at the rate of Rs. 91. What percentage profit did he make?

(a) 50%
(b) 52%
(c) 49%
(d) 48%

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ANSWER KEY

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

SOLUTIONS

Q1. Answer: (c) Andaman Sea

The correct answer is Andaman Sea.

Key Points

• Narcondam Island is a small volcanic island located in the Andaman Sea, part of the Andaman and Nicobar Islands in India.
• The island is situated to the northeast of the main Andaman Islands and is a part of the Andaman district.
• Narcondam Island is an extinct volcanic island and is the second volcanic island in India after Barren Island.
• The island is known for its unique biodiversity and is home to the Narcondam Hornbill, a bird species endemic to the island.
• The Andaman Sea, where Narcondam Island is located, lies to the east of the Andaman and Nicobar Islands and is part of the northeastern Indian Ocean.

Additional Information

• Andaman Sea

• The Andaman Sea is a marginal sea of the northeastern Indian Ocean bounded by the Andaman and Nicobar Islands to the west, Myanmar to the north, Thailand to the east, and the Malay Peninsula to the southeast.

• It is known for its rich biodiversity and is part of the Indo-Pacific region, which supports a variety of marine life.

• It is an important route for international maritime trade connecting the Indian Ocean with the Pacific via the Strait of Malacca.

• Narcondam Hornbill

• The Narcondam Hornbill (Rhyticeros narcondami) is a critically endangered bird species found only on Narcondam Island.

• It is listed as "Vulnerable" on the IUCN Red List due to its restricted habitat and threats from habitat loss.

• Conservation efforts are ongoing to protect this unique species and its habitat.

• Barren Island

• Barren Island, located near Narcondam Island, is the only active volcano in South Asia and is part of the Andaman and Nicobar Islands.

• Unlike Narcondam, which is extinct, Barren Island has periodic eruptions, with the latest reported in 2017.

• Andaman and Nicobar Islands

• The Andaman and Nicobar Islands are a group of islands located at the southeastern edge of the Bay of Bengal.

• They are a Union Territory of India and consist of 572 islands, of which 37 are inhabited.

• The islands are known for their strategic importance, rich biodiversity, and indigenous tribes such as the Jarawas and Sentineleses.

Q2. Answer: (c) 24

Given number: 7153246

According to the question,

Number given	**7**	**1**	**5**	**3**	**2**	**4**	**6**
Odd digit → (+2) Even digit → (+2)	(+2)	(+2)	(+2)	(+2)	(+2)	(+2)	(+2)
Resultant number	9	3	7	5	4	6	8

So, the sum of all the odd digits in the new number thus formed → 9 + 3 + 7 + 5 = 24

Hence, "Option 3" is the correct answer.

Q3. Answer: (b) 11 : 35

Shortcut Trick

Identify the common token which is Red.

Ratio 1 (Red : Green) = 7 : 4 | Ratio 2 (Pink : Red) = 20 : 11.

Multiply Ratio 1 by 11 and Ratio 2 by 7 to make Red equal (77).

New Red : Green = 77 : 44 and Pink : Red = 140 : 77.

Green : Pink = 44 : 140 = 11 : 35.

Therefore The correct answer is 11 : 35.

Alternate Method

Given:

Ratio of Red (R) to Green (G) = 7 : 4

Ratio of Pink (P) to Red (R) = 20 : 11

Formula Used:

To find the combined ratio, equalize the value of the common term (Red).

Calculations:

=> R / G = 7 / 4 => G / R = 4 / 7

=> P / R = 20 / 11

=> To find G : P, we can use (G / R) × (R / P)

=> G / P = (4 / 7) × (11 / 20)

=> G / P = (4 × 11) / (7 × 20)

=> G / P = 44 / 140

=> Divide both by 4: G / P = 11 / 35

Therefore The correct answer is 11 : 35.

Additional Information

Compound Ratio

The compound ratio of two ratios a:b and c:d is found by multiplying the corresponding terms: (a×c) : (b×d).

Equalizing Ratios

If a:b and b:c are given, multiply the first ratio by the 'b' value of the second, and the second ratio by the 'b' value of the first to get a:b:c.

Reciprocal Ratio

The reciprocal ratio of a:b is b:a. This is useful when the required output order is different from the given data.

Q4. Answer: (b) 8

The solution is in Hindi. Read it online.

Q5. Answer: (c) Metalloids are scattered randomly throughout the table.

The correct answer is Metalloids are scattered randomly throughout the table.

Key Points

• Metalloids are not scattered randomly in the periodic table; they are positioned along a zig-zag line known as the "stair-step line."

• This zig-zag line separates metals on the left side and non-metals on the right side of the periodic table.

• Metalloids exhibit properties intermediate between metals and non-metals, and they include elements like boron, silicon, arsenic, and tellurium.

• The periodic table is structured systematically, grouping elements based on their chemical properties, atomic number, and electron configuration.

• Non-metals are predominantly located in the top right corner of the periodic table, while metals occupy the left side and center.

Additional Information

• Periodic Table Structure:

• The periodic table is divided into groups (columns) and periods (rows) based on atomic number and electron configuration.

• Groups indicate elements with similar chemical properties, while periods represent elements with increasing atomic numbers.

• Metals:

• Metals are found on the left and center of the periodic table and are characterized by properties like malleability, ductility, and good conductivity of heat and electricity.

• Examples include iron, copper, and aluminum.

• Non-Metals:

• Non-metals are located on the top right corner of the periodic table and exhibit properties like poor conductivity and brittleness.

• Examples include oxygen, nitrogen, and sulfur.

• Metalloids:

• Metalloids are elements that have properties of both metals and non-metals, positioned along the zig-zag line.

• Examples include boron, silicon, and arsenic.

• Zig-Zag Line:

• The zig-zag line or stair-step line separates metals from non-metals and highlights the position of metalloids in the periodic table.

• It serves as a visual guide to understanding the classification of elements.

Q6. Answer: (d) 30.8

Shortcut Trick

Downstream Speed = 7 + 5 = 12 km/hr

Upstream Speed = 7 − 5 = 2 km/hr

Total Time = (Distance ÷ Downstream Speed) + (Distance ÷ Upstream Speed)

Total Time = (52.8 ÷ 12) + (52.8 ÷ 2) = 4.4 + 26.4 = 30.8 hours

Therefore The correct answer is 30.8 hours.

Alternate Method

Given:

Speed of boat in still water (u) = 7 km/hr

Speed of stream (v) = 5 km/hr

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One-way distance (D) = 52.8 km
Formula Used:
Downstream Speed (S_d) = u + v
Upstream Speed (S_u) = u − v
Total Time = T_(down) + T_(up)
Calculations:
=> S_d = 7 + 5 = 12 km/hr
=> S_u = 7 − 5 = 2 km/hr
=> Time taken downstream = 52.8 ÷ 12 = 4.4 hours
=> Time taken upstream = 52.8 ÷ 2 = 26.4 hours
=> Total time = 4.4 + 26.4 = 30.8 hours
Therefore The correct answer is 30.8 hours.
Additional Information
Average Speed of Boat
The average speed for a round trip is calculated as (S_d × S_u) / u, where u is speed in still water.
Finding u and v from speeds
Speed in still water (u) = (S_d + S_u) ÷ 2 and Speed of stream (v) = (S_d − S_u) ÷ 2.
Relative Speed Concept
In downstream, the stream helps the boat (addition), while in upstream, the stream opposes the boat (subtraction).

Q7. Answer: (d) 25

Shortcut Trick
Subtract the remainders from the given numbers: 152 − 2 = 150 and 181 − 6 = 175.
Find the HCF of 150 and 175.
150 = 25 × 6 and 175 = 25 × 7.
The highest common factor is 25.
Therefore The correct answer is 25.
Alternate Method
Given: Numbers are 152 and 181; Remainders are 2 and 6 respectively.
Formula: Greatest number dividing x, y leaving remainders a, b = HCF(x − a, y − b).
=> First number = 152 − 2 = 150
=> Second number = 181 − 6 = 175
=> Prime factors of 150 = 2 × 3 × 5 × 5 = 2 × 3 × 5^2
=> Prime factors of 175 = 5 × 5 × 7 = 5^2 × 7
=> HCF(150, 175) = 5^2 = 25
Therefore The correct answer is 25.
Additional Information
HCF with remainders
To find the greatest number that divides several numbers leaving different remainders, subtract the remainders from the respective numbers and calculate their Highest Common Factor (HCF).
LCM with same remainder
The least number which when divided by x, y, and z leaves the same remainder 'r' in each case is LCM(x, y, z) + r.
HCF of Fractions
HCF of (a/b, c/d) = HCF(a, c) ÷ LCM(b, d).

Q8. Answer: (d) ZS -7

The logic followed here is:
JR 11 is related to MV 2
And,
KL 7 is related to NP -2
Similarly,
WO 2 is related to

Hence, "Option 4" is the correct answer.

Q9. Answer: (d) Palas, Gurjara-Pratiharas and Rashtrakutas

The correct answer is Palas, Gurjara-Pratiharas and Rashtrakutas.

Key Points

• The tripartite struggle for Kannauj was a power struggle between three major dynasties: Palas, Gurjara-Pratiharas, and Rashtrakutas.

• Kannauj, located in present-day Uttar Pradesh, was a strategically significant city due to its location on the Ganga trade route and its historical importance.

• The struggle began in the 8th century and continued into the 9th century, as each dynasty sought to control Kannauj to assert dominance over Northern India.

• The Gurjara-Pratiharas, under rulers such as Nagabhata I and Mihira Bhoja, played a key role in the struggle by frequently contesting the Palas and Rashtrakutas.

• The Rashtrakutas, led by rulers like Dhruva Dharavarsha and Govinda III, launched northern expeditions to claim Kannauj, intensifying the conflict.

Additional Information

• Pala Dynasty:

• Founded by Gopala in the 8th century, the Pala Empire was known for its patronage of Buddhism and significant contributions to art and education.

• The Palas ruled over Bengal and Bihar, with Dharampala and Devapala being prominent rulers during the tripartite struggle.

• Gurjara-Pratihara Dynasty:

• This dynasty emerged in western and northern India, with its capital shifting to Kannauj during its peak.

• Known for its resistance to Arab invasions, the Pratiharas played a significant role in preserving Indian culture during this era.

• Rashtrakuta Dynasty:

• Originating from the Deccan region, the Rashtrakutas were known for their military prowess and cultural achievements, such as the construction of the Kailasanatha Temple at Ellora.

• Their rulers often launched northern campaigns, bringing them into conflict with the Palas and Pratiharas.

• Strategic Importance of Kannauj:

• Kannauj was a key center of trade, administration, and cultural exchange in medieval India.

• Control over Kannauj symbolized political supremacy over Northern India, making it a coveted prize for the rival dynasties.

Q10. Answer: (c) Managed floating exchange rate

The correct answer is Managed Floating Exchange Rate.

Key Points

• India adopted the Managed Floating Exchange Rate regime post-1991 as part of its economic liberalization policies.

• A managed floating exchange rate allows the exchange rate to be primarily determined by market forces but permits intervention by the central bank to stabilize or influence rates.

• The 1991 economic reforms were triggered by a balance of payments crisis, leading to significant structural changes in monetary and fiscal policies.

• Under this system, the Reserve Bank of India (RBI) intervenes in the foreign exchange market to curb excessive volatility and maintain economic stability.

• This regime provides flexibility in exchange rates while ensuring that they do not fluctuate excessively, impacting trade and economic growth.

Additional Information

• Exchange Rate Regimes

• A fixed exchange rate regime involves pegging a currency's value to another currency or a basket of currencies.

• A floating exchange rate regime lets market forces of demand and supply determine the currency's value without central bank intervention.

• Managed floating exchange rate is a hybrid model where market forces determine the rate, but the central bank intervenes to stabilize extreme fluctuations.

• 1991 Economic Reforms in India

• India faced a severe balance of payments crisis in 1991, leading to the liberalization of its economy.

• Key reforms included trade liberalization, privatization, deregulation, and adopting market-driven policies.

• These reforms aimed to integrate India into the global economy and attract foreign investments.

• Role of RBI in Exchange Rate Management

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• The Reserve Bank of India (RBI) plays a critical role in managing exchange rates under the managed floating system.
• It intervenes in the forex market by buying or selling foreign currencies to curb excessive volatility.
• RBI ensures that exchange rate fluctuations do not negatively impact inflation, trade, or economic stability.
• Impact of Managed Floating Exchange Rate
• This regime helps maintain a balance between stability and flexibility in exchange rates.
• It promotes trade competitiveness by allowing the currency to adjust to market dynamics.
• Central bank intervention ensures economic stability during periods of excessive volatility or external shocks.

Q11. Answer: (b) 1 and frac37

Shortcut Trick

For any quadratic equation $ax^2 + bx + c = 0$, if the sum of coefficients (a + b + c) equals 0, then the roots are always 1 and c/a.

In the equation $7x^2 - 10x + 3 = 0$, coefficients are a = 7, b = −10, and c = 3.

Sum: 7 + (−10) + 3 = 0.

Therefore, the roots are 1 and 3/7.

Therefore The correct answer is 1 and 3/7.

Alternate Method

Given:

Quadratic Equation: $7x^2 - 10x + 3 = 0$

Method: Factorization by splitting the middle term

To factorize, we need two numbers that multiply to (7 × 3 = 21) and add up to −10. These numbers are −7 and −3.

=> $7x^2 - 7x - 3x + 3 = 0$

=> $7x(x - 1) - 3(x - 1) = 0$

=> $(x - 1)(7x - 3) = 0$

Now, set each factor to zero:

=> $x - 1 = 0 \rightarrow x = 1$

=> $7x - 3 = 0 \rightarrow 7x = 3 \rightarrow x = 3/7$

Therefore The correct answer is 1 and 3/7.

Additional Information

Sum and Product of Roots

For a quadratic equation $ax^2 + bx + c = 0$, the Sum of roots = −b/a and the Product of roots = c/a.

Discriminant and Nature of Roots

The value $D = b^2 - 4ac$ determines the nature: if D > 0, roots are real and distinct; if D = 0, roots are real and equal; if D < 0, roots are imaginary.

Quadratic Formula

Roots can also be calculated using $x = [-b \pm \sqrt{(b^2 - 4ac)}] / 2a$.

Q12. Answer: (d) DAGs enable the creation of hard links, allowing a single file to have multiple directory entries.

The correct answer is DAGs enable the creation of hard links, allowing a single file to have multiple directory entries..

Key Points

• A Directed Acyclic Graph (DAG) structure allows files to have multiple parent directories, enabling the creation of hard links, which are pointers to the same physical file.
• Hard links facilitate efficient file sharing without duplicating data, reducing storage requirements.
• Changes made to a file are reflected across all its hard links, ensuring consistency in data access.
• Unlike tree structures where files have a single parent directory, DAGs provide flexibility in file organization and access paths.
• Hard links are widely used in file systems such as Unix/Linux, offering a robust mechanism for file management and sharing.

Additional Information

• Directed Acyclic Graph (DAG):
• A DAG is a graph structure where edges have a direction and there are no cycles (i.e., no path loops back to itself).
• It is used in various applications such as file systems, blockchain technology, and task scheduling algorithms.
• Hard Links vs. Soft Links:
• Hard links are pointers to the actual data on the disk and share the same inode number as the original file.
• Soft links (symbolic links) are shortcuts that point to the file's location rather than the data itself.
• Deleting a file does not affect its hard links, while deleting a target file breaks its symbolic links.

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• File System Hierarchies:
• Tree-based file systems enforce a strict parent-child relationship with a single root directory.
• DAG-based file systems provide greater flexibility by allowing multiple parent directories for a single file.
• Unix/Linux File Systems:
• Popular file systems like ext4 and NTFS leverage DAG structures to enable advanced features such as hard links and journaling.
• DAG structures improve data accessibility and redundancy in these operating systems.
• Applications of DAGs:
• DAGs are also extensively used in blockchain technologies like IOTA for transaction validation.
• They are critical in representing dependencies in task scheduling systems and computational workflows.

Q13. Answer: (d) frac12

Shortcut Trick
Identify complementary angles: 68° + 22° = 90° and 17° + 73° = 90°.
Using $\sin^2\theta + \sin^2(90°-\theta) = 1$, the numerator becomes 1.
Using $\cos^2\theta + \cos^2(90°-\theta) = 1$, the denominator becomes 2(1) = 2.
Result = 1 ÷ 2 = 1/2.
Therefore The correct answer is 1/2.
Alternate Method
Given: $(\sin^2 68° + \sin^2 22°)/(2(\cos^2 17° + \cos^2 73°))$
Formula Used: $\sin(90° - \theta) = \cos\theta$ and $\cos(90° - \theta) = \sin\theta$; $\sin^2\theta + \cos^2\theta = 1$.
=> Numerator: $\sin^2 68° + \sin^2 (90° - 68°)$
=> Numerator: $\sin^2 68° + \cos^2 68° = 1$
=> Denominator: $2 \times [\cos^2 17° + \cos^2 (90° - 17°)]$
=> Denominator: $2 \times [\cos^2 17° + \sin^2 17°]$
=> Denominator: $2 \times 1 = 2$
=> Value = 1/2
Therefore The correct answer is 1/2.
Additional Information
Complementary Angle Identities
For any angle θ, $\sin(90° - \theta) = \cos\theta$, $\cos(90° - \theta) = \sin\theta$, and $\tan(90° - \theta) = \cot\theta$.
Pythagorean Identities
The most fundamental identity is $\sin^2\theta + \cos^2\theta = 1$, which applies for all real values of θ.
Square Sum Shortcut
If A + B = 90°, then $\sin^2 A + \sin^2 B = 1$ and $\cos^2 A + \cos^2 B = 1$.

Q14. Answer: (a) Indus, Ganga and Brahmaputra

The correct answer is Indus, Ganga and Brahmaputra.
Key Points
• The Great Plains of India are an extensive flat landmass stretching across northern India, formed primarily due to the deposition of sediments carried by the rivers Indus, Ganga, and Brahmaputra.
• These plains are also known as the Indo-Gangetic Plains and are one of the most fertile regions in the world due to rich alluvial soil deposited by the rivers.
• The sediment deposition process began millions of years ago when the Himalayas were formed, leading to erosion and transportation of materials downstream.
• The plains cover approximately 7 lakh square kilometers across northern and eastern India, including parts of Pakistan and Bangladesh.
• The rivers provided the necessary water and nutrients for agriculture, making the region a hub of ancient civilizations like the Indus Valley Civilization.
Additional Information
• Alluvial Soil:
• Alluvial soil is formed due to the deposition of sediments by rivers and is rich in minerals like potash, phosphoric acid, and lime.
• It is ideal for growing crops such as wheat, rice, sugarcane, and pulses.
• Indus River System:

• The Indus River originates from Tibet and flows through India and Pakistan, contributing significantly to sediment deposition.
• It has several tributaries, including Jhelum, Chenab, Ravi, Beas, and Sutlej.
• Ganga River System:
• The Ganga River originates from the Gangotri Glacier in the Himalayas and flows through northern India and Bangladesh.
• Major tributaries include Yamuna, Ghaghara, Gandak, and Kosi.
• Brahmaputra River System:
• The Brahmaputra River originates from Tibet and flows through northeastern India and Bangladesh.
• Its basin is one of the richest biodiversity hotspots in the world.
• Importance of the Great Plains:
• The region supports a large population due to its fertile soil and abundant water resources.
• It plays a crucial role in India's agricultural economy, contributing significantly to food production.

Q15. Answer: (c) KP-MR-OQ

The logic followed here is:
QV-SX-UW
And,
NS-PU-RT
So, checking each option one by one:
Option 1) LP-MR-OS
Option 2) KP-MR-OS
Option 3) KP-MR-OQ
Option 4) LP-NR-OS

Thus, out of all the options, 'KP-MR-OQ' follows the same logic as given.
Hence, "Option 3" is the correct answer.

Q16. Answer: (c) 1861

The correct answer is 1861.
Key Points
• The Indian High Courts Act was passed in 1861 during British rule in India.
• This act paved the way for the establishment of High Courts in major presidencies such as Calcutta, Bombay, and Madras.
• It replaced the Supreme Courts and Sadar Adalats that were functioning in these presidencies at the time.
• The High Courts established under this act were vested with civil, criminal, and appellate jurisdiction.
• The Indian High Courts Act of 1861 is considered a significant step in the judicial reforms in colonial India.
Additional Information
• Supreme Courts and Sadar Adalats:
• Before the High Courts were established, Supreme Courts functioned in Calcutta, Bombay, and Madras.
• Sadar Adalats were the principal courts of appeal in civil and criminal cases in the provinces.
• Judicial Reforms under British Rule:
• The British introduced several judicial reforms to consolidate their administrative control over India.
• The Indian High Courts Act was part of these reforms aimed at improving the efficiency and structure of the judiciary.
• Indian High Courts Act of 1861:
• It allowed the Crown to establish High Courts by Letters Patent in the presidencies.
• The High Courts were modeled on the British judicial system, ensuring uniformity and better administration of justice.
• Modern Relevance:
• High Courts continue to function as the principal civil and criminal courts of appeal in India.
• The judiciary in India still follows the hierarchical structure introduced during British rule.

Q17. Answer: (c) Three

Given number: 6318574
According to the question,

Number given	6	3	1	8	5	7	4

Odd digit → (+1) Even digit → (-2)	(-2)	(+1)	(+1)	(-2)	(+1)	(+1)	(-2)
Resultant number	4	4	2	6	6	8	2

So, the number of digits that appeared more than once in the new number thus formed → 4, 6 and 2 = Three

Hence, "Option 3" is the correct answer.

Q18. Answer: (d) 1,55,555.56

Shortcut Trick

Net multiplier for 2 years = (102/100) × (120/100) = 1.02 × 1.2 = 1.224

Initial Sale = Present Sale ÷ Net Multiplier

Initial Sale = 1,90,400 ÷ 1.224

Initial Sale = 1,55,555.555...

Therefore The correct answer is Rs. 1,55,555.56.

Alternate Method

Given:

Present Sale = Rs. 1,90,400

First year increase = 2%

Second year increase = 20%

Formula Used:

Present Value = Initial Value × (1 + r1/100) × (1 + r2/100)

Calculations:

Let the sale two years ago be X.

=> 1,90,400 = X × (1 + 2/100) × (1 + 20/100)

=> 1,90,400 = X × (102/100) × (120/100)

=> 1,90,400 = X × 1.02 × 1.2

=> 1,90,400 = X × 1.224

=> X = 1,90,400 ÷ 1.224

=> X = 1,55,555.555...

=> X ≈ 1,55,555.56

Therefore The correct answer is Rs. 1,55,555.56.

Additional Information

Successive Percentage Change

When a value changes by a% and then by b%, the effective change is (a + b + ab/100)%.

Base Change Principle

To find the original value after a percentage increase, divide the final value by (1 + percentage increase as a decimal).

Fractional Conversion

2% = 1/50 and 20% = 1/5. Use multipliers 51/50 and 6/5 for faster calculation.

Q19. Answer: (a) 48

Shortcut Trick

Let the longer side be L and shorter side be (L − 24).

Given: Area = 8 × Perimeter => L(L − 24) = 8 × 2[L + (L − 24)].

L(L − 24) = 16(2L − 24) => L2 − 24L = 32L − 384.

L2 − 56L + 384 = 0 => (L − 48)(L − 8) = 0.

Since side (L − 24) must be positive, L > 24, so L = 48.

Therefore The correct answer is 48 cm.

Alternate Method

Given: Difference between longer side (L) and shorter side (B) = 24 cm. Area = 8 × Perimeter.

Formula Used: Area of rectangle = L × B; Perimeter of rectangle = 2(L + B).

=> Let L = x, then B = x − 24.

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=> Area = x(x − 24).

=> Perimeter = 2(x + x − 24) = 2(2x − 24) = 4x − 48.

=> According to question: x(x − 24) = 8(4x − 48).

=> x2 − 24x = 32x − 384.

=> x2 − 56x + 384 = 0.

=> x2 − 48x − 8x + 384 = 0.

=> x(x − 48) − 8(x − 48) = 0.

=> (x − 48)(x − 8) = 0.

=> x = 48 or x = 8.

=> Since B = x − 24, x cannot be 8 (else B would be negative).

=> Longer side L = 48 cm.

Therefore The correct answer is 48 cm.

Additional Information

Properties of Rectangle

A rectangle is a quadrilateral with four right angles. Opposite sides are equal and parallel. The diagonal length is given by √(L2 + B2).

Quadratic Roots

For a quadratic equation ax2 + bx + c = 0, the sum of roots is −b/a and product of roots is c/a. In x2 − 56x + 384 = 0, 48 × 8 = 384 and 48 + 8 = 56.

Q20. Answer: (a) Ctrl + M

The correct answer is Ctrl + M.

Key Points

• Ctrl + M is the keyboard shortcut used in PowerPoint 2019 to insert a new slide in a presentation.

• This shortcut is applicable across different versions of Microsoft PowerPoint, including Office 365.

• Using Ctrl + M creates a new slide immediately after the currently selected slide with the default layout.

• The shortcut is a time-saving feature designed to streamline the presentation-creation process.

• Other shortcuts like Ctrl + D duplicate slides, but Ctrl + M specifically adds a blank new slide.

Additional Information

• PowerPoint Keyboard Shortcuts

• Ctrl + N: Creates a new PowerPoint presentation.

• Ctrl + D: Duplicates the currently selected slide.

• Ctrl + K: Inserts a hyperlink into the slide.

• Ctrl + P: Activates the pen tool during a presentation slideshow.

• F5: Starts the slideshow from the beginning.

• Default Slide Layouts

• When inserting a new slide using Ctrl + M, the default layout is typically "Title and Content," but this may vary based on the template in use.

• Users can customize the slide layout after insertion using the "Layout" button in the Home tab.

• Customizing Shortcuts

• Microsoft PowerPoint does not allow direct customization of keyboard shortcuts within the application.

• However, third-party tools or macros can be used to modify shortcut functions.

• Efficient Presentation Creation

• Learning and using keyboard shortcuts like Ctrl + M can significantly improve productivity.

• Shortcuts reduce dependency on the mouse and make the workflow more efficient.

Q21. Answer: (b) The Cabinet gives final shape to government bills and prepares the legislative agenda.

The correct answer is The Cabinet gives final shape to government bills and prepares the legislative agenda..

Key Points

• The Indian Union Cabinet plays a key role in the legislative process by formulating and finalizing government bills before they are introduced in Parliament.

• It is responsible for preparing the legislative agenda, which outlines the government’s priority bills to be discussed in Parliament.

• The Cabinet ensures that proposed legislations align with government policies and objectives.

• After the Cabinet approves a bill, it is introduced in either the Lok Sabha or the Rajya Sabha for deliberation and eventual enactment.

• The Cabinet does not have the authority to enact laws directly; it acts as an executive body within the structure of parliamentary democracy.

Additional Information

• Union Cabinet:

• The Union Cabinet is a part of the Council of Ministers, headed by the Prime Minister of India.

• It is responsible for the formulation of policies and implementation of laws in India.

• The Cabinet operates under the framework of the Indian Constitution, which establishes the principle of collective responsibility to the Lok Sabha.

• Legislative Process in India:

• Legislation in India involves drafting bills, deliberation in Parliament, and Presidential assent.

• The government primarily introduces bills that reflect its policies and priorities.

• Role of Parliament:

• Both the Lok Sabha (House of the People) and the Rajya Sabha (Council of States) deliberate on bills to ensure comprehensive scrutiny.

• The Parliament enacts laws, while the Cabinet facilitates the process by preparing and proposing bills.

• Checks and Balances:

• The Cabinet cannot bypass the legislative authority of Parliament.

• This ensures a balance of power between the executive, legislative, and judicial branches of government.

Q22. Answer: (c) (6, 42, 15)

The logic followed here is:

(14, 66, 19)

(14 + 19) × 2 = 66

33 × 2 = 66

66 = 66 (LHS = RHS)

And,

(43, 134, 24)

(43 + 24) × 2 = 134

67 × 2 = 134

134 = 134 (LHS = RHS)

So, checking each option one by one:

Option 1) (45, 97, 4)

(45 + 4) × 2 = 97

49 × 2 = 97

98 ≠ 97 (LHS ≠ RHS)

Option 2) (10, 35, 8)

(10 + 8) × 2 = 35

18 × 2 = 35

36 ≠ 35 (LHS ≠ RHS)

Option 3) (6, 42, 15)

(6 + 15) × 2 = 42

21 × 2 = 42

42 = 42 (LHS = RHS)

Option 4) (37, 81, 4)

(37 + 4) × 2 = 81

41 × 2 = 81

82 ≠ 81 (LHS ≠ RHS)

Hence, "Option 3" is the correct answer.

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Q23. Answer: (b) It converts the selected text into a structured list with symbols or numbers for better organization.

The correct answer is It converts the selected text into a structured list with symbols or numbers for better organization..

Key Points

• Applying bullets or numbering in MS Word transforms a block of text into a structured list for better readability and organization.

• Bullets use symbols (e.g., dots, dashes) to indicate individual items, while numbering assigns sequential numbers to the list items.

• This feature is useful for creating lists such as to-do lists, outlines, or step-by-step instructions.

• It enhances the document's visual structure, making it easier for readers to navigate through the content.

• Users can customize bullets or numbering styles from the "Home" tab in the Ribbon under the Paragraph section.

Additional Information

• Bullets:

• Bullets are non-numerical symbols such as dots (•), squares (▪), or custom icons used to highlight points in a list.

• They are ideal for unordered lists where the sequence of items is not important.

• Customization allows users to choose styles, colors, or even insert images as bullets.

• Numbering:

• Numbering uses sequential numbers or letters (1, 2, 3 or a, b, c) to organize list items.

• It is suitable for ordered lists where the sequence is significant, such as instructions or rankings.

• Users can also apply multi-level numbering for hierarchical lists.

• Multilevel Lists:

• Multilevel lists allow a nested structure with bullets or numbers for sub-points under main points.

• This feature is useful for creating outlines or complex document structures.

• Shortcut Keys:

• Users can quickly apply bullets using Ctrl+Shift+L and numbering with other commands in MS Word.

• Customization Options:

• Users can access the Bullets and Numbering dialog box for advanced customization, such as adjusting indents or selecting unique styles.

• This feature is located in the Home tab > Paragraph group.

Q24. Answer: (d) CO and CO2

The correct answer is CO and CO2.

Key Points

• The Law of Multiple Proportions states that when two elements combine to form more than one compound, the masses of one element that combine with a fixed mass of the other are in a simple whole-number ratio.

• Carbon monoxide (CO) and carbon dioxide (CO2) are compounds of carbon and oxygen that follow this law.

• In CO, the ratio of carbon to oxygen by mass is 12:16, while in CO2, it is 12:32. The oxygen mass ratio between CO and CO2 is 16:32, which simplifies to 1:2.

• This simple whole-number ratio (1:2) illustrates the Law of Multiple Proportions.

• The law was proposed by John Dalton in 1804 and is one of the basic principles of stoichiometry in chemistry.

Additional Information

• Law of Multiple Proportions:

• It is one of the fundamental laws of chemical combination in chemistry.

• This law applies when two elements form more than one compound, such as CO and CO2, or SO2 and SO3.

• The law emphasizes the discrete nature of chemical combinations, underscoring the concept of fixed proportions in compounds.

• Examples of the Law:

• Water (H2O) and hydrogen peroxide (H2O2) — The ratio of oxygen masses is 1:2.

• Sulfur dioxide (SO2) and sulfur trioxide (SO3) — The ratio of oxygen masses is 2:3.

• John Dalton:

• He is known as the "Father of Modern Chemistry" for his Atomic Theory, which includes the Law of Multiple Proportions.

• His work laid the foundation for modern stoichiometry and molecular chemistry.

• Stoichiometry:

• It is the quantitative study of reactants and products in a chemical reaction.

• The Law of Multiple Proportions is a cornerstone of stoichiometric calculations.

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Q25. Answer: (d) 74,000

Shortcut Trick

Net Interest Rate for 4 years = 12% × 4 = 48%

Total Amount (%) = 100% (Principal) + 48% (Interest) = 148%

Required Amount = 148% of Rs. 50,000

Amount = 1.48 × 50,000 = Rs. 74,000

Therefore The correct answer is Rs. 74,000.

Alternate Method

Given:

Principal (P) = Rs. 50,000

Rate (R) = 12% per annum

Time (T) = 4 years

Formula Used:

Simple Interest (SI) = (P × R × T) ÷ 100

Total Amount (A) = Principal (P) + Simple Interest (SI)

Calculations:

=> Simple Interest = (50,000 × 12 × 4) ÷ 100

=> Simple Interest = 500 × 48

=> Simple Interest = Rs. 24,000

=> Total Amount = 50,000 + 24,000

=> Total Amount = Rs. 74,000

Therefore The correct answer is Rs. 74,000.

Additional Information

Compound Interest Formula

When interest is compounded annually, the amount is $A = P(1 + R/100)^n$, where n is the number of years.

SI vs CI for 1st Year

For the first year (if compounded annually), the Simple Interest and Compound Interest are always equal on the same principal and rate.

Difference between CI and SI

The difference for 2 years is given by $D = P(R/100)^2$.

Q26. Answer: (b) UU 0

The logic followed here is:

MS 14 is related to OV 8

And,

NN 5 is related to PQ −1

Similarly,

SR 6 is related to

Hence, "Option 2" is the correct answer.

Q27. Answer: (d) 1

Given: Each of P, Q, R, S, T, U and V has an exam on a different day of a week starting from Monday and ending on Sunday of the same week.

1) U has an exam on Wednesday.

2) Exactly 4 people have an exam between Q and V, neither of whom has an exam on Monday.

Weekdays	Person
Monday	
Tuesday	Q/V
Wednesday	U
Thursday	

Friday	
Saturday	
Sunday	Q/V

3) P has an exam immediately before S, and R has an exam immediately after S.

4) T has an exam immediately before Q.

Weekdays	Person
Monday	T
Tuesday	Q
Wednesday	U
Thursday	P
Friday	S
Saturday	R
Sunday	V

Thus, one person has an exam before Q.

Hence, "Option 4" is the correct answer.

Q28. Answer: (b) 600

Given:

4% of x = 24

Calculations:

=> 0.04 × x = 24

=> x = 24/0.04

=> x = 600

Therefore The correct answer is option (2).

Q29. Answer: (d) R

Given: P, Q, R, S, T, U and V have an exam on different days of the week starting on Monday and ending on Sunday.

1) V has an exam on Thursday.

2) Exactly 4 people have their exam between S and U, neither of whom has an exam on Sunday.

Weekdays	Person
Monday	S/U
Tuesday	
Wednesday	
Thursday	V
Friday	
Saturday	S/U
Sunday	

3) R has an exam immediately before P.

4) S does not have an exam after P.

Weekdays	Person
Monday	S
Tuesday	R
Wednesday	P

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Thursday	V
Friday	
Saturday	U
Sunday	

5) T does not have an exam on Friday.

After positioning T only one position is left which will be occupied by the only person left i.e. Q.

Weekdays	Person
Monday	S
Tuesday	R
Wednesday	P
Thursday	V
Friday	Q
Saturday	U
Sunday	T

Thus, R has an exam on Tuesday.

Hence, "Option 4" is the correct answer.

Q30. Answer: (c) Eight Degree Channel

The correct answer is Eight Degree Channel.

Key Points

• The Eight Degree Channel separates the island of Minicoy (Lakshadweep) from the northernmost islands of the Maldives.

• This channel is named based on its approximate location along the 8°N latitude.

• Minicoy is the southernmost island of the Lakshadweep group, located closer to the Maldives than to other Indian islands.

• The channel is strategically significant as it lies on important international shipping routes in the Indian Ocean.

• This waterway is used for maritime navigation and transportation between India and the Maldives.

Additional Information

• Minicoy Island

• Minicoy is the second-largest island in Lakshadweep and is known for its cultural connection with the Maldives.

• The island features a lighthouse built in 1885, which serves as a navigational aid for ships.

• Minicoy has a unique linguistic and cultural heritage, with the locals speaking Mahl, a dialect of Dhivehi.

• Geography of Lakshadweep

• Located in the Arabian Sea, Lakshadweep is India's smallest Union Territory, comprising 36 islands.

• It is known for its coral atolls, reefs, and lagoons, making it ecologically and economically important.

• Maldives

• The Maldives is a nation of islands located in the Indian Ocean, southwest of India.

• It consists of 26 atolls and has a population predominantly dependent on fishing and tourism.

• International Shipping Routes in the Indian Ocean

• The Indian Ocean is a vital region for global maritime trade, connecting Asia, Africa, and Europe.

• Major shipping lanes pass through channels like the Eight Degree Channel, facilitating the movement of goods and energy resources.

Q31. Answer: (a) 82 m²

Shortcut Trick

Put the values of x = 3 and y = − 2 directly into the expressions for base and height.

Base = $4(3)^2 - 7(3)(-2) + (-2)^2 = 36 + 42 + 4 = 82$ m

Height = 3 + (−2) = 1 m

Area = Base × Height = 82 × 1 = 82 m²

Therefore The correct answer is 82 m².

Alternate Method

Given:

Base (b) = $(4x^2 - 7xy + y^2)$ m

Height (h) = $(x + y)$ m

Values: $x = 3, y = -2$

Formula Used:

Area of Parallelogram = Base × Height

Calculations:

=> Area = $(4x^2 - 7xy + y^2) \times (x + y)$

=> Substitute $x = 3$ and $y = -2$:

=> Base = $4(3)^2 - 7(3)(-2) + (-2)^2$

=> Base = $4(9) + 42 + 4 = 36 + 42 + 4 = 82$ m

=> Height = $3 + (-2) = 1$ m

=> Area = $82 \times 1 = 82$ m²

Therefore The correct answer is 82 m².

Additional Information

Area of Parallelogram

The area is the product of its base and the perpendicular height (altitude) to that base: Area = b × h.

Perimeter of Parallelogram

The total boundary length is given by P = 2(a + b), where a and b are adjacent sides.

Properties of Parallelogram

Opposite sides are equal and parallel; opposite angles are equal; diagonals bisect each other.

Q32. Answer: (c) 69

Shortcut Trick

Arrange the given data in ascending order: 20, 47, 52, 53, 59, 69, 72, 81, 85, 86, 98.

Count of observations (N) = 11 (which is an odd number).

Median = ((N + 1) ÷ 2)^(th) term = (12 ÷ 2)^(th) term = 6^(th) term.

The 6^(th) term in the sorted sequence is 69.

Therefore The correct answer is 69.

Alternate Method

Given:

Data set: 72, 47, 98, 52, 20, 86, 85, 69, 59, 81, 53

Total number of observations (N) = 11

Formula Used:

When N is odd, Median = ((N + 1) ÷ 2)^(th) observation.

When N is even, Median = [(N ÷ 2)^(th) observation + ((N ÷ 2) + 1)^(th) observation] ÷ 2.

Calculations:

First, arrange the data in ascending order:

=> 20, 47, 52, 53, 59, 69, 72, 81, 85, 86, 98

Since N = 11 (which is an odd number):

=> Median = ((11 + 1) ÷ 2)^(th) term

=> Median = 6^(th) term

=> The 6^(th) term in the sorted list is 69.

Let us analyze why the other options are incorrect:

=> Option (1) 68.5 is incorrect because it is not the middle value of the sorted dataset.

=> Option (2) 70 is incorrect because 70 is not present in the dataset and is not the median.

=> Option (4) 69.5 is incorrect because it would be the median if the number of terms was even and the two middle terms averaged to 69.5, which is not the case here.

Therefore The correct answer is 69.

Additional Information

Median for Even Number of Terms

If the number of observations (N) is even, the median is the average of the (N ÷ 2)^(th) and ((N ÷ 2) + 1)^(th) terms after sorting.

Relation between Mean, Median, and Mode

For a moderately skewed distribution, the empirical relationship is: Mode = 3 × Median − 2 × Mean.

Properties of Median

The median is not affected by extreme values (outliers) in the dataset, making it a more robust measure of central tendency than the mean for skewed distributions.

Q33. Answer: (b) 9,081

Shortcut Trick

Total ratio parts = 3 + 5 + 7 = 15.

Total price = Average × 3 = 15135 × 3.

Cheapest item corresponds to 3 parts out of 15, which is exactly 1/5 of the total price.

Price of cheapest item = (15135 × 3) ÷ 5 = 3027 × 3 = 9081.

Therefore The correct answer is Rs. 9,081.

Alternate Method

Given:

Average price of 3 items = Rs. 15,135

Ratio of prices = 3 : 5 : 7

Formula Used:

Total Sum = Average × Number of items

Calculations:

=> Total price of 3 furniture items = 15,135 × 3 = Rs. 45,405

=> Sum of the ratio units = 3 + 5 + 7 = 15 units

=> 15 units = Rs. 45,405

=> 1 unit = 45,405 ÷ 15

=> 1 unit = Rs. 3,027

=> Price of the cheapest item (3 units) = 3 × 3,027

=> Price of the cheapest item = Rs. 9,081

Therefore The correct answer is Rs. 9,081.

Additional Information

Ratio Distribution Rule

If a value V is divided in the ratio a : b : c, then the value of the smallest part is [a ÷ (a + b + c)] × V.

Average Relationship

Average = Sum of values ÷ Total number of values. Thus, Sum = Average × Count.

Common Ratio Multiplier

Multiplying the simplified ratio (3:5:7) by a common factor (k = Rs. 3,027) gives the actual individual values.

Q34. Answer: (d) lowering the activation energy by stabilising the transition state

The correct answer is lowering the activation energy by stabilising the transition state.

Key Points

• Cofactors such as NAD+ are non-protein chemical compounds or metallic ions that bind to enzymes to assist in their activity.

• NAD+ acts as an electron carrier, participating in redox reactions to transfer electrons between molecules, thus enabling the enzyme to stabilize the transition state.

• By stabilizing the transition state, cofactors like NAD+ lower the activation energy required for the reaction to proceed.

• NAD+ is crucial in metabolic pathways such as glycolysis, the citric acid cycle, and oxidative phosphorylation, where it alternates between oxidized (NAD+) and reduced (NADH) forms.

• In enzymatic reactions, cofactors are not permanently attached to the enzyme; they often bind temporarily to facilitate the reaction.

Additional Information

• Enzyme Activation Energy

• Activation energy is the minimum energy required for a chemical reaction to occur.

• Enzymes reduce the activation energy by stabilizing the transition state, thus speeding up the reaction.

• Types of Cofactors

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• Cofactors can be classified into coenzymes (organic molecules such as NAD+, FAD) and metal ions (e.g., Mg^(2+), Zn^(2+)).
• Coenzymes like NAD+ are often derived from vitamins (e.g., NAD+ is derived from niacin).
• NAD+/NADH Redox Pair
• NAD+ (oxidized form) and NADH (reduced form) form a redox pair, essential for transferring electrons during metabolic reactions.
• These redox reactions play a key role in cellular respiration, providing energy in the form of ATP.
• Transition State Stabilization
• The transition state is an intermediate configuration between reactants and products during a chemical reaction.
• Enzymes stabilize this high-energy state, reducing the energy barrier and facilitating the reaction.
• Examples of NAD+-Dependent Enzymes
• Dehydrogenases such as lactate dehydrogenase and alcohol dehydrogenase require NAD+ as a cofactor.
• These enzymes facilitate redox reactions critical in energy metabolism.

Q35. Answer: (c) Rs. 564

Shortcut Trick
Reduce the equations: 1 bag + 2 pens = Rs. 248 and 1 bag + 1 pen = Rs. 206.
Subtracting them gives the cost of 1 pen = Rs. 42.
Cost of 1 bag = 206 − 42 = Rs. 164.
Difference = 6 × 164 − 10 × 42 = 984 − 420 = Rs. 564.
Therefore The correct answer is Rs. 564.
Alternate Method
Given:
Cost of 3 bags and 6 pens = Rs. 744
Cost of 9 bags and 9 pens = Rs. 1,854
Calculations:
Let the cost of one bag be B and one pen be P.
=> 3B + 6P = 744
Dividing by 3: B + 2P = 248 — (i)
=> 9B + 9P = 1,854
Dividing by 9: B + P = 206 — (ii)
Subtracting equation (ii) from (i):
=> (B + 2P) − (B + P) = 248 − 206
=> P = 42
Substitute P = 42 in equation (ii):
=> B + 42 = 206
=> B = 164
Now, find the amount by which 6 bags exceed 10 pens:
=> (6 × B) − (10 × P)
=> (6 × 164) − (10 × 42)
=> 984 − 420
=> 564
Therefore The correct answer is Rs. 564.
Additional Information
Linear Equations in Two Variables
Equations of the form ax + by = c are solved using elimination or substitution methods to find individual values.
Elimination Method
Multiply equations by suitable constants to make coefficients of one variable equal, then add or subtract to eliminate it.
Arithmetic Comparison
To find how much 'X' exceeds 'Y', simply calculate the difference (X − Y).

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Q36. Answer: (c) 29

The correct answer is 29.

Key Points

• The Eleventh Schedule of the Indian Constitution contains 29 functional items that specify the responsibilities of Panchayats.

• These items were added by the 73rd Constitutional Amendment Act of 1992, which came into effect on 24 April 1993.

• The schedule focuses on empowering Panchayati Raj Institutions (PRIs) to function as units of self-government.

• Functional items include areas such as agriculture, rural development, education, health, sanitation, and public distribution systems.

• The inclusion of these items aims to decentralize governance and promote community participation in local administration.

Additional Information

• 73rd Constitutional Amendment Act:

• Passed in 1992, it provided constitutional status to Panchayati Raj Institutions.

• Introduced Part IX in the Constitution and added Articles 243 to 243(O).

• Mandated the establishment of a three-tier Panchayati Raj system: Gram Panchayat, Panchayat Samiti, and Zilla Parishad.

• Key Functional Areas in the Eleventh Schedule:

• Rural housing, drinking water, roads, and irrigation.

• Animal husbandry, fisheries, and minor forest produce.

• Non-conventional energy sources, adult education, and public health.

• Significance of Decentralization:

• Enhances grassroots democracy and local self-governance.

• Empowers rural communities to participate in decision-making processes.

• Promotes accountability, transparency, and efficiency in governance.

• Balwant Rai Mehta Committee:

• Recommended the establishment of Panchayati Raj Institutions in 1957.

• Advocated for democratic decentralization to strengthen local governance.

Q37. Answer: (d) Goa’s liberation movement activist

The correct answer is Goa’s liberation movement activist.

Key Points

• Libia Lobo Sardesai was a prominent figure in the Goa liberation movement, which aimed to free Goa from Portuguese colonial rule.

• She played a significant role as a freedom fighter, contributing to the efforts that ultimately led to Goa's liberation on 19 December 1961.

• Her participation in the movement demonstrated her commitment to India's sovereignty and the integration of Goa into the Indian Union.

• The Government of India recognized her contributions to Indian history by awarding her the Padma Shri in January 2025.

• The Padma Shri is India's fourth-highest civilian award, given for distinguished service in various fields, including public affairs and social work.

Additional Information

• Goa Liberation Movement:

• The movement began in the early 20th century and involved both peaceful protests and armed resistance.

• It aimed to end over 450 years of Portuguese colonial rule in Goa, Daman, and Diu.

• Key milestones included the Satyagraha movements led by Indian nationalists and the eventual military intervention by the Indian government in 1961.

• The operation, known as Operation Vijay, resulted in the annexation of Goa into the Indian Union.

• Padma Awards:

• The Padma Awards—Padma Vibhushan, Padma Bhushan, and Padma Shri—are among the highest civilian honors in India.

• They are awarded annually on Republic Day for exceptional and distinguished service in various fields.

• The Padma Shri is the fourth-highest award in this series and honors individuals for their outstanding contributions at a grassroots level.

• Portuguese Rule in Goa:

• Portuguese colonial rule in Goa began in 1510, making it one of the longest European colonial regimes in India.

• Goa served as the administrative and religious center for the Portuguese empire in Asia.

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• Under Portuguese rule, Goan society experienced significant cultural, religious, and political changes.
• Operation Vijay (1961):
• It was a military operation conducted by India to liberate Goa, Daman, and Diu from Portuguese control.
• The operation was launched on 17 December 1961 and concluded with Goa's annexation on 19 December 1961.
• The successful operation marked the end of Portuguese colonial rule in India.

Q38. Answer: (a) Noida

The correct answer is Noida.

Key Points

• In April 2025, the Central Zoo Authority (CZA) approved the establishment of Noida's first deer park.
• The park is aimed at promoting wildlife conservation and providing a habitat for various deer species.
• The deer park will also serve as an educational and recreational facility for visitors, highlighting the importance of biodiversity conservation.
• Noida's initiative aligns with India’s broader goal of enhancing urban green spaces and wildlife preservation efforts.

Additional Information

• Central Zoo Authority (CZA):
• The CZA is a statutory body under the Ministry of Environment, Forest and Climate Change, Government of India.
• It was established in 1992 to oversee the management of zoos in India and ensure the welfare of captive animals.
• The authority plays a crucial role in approving zoo projects and monitoring their compliance with prescribed standards.
• Deer Conservation in India:
• India is home to a variety of deer species, including the spotted deer (chital), swamp deer (barasingha), and sambar deer.
• These species play a vital role in maintaining the ecological balance of forest ecosystems.
• Conservation measures are critical as some deer species face threats from habitat loss and poaching.
• Urban Green Spaces:
• Urban green spaces like parks, gardens, and wildlife reserves contribute to sustainable urban development.
• They improve air quality, provide recreational opportunities, and promote mental well-being.
• Initiatives like deer parks in urban areas encourage environmental awareness among city dwellers.
• Biodiversity in India:
• India is one of the 17 megadiverse countries in the world, hosting over 7% of the world’s biodiversity.
• Conservation efforts in urban and rural areas are crucial to preserving this rich biodiversity.
• Projects like the Noida deer park highlight the importance of integrating biodiversity conservation into urban planning.

Q39. Answer: (d) Jawaharlal Nehru Indoor Stadium, Indira Gandhi Indoor Stadium, and Dr Karni Singh Shooting Range

The correct answer is Jawaharlal Nehru Indoor Stadium, Indira Gandhi Indoor Stadium, and Dr Karni Singh Shooting Range.

Key Points

• The Khelo India Para Games (KIPG) 2025 was held at Jawaharlal Nehru Indoor Stadium, Indira Gandhi Indoor Stadium, and Dr Karni Singh Shooting Range, which are prominent sports venues in India.
• Jawaharlal Nehru Indoor Stadium is located in Delhi and is a multi-purpose indoor sports venue known for hosting large-scale national and international events.
• Indira Gandhi Indoor Stadium, also situated in Delhi, is one of the largest indoor stadiums in India and is frequently used for multi-sport competitions.
• Dr Karni Singh Shooting Range, located in New Delhi, is a world-class shooting range used for major shooting championships and training.
• The inclusion of these venues reflects the importance of accessible infrastructure for athletes with disabilities, emphasizing India's commitment to promoting para-sports.

Additional Information

• Khelo India Programme:
• Khelo India is a national sports development initiative launched by the Government of India to promote sports culture at the grassroots level and encourage young talent.
• The programme focuses on infrastructure development, athlete training, and enhancing participation in sports across all age groups.
• Para Sports in India:
• Para sports are adapted sports designed for athletes with physical and intellectual disabilities.
• India has seen significant growth in para sports, with athletes excelling in events like the Paralympics and World Championships.

• Dr Karni Singh Shooting Range:
• Named after Maharaja Karni Singh of Bikaner, the range is a state-of-the-art facility for shooting sports.
• It is equipped to host international competitions and has been the venue for events like the Commonwealth Games.
• Accessibility in Sports Infrastructure:
• India is making significant strides in ensuring sports venues are accessible for athletes with disabilities.
• Facilities like ramps, lifts, and specialized equipment are being integrated to support para-athletes.

Q40. Answer: (b) 65.35% loss

Shortcut Trick

Let Cost Price (CP) be 100.

Marked Price (MP) = 100 × (100 + 5) ÷ 100 = 105.

Selling Price (SP) = 105 × (100 − 67) ÷ 100 = 105 × 0.33 = 34.65.

Loss Percentage = (CP − SP) ÷ CP × 100 = (100 − 34.65) ÷ 100 × 100 = 65.35%.

Therefore The correct answer is 65.35% loss.

Alternate Method

Given → Markup% = 5%, Discount% = 67%.

Formulas: Net Percentage Change = a + b + (a × b) ÷ 100.

=> Let markup be a = +5 and discount be b = −67.

=> Net change = 5 + (−67) + (5 × −67) ÷ 100

=> Net change = −62 − (335 ÷ 100)

=> Net change = −62 − 3.35 = −65.35%

=> Negative sign indicates loss.

Therefore The correct answer is 65.35% loss.

Additional Information

Marked Price & Discount

Marked Price (MP) is the price printed on an item. Discount is always calculated on the MP to find the Selling Price (SP).

Net Profit/Loss Formula

When there is a markup percentage (m) and a discount percentage (d), the net gain or loss percentage is given by m − d − (md ÷ 100).

Q41. Answer: (b) A remote Scottish island

The correct answer is A remote Scottish island.

Key Points

• Beautiful Ugly, Alice Feeney’s 2025 psychological thriller, is set on a remote Scottish island.
• The island's isolated and eerie environment serves as the perfect backdrop for the novel's dark and suspenseful themes.
• Alice Feeney is known for her ability to craft gripping narratives with unexpected twists, as seen in her previous works like "Rock Paper Scissors" and "His & Hers."
• The setting plays a significant role in creating a claustrophobic and mysterious atmosphere, intensifying the psychological tension.
• The book delves into themes of beauty, deception, and hidden truths, all amplified by the island’s secluded and unforgiving landscape.

Additional Information

• Alice Feeney
• She is a bestselling British author known for psychological thrillers with intricate plots and surprising twists.
• Her notable works include "Sometimes I Lie," "I Know Who You Are," and "Rock Paper Scissors."
• Feeney’s books often explore complex human emotions and relationships, with unreliable narrators adding layers of suspense.
• Psychological Thriller
• A genre of fiction emphasizing the psychological state of its characters, often featuring unreliable narrators and plot twists.
• Psychological thrillers typically delve into themes like identity, perception, and the human mind's fragility.
• Scottish Islands
• Scotland is home to over 790 islands, many of which are remote, rugged, and sparsely populated.
• These islands often serve as settings in literature and film for their dramatic landscapes and isolated atmospheres.
• Importance of Setting in Literature

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• The setting provides the backdrop against which a story unfolds, influencing the mood, theme, and character development.
• In psychological thrillers, isolated or confined settings often amplify tension and fear, creating a sense of unease.

Q42. Answer: (d) 22

The correct answer is 22.

Key Points

• The Eighth Schedule of the Indian Constitution lists 22 recognized languages as of April 2025.
• This schedule was initially adopted in 1950 with 14 languages listed.
• Subsequent amendments, including the 71st and 92nd Constitutional Amendments, added Sindhi, Konkani, Manipuri, Nepali, Bodo, Santhali, Maithili, and Dogri.
• The recognized languages include major regional languages such as Hindi, Bengali, Tamil, Telugu, Marathi, Urdu, and Punjabi, among others.
• The inclusion of languages in the Eighth Schedule allows for their use in official communication, education, and legislative processes.

Additional Information

• Eighth Schedule Overview:
• The Eighth Schedule is part of the Indian Constitution, which enumerates languages recognized by the government.
• It primarily aims to promote linguistic diversity and protect regional languages.
• Constitutional Amendments:
• The 71st Amendment in 1992 added Konkani, Manipuri, and Nepali to the Eighth Schedule.
• The 92nd Amendment in 2003 included Bodo, Dogri, Maithili, and Santhali.
• Official Language Policy:
• Hindi, listed in the Eighth Schedule, is designated as the official language of India.
• English is used for official purposes along with Hindi under Article 343.
• India's Linguistic Diversity:
• India is one of the most linguistically diverse countries, with over 19,500 dialects spoken as per the Census of India.
• The recognition of languages in the Eighth Schedule ensures government support for their preservation and promotion.
• Impact of Recognition:
• Recognized languages can be used in competitive exams, official communication, and legislative debates.
• They receive funding and resources for their development, including translation services and literature promotion.

Q43. Answer: (c) 4.2%

The correct answer is 4.2%.

Key Points

• According to the International Monetary Fund (IMF) January 2025 report, the projected global headline inflation rate for 2025 is 4.2%.
• Global headline inflation reflects the overall inflation rate across the world, considering both advanced and emerging economies.
• IMF projections are based on comprehensive economic models and data analysis from member countries.
• Factors contributing to the 2025 inflation projection include monetary policies, geopolitical tensions, supply chain disruptions, and energy market dynamics.
• The IMF's report serves as a critical reference for policymakers and economists to shape economic strategies globally.

Additional Information

• Headline Inflation:
• It measures the total inflation within an economy, including volatile elements such as food and energy prices.
• Unlike core inflation, headline inflation does not exclude specific categories like energy and food.
• IMF and Inflation Projections:
• The IMF publishes inflation forecasts in its World Economic Outlook reports, which are released several times a year.
• These forecasts are essential for global economic planning and policymaking.
• Factors Influencing Global Inflation:
• Key factors include supply chain challenges, monetary policies, energy price fluctuations, and geopolitical instability.
• Central banks worldwide adjust interest rates to manage inflation levels effectively.
• Impact of Inflation:
• High inflation decreases purchasing power and increases the cost of living.

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• Conversely, deflation (negative inflation) can lead to economic stagnation.

Q44. Answer: (b) Graphic Card

The correct answer is Graphic Card.

Key Points

• The Central Processing Unit (CPU) consists of three main components: the Control Unit (CU), Arithmetic Logic Unit (ALU), and Registers.

• The Control Unit (CU) directs the operation of the processor by interpreting instructions and coordinating tasks.

• The Arithmetic Logic Unit (ALU) performs mathematical calculations and logical operations.

• Registers are small storage locations within the CPU used to temporarily hold data, instructions, and results.

• Graphic Cards, on the other hand, are not a part of the CPU. They are separate hardware components designed specifically for rendering images, videos, and 3D graphics.

Additional Information

• Control Unit (CU):

• The CU acts as the "brain" of the CPU, managing the execution of instructions and ensuring all components work in harmony.

• It fetches, decodes, and executes instructions stored in memory.

• Arithmetic Logic Unit (ALU):

• The ALU is responsible for performing arithmetic operations like addition, subtraction, multiplication, and division.

• It also handles logical operations such as comparisons (e.g., greater than, less than, equal to).

• Registers:

• Registers are high-speed storage units within the CPU, used to hold data temporarily during processing.

• Examples include the accumulator, instruction register, and program counter.

• Graphic Card:

• A Graphic Card, also known as a GPU (Graphics Processing Unit), is a specialized hardware designed for processing visual data efficiently.

• It is used primarily in gaming, video editing, and graphic design tasks, where rendering speed and quality are critical.

• Difference between CPU and GPU:

• While the CPU is designed for general-purpose tasks, the GPU is optimized for parallel processing and high-performance graphical computations.

• Modern GPUs also support AI and machine learning workloads due to their parallel architecture.

Q45. Answer: (d) M N Roy

The correct answer is M N Roy.

Key Points

• M N Roy, originally named Manabendra Nath Bhattacharya, was a prominent Indian revolutionary and political thinker who played a significant role in introducing Marxist and communist ideologies in India.

• He co-founded the Communist Party of India (CPI) in Tashkent, Uzbekistan, in 1920, making it one of the first communist parties outside the Soviet Union.

• Roy actively participated in the international communist movement and was a delegate to the Comintern (Communist International), representing India.

• He was a key figure in the Indian labour movement, advocating for workers' rights and the need for organized trade unions to fight against capitalist exploitation.

• Roy later became known for his philosophical contributions, particularly his theory of Radical Humanism, which sought to reconcile individual freedom with collective social progress.

Additional Information

• Communist Party of India (CPI):

• Founded in 1925 in Kanpur, the CPI was initially inspired by Marxist-Leninist principles and aimed to overthrow colonial rule through class struggle and revolution.

• The party played a significant role in organizing workers, peasants, and trade unions in India during the freedom struggle.

• Marxism:

• An ideology developed by Karl Marx and Friedrich Engels that advocates for a classless society through the abolition of private property and the establishment of collective ownership of the means of production.

• It emphasizes the role of the working class (proletariat) in overthrowing capitalist systems.

• Radical Humanism:

• A philosophical framework proposed by M N Roy, focusing on individual freedom, rational thinking, and ethical values in building a progressive society.

• It rejected authoritarianism, including both capitalism and dogmatic Marxism, while emphasizing human dignity and self-realization.

• Comintern (Communist International):

• Founded in 1919 by Lenin, it was an international organization that advocated for world communism.

• It supported revolutionary movements and communist parties globally, including M N Roy's efforts to establish the CPI.

• Labour Movement in India:

• The labour movement began in the late 19th century and gained momentum during the early 20th century with the rise of trade unions and worker strikes.

• Leaders like M N Roy emphasized the importance of uniting workers to demand fair wages, better working conditions, and social justice.

Q46. Answer: (a) 13

Given: (Left) 823 664 309 431 175 (Right)

According to the question:

Given numbers	823	664	309	431	175
Arranged in ascending order	175	309	431	664	823

First digit of the highest number → 823 → 8

Third digit of the lowest number → 175 → 5

Thus, the resultant if the first digit of the highest number is added to the third digit of the lowest number is → 8 + 5 → 13

Hence, "Option 1" is the correct answer.

Q47. Answer: (b) 405

Shortcut Trick

Effective Selling Price = Marked Price × (100 − d1)% × (100 − d2)% × (100 − d3)%

SP = 750 × (96/100) × (75/100) × (75/100)

SP = 750 × (24/25) × (3/4) × (3/4)

SP = 30 × 24 × 3 × 3 ÷ 16 = 720 × 9 ÷ 16 = 45 × 9 = 405

Therefore The correct answer is Rs. 405.

Alternate Method

Given → Marked Price (MP) = Rs. 750, Discounts = 4%, 25%, and an additional 25% for cash payment.

Formulas: SP = MP × (100 − D1)% × (100 − D2)% ...

=> Price after 1st discount = 750 × (96/100) = Rs. 720

=> Price after 2nd discount = 720 × (75/100) = 720 × 3/4 = Rs. 540

=> Price after 3rd (cash) discount = 540 × (75/100) = 540 × 3/4 = Rs. 405

Therefore The correct answer is Rs. 405.

Additional Information

Successive Discounts

When multiple discounts are applied one after another, the effective single discount is calculated as a + b − (ab ÷ 100).

Marked Price & Selling Price

Marked Price is the labeled price, and Selling Price is the final amount paid after deducting all applicable discounts.

Q48. Answer: (c) 85

Shortcut Trick

Net efficiency = 1/15 − 1/17 = (17 − 15) / 255 = 2 / 255 cistern/hour.

Time for full tank = 255 / 2 hours.

Time for 2/3^(rd) tank = (255 / 2) × (2 / 3) = 255 / 3 = 85 hours.

Therefore The correct answer is 85 hours.

Alternate Method

Given: Filling Tap (A) = 15 hours, Emptying Tap (B) = 17 hours.

Formula Used: Efficiency = Total Work ÷ Time

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Tap	Time (hr)	Total Capacity (LCM)	Efficiency
Tap A (+)	15	255 units	+17
Tap B (−)	17	−15	

=> Combined efficiency of (A + B) = 17 − 15 = 2 units/hour.
=> Required filling volume = 2/3 × 255 units = 2 × 85 = 170 units.
=> Time required = Required volume ÷ Combined efficiency
=> Time = 170 ÷ 2 = 85 hours.
Therefore The correct answer is 85 hours.
Additional Information
Pipes and Cisterns Efficiency
Filling pipes have positive efficiency while emptying pipes (leakages) have negative efficiency.
Net Rate Formula
If a pipe fills in 'x' hours and another empties in 'y' hours, net time to fill is (xy) ÷ (y − x) where y > x.
Fractional Work
Total time to fill a specific fraction 'k' of the tank is k × (Total time for full tank).

Q49. Answer: (c) = XVR, % = IGC

The logic followed here is:
Given: # : USO :: LJF : %
Option 1) # = XVI, % = IZC → XVI : USO :: LJF : IZC
Option 2) # = IOR, % = IZC → IOR : USO :: LJF : IZC
Option 3) # = XVR, % = IGC → XVR : USO :: LJF : IGC
Option 4) # = ZOR, % = IQV → ZOR : USO :: LJF : IQV

Hence, "Option 3" is the correct answer.

Q50. Answer: (c) 14

Shortcut Trick
Number of sides in a heptagon (n) = 7.
Shortcut formula for diagonals = n × (n − 3) ÷ 2.
=> Diagonals = 7 × (7 − 3) ÷ 2
=> Diagonals = 7 × 4 ÷ 2 = 14.
Therefore The correct answer is 14 diagonals.
Alternate Method
Given: A regular heptagon.
Formula Used: Number of diagonals in a polygon with n sides is given by $^{n}C2 - n$.
For a heptagon, the number of vertices (n) = 7.
=> Total ways to select 2 vertices = ^7C2
=> ^7C2 = (7 × 6) ÷ (2 × 1) = 21
=> These 21 lines include both sides and diagonals.
=> Number of diagonals = Total lines − Number of sides
=> Diagonals = 21 − 7 = 14.
Therefore The correct answer is 14 diagonals.
Additional Information
Sum of Interior Angles
The sum of interior angles of an n-sided polygon is (n − 2) × 180°. For a heptagon, it is 5 × 180° = 900°.
Regular Heptagon Angle
Each interior angle of a regular heptagon is approximately 128.57°, and each exterior angle is 360° ÷ 7 ≈ 51.43°.
Diagonals from a Single Vertex
The number of diagonals that can be drawn from a single vertex of an n-sided polygon is (n − 3). For a heptagon, this is 4.

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Q51. Answer: (c) pu

According to the given information,

Thus, 'relax' is coded as 'pu'.

Hence, "Option 3" is the correct answer.

Q52. Answer: (c) 5

Given series: (Left) £ * 6 @ 1 £ 8 6 @ % $ 7 # 1 9 # 6 % * 5 € & (Right)

According to the question,

Required condition: Symbol - Number - Symbol

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

Thus, there are five such numbers which are immediately preceded by a symbol and also immediately followed by a symbol.

Hence, "Option 3" is the correct answer

Q53. Answer: (d) GIB

The logic followed here is:

Hence, "Option 4" is the correct answer.

Q54. Answer: (a) Octagon

Shortcut Trick

A quadrilateral is defined as a polygon with exactly four sides.

A trapezoid, rhombus, and kite are all 4-sided polygons, which makes them types of quadrilaterals.

An octagon is an 8-sided polygon, so it is NOT a quadrilateral.

Therefore The correct answer is Octagon.

Alternate Method

Given:

A list of geometric shapes to classify based on the number of sides.

Concept:

Polygons are classified according to the number of sides they possess:

=> Quadrilateral: 4 sides

=> Octagon: 8 sides

Calculations and Analysis:

=> Trapezoid: Has 4 sides (Quadrilateral).

=> Rhombus: Has 4 equal sides (Quadrilateral).

=> Kite: Has 4 sides with two pairs of equal adjacent sides (Quadrilateral).

=> Octagon: Has 8 sides.

=> Therefore, the octagon does not belong to the quadrilateral family.

Therefore The correct answer is Octagon.

Additional Information

Types of Quadrilaterals

Common quadrilaterals include squares, rectangles, parallelograms, rhombuses, trapezoids, and kites. The sum of their interior angles is always 360°.

Sum of Interior Angles Formula

The sum of the interior angles of any n-sided polygon is given by (n − 2) × 180°. For an octagon (n = 8), the sum of the interior angles is 1080°.

Polygon Classification

Polygons are named based on their number of sides: Triangle (3), Quadrilateral (4), Pentagon (5), Hexagon (6), Heptagon (7), Octagon (8), Nonagon (9), Decagon (10).

Q55. Answer: (c) 842

The logic followed here is:

Hence, "Option 3" is the correct answer.

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Q56. Answer: (a) 7

According to the given information,

Thus, 'I' is coded as '7'.

Hence, "Option 1" is the correct answer.

Q57. Answer: (d) 5

According to the given information,

Thus, 'D' is coded as '5'.

Hence, "Option 4" is the correct answer.

Q58. Answer: (b) 12

Shortcut Trick

Solve the nested square roots from the innermost part to the outermost.

√289 = 17

√(344 + 17) = √361 = 19

√(125 + 19) = √144 = 12

Therefore The correct answer is 12.

Alternate Method

Given: √(125 + √(344 + √289))

Step 1: Evaluate the innermost square root.

=> √289 = 17 (since $17^2 = 289$)

Step 2: Substitute this value back into the expression.

=> √(125 + √(344 + 17))

=> √(125 + √361)

Step 3: Evaluate the next square root.

=> √361 = 19 (since $19^2 = 361$)

Step 4: Substitute this value and solve the final square root.

=> √(125 + 19)

=> √144

=> 12

Therefore The correct answer is 12.

Additional Information

Perfect Squares

Remembering perfect squares up to 30 is crucial for simplification. For example, $13^2=169$, $14^2=196$, $15^2=225$, etc.

BODMAS in Surds

Always simplify the innermost bracket or radical sign first before moving to the outer operations.

Unit Digit Trick

If a number ends in 9, its square root will end in either 3 or 7. For √289, since $10^2=100$ and $20^2=400$, the answer must be 13 or 17.

Q59. Answer: (c) Reducing trade barriers and encouraging foreign investment

The correct answer is Reducing trade barriers and encouraging foreign investment.

Key Points

• In 1991, India adopted economic liberalization policies under the New Economic Policy to combat a severe balance-of-payments crisis.

• The government reduced trade barriers, lowered import tariffs, and encouraged foreign direct investment (FDI).

• This globalization strategy aimed to integrate India into the global economy by promoting exports and attracting foreign capital.

• The reforms included deregulation of industries, privatization of state-owned enterprises, and opening sectors to private and foreign investors.

• These measures marked the beginning of India's transition towards a market-oriented economy.

Additional Information

• Globalization:

• Refers to the process of integration of economies, cultures, and societies on a global scale.

• It involves free movement of goods, services, capital, and labor across borders.

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• Globalization accelerates technological exchange and promotes international trade and investment.
• Balance-of-Payments Crisis (1991):
• India faced a severe economic crisis in 1991 due to dwindling foreign exchange reserves.
• The reserves were insufficient to cover imports for more than two weeks.
• The crisis led to major economic reforms under Prime Minister P.V. Narasimha Rao and Finance Minister Dr. Manmohan Singh.
• Foreign Direct Investment (FDI):
• FDI refers to investment by a company or individual based in one country into businesses located in another country.
• FDI was encouraged in India post-1991 reforms to boost industrial growth and generate employment.
• Trade Liberalization:
• Involves reducing tariffs, quotas, and regulations on international trade.
• India's trade liberalization policies aimed to make domestic industries competitive globally.

Q60. Answer: (c) XCH

The logic followed here is:

Hence, "Option 3" is the correct answer.

Q61. Answer: (b) 92

The logic followed here is:

Hence, "Option 2" is the correct answer.

Q62. Answer: (a) TC – AY

The logic followed here is:
Option 1) TC – AY
Option 2) HQ – OL
Option 3) BK – IF
Option 4) PY – WT

Thus, out of all the options, 'TC – AY' is the odd one out.
Hence, "Option 1" is the correct answer.

Q63. Answer: (b) Both conclusions (I) and (II) follow

The least possible Venn diagram for the given statements is as shown below :
Conclusions:
(I) Some small are houses → Follow (As some houses are small. As some part of houses is common with small, therefore it is true.)
(II) Some forks are small → Follow (As some small are forks. As some part of small is common with forks, therefore it is true.)
Therefore Here, Both conclusions (I) and (II) follow.
Hence, the correct answer is "Option 2".

Q64. Answer: (d) 13.4

Shortcut Trick
Use the direct relationship derived from the Empirical Formula: (Mode − Median) = 2/3 × (Mode − Mean).
Given that Mode − Mean = 20.1.
Substitute the value: Mode − Median = 2/3 × 20.1.
Calculation: 2 × 6.7 = 13.4.
Therefore The correct answer is 13.4.
Alternate Method
Given:
The difference between Mode and Mean = 20.1
Formula Used:
The Empirical Relationship between central tendencies is: Mode = 3 Median − 2 Mean
Calculations:

=> Mode − Mean = 20.1

=> Mean = Mode − 20.1

=> Using Mode = 3 Median − 2 Mean

=> Mode = 3 Median − 2 (Mode − 20.1)

=> Mode = 3 Median − 2 Mode + 40.2

=> Mode + 2 Mode − 3 Median = 40.2

=> 3 Mode − 3 Median = 40.2

=> 3 (Mode − Median) = 40.2

=> Mode − Median = 40.2 ÷ 3

=> Mode − Median = 13.4

Therefore The correct answer is 13.4.

Additional Information

Empirical Formula

The relationship Mode = 3 Median − 2 Mean is valid for moderately skewed distributions.

Symmetric Distribution

In a perfectly symmetrical distribution, the values of Mean, Median, and Mode coincide (Mean = Median = Mode).

Skewness and Central Tendency

In a negatively skewed distribution, Mean < Median < Mode. In a positively skewed distribution, Mode < Median < Mean.

Q65. Answer: (d) 2

Given series: (Left) 3 % 2 % 2 £ £ & © £ 1 1 8 5 $ 9 9 5 2 & 5 6 (Right)

According to the question,

Required condition: Symbol - Number - Symbol

(Left) 3 % 2 % 2 £ £ & © £ 1 1 8 5 $ 9 9 5 2 & 5 6 (Right)

Thus, there are two such numbers which are immediately preceded by a symbol and also immediately followed by a symbol.

Hence, "Option 4" is the correct answer

Q66. Answer: (d) 16

Shortcut Trick

Relative Speed (Train − Man) = Distance ÷ Time = 100 m ÷ 30 s = (10/3) m/s.

Convert Man speed to m/s: 9 × 5/18 = 2.5 m/s → Train Speed = 10/3 + 2.5 = 35/6 m/s.

Train 2 speed = 51 × 5/18 = 85/6 m/s. Combined Speed (Opposite) = 35/6 + 85/6 = 20 m/s.

Required Time = Total Distance ÷ Relative Speed = (100 + 220) ÷ 20 = 16 seconds.

Therefore The correct answer is 16 seconds.

Alternate Method

Given: Length of Train 1 (L1) = 100 m, Man speed = 9 km/hr, Time = 30 s. Length of Train 2 (L2) = 220 m, Speed of Train 2 (S2) = 51 km/hr.

Formula: Relative Speed = Total Distance ÷ Total Time; km/hr to m/s = Multiply by 5/18.

=> Speed of man in m/s = 9 × (5/18) = 2.5 m/s.

=> Let Train 1 speed be S1. (S1 − 2.5) = 100/30.

=> S1 = 10/3 + 2.5 = 35/6 m/s.

=> Speed of Train 2 in m/s = 51 × (5/18) = 85/6 m/s.

=> Relative speed in opposite direction = S1 + S2 = 35/6 + 85/6 = 120/6 = 20 m/s.

=> Time to cross each other = (L1 + L2) ÷ Relative Speed = (100 + 220) ÷ 20 = 320 ÷ 20 = 16 seconds.

Therefore The correct answer is 16 seconds.

Additional Information

Relative Speed Concepts

When moving in the same direction, subtract speeds (S1 − S2). In opposite directions, add speeds (S1 + S2).

Unit Conversion

To convert speed from km/hr to m/s, multiply by 5/18. To convert m/s to km/hr, multiply by 18/5.

Train Crossing Distance

Total distance while crossing a pole/man is the train length. Total distance while crossing another train/platform is the sum of both lengths.

Q67. Answer: (d) Within 7 days of deduction

The correct answer is Within 7 days of deduction.

Key Points

• As per the provisions of the Payment of Wages Act, 1936, employee deductions must be deposited within 7 days of the deduction.

• This rule applies to wages paid daily, weekly, or monthly, ensuring timely management of employee contributions.

• The employer is responsible for transferring deductions to the respective fund or co-operative society within the specified time frame to avoid penalties.

• The regulation ensures that employee deductions such as provident fund, insurance, or other contributions are handled responsibly.

• Failure to comply with the deadline could lead to legal action and fines as prescribed under the Act.

Additional Information

• Payment of Wages Act, 1936:

• The Act governs the payment of wages to certain classes of employed persons and ensures timely disbursement.

• It applies to industries listed under Schedule and establishments employing more than specified numbers of workers.

• It prohibits unauthorized deductions and delays in payment.

• Co-operative Societies:

• A co-operative society is an organization owned and managed by its members, who share profits or benefits.

• Employers may deduct amounts for contributions to employee welfare funds managed by such societies.

• Employee Deductions:

• These include contributions to provident funds, insurance premiums, loan repayments, or charitable donations.

• Employers are required to accurately calculate and transfer these amounts to the respective entities.

• Penalties for Non-Compliance:

• Under the Payment of Wages Act, failure to deposit deductions within the specified time frame can result in fines or legal proceedings.

• Penalties aim to protect employee rights and ensure employer accountability.

Q68. Answer: (d) Wife's Father

Decoding symbols:

	A is			
Symbol	•	–	×	÷
Meaning	Sister	Brother	Wife	Father
	to B			

Given: M ÷ N + O − P × Q

M ÷ N → M is the father of N.

N + O → N is the sister of O.

O − P → O is the brother of P.

P × Q → P is the wife of Q.

Thus, M is Q's wife's father.

Hence, the correct answer is "Option 4".

Q69. Answer: (d) 30

Shortcut Trick

Identify the prime numbers between 20 and 40: 23, 29, 31, and 37.

Sum of these numbers = 23 + 29 + 31 + 37 = 120.

Total count of numbers = 4.

Average = 120 ÷ 4 = 30.

Therefore The correct answer is 30.

Alternate Method

Given: Range of numbers is from 20 to 40.

Formula Used: Average = (Sum of observations) ÷ (Total number of observations)

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Step-by-step Calculation:

=> Prime numbers between 20 and 40 are: 23, 29, 31, 37.

=> Sum = 23 + 29 + 31 + 37

=> Sum = 120

=> Number of terms (n) = 4

=> Average = 120 ÷ 4

=> Average = 30

Therefore The correct answer is 30.

Additional Information

Prime Numbers

A prime number is a natural number greater than 1 that has no positive divisors other than 1 and itself.

Average of First n Prime Numbers

There is no direct formula to find the average of prime numbers; they must be identified and summed individually.

Smallest Prime Number

2 is the smallest prime number and the only even prime number.

Q70. Answer: (a) 708

Given: 116 ÷ 5 − 423 × 3 + 13 = ?

According to the question, after '+' and '−' are interchanged and '×' and '÷' are interchanged:

116 ÷ 5 − 423 × 3 + 13 = ? => 116 × 5 + 423 ÷ 3 - 13 = ?

=> 116 × 5 + 423 ÷ 3 - 13 = ?

=> 116 × 5 + 141 - 13 = ?

=> 580 + 141 - 13 = ?

=> 721 - 13 = ?

=> 708 = ?

Hence, "Option 1" is the correct answer.

Q71. Answer: (d) Chuck Stone

The correct answer is Chuck Stone.

Key Points

• Chuck Stone received a Special Citation in the 2025 Pulitzer Prizes for his outstanding contributions to civil rights journalism.

• Stone was a pioneering African American journalist who played a significant role in highlighting racial injustices through his investigative reporting and editorials.

• He was a prominent figure in civil rights journalism, often using his platform to advocate for equality and social justice.

• Stone's work was recognized for its courage, integrity, and impact in shaping public discourse on civil rights issues in the United States.

• The Pulitzer Special Citation acknowledges exceptional contributions in journalism or arts that go beyond the standard categories recognized by the Pulitzer Board.

Additional Information

• About the Pulitzer Prizes

• The Pulitzer Prizes are annual awards for achievements in journalism, literature, and musical composition.

• Established in 1917 by provisions in the will of Joseph Pulitzer, a Hungarian-American newspaper publisher.

• They are administered by Columbia University and are considered one of the most prestigious honors in the fields they cover.

• Special Citations in the Pulitzer Prizes

• Special Citations are awarded at the discretion of the Pulitzer Board to individuals or organizations whose achievements do not fall into the regular categories.

• They often honor groundbreaking contributions in journalism, arts, or public service.

• Chuck Stone's Legacy

• Chuck Stone was one of the first African American columnists in the United States and a fierce advocate for civil rights.

• He worked for notable publications such as the Philadelphia Daily News and was a founding member of the National Association of Black Journalists (NABJ).

• Stone also wrote books and taught journalism at the University of North Carolina at Chapel Hill.

• Importance of Civil Rights Journalism

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• Civil rights journalism plays a crucial role in exposing systemic injustices and advocating for equality.
• It amplifies marginalized voices and ensures accountability for those in positions of power.
• Journalists like Chuck Stone have been instrumental in driving social change and promoting public awareness.

Q72. Answer: (c) Satavahana

The correct answer is Satavahana.

Key Points

• The Amaravati Stupa, also known as the Mahachaitya, is a significant Buddhist monument located in Amaravati, Andhra Pradesh.
• It was initially built during the reign of the Satavahana dynasty (2nd century BCE - 3rd century CE).
• The stupa was an important center for Theravada Buddhism and later became associated with Mahayana Buddhism.
• It is one of the largest stupas in India, known for its intricate carvings and sculpture panels that depict scenes from the life of Buddha.
• The Satavahana rulers were great patrons of art and architecture, and their contributions significantly enhanced the cultural landscape of ancient India.

Additional Information

• Stupa
• A stupa is a dome-shaped structure that serves as a Buddhist shrine, typically containing relics of Buddha or other important figures.
• These structures were meant to symbolize the enlightened mind of Buddha and serve as a focus for meditation.
• Satavahana Dynasty
• The Satavahanas were one of the earliest Indian dynasties to issue coins and were known for their contributions to Indian trade and culture.
• Their rule extended over parts of modern-day Maharashtra, Andhra Pradesh, and Telangana.
• Amaravati Art
• Amaravati School of Art is renowned for its unique style of Buddhist sculpture, characterized by intricate carvings and narrative panels.
• It played a significant role in the development of Indian art during the early historical period.
• Theravada and Mahayana Buddhism
• Theravada Buddhism emphasizes the teachings of the historical Buddha and the concept of individual enlightenment.
• Mahayana Buddhism introduces the concept of Bodhisattvas who delay their own enlightenment to help others achieve it.

Q73. Answer: (d) 4 km to the west

Given:

Ganesh starts from point A and drives 11 km towards the south.

He then takes a right turn, drives 8 km, turns right and drives 15 km.

He then takes a right turn and drives 12 km.

He takes a final right turn, drives 4 km and stops at point P.

Thus, Ganesh should drive 4 km (12 km - 8 km) in the west direction in order to reach Point A again.

Hence, the correct answer is "Option 4".

Q74. Answer: (a) 73 : 140

Shortcut Trick

For the first proportion 4 : 16 :: 7.3 : x, the multiplier is 4 (since 4 × 4 = 16), so x = 7.3 × 4 = 29.2.

For the second proportion 4 : 32 :: 7 : y, the multiplier is 8 (since 4 × 8 = 32), so y = 7 × 8 = 56.

Ratio x : y = 29.2 : 56 = 292 : 560 = 73 : 140.

Therefore The correct answer is 73 : 140.

Alternate Method

Given: First proportion 4 : 16 :: 7.3 : x and Second proportion 4 : 32 :: 7 : y.

Formula Used: If a : b :: c : d, then Product of Extremes = Product of Means (a × d = b × c).

=> For 4 : 16 :: 7.3 : x: 4 × x = 16 × 7.3

=> x = (16 × 7.3) ÷ 4 = 4 × 7.3 = 29.2

=> For 4 : 32 :: 7 : y: 4 × y = 32 × 7

=> y = (32 × 7) ÷ 4 = 8 × 7 = 56

=> Ratio x : y = 29.2 : 56

=> Multiplying by 10 to remove decimal: 292 : 560

=> Dividing by 4: 73 : 140

Therefore The correct answer is 73 : 140.

Additional Information

Fourth Proportional

In the proportion a : b :: c : d, the term d is called the fourth proportional, calculated as d = (b × c) ÷ a.

Mean Proportional

The mean proportional between two numbers a and b is given by √(a × b).

Third Proportional

In a continued proportion a : b :: b : c, the term c is the third proportional, where c = b^2 ÷ a.

Q75. Answer: (b) Kathak

The correct answer is Kathak.

Key Points

• Kathak is one of the eight classical dance forms of India and is known for its intricate footwork, spins, and expressive gestures.

• The dance form is closely associated with the Hindustani classical music tradition, and 'Thumri' is one of the primary song forms used as an accompaniment.

• 'Thumri' is a semi-classical vocal genre characterized by its romantic or devotional themes and is often rendered in a light and emotive style.

• Kathak performances often involve storytelling through dance, and the expressive nature of 'Thumri' complements the abhinaya (expressive) aspect of the dance.

• The use of 'Thumri' in Kathak highlights the synergy between the dance and music traditions of North India.

Additional Information

• Thumri:

• A semi-classical form of Hindustani vocal music, known for its lyrical and emotive content.

• It is primarily based on themes of love, separation, and devotion, often focusing on Radha-Krishna narratives.

• Thumri compositions are often performed in lighter ragas and have a flexible, improvisational structure.

• Abhinaya in Kathak:

• Refers to the expressive aspect of Kathak, where the dancer conveys emotions and narratives through facial expressions, hand gestures, and body movements.

• 'Thumri' enhances the abhinaya element by providing a musical backdrop rich in emotion and lyrical beauty.

• Kathak's Historical Roots:

• Originated in the temples of North India as a storytelling art form where dancers narrated mythological tales.

• Later, it was influenced by Mughal culture, adding elements of courtly entertainment and Persian artistry.

• Other Classical Dance Forms of India:

• Some of the other prominent classical dance forms include Bharatanatyam, Odissi, Kuchipudi, Manipuri, Mohiniyattam, Kathakali, and Sattriya.

• Each has its unique music, style, and cultural significance tied to the region of its origin.

Q76. Answer: (a) Godavari

The correct answer is Godavari.

Key Points

• The Godavari River is the largest river in Peninsular India and is often referred to as the "Dakshina Ganga" or the Ganges of the South.

• It originates from Trimbakeshwar in the Nashik district of Maharashtra and flows eastward across the Deccan Plateau.

• The river spans a total length of approximately 1,465 km, making it the second-longest river in India after the Ganges.

• The Godavari basin covers an area of about 312,812 square kilometers, encompassing states like Maharashtra, Andhra Pradesh, Telangana, Chhattisgarh, Madhya Pradesh, Odisha, and Karnataka.

• Major tributaries of the Godavari include Pranhita, Indravati, Sabari, and Manjira, significantly contributing to its water volume.

Additional Information

• Peninsular Rivers:

• These rivers are non-Himalayan rivers originating from the Peninsular Plateau.

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• Most of them are seasonal, relying heavily on monsoon rains for their flow.

• They generally have short courses and flow eastward into the Bay of Bengal, except for a few like Narmada and Tapi, which flow westward.

• Narmada River:

• It is one of the major west-flowing rivers in India and is often referred to as the "Life Line of Madhya Pradesh and Gujarat."

• Originates from Amarkantak Plateau in Madhya Pradesh and flows for about 1,312 km.

• Mahanadi River:

• It originates from Sihawa in the Dhamtari district of Chhattisgarh and flows eastward into the Bay of Bengal.

• The Mahanadi has a total length of approximately 858 km.

• Kaveri River:

• It originates from Talakaveri in the Western Ghats in Karnataka.

• The Kaveri River has a total length of about 800 km and is a major water source for Karnataka and Tamil Nadu.

Q77. Answer: (c) 45.19

Shortcut Trick

Total work = Pipes × Time

44 × 38 = 37 × Required Time

Required Time = (44 × 38) ÷ 37

Required Time = 1672 ÷ 37 ≈ 45.19

Therefore The correct answer is 45.19 minutes.

Alternate Method

Given:

Number of initial pipes (M1) = 44

Initial time taken (D1) = 38 minutes

Number of final pipes (M2) = 37

Formula Used:

M1D1 = M2D2

Calculations:

=> 44 × 38 = 37 × D2

=> 1672 = 37 × D2

=> D2 = 1672 ÷ 37

=> D2 = 45.1891...

=> D2 ≈ 45.19 minutes

Therefore The correct answer is 45.19 minutes.

Additional Information

Inverse Proportion

When the number of pipes increases, the time taken to fill the tank decreases, following the relation M1T1 = M2T2.

Pipes & Cisterns Efficiency

Total capacity is treated as constant work. Efficiency is directly proportional to the number of identical pipes used.

Q78. Answer: (d) Radar and electronic warfare systems

The correct answer is Radar and electronic warfare systems.

Key Points

• Gallium Nitride (GaN) is a semiconductor material known for its ability to operate at high power and high frequency, making it ideal for defense applications.

• GaN technology is widely used in radar systems due to its efficiency in generating high-frequency signals and improved detection capabilities.

• In electronic warfare, GaN-based systems offer higher power density, thermal conductivity, and reliability, enhancing the performance of jammers and signal processors.

• GaN semiconductors enable compact and lightweight designs, which are crucial for modern defense platforms like drones, fighter aircraft, and naval vessels.

• Countries across the globe are investing in GaN-based radar and electronic warfare systems for advanced threat detection and response capabilities.

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Additional Information

• Gallium Nitride (GaN) Material Properties

• GaN has a wide bandgap of 3.4 eV, enabling it to operate at high voltages and temperatures.

• It exhibits excellent thermal conductivity, which reduces overheating risks in high-power applications.

• GaN transistors are 10 times faster than silicon-based alternatives, making them ideal for high-frequency operations.

• Applications in Radar Systems

• GaN-based radars provide enhanced range, resolution, and reliability, crucial for air and missile defense systems.

• They are used in Active Electronically Scanned Array (AESA) radars for advanced situational awareness.

• Electronic Warfare Systems

• GaN amplifiers are essential for high-power jamming systems, ensuring effective disruption of enemy communication.

• They support signal intelligence (SIGINT) and electronic countermeasures (ECM) to protect military assets.

• Global Investment in GaN Technology

• Countries like the USA, China, and India are heavily investing in GaN-based systems for modernizing their defense infrastructure.

• GaN technology is a key enabler for next-generation defense platforms such as hypersonic weapons and space-based radars.

Q79. Answer: (c) 6.68%

The correct answer is 6.68%.

Key Points

• As per the Ministry of Finance, only 6.68% of India's population filed income tax returns in the financial year 2023-24.

• This statistic highlights the low tax compliance rate in India despite a growing population and economy.

• The filing of income tax returns is mandatory for individuals whose income exceeds the basic exemption limit specified by the government.

• In recent years, the government has taken steps to expand the tax base, such as digitization and linking PAN with Aadhaar.

• The figure indicates that a large portion of the workforce, particularly in the informal sector, remains outside the tax net.

Additional Information

• Income Tax in India:

• Income tax is a direct tax levied by the government on individuals and entities based on their income.

• The tax rates are defined under various slabs, with progressive rates for higher income brackets.

• For individuals below 60 years of age, the basic exemption limit is Rs. 2.5 lakh annually.

• Reasons for Low Tax Compliance:

• India has a large informal economy, where many individuals earn below the taxable limit.

• Lack of awareness about tax laws and compliance requirements in rural and semi-urban areas.

• Tax evasion and underreporting of income by certain individuals and entities.

• Government Initiatives to Increase Tax Compliance:

• The introduction of faceless assessment to make tax filing more transparent and less cumbersome.

• Implementation of GST (Goods and Services Tax) for better revenue tracking across sectors.

• Mandatory linking of PAN with Aadhaar to curb tax evasion.

• Awareness campaigns to educate citizens about the importance of filing income tax returns.

• Role of Informal Sector:

• A significant portion of India's workforce is engaged in the informal sector, which typically remains untaxed.

• Efforts to formalize the sector include schemes like PM-KISAN and digitization drives.

Q80. Answer: (c) 57,600

Shortcut Trick

Volume of cuboidal pit = Length × Breadth × Depth

Total Cost = Volume × Rate

Calculation: (6 × 64 × 10) × 15 = 3840 × 15

Total Cost = Rs. 57,600

Therefore The correct answer is Rs. 57,600.

Alternate Method

Given:

Length (l) = 6 m

Breadth (b) = 64 m

Depth (h) = 10 m

Rate of digging = Rs. 15 per m^3

Formula Used:

Volume of Cuboid = l × b × h

Total Cost = Volume × Rate per unit volume

Calculations:

=> Volume = 6 × 64 × 10

=> Volume = 384 × 10 = 3840 m^3

=> Total Cost = 3840 × 15

=> Total Cost = Rs. 57,600

Therefore The correct answer is Rs. 57,600.

Additional Information

Surface Area of Cuboid

The Total Surface Area (TSA) is given by 2(lb + bh + lh) and Lateral Surface Area (LSA) is 2h(l + b).

Diagonal of a Cuboid

The length of the longest rod that can be placed inside a cuboid is $\sqrt{(l^2 + b^2 + h^2)}$.

Volume of a Cube

For a cube where all sides are equal (a), the volume is a^3 and the Total Surface Area is $6a^2$.

Q81. Answer: (b) Only once

The correct answer is Only once.

Key Points

• The President of India has the constitutional authority to return an executive recommendation to the Prime Minister for reconsideration by the Cabinet, but this can only be done once.

• This authority is granted under Article 78 of the Indian Constitution, which outlines the duties of the Prime Minister in advising the President.

• If the Cabinet reaffirms its decision after reconsideration, the President is bound to accept the recommendation and act accordingly.

• This constitutional mechanism ensures a balance between the executive's decision-making power and the President's oversight role.

• The provision highlights the President's role as a constitutional head, who must act on the advice of the Council of Ministers headed by the Prime Minister.

Additional Information

• Article 78 of the Indian Constitution

• It defines the Prime Minister's duties concerning communication between the President and the Council of Ministers.

• It mandates the Prime Minister to keep the President informed of all decisions of the Cabinet related to the administration of India.

• The article ensures the President is aware of the governance and policy decisions while maintaining a ceremonial role.

• Role of the President in Indian Parliamentary Democracy

• The President is the constitutional head of state and acts on the advice of the Council of Ministers.

• The President's role is largely ceremonial, with real executive power resting with the Prime Minister and the Cabinet.

• Reconsideration Mechanism

• The mechanism allows the President to return legislative and executive proposals for reconsideration.

• It is a tool to ensure thorough deliberation by the Cabinet, especially in cases of national importance.

• Checks and Balances

• India's parliamentary democracy incorporates checks and balances to prevent the misuse of power.

• The President's ability to seek reconsideration is an example of such a safeguard.

Q82. Answer: (c) 88

Given:

22 - [22 - {22 - (22 - 22 × 4)}]

Formula used:

Follow the BODMAS rule (Brackets, Orders, Division/Multiplication, Addition/Subtraction)

Calculation:

=> 22 - [22 - {22 - (22 - 22 × 4)}]

=> 22 - [22 - {22 - (22 - 88)}]

=> 22 - [22 - {22 - (-66)}]

=> 22 - [22 - {22 + 66}]

=> 22 - [22 - 88]

=> 22 - (-66)

=> 22 + 66

=> 88

Therefore The correct answer is option (3).

Q83. Answer: (d) Five

Given: Each of P, Q, R, S, T, U and V has an exam on a different day of a week starting from Monday and ending on Sunday of the same week.

1) U has an exam on Tuesday.

2) Only two people have exams between P and U.

Weekdays	Person
Monday	
Tuesday	U
Wednesday	
Thursday	
Friday	P
Saturday	
Sunday	

3) V has an exam immediately before R but not on Saturday.

Weekdays	Person
Monday	
Tuesday	U
Wednesday	V
Thursday	R
Friday	P
Saturday	
Sunday	

4) T has an exam after P but before Q.

After positioning T and Q only one position is left which will be occupied by the only person left i.e. S.

Weekdays	Person
Monday	S
Tuesday	U
Wednesday	V
Thursday	R
Friday	P
Saturday	T

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Sunday	Q

Thus, five people have exams between S and Q.

Hence, "Option 4" is the correct answer.

Q84. Answer: (d) 4 km to the south

Given:

Arpan starts from Point A and drives 12 km towards East.

He then takes a right turn, drives 8 km, turns right and drives 14 km.

He then takes a right turn and drives 12 km.

He takes a final right turn, drives 2 km and stops at Point P.

Thus, Arpan should drive 4 km (12 km - 8 km) in the south direction in order to reach Point A again.

Hence, the correct answer is "Option 4".

Q85. Answer: (c) Birsa Munda Revolt

The correct answer is Birsa Munda Revolt.

Key Points

• The Birsa Munda Revolt, also known as the Ulgulan (The Great Tumult), occurred in the late 19th century (1899–1900) and was not connected to the Revolt of 1857.

• This revolt was led by Birsa Munda, a tribal leader from the Munda community, in the Chotanagpur region (present-day Jharkhand).

• The rebellion primarily aimed at resisting British colonial exploitation and missionary interference in tribal lands and culture.

• Birsa Munda's movement focused on the restoration of tribal rights over their land (Khuntkatti system) and rejecting oppressive British laws.

• Unlike the other uprisings mentioned, which were closely linked to the broader unrest during the Revolt of 1857, the Birsa Munda Revolt was a localized tribal movement in the late 19th century.

Additional Information

• Rebellion of Sambalpur (1857–1864):

• This revolt was led by Veer Surendra Sai against British rule in Sambalpur (present-day Odisha).

• It was closely linked to the larger Revolt of 1857 and aimed at overthrowing British authority in the region.

• Surendra Sai fought for the restoration of local tribal and princely rights.

• Naikda Movement (1857–1858):

• This tribal uprising occurred in Gujarat during the Revolt of 1857.

• The Naikda tribe resisted British policies that disrupted their traditional lifestyle and autonomy.

• It was a localized movement but inspired by the general anti-colonial sentiment of 1857.

• Santhal Rebellion (1855–1856):

• Led by Sidhu and Kanhu Murmu, the Santhal Rebellion took place in the Rajmahal Hills (present-day Jharkhand).

• It was a precursor to the Revolt of 1857 and aimed at resisting oppressive zamindari systems and British policies.

• The Santhal tribes fought for their rights to land and freedom from exploitative moneylenders.

• Tribal Movements in India:

• Tribal uprisings were often reactions to exploitation by British policies, zamindars, and moneylenders.

• Most tribal revolts were rooted in issues like land alienation, forced labor, and cultural interference.

• These movements highlight the resilience and struggles of indigenous communities against colonial oppression.

Q86. Answer: (a) √(44 + 108√7)

Shortcut Trick

Mean proportional between a and b is √(a × b).

Multiply the terms: (18 + 10√7)(18 − 4√7) = 324 − 72√7 + 180√7 − 40(7).

Simplify: 324 − 280 + 108√7 = 44 + 108√7.

Take square root: √(44 + 108√7).

Therefore The correct answer is √(44 + 108√7).

Alternate Method

Given:

First term (a) = (18 + 10√7)

Second term (b) = (18 − 4√7)

Formula Used:

Mean Proportional = √(a × b)

Calculations:

=> Mean Proportional = √[(18 + 10√7) × (18 − 4√7)]

=> Mean Proportional = √[18(18 − 4√7) + 10√7(18 − 4√7)]

=> Mean Proportional = √[324 − 72√7 + 180√7 − (10 × 4 × 7)]

=> Mean Proportional = √[324 + 108√7 − 280]

=> Mean Proportional = √[44 + 108√7]

Therefore The correct answer is √(44 + 108√7).

Additional Information

Third Proportional

If three numbers a, b, and c are in continued proportion, then c is the third proportional and $c = b^2/a$.

Fourth Proportional

If four numbers a, b, c, and d are in proportion (a:b = c:d), then d is the fourth proportional and d = (b × c)/a.

Duplicate Ratio

The duplicate ratio of a:b is $a^2:b^2$ and the sub-duplicate ratio is √a:√b.

Q87. Answer: (d) H

Given: A, B, C, D, G, H and I are sitting around a circular table facing the centre of the table.

1) Only B sits between H and A.

2) A sits third to the left of D.

3) G sits to the immediate left of D.

4) C is not an immediate neighbour of A.

After positioning C only one position is left which will be occupied by the only person left i.e. I.

Thus, H sits third to the left of I.

Hence, "Option 4" is the correct answer.

Q88. Answer: (b) 8

Given number: 7452183

According to the question,

Number given	7	4	5	2	1	8	3
Odd digit → (+1) Even digit → (-2)	(+1)	(-2)	(+1)	(-2)	(+1)	(-2)	(+1)
Resultant number	8	2	6	0	2	6	4

So, the difference between the highest and lowest digits in the new number thus formed → 8 - 0 = 8

Hence, "Option 2" is the correct answer.

Q89. Answer: (b) 1 and 3 Only

The correct answer is 1 and 3 Only.

Key Points

• Under the UNNATI scheme the total budget outlay of the Scheme is Rs 10,037 cr.

• The total budget outlay is divided into two parts – Part A and Part B.

• Part A of the scheme, with an outlay of Rs 9,737 cr., if for providing incentives to eligible new industrial units and those undergoing substantial expansion.

• Part B of the scheme, with an outlay of Rs 300 cr. is for implementation & institutional arrangements for the scheme.

• 60% of the scheme outlay of part A is earmarked to all States of North Eastern Region (NER).

• The districts are categorized in two zones: Zone A (industrially advanced districts) and Zone B (industrially backwards districts) based on NER district SDG index (2021-22).

• It is a Central Sector Scheme implemented under the Department for Promotion of Industry and Internal Trade (DPIIT) in cooperation with the states.

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Additional Information

• Central Sector Scheme

• These schemes are fully funded by the Central Government and implemented by central agencies.

• They are designed to address national priorities, such as infrastructure development, social welfare, and economic growth.

• Capital Investment Incentives

• These are financial benefits provided to investors to encourage infrastructure development and industrialization.

• In the UNNATI Scheme, Zone A districts receive higher incentives compared to Zone B districts to attract investments in strategic areas.

• North East Region (NER) Development

• The NER comprises eight states: Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim, and Tripura.

• Special attention is given to this region to promote economic growth, employment generation, and industrialization.

• Committed Liabilities

• This term refers to financial obligations that the government must honor based on previously approved projects or agreements.

• The UNNATI Scheme allows an extended period of 8 years beyond its effective duration to fulfill such liabilities.

• Ministry of Development of North Eastern Region

• Established in 2001, the ministry is responsible for planning, executing, and monitoring development projects in the North East Region.

• It works to bridge the gap in infrastructure and socio-economic development in the region.

Q90. Answer: (b) To the immediate left

Given: A, B, C, D, E, F and G are sitting around a circular table facing the centre.

1) B sits third to the left of C.

2) F sits second to the left of E.

3) B is not an immediate neighbour of E.

4) D sits to the immediate right of A.

After positioning A and D only one position is left which will be occupied by the only person left i.e. G.

Thus, B is to the immediate left of G.

Hence, "Option 2" is the correct answer.

Q91. Answer: (a) LP - JK

The logic followed here is:

Option 1) LP - JK

Option 2) JN - HL

Option 3) OS - MQ

Option 4) NR - LP

Thus, out of all the options, 'LP - JK' is the odd one out.

Hence, "Option 1" is the correct answer.

Q92. Answer: (d) Northbridge

The correct answer is Northbridge.

Key Points

• The Northbridge is a chipset on the motherboard that acts as the primary interface between the CPU and high-speed components like RAM and GPUs.

• It facilitates high-speed communication between the CPU and the system's memory (RAM), as well as graphics controllers.

• In modern systems, the Northbridge is often integrated directly into the CPU itself, enhancing efficiency and reducing latency.

• It plays a critical role in ensuring smooth data transfer between the CPU and other high-performance components.

• Over time, the Northbridge has become less distinct as newer technologies like System-on-Chip (SoC) designs integrate its functions directly into the processor.

Additional Information

• Chipset Architecture

• A motherboard's chipset typically consists of two main components: the Northbridge and the Southbridge.

• The Northbridge handles high-speed communication with the CPU, RAM, and GPU, while the Southbridge manages peripheral devices like I/O ports and storage.

• Modern Replacements

• In modern motherboards, the Northbridge's functions are integrated into the CPU die, eliminating the need for a separate chipset.

• This integration is commonly seen in Intel's Core series processors and AMD's Ryzen processors.

• System-on-Chip (SoC) Design

• In SoC designs, the CPU, Northbridge, and GPU are integrated into a single chip for better performance and power efficiency.

• This design is prevalent in mobile devices, laptops, and compact systems.

• PCIe Connectivity

• Modern Northbridge functionality includes managing PCI Express (PCIe) lanes, which connect GPUs and other high-speed expansion cards.

• PCIe provides a high-bandwidth interface, crucial for modern gaming and data-intensive applications.

• Memory Controller Integration

• In older systems, the Northbridge housed the memory controller, but modern CPUs integrate the memory controller directly into the processor.

• This change improves memory access speed and reduces latency significantly.

Q93. Answer: (d) China

The correct answer is China.

Key Points

• India's trade deficit with China widened to a record $99.2 billion in April 2025 due to increasing imports and reduced exports.

• China remains India's largest trading partner, primarily exporting electronics, machinery, chemicals, and other manufactured goods to India.

• India's exports to China include raw materials like iron ore, cotton, and organic chemicals, but they are significantly lower in comparison to imports.

• The trade imbalance is a persistent issue, driven by India's dependency on Chinese goods for industrial and consumer use.

• Efforts have been made by India to reduce reliance on Chinese imports, such as promoting domestic manufacturing through initiatives like "Make in India."

Additional Information

• Trade Deficit:

• A trade deficit occurs when a country's imports exceed its exports in terms of value.

• It indicates higher dependency on foreign goods and can impact the country's foreign exchange reserves.

• India-China Trade Relations:

• China is one of India’s largest trading partners, but the relationship is marked by a significant trade imbalance.

• India has been trying to diversify its trade partners and reduce dependence on Chinese imports.

• Make in India Initiative:

• Launched in 2014, it aims to boost domestic manufacturing and reduce reliance on imported goods.

• Promotes investment in sectors like electronics, machinery, and infrastructure to strengthen domestic capabilities.

• Key Imported Goods from China:

• Electronics and machinery form a major chunk of imports from China to India.

• Other imports include chemicals, plastics, and medical equipment.

Q94. Answer: (b) High input costs and credit inaccessibility

The correct answer is High input costs and credit inaccessibility.

Key Points

• Green Revolution technologies required substantial investments in high-yield seeds, fertilizers, pesticides, and irrigation systems, which were expensive for small and marginal farmers.

• Access to institutional credit was limited for small farmers due to lack of collateral, making it difficult for them to secure loans for purchasing inputs.

• High input costs were not feasible for marginal farmers who generally operated on subsistence-level incomes and lacked savings to invest in advanced agricultural technologies.

• Small landholdings posed challenges in achieving economies of scale, further exacerbating the financial burden of adopting Green Revolution technologies.

• As a result, the benefits of the Green Revolution were concentrated among medium and large-scale farmers, widening the economic disparity in rural areas.

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Additional Information

• Green Revolution:

• The Green Revolution refers to a series of agricultural innovations introduced during the 1960s and 1970s, aimed at increasing food production to combat hunger.

• It involved the use of high-yield variety seeds, chemical fertilizers, pesticides, and advanced irrigation techniques.

• India benefited significantly, especially in wheat and rice production, turning the country from a food importer to a self-sufficient nation in food grains.

• Challenges for Marginal Farmers:

• Marginal farmers are defined as those owning less than 1 hectare (2.5 acres) of land.

• They often lack access to credit facilities, modern equipment, and technical knowledge required for high-yield farming.

• Their dependence on rain-fed agriculture further increases their vulnerability to climate variations.

• Institutional Credit:

• Institutional credit refers to loans provided by banks, cooperatives, and government-backed financial institutions.

• In India, schemes like Kisan Credit Card (KCC) aim to provide easy access to credit for farmers.

• Despite such initiatives, small farmers often face barriers such as lack of collateral or insufficient documentation.

• Impact of Green Revolution:

• While the Green Revolution increased food production, it also led to environmental issues like soil degradation and water scarcity.

• It created regional disparities, with states like Punjab and Haryana benefiting more compared to others.

• The reliance on chemical inputs led to long-term health and ecological concerns.

Q95. Answer: (d) 2400 km

The correct answer is 2400 km.

Key Points

• The Northern Plain of India spans approximately 2400 km in length from west to east, extending through the states of Punjab, Haryana, Uttar Pradesh, Bihar, West Bengal, and Assam.

• This vast plain is formed by the deposition of sediments brought by three major river systems: the Indus, the Ganga, and the Brahmaputra.

• It is one of the world's most fertile regions and forms a significant part of the Indo-Gangetic-Brahmaputra Plain.

• The plain is broadly divided into three sections: the Punjab Plains in the west, the Ganga Plains in the center, and the Brahmaputra Plains in the east.

• This region is characterized by alluvial soil, making it ideal for agriculture, and it supports a dense population.

Additional Information

• Alluvial Soil:

• Alluvial soil is the predominant soil type in the Northern Plain, deposited by rivers over thousands of years.

• It is rich in nutrients such as potash, phosphoric acid, and lime, making it highly fertile.

• The soil supports the cultivation of crops like wheat, rice, sugarcane, and cotton.

• Rivers of the Northern Plain:

• The Indus, Ganga, and Brahmaputra rivers, along with their tributaries, play a crucial role in shaping the plain.

• These rivers provide water for irrigation and contribute to the alluvial deposits.

• Physiographic Divisions of the Northern Plain:

• The Northern Plain is divided into the Bhabar, Terai, Bhangar, and Khadar regions based on their geological characteristics.

• Khadar (new alluvium) is the most fertile and is renewed annually by river floods.

• Economic Importance:

• The Northern Plain is often referred to as the "Granary of India" due to its high agricultural output.

• It is also home to major cities like Delhi, Kolkata, and Lucknow, making it a hub for trade and commerce.

Q96. Answer: (c) 50%

Shortcut Trick

Ratio of Amount (A) to Principal (P) for 3 half-years: A : P = 15625 : 8000 = 125 : 64.

Since the time is 1.5 years (3 half-years), take the cube root of the ratio parts.

Ratio for 1 half-year period = $\sqrt[3]{125} : \sqrt[3]{64} = 5 : 4$.

Half-yearly Rate = $(5 - 4)/4 \times 100 = 1/4 \times 100 = 25\%$.

Annual Rate (R) = 25% × 2 = 50%.

Therefore The correct answer is 50%.

Alternate Method

Given: Principal (P) = Rs. 8,000, Amount (A) = Rs. 15,625, Time (t) = 1 year 6 months = 1.5 years.

Formula Used: $A = P(1 + r/100)^n$, where n = number of periods and r = rate per period.

For half-yearly compounding, n = 1.5 × 2 = 3 periods.

Let the half-yearly rate be r%.

=> $15625 = 8000(1 + r/100)^3$

=> $15625/8000 = (1 + r/100)^3$

=> $125/64 = (1 + r/100)^3$

=> $(5/4)^3 = (1 + r/100)^3$

=> $1 + r/100 = 5/4$

=> $r/100 = 5/4 - 1 = 1/4$

=> r = 25% (half-yearly rate)

=> Annual Rate (R) = 2 × r = 2 × 25% = 50%

Therefore The correct answer is 50%.

Additional Information

Compounding Frequency

If interest is compounded half-yearly, rate becomes R/2 and time becomes 2T. If quarterly, rate becomes R/4 and time becomes 4T.

Effective Annual Rate

It is the actual annual interest rate when compounding occurs more than once a year: $R_{(eff)} = [(1 + r/100)^n - 1] \times 100$.

Difference between CI and SI

For 2 years, $CI - SI = P(R/100)^2$. For 3 years, $CI - SI = P(R/100)^2 \times (3 + R/100)$.

Q97. Answer: (c) To modernise the 169 years old shipping law

The correct answer is To modernise the 169 years old shipping law.

Key Points

• India's Parliament passed the Bills of Lading Bill, 2025 to modernise the 169-year-old shipping laws and align them with current international shipping practices.

• The bill replaces the Indian Bills of Lading Act, 1856, which was outdated and did not reflect advancements in the shipping industry.

• The legislation introduces digital bills of lading, allowing electronic documentation and reducing the dependency on physical paperwork in maritime trade.

• It aims to boost efficiency and transparency in maritime logistics, facilitating faster and more secure trade documentation processes.

• The new framework ensures India's shipping laws comply with global maritime conventions, fostering better trade relationships with international partners.

Additional Information

• Bills of Lading:

• A bill of lading is a legal document issued by a carrier to a shipper, detailing the type, quantity, and destination of goods being transported.

• It serves as proof of shipment, a receipt of goods, and a document of title, enabling ownership transfer during trade.

• Indian Bills of Lading Act, 1856:

• This act governed bills of lading in India for over 169 years, but was increasingly inadequate for modern maritime trade needs.

• The act lacked provisions for electronic documentation and modern dispute resolution mechanisms.

• Digital Bills of Lading:

• Digital bills of lading enable electronic issuance, transfer, and verification of documents, reducing fraud and operational delays.

• This shift aligns with global trends in e-commerce and digitisation of trade.

• Global Maritime Trade:

• The shipping industry handles approximately 80% of global trade by volume, making efficient legislation critical for economic growth.

• Modern laws ensure compliance with conventions like the United Nations Convention on the Carriage of Goods by Sea

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(Hamburg Rules).

Q98. Answer: (c) Mehrgarh

The correct answer is Mehrgarh.

Key Points

• Mehrgarh, located in present-day Balochistan, Pakistan, is one of the earliest sites of human settlement and farming in South Asia.

• Evidence of the earliest cultivation of cotton has been found at Mehrgarh, dating back to approximately 6000 BCE.

• Archaeological excavations at Mehrgarh have uncovered remains of cotton seeds, fabrics, and tools used for spinning and weaving.

• The site provides critical insights into the development of agriculture and textile production in the pre-Indus Valley Civilization era.

• Mehrgarh is considered a precursor to the mature Harappan Civilization, showcasing early advancements in agriculture, animal domestication, and crafts.

Additional Information

• Indus Valley Civilization (IVC):

• The IVC, also known as the Harappan Civilization, flourished around 2600–1900 BCE in the northwestern regions of South Asia.

• It is known for its advanced urban planning, including well-laid streets, drainage systems, and architectural innovations.

• Mehrgarh's Significance:

• Mehrgarh is one of the oldest sites with evidence of farming, herding, and craft specialization in South Asia.

• The settlement also shows early evidence of dentistry, with drilled teeth found in human remains.

• Cotton Cultivation in Ancient Times:

• Cotton, known as "tree wool," was one of the first fibers cultivated by humans for textile production.

• The use of cotton eventually spread from South Asia to the Middle East, Egypt, and later to Europe.

• Other Important Sites:

• Harappa: Known for urban planning and advanced drainage systems.

• Kalibangan: Famous for its fire altars and ploughed field remains.

• Rakhigarhi: One of the largest known Harappan sites in India.

Q99. Answer: (c) Kareem El Torkey

The correct answer is Kareem El Torkey.

Key Points

• Kareem El Torkey emerged as the winner of the men’s singles title at the Indian Open 2025 Professional Squash Association (PSA) Copper event.

• The Indian Open is a prestigious squash tournament organized under the aegis of the Professional Squash Association (PSA).

• It is categorized as a Copper-level event, which is part of the PSA World Tour structure.

• El Torkey’s victory in 2025 further solidified his reputation as one of the prominent players in the international squash circuit.

• The event witnessed participation from top-ranked players, showcasing high-level competition and skill.

Additional Information

• Professional Squash Association (PSA)

• The PSA is the global governing body responsible for the administration of the men’s and women’s professional squash tours.

• It organizes tournaments across different levels, including Platinum, Gold, Silver, Bronze, and Copper categories.

• The PSA World Tour provides a platform for elite squash players to compete and earn world ranking points.

• Indian Open Squash Tournament

• The Indian Open is a major squash tournament held annually in India, attracting top international players.

• It contributes to the growth of squash in India and promotes the sport among younger generations.

• Squash Copper Events

• Copper-level tournaments are part of the PSA Challenger Tour, designed to provide opportunities for upcoming players to gain experience and ranking points.

• They are crucial for players aiming to transition to higher-level PSA events.

• Squash Scoring System

• Matches are typically played in a best-of-five games format.

• Each game is played to 11 points, with a two-point advantage required to win a game.

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Q100. Answer: (a) 50%

Shortcut Trick

Cost Price (CP) of 1 article = 728 ÷ 12 = Rs. 182/3.

Selling Price (SP) of 1 article = Rs. 91.

Ratio of CP : SP = (182/3) : 91 = 182 : 273 = 2 : 3.

Profit = 3 − 2 = 1 unit on 2 units of CP.

Profit% = (1 ÷ 2) × 100 = 50%.

Therefore The correct answer is 50%.

Alternate Method

Given: CP of 1 dozen = Rs. 728 | SP of 1 article = Rs. 91 | 1 dozen = 12 articles.

Formulas: Profit = SP − CP | Profit% = (Profit ÷ CP) × 100.

=> CP per article = Total CP ÷ Number of articles = 728 ÷ 12 = Rs. 60.666...

=> SP per article = Rs. 91.

=> Profit per article = 91 − (728/12) = (1092 − 728) ÷ 12 = 364 ÷ 12 = Rs. 91/3.

=> Profit% = [(91/3) ÷ (728/12)] × 100 = [91/3 × 12/728] × 100.

=> Profit% = [1/1 × 4/8] × 100 = 1/2 × 100 = 50%.

Therefore The correct answer is 50%.

Additional Information

Unit Independence in Profit%

Profit percentage is a relative measure. It remains the same whether calculated for a single item, a dozen, or the entire stock, provided the rate remains constant.

Profit and Loss Formula

When SP > CP, it is Profit. When CP > SP, it is Loss. Loss% = (Loss ÷ CP) × 100.

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