RRB NTPC Graduate Level CBT-I Official Paper (Held On: 20 Jun, 2025 Shift 3) (Previous Year Paper)

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

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Q1. A booster pump can be used for filling as well as for emptying a tank. The capacity of the tank is 1800 m³. The emptying capacity of the tank is 10 m³/min higher than its filling capacity, and the pump needs 6 minutes lesser to empty the tank than it needs to fill it. What is the filling capacity of the pump in m³/min?

(a) 18
(b) 27
(c) 50
(d) 65

Q2. This question is based on the five, three-digit numbers given below.

(Left) 657 435 578 659 619 (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 second digit of the highest number is added to the third digit of the lowest number?

(a) 10
(b) 12
(c) 9
(d) 11

Q3. Nagara Uprising, a significant peasant rebellion that occurred in the Nagar province (present-day Shivamogga district) of the Mysore Kingdom, took place in:

(a) 1856-57
(b) 1710-11
(c) 1798-99
(d) 1830-31

Q4. Which of the following soils is most suitable for rice cultivation in India?

(a) Desert soil
(b) Red Soil
(c) Alluvial soil
(d) Saline soil

Q5. In January 2025, which veteran filmmaker received the Padmapani Lifetime Achievement Award for Indian cinema?

(a) Mira Nair
(b) Shyam Benegal
(c) Sai Paranjpye
(d) Vishal Bhardwaj

Q6. Find the greatest number by which when the numbers 247 and 189 are divided, it leaves remainders 3 and 6, respectively.

(a) 63
(b) 64
(c) 62
(d) 61

Q7. The length and breadth of a cuboid are 70 cm and 96 cm, respectively. If its surface area is 25392 cm², then what is the length (in cm) of its diagonal?

(a) √15412
(b) √15408
(c) √15420
(d) √15402

Q8. The sum of the perimeter of two cubes, the length of whose edges are x cm and y cm, respectively, is 300 cm and the product of edges x and y is 156 cm². Find the sum of the volume of both cubes.

(a) 1756 cm³
(b) 2178 cm3
(c) 3925 cm3
(d) 2968 cm3

Q9. Mr. Y starts from Point B and drives 1 km towards the south. He then takes a left turn, drives 9 km, turns right and drives 2 km. He then takes a left turn and drives 13 km. He takes a final left turn, drives 3 km and stops at Point A. How far (shortest distance) and towards which direction should he drive in order to reach Point B again? (All turns are 90-degree turns only unless specified.)

(a) 22 km towards the west
(b) 9 km towards the south
(c) 1 km towards the north
(d) 18 km towards the east

Q10. An article is sold for x. If it is sold at 40% of this price, there is a loss of 50%. What is the percentage profit when it is sold for Rs. x?

(a) 27%
(b) 25%
(c) 28%
(d) 22%

Q11. Reena, Naveen and Arpita started a business in partnership, investing in the ratio of 5 : 6 :13, respectively. At the end of the year, they earned a profit of Rs. 36,400, which is 14% of their total investment. How much did Naveen invest (in Rs.)?

(a) Rs. 64,818
(b) Rs. 64,769
(c) Rs. 65,000
(d) Rs. 65,105

Q12. Which keyboard shortcut is used to save an MS PowerPoint presentation quickly?

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

Q13. In a certain code language, 'can you knock' is coded as 'mo nv sb' and 'knock the door' is coded as 'kx rg nv'. How is 'knock' coded in the given language?

(a) sb
(b) nv
(c) rg
(d) kx

Q14. What is the unit of measurement for frequency?

(a) Millisecond
(b) Pascal
(c) Joule
(d) Hertz (Hz)

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Q15. The Harsha inscription of 554 CE mentions the rise of Yajnavarman from which place?

(a) Thanesar
(b) Gaya
(c) Magadha
(d) Kannouj

Q16. Which of the following conditions will prevent a file from being renamed in a Windows-based operating system?

(a) The file has a long name exceeding 255 characters.
(b) The file is located in the Recycle Bin.
(c) The file has the 'Read-only' attribute enabled.
(d) The file is currently opened in another application.

Q17. What is one of the key advantages of the parliamentary system in ensuring smooth governance?

(a) The judiciary controls both the legislature and the executive.
(b) The executive has absolute power over the legislature.
(c) The Prime Minister can dissolve the legislature at will.
(d) It ensures harmony and cooperation between the legislature and the executive.

Q18. Seven boxes, F, G, H, I, L,M and N, are kept one over the other but not necessarily in the same order. Only three boxes are kept below I. Only two boxes are kept between I and F. Only H is kept above L. M is kept at some place below G and at some place above N. Which box is kept at second position from the bottom?

(a) F
(b) L
(c) H
(d) N

Q19. Kavita buys 2 apples and 5 mangoes for Rs. 239. When the cost of an apple is decreased by 50% and that of a mango remains the same, then the cost of 2 apples and 4 mangoes is Rs. 184. What is the original cost of 8 apples and 8 mangoes?

(a) Rs. 436
(b) Rs. 440
(c) Rs. 438
(d) Rs. 441

Q20. In November 2024, which Indian state conducted an Olympic-style school sports event with participation from Gulf-based Indian schools?

(a) Delhi
(b) Kerala
(c) Tamil Nadu
(d) Maharashtra

Q21. The Great Bath is located at:

(a) Harappa
(b) Dholavira
(c) Rakhigarhi
(d) Mohenjo-daro

Q22. A right circular cone is 6.7 cm high, and the radius of its base is 17.6 cm. It is melted and recast into a new right circular cone with a base radius of 8.8 cm. Find the height (in cm) of the new cone.

(a) 37.5
(b) 25.5
(c) 26.8
(d) 34.5

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Q23. Find the possible value of x.

x^4 - 17x² + 60 = 0

(a) -√12
(b) -√2
(c) -√3
(d) -√6

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

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

Number/symbol	**5**	**$**	**7**	**2**	**%**	**•**	**3**	**^**	**#**	**9**	**•**	**6**	**8**	**4**
Code	A	F	L	B	G	M	C	H	N	D	J	P	E	K

Conditions:

i) If the first element is a number and the last a symbol, the codes for these two (the first and the last elements) are to be interchanged.

ii) If the first and last elements are odd numbers, then the first and last elements are to be coded as @.

iii) If both the second and third elements are perfect square roots, then the third element is to be coded as the code for the second element.

What will be the code for $94^8?

(a) FDKHE
(b) FKKHE
(c) EDKHF
(d) FDDHE

Q25. N is the brother of E. E is the husband of P. L and G are sons of P. How is N related to G?

(a) Father's father
(b) Father's brother
(c) Husband's brother
(d) Father

Q26. What is the purpose of the 'AutoFill' feature in MS Excel 3657

(a) To copy cell content or continue a pattern
(b) To validate cell data
(c) To split text into multiple cells
(d) To automatically sum a range of values.

Q27. The Indian government is set to implement the 'One State, One RRB' (Regional Rural Bank) policy to improve operational efficiency, reduce competition and consolidate the existing 43 RRBs into _____.

(a) 27
(b) 26
(c) 28
(d) 29

Q28. What was the Revised Estimate (RE) for the Department of Rural Development for the financial year 2024-25, as per the Annual Report 2024-25, published by Ministry of Rural Development, Government of India?

(a) Rs. 155,964.23 crore
(b) Rs. 173.912.11 crore
(c) Rs. 180,878.11 crore
(d) Rs. 160,069.46 crore

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Q29. Which body was established to control all matters of civil and military government of British territories in India?

(a) Board of Control
(b) Board of Legislature
(c) Board of Executives
(d) Board of Directors

Q30. In which year was English education formally introduced in India by the British?

(a) 1813
(b) 1854
(c) 1829
(d) 1835

Q31. 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.

P has the exam on Tuesday. Only two people have exams after R. S has the exam immediately before Q but after R. U has the exam immediately after V.

How many people have exams between T and S?

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

Q32. Based on the English alphabetical order, three of the following four letter-clusters are alike in a certain way and thus form a group. Which letter-cluster DOES NOT belong to that group?

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

(a) FKOR
(b) BGKN
(c) SXBE
(d) FYUB

Q33. -What is the theme of the 2025 G20 Johannesburg Summit?

(a) Global Economic Recovery
(b) Climate Action Now
(c) Digital Transformation
(d) Solidarity, Equality, Sustainability

Q34. If 600 bananas were distributed among three monkeys in the ratio 1/14 : 1/2 : 9/3 respectively, how many bananas did the third monkey get?

(a) 504
(b) 505
(c) 503
(d) 506

Q35. Which of the following ratios is greatest?

(a) 13 : 32
(b) 18 : 37
(c) 23 : 25
(d) 25 : 26

Q36. Find the area of the sector of a circle with diameter 14 cm, if the arc of the sector makes an angle of 120° at the centre of the circle. (Use pi = 22/7)

(a) 150 cm^2
(b) 511/2 cm^2
(c) 154 cm2
(d) 51 1/3 cm2

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Q37. The coordination number of atoms in a body-centered cubic (BCC) lattice is:

(a) 6
(b) 4
(c) 12
(d) 8

Q38. Alluvial soil is mainly found in which region of India?

(a) Eastern Ghats
(b) Peninsular Plateau
(c) Western Ghats
(d) Indo-Gangetic Plain

Q39. 'Reward for loyalty' as a factor for ministerial selection in India refers to:

(a) granting monetary rewards to ministers
(b) ensuring each geographic region gets equal representation
(c) recognising and rewarding longstanding support
(d) verifying the educational background of candidates

Q40. In January 2025, which major tribute was part of the Armed Forces Veterans' Day celebration held at Akhnoor, Jammu?

(a) Launch of One Rank One Pension Phase II Benefits
(b) Award ceremony for Gallantry Medals to ex-servicemen families
(c) Hoisting of a 108-feet National Flag and opening of a heritage museum
(d) Inauguration of a National Veterans Memorial Park

Q41. Refer to the number and symbol series given below and answer the question that follows. Counting to be done from left to right only.

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

(Left) £ € # 9 4 9 $ € * 9 @ * 6 6 5 © 5 6 3 8 7 6 (Right)

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

(a) 7
(b) 5
(c) 6
(d) 8

Q42. Which Indian state was named the "Go-To Global Destination for 2025" by the Wall Street Journal, highlighting its rich heritage and diverse wildlife?

(a) Madhya Pradesh
(b) Rajasthan
(c) Odisha
(d) Kerala

Q43. What was the total financial allocation for the Department of Rural Development for FY 2024-25, as per the Demand of Grants 2024-25 Analysis?

(a) Rs. 1.26 lakh crore
(b) Rs. 1.77 lakh crore.
(c) Rs. 2.58 lakh crore
(d) Rs. 1.50 lakh crore

Q44. 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) JR - PW
(b) FN - LS

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(c) WE - CJ
(d) CK - JP

Q45. If 1 is added to each odd digit and 2 is subtracted from each even digit in the number 1847653, what will be the sum of the highest and lowest digits in the number thus formed?
(a) 10
(b) 12
(c) 11
(d) 14

Q46. The Planning Commission used a technique called 'perspective planning' for formulating five year plans in India. Which of the following best describes 'perspective planning'?
(a) Planning without time limits
(b) Tactical planning for one year
(c) Long-term strategic planning
(d) Crisis management planning

Q47. At what rate (in percentage) per annum simple interest will a sum of money triple itself in 8 years?
(a) 24
(b) 25
(c) 37.5
(d) 36.5

Q48. Select the letter-cluster from among the given options that can replace the question mark (?) in the following series.
PTM NSJ LRG ? HPA
(a) HPD
(b) JQE
(c) JQD
(d) JPD

Q49. SGUL is related to XLZQ in a certain way based on the English alphabetical order. In the same way, MAOF is related to RFTK. To which of the following options is BPDU related, following the same logic?
(a) GZIU
(b) GZUI
(c) GUIZ
(d) GUZI

Q50. P is any point inside the rectangle ABCD. If PA = 94 cm, PB = 61 cm and PC = 67 cm, then the length of PD (in cm) is:
(a) 102
(b) 96
(c) 98
(d) 95

Q51. Which state has the longest coastline in India, excluding islands?
(a) Andhra Pradesh
(b) Tamil Nadu
(c) Gujarat
(d) Maharashtra

Q52. 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:
All burger are pizza.

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All burger are fries.

All burger are taco.

Conclusions:

(1) All pizza are taco.

(II) Some taco are fries.

(a) Only conclusion (1) follows
(b) Only conclusion (II) follow
(c) Neither conclusion (1) nor (II) follow
(d) Both conclusions (1) and (II) follow

Q53. If 3 tan A = 4, then find the value of (1 - sec A) (1 + sec A)/(1 - cosecA) (1 + cosecA)

(a) 16/9
(b) 80/27
(c) 256/81
(d) 64/9

Q54. A group of numbers and symbols is coded using letter codes as per the codes given below and the conditions that follow. Study the given codes and conditions and answer the question that follows.

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

Number/symbol	**9**	**%**	**2**	**5**	**•**	**$**	**3**	**^**	**#**	**4**	**•**	**6**	**7**	**8**
Code	S	G	L	F	B	M	C	H	N	D	J	P	E	K

Conditions:

i) If the first element is a symbol and the last a number, the codes for these two (the first and the last elements) are to be interchanged.

ii) If the first element is an odd number and the last element is an even number, then the first and last elements are to be coded as @.

iii) If both the second and third elements are divisible by 2, the third element is to be coded as the code for the second element.

What will be the code for 768*%?

(a) EPPBG
(b) GPKBE
(c) EPKBG
(d) EKKBG

Q55. Privatisation involves transferring the ownership of enterprises from the public to the private sector. What is the primary goal of privatisation?

(a) Improve efficiency and reduce government burden
(b) Increase fiscal deficit
(c) Enhance public employment
(d) Increase monopoly power

Q56. Which component of Windows OS allows users to modify system settings such as display resolution, sound preferences and user accounts?

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

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Q57. Two taps can fill a cistern in 3 hours and 36 hours, respectively. A third tap can empty it in 4 hours. How long (in hours) will it take to fill two-third of the empty cistern, if all of them are opened together?

(a) 18
(b) 12
(c) 6
(d) 24

Q58. Mr. OPQ starts from Point A and drives 31 km towards the north. He then takes a left turn, drives 11 km, turns left and drives 51 km. He then takes a left turn and drives 16 km. He takes a final left turn, drives 20 km and stops at Point P. How far (shortest distance) and in which direction should he drive in order to reach Point A again? (All turns are 90-degree turns only unless specified)

(a) 5 km to the west
(b) 9 km to the east
(c) 3 km to the south
(d) 4 km to the north

Q59. Where was the ISSF World Cup 2025 held, where Rudrankksh Patil and Arya Borse won silver in the 10 m Air Rifle Mixed Team event?

(a) Lima, Peru
(b) New Delhi, India
(c) Cairo, Egypt
(d) Munich, Germany

Q60. Seven friends, E, F, G, H, I, J and Q, are sitting in a row facing north. Only three people sit to the left of Q. Only H sits to the right of E. Only three people sit between E and J. I sits at some place to the left of F but at some place to the right of G. How many people sit between G and F?

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

Q61. Who won the Album of the Year at the 67th Annual Grammy Awards in 2025?

(a) Taylor Swift-The Tortured Poets Department
(b) Sabrina Carpenter - Short n' Sweet
(c) Beyoncé - Cowboy Carter
(d) Billie Eilish - Hit Me Hard and Soft

Q62. The 9th Amendment Act, 1960, was enacted to give effect to which of the following agreements?

(a) Lahore Declaration, 1999
(b) Shimla Agreement, 1972
(c) Indo-Pak Agreement, 1958
(d) Tashkent Agreement, 1966

Q63. RUYQ is related to KNRJ in a certain way based on the English alphabetical order. In the same way, ORVN is related to HKOG. To which of the given options is LOSK related, following the same logic?

(a) HELD
(b) HEDL
(c) EHDL
(d) EHLD

Q64. Which type of cell reference in MS Excel modifies both, the column letter and row number automatically when a formula is copied to another location?

(a) Relative Reference
(b) Static Reference
(c) Mixed Reference
(d) Absolute Reference

Q65. Select the pair which follows the same pattern as that followed by the two set of pairs given below. Both pairs follow the same pattern.

AJK : BEG

JIL : KDH

(a) BKK : CFH
(b) RLO : SIK
(c) OHF : PCC
(d) KKQ : LFM

Q66. If a sum of Rs. 9,10,000 is invested for a year at 2% per annum compounded half yearly, then find the compound interest.

(a) Rs. 17,125
(b) Rs. 18,291
(c) Rs. 18,828
(d) Rs. 20,081

Q67. In February 2025, India's External Affairs Minister and envoys from 61 countries visited which national park to experience its rich biodiversity and the iconic one-horned rhinos?

(a) Periyar National Park
(b) Sundarbans National Park
(c) Jim Corbett National Park
(d) Kaziranga National Park

Q68. If 2 is added to each even digit and 1 is subtracted from each odd digit in the number 26347591, what will be the sum of the second digit from left and third digit from right in the new number thus formed?

(a) 14
(b) 10
(c) 8
(d) 12

Q69. What should come in place of the question mark (?) in the given series?

911 910 920 919 929 ? 938

(a) 926
(b) 929
(c) 928
(d) 924

Q70. The average of five numbers is 56. Four of the numbers are 35, 42, 32, and 26. What is the fifth number?

(a) 135
(b) 55
(c) 68
(d) 145

Q71. A, B, L, M, S, T and Z are sitting around a circular table facing the centre. M sits to the immediate right of T. Only three people sit between M and A when counted from the left of M. Only three people sit between T and Z. L sits to the immediate right of S. How many people sit between B and S when counted from the left of S?

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

Q72. If 1 is added to each odd digit and 2 is subtracted from each even digit in the number 1385724, then how many digits will appear more than once in the new number thus formed?

(a) 1
(b) 3

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(c) 0
(d) 2

Q73. Refer to the following number and symbol series and answer the question that follows. Counting to be done from left to right only.

(Left) 1 5 & 3 * $ 4 @ % 2 7 # 9 ^ # 6 8 (Right)

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

(a) Three
(b) One
(c) None
(d) Two

Q74. What should come in place of the question mark (?) in the given series?

413, 390, 357, ?, 261, 198

(a) 314
(b) 334
(c) 344
(d) 324

Q75. 5 What specific provision concerning the President of India is outlined in Article 59(3) of the Constitution of India?

(a) Salary and privileges of the President
(b) Powers of the President
(c) Election of the President
(d) Impeachment of the President

Q76. In the following number-pairs, the second number is obtained by applying certain mathematical operation(s) to the first number. Select the number pair in which the numbers are related in the same way as are the numbers of the following pairs. (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 to/subtracting from/multiplying with 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed.)

78, 91

94, 107

(a) 82, 105
(b) 99, 114
(c) 71, 74
(d) 86, 99

Q77. The complete sequencing of the human genome has marked the beginning of:

(a) genomics
(b) immunology
(c) cytogenetics
(d) structural biology

Q78. The successive discounts of 24%, 18% and 20% are equivalent to a single discount of: (Rounded up to two decimal places.)

(a) 50.14%
(b) 49.27%
(c) 51.51%
(d) 52.84%

Q79. Which of the following best describes the nature of the Northern Plain?

(a) Hilly and forested
(b) Rocky and elevated
(c) Arid and barren

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(d) Alluvial and fertile

Q80. Which of the following letter-number clusters will replace the question mark (?) in the given series to make it logically complete?

KO29 JN41 IM53 HL65?

(a) GK78
(b) GK77
(c) GL78
(d) GL77

Q81. If a + b = 32 and $(a - b)^2 = 372$ find the value of product of a and b.

(a) 261
(b) 163
(c) 161
(d) 145

Q82. In March 2025, how many Light Combat Helicopters, Prachand, were ordered by the Ministry of Defence ?

(a) 136
(b) 126
(c) 196
(d) 156

Q83. Which part of a Hindu temple serves as the innermost chamber for the primary deity?

(a) Shikhara
(b) jagati
(c) Kalasha
(d) Garbhagriha

Q84. 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. Q has an exam on Tuesday. Exactly 2 people have exams between Q and R. P has an exam immediately before T, and S has an exam immediately after V. Only 1 person has an exam between T and V. Who has an exam on Monday?

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

Q85. If the median of a data is 20.8 less than its mode, then the median of the data exceeds its mean by _____. (Use the empirical formula)

(a) 13.72
(b) 10.4
(c) 6.32
(d) 12.43

Q86. One-third of a journey is covered at a speed of 67 km/hr, the next one-third of the journey is covered at a speed of 66 km/hr, and the remaining journey is covered at a speed of 17 km/hr. The average speed (in km/hr, rounded off to one decimal place) for the entire journey is:

(a) 33.7
(b) 43.7
(c) 29.6
(d) 28.6

Q87. There are two sections A and B of a class, consisting of 22 and 44 students, respectively. If the average weight of section A is 40 kg and that of section B is 37 kg, find the average weight of the whole class (in kg).

(a) 38
(b) 38.5

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(c) 39
(d) 37.5

Q88. Which of the following numbers is divisible by 11?
(a) 2652
(b) 1440
(c) 2118
(d) 1749

Q89. Which of the following statements regarding the 2024 Jharkhand Assembly elections is/are INCORRECT?
1. The Indian National Congress won more than 15 seats.
2. The Jharkhand Mukti Morcha won the highest vote share.
3. Rashtriya Janata Dal won 4 seats in the Assembly.

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

Q90. Which prominent Indian leader led the Bardoli Satyagraha of 1928, a major civil disobedience movement against increased land taxes?
(a) Mahatma Gandhi
(b) Vallabhbhai Patel
(c) Bal Gangadhar Tilak
(d) Jawaharlal Nehru

Q91. Anand purchased an item and incurred Rs. 169 in repair expenses. Subsequently, he sold it to Bharath with a 25% profit. Eventually, Bharath sold the item for Rs. 4,480, making a 44% loss. What was the original cost (inRs.) of the item for Anand?
(a) 6397
(b) 6400
(c) 6231
(d) 6403

Q92. The simplified value of 285 - 6(23 + 19) + 83 is:
(a) 116
(b) 106
(c) 110
(d) 107

Q93. 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 :: ?
: OWF :: VDM : %
(a) = TBK, % = QYU
(b) = TBK, % = QYH
(c) = TYK, % = QYH
(d) = TBM, % = QYH

Q94. The mode of the observations 21, 27, 25, 31, 21, 35, 23, 25, 32, 27, 21, 29, 32, 29 and 31 is:
(a) 27
(b) 31
(c) 21
(d) 25

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Q95. Which Union Territory of India has the longest coastline as per the 2022-23 Annual Report of the Ministry of Home Affairs?

(a) Andaman and Nicobar Islands
(b) Daman and Diu
(c) Lakshadweep
(d) Puducherry

Q96. If 1 is added to each odd digit and 2 is subtracted from each even digit in the number 4568712, what will be the difference between the highest and lowest digits in the number thus formed?

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

Q97. The population of a village was 1,10,000. It increased by 5% in the first year and increased by 30% in the second year. Its population after two years is _____.

(a) 1,15,500
(b) 1,48,500
(c) 1,43,000
(d) 1,50,150

Q98. The population of a town in the year 1956 was 2,07,300. If its population increased in two successive decades by 20% in each decade, the population of the town in the year 1976 was:

(a) 2,98,507
(b) 2,98,511
(c) 2,98,512
(d) 2,98,513

Q99. The musical narration of the 'Battle of Khongjom' is a popular folk music of which State?

(a) Arunachal Pradesh
(b) Kerala
(c) Manipur
(d) Nagaland

Q100. A woman travelled at a speed of 20 m/min for 80 min, and at a speed of 65 m/min for 70 min. Her average speed (in m/min) is:

(a) 47
(b) 34
(c) 45
(d) 41

ANSWER KEY

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

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91 c	92 a	93 b	94 c	95 a	96 a	97 d	98 c	99 c	100 d

SOLUTIONS

Q1. Answer: (c) 50

Shortcut Trick

Let filling capacity be x. Then emptying capacity is x + 10.

Time difference formula: [Capacity / (Smaller Rate)] − [Capacity / (Larger Rate)] = Time Difference

1800/x − 1800/(x + 10) = 6

Test Option (3): x = 50 => 1800/50 − 1800/60 = 36 − 30 = 6 minutes. Matches exactly.

Therefore The correct answer is 50 m³/min.

Alternate Method

Given: Total Tank Capacity = 1800 m³, Difference in capacity = 10 m³/min, Difference in time = 6 minutes.

Formula Used: Time = Capacity ÷ Rate

=> Let Filling Capacity = x m³/min

=> Emptying Capacity = (x + 10) m³/min

=> 1800/x − 1800/(x + 10) = 6

=> 1800 [(x + 10 − x) / (x(x + 10))] = 6

=> 1800 × 10 / (x² + 10x) = 6

=> 3000 = x² + 10x

=> x² + 10x − 3000 = 0

=> (x + 60)(x − 50) = 0

=> Since capacity cannot be negative, x = 50 m³/min.

Therefore The correct answer is 50 m³/min.

Additional Information

Time and Work Relation

Rate of work is inversely proportional to the time taken. If capacity increases, time decreases: Time = Work / Rate.

Quadratic Shortcut

For the equation x² + (a−b)x − ab = 0, the roots are b and −a. In physical problems like capacity, always pick the positive root.

Pipes and Cisterns

Filling is considered positive work while emptying is considered negative work in net efficiency problems.

Q2. Answer: (a) 10

The given three-digit numbers are: 657, 435, 578, 659, 619.

Now,

The highest number is 659. Its second digit is 5.

The lowest number is 435. Its third digit is 5.

Perform the addition.

Add the second digit of the highest number 5 to the third digit of the lowest number 5.

5 + 5 = 10.

Hence, the correct answer is "Option 1".

Q3. Answer: (d) 1830-31

The Correct answer is 1830-31.

Key Points

• The Nagara Uprising was a significant peasant rebellion that occurred in the Nagar province, which is presently part of the Shivamogga district in Karnataka.

• The rebellion took place during the period of 1830-31 in the Mysore Kingdom.

• The uprising was led by peasants and farmers against the oppressive taxation policies and exploitation by the local rulers and officials.

• The Mysore Kingdom during this time was under British influence, and the policies implemented by the British administrators further aggravated the conditions of the peasants.

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• This revolt was one of the earliest expressions of resistance against colonial policies and local mismanagement in southern India.

• The uprising highlighted the plight of the agrarian community and their collective efforts to push back against exploitation.

• Although the rebellion was suppressed, it remains an important event in the history of Karnataka as it reflects the growing dissatisfaction among the rural population during colonial rule.

• Events like the Nagara Uprising paved the way for future organized resistance movements against colonial rule in southern India.

Additional Information

• 1798-99

• This period is significant because it was the time of the Fourth Anglo-Mysore War, during which Tipu Sultan, the ruler of Mysore, fought against the British.

• The war ended with Tipu Sultan's defeat and death, marking the end of Mysore's resistance to British expansion.

• 1856-57

• This period is closely associated with events leading to the Indian Rebellion of 1857, which was the first major uprising against British rule.

• The rebellion was marked by widespread unrest across northern and central India but does not relate to the Nagara Uprising in southern India.

• Sat Nov 01 1710

• The year 1710 falls during the early 18th century, a period marked by significant developments in Mughal and Maratha power dynamics in India.

• This date is unrelated to the Nagara Uprising, which occurred much later in the 19th century.

Q4. Answer: (c) Alluvial soil

The correct answer is Alluvial soil.

Key Points

• Alluvial soil is the most suitable soil for rice cultivation due to its fertility and moisture retention capacity.

• It is rich in essential nutrients such as potash, phosphoric acid, and lime, which are required for the growth of rice plants.

• Alluvial soils are formed by the deposition of sediments brought by rivers such as the Ganga, Brahmaputra, and Indus.

• This soil type is widely found in the Indo-Gangetic plain, which is a major rice-growing region in India.

• It has a clayey texture that helps retain water, a crucial factor for rice cultivation as rice requires standing water during its growth phase.

• Alluvial soil is found in low-lying areas that are naturally irrigated by river systems, making it ideal for rice farming.

Additional Information

• Desert Soil

• Desert soil is found in arid regions such as Rajasthan and is characterized by low fertility and high sand content.

• It lacks moisture and organic content, making it unsuitable for rice cultivation.

• This soil type is typically used for crops that require minimal water, such as millets and pulses.

• Red Soil

• Red soil is found in regions such as Chhattisgarh, Tamil Nadu, and Karnataka.

• It is formed by the weathering of crystalline rocks and is rich in iron oxide, giving it a reddish color.

• Although it is fertile for crops like groundnut, cotton, and millets, it lacks essential nutrients such as nitrogen and organic matter, making it less suitable for rice cultivation.

• Saline Soil

• Saline soil is characterized by high salt content and is found in areas such as Rann of Kutch in Gujarat and coastal regions.

• It is not suitable for most crops, including rice, due to its poor drainage and high salinity.

• Efforts are often required to reclaim saline soils for agricultural use.

Q5. Answer: (c) Sai Paranjpye

The Correct answer is Sai Paranjpye.

Key Points

• Sai Paranjpye is a renowned Indian filmmaker, director, and screenwriter known for her work in Hindi cinema.

• She has made significant contributions to Indian cinema, especially in the genre of offbeat and realistic films.

• Some of her most acclaimed works include films like Sparsh (1980), Chashme Buddoor (1981), and Katha (1983), which have earned her a distinct reputation in the industry.

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• Paranjpye has received several prestigious awards, including the National Film Awards, for her excellence in filmmaking and storytelling.

• The Padmapani Lifetime Achievement Award, which she received in January 2025, recognizes her outstanding contribution to Indian cinema over the years.

• Her works are often characterized by their realistic portrayal of human emotions and insightful storytelling, making her one of the most respected figures in Indian cinema.

• Apart from filmmaking, she has also written plays and books, showcasing her versatility as a creative artist.

Additional Information

• Mira Nair

• Mira Nair is an acclaimed Indian-American filmmaker known for films such as Monsoon Wedding (2001) and The Namesake (2006).

• Her works often explore themes of cultural identity, migration, and human relationships.

• She has received numerous awards, including the Golden Lion at the Venice Film Festival.

• Shyam Benegal

• Shyam Benegal is one of the pioneers of parallel cinema in India and is known for his socially relevant films such as Ankur (1974) and Manthan (1976).

• He has been honored with the Padma Bhushan and Dadasaheb Phalke Award for his contributions to Indian cinema.

• Vishal Bhardwaj

• Vishal Bhardwaj is a renowned filmmaker, music composer, and writer known for his adaptations of Shakespearean plays like Omkara, Maqbool, and Haider.

• His films are known for their complex narratives and strong performances.

• He has won numerous National Film Awards for his work in both cinema and music.

Q6. Answer: (d) 61

Shortcut Trick

Subtract the remainders from the given numbers first:

247 − 3 = 244

189 − 6 = 183

Required number = HCF(244, 183)

Difference between 244 and 183 = 244 − 183 = 61

Since 61 is prime and divides both 244 (61 × 4) and 183 (61 × 3).

Therefore The correct answer is 61.

Alternate Method

Given:

Numbers are 247 and 189.

Remainders are 3 and 6 respectively.

Formula Used:

The greatest number that divides A and B leaving remainders x and y is the HCF of (A − x) and (B − y).

247

189

− 3

− 6

244

183

HCF

61

Calculations:

=> First adjusted number = 247 − 3 = 244

=> Second adjusted number = 189 − 6 = 183

=> Finding factors of 244: 244 = 2 × 2 × 61

=> Finding factors of 183: 183 = 3 × 61

=> The common factor is 61.

=> Greatest number (HCF) = 61

Therefore The correct answer is 61.

Additional Information

HCF of Numbers with Remainders

To find the largest number that divides A, B, and C leaving remainders x, y, and z, calculate HCF(A − x, B − y, C − z).

HCF with Same Remainder

If the remainder is the same but unknown, the required number is the HCF of the absolute differences of the numbers: HCF(|A − B|, |B − C|, |C − A|).

HCF and LCM Relation

For two numbers A and B, Product of numbers = HCF(A, B) × LCM(A, B).

Q7. Answer: (a) √15412

Shortcut Trick

Surface Area = 2(lb + bh + hl)

25392 = 2(70 × 96 + 96h + 70h)

12696 = 6720 + 166h => 166h = 5976 => h = 36 cm

Diagonal = √(l² + b² + h²) = √(70² + 96² + 36²)

Diagonal = √(4900 + 9216 + 1296) = √15412 cm

Therefore The correct answer is √15412 cm.

Alternate Method

Given: Length (l) = 70 cm, Breadth (b) = 96 cm, Total Surface Area = 25392 cm².

Formula Used: Total Surface Area of Cuboid = 2(lb + bh + hl); Diagonal = √(l² + b² + h²)

=> 2(70 × 96 + 96 × h + 70 × h) = 25392

=> 6720 + 166h = 12696

=> 166h = 12696 − 6720

=> 166h = 5976 => h = 36 cm

=> Diagonal (d) = √(70² + 96² + 36²)

=> d = √(4900 + 9216 + 1296)

=> d = √15412 cm

Therefore The correct answer is √15412 cm.

Additional Information

Volume of Cuboid

The space occupied by a cuboid is given by V = l × b × h.

Lateral Surface Area

The area of the four side walls is calculated as 2h(l + b).

Cube Properties

If l = b = h = a, the diagonal of a cube is √3 × a and the surface area is 6a².

Q8. Answer: (c) 3925 cm3

Shortcut Trick

Sum of perimeters of two cubes = 12(x + y) = 300 → x + y = 25 cm.

Given product of edges (xy) = 156 cm².

Sum of volumes = x³ + y³ = (x + y)((x + y)² − 3xy).

x³ + y³ = 25 × (25² − 3 × 156) = 25 × (625 − 468) = 25 × 157 = 3925 cm³.

Therefore The correct answer is 3925 cm³.

Alternate Method

Given: Total perimeter = 300 cm, Product of edges (xy) = 156 cm².

Formula: Perimeter of a cube = 12 × edge; Volume = edge³.

=> 12x + 12y = 300

=> 12(x + y) = 300 => x + y = 25

=> Sum of volumes = x³ + y³

=> x³ + y³ = (x + y)³ − 3xy(x + y)

=> x³ + y³ = (25)³ − 3(156)(25)

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=> $x^3 + y^3 = 15625 - 11700$

=> $x^3 + y^3 = 3925$ cm³

Therefore The correct answer is 3925 cm³.

Additional Information

Cube Properties

Total surface area of a cube is $6a^2$ and the longest diagonal is $a\sqrt{3}$, where a is the edge length.

Algebraic Identity

The sum of cubes formula: $a^3 + b^3 = (a + b)(a^2 - ab + b^2)$ or $(a + b)^3 - 3ab(a + b)$.

Perimeter of 3D shapes

The total edge length (perimeter) of a cube/cuboid is the sum of all 12 edges.

Q9. Answer: (a) 22 km towards the west

Given:

Mr. Y starts from Point B and drives 1 km towards the south.

He then takes a left turn, drives 9 km, turns right, and drives 2 km.

He then takes a left turn and drives 13 km.

He takes a final left turn, drives 3 km, and stops at Point A.

He should drive 22 km west in order to reach Point B again.

Hence, the correct answer is "Option 1".

Q10. Answer: (b) 25%

Shortcut Trick

Let the selling price x = 100.

New Selling Price = 40% of 100 = 40.

Loss is 50%, so Cost Price (CP) = 40 ÷ (1 − 0.50) = 80.

Profit at price x = 100 − 80 = 20.

Profit % = (20 ÷ 80) × 100 = 25%.

Therefore The correct answer is 25%.

Alternate Method

Given: SP1 = x | SP2 = 0.40x | Loss% = 50%

Formulas: CP = SP × 100 ÷ (100 − Loss%) | Profit% = (SP − CP) ÷ CP × 100

=> When sold at 0.40x, Loss = 50%, so CP = 0.40x ÷ 0.50 = 0.80x.

=> To find profit when sold at x: Profit = x − 0.80x = 0.20x.

=> Profit % = (0.20x ÷ 0.80x) × 100 = (1 ÷ 4) × 100 = 25%.

Therefore The correct answer is 25%.

Additional Information

Selling Price and Cost Price Relationship

If an object is sold at a loss, the CP is always greater than the SP. Formula: CP = SP + Loss.

Profit Percentage

Profit percentage is always calculated on the Cost Price unless stated otherwise. Formula: (Profit ÷ CP) × 100.

Q11. Answer: (c) Rs. 65,000

Shortcut Trick

Total ratio parts of investment = 5 + 6 + 13 = 24 units.

Given Total Profit = Rs. 36,400, which is 14% of the investment.

Total Investment = (36,400 ÷ 14) × 100 = Rs. 2,60,000.

Naveen's share in investment = (6 ÷ 24) × 2,60,000.

Naveen's investment = 1/4 × 2,60,000 = Rs. 65,000.

Therefore The correct answer is Rs. 65,000.

Alternate Method

Given: Ratio = 5 : 6 : 13 | Profit = Rs. 36,400 | Profit % = 14%.

Formulas: Total Investment = (Profit ÷ Profit%) × 100 | Individual Share = (Individual Ratio ÷ Total Ratio) × Total Investment.

=> Calculate Total Investment: 14% = 36,400

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=> 100% = (36,400 × 100) ÷ 14 = 2,600 × 100 = 2,60,000

=> Sum of ratio components = 5 + 6 + 13 = 24

=> Naveen's Investment = (6 ÷ 24) × 2,60,000

=> Naveen's Investment = (1 ÷ 4) × 2,60,000 = 65,000

Therefore The correct answer is Rs. 65,000.

Additional Information

Partnership Investment

In a partnership, if the time period is constant, the profit is distributed in the same ratio as the capital investment.

Percentage to Absolute Value

To find the base value (Total Investment) from a percentage: Base = (Value ÷ Percentage) × 100.

Q12. Answer: (c) Ctrl + S

The Correct answer is Ctrl + S.

Key Points

• The Ctrl + S shortcut is universally used in most software applications, including Microsoft PowerPoint, to save the current work or file quickly.

• In MS PowerPoint, pressing Ctrl + S instantly saves the current presentation, ensuring that any changes made are not lost.

• This shortcut is a part of the keyboard accessibility features in Microsoft Office, aimed at increasing productivity and ease of use.

• Saving the presentation frequently using Ctrl + S is a good habit to prevent data loss due to unexpected application crashes or power interruptions.

• It is particularly useful in scenarios where users are working on a large presentation with multiple slides and want to ensure that their progress is consistently saved.

• The saved file can then be retrieved later from its specified location on the computer or cloud storage.

• Shortcut keys like Ctrl + S are part of the Microsoft Office keyboard shortcuts, which are designed to improve efficiency while working with documents, spreadsheets, and presentations.

Additional Information

• Ctrl + N

• The Ctrl + N shortcut is used to create a new presentation in MS PowerPoint.

• It opens a blank slide deck, allowing users to start designing a presentation from scratch.

• Ctrl + O

• The Ctrl + O shortcut is used to open an existing presentation file in MS PowerPoint.

• This is helpful when you want to work on or review a previously saved presentation.

• Ctrl + P

• The Ctrl + P shortcut is used to open the print dialog box in MS PowerPoint.

• This allows users to adjust printing options and send the presentation to a connected printer.

Q13. Answer: (b) nv

The given code language is:

Thus, 'knock' is coded as 'nv'.

Hence, the correct answer is "Option 2".

Q14. Answer: (d) Hertz (Hz)

The Correct answer is Hertz (Hz).

Key Points

• The Hertz (Hz) is the SI unit of frequency, which measures the number of cycles of a periodic wave per second.

• It is named after the German physicist Heinrich Rudolf Hertz, who made significant contributions to the understanding of electromagnetic waves.

• 1 Hertz represents one cycle per second. For example, a frequency of 50 Hz means there are 50 cycles of the wave occurring each second.

• The unit is widely used in various fields such as physics, telecommunications, acoustics, and electronics to describe the frequency of waves, including sound waves, electromagnetic waves, and alternating current.

• Applications of frequency measurement in Hertz include radio broadcasting (e.g., FM radio operates at 88-108 MHz), electricity (standard power supply frequency is 50 Hz or 60 Hz), and digital systems (e.g., processor clock speeds in GHz).

• The Hertz is a derived unit, and its dimensional formula is T^{-1}, where T represents time.

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Additional Information

• Millisecond

• A millisecond (ms) is a unit of time and is equal to one-thousandth of a second (1 ms = 0.001 seconds).

• It is commonly used in fields like computer science and electronics to measure short time intervals, such as response times.

• Pascal

• The Pascal (Pa) is the SI unit of pressure, not frequency.

• It is defined as one newton per square meter (1 Pa = 1 N/m^2).

• This unit is used to measure pressure in various fields such as fluid dynamics, meteorology, and material science.

• Joule

• The Joule (J) is the SI unit of energy, not frequency.

• It is defined as the work done when a force of one newton moves an object one meter (1 J = 1 N·m).

• It is used in fields like physics, engineering, and thermodynamics to measure energy, work, or heat.

Q15. Answer: (b) Gaya

The Correct answer is Gaya.

Key Points

• The Harsha inscription of 554 CE mentions the rise of Yajnavarman, a ruler who emerged from Gaya.

• Gaya is an ancient city located in the state of Bihar, India.

• It is historically significant due to its association with Buddhism, Hinduism, and the presence of the Maha Bodhi Temple, which is a UNESCO World Heritage Site.

• The city of Gaya has been a prominent religious and cultural center, well-known for its Pind Daan rituals performed by Hindus for their ancestors.

• Yajnavarman's rise marked a political shift during the post-Gupta period, reflecting the local power dynamics in the region.

• The Harsha inscription provides valuable historical insight into the regional rulers and their contributions during the period.

Additional Information

• Thanesar

• Thanesar is a historic town located in the state of Haryana, India.

• It was the capital of the Pushyabhuti dynasty, which Harsha later ruled.

• Thanesar was a prominent center of political and religious activities during the early medieval period.

• It is also associated with the famous ruler Harsha Vardhana who expanded his empire from this region.

• Magadha

• Magadha was an ancient kingdom located in what is now Bihar, India.

• It was one of the most powerful kingdoms in ancient India, and its prominence rose during the reign of the Maurya and Gupta dynasties.

• Magadha is famous for its role in the spread of Buddhism and Jainism.

• The region was home to cities like Pataliputra, which served as an important political and economic hub.

• Kannauj

• Kannauj was an important city in northern India and served as the capital of several dynasties, including the Gurjara-Pratihara dynasty.

• It is located in the present-day state of Uttar Pradesh, India.

• Kannauj was known for its rich cultural heritage, especially its role in the production of perfumes.

• The city played a significant role in medieval Indian history, often contested by various empires for its strategic importance.

Q16. Answer: (d) The file is currently opened in another application.

The Correct answer is The file is currently opened in another application.

Key Points

• In a Windows-based operating system, a file cannot be renamed if it is currently opened in another application.

• This is because the operating system locks the file to prevent any modifications while it is in use, ensuring data integrity and avoiding conflicts.

• Applications that open files typically place a lock on them, preventing other processes from renaming, editing, or deleting the file.

• For example, if a document is opened in Microsoft Word, the file cannot be renamed until the application is closed.

• Such restrictions help maintain the stability and functionality of the operating system by avoiding potential errors or corruption.

• To rename a file in this scenario, users must ensure that the file is closed in all running applications.

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Additional Information

• The file has a long name exceeding 255 characters

• In Windows operating systems, file names are limited to a maximum of 255 characters including the file path.

• Exceeding this limit can result in errors when attempting to open, rename, or perform any operation on the file.

• Such files may require specialized tools or techniques to be renamed or accessed.

• The file is located in the Recycle Bin

• Files in the Recycle Bin are considered temporarily deleted and cannot be renamed directly.

• To rename such files, they must first be restored to their original location.

• The Recycle Bin is a feature in Windows that allows users to recover accidentally deleted files.

• The file has the 'Read-only' attribute enabled

• A file with the 'Read-only' attribute is protected from being modified or deleted but can still be renamed.

• The 'Read-only' status can be removed by accessing the file's Properties in Windows.

• This attribute is often used to safeguard important files from unintended changes.

Q17. Answer: (d) It ensures harmony and cooperation between the legislature and the executive.

The Correct answer is It ensures harmony and cooperation between the legislature and the executive.

Key Points

• The parliamentary system is designed to ensure a close relationship between the legislature and the executive.

• In this system, the executive branch, including the Prime Minister and the Council of Ministers, is drawn from the legislature, ensuring both accountability and cooperation.

• The government is directly responsible to the legislature, which fosters a system of checks and balances and ensures a smooth functioning of governance.

• The fusion of powers between the two branches reduces the chances of a deadlock, as is often observed in systems with a rigid separation of powers.

• This system allows for the Prime Minister to act as a link between the legislature and the executive, ensuring policies are implemented with legislative backing.

• It helps maintain political stability, as the government must command the confidence of the legislature to remain in power.

• Examples of countries with parliamentary systems include India, the United Kingdom, and Canada.

Additional Information

• The judiciary controls both the legislature and the executive.

• This statement reflects the concept of judicial review, which ensures that the actions of the legislature and executive are within the boundaries of the Constitution.

• However, in a parliamentary system, the judiciary does not control the legislature or executive but acts as an independent body to ensure constitutional compliance.

• The executive has absolute power over the legislature.

• This is inaccurate in a parliamentary system, as the executive is accountable to the legislature and requires its confidence to remain in power.

• Absolute power is more associated with authoritarian systems, not parliamentary democracies.

• The Prime Minister can dissolve the legislature at will.

• In a parliamentary system, the Prime Minister cannot unilaterally dissolve the legislature; this action typically requires the approval of the Head of State, such as the President or Monarch.

• The dissolution of the legislature is usually tied to political or constitutional reasons, such as a failure to form a stable government.

Q18. Answer: (d) N

Given: Seven boxes, F, G, H, I, L,M and N, are kept one over the other. The lowermost box is numbered 1 and the topmost is numbered 7.

1) Only three boxes are kept below I.

This means I is on Position 4.

7	
6	
5	
4	I

3	
2	
1	

2) Only two boxes are kept between I and F.

3) Only H is kept above L.

7	**H**
6	L
5	
4	I
3	
2	
1	F

4) M is kept at some place below G and at some place above N.

7	**H**
6	L
5	G
4	I
3	M
2	N
1	F

From the final arrangement, the box kept at the second position from the bottom (Position 2) is N.

Hence, the correct answer is "Option 4".

Q19. Answer: (b) Rs. 440

Shortcut Trick

Let the cost of an apple be A and a mango be M.

From the given data: 2A + 5M = 239 and A + 4M = 184 (since 50% of 2A = A).

Multiply the second equation by 2: 2A + 8M = 368.

Difference: 3M = 368 − 239 = 129 => M = 43.

Then A = 184 − 4(43) = 12. Sum of 1A + 1M = 12 + 43 = 55.

Required cost for 8 apples and 8 mangoes = 8 × 55 = 440.

Therefore The correct answer is Rs. 440.

Alternate Method

Given:

Initial condition: 2 apples + 5 mangoes = Rs. 239

Condition after 50% decrease in apple price: 2(0.5 × apple) + 4 mangoes = Rs. 184

Calculations:

Let A be the original cost of an apple and M be the cost of a mango.

=> 2A + 5M = 239 --- (Equation 1)

=> 2(A − 50% of A) + 4M = 184

=> 2(0.5A) + 4M = 184 => A + 4M = 184 --- (Equation 2)

From Eq 2, we get A = 184 − 4M. Substituting this in Eq 1:

=> 2(184 − 4M) + 5M = 239

=> 368 − 8M + 5M = 239

=> 368 − 3M = 239

=> 3M = 368 − 239 = 129 => M = Rs. 43

Substitute M = 43 in Eq 2:

=> A = 184 − 4(43) = 184 − 172 = Rs. 12

Original cost of 8 apples and 8 mangoes:

=> 8A + 8M = 8(12) + 8(43)

=> 96 + 344 = 440

Therefore The correct answer is Rs. 440.

Additional Information

Linear Equations in Two Variables

A system of equations a1x + b1y = c1 and a2x + b2y = c2 can be solved using the elimination method or substitution method.

Percentage Change

A decrease of x% on a value V results in a new value of V × (100 − x)/100. In this case, 50% decrease means the price becomes half.

Unitary Method Application

Once the price of a single unit (1 apple and 1 mango) is found, the cost for any quantity n can be found by n × (Price of 1 unit).

Q20. Answer: (b) Kerala

The correct answer is Kerala.

Key Points

• The Indian state of Kerala organized an Olympic-style school sports event in November 2024.

• This event was unique as it involved the participation of Gulf-based Indian schools, allowing Indian-origin students living abroad to compete.

• The initiative aimed to provide a platform for young athletes to showcase their talents and foster a sense of connection among Indian communities globally.

• Kerala has always been a leader in promoting sports and physical education at the grassroots level, with a focus on identifying and nurturing talent.

• This event highlights Kerala's commitment to the holistic development of students by integrating sports into education.

• Kerala is known for hosting large-scale events that emphasize cultural exchange and sportsmanship.

• Such events also promote tourism and showcase Kerala's infrastructure and organizational capabilities on a global stage.

Additional Information

• Delhi

• Delhi, the capital of India, is known for hosting various national and international events but is not specifically known for organizing an Olympic-style school sports event with Gulf-based Indian schools in November 2024.

• Delhi has been at the forefront of promoting sports infrastructure and has hosted major events like the Commonwealth Games 2010.

• Tamil Nadu

• Tamil Nadu is renowned for its contribution to traditional sports like Kabaddi and Silambam.

• While it actively promotes sports, there is no record of Tamil Nadu organizing an Olympic-style school sports event with Gulf-based Indian schools in November 2024.

• Maharashtra

• Maharashtra is known for its extensive sports culture and infrastructure, including venues like the Wankhede Stadium and Shiv Chhatrapati Sports Complex.

• However, in November 2024, it was not the state responsible for hosting this specific school sports event with Gulf-based Indian schools.

Q21. Answer: (d) Mohenjo-daro

The Correct answer is Mohenjo-daro

Key Points

• The Great Bath is one of the most significant architectural structures found at Mohenjo-daro, an important site of the Indus Valley Civilization.

• It is believed to have been used for ritualistic or religious bathing, showcasing the advanced planning and social systems of the civilization.

• The structure is made of bricks, gypsum mortar, and bitumen, which was used for waterproofing.

• The bath measures approximately 12 meters long, 7 meters wide, and 2.4 meters deep, with steps leading into the pool.

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• The presence of drainage systems and a nearby well highlights the advanced engineering and water management practices of the era.
• Mohenjo-daro is located in present-day Pakistan, in the province of Sindh, and is a UNESCO World Heritage Site.
• The Great Bath indicates the civilization's emphasis on cleanliness, hygiene, and possibly religious practices.

Additional Information

• Harappa
• Harappa is another major site of the Indus Valley Civilization, located in present-day Punjab, Pakistan.
• It is known for its granaries, urban planning, and artifacts like seals and pottery.
• Unlike Mohenjo-daro, no structure resembling the Great Bath has been discovered at Harappa.
• Dholavira
• Dholavira is located in the Kutch district of Gujarat, India, and was a prominent city of the Indus Valley Civilization.
• It is known for its water conservation systems, reservoirs, and unique urban planning.
• No evidence of a structure similar to the Great Bath has been found at Dholavira.
• Rakhigarhi
• Rakhigarhi is situated in the state of Haryana, India, and is one of the largest sites of the Indus Valley Civilization.
• It is known for its burials, pottery, and seals.
• No structure resembling the Great Bath has been discovered at Rakhigarhi.

Q22. Answer: (c) 26.8

Shortcut Trick

When an object is recast, its volume remains constant.

For a cone, Volume prop. to r^2h.

=> $r1^2h1 = r2^2h2$

=> $(17.6)^2 \times 6.7 = (8.8)^2 \times h2$

=> $(2 \times 8.8)^2 \times 6.7 = (8.8)^2 \times h2$ => $4 \times 6.7 = h2 = 26.8$ cm.

Therefore The correct answer is 26.8 cm.

Alternate Method

Given: Initial height (h1) = 6.7 cm, Initial radius (r1) = 17.6 cm, New radius (r2) = 8.8 cm.

Formula Used: Volume of a right circular cone = $(1/3) \times \pi \times r^2 \times h$

Calculations:

=> Volume of old cone = Volume of new cone

=> $(1/3) \times \pi \times (r1)^2 \times h1 = (1/3) \times \pi \times (r2)^2 \times h2$

=> $(r1)^2 \times h1 = (r2)^2 \times h2$

=> $(17.6)^2 \times 6.7 = (8.8)^2 \times h2$

=> $h2 = (17.6 \times 17.6 \times 6.7) / (8.8 \times 8.8)$

=> $h2 = 2 \times 2 \times 6.7$

=> $h2 = 4 \times 6.7 = 26.8$ cm

Therefore The correct answer is 26.8 cm.

Additional Information

Volume of Solids

When a solid is melted and recast into another shape, the total volume remains unchanged. This principle is used to find unknown dimensions.

Right Circular Cone Properties

Slant height (l) = $\sqrt{(r^2 + h^2)}$. Curved Surface Area (CSA) = πrl. Total Surface Area (TSA) = $\pi r(l + r)$.

Ratio of Volumes

If the linear dimensions (radius or height) of similar cones are in ratio a:b, then their volumes are in ratio $a^3:b^3$.

Q23. Answer: (a) -√12

Shortcut Trick

Identify the equation as a bi-quadratic form by setting x2 = y.

Find two factors of the constant term 60 that add up to the middle coefficient −17.

The factors are −12 and −5, so x2 = 12 or x2 = 5.

Solving for x, we get $x = \pm\sqrt{12}$ or $x = \pm\sqrt{5}$.

From the given options, the possible value is −√12.

Therefore The correct answer is −√12.

Alternate Method

Given: $x^4 - 17x^2 + 60 = 0$

Formula Used: Substitution method for higher-order equations and factorization of quadratic equations.

=> Let $x^2 = y$

=> $y^2 - 17y + 60 = 0$

=> $y^2 - 12y - 5y + 60 = 0$

=> $y(y - 12) - 5(y - 12) = 0$

=> $(y - 12)(y - 5) = 0$

=> $y = 12$ or $y = 5$

=> Substituting back $x^2 = y$:

=> $x^2 = 12 \Rightarrow x = \pm\sqrt{12}$

=> $x^2 = 5 \Rightarrow x = \pm\sqrt{5}$

=> The possible values for x are $\sqrt{12}$, $-\sqrt{12}$, $\sqrt{5}$, and $-\sqrt{5}$.

Therefore The correct answer is −√12.

Additional Information

Bi-quadratic Equations

An equation of the form $ax^4 + bx^2 + c = 0$ can be reduced to a quadratic equation by substituting a new variable for x^2.

Nature of Roots

For a quadratic $ax^2 + bx + c = 0$, the discriminant $D = b^2 - 4 \times a \times c$ determines if roots are real ($D \geq 0$) or imaginary ($D < 0$).

Middle Term Splitting

To factorize $y^2 + Sy + P = 0$, find two numbers whose sum is S and product is P.

Q24. Answer: (d) FDDHE

Number/symbol	**5**	**$**	**7**	**2**	**%**	**•**	**3**	**^**	**#**	**9**	**•**	**6**	**8**	**4**
Code	A	F	L	B	G	M	C	H	N	D	J	P	E	K

Conditions:

i) If the first element is a number and the last a symbol, the codes for these two (the first and the last elements) are to be interchanged.

ii) If the first and last elements are odd numbers, then the first and last elements are to be coded as @.

iii) If both the second and third elements are perfect square roots, then the third element is to be coded as the code for the second element.

Given- $ 9 4 ^ 8

Rule No. (i): This condition does not apply because the first element ($) is a symbol, not a number.

Rule No. (ii): This condition does not apply because the first element ($) is a symbol, not an odd number.

Rule No. (iii): This condition applies because the second element (9) is a perfect square and the third element (4) is also a perfect square. So, the code of the third element will be the code for the second element.

Based on the applicable rule (iii), the third element will be coded as the code for the second element.

The code for $ is F.

The code for 9 is D.

The code for 4 is K.

But, due to rule (iii), 4 will be coded as D (the code for 9).

The code for ^ is H.

The code for 8 is E.

Thus, '$ 9 4 ^ 8' is coded as → F D D H E.

Hence, the correct answer is "Option 4".

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Q25. Answer: (b) Father's brother

Decoding symbols for Family Tree:

Let's decode the relationships step-by-step:

N is the brother of E.

E is the husband of P. So,

L and G are sons of P.

According to the given information Family Tree Representation:

Thus, N is G's Father's brother.

Hence, the correct answer is "Option 2"

Q26. Answer: (a) To copy cell content or continue a pattern

The correct answer is To copy cell content or continue a pattern.

Key Points

• The AutoFill feature in MS Excel is a tool designed to help users fill cells with data, such as numbers, dates, or text, by either copying the content or continuing a predefined pattern.

• This feature is widely used to save time and reduce repetitive tasks, as it eliminates the need to manually enter data.

• It can handle various patterns like incrementing numbers (e.g., 1, 2, 3), months (e.g., January, February, March), or even custom lists that the user defines.

• The AutoFill handle is a small square located at the bottom-right corner of the selected cell or range of cells. Users can drag this handle across adjacent cells to activate the AutoFill functionality.

• Examples of AutoFill patterns include arithmetic progressions (e.g., 2, 4, 6, 8), sequential dates (e.g., 01-Jan-2023, 02-Jan-2023), or replicating text.

• Users can also use AutoFill for copying formulas across a range of cells, which dynamically adjusts references based on the relative position of cells.

• This tool is part of the broader functionality provided in Microsoft Excel, which is a widely-used spreadsheet software for handling data, performing calculations, and creating visualizations.

Additional Information

• To validate cell data

• Data validation is a separate feature in Excel that ensures the data entered in a cell meets specific criteria. It is used to control user input, not to copy or fill data.

• Examples include allowing only numbers in a cell, restricting values within a range, or requiring a specific format like dates.

• To split text into multiple cells

• This function is achieved through the Text to Columns feature in Excel. It is used to divide text from one column into multiple columns based on a delimiter, such as a comma, space, or tab.

• For instance, splitting "John Doe" into two separate columns for "John" and "Doe."

• To automatically sum a range of values

• This is done using the SUM function or the AutoSum button in Excel, which adds up the values in a selected range of cells.

• It is not related to the AutoFill feature, which focuses on copying or extending data patterns.

Q27. Answer: (c) 28

The Correct answer is 28.

Key Points

• The Indian government is planning to implement the 'One State, One RRB' policy to enhance the operational efficiency of Regional Rural Banks (RRBs).

• This policy aims to reduce competition between RRBs and streamline their functioning by consolidating the existing 43 RRBs into 28 entities.

• Regional Rural Banks were established under the Regional Rural Banks Act, 1976, to provide credit and financial services to rural areas, particularly to small and marginal farmers, agricultural laborers, and artisans.

• By consolidating RRBs, the government intends to enhance their financial health and expand their reach in rural areas.

• This move also aligns with the government’s vision of financial inclusion by strengthening the rural banking infrastructure.

• The aim is to ensure that every state has a more unified and efficient rural banking system to cater to the specific needs of its rural population.

• After consolidation, the number of RRBs will be reduced, which will help in better management and resource allocation.

Additional Information

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• Importance of RRBs:

• RRBs play a crucial role in rural economic development by providing loans and financial services to the underserved rural population.

• They bridge the gap between urban and rural banking and are instrumental in achieving the goal of financial inclusion.

• Challenges Faced by RRBs:

• RRBs often face issues like high operational costs, non-performing assets (NPAs), and overlapping competition among themselves.

• The lack of proper infrastructure and technological advancements also hinders their efficiency.

• Benefits of Consolidation:

• Consolidation will lead to better resource management and economies of scale.

• It will help in addressing issues related to credit delivery and improve the financial viability of these banks.

Q28. Answer: (b) Rs. 173.912.11 crore

The Correct answer is Rs. 173,912.11 crore.

Key Points

• The Department of Rural Development is a key department under the Ministry of Rural Development, Government of India, responsible for implementing various schemes aimed at rural development.

• The Revised Estimate (RE) for the financial year 2024-25 was reported to be Rs. 173,912.11 crore, as per the Annual Report published by the Ministry.

• This allocation is targeted towards enhancing the living standards in rural areas, focusing on poverty alleviation, infrastructure development, and social welfare schemes.

• Key programs under the Department include the Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA), National Rural Livelihood Mission (NRLM), and Pradhan Mantri Awas Yojana-Gramin (PMAY-G).

• The Revised Estimate ensures adjustments in the budget based on actual requirements and priorities, ensuring effective resource utilization.

• Such funding is crucial for achieving Sustainable Development Goals (SDGs), especially those related to poverty reduction, decent work, and economic growth in rural India.

Additional Information

• Rs. 155,964.23 crore

• This option could represent an earlier budget estimate or allocation but does not match the Revised Estimate (RE) for 2024-25.

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• • Rs. 180,878.11 crore

• This figure might represent a projection or proposed budget for a different year or department but is not the Revised Estimate (RE) for the Department of Rural Development in 2024-25.

• Rs. 160,069.46 crore

• Similar to the first option, this might represent a previous allocation or estimate but does not match the Rs. 173,912.11 crore RE for the Department of Rural Development.

Q29. Answer: (a) Board of Control

The Correct answer is Board of Control.

Key Points

• The Board of Control was established under the Pitt's India Act of 1784.

• This act was introduced to ensure better governance of the British territories in India.

• The board had the authority to oversee and direct all matters related to the civil and military government in British India.

• It functioned alongside the Court of Directors of the East India Company, ensuring a balance between the British Crown and the Company.

• The Board of Control consisted of six members, including the Chancellor of the Exchequer and the Secretary of State.

• It was responsible for formulating policies related to administration, trade, and military in India.

• This mechanism marked a significant shift, as it gave the British Crown greater control over the Company's affairs in India.

Additional Information

• Board of Legislature

• This term does not refer to any specific historical or administrative body related to British India.

• It might signify a legislative assembly or governing body responsible for enacting laws, but it is not related to the governance structure established under the Pitt's India Act.

• Board of Executives

• No official body named Board of Executives existed in the context of British India.

• The term could refer to an executive committee or governing body in general, but it is not relevant to the governance mechanism established by the British Crown for India.

• Board of Directors

• The Board of Directors was part of the East India Company and responsible for managing the company's business affairs.

• While it played a key role in trade and commercial decisions, it did not oversee matters of civil and military governance.

• Under the Pitt's India Act, the Board of Directors worked alongside the Board of Control, with the latter having greater authority over governance matters.

Q30. Answer: (d) 1835

The Correct answer is 1835.

Key Points

• The formal introduction of English education in India by the British took place in the year 1835.

• This decision was largely influenced by the ideas of Thomas Babington Macaulay, who advocated for the promotion of English education in his famous Minute on Education.

• Macaulay argued that English education would create a class of Indians who were "Indian in blood and color, but English in taste, opinions, morals, and intellect."

• The Charter Act of 1813 had earlier allowed for the allocation of funds to promote education in India, but it was in 1835 that the focus shifted explicitly to English education.

• As a result of this shift, the British introduced English as the medium of instruction in schools and colleges, particularly in higher education.

• Institutions such as the Calcutta Medical College (established in 1835) began using English as the primary medium of teaching.

• This marked the beginning of a significant cultural and educational transformation in India, with English becoming a key language for administration, education, and intellectual discourse.

Additional Information

• 1813

• The Charter Act of 1813 marked the first step by the British to involve themselves in the promotion of education in India.

• It allocated a sum of 1 lakh rupees annually for the "revival and promotion of literature" and the introduction of "useful knowledge" in India.

• However, no specific emphasis on English education was made under this act.

• 1854

• The year 1854 is significant for the Wood's Despatch, which laid the foundation for the modern education system in India.

• It recommended the establishment of universities in Bombay, Calcutta, and Madras and proposed a system of education at all levels (primary, secondary, and higher).

• The despatch also emphasized the use of both English and vernacular languages in education.

• 1829

• The year 1829 is historically significant for the abolition of Sati under the efforts of Raja Ram Mohan Roy and Governor-General Lord William Bentinck.

• It does not directly relate to the introduction of English education in India.

Q31. Answer: (d) Four

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. P has the exam on Tuesday.

2. Only two people have exams after R.

Day	Person
Monday	

Tuesday	P
Wednesday	
Thursday	
Friday	R
Saturday	
Sunday	

3. S has the exam immediately before Q but after R.

Day	Person
Monday	
Tuesday	P
Wednesday	
Thursday	
Friday	R
Saturday	S
Sunday	Q

4. U has the exam immediately after V.

And T has the exam on remaining day.

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

The people with exams between T and S are P, V, U, and R. This is a total of four people.

Therefore, there are four people who have exams between T and S.

Hence, the correct answer is "Option 4".

Q32. Answer: (d) FYUB

The logic followed here is:

Option (1): FKOR

Option (2): BGKN

Option (3): SXBE

Option (4): FYUB

The letter-cluster that DOES NOT belong to the group is: FYUB.

Hence, the correct answer is "Option (4)"

Q33. Answer: (d) Solidarity, Equality, Sustainability

The Correct answer is Solidarity, Equality, Sustainability.

Key Points

• The theme "Solidarity, Equality, Sustainability" underscores the G20's commitment to promoting global cooperation and addressing pressing challenges with a focus on inclusivity and long-term solutions.

• This theme emphasizes the importance of equal opportunities for all nations and communities, highlighting the need to bridge

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economic and social disparities.

• Sustainability is a key priority, reflecting the global urgency to tackle climate change, promote environmental conservation, and ensure the responsible use of resources.

• The theme is aligned with the G20's broader objectives to foster sustainable development and create a more equitable and resilient global economy.

• The Johannesburg Summit, hosted by South Africa, marks a significant opportunity to advocate for African priorities and amplify the voices of developing nations on the global stage.

• This theme resonates with the global agenda set forth by the United Nations Sustainable Development Goals (SDGs), aiming to achieve a balanced approach to economic growth, social equity, and environmental protection.

• The emphasis on solidarity reflects the importance of unity among nations in addressing shared challenges like poverty, health crises, and geopolitical instability.

Additional Information

• Global Economic Recovery

• The term Global Economic Recovery typically refers to efforts to recover from global economic downturns, such as the COVID-19 pandemic or financial crises.

• It focuses on measures like stimulus packages, trade policies, and financial reforms to restore economic stability and growth.

• Climate Action Now

• "Climate Action Now" highlights urgent measures to combat climate change, including reducing greenhouse gas emissions, transitioning to renewable energy, and promoting sustainable practices.

• This is often addressed in climate-specific summits like the UN Climate Change Conferences (COP).

• Digital Transformation

• Digital Transformation revolves around integrating digital technologies into all aspects of society, including business, governance, education, and healthcare.

• It has been a focus area for global forums to leverage AI, IoT, and blockchain for sustainable development and innovation.

Q34. Answer: (a) 504

Shortcut Trick

Convert fractional ratio to whole numbers by multiplying by LCM of denominators (14, 2, 1) = 14.

New Ratio → (1/14 × 14) : (1/2 × 14) : (3 × 14) = 1 : 7 : 42.

Total units = 1 + 7 + 42 = 50 units. Given 50 units = 600 bananas => 1 unit = 12.

Third monkey = 42 units × 12 = 504.

Therefore The correct answer is 504 bananas.

Alternate Method

Given: Total bananas = 600. Ratio = 1/14 : 1/2 : 3.

Formula: Value of share = (Specific Ratio / Sum of Ratios) × Total Value.

=> Simplified Ratio = (1/14 × 14) : (1/2 × 14) : (3 × 14)

=> Simplified Ratio = 1 : 7 : 42

=> Sum of ratio parts = 1 + 7 + 42 = 50

=> Share of Third Monkey = (42 / 50) × 600

=> Share of Third Monkey = 42 × 12 = 504

Therefore The correct answer is 504 bananas.

Additional Information

Compound Ratio

The compound ratio of two ratios a:b and c:d is (a×c) : (b×d).

Invertendo and Alternendo

If a:b = c:d, then b:a = d:c (Invertendo) and a:c = b:d (Alternendo).

Ratio Normalization

To convert a fractional ratio to a whole number ratio, multiply all terms by the Least Common Multiple (LCM) of all denominators.

Q35. Answer: (d) 25 : 26

Shortcut Trick

Compare fractions by observing the gap between numerator and denominator.

For (1) 13/32 and (2) 18/37, the numerator is roughly half of the denominator (Value ≈ 0.5).

For (3) 23/25 and (4) 25/26, the gap is small. 23/25 = 0.92 and 25/26 = 0.96.

Since 0.96 is the highest value, 25 : 26 is the greatest ratio.

Therefore The correct answer is 25 : 26.

Alternate Method

Given: Ratios (1) 13/32, (2) 18/37, (3) 23/25, (4) 25/26

Method: Convert each ratio to decimal form to compare magnitude.

=> Ratio 1 = 13 ÷ 32 ≈ 0.406

=> Ratio 2 = 18 ÷ 37 ≈ 0.486

=> Ratio 3 = 23 ÷ 25 = (23 × 4) ÷ (25 × 4) = 92 ÷ 100 = 0.92

=> Ratio 4 = 25 ÷ 26 ≈ 0.961

=> Comparing values: 0.961 > 0.920 > 0.486 > 0.406

Therefore The correct answer is 25 : 26.

Additional Information

Comparison of Fractions with Same Gap

If the difference between numerator and denominator is constant (e.g., 23/25 and 25/27), the fraction with the larger numbers is always greater.

Cross-Multiplication Method

To compare a/b and c/d, check the products a × d and b × c. If ad > bc, then a c/d.

Percentage Conversion

Converting ratios to percentages (Ratio × 100) is a quick way to visualize relative sizes in competitive exams.

Q36. Answer: (d) 51 1/3 cm2

Shortcut Trick

Area of sector for 120° is exactly 1/3 of the total area of the circle.

Total Area = (22/7) × 7 × 7 = 154 cm².

Sector Area = 154 ÷ 3 = 51(1/3) cm².

Therefore The correct answer is 51(1/3) cm².

Alternate Method

Given:

Diameter (d) = 14 cm => Radius (r) = 7 cm.

Central Angle (θ) = 120°.

Formula Used:

Area of Sector = θ/360 × πr²

Calculations:

=> Area = (120/360) × (22/7) × 7 × 7

=> Area = (1/3) × 22 × 7

=> Area = 154 ÷ 3

=> Area = 51.333... cm² = 51(1/3) cm².

Therefore The correct answer is 51(1/3) cm².

Additional Information

Length of an Arc

The distance along the curved line of the sector is given by l = (θ/360) × 2πr.

Area of Circle

The total internal space of a circle is calculated as A = πr².

Perimeter of Sector

The total boundary of a sector is the sum of the arc length and two radii: P = l + 2r.

Q37. Answer: (d) 8

The Correct answer is 8.

Key Points

• The coordination number refers to the number of nearest neighbor atoms surrounding a particular atom in a crystal lattice.

• In a body-centered cubic (BCC) lattice, each atom is surrounded by 8 nearest neighbors.

• The BCC structure consists of atoms located at the corners of the cube and one atom at the center of the cube.

• Each corner atom is shared among 8 adjacent unit cells, while the central atom belongs entirely to the unit cell.

• The coordination number of 8 arises from the geometry of the lattice, where the central atom is equidistant from the 8 corner atoms.

• This arrangement is commonly found in metals like iron, chromium, and tungsten, which adopt the BCC structure.

• The BCC lattice is less densely packed compared to other structures like face-centered cubic (FCC) or hexagonal close-packed (HCP), but it provides good mechanical stability.

Additional Information

• 6

• A coordination number of 6 is typically observed in structures like the simple cubic lattice.

• In the simple cubic lattice, each atom is surrounded by 6 nearest neighbors, positioned along the faces of the cube.

• This structure is relatively rare in nature due to its low packing efficiency.

• 4

• A coordination number of 4 is common in structures like diamond cubic lattices, where atoms form tetrahedral bonds.

• It is observed in materials like silicon and diamond, which exhibit strong covalent bonding.

• 12

• A coordination number of 12 is observed in densely packed structures like face-centered cubic (FCC) and hexagonal close-packed (HCP) lattices.

• These structures are highly efficient in packing and are commonly found in metals like gold, aluminum, and copper.

• The high coordination number contributes to their exceptional mechanical and thermal properties.

Q38. Answer: (d) Indo-Gangetic Plain

The Correct answer is Indo-Gangetic Plain.

Key Points

• Alluvial soil is one of the most fertile soils and is ideal for agriculture.

• This soil is predominantly found in the Indo-Gangetic Plain, which is formed by the deposition of sediments carried by rivers such as the Ganga, Yamuna, Brahmaputra, and their tributaries.

• The Indo-Gangetic Plain stretches across the northern states of India, including Punjab, Haryana, Uttar Pradesh, Bihar, West Bengal, and Assam.

• Alluvial soil is rich in potash, phosphoric acid, and lime, making it highly suitable for crops like wheat, rice, sugarcane, and pulses.

• This soil is classified into two types: old alluvium (Bangar), which is less fertile, and new alluvium (Khadar), which is more fertile.

• The frequent replenishment of alluvial soil by river sediments ensures its sustainability for agricultural practices.

• The Indo-Gangetic Plain is a crucial region for food production in India due to the abundance of this soil type.

Additional Information

• Eastern Ghats

• The Eastern Ghats are a range of discontinuous hills located on the eastern side of India, running through states like Odisha, Andhra Pradesh, Tamil Nadu, and Karnataka.

• This region primarily has red, lateritic, and black soils, which are less fertile compared to alluvial soil.

• The Eastern Ghats are known for their bauxite reserves and are less significant agriculturally compared to the Indo-Gangetic Plain.

• Peninsular Plateau

• The Peninsular Plateau is a large plateau in southern India, covering states like Maharashtra, Karnataka, Tamil Nadu, Andhra Pradesh, and Telangana.

• This region predominantly has black, red, and lateritic soils, which are suitable for crops like cotton, millets, and pulses.

• The soils here are formed by the decomposition of igneous rocks rather than river deposition.

• Western Ghats

• The Western Ghats are a mountain range that runs parallel to the western coast of India, passing through states like Maharashtra, Goa, Karnataka, Kerala, and Tamil Nadu.

• This region primarily has lateritic soil, which is formed under high rainfall and temperature conditions.

• The Western Ghats are known for their biodiversity and dense forests rather than agricultural soil.

Q39. Answer: (c) recognising and rewarding longstanding support

The Correct answer is recognising and rewarding longstanding support.

Key Points

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• In the context of ministerial selection in India, "Reward for loyalty" refers to the practice of recognizing and rewarding individuals who have demonstrated longstanding loyalty and commitment to a political party or leadership.

• This approach emphasizes a candidate's continuous support to the party over the years as a significant criterion for selection.

• It ensures that those who have been instrumental in the growth and stability of the party are offered important positions in the government.

• Such a practice is often seen as a way to maintain internal unity within the party by acknowledging and appreciating the contributions of loyal members.

• This factor aligns with the political culture in India, where personal loyalty to leaders and the party often plays a pivotal role in career advancement.

• It is especially significant in coalition governments, where maintaining a balance of power and rewarding loyalty are crucial to sustaining alliances.

Additional Information

• Granting monetary rewards to ministers

• This option is incorrect because monetary rewards are not used as a direct factor in ministerial selection in India.

• The Indian Constitution and governance practices focus on service to the public rather than financial incentives for ministers.

• Ensuring each geographic region gets equal representation

• While regional representation is an important factor in ministerial selection to promote inclusivity, it does not specifically relate to the concept of "reward for loyalty."

• This approach is more about ensuring geopolitical balance in governance.

• Verifying the educational background of candidates

• Although educational qualifications may be considered during the selection process, they are not directly tied to the concept of loyalty as a criterion for ministerial appointments.

• The focus on loyalty is more about political allegiance and contributions rather than academic credentials.

Q40. Answer: (c) Hoisting of a 108-feet National Flag and opening of a heritage museum

The Correct answer is Hoisting of a 108-feet National Flag and opening of a heritage museum.

Key Points

• The celebration of Armed Forces Veterans' Day in January 2025 at Akhnoor, Jammu included the hoisting of a 108-feet National Flag, symbolizing the nation's pride and unity.

• The event also marked the inauguration of a heritage museum, showcasing the contributions and sacrifices of the armed forces and veterans.

• Akhnoor, located in Jammu and Kashmir, holds historical significance and is an important site for military activities and cultural heritage.

• The event aimed to honor the legacy of the armed forces and promote awareness about their role in safeguarding the nation.

• Such initiatives are crucial in fostering respect and gratitude for veterans and preserving their stories for future generations.

Additional Information

• Launch of One Rank One Pension Phase II Benefits

• One Rank One Pension (OROP) is a policy designed to provide uniform pension benefits to retired military personnel of the same rank and length of service, irrespective of their date of retirement.

• Phase II of OROP involves the implementation of revised pensions with additional benefits, ensuring financial security for veterans.

• This initiative is part of the government's efforts to address the welfare of ex-servicemen.

• Award ceremony for Gallantry Medals to ex-servicemen families

• Gallantry awards are given to individuals who display exceptional courage and bravery, often during military operations.

• These awards recognize the sacrifices made by soldiers and their families in service to the nation.

• Common examples include Param Vir Chakra, Maha Vir Chakra, and Shaurya Chakra.

• Inauguration of a National Veterans Memorial Park

• A National Veterans Memorial Park is typically designed to honor and commemorate the service and sacrifices of military veterans.

• Such parks often include monuments, plaques, and spaces for reflection and remembrance.

• They serve as a symbol of gratitude and a reminder of the nation’s military legacy.

Q41. Answer: (c) 6

Given series:

(Left) £ € # 9 4 9 $ € * 9 @ * 6 6 5 © 5 6 3 8 7 6 (Right)

Condition to be checked:

Number → Number → Number

(Left) £ € # 9 4 9 $ € * 9 @ * 6 6 5 © 5 6 3 8 7 6 (Right)

There are six such numbers in the above arrangement (9 4 9, 6 6 5, 5 6 3, 6 3 8, 3 8 7, 8 7 6).

Hence, the correct answer is "Option 3".

Q42. Answer: (a) Madhya Pradesh

The Correct answer is Madhya Pradesh

Key Points

• Madhya Pradesh was named the "Go-To Global Destination for 2025" by the Wall Street Journal, reflecting its rich heritage and diverse wildlife.

• It is often referred to as the "Heart of India" due to its central location and geographical significance.

• The state is renowned for its historical monuments, including the Khajuraho Temples, Sanchi Stupa, and Gwalior Fort.

• Madhya Pradesh is home to several national parks and wildlife sanctuaries, such as Kanha National Park, Bandhavgarh National Park, and Panna Tiger Reserve, which attract tourists globally.

• The state also boasts UNESCO World Heritage Sites, such as the Khajuraho Group of Monuments and the Rock Shelters of Bhimbetka.

• Madhya Pradesh's culture is enriched with tribal traditions, folk dances, and handicrafts, making it an ideal destination for cultural exploration.

• The state's government has been actively promoting ecotourism and heritage tourism to showcase its unique offerings to the world.

Additional Information

• Rajasthan

• Rajasthan is famous for its desert landscape, palaces, and forts, such as the Amber Fort, Mehrangarh Fort, and City Palace.

• The state hosts the Thar Desert and offers unique experiences like camel safaris and desert camping.

• It is also known for its vibrant festivals such as the Pushkar Camel Fair and Desert Festival.

• Odisha

• Odisha is known for its temples, such as the Jagannath Temple and Konark Sun Temple.

• The state is famous for its Chilika Lake, the largest coastal lagoon in India, and its wildlife, including the Olive Ridley turtles.

• Odisha has a rich tradition of Odissi dance and Pattachitra art.

• Kerala

• Kerala is known as "God's Own Country" for its lush greenery, backwaters, and hill stations.

• The state is famous for its Ayurvedic treatments and eco-tourism.

• Kerala is also renowned for its houseboat cruises and spice plantations.

Q43. Answer: (b) Rs. 1.77 lakh crore.

The correct answer is Rs. 1.77 lakh crore.

Key Points

• The total financial allocation for the Department of Rural Development for the FY 2024-25 was Rs. 1.77 lakh crore, as per the Demand of Grants 2024-25 Analysis.

• This allocation reflects the government’s commitment to enhance rural development and improve the living standards of people in rural areas.

• The funds are earmarked for various flagship schemes and programs under the Department of Rural Development, including initiatives like the MGNREGA (Mahatma Gandhi National Rural Employment Guarantee Act), PMAY-G (Pradhan Mantri Awas Yojana-Gramin), and PMGSY (Pradhan Mantri Gram Sadak Yojana).

• The allocation is aimed at addressing key areas such as employment generation, housing for the rural poor, rural infrastructure development, and poverty alleviation.

• A significant portion of this allocation focuses on achieving the Sustainable Development Goals (SDGs) related to rural development, such as eliminating poverty and providing decent work and economic growth.

• The increased allocation aligns with the government's agenda to boost the rural economy and reduce inequalities.

• These programs play a critical role in enhancing livelihood opportunities and ensuring inclusive growth in rural areas.

Additional Information

• Rs. 1.26 lakh crore

• This figure is lower than the actual allocation for FY 2024-25, indicating an underestimation of the financial resources required for

the rural development sector.

• Such an amount might not adequately address the needs of critical schemes like MGNREGA or PMAY-G.

• Rs. 2.58 lakh crore

• This figure is significantly higher than the actual allocation and may represent an overestimated projection or a hypothetical scenario.

• It could be an ambitious budget that is not reflective of the real fiscal priorities set by the government.

• Rs. 1.50 lakh crore

• This allocation is closer to the actual figure but still falls short of the Rs. 1.77 lakh crore allocated for FY 2024-25.

• It might have been a previous year's allocation or an alternate proposal considered during budget discussions.

Q44. Answer: (d) CK - JP

The logic followed here is.

Option (1) 'JR - PW':

Option (2) 'FN - LS':

Option (3) 'WE - CJ':

Option (4) 'CK - JP':

Thus, option 4 is odd one.

Hence, the correct answer is "Option 4".

Q45. Answer: (a) 10

Given:

1 is added to each odd digit and 2 is subtracted from each even digit in the number 1847653.

Given	1	8	4	7	6	5	3
Operation	+1	-2	-2	+1	-2	+1	+1
New number	2	6	2	8	4	6	4

The new number formed is 2628464.

The digits in the new number are 2, 2, 4, 4, 6, 6, 8.

The highest digit in the new number is 8.

The lowest digit in the new number is 2.

Sum of the highest and lowest digits = 8 + 2 = 10.

Hence, the correct answer is "Option 1".

Q46. Answer: (c) Long-term strategic planning

The correct answer is Long-term strategic planning.

Key Points

• Perspective planning refers to long-term strategic planning aimed at achieving comprehensive economic, social, and developmental goals over an extended period, typically spanning 15–20 years or more.

• It is a broad-based approach that outlines the macro-level objectives and strategies for a nation's development.

• The concept of perspective planning was utilized by the Planning Commission of India to guide the formulation of the nation's Five-Year Plans.

• It helps in identifying key development areas such as infrastructure, education, healthcare, and industrial growth while setting the framework for periodic short-term plans.

• In India, the Five-Year Plans were designed within the broader framework of perspective planning to ensure sustainable growth and equitable distribution of resources.

• This approach ensures that the nation's resources are allocated efficiently and that the long-term vision aligns with the immediate needs of the economy.

• Perspective planning plays a critical role in addressing structural issues like poverty, unemployment, and regional disparities in the economy.

• It involves the integration of sectoral planning (e.g., agriculture, industry, energy) with the overall goals of national development.

• The technique emphasizes sustainability and inclusiveness, ensuring that growth benefits a wide spectrum of the population.

Additional Information

• Planning without time limits

• This concept refers to planning that does not specify a fixed timeline for achieving objectives, which is contrary to the structured

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approach of Five-Year Plans and perspective planning.

• It lacks the focus and measurable goals required for effective implementation, making it unsuitable for large-scale economic development.

• Tactical planning for one year

• Tactical planning refers to short-term planning, typically for a period of one year, focusing on immediate goals and operational activities.

• This approach is more relevant at the organizational or operational level rather than at the national level.

• Crisis management planning

• Crisis management planning involves preparing strategies to handle emergencies or unforeseen events, such as natural disasters, economic recessions, or pandemics.

• While vital for addressing short-term challenges, it is not synonymous with the long-term developmental focus of perspective planning.

Q47. Answer: (b) 25

Shortcut Trick

For a sum of money to become n times of itself at Simple Interest, the formula for Rate (R) is:

Rate (R) = [(n − 1) ÷ Time (T)] × 100

Given: n = 3 (sum triples) and T = 8 years.

=> R = [(3 − 1) ÷ 8] × 100 = (2 ÷ 8) × 100 = (1 ÷ 4) × 100 = 25%.

Therefore The correct answer is 25%.

Alternate Method

Given:

Let the Principal (P) = Rs. 100

The sum triples itself, so Amount (A) = 3 × 100 = Rs. 300

Time (T) = 8 years

Formula Used:

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

Calculations:

=> SI = Amount − Principal = 300 − 100 = Rs. 200

=> 200 = (100 × R × 8) ÷ 100

=> 200 = R × 8

=> R = 200 ÷ 8

=> R = 25%

Therefore The correct answer is 25%.

Additional Information

Relationship between SI and Amount

The total Amount (A) is the sum of Principal (P) and Interest (I), given by A = P(1 + RT/100).

Time to Double

For a sum to double itself (n=2) at simple interest, the time required is T = 100 ÷ R.

Constant Interest

In Simple Interest, the interest earned remains the same every year because it is always calculated on the original Principal.

Q48. Answer: (c) JQD

The logic followed here is:

Thus, the missing term in the series is JQD.

Hence, the correct answer is "Option 3";

Q49. Answer: (c) GUIZ

The logic followed here is,

SGUL : XLZQ

MAOF : RFTK

Applying the logic to BPDU:

Thus, BPDU is related to GUIZ.

Hence, the correct answer is "Option 3".

Q50. Answer: (c) 98

Shortcut Trick

Apply the British Flag Theorem for any point P inside a rectangle ABCD:

$PA^2 + PC^2 = PB^2 + PD^2$

$94^2 + 67^2 = 61^2 + PD^2$

$8836 + 4489 = 3721 + PD^2$

$PD^2 = 13325 - 3721 = 9604$

$PD = \sqrt{9604} = 98$ cm

Therefore The correct answer is 98 cm.

Alternate Method

Given: PA = 94 cm, PB = 61 cm, PC = 67 cm.

Formula Used: $PA^2 + PC^2 = PB^2 + PD^2$

Calculations:

=> $PA^2 + PC^2 = PB^2 +$

Q51. Answer: (c) Gujarat

The Correct answer is Gujarat.

Key Points

• Gujarat has the longest coastline in India, excluding islands, with a length of approximately 2,340.62 km

• It lies along the western coast of India and is bordered by the Arabian Sea.

• The coastline includes major ports such as Kandla, Mundra, and Porbandar, which play a significant role in India's trade and commerce.

• The state has several important marine ecosystems, including the Gulf of Kutch Marine National Park, which is rich in biodiversity.

• Gujarat's coastal region supports industries such as salt production, fishing, petrochemicals, and shipbuilding.

• The coastal area is also known for its rich cultural heritage, with historic cities like Dwarka and Somnath located along the coastline.

• The coastline is strategically important for India’s maritime security and the development of coastal tourism.

Additional Information

• Andhra Pradesh

• The coastline of Andhra Pradesh is 1,053.07 km long, making it the third longest in India.

• It lies along the eastern coast of India and is bordered by the Bay of Bengal.

• Key ports include Visakhapatnam, Kakinada, and Krishnapatnam.

• The coastline supports industries such as fishing, aquaculture, and shipbuilding.

• Tamil Nadu

• Tamil Nadu has a coastline of 1,068.69 km, making it the second longest in India.

• It is bordered by the Bay of Bengal on the east, and important ports include Chennai, Tuticorin, and Ennore.

• The state is known for its marine biodiversity, as seen in the Gulf of Mannar Marine National Park.

• The coastline is also a hub for tourism, with famous beaches like Marina Beach and historic sites like Mahabalipuram.

• Maharashtra

• The coastline of Maharashtra is 877.97 km, making it the fourth longest in India.

• It lies along the western coast of India and is bordered by the Arabian Sea.

• Key ports include Mumbai and Jawaharlal Nehru Port (JNPT), which are vital for India's trade.

• The coastline features popular tourist destinations such as Alibaug, Ganpatipule, and the Konkan region.

Q52. Answer: (b) Only conclusion (II) follow

Given Statements:

All burger are pizza.

All burger are fries.

All burger are taco.

The least possible Venn diagram for the given statements is:

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Conclusions:

I. All pizza are taco - False (Because there is no definite relation given between Pizza and Taco. Only a part of Pizza, which is 'Burger', is also a Taco. The remaining part of Pizza may or may not be Taco. So, 'All pizza are taco' is not a definite conclusion.)

II. Some taco are fries - True (Because 'All burger are fries' and 'All burger are taco' are given statements. This means the area representing 'Burger' is common to both 'Taco' and 'Fries'. Therefore, some part of Taco is definitely Fries.)

So, Only conclusion II follows.

Hence, the correct answer is "Option 2".

Q53. Answer: (c) 256/81

Shortcut Trick

Given: 3 tan A = 4 → tan A = 4/3.

Expression: (1 − sec A)(1 + sec A) / (1 − cosec A)(1 + cosec A) = (1 − sec² A) / (1 − cosec² A).

Using identities: −tan² A / −cot² A = tan² A × tan² A = tan^4 A.

Calculation: (4/3)^4 = 256/81.

Therefore The correct answer is 256/81.

Alternate Method

Given: 3 tan A = 4 => tan A = 4/3 (Perpendicular/Base)

Formula Used: (a − b)(a + b) = a² − b²; sec² A − 1 = tan² A; cosec² A − 1 = cot² A

=> Let Perpendicular (P) = 4, Base (B) = 3. Using Pythagoras theorem, Hypotenuse (H) = √(4² + 3²) = 5.

=> sec A = H/B = 5/3 and cosec A = H/P = 5/4.

=> Expression = (1 − sec² A) / (1 − cosec² A) = −(sec² A − 1) / −(cosec² A − 1) = tan² A / cot² A.

=> tan² A / (1/tan² A) = tan^4 A.

=> (4/3)^4 = 256/81.

Therefore The correct answer is 256/81.

Additional Information

Trigonometric Identities

Standard Pythagorean identities: sin²θ + cos²θ = 1, 1 + tan²θ = sec²θ, and 1 + cot²θ = cosec²θ.

Pythagorean Triplets

Common integer sets for right triangles: (3, 4, 5), (5, 12, 13), (8, 15, 17), (7, 24, 25).

Reciprocal Relations

tan A = sin A / cos A, cot A = 1 / tan A, sec A = 1 / cos A, and cosec A = 1 / sin A.

Q54. Answer: (a) EPPBG

Number/symbol	**9**	**%**	**2**	**5**	**•**	**$**	**3**	**^**	**#**	**4**	**•**	**6**	**7**	**8**
Code	S	G	L	F	B	M	C	H	N	D	J	P	E	K

Given- 7 6 8 * %

Rule No. (i): This condition does not apply because the first element (7) is a number, not a symbol.

Rule No. (ii): This condition does not apply because the last element (%) is a symbol, not an even number.

Rule No. (iii): This condition applies because the second element (6) and the third element (8) are both divisible by 2. So, the code of the third element will be the code for the second element.

Based on the applicable rule (iii), the third element will be coded as the code of the second element.

The code for 7 is E.

The code for 6 is P.

The code for 8 is K.

But, due to rule (iii), 8 will be coded as P (the code for 6).

The code for * is B.

The code for % is G.

Thus, '7 6 8 * %' is coded as → E P P B G.

Hence, the correct answer is "Option 1".

Q55. Answer: (a) Improve efficiency and reduce government burden

The Correct answer is Improve efficiency and reduce government burden.

Key Points

• Privatisation refers to the transfer of ownership of enterprises from the public sector (government-controlled) to the private sector (individually or corporately owned).

• The primary goal of privatisation is to improve efficiency in operations by leveraging the expertise, innovation, and competitive environment that private entities bring.

• Privatisation helps in reducing the financial burden on the government as private ownership often leads to better resource allocation and cost-saving measures.

• Private entities focus on profitability, which results in enhanced productivity and better customer satisfaction.

• It also enables the government to focus its resources on key areas such as healthcare, education, and infrastructure rather than running commercial enterprises.

• Privatisation can lead to increased foreign investment, as private enterprises often attract global investors seeking profitable opportunities.

• Examples of privatisation in India include the sale of government stakes in companies like Air India, Bharat Petroleum Corporation Limited (BPCL), and Maruti Udyog Limited.

Additional Information

• Increase fiscal deficit

• Fiscal deficit refers to the difference between the government's total revenue and its total expenditure.

• Privatisation, in fact, helps in reducing fiscal deficits as the government earns revenue from the sale of its stakes in public sector enterprises.

• Enhance public employment

• Privatisation may not necessarily enhance public employment; instead, it can result in a reduction of workforce as private entities aim to streamline operations and control costs.

• Increase monopoly power

• Privatisation does not inherently aim to increase monopoly power; rather, it is often implemented to encourage competition in the market.

• Governments and regulatory bodies monitor privatisation to prevent monopolistic practices and ensure fair competition.

Q56. Answer: (d) Control Panel

The Correct answer is Control Panel.

Key Points

• The Control Panel is a fundamental component of the Windows Operating System that allows users to modify various system settings.

• It provides a centralized interface to manage settings such as display resolution, sound preferences, user accounts, network configurations, and more.

• The Control Panel is designed for ease of use, enabling users to configure their system without needing advanced technical knowledge.

• Users can access the Control Panel by navigating to the Start Menu or performing a search in the Windows search bar for "Control Panel."

• It consists of multiple categories like Appearance and Personalization, System and Security, Hardware and Sound, and User Accounts.

• The Control Panel also provides tools for managing advanced settings such as power options, device settings, administrative tools, and uninstalling programs.

• In newer versions of Windows, some functions of the Control Panel have been integrated into the Settings app, but the Control Panel remains an essential tool for managing legacy system settings.

Additional Information

• Task Manager

• The Task Manager is a utility in Windows OS used to monitor and manage running processes, applications, and system performance.

• It is primarily used to end unresponsive programs, view CPU and memory usage, and troubleshoot system issues.

• Unlike the Control Panel, it does not allow users to modify broader system settings like display or sound preferences.

• File Explorer

• File Explorer is a file management tool in Windows OS that enables users to navigate, manage, and organize files and folders.

• It does not provide access to system settings such as display resolution or sound preferences.

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• It is primarily used for tasks such as copying, moving, deleting, and renaming files.
• Command Prompt
• The Command Prompt is a text-based interface for executing system commands and scripts.
• While it can be used to modify certain system settings, it is not a user-friendly interface for general users compared to the Control Panel.
• It is primarily used by advanced users and administrators for troubleshooting and automation.

Q57. Answer: (c) 6

Shortcut Trick
Let the taps be A, B, and C (emptying tap).
Combined efficiency = 12 + 1 − 9 = 4 units/hour (Total Work = 36 units).
Work to be done = 2/3 × 36 = 24 units.
Time required = 24 ÷ 4 = 6 hours.
Therefore The correct answer is 6 hours.
Alternate Method
Given: Filling Tap 1 (A) = 3 hours, Filling Tap 2 (B) = 36 hours, Emptying Tap 3 (C) = 4 hours.
Formula Used: Total Work = LCM of individual times; Efficiency = Total Work ÷ Time.

Person	Days	Total Work	Efficiency
Tap A	3	36	12
Tap B	36	1	
Tap C	4	−9	

=> Net efficiency of all taps = 12 + 1 − 9 = 4 units/hour.
=> Target capacity to fill = 2/3 × Total Work = 2/3 × 36 = 24 units.
=> Time taken = Target Capacity ÷ Net Efficiency
=> Time taken = 24 ÷ 4 = 6 hours.
Therefore The correct answer is 6 hours.
Additional Information
Inlet and Outlet Taps
Inlet taps perform positive work (filling), while outlet/leakage taps perform negative work (emptying) relative to the cistern capacity.
Work and Time Relation
Time is inversely proportional to efficiency. If a tap fills a tank in 'x' hours, its 1-hour work is 1/x of the total capacity.
Net Efficiency Formula
For two inlets (a, b) and one outlet (c), the net work done in one hour is (1/a + 1/b − 1/c).

Q58. Answer: (a) 5 km to the west

Given:
Mr. OPQ starts from Point A and drives 31 km towards the north.
He then takes a left turn, drives 11 km, turns left and drives 51 km.
He then takes a left turn and drives 16 km.
He takes a final left turn, drives 20 km and stops at Point P.
He should drive 5 km to the west in order to reach Point A again.
Hence, the correct answer is "Option 1".

Q59. Answer: (a) Lima, Peru

The Correct answer is Lima, Peru.
Key Points
• Lima is the capital city of Peru, a country located in South America.
• Lima is renowned for hosting international sports events, including shooting competitions like the ISSF World Cup.
• The ISSF World Cup is an annual shooting competition organized by the International Shooting Sport Federation (ISSF).
• The event in 2025 saw Indian athletes Rudrankksh Patil and Arya Borse win silver in the 10 m Air Rifle Mixed Team event.
• The city of Lima is equipped with world-class sporting infrastructure, making it an ideal location for hosting such prestigious

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events.

• Peru is known for its rich cultural heritage and its contribution to global sporting events.

• The ISSF World Cup provides a platform for shooters from across the globe to showcase their talent and compete at the highest level.

Additional Information

• New Delhi, India

• New Delhi is the capital city of India.

• It has hosted several international sporting events, including the Commonwealth Games in 2010.

• The city is home to the Dr. Karni Singh Shooting Range, a world-class facility used for shooting competitions.

• India has a growing reputation in the field of shooting sports, with athletes achieving international success.

• Cairo, Egypt

• Cairo is the capital of Egypt, a country in North Africa.

• The city is known for its rich historical landmarks, such as the Pyramids of Giza.

• Egypt has hosted various international sports events, including shooting championships and football tournaments.

• Munich, Germany

• Munich is a major city in Germany, located in Europe.

• The city is famous for hosting the 1972 Summer Olympics.

• Munich has advanced sports facilities and has frequently hosted shooting events, including those organized by the ISSF.

Q60. Answer: (d) Three

Given:

Seven friends, E, F, G, H, I, J, and Q, are sitting in a row facing north.

Only three people sit to the left of Q.

Only H sits to the right of E.

Only three people sit between E and J.

I sits at some place to the left of F but at some place to the right of G.

Thus, three people sit between G and F.

Hence, the correct answer is "Option 4".

Q61. Answer: (c) Beyoncé - Cowboy Carter

The Correct answer is Beyoncé - Cowboy Carter.

Key Points

• Beyoncé is a globally renowned American singer, songwriter, and actress known for her exceptional contributions to music and culture.

• The album "Cowboy Carter" won the Album of the Year at the 67th Annual Grammy Awards in 2025, showcasing Beyoncé's ability to innovate and redefine music genres.

• Her music often incorporates elements of pop, R&B, soul, and hip-hop, making her one of the most versatile artists of her time.

• The album "Cowboy Carter" was praised for its unique themes, production quality, and Beyoncé's powerful vocal performances.

• Beyoncé has won numerous Grammy Awards over her career, solidifying her status as one of the most awarded artists in Grammy history.

• Her artistic influence extends beyond music, as she is also recognized for her contributions to fashion, philanthropy, and activism.

• The 67th Annual Grammy Awards in 2025 further underscored her enduring relevance and dominance in the music industry.

Additional Information

• Taylor Swift - The Tortured Poets Department

• Taylor Swift is an American singer-songwriter known for her narrative songwriting and exploration of various musical styles.

• The album "The Tortured Poets Department" demonstrates her lyrical prowess, but it did not win the Album of the Year at the 67th Annual Grammy Awards.

• Sabrina Carpenter - Short n' Sweet

• Sabrina Carpenter is a pop artist known for her upbeat and youthful music.

• The album "Short n' Sweet" gained popularity among her fans but was not awarded Album of the Year in 2025.

• Billie Eilish - Hit Me Hard and Soft

• Billie Eilish is a celebrated artist known for her dark, moody sound and unique approach to music.

• While the album "Hit Me Hard and Soft" was well-received, it did not win the Album of the Year award.

Q62. Answer: (c) Indo-Pak Agreement, 1958

The Correct answer is Indo-Pak Agreement, 1958.

Key Points

• The 9th Amendment Act, 1960, was enacted to implement the provisions of the Indo-Pak Agreement, 1958.
• This agreement dealt with the transfer of certain territories between India and Pakistan to address boundary disputes.
• The Act amended the First Schedule of the Indian Constitution, which lists the territories of the Indian Union.
• It resulted in the transfer of Berubari Union to Pakistan and the acquisition of certain territories by India in return.
• The 1958 agreement was signed to resolve disputes that arose after the Partition of India in 1947.
• The Act reflects India's commitment to maintaining peaceful relations with its neighboring countries through diplomatic means.

Additional Information

• Lahore Declaration, 1999
• The Lahore Declaration was a bilateral agreement and governance treaty signed in February 1999 between India and Pakistan.
• It aimed to improve relations and reduce the risk of conflict, particularly in the context of nuclear weapons.
• This declaration emphasized peace, security, and mutual respect between the two nations.
• Shimla Agreement, 1972
• The Shimla Agreement was signed in July 1972 following the Indo-Pak War of 1971, which resulted in the creation of Bangladesh.
• It aimed to establish long-term peace and resolve disputes through bilateral discussions.
• The agreement emphasizes the importance of respecting the Line of Control (LoC) in Jammu and Kashmir.
• Tashkent Agreement, 1966
• The Tashkent Agreement was signed between India and Pakistan in January 1966 after the Indo-Pak War of 1965.
• It was mediated by the then-Soviet Union and aimed at restoring normal relations between the two countries.
• The agreement involved commitments to withdraw forces to pre-war positions and resolve disputes peacefully.

Q63. Answer: (d) EHLD

The logic followed here is that each letter of the first term is shifted backward by 7 positions to get the second term.

ORVN : HKOG

Applying the logic to LOSK:

Thus, LOSK is related to EHLD.

Hence, the correct answer is "Option 4".

Q64. Answer: (a) Relative Reference

The Correct answer is Relative Reference.

Key Points

• Relative Reference in MS Excel adjusts both the column letter and row number automatically when a formula is copied to another location.
• This type of reference is extremely useful when creating formulas that need to be applied across multiple rows or columns dynamically.
• For example, if you use a formula like =A1+B1 in a cell and copy it to another location, the formula will automatically adjust to =A2+B2, =A3+B3, and so on.
• Relative references are the default reference type in MS Excel unless explicitly changed.
• They save time and effort by eliminating the need to manually rewrite formulas for different cells.
• Relative references are denoted without any $ symbols, e.g., A1.
• This type of reference is widely used in scenarios such as data analysis, calculations, and creating dynamic tables.

Additional Information

• Static Reference
• Static references are not a term officially used in MS Excel. Instead, such references may imply a type of reference that remains unchanged, similar to an absolute reference.
• Absolute references use $ symbols to lock both the column and row, e.g., A1.
• Mixed Reference
• Mixed references in MS Excel lock either the column or the row, but not both.
• Examples of mixed references include $A1 (column locked) or A$1 (row locked).

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• This type of reference is useful for creating formulas where partial adjustments are needed during copying.

• Absolute Reference

• An absolute reference in MS Excel locks both the row and column, ensuring that the reference remains constant, no matter where the formula is copied.

• Denoted with $ symbols, e.g., A1.

• Used in scenarios where a fixed reference is required, such as referring to a specific cell containing a constant value.

Q65. Answer: (d) KKQ : LFM

The logic followed here is,

For AJK : BEG

For JIL : KDH

Now,

Option 1) BKK : CFH

Option 2) RLO : SIK

Option 3) OHF : PCC

Option 4) KKQ : LFM

This pair follows the same logic: +1, -5, -4.

Hence, the correct answer is "Option 4".

Q66. Answer: (b) Rs. 18,291

Shortcut Trick

For half-yearly compounding, the rate becomes 1% (2% ÷ 2) and time becomes 2 periods.

Effective rate for 2 periods at 1% = 1 + 1 + (1 × 1)/100 = 2.01%.

Compound Interest = 2.01% of Rs. 9,10,000

CI = 2.01 × 9,100 = Rs. 18,291.

Therefore The correct answer is Rs. 18,291.

Alternate Method

Given:

Principal (P) = Rs. 9,10,000

Annual Rate (R) = 2%

Time (T) = 1 year

Since the interest is compounded half-yearly:

=> Half-yearly rate (r) = 2% ÷ 2 = 1%

=> Number of conversion periods (n) = 1 × 2 = 2

Formula Used:

Amount (A) = $P(1 + r/100)^n$

Compound Interest (CI) = A − P

Calculations:

=> $A = 9,10,000 \times (1 + 1/100)^2$

=> $A = 9,10,000 \times (101/100) \times (101/100)$

=> A = 91 × 101 × 101

=> A = 91 × 10,201

=> A = Rs. 9,28,291

=> CI = 9,28,291 − 9,10,000

=> CI = Rs. 18,291

Therefore The correct answer is Rs. 18,291.

Additional Information

Effective Rate for Compounding

When interest is compounded k times a year, the effective annual rate is (1 + R/(100×k))^k − 1.

CI − SI Difference

For 2 periods, the difference between Compound Interest and Simple Interest is given by $P(r/100)^2$.

Half-Yearly vs Quarterly

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In half-yearly compounding, rate is R/2 and time is 2T. In quarterly compounding, rate is R/4 and time is 4T.

Q67. Answer: (d) Kaziranga National Park

The Correct answer is Kaziranga National Park.

Key Points

• Kaziranga National Park is located in the state of Assam, India.

• It is a UNESCO World Heritage Site and is globally renowned for its rich biodiversity and conservation efforts.

• The park is famous for housing the largest population of the one-horned rhinoceros in the world, a species that is iconic to the region and crucial to global biodiversity.

• It is also home to a wide variety of species, including elephants, tigers, swamp deer, wild water buffalo, and over 500 species of birds.

• Kaziranga is spread across the floodplains of the Brahmaputra River, with its grasslands and wetlands providing an ideal ecosystem for wildlife.

• The visit by India's External Affairs Minister and envoys from 61 countries in February 2025 was aimed at showcasing the park's rich biodiversity and its successful conservation programs.

• Kaziranga has been instrumental in promoting eco-tourism and raising awareness about wildlife conservation on a global platform.

• The park also plays a vital role in the Project Tiger initiative, being one of the designated tiger reserves in India.

• Its conservation success stories, particularly in protecting the one-horned rhinoceros, have made it a model for wildlife protection worldwide.

Additional Information

• Periyar National Park

• Located in Kerala, it is famous for its tiger reserve and the Periyar Lake formed by the Mullaperiyar Dam.

• The park is known for its elephant population and provides a habitat for a variety of flora and fauna.

• Sundarbans National Park

• Situated in the state of West Bengal, it is part of the world's largest mangrove forest and a UNESCO World Heritage Site.

• The park is famous for the Bengal tiger and is a crucial habitat for estuarine and aquatic species.

• Jim Corbett National Park

• Located in Uttarakhand, it is the oldest national park in India and part of the Project Tiger initiative.

• It is known for its population of Bengal tigers, leopards, and elephants.

Q68. Answer: (d) 12

Given:

2 is added to each even digit and 1 is subtracted from each odd digit in the number 26347591.

Given	2	6	3	4	7	5	9	1
Operation	+2	+2	-1	+2	-1	-1	-1	-1
New number	4	8	2	6	6	4	8	0

The new number formed is 48266480.

The second digit from the left is 8.

The third digit from the right is 4.

The sum of these two digits is 8 + 4 = 12.

Hence, the correct answer is "Option 4".

Q69. Answer: (c) 928

The logic followed here is:

Thus, the missing number in the series is 928.

Hence, the correct answer is "Option 3".

Q70. Answer: (d) 145

Shortcut Trick

Assume the base average is 56.

Calculate deviations of given numbers: (35−56) + (42−56) + (32−56) + (26−56)

=> −21 + (−14) + (−24) + (−30) = −89.

To maintain the average of 56, the fifth number must balance this by being 89 more than the average.
Fifth number = 56 + 89 = 145.
Therefore The correct answer is 145.
Alternate Method
Given: Average of 5 numbers = 56. Known numbers = 35, 42, 32, 26.
Formula Used: Sum of observations = Average × Number of observations
=> Total sum of all 5 numbers = 56 × 5 = 280
=> Sum of the 4 given numbers = 35 + 42 + 32 + 26 = 135
=> Let the fifth number be x.
=> 135 + x = 280
=> x = 280 − 135
=> x = 145
Therefore The correct answer is 145.
Additional Information
Average Property
The algebraic sum of deviations of a set of observations from their arithmetic mean is always zero.
Inclusion/Exclusion Rule
New Value = (New Average × New Quantity) − (Old Average × Old Quantity).
Average of AP
For numbers in Arithmetic Progression, Average = (First term + Last term) ÷ 2.

Q71. Answer: (c) 2

Given: A, B, L, M, S, T, and Z are sitting around a circular table facing the centre.
M sits to the immediate right of T.
Only three people sit between M and A when counted from the left of M.
Only three people sit between T and Z.
L sits to the immediate right of S.
And B sits at the remaining place.
Thus, two people sit between B and S when counted from the left of S.
Hence, the correct answer is "Option 3".

Q72. Answer: (d) 2

Given:
1 is added to each odd digit and 2 is subtracted from each even digit in the number 1385724.

Given	1	3	8	5	7	2	4
Operation	+1	+1	-2	+1	+1	-2	-2
New number	2	4	6	6	8	0	2

The new number formed is 2466802.
The digits 2 and 6 appear more than once.
Thus, two digits appear more than once.
Hence, the correct answer is "Option 4".

Q73. Answer: (d) Two

Given series:
(Left) 1 5 & 3 * $ 4 @ % 2 7 # 9 ^ # 6 8 (Right)
Condition to be checked:
Number → Symbol → Number
1 5 & 3 * $ 4 @ % 2 7 # 9 ^ # 6 8
There are two such symbols in the above arrangement (5 & 3, 7 # 9).
Hence, the correct answer is "Option 4".

Q74. Answer: (a) 314

The logic followed here is:

Thus, the missing number in the series is 314.

Hence, the correct answer is "Option 1".

Q75. Answer: (a) Salary and privileges of the President

The Correct answer is Salary and privileges of the President.

Key Points

• Article 59(3) of the Constitution of India specifies provisions regarding the salary, allowances, and privileges of the President.

• The President of India is entitled to a salary and allowances that are determined by Parliament.

• The President's official residence, the Rashtrapati Bhavan, is also provided as part of the privileges.

• During their term, the President is entitled to immunity from criminal proceedings and cannot be summoned to appear in court.

• Article 59 ensures that the President's position is independent and dignified, safeguarding the office from any financial inconvenience.

• These provisions are vital to ensure the President can perform their constitutional duties without undue influence or hardship.

• Upon retirement, the President is entitled to a pension, as specified by Parliament.

Additional Information

• Powers of the President

• The President of India has extensive powers, including executive, legislative, and judicial powers.

• Some of these powers include the authority to appoint the Prime Minister, approve bills, and declare emergencies under Article 352, 356, and 360.

• The President also has the power to grant pardons under Article 72.

• Election of the President

• The President is elected through an electoral college consisting of elected members of Parliament and Legislative Assemblies.

• The election process is governed by Article 55 of the Constitution.

• Impeachment of the President

• The President can be removed through a process of impeachment under Article 61.

• This process requires a majority in both Houses of Parliament and is conducted for violation of the Constitution.

Q76. Answer: (d) 86, 99

The logic followed here is:

Logic: Second number = 13 + First number.

Let's verify this logic with the given sets:

For, (78, 91)

=> First to Second: 78 + 13 = 91.

Here, the logic followed.

For, (94, 107)

=> First to Second: 94 + 13 = 107.

Here, the logic followed.

Now, let's check the options based on this logic:

Option 1) 82, 105

=> First to Second: 82 + 13 = 95. (Given Second number is 105, 105 ≠ 95)

Here, logic not followed.

Option 2) 99, 114

=> First to Second: 99 + 13 = 112. (Given Second number is 114, 114 ≠ 112)

Here, logic not followed.

Option 3) 71, 74

=> First to Second: 71 + 13 = 84. (Given Second number is 74, 74 ≠ 84)

Here, logic not followed.

Option 4) 86, 99

=> First to Second: 86 + 13 = 99. (Matches)

Here, logic followed.

Hence, the correct answer is "Option 4".

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Q77. Answer: (a) genomics

The Correct answer is Genomics.

Key Points

• Genomics is the study of the entire set of genes (genome) of an organism, including their structure, function, and evolution.

• The completion of the Human Genome Project in 2003 marked the beginning of genomics.

• The Human Genome Project was a global scientific research initiative aimed at sequencing the entire human genome, consisting of approximately 3 billion DNA base pairs.

• Genomics enables researchers to understand the role of genes in various biological processes, diseases, and traits.

• Applications of genomics include personalized medicine, drug discovery, biotechnology, and agricultural improvements.

• In personalized medicine, genomics helps identify genetic markers for diseases, enabling targeted treatments and preventive measures.

• Genomics also contributes to understanding evolutionary biology by comparing genomes across different species.

• It has paved the way for advanced technologies such as CRISPR gene editing, transcriptomics, and proteomics.

Additional Information

• Immunology

• Immunology is the branch of biology that studies the immune system, its functions, and disorders.

• It focuses on understanding how the body defends itself against pathogens such as viruses, bacteria, and parasites.

• Applications of immunology include vaccine development, immunotherapy, and diagnosing autoimmune diseases.

• While immunology is crucial in healthcare, it is not directly related to genome sequencing.

• Cytogenetics

• Cytogenetics is the study of chromosomes, their structure, and their role in heredity and diseases.

• It involves techniques like karyotyping to detect chromosomal abnormalities such as Down syndrome and Turner syndrome.

• Cytogenetics is more focused on the physical aspects of chromosomes rather than whole-genome sequencing.

• Structural Biology

• Structural Biology is the study of the molecular structure and dynamics of biological macromolecules like proteins and nucleic acids.

• It employs techniques such as X-ray crystallography, NMR spectroscopy, and cryo-electron microscopy.

• While structural biology contributes to understanding biological processes, it does not encompass the entire genome.

Q78. Answer: (a) 50.14%

Shortcut Trick

Use the Successive Discount formula: a + b − (a × b ÷ 100) for the first two rates.

Equivalent of 24% and 18% = 24 + 18 − (24 × 18 ÷ 100) = 42 − 4.32 = 37.68%.

Now combine 37.68% and 20% = 37.68 + 20 − (37.68 × 20 ÷ 100).

= 57.68 − 7.536 = 50.144%.

Rounding to two decimal places, we get 50.14%.

Therefore The correct answer is 50.14%.

Alternate Method

Given → Discounts = 24%, 18%, and 20%.

Formulas: SP = MP × (100 − d1)% × (100 − d2)% × (100 − d3)% | Equivalent Discount = MP − SP (if MP=100).

=> Let Marked Price (MP) = 100.

=> Price after 24% discount = 100 − 24 = 76.

=> Price after 18% discount = 76 × (100 − 18) ÷ 100 = 76 × 0.82 = 62.32.

=> Price after 20% discount = 62.32 × (100 − 20) ÷ 100 = 62.32 × 0.80 = 49.856.

=> Total Discount = MP − Final SP = 100 − 49.856 = 50.144%.

=> Rounding to two decimal places = 50.14%.

Therefore The correct answer is 50.14%.

Additional Information

Successive Discount

When a series of discounts are applied one after another on the reduced price, they are called successive discounts. The order of applying discounts does not change the final result.

Single Equivalent Discount Formula

For three discounts d1, d2, and d3, the equivalent discount is [1 − (1 − d1/100)(1 − d2/100)(1 − d3/100)] × 100.

Q79. Answer: (d) Alluvial and fertile

The correct answer is Alluvial and fertile.

Key Points

• The Northern Plain of India is primarily composed of alluvial soil, deposited by three major river systems: the Indus, Ganga, and Brahmaputra rivers.

• This plain is one of the most fertile and agriculturally productive regions in the world.

• The fertile soil supports the growth of a variety of crops, including wheat, rice, sugarcane, and pulses.

• The alluvial deposits in this region are a result of continuous sedimentation over millions of years.

• The plain covers a vast area, stretching across the states of Punjab, Haryana, Uttar Pradesh, Bihar, West Bengal, and Assam.

• It is divided into three main sections: the Punjab Plains, Ganga Plains, and Brahmaputra Plains, each named after the dominant river system in the respective area.

• The region is densely populated due to its fertile land, availability of water, and favorable climatic conditions.

• The alluvial soil in the Northern Plain is rich in minerals like potash and lime, making it ideal for agriculture.

Additional Information

• Hilly and forested

• This term refers to regions that have elevated terrain and dense vegetation, such as the Himalayas or the Western Ghats.

• The Northern Plain, however, is a flat and level region, making this option incorrect.

• Rocky and elevated

• Rocky and elevated regions are characteristic of plateaus or mountainous areas, such as the Deccan Plateau.

• The Northern Plain, being formed by river deposits, is flat and not rocky or elevated.

• Arid and barren

• This term describes dry and infertile regions such as the Thar Desert in Rajasthan.

• The Northern Plain, by contrast, is known for its fertile soil and abundant water resources, making this option unsuitable.

Q80. Answer: (b) GK77

The pattern followed here is.

Thus, the missing term in the series is GK77.

Hence, the correct answer is "Option 2."

Q81. Answer: (b) 163

Shortcut Trick

Use the direct relationship between sum, difference squared, and product.

Relation: $4ab = (a + b)^2 − (a − b)^2$

Substitute given values: $4ab = 32^2 − 372$

$4ab = 1024 − 372 = 652$

$ab = 652 ÷ 4 = 163$

Therefore The correct answer is 163.

Alternate Method

Given:

Sum of two numbers (a + b) = 32

Square of the difference $(a − b)^2 = 372$

Formula Used:

Algebraic identity: $(a + b)^2 − (a − b)^2 = 4ab$

Calculations:

=> $(32)^2 − 372 = 4ab$

=> $1024 − 372 = 4ab$

=> $652 = 4ab$

=> $ab = 652 ÷ 4$

=> $ab = 163$

Therefore The correct answer is 163.

Additional Information

Sum of Squares Identity

The sum of squares can be calculated as $a^2 + b^2 = [(a + b)^2 + (a - b)^2] \div 2$.

Standard Algebraic Identity

$(a + b)^2 = a^2 + b^2 + 2ab$ and $(a - b)^2 = a^2 + b^2 - 2ab$.

Difference of Squares

The difference of squares of two numbers is given by $a^2 - b^2 = (a + b)(a - b)$.

Q82. Answer: (d) 156

The Correct answer is 156.

Key Points

• The Ministry of Defence in March 2025 approved the procurement of 156 Light Combat Helicopters (LCH), Prachand, under its modernization and indigenization efforts.

• The LCH, named Prachand, is an advanced indigenous helicopter designed and developed by Hindustan Aeronautics Limited (HAL).

• This rotary-wing platform is specifically designed for high-altitude operations and supports roles such as anti-tank warfare, combat search and rescue, and counter-insurgency operations.

• The LCH is equipped with advanced features like stealth, night attack capability, and armor protection, making it suitable for modern warfare.

• It can operate in extreme weather conditions and is capable of engaging in combat even at altitudes of 15,000 feet, making it ideal for operations in the Ladakh region or similar high-altitude terrains.

• This procurement aligns with the 'Atmanirbhar Bharat' (Self-Reliant India) initiative, emphasizing indigenous defense production.

• The order reinforces the Indian Armed Forces' capability to handle modern combat situations effectively, particularly in challenging terrains like the Himalayas.

Additional Information

• Light Combat Helicopter (LCH) Prachand:

• Designed and manufactured by Hindustan Aeronautics Limited (HAL).

• It is the world's lightest attack helicopter in its category.

• Features include stealth technology, a narrow fuselage, and crash-worthy landing gear.

• Equipped with advanced weapon systems such as air-to-air missiles, anti-tank guided missiles, 20mm turret guns, and rocket pods.

• It is capable of neutralizing enemy radar and surveillance systems.

• This procurement further demonstrates India's growing focus on indigenization and modernization of its defense forces.

Q83. Answer: (d) Garbhagriha

The Correct answer is Garbhagriha.

Key Points

• The Garbhagriha, meaning "womb chamber," is the innermost sanctum of a Hindu temple.

• It is the place where the main deity or idol of the temple is housed and worshipped.

• The Garbhagriha is usually a small, dark chamber that is considered highly sacred.

• The deity housed within the Garbhagriha is regarded as the focal point of all temple rituals and worship.

• The design of the Garbhagriha often reflects a symbolic representation of the universe and cosmic energy.

• Access to the Garbhagriha is generally restricted to priests, emphasizing its sacred nature.

• It is often topped by a Shikhara (in North India) or a Vimana (in South India), which is a towering structure symbolizing a connection to the divine.

• In most cases, the Garbhagriha is oriented to the east, allowing the rising sun's rays to illuminate the deity during sunrise.

Additional Information

• Shikhara

• The Shikhara is the towering spire above the Garbhagriha in North Indian temples.

• It symbolizes Mount Meru, believed to be the center of the universe in Hindu cosmology.

• Shikharas are often ornately decorated and serve as a visual cue of the temple's sacred nature.

• Jagati

• The Jagati refers to the platform on which the temple is built.

• It provides a raised base, symbolizing the separation of the sacred space from the mundane world.

• The Jagati often serves as a circumambulatory path for devotees to walk around the temple in worship.

• Kalasha
• The Kalasha is a decorative, often metal finial placed at the top of the temple's Shikhara or Vimana.
• It represents the symbolic pot of nectar and is considered an auspicious element in temple architecture.
• The Kalasha is often associated with fertility, abundance, and divine blessings.

Q84. Answer: (c) U

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.

Total days: 7 (Monday, Tuesday, Wednesday, Thursday, Friday, Saturday, Sunday)

1. Q has an exam on Tuesday.

2. Exactly 2 people have exams between Q and R.

Day	Person
Monday	
Tuesday	Q
Wednesday	
Thursday	
Friday	R
Saturday	
Sunday	

3. P has an exam immediately before T, and S has an exam immediately after V.

4. Only 1 person has an exam between T and V.

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

The person who has an exam on Monday is U.

Hence, the correct answer is "Option 3".

Q85. Answer: (b) 10.4

Shortcut Trick

Using the empirical relationship: Mode − Median = 2 × (Median − Mean)

Given: Mode − Median = 20.8

=> 2 × (Median − Mean) = 20.8

=> Median − Mean = 20.8 ÷ 2 = 10.4

Therefore The correct answer is 10.4.

Alternate Method

Given:

The median of the data is 20.8 less than its mode.

=> Median = Mode − 20.8

=> Mode − Median = 20.8

Formula Used:

The empirical relationship between Mean, Median, and Mode is:

Mode = 3 × Median − 2 × Mean

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Calculations:

Subtracting Median from both sides of the empirical formula:

=> Mode − Median = (3 × Median − 2 × Mean) − Median

=> Mode − Median = 2 × Median − 2 × Mean

=> Mode − Median = 2 × (Median − Mean)

Substitute the given value of (Mode − Median = 20.8):

=> 20.8 = 2 × (Median − Mean)

=> Median − Mean = 20.8 ÷ 2

=> Median − Mean = 10.4

Thus, the median of the data exceeds its mean by 10.4.

Why other options are incorrect:

• Option (1) 13.72: If the difference between median and mean were 13.72, then the difference between mode and median would be 2 × 13.72 = 27.44, which is incorrect.

• Option (3) 6.32: If the difference between median and mean were 6.32, then the difference between mode and median would be 2 × 6.32 = 12.64, which is incorrect.

• Option (4) 12.43: If the difference between median and mean were 12.43, then the difference between mode and median would be 2 × 12.43 = 24.86, which is incorrect.

Therefore The correct answer is 10.4.

Additional Information

Empirical Formula

The relationship between mean, median, and mode for a moderately skewed distribution is given by Mode = 3 × Median − 2 × Mean.

Symmetrical Distribution

For a perfectly symmetrical distribution, Mean = Median = Mode.

Skewed Distribution

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

Q86. Answer: (a) 33.7

Shortcut Trick

When equal distances are covered at speeds s1, s2, and s3, the Average Speed = 3 × s1 × s2 × s3 ÷ (s1s2 + s2s3 + s3s1).

Average Speed = (3 × 67 × 66 × 17) ÷ (67 × 66 + 66 × 17 + 17 × 67)

Average Speed = 225522 ÷ (4422 + 1122 + 1139) = 225522 ÷ 6683 ≈ 33.745 km/hr

Therefore The correct answer is 33.7 kmph.

Alternate Method

Given: Speeds s1 = 67 km/hr, s2 = 66 km/hr, s3 = 17 km/hr. Each covers 1/3rd distance.

Formula Used: Average Speed = Total Distance ÷ Total Time

=> Let total distance be 3 units. Then each part is 1 unit.

=> Total Time = (1 ÷ 67) + (1 ÷ 66) + (1 ÷ 17)

=> Total Time = (66 × 17 + 67 × 17 + 67 × 66) ÷ (67 × 66 × 17)

=> Total Time = (1122 + 1139 + 4422) ÷ 75174 = 6683 ÷ 75174

=> Average Speed = 3 ÷ (6683 ÷ 75174)

=> Average Speed = (3 × 75174) ÷ 6683 = 225522 ÷ 6683

=> Average Speed ≈ 33.745 km/hr ≈ 33.7 km/hr

Therefore The correct answer is 33.7 kmph.

Additional Information

Average Speed Formula

For two equal distances covered at speeds a and b, Average Speed = 2ab ÷ (a + b).

Relative Speed

Objects moving in same direction: Relative speed = S1 − S2. In opposite direction: Relative speed = S1 + S2.

Rounding Rules

If the digit to be dropped is 5 or more, increase the preceding digit by 1 (e.g., 33.745 becomes 33.7 if rounding to 1st decimal).

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Q87. Answer: (a) 38

Shortcut Trick

Ratio of students in Section A to Section B = 22 : 44 = 1 : 2.

Weight of Section A is 40 kg and Section B is 37 kg.

Assume 37 kg as base weight; Deviation for Section A = 40 − 37 = +3 kg.

Net deviation distributed over total ratio parts = (1 × 3) ÷ (1 + 2) = 3 ÷ 3 = 1 kg.

Required Average Weight = 37 + 1 = 38 kg.

Therefore The correct answer is 38 kg.

Alternate Method

Given:

Number of students in Section A (n1) = 22

Average weight of Section A (w1) = 40 kg

Number of students in Section B (n2) = 44

Average weight of Section B (w2) = 37 kg

Formula Used:

Combined Average = (n1w1 + n2w2) ÷ (n1 + n2)

Calculations:

=> Total weight of Section A = 22 × 40 = 880 kg

=> Total weight of Section B = 44 × 37 = 1628 kg

=> Total weight of the whole class = 880 + 1628 = 2508 kg

=> Total number of students = 22 + 44 = 66

=> Average weight of the class = 2508 ÷ 66

=> Average weight = 38 kg

Therefore The correct answer is 38 kg.

Additional Information

Weighted Average Principle

When two groups are combined, the resulting average always lies between the averages of the individual groups. It is closer to the average of the group with more members.

Ratio Method for Averages

Instead of using actual student counts, the ratio of quantities can be used in the formula: Average = (R1A1 + R2A2) ÷ (R1 + R2), where R represents the ratio parts.

Deviation Concept

Net Deviation = Sum of (Value − Assumed Average). For the final average, the net deviation must be zero across all items.

Q88. Answer: (d) 1749

Shortcut Trick

Apply the divisibility rule of 11: The difference between the sum of digits at odd positions and the sum of digits at even positions must be 0 or a multiple of 11.

For 1749: (1 + 4) − (7 + 9) = 5 − 16 = −11.

Since −11 is divisible by 11, the number 1749 is divisible by 11.

Therefore The correct answer is 1749.

Alternate Method

Given: Numbers to check for divisibility by 11.

Formula Used: Divisibility by 11 check (Sum of odd places − Sum of even places).

Calculations:

=> Option 1: 2652 → (2 + 5) − (6 + 2) = 7 − 8 = −1 (Not divisible)

=> Option 2: 1440 → (1 + 4) − (4 + 0) = 5 − 4 = 1 (Not divisible)

=> Option 3: 2118 → (2 + 1) − (1 + 8) = 3 − 9 = −6 (Not divisible)

=> Option 4: 1749 → (1 + 4) − (7 + 9) = 5 − 16 = −11 (Divisible by 11)

Therefore The correct answer is 1749.

Additional Information

Divisibility by 3

A number is divisible by 3 if the sum of its digits is divisible by 3.

Divisibility by 9

A number is divisible by 9 if the sum of its digits is divisible by 9.

Divisibility by 4

A number is divisible by 4 if the last two digits are divisible by 4.

Q89. Answer: (c) Only 1 and 2

The Correct answer is Only 1 and 2.

Key Points

• The question pertains to the 2024 Jharkhand Assembly elections, which are crucial for understanding the political landscape of Jharkhand.

• Option 1 is incorrect because the claim that the Indian National Congress won more than 15 seats is factually inaccurate based on the results of the 2024 Jharkhand Assembly elections.

• Option 2 is incorrect as it asserts that the Jharkhand Mukti Morcha (JMM) won the highest vote share, which is not the case. Another party might have held the highest vote share during these elections.

• Option 3 is correct as the Rashtriya Janata Dal (RJD) winning 4 seats aligns with the results of the 2024 elections.

• The correct answer highlights that only the claims in Option 1 and Option 2 are incorrect, while Option 3 holds true.

• Understanding the dynamics of the 2024 Jharkhand Assembly elections is essential for evaluating the role of different parties such as the Indian National Congress, Jharkhand Mukti Morcha, and Rashtriya Janata Dal in shaping the state's governance.

Additional Information

• Indian National Congress (INC)

• The Indian National Congress, founded in 1885, is one of the oldest political parties in India.

• It played a significant role in the Indian Independence Movement and has been a major political force post-independence.

• The party advocates for secularism, democracy, and socialism.

• In recent elections, its performance has varied across states, reflecting changing political dynamics.

• Jharkhand Mukti Morcha (JMM)

• The JMM was established in 1972 by Shibu Soren to represent the interests of tribal communities in Jharkhand.

• The party has been a key player in Jharkhand politics and has led the government in the state multiple times.

• It advocates for tribal rights, land reforms, and sustainable development.

• JMM's political strength is concentrated in tribal-dominated regions of Jharkhand.

• Rashtriya Janata Dal (RJD)

• The RJD was founded in 1997 by Lalu Prasad Yadav and primarily operates in Bihar and Jharkhand.

• It is known for its focus on social justice, caste-based politics, and empowering marginalized communities.

• The party has historically been strong among Yadavs and Muslims in the region.

• While the RJD primarily focuses on Bihar, it also contests elections in Jharkhand, where it has a smaller but notable presence.

Q90. Answer: (b) Vallabhbhai Patel

The Correct answer is Vallabhbhai Patel.

Key Points

• Vallabhbhai Patel, also known as the 'Iron Man of India', was a prominent leader in the Indian freedom struggle.

• He led the Bardoli Satyagraha of 1928, a significant movement to protest against the unjust increase in land revenue taxes by the British authorities.

• The Satyagraha was conducted in the Bardoli taluka of Gujarat, where farmers were heavily burdened by a 30% hike in land revenue.

• Under Patel's leadership, farmers refused to pay the increased taxes and launched a non-violent resistance movement.

• The movement was successful in forcing the British government to roll back the increased revenue, making it a landmark victory for civil disobedience.

• For his leadership in Bardoli, Vallabhbhai Patel earned the title of Sardar, which means 'leader' or 'chief'.

• The Bardoli Satyagraha was a precursor to the larger Civil Disobedience Movement led by Mahatma Gandhi.

Additional Information

• Mahatma Gandhi

• Mahatma Gandhi was the leader of the Indian National Movement and a strong proponent of non-violence and Satyagraha.

• Although Gandhi was not directly involved in Bardoli, his principles of Satyagraha inspired Vallabhbhai Patel's leadership.

• He led various other movements such as the Salt March, Non-Cooperation Movement, and Quit India Movement.

• Bal Gangadhar Tilak

• Bal Gangadhar Tilak, also known as ‘Lokmanya’, was one of the earliest leaders of the Indian independence movement.

• He was not associated with the Bardoli Satyagraha but is known for his famous slogan, "Swaraj is my birthright, and I shall have it."

• Tilak was a strong advocate for self-rule and played a vital role in the Swadeshi Movement.

• Jawaharlal Nehru

• Jawaharlal Nehru was India’s first Prime Minister and a prominent figure in the freedom struggle.

• He was not directly involved in the Bardoli Satyagraha but contributed significantly to other movements, including the Civil Disobedience Movement and Quit India Movement.

• He is known for his vision of a modern, industrialized India and for promoting the idea of secularism and democracy.

Q91. Answer: (c) 6231

Shortcut Trick

Successive multiplier: Total SP = (Original Cost + Repair) × 1.25 × 0.56.

Given final SP = 4,480.

Bharath's CP = 4,480 ÷ 0.56 = 8,000.

Anand's Total CP = 8,000 ÷ 1.25 = 6,400.

Original Cost = 6,400 − 169 = 6,231.

Therefore The correct answer is 6,231.

Alternate Method

Formulas: Profit% = (Profit ÷ CP) × 100 | Loss% = (Loss ÷ CP) × 100 | SP = CP × (100 ± P/L)% ÷ 100

=> Let the Original Cost of the item be x.

=> Anand's Total Cost Price = (x + 169).

=> Selling Price to Bharath = (x + 169) × (125 ÷ 100) = 1.25(x + 169).

=> Bharath's Selling Price = 1.25(x + 169) × (100 − 44) ÷ 100 = 4,480.

=> 1.25(x + 169) × 0.56 = 4,480.

=> 0.7(x + 169) = 4,480.

=> x + 169 = 4,480 ÷ 0.7 = 6,400.

=> x = 6,400 − 169 = 6,231.

Therefore The correct answer is 6,231.

Additional Information

Effective Cost Price

The Effective Cost Price includes the purchase price plus any overhead expenses like repairs, transport, or labor. Formula: Total CP = Purchase Price + Overheads.

Chain Rules in Profit & Loss

In a chain of transactions, the Selling Price for the first person becomes the Cost Price for the second person.

Q92. Answer: (a) 116

Given:

The simplified value of 285 - 6(23 + 19) + 83 is:

Calculations:

285 - 6(23 + 19) + 83

=> 285 - 6(42) + 83

=> 285 - 252 + 83

=> 33 + 83

=> 116

Therefore The correct answer is option (1).

Q93. Answer: (b) = TBK, % = QYH

Given:

: OWF :: VDM : %

Analysis of Options:

Option 1) # = TBK, % = QYU
For # (TBK) to OWF
For VDM to % (QYU)
Option 2) # = TBK, % = QYH
For # (TBK) to OWF
For VDM to % (QYH)
Option 2 is correct.
Option 3) # = TYK, % = QYH
For # (TYK) to OWF
For VDM to % (QYU)
Option 4) # = TBM, % = QYH
For # (TBM) to OWF
For (VDM) to % (QYU)
Thus, the analogy holds true only for Option 2 where the pattern (-5, -5, -5) is consistent for both pairs.
Hence, the correct answer is "Option 2".

Q94. Answer: (c) 21

Shortcut Trick
The mode is the observation that appears the maximum number of times in a data set.
By observing the data: 21 appears 3 times, while 27, 25, 31, 32, and 29 appear only 2 times each.
Since 21 has the highest frequency, it is the mode.
Therefore The correct answer is 21.
Alternate Method
Given: Observations = 21, 27, 25, 31, 21, 35, 23, 25, 32, 27, 21, 29, 32, 29, 31
Formula: Mode = Value with the highest frequency.
=> Frequency of 21 = 3
=> Frequency of 27 = 2
=> Frequency of 25 = 2
=> Frequency of 31 = 2
=> Frequency of 32 = 2
=> Frequency of 29 = 2
=> Frequency of 23 = 1
=> Frequency of 35 = 1
=> The maximum frequency is 3, which belongs to the observation 21.
Therefore The correct answer is 21.
Additional Information
Measures of Central Tendency
Mean is the sum of observations divided by their count, Median is the middle value when data is sorted, and Mode is the most frequent value.
Empirical Relationship
For a moderately skewed distribution, the relationship is: Mode = 3 × Median − 2 × Mean.
Types of Mode
A data set with one mode is unimodal, two modes is bimodal, and more than two modes is multimodal.

Q95. Answer: (a) Andaman and Nicobar Islands

The Correct answer is Andaman and Nicobar Islands.
Key Points
• The Andaman and Nicobar Islands have the longest coastline among all Union Territories of India, as per the 2022-23 Annual Report of the Ministry of Home Affairs.
• This Union Territory consists of approximately 836 islands, islets, and rocks, located in the Bay of Bengal.
• The total coastline of the Andaman and Nicobar Islands is around 1,962 kilometers, making it the most extensive among all Indian Union Territories.
• The geographical location of these islands plays a crucial role in India's maritime security and economy, especially in the Indian

Ocean Region.

• The islands are divided into two main groups: the Andaman Islands to the north and the Nicobar Islands to the south.

• The Andaman and Nicobar Islands are home to pristine beaches, coral reefs, and dense tropical rainforests.

• They are rich in biodiversity and are known for their strategic importance for India's defense.

• The islands are also a major tourist destination, attracting visitors for their natural beauty and water-based activities, such as diving and snorkeling.

Additional Information

• Daman and Diu

• Daman and Diu is a former Union Territory of India, now merged with Dadra and Nagar Haveli to form the Union Territory of Dadra and Nagar Haveli and Daman and Diu in 2020.

• It has a relatively short coastline, located along the Arabian Sea.

• The region is known for its Portuguese heritage, including forts and churches.

• Lakshadweep

• Lakshadweep is the smallest Union Territory of India, consisting of 36 islands, with only 10 inhabited.

• The total coastline of Lakshadweep is around 132 kilometers.

• It is famous for its coral reefs, lagoon ecosystems, and tropical climate.

• Puducherry

• Puducherry (formerly known as Pondicherry) is a Union Territory located on the southeastern coast of India.

• It has a coastline of around 45 kilometers, which includes popular beaches such as Promenade Beach and Auroville Beach.

• The region has a rich history influenced by French colonial rule.

Q96. Answer: (a) 8

Given:

1 is added to each odd digit and 2 is subtracted from each even digit in the number 4568712.

Given	4	5	6	8	7	1	2
Operation	-2	+1	-2	-2	+1	+1	-2
New number	2	6	4	6	8	2	0

The new number formed is 2646820.

The digits in the new number are 0, 2, 2, 4, 6, 6, 8.

The highest digit in the new number is 8.

The lowest digit in the new number is 0.

Difference between the highest and lowest digits = 8 - 0 = 8.

Hence, the correct answer is "Option 1".

Q97. Answer: (d) 1,50,150

Shortcut Trick

Initial Population = 1,10,000

First Year Increase = 5% → Multiplying factor = 105/100 = 21/20

Second Year Increase = 30% → Multiplying factor = 130/100 = 13/10

Final Population = 1,10,000 × (21/20) × (13/10) = 550 × 21 × 13 = 1,50,150

Therefore The correct answer is 1,50,150.

Alternate Method

Given:

Initial Population (P) = 1,10,000

Rate 1 (R1) = 5%

Rate 2 (R2) = 30%

Formula Used: Final Population = P × (1 + R1/100) × (1 + R2/100)

=> Population after 1st year = 1,10,000 × (1 + 5/100)

=> Population after 1st year = 1,10,000 × 1.05 = 1,15,500

=> Population after 2nd year = 1,15,500 × (1 + 30/100)

=> Population after 2nd year = 1,15,500 × 1.3

=> Population after 2nd year = 1,50,150

Therefore The correct answer is 1,50,150.

Additional Information

Successive Percentage Change

When a value changes by x% and then y% successively, the net percentage change is given by [x + y + (xy/100)]%.

Population Depreciation

If the population decreases by R% annually, the population after n years is $P \times (1 - R/100)^n$.

Effective Rate Method

In this case, net increase = 5 + 30 + (5 × 30)/100 = 35 + 1.5 = 36.5%. Final = 1.365 × 1,10,000 = 1,50,150.

Q98. Answer: (c) 2,98,512

Shortcut Trick

Initial population in 1956 = 2,07,300.

Two decades of 20% increase each: 20% → 1/5 fraction, so multiplier is 6/5.

Final population = $2,07,300 \times (6/5)^2 = 2,07,300 \times (36/25)$.

Using unit digit or calculation: 2,07,300 ÷ 25 = 8,292.

8,292 × 36 = 2,98,512.

Therefore The correct answer is 2,98,512.

Alternate Method

Given: Initial Population (P) = 2,07,300 | Successive Increase (r) = 20% | Number of decades (n) = 2.

Formula Used: Population after n intervals = $P \times (1 + r/100)^n$

=> Population in 1976 = $2,07,300 \times (1 + 20/100)^2$

=> Population in 1976 = 2,07,300 × (120/100) × (120/100)

=> Population in 1976 = 2,07,300 × 1.2 × 1.2

=> Population in 1976 = 2,07,300 × 1.44

=> Population in 1976 = 298512

Therefore The correct answer is 2,98,512.

Additional Information

Successive Percentage Change

If a value changes by a% and then by b%, the net percentage change is given by (a + b + ab/100)%.

Population Depreciation

If the population decreases at a constant rate r, the future population is calculated as $P \times (1 - r/100)^n$.

Compounding Frequency

Population growth follows the same mathematical principle as compound interest where growth is added to the updated base each period.

Q99. Answer: (c) Manipur

The Correct answer is Manipur.

Key Points

• The Battle of Khongjom holds significant historical importance for the state of Manipur.

• This battle was fought during the Anglo-Manipur War of 1891.

• The musical narration of the Battle of Khongjom is a prominent part of folk music in Manipur and serves as a tribute to the warriors who fought bravely in the war.

• The narration is performed in the form of traditional songs and ballads, often accompanied by indigenous musical instruments.

• The site of the battle, Khongjom, is located in the Thoubal district of Manipur.

• Khongjom Day is observed every year on April 23rd to honor the martyrs of the war.

• The rich cultural and historical significance of the Battle of Khongjom is deeply ingrained in the identity of Manipur.

Additional Information

• Arunachal Pradesh

• Arunachal Pradesh is known for its diverse tribal traditions and folk music.

• It is home to tribes like the Adi, Apatani, Nyishi, and Monpa, each with their unique musical traditions.

• The state's music often incorporates indigenous instruments like the bamboo flute and drums.

• Kerala

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• Kerala is famous for its classical music forms, particularly Carnatic music.
• The state also boasts rich folk traditions like Sopana Sangeetham and Theyyam.
• Kerala's folk music often accompanies traditional art forms like Kathakali and Mohiniyattam.
• Nagaland
• Nagaland is renowned for its vibrant tribal music and culture.
• Music is an integral part of Naga life, with instruments like the bamboo mouth organ and drums being widely used.
• The Hornbill Festival is a significant event showcasing the music and dance forms of various tribes.

Q100. Answer: (d) 41

Shortcut Trick
Weighted Average of speed = (v1t1 + v2t2) ÷ (t1 + t2)
Ratio of time = 80 : 70 = 8 : 7
Average speed = [(20 × 8) + (65 × 7)] ÷ (8 + 7)
Average speed = (160 + 455) ÷ 15 = 615 ÷ 15 = 41 m/min
Therefore The correct answer is 41 m/min.
Alternate Method
Given:
Speed 1 (v1) = 20 m/min, Time 1 (t1) = 80 min
Speed 2 (v2) = 65 m/min, Time 2 (t2) = 70 min
Formula Used:
Average Speed = Total Distance ÷ Total Time
Distance = Speed × Time
Calculations:
=> Total Distance = (20 × 80) + (65 × 70)
=> Total Distance = 1600 + 4550 = 6150 meters
=> Total Time = 80 + 70 = 150 min
=> Average Speed = 6150 ÷ 150
=> Average Speed = 41 m/min
Therefore The correct answer is 41 m/min.
Additional Information
Average Speed (Equal Distances)
When two equal distances are covered at speeds u and v, average speed = 2uv ÷ (u + v).
Relative Speed
Objects moving in the same direction: Relative Speed = |u − v|. Opposite direction: Relative Speed = u + v.
Unit Conversion
To convert km/hr to m/s, multiply by 5/18. To convert m/s to km/hr, multiply by 18/5.

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