RRB NTPC (Graduate) CBT-I Official Paper (Held On: 27 Mar, 2026 Shift 1) (Previous Year Paper)

RRB NTPC • 2026 • 100 questions • 90 minutes • Answer key and solutions

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Q1. Seven people – H, I, J, K, L, M, and N – attend workshops on different days of the week starting from Monday and ending on Sunday. K's workshop is on Wednesday.

Only one person attends between K and M. J attends workshop immediately after M. H attends on one of the days before I but after N.

L attends the workshop before J but not on Monday.

On which day does H attend the workshop?

(a) Thursday
(b) Friday
(c) Sunday
(d) Wednesday

Q2. A, B, and C run a 1200 m race. A gives to B a headstart of 300 m, and to C a headstart of 600 m. A finishes the race 30 seconds before B and 60 seconds before C. If A's speed is 10 m/s, then find the respective speeds of B and C. [Give your answer in m/s, and round off, wherever necessary, to one place after decimal.]

(a) 7.5 m/s, 2.5 m/s
(b) 6 m/s, 3.3 m/s
(c) 8.5 m/s, 5 m/s
(d) 5.5 m/s, 3 m/s

Q3. Which of the following dance forms is from Uttar Pradesh?

(a) Bharatnatyam
(b) Odissi
(c) Manipuri
(d) Kathak

Q4. A shopkeeper sold two items for Rs. 10,000 each. He suffered a loss of 20% on one item and earned 20% profit on the other item. What is his profit or loss percentage in the whole transaction?

(a) 3% loss
(b) 4% gain
(c) 4% loss
(d) 3% gain

Q5. There are 85 members in group A, 23 members in group B and 42 members in group C. All the members of these groups went to a restaurant. The average amounts spent on each member of groups A, B and C are Rs. 407, Rs. 365 and Rs. 280, respectively. The overall average amount (in Rs.) spent per member is:

(a) 362
(b) 368
(c) 365
(d) 363

Q6. A person runs a concession stand at a basketball game and sells burgers and soft drinks. Each burger costs Rs. 15 and each soft drink costs Rs. 5. At the end, a total of Rs. 785 is earned by selling a total of 87 burgers and soft drinks combined. How many soft drinks are sold?

(a) 60
(b) 52
(c) 27
(d) 35

Q7. Find the value of y, satisfying $26 \times 5 \times 715 \div \sqrt{3025} = y + 913$

(a) 771
(b) 780
(c) 777
(d) 772

Q8. Seven people F, G, H, I, U, V, and W are sitting around a circular table facing the centre of the table. U sits second to the right of H. Only one person sits between U and W. Only one person sits between H and F. Only two people sit between V and W. Only one person sits between G and F. Who sits fourth to the right of I?

(a) W
(b) U
(c) G
(d) V

Q9. In an isosceles triangle ABC, the equal sides AB and AC are each 10 cm, and the base BC is 12 cm. Find the area of the triangle.

(a) 36 cm^2
(b) 40 cm^2
(c) 48 cm^2
(d) 45 cm^2

Q10. What happens to light energy in interference and diffraction?

(a) It reduces
(b) It increases
(c) It decreases
(d) It is redistributed

Q11. 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 conclusions logically follow(s) from the statements.

Statements:

All grapes are lemons. No grape is a melon. No melon is a strawberry.

Conclusions:

(I) No lemon is a melon.

(II) No grape is a strawberry.

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

Q12. In this question, a question is followed by two statements numbered (I) and (II). You have to decide whether the data provided in the statements are sufficient to answer the question. Read both the statements and decide the appropriate answer.

Question:

Among 5 trees, L, M, N, T and V each having a different height, which tree is the shortest?

Statements:

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(I) V is shorter than N but taller than T. M is taller than T.

(II) L is taller than only one tree.

(a) Both statements I and II together (and not statement 1 alone or statement II alone) are sufficient to answer the question

(b) Data in Statement I alone is sufficient to answer the question while data in statement II is not

(c) Both statements I and II together are NOT sufficient to answer the question

(d) Data in Statement II alone is sufficient to answer the question while data in statement I is not

Q13. E, F, G, W, X and Y live on six different floors of the same building. The lowermost floor in the building is numbered 1, the floor above it is numbered 2 and so on till the topmost floor is numbered 6. F lives immediately above G. Only two people live between E and G. E lives on an odd numbered floor. Y lives immediately below W. How many people live between X and W?

(a) Two

(b) One

(c) Four

(d) Three

Q14. In a certain code language, ‘KITE’ is coded as ‘5871’ and ‘TIME’ is coded as ‘7853’. What is the code for ‘M’ in the given code language?

(a) 5

(b) 3

(c) 7

(d) 8

Q15. This question is based on the five, three-digit numbers given below.

(Left) 235 879 584 635 159 (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 third digit of the highest number is added to the second digit of lowest number?

(a) 18

(b) 17

(c) 14

(d) 16

Q16. In a country with high informal employment and low social protection coverage, which policy is likely to be the most effective in both poverty alleviation and employment formalization?

(a) Expand social insurance to informal sector

(b) Universal basic income

(c) Deregulate labor laws

(d) Targeted food subsidies

Q17. By selling an article at 4/13 of its marked price, Hitesh incurs a loss of 30%. If he sells it at 60% of its marked price, then the profit percentage is

(a) 37.8%

(b) 39.8%

(c) 36.5%

(d) 36.3%

Q18. When a Windows computer is in Sleep mode, which common user action will typically bring the system back to an active state?

(a) Moving the mouse

(b) Network time sync

(c) BIOS update

(d) Battery fully drained

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Q19. Based on the English alphabetical order, three of the following four letter cluster pairs are alike in a certain way and thus form a group. Which is the one that does not belong to that group? (Note: The odd man out is not based on the number of consonants/vowels or their position in the letter cluster)

(a) PQ-ST
(b) FG-IJ
(c) MN-QR
(d) CD-FG

Q20. What does the Environment Audit Rules, 2025, aim to establish across India?

(a) A water conservation campaign
(b) A framework for environmental accountability
(c) A new environmental tax system
(d) A national reforestation program

Q21. Which of the following is NOT a peninsular river?

(a) Ganga
(b) Narmada
(c) Krishna
(d) Godavari

Q22. The mean proportional of 18 and 128 is:

(a) 49
(b) 51
(c) 48
(d) 50

Q23. Three positive integers, A, B, and C, satisfy the following conditions: HCF(A,B) = 12, HCF(B,C) = 18, HCF(A,C) = 6 and LCM(A,B,C) = 1080. If A = 12x, B = 36y, and C = 18z, where x, y, and z are pairwise coprime positive integers, then the minimum possible value of A + B + C is:

(a) 220
(b) 216
(c) 224
(d) 222

Q24. Which of the following letter-number clusters will replace the question mark (?) in the given series to make it logically complete?

XVW 26 TRS 22 PNO 18 LJK 14 ?

(a) HFG 10
(b) HGF 10
(c) HKO 9
(d) HEF 9

Q25. Which of the following nationalists co-founded and became the president of the Congress-Khilafat Swarajya Party, after a fall off with the Indian National Congress?

(a) Chittaranjan Das
(b) Mukhtar Ahmed Ansari
(c) Motilal Nehru
(d) Ajmal Khan

Q26. If a and b, b > a, are the roots of the equation $6x^2 + 1x - 2 = 0$, then what is the value of (2a + 3b)?

(a) 3/2
(b) 1/8
(c) 4/13
(d) 1/6

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Q27. The radius of a right circular cone is increased by 8% and slant height is decreased by 15%. Find the percentage change in curved surface area of the cone.

(a) decreases by 11.5%
(b) decreases by 7%
(c) decreases by 8.2%
(d) increases by 7%

Q28. A trader marks an article at a certain price and offers a 20% discount on it. Additionally, for every 120 articles purchased, he gives 3 more articles free of cost. If his overall profit on the transaction is 28%, find the percentage by which the marked price of an article exceeds its cost price. Assume the customer pays for only 120 articles.

(a) 68%
(b) 72%
(c) 60%
(d) 64%

Q29. C is the son of F. F is the sister of E. E is the son of G. G is the husband of H. How is C related to H?

(a) Daughter's husband
(b) Son's wife's brother
(c) Son's son
(d) Daughter's son

Q30. What administrative change characterized the political structure of post-Gupta India?

(a) Replacement of kingship with religious councils
(b) Formation of a central bureaucracy under one emperor
(c) Rise of smaller kingdoms under hereditary rulers
(d) Introduction of democratic village assemblies across India

Q31. What is the atomicity of a molecule of oxygen (O_2)?

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

Q32. P and Q can complete a piece of work in 14 days and 19 days, respectively. They work on alternate days, beginning with P. The whole work will be completed in:

(a) 162/19 days
(b) 18 3/19 days
(c) 14 1/19 days
(d) 12 4/19 days

Q33. Which date marked World Mental Health Day in 2025, emphasizing access to mental health services during emergencies?

(a) October 10, 2025
(b) October 24, 2025
(c) July 28, 2025
(d) August 12, 2025

Q34. System Software such as the Operating System is primarily designed to manage and coordinate the flow of data and instructions between the hardware and software, acting as the system's core _____.

(a) peripheral device
(b) resource manager
(c) application logic
(d) utility service

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Q35. 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 :: ?

: NSO :: SXT : %

(a) = PUQ, % = QVS
(b) = PUQ, % = QVR
(c) = PUQ, % = QWS
(d) = PUR, % = QVS

Q36. Ms. N. Rajam, who was announced as the Padma Vibhushan awardee in the Padma Awards 2026 for her outstanding contribution to Indian art and culture, is primarily associated with which of the following musical instruments?

(a) Sitar
(b) Flute
(c) Violin
(d) Sarod

Q37. Right to free and compulsory education for children aged 6–14 years is provided under which Article?

(a) Article 51A(k)
(b) Article 45
(c) Article 19
(d) Article 21A

Q38. Movie studios use powerful computers to create special effects and animations. This is an application of computers in:

(a) Scientific research only
(b) Accounting
(c) Entertainment
(d) Banking

Q39. At what rate per annum will a sum of money become five times itself in 6 years under simple interest?

(a) 331/3%
(b) 642/3%
(c) 662/3%
(d) 681/3%

Q40. D, E, F, G, S, T and U are sitting around a circular table facing the centre. U sits to the immediate right of G. Only three people sit between U and E when counted from the left of U. Only three people sit between G and T when counted from the left of G. D sits to the immediate right of S. How many people sit between F and S when counted from the left of S?

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

Q41. In which year was the report of Methodology for Measurement of Poverty in India submitted by the Dr. C Rangarajan Committee?

(a) 2008
(b) 2010
(c) 2014
(d) 2017

Q42. If 1 is added to each odd digit and 2 is subtracted from each even digit in the number 6587134, which of the following digits will be second from the left end in the new number thus formed?

(a) 8
(b) 4

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(c) 5
(d) 6

Q43. Simplify (3.6 ÷ 3/5) + (7/3 × 2.4/1.4) - (5/6 + 14/12).
(a) 7
(b) 8
(c) 9
(d) 6

Q44. 48 is related to 192 following a certain logic. Following the same logic, 52 is related to 208. To which of the following is 61 related, following the same logic?
(NOTE: Operations should be performed on the whole numbers, without breaking down the numbers into their constituent digits. E.g. 13 – Operations on 13 such as adding /subtracting /multiplying, etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed.)
(a) 254
(b) 244
(c) 234
(d) 264

Q45. Which gases act as the main greenhouse gases with rising atmospheric concentrations?
(a) Hydrochlorofluorocarbons, argon, oxygen
(b) Carbon dioxide, methane, nitrous oxide
(c) Argon, oxygen, nitrogen
(d) Hydrofluorocarbons, oxygen, nitrogen

Q46. If the sum of all the external angles of a regular polygon is two-thirds of all its interior angles, then the number of sides of the polygon is equal to:
(a) 4
(b) 6
(c) 5
(d) 7

Q47. Two trains running in opposite directions at 40 km/hr and 52 km/hr cross each other in 18 seconds. If one train is 250 m long, then find the length of the other train.
(a) 220 m
(b) 200 m
(c) 210 m
(d) 190 m

Q48. If 1 is added to each odd digit and 1 is subtracted from each even digit in the number 53764821, what will be the product of the greatest and smallest digit in the new number thus formed?
(a) 18
(b) 0
(c) 8
(d) 16

Q49. As per the Constitution of India, Article 182 deals with which of the following?
(a) Composition of State Legislative Assemblies
(b) Disqualification for membership
(c) Special address by the Governor
(d) Chairman and Deputy Chairman of the State Legislative Council

Q50. The average of first 13 multiples of 8 is:
(a) 56
(b) 8
(c) 13

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(d) 52

Q51. The Right to Property was removed from Part III of the Indian Constitution and added to _____.

(a) Part XII
(b) Part X
(c) Part XIII
(d) Part XI

Q52. Sidhu and Kanhu are historically remembered for their leadership in which uprising?

(a) Paralkot Rebellion
(b) Koi Revolt
(c) Santhal Revolt
(d) Bastar Rebellion

Q53. In a certain code language, 'TIME' is coded as '3519' and 'EARS' is coded as '6894'. What is the code for 'E' in that language?

(a) 8
(b) 9
(c) 4
(d) 6

Q54. Classical dancers Nalini Asthana and Kamalini Asthana received the prestigious Sangeet Natak Akademi Award for the year 2022 for their contribution to which dance form?

(a) Odissi
(b) Kathak
(c) Kuchipudi
(d) Bharatanatyam

Q55. Based on the English alphabetical order, three of the following four letter cluster pairs are alike in a certain way and thus form a group. Which is the one that does not belong to that group? (Note: The odd man out is not based on the number of consonants/vowels or their position in the letter cluster)

(a) CE-FH
(b) HJ-KM
(c) MO-PR
(d) GI-JM

Q56. The National Legal Services Authority (NALSA) was established under the:

(a) Legal Services Authorities Act, 1987
(b) Advocates Act, 1961
(c) Code of Criminal Procedure, 1973
(d) Legal Aid and Advice Act, 1972

Q57. This question is based on the five, three-digit numbers given below.

(Left) 571 769 642 598 796 (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 third digit of the highest number is added to the second digit of the lowest number?

(a) 10
(b) 11
(c) 16
(d) 13

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Q58. Shivani walks 7 km towards East from Point C. She then turns left and walks 4 km. After that, she takes a right turn and walks 6 km. Then, she turns right again and walks 4 km.

Finally, she takes a left turn and walks 7 km to reach Point J. How far and in which direction is Point J from Point C ? (All turns are 90-degree turns only, unless specified.)

(a) 18 km, west
(b) 20 km, east
(c) 24 km, west
(d) 21 km, north

Q59. 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 :: ?

: XHP :: UEM : %

(a) = NXF % = EKW
(b) = NOF % = EOW
(c) = NXF % = EOO
(d) = NXF % = EOW

Q60. India signed a 10-year Defence Framework Agreement in 2025 with which country during a meeting held on the sidelines of the ASEAN–India Defence Ministers' Informal Meeting in Kuala Lumpur?

(a) Malaysia
(b) Australia
(c) Japan
(d) United States of America

Q61. Which shortcut is used to undo the last action?

(a) Ctrl+U
(b) Ctrl+E
(c) Ctrl+X
(d) Ctrl+Z

Q62. Let ABC and DEF be two congruent triangles such that angle A = angle D. If AC = DF = 6 cm, and DE = 5 cm, then find the length (in cm) of AB.

(a) 8
(b) 5
(c) 10
(d) 6

Q63. In 2025, which international organization reclassified India's de facto exchange rate regime from a "stabilised" system to a crawl-like arrangement?

(a) World Bank
(b) Asian Development Bank
(c) International Monetary Fund (IMF)
(d) Bank for International Settlements

Q64. According to the World Meteorological Organization (WMO), 2025, reporting based on 2023 data, which greenhouse gas/gases reached 151% of its/their pre-industrial concentration?

(a) Hydrochlorofluorocarbons
(b) Methane
(c) Carbon dioxide
(d) Nitrous oxide

Q65. Who among the following leaders founded the Indian National Association in 1876?

(a) Dadabhai Naoroji and Gopal Krishna Gokhale
(b) Dadabhai Naoroji and Debendranath Tagore
(c) Surendranath Banerjee and Ananda Mohan Bose

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(d) Bal Gangadhar Tilak and Bipin Chandra Pal

Q66. The ages (in years) of patients in a clinic are recorded as follows: 15, 18, 21, 21, 23, 25, 28, 30, 35, 40, 45, 50, 55. Calculate the difference between the median age now and after removing the oldest patient (55 years) from the data set.

(a) 2.5 years
(b) 1.75 years
(c) 1.5 years
(d) 1.25 years

Q67. Under which Act were the Environment Audit Rules, 2025, issued on 29-8-2025?

(a) Environment (Protection) Act, 1986
(b) Wildlife Protection Act, 1972
(c) Forest Conservation Act, 1980
(d) Air (Prevention and Control of Pollution) Act, 1981

Q68. In the following number-pairs, the second number is obtained by applying certain mathematical operations to the first number. Select the set in which the numbers are related in the same way as are the numbers of the following sets.

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

19, 78
24, 98

(a) 26, 110
(b) 27, 110
(c) 27, 112
(d) 26, 112

Q69. Which of the following statements is correct about the distance of the foot of the ladder from the wall? A 24 m long ladder is leaning against a wall. If the ladder makes an angle of 30^o with the wall, what is the distance (in m) of the foot of the ladder from the wall?

(a) 12√2
(b) 12/√3
(c) 12
(d) 12√3

Q70. Koli is the dance form of the Koli fishermen community of:

(a) Bihar
(b) Rajasthan
(c) Maharashtra
(d) Odisha

Q71. When was the National Rural Economic Transformation Project (NRETP) launched?

(a) 24th April 2022
(b) 24th April 2020
(c) 24th April 2021
(d) 24th April 2019

Q72. If x^4 = 322 - 1/(x^4) and x > 1, then the value of x^3- 1/(x^3) is:

(a) 76
(b) 62
(c) 72
(d) 64

Q73. The present ages of Ayushi and Anmol are in the ratio of 2 : 3 respectively. After 6 years the ratio of their ages will be 8 : 9. What is the positive difference (in years) in their present ages?

(a) 12
(b) 19
(c) 11
(d) 1

Q74. 100 men have provisions for 27 days. If 25 men have left, for how many days the same provisions would last for the remaining men?

(a) 38
(b) 40
(c) 34
(d) 36

Q75. Simplify: cbrt5832/4√256 × 2/54 × 54

(a) 13
(b) 9
(c) 19
(d) 11

Q76. Which of the following statements is correct about the literacy of India between 2001 and 2011?

(a) Female literacy has risen faster than male literacy.
(b) Male literacy and female literacy have risen parallelly.
(c) Male literacy has declined whereas female literacy has risen.
(d) Male literacy has risen faster than female literacy.

Q77. In September 2025, which State Government launched a scheme 'KFC Machinery Loan Scheme for MSMEs' offering loans up to Rs. 5 crore (without collateral) under certain conditions?

(a) Assam
(b) Tamil Nadu
(c) Kerala
(d) Gujarat

Q78. Ajay has Rs. 1404 with him. He divides this amount between his two sons, Prakash and Gopal, and asks them to invest their respective shares at a compound interest rate of 8% per annum, compounded annually. It is observed that Prakash's investment amounts to the same value after 18 years as Gopal's investment does after 19 years. How much (in Rs.) did Ajay give to Gopal?

(a) 729
(b) 675
(c) 525
(d) 829

Q79. The population of a village was 2,90,000. It increased by 15% in the first year and increased by 30% in the second year. Its population after two years is _____.

(a) 4,33,550
(b) 3,33,500
(c) 3,77,000
(d) 4,20,500

Q80. In a certain code language,

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

A – B means 'A is the brother of B'

A x B means 'A is the wife of B'

A ÷ B means 'A is the father of B'

Based on the above, how is D related to J if 'D – F + G x H ÷ J'?

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(a) Father
(b) Husband
(c) Brother
(d) Son

Q81. Which among the following commissions in India has submitted a report titled 'Right to Information: Master Key to Good Governance'?

(a) Punchhi Commission
(b) Sakaria Commission
(c) Administrative Reforms Commission (ARC) - 2
(d) Administrative Reforms Commission (ARC) - 1

Q82. Which class of vertebrates possesses cold-blooded characteristics and scaly skin?

(a) Reptilia
(b) Amphibia
(c) Mammalia
(d) Aves

Q83. _____ is measured using the unit "quintal".

(a) Volume
(b) Length
(c) Weight
(d) Temperature

Q84. What was a major administrative feature in the military governance system of early South Indian kingdoms, such as the Chalukyas and Rashtrakutas?

(a) Temple authorities directly recruited soldiers for village defence
(b) District leaders were rotated annually by royal decree
(c) Military governance was entirely centralised under the royal council
(d) Feudatory chiefs were assigned military and administrative duties

Q85. 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 conclusions logically follow(s) from the statements.

Statements:

Some leaves are roots.

All roots are flowers.

Some flowers are stems.

Conclusions:

(I) All stems are roots.

(II) All flowers are leaves.

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

Q86. If the mean of the following data is 35, find the value of X.

Class	10-20	20-30	30-40	40-50	50-60
Frequency	49	33	24	21	X

(a) 48
(b) 42
(c) 55
(d) 52

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Q87. The telegraph cable was laid across the Atlantic Ocean in 1958 for rapid communication between North America and _____.

(a) Europe
(b) Latin America
(c) South Africa
(d) West Indies

Q88. According to the International Renewable Energy Agency's Renewable Energy Statistics 2025, what is India's global rank in renewable energy installed capacity?"

(a) 1st
(b) 6th
(c) 9th
(d) 4th

Q89. 12 is related to 63 following a certain logic. Following the same logic, 21 is related to 108. To which of the following is 26 related, following the same logic?

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

(a) 133
(b) 103
(c) 116
(d) 127

Q90. What should come in place of '?' in the given series?

44 50 62 80 104 ?

(a) 134
(b) 136
(c) 138
(d) 132

Q91. Recently appointed as CEO of Qatar Airways (December 2025), who is the new head of this major global airline?

(a) Hamad Ali Al-Khater
(b) Mohamed bin Rashid Al Maktoum
(c) Sheikh Mohammed bin Abdulrahman Al Thani
(d) Engr. Badr Mohammed Al-Meer

Q92. 'Odia' was given classical language status in which of the following years?

(a) 2005
(b) 2010
(c) 2014
(d) 2012

Q93. Seven boxes P, Q, R, S, T, U and V are kept one over the other but not necessarily in the same order.

Q is kept immediately above P. S is kept immediately above V. Only R is kept above U. Only two boxes are kept above Q. S is not kept at third position from the bottom.

How many boxes are kept between R and T?

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

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Q94. Which of the following letter-number clusters will replace the question mark (?) in the given series to make it logically complete?

AZA 27 XWX 36 UTU 45 RQR 54 ?

(a) ONO 63
(b) OTZ 62
(c) OON 63
(d) OMN 62

Q95. MELD is related to QHHA in a certain way based on the English alphabetical order. In the same way, UKDX is related to YNZU. To which of the following is CQVR related to, following the same logic?

(a) HSQP
(b) FUSN
(c) HTSO
(d) GTRO

Q96. If an Emergency Proclamation is approved only by the Rajya Sabha while the Lok Sabha is dissolved, for how long does the Proclamation remain in force from the first sitting of the newly constituted Lok Sabha?

(a) 60 days
(b) 14 days
(c) 30 days
(d) 21 days

Q97. What should come in place of '?' in the given series?

80 55 39 30 26 ?

(a) 28
(b) 26
(c) 25
(d) 23

Q98. If A : B = 2 : 3, B : C = 4 : 3 and C : D = 6 : 7, then A : B : C : D is:

(a) 14 : 24 : 18 : 21
(b) 16 : 22 : 18 : 21
(c) 16 : 24 : 16 : 21
(d) 16 : 24 : 18 : 21

Q99. If A's salary is 126% more than that of B, then by how much percent is B's salary less than that of A (correct to 2 decimal places)?

(a) 54.65%
(b) 54.74%
(c) 56.18%
(d) 55.75%

Q100. Refer to the following letter, number and symbol series and answer the question that follows.

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

(Left) H 2 @ Q I 3 L © £ R S 4 4 U © 9 1 W Y % 6 £ (Right)

If all the symbols are dropped from the series, which of the following will be fifth from the left?

(a) L
(b) 3
(c) I
(d) R

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ANSWER KEY

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

SOLUTIONS

Q1. Answer: (a) Thursday

Given: Seven people H, I, J, K, L, M, and N attend workshops from Monday to Sunday

K's workshop is on Wednesday

Only one person attends between K and M

J attends immediately after M

H attends before I but after N

L attends before J but not on Monday

Position	Day	Person
1	Monday	N
2	Tuesday	L
3	Wednesday	K
4	Thursday	H
5	Friday	M
6	Saturday	J
7	Sunday	I

So, H attends on Thursday

Hence, the correct answer is "Option 1".

Q2. Answer: (b) 6 m/s, 3.3 m/s

Shortcut Trick

A runs 1200 m at 10 m/s => time = 120 s

B runs 900 m and finishes 30 s later => time = 150 s

Speed of B = 900 / 150 = 6 m/s

C runs 600 m and finishes 60 s later => time = 180 s

Speed of C = 600 / 180 = 3.3 m/s

Therefore Answer: B = 6 m/s, C = 3.3 m/s

Alternate Method

Given:

Total race = 1200 m

A's speed = 10 m/s

B headstart = 300 m => B runs 900 m

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C headstart = 600 m => C runs 600 m

Calculation:

=> Time taken by A = 1200 / 10 = 120 s

=> B finishes 30 s after A

=> Time of B = 120 + 30 = 150 s

=> Speed of B = 900 / 150 = 6 m/s

=> C finishes 60 s after A

=> Time of C = 120 + 60 = 180 s

=> Speed of C = 600 / 180 = 3.33 ≈ 3.3 m/s

Therefore Speeds are B = 6 m/s and C = 3.3 m/s.

Additional Information

Headstart Concept

Subtract headstart from total distance

Time Difference

Add delay to A's time

Formula

Speed = Distance / Time

Q3. Answer: (d) Kathak

The correct answer is Kathak.

Key Points

• Kathak is the primary classical dance form of Northern India, specifically originating and flourishing in the state of Uttar Pradesh. The term Kathak is derived from the Sanskrit word 'Katha', which translates to 'story', and the practitioners of this art are called Kathakars (storytellers).

• Historically, this dance form was performed by nomadic bards in temples who narrated mythological stories from the Ramayana and Mahabharata using facial expressions and hand gestures. During the Bhakti Movement, it evolved to include the tales of Lord Krishna and Radha. Hence, the option Kathak is correct.

• Under the patronage of the Mughal Emperors and the Nawabs of Lucknow, Kathak transitioned from a temple ritual to a sophisticated court dance. This period introduced intricate footwork (Tatkar) and rapid spins (Chakkars), blending Persian and Indian cultural elements.

• The dance is characterized by the use of Ghungroos (metallic bells) tied around the ankles, which are used to produce complex rhythmic patterns. Unlike other classical dances, Kathak is performed with straight legs, focusing on the movement of the ankles and feet.

• There are three main Gharanas or schools of Kathak: the Lucknow Gharana (famed for grace and Abhinaya), the Jaipur Gharana (known for powerful Tandava and technical footwork), and the Banaras Gharana.

Additional Information

• Bharatnatyam: Originating from the state of Tamil Nadu, it is considered the oldest classical dance of India. It was traditionally known as Sadir and was performed by Devadasis in South Indian temples. Key features include the Alarippu, Jatiswaram, and Tillana. Hence, Bharatnatyam is from Tamil Nadu and not Uttar Pradesh.

• Odissi: This dance form belongs to the state of Odisha. It is known for the Tribhanga posture, where the body is bent at the neck, torso, and knees. It traces its roots to the Maharis (female temple servants) and was famously mentioned in the Natya Shastra. Hence, Odissi is from Odisha and not Uttar Pradesh.

• Manipuri: Hailing from the North-Eastern state of Manipur, this dance is deeply religious and revolves around the Raslila. It is distinctive for its Pung Cholom (drum dance) and the cylindrical costume (Kumil) worn by dancers. Hence, Manipuri is from Manipur and not Uttar Pradesh.

• Mohiniyattam: A feminine classical dance from Kerala, it is performed solo by women. The name literally means 'Dance of the Enchantress', referring to the Vishnu avatar Mohini. It is known for its graceful, swaying movements.

• Kuchipudi: This dance-drama originated in the village of Kuchipudi in Andhra Pradesh. It often involves a unique feature where the dancer performs while standing on the rim of a brass plate.

Important Points

• The Sangeet Natak Akademi, India's national academy for music, dance, and drama, currently recognizes 8 classical dances of India. However, the Ministry of Culture also includes Chhau in the list, making it 9 classical dances.

• All Indian classical dances are rooted in the Natya Shastra, an ancient encyclopedic treatise on the performing arts written by Bharata Muni between 200 BCE and 200 CE.

• The legendary Pandit Birju Maharaj was the most prominent exponent of the Lucknow Kalka-Bindadin Gharana of Kathak and

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was awarded the Padma Vibhushan in 1986.

• In 2000, the Sattriya dance of Assam was the latest to be officially recognized as a classical dance form by the Sangeet Natak Akademi, having been introduced by the Vaishnava saint Mahapurush Sankaradeva in the 15th Century.

Q4. Answer: (c) 4% loss

Shortcut Trick

Loss 20% => SP = 80% of CP => CP1 = 10000 / 0.8 = 12500

Profit 20% => SP = 120% of CP => CP2 = 10000 / 1.2 = 8333.33

Total CP = 12500 + 8333.33 = 20833.33

Total SP = 20000

Loss = 833.33

Loss % = (833.33 / 20833.33) × 100 = 4%

Therefore Answer = 4% Loss

Alternate Method

Given:

SP of each item = Rs. 10000

Loss on one = 20%, Profit on other = 20%

Formula used:

SP = CP × (1 ± percentage/100)

Calculation:

=> For loss item:

SP = 0.8 × CP => CP = 10000 / 0.8 = 12500

=> For profit item:

SP = 1.2 × CP => CP = 10000 / 1.2 = 8333.33

=> Total CP = 12500 + 8333.33 = 20833.33

=> Total SP = 20000

=> Loss = 20833.33 − 20000 = 833.33

=> Loss % = (833.33 / 20833.33) × 100 = 4%

Therefore The correct answer is 4% loss.

Additional Information

Key Insight

Equal % gain and loss on same SP => always overall loss

Shortcut Formula

Net loss % = (x^2 / 100) when same SP => here = 20^2/100 = 4%

Q5. Answer: (c) 365

Shortcut Trick

Total = (85×407 + 23×365 + 42×280)

= 34595 + 8395 + 11760 = 54750

Total members = 85 + 23 + 42 = 150

Average = 54750 ÷ 150 = 365

Therefore Answer = 365

Alternate Method

Given:

Group A: 85 members, avg = 407

Group B: 23 members, avg = 365

Group C: 42 members, avg = 280

Formula used:

Overall average = (Σ (number × average)) ÷ total members

Calculation:

=> Total A = 85 × 407 = 34595

=> Total B = 23 × 365 = 8395

=> Total C = 42 × 280 = 11760
=> Total amount = 34595 + 8395 + 11760 = 54750
=> Total members = 150
=> Average = 54750 ÷ 150 = 365
Therefore The correct answer is 365.
Additional Information
Weighted Average
Used when group sizes differ
Formula
Average = (Σ wx) ÷ Σ w
Shortcut Tip
Multiply first, then divide

Q6. Answer: (b) 52

Shortcut Trick
Let burgers = x, drinks = y
x + y = 87
15x + 5y = 785
Divide second eqn by 5:
3x + y = 157
Subtract:
(3x + y) − (x + y) = 157 − 87
2x = 70 => x = 35
y = 87 − 35 = 52
Therefore Answer = 52 soft drinks
Alternate Method
Given:
Total items = 87, total money = Rs. 785
Let:
Burgers = x, Drinks = y
Equations:
x + y = 87 ...(1)
15x + 5y = 785 ...(2)
Calculation:
=> Divide (2) by 5:
3x + y = 157 ...(3)
=> Subtract (1) from (3):
2x = 70 => x = 35
=> Substitute in (1):
y = 87 − 35 = 52
Therefore Number of soft drinks = 52.
Additional Information
Linear Equations
Used when two variables and two conditions are given
Elimination Method
Subtract equations to remove one variable quickly
Tip
Simplify coefficients first (divide by 5 here)

Q7. Answer: (c) 777

Shortcut Trick
√3025 = 55

=> 26 × 5 × 715 ÷ 55
715 ÷ 55 = 13
=> 26 × 5 × 13 = 1690
1690 = y + 913
=> y = 1690 − 913 = 777
Therefore Answer = 777
Alternate Method
Given:
26 × 5 × 715 ÷ √3025 = y + 913
Calculation:
=> √3025 = 55
=> Substitute:
26 × 5 × 715 ÷ 55 = y + 913
=> Simplify:
715 ÷ 55 = 13
=> 26 × 5 × 13 = 1690
=> 1690 = y + 913
=> y = 1690 − 913 = 777
Therefore The correct answer is 777.
Additional Information
Square Root Tip
3025 = 55^2
Simplification Trick
Divide early to reduce calculations
Order of Operations
Follow multiplication and division left to right

Q8. Answer: (c) G

The logic followed here is:
Given: F, G, H, I, U, V, and W are sitting around a circular table facing the centre
U sits second to the right of H
Only one person sits between U and W
Only one person sits between H and F
Only two people sit between V and W
Only one person sits between G and F
So, fourth to the right of I is G.
Hence, the correct answer is Option 3.

Q9. Answer: (c) 48 cm^2

Shortcut Trick
Height splits base => 12/2 = 6
Use Pythagoras:
h = √(10^2 − 6^2) = √(100 − 36) = √64 = 8
Area = (1/2) × base × height
= (1/2) × 12 × 8 = 48
Therefore Answer = 48 cm^2
Alternate Method
Given:
AB = AC = 10 cm, BC = 12 cm
Concept used:
In an isosceles triangle, altitude bisects the base
Calculation:

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=> Half base = 12/2 = 6

=> Using Pythagoras:

$h^2 = 10^2 - 6^2$

$h^2 = 100 - 36 = 64$

h = 8 cm

=> Area = (1/2) × base × height

=> = (1/2) × 12 × 8 = 48 cm^2

Therefore The correct answer is 48 cm^2.

Additional Information

Isosceles Property

Altitude divides base into two equal parts

Pythagoras Theorem

h^2 = hypotenuse^2 − base^2

Area Formula

Area = (1/2) × base × height

Q10. Answer: (d) It is redistributed

The correct answer is It is redistributed.

Key Points

• In the phenomena of interference and diffraction, light energy is redistributed. This means that energy is simply moved from one place to another rather than being consumed or generated.

• According to the Law of Conservation of Energy, energy cannot be created or destroyed. In an interference pattern, the energy that disappears from the dark regions (destructive interference) reappears in the bright regions (constructive interference).

• In interference, the total energy in the superposition region is the sum of the energies of the individual waves. If we integrate the intensity over the entire fringe pattern, the average intensity remains the same as if the waves were not interfering. Hence, option D is correct.

• Light energy does not reduce or decrease in these processes. If it did, it would violate the principle of energy conservation. Hence, statements A and C are incorrect.

• Light energy does not increase because there is no external energy source adding to the system during the superposition of waves. Hence, statement B is incorrect.

Additional Information

• Interference of Light: This occurs when two coherent sources of light (sources with a constant phase difference) overlap. A famous example is Young's Double Slit Experiment conducted in 1801.

• Constructive Interference: When waves meet in phase (crest to crest), the resultant amplitude is the sum of individual amplitudes, leading to maxima or bright fringes.

• Destructive Interference: When waves meet out of phase (crest to trough), the resultant amplitude is the difference between individual amplitudes, leading to minima or dark fringes.

• Diffraction of Light: This is the bending of light around the corners of an obstacle or an aperture. It is most prominent when the size of the obstacle is comparable to the wavelength of light.

• The diffraction pattern consists of a central bright fringe (central maximum) surrounded by alternating dark and bright fringes of decreasing intensity.

• Unlike interference, where all bright fringes are of equal intensity (in ideal conditions), in diffraction, the energy is spread such that the central maximum carries the most energy.

• Intensity and Amplitude: The intensity (I) of light is directly proportional to the square of the amplitude (A). Mathematically, I prop. to A^2. During redistribution, the variations in amplitude across space create the visible pattern.

Important Points

• Mathematical Proof of Energy Conservation: For two waves with intensities I1 and I2, the resulting intensity at any point is $I = I1 + I2 + 2\sqrt{(I1I2)}\cos\varphi$. When averaged over a full cycle of the phase difference φ, the interference term $(2\sqrt{(I1I2)}\cos\varphi)$ becomes zero, making the average intensity I1 + I2.

• Coherence: For a stable redistribution of energy (a steady interference pattern), the light sources must be coherent. Non-coherent sources (like two independent light bulbs) do not show visible redistribution because the phase difference changes too rapidly for the human eye to detect.

• Applications: The redistribution of light energy is utilized in anti-reflective coatings on camera lenses, holography, spectrometers, and interferometers (like the Michelson Interferometer) used to measure small distances or the speed of light.

• Wave Nature: Both interference and diffraction serve as definitive evidence for the wave theory of light, as proposed by Thomas

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Young and Augustin-Jean Fresnel in the early 19th century.

Q11. Answer: (a) Neither conclusion (I) nor (II) follows

Given Statements:

All grapes are lemons.

No grape is a melon.

No melon is a strawberry.

The least possible Venn diagram for the given statements is:

Conclusions:

I. No lemon is a melon – False

(Because only grapes are restricted from melons; since lemons are a larger category, they can still overlap with melons in the area outside of the grape circle.)

II. No grape is a strawberry – False

(While grapes cannot be melons and melons cannot be strawberries, there is no direct restriction between grapes and strawberries; they could still overlap or be separate.)

So, neither conclusion I nor II follows.

Hence, the correct answer is Option (1).

Q12. Answer: (a) Both statements I and II together (and not statement 1 alone or statement II alone) are sufficient to answe...

Given Statements:

I. V is shorter than N but taller than T. M is taller than T.

II. L is taller than only one tree.

Analysis:

Statement I alone → Not sufficient

N > V > T and M > T

We can not determine the shortest tree.

Statement II alone → Not sufficient

_> _ > _ > L > _

Now, combining I and II:

Possible combination:

(1). N > V > M > L > T

(2). M > N > V > L > T

After combining both statements, we can conclude that 'T' is the shortest tree.

Hence, the correct answer is Option (1).

Q13. Answer: (a) Two

Given: E, F, G, W, X and Y live on six different floors of the same building.

The lowermost floor in the building is numbered 1, the floor above it is numbered 2 and so on till the topmost floor is numbered 6.

F lives immediately above G

Only two people live between E and G

E lives on an odd-numbered floor

Y lives immediately below W

Floor	Person
6	X
5	F
4	G
3	W
2	Y
1	E

Now, people between X and W: 2 people

Hence, the correct answer is Option 1.

Q14. Answer: (b) 3

Given:

'KITE' is coded as '5871'

'TIME' is coded as '7853'

So, M = 3

Hence, the correct answer is Option 2.

Q15. Answer: (c) 14

The logic followed here is:

Given numbers: 235, 879, 584, 635, 159

Logic: Find the highest and lowest numbers, then perform the required operation.

Arranging in descending order: 879, 635, 584, 235, 159

Highest number = 879

→ Third digit = 9

Lowest number = 159

→ Second digit = 5

Result = 9 + 5 = 14

Hence, the correct answer is Option 3.

Q16. Answer: (a) Expand social insurance to informal sector

The correct answer is Expand social insurance to informal sector.

Key Points

• Expanding social insurance to the informal sector serves as a dual-purpose mechanism that provides a safety net while incentivizing the transition to the formal economy. By offering benefits like pension and health insurance, the government encourages informal workers to register, thereby initiating employment formalization. Hence, Statement A is correct.

• Universal Basic Income (UBI) provides a flat cash transfer to all citizens regardless of employment status. While it is highly effective for poverty alleviation, it does not inherently provide a mechanism for formalization or link workers to the labor market structures. Hence, Statement B is incorrect.

• Deregulating labor laws is often intended to make hiring easier and reduce the cost of compliance for employers. However, in a country with already low social protection coverage, this often leads to further precarity and reduced job security, failing the social protection goal. Hence, Statement C is incorrect.

• Targeted food subsidies, such as those under the National Food Security Act (NFSA) 2013 in India, are vital for nutrition and poverty relief but have no direct impact on employment formalization or bringing workers into the tax or social insurance net. Hence, Statement D is incorrect.

• The formalization process is crucial because the informal sector accounts for nearly 90% of the workforce in developing nations like India, where workers lack legal contracts and maternity benefits.

Additional Information

• Pradhan Mantri Shram Yogi Maan-Dhan (PM-SYM): Launched in March 2019, this is a voluntary and contributory pension scheme specifically for unorganized workers. It targets individuals with a monthly income of Rs. 15,000 or less in the age group of 18 to 40 years. It ensures a minimum assured pension of Rs. 3,000 per month after the age of 60 years.

• The e-Shram Portal: Developed by the Ministry of Labour & Employment in August 2021, this is the first-ever national database of unorganized workers including migrant workers, construction workers, and gig workers. It facilitates the delivery of social security schemes and tracks employment trends.

• ILO Recommendation No. 204: This is a landmark international standard adopted by the International Labour Organization (ILO) in 2015. It provides a guideline for member states to facilitate the transition from the informal to the formal economy while ensuring decent work and worker rights.

• Social Security Code, 2020: In India, this act aims to universalize social security for both organized and unorganized sectors. It seeks to consolidate nine previous labor laws and introduces provisions for gig workers and platform workers for the first time in Indian legal history.

Important Points

• The Missing Middle: This term refers to a large segment of the population that is neither poor enough to qualify for subsidized social assistance (like BPL cards) nor wealthy enough to afford private insurance or be covered by employer-based schemes.

• Economic Impact: Formalization increases the tax base of a country, allowing for higher public investment in infrastructure and education. Informal employment often leads to low productivity and lack of access to credit from formal financial institutions.

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• Gender Perspective: A high percentage of women are engaged in the informal sector, particularly in domestic work and agriculture. Expanding social insurance provides them with maternity benefits and old-age security, which are often absent in informal arrangements.

• Administrative Challenges: One of the main features of expanding insurance is the need for digital literacy and biometric identification (like Aadhaar in India) to prevent leakages and ensure direct benefit transfer (DBT).

Q17. Answer: (c) 36.5%

Shortcut Trick

Let Marked Price (MP) = 130

SP1 = (4/13) × 130 = 40

Loss 30% => SP1 = 70% of CP

=> CP = 40 / 0.7 = 400/7

SP2 = 60% of MP = 0.6 × 130 = 78

Profit = 78 − (400/7) = 146/7

Profit % = [(146/7) ÷ (400/7)] × 100

= (146 / 400) × 100 = 36.5%

Therefore Answer = 36.5%

Alternate Method

Given:

Selling at (4/13) of MP gives 30% loss

Selling at 60% of MP → find profit %

Formula used:

SP = CP × (1 − loss/100), Profit % = (Profit/CP) × 100

Calculation:

=> Let MP = 130

=> First SP = (4/13) × 130 = 40

=> 40 = 70% of CP => 40 = 0.7CP

=> CP = 400/7

=> Second SP = 60% of 130 = 78

=> Profit = 78 − 400/7 = 146/7

=> Profit % = (146/7 ÷ 400/7) × 100

=> = (146/400) × 100 = 36.5%

Therefore The correct answer is 36.5%.

Additional Information

LCM Trick

Take MP as multiple of denominator (13)

Loss Relation

SP = 70% of CP for 30% loss

Key Insight

Find CP first, then compute new profit

Q18. Answer: (a) Moving the mouse

The correct answer is Moving the mouse.

Key Points

• Sleep Mode in Windows is a power-saving state that allows a computer to quickly resume full-power operation (typically within 2 to 5 seconds) when a user wants to start working again. In this state, the current session and open applications are kept in the Random Access Memory (RAM) while other components like the hard drive and monitor are powered down.

• Moving the mouse or clicking a mouse button is one of the most common interrupt triggers that sends a signal to the CPU to exit the low-power state. This action tells the Operating System to restore power to the peripheral devices and the display. Hence, option A is correct.

• Network time sync is a background synchronization process using the Network Time Protocol (NTP). While it ensures the system clock is accurate, it is a passive process that occurs while the system is already awake or in a Modern Standby mode; it does not typically "wake" a traditional sleeping PC for the user. Hence, option B is incorrect.

• A BIOS update (Basic Input/Output System) is a critical low-level firmware procedure that requires the computer to be fully active

or in the middle of a reboot cycle. A computer cannot perform a firmware update while it is in Sleep mode, as the processor is not executing standard instruction sets during that time. Hence, option C is incorrect.

• If a battery is fully drained while a laptop is in sleep mode, the system does not become "active." Instead, Windows typically triggers a critical battery alarm and automatically moves the data from RAM to the Hard Drive/SSD (entering Hibernation) or simply shuts down to prevent hardware damage. Hence, option D is incorrect.

Additional Information

• Advanced Configuration and Power Interface (ACPI): This is an open industry standard that Windows uses for power management. The "Sleep" state is technically known as the S3 state. In this state, the PSU (Power Supply Unit) stops providing power to most components except for the RAM, which must remain powered to retain the system's current data.

• Sleep vs. Hibernation: While Sleep (S3) keeps data in the volatile RAM for a near-instant wake, Hibernation (S4) saves the data to the non-volatile Hard Disk. Hibernation uses zero power and is common in laptops to save battery life over long periods of inactivity, whereas Sleep is preferred for short breaks.

• Wake-on-LAN (WOL): This is a networking feature that allows a computer to be turned on or awakened by a network message (called a Magic Packet). This is widely used by IT administrators in large organizations to perform maintenance on computers remotely during night hours.

• Device Manager Settings: Users can customize which devices wake the computer. Under Device Manager, by selecting the Properties of a Keyboard or HID-compliant mouse, one can check or uncheck the option "Allow this device to wake the computer". This is useful for preventing accidental wakes by pets or vibrations.

• Hybrid Sleep: This feature, primarily designed for desktop computers, combines Sleep and Hibernation. It puts open documents and programs in RAM and on the hard disk. If a power failure occurs, Windows can restore your work from the hard disk; if power remains, the system wakes instantly from RAM.

Important Points

• Modern Standby (S0 Low Power Idle): Introduced with Windows 10, this allows the PC to stay connected to the Internet while in a low-power state, similar to a smartphone. This enables functions like Cortana or Email syncing to happen in the background, though moving the mouse remains the standard user-initiated wake action.

• Power Consumption: Sleep mode typically consumes about 1 to 5 watts of power, whereas a fully active PC can consume anywhere from 60 to 500 watts depending on the hardware and load.

Q19. Answer: (c) MN-QR

The logic followed here is based on the alphabetical position pattern:

Option 1: PQ → ST

Option 2: FG → IJ

Option 3: MN → QR

Option 4: CD → FG

Thus, MN–QR does not follow the pattern.

Hence, the odd one out is Option 3.

Q20. Answer: (b) A framework for environmental accountability

The correct answer is A framework for environmental accountability.

Key Points

• The Environment Audit Rules, 2025, are designed to streamline the process of monitoring industrial impact on the ecosystem by establishing a formal framework for environmental accountability. This initiative ensures that both public and private sector entities are held responsible for their carbon footprint and resource consumption.

• These rules were formulated under the Ministry of Environment, Forest and Climate Change (MoEFCC) to update the existing Environmental Audit mechanisms that have been in place since the 1990s. The 2025 version introduces more stringent reporting standards and mandatory third-party verifications.

• The primary function of these rules is to mandate that industries provide an annual Environmental Statement for each financial year ending on the 31st of March. This document must detail water consumption, raw material usage, and pollutant discharge levels.

• The application of these rules extends to all "red" and "orange" category industries as classified by the Central Pollution Control Board (CPCB), aiming to integrate sustainable development goals into the core business operations of Indian enterprises.

Additional Information

• Environment Protection Act, 1986:

• The Environment Audit Rules derive their legal authority from Section 6 and Section 25 of the Environment Protection Act, 1986. This Act serves as the umbrella legislation for environmental regulation and protection in India.

• Business Responsibility and Sustainability Reporting (BRSR):

• The 2025 framework is closely aligned with the BRSR norms introduced by the Securities and Exchange Board of India (SEBI).

While BRSR focuses on top 1000 listed companies, the Environment Audit Rules target a broader range of manufacturing and processing units based on their pollution potential.

• Role of the National Green Tribunal (NGT):

• The NGT, established in 2010, plays a crucial role in adjudicating disputes arising from audit failures. Non-compliance with the 2025 Rules can lead to heavy penalties or the closure of industrial units as per NGT directives.

• Comparison with Global Standards:

• The Indian framework incorporates elements from the ISO 14001 (Environmental Management Systems) but remains statutory rather than voluntary. It emphasizes data-driven governance to meet international commitments such as the Paris Agreement and COP26 goals.

Important Points

• Audit Components: The audit process includes energy audits, waste management audits, and occupational health and safety assessments. Entities must report numerical values for effluent treatment plant (ETP) efficiency and air emission levels.

• Certification: The rules specify that audits must be performed by Environmental Auditors registered with the Quality Council of India (QCI) or the National Accreditation Board for Education and Training (NABET).

• Digital Integration: A significant feature of the 2025 rules is the transition to a paperless reporting system. All Environmental Statements must be uploaded to the Parivesh Portal, a Single-Window Integrated Environmental Management System.

• Year of Implementation: While the rules are titled for 2025, the transition period for existing industries usually spans 6 to 12 months, making 2026 the first full compliance year for data submission.

Q21. Answer: (a) Ganga

The correct answer is Ganga.

Key Points

• Ganga: It is a Himalayan river that originates from the Gangotri Glacier near Gaumukh in the Uttarkashi district of Uttarakhand. It is not part of the peninsular river system. Hence, this option is the correct answer.

• Narmada: It is a major peninsular river that flows westwards through a rift valley between the Vindhya and Satpura ranges. Hence, this statement is incorrect as it is a peninsular river.

• Krishna: It is the second-largest east-flowing peninsular river, originating near Mahabaleshwar in Maharashtra. Hence, this statement is incorrect as it is a peninsular river.

• Godavari: It is the largest peninsular river system in India, often referred to as the Dakshin Ganga. Hence, this statement is incorrect as it is a peninsular river.

• The Ganga river basin is the largest in India, covering about 8.6 lakh sq. km and flowing through India and Bangladesh for a total length of 2,525 km.

Additional Information

• The Ganga River System:

• The river is formed by the confluence of the Alaknanda and Bhagirathi at Devprayag.

• It enters the plains at Haridwar and receives several tributaries like the Yamuna, Ghaghara, Gandak, and Kosi.

• The Yamuna, its largest tributary, originates from the Yamunotri Glacier and meets the Ganga at Prayagraj (Allahabad).

• The river eventually empties into the Bay of Bengal, forming the Sundarbans Delta, the largest delta in the world, along with the Brahmaputra.

• The Peninsular River System:

• These rivers are much older than the Himalayan rivers and are mostly non-perennial or seasonal, as their flow is dependent on rainfall.

• The main water divide in Peninsular India is formed by the Western Ghats, which run from north to south close to the western coast.

• Major east-flowing rivers include the Mahanadi, Godavari, Krishna, and Cauvery, which drain into the Bay of Bengal and form deltas.

• Major west-flowing rivers are the Narmada and Tapi, which flow through rift valleys and form estuaries instead of deltas.

Important Points

• Comparison of River Types:

• Himalayan Rivers: These include the Indus, Ganga, and Brahmaputra. They are perennial (flow year-round) because they receive water from glaciers and monsoon rainfall. They have long courses and perform intensive erosional activity.

• Peninsular Rivers: These are seasonal and have shorter and shallower courses compared to their Himalayan counterparts. Their flow is significantly reduced during the dry season.

• Specific Statistics:

• The Godavari has a length of 1,465 km and its basin covers parts of Maharashtra, Madhya Pradesh, Chhattisgarh, Odisha, and

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Andhra Pradesh.

• The Narmada travels a distance of about 1,312 km before reaching the Gulf of Khambhat.

• The Krishna river flows for 1,400 km and is vital for irrigation in South India.

Q22. Answer: (c) 48

Shortcut Trick

Mean Proportional (MP) of a and b = $\sqrt{(a \times b)}$

MP = $\sqrt{(18 \times 128)}$

MP = $\sqrt{(2 \times 9 \times 2 \times 64)} = \sqrt{(4 \times 9 \times 64)}$

MP = $2 \times 3 \times 8 = 48$

Therefore The correct answer is 48.

Alternate Method

Given: First number (a) = 18, Second number (b) = 128

Formula: Let the mean proportional be x. Then a : x :: x : b

18 : x :: x : 128 Product of Extremes = Product of Means $x^2 = 18 \times 128$

=> x / 18 = 128 / x

=> $x^2 = 18 \times 128$

=> $x^2 = 2304$

=> $x = \sqrt{2304}$

=> x = 48

Therefore The correct answer is 48.

Additional Information

Third Proportional

For two numbers a and b, the third proportional c is defined by the relation a : b = b : c, which gives $c = b^2 \div a$.

Fourth Proportional

For three numbers a, b, and c, the fourth proportional d is defined by a : b = c : d, which gives $d = (b \times c) \div a$.

Continued Proportion

Three quantities a, b, c are said to be in continued proportion if a : b = b : c, where b is the mean proportional.

Q23. Answer: (d) 222

Shortcut Trick

LCM(A, B, C) = 1080 = $2^3 \times 3^3 \times 5$.

Since HCF(A, B) = 12, HCF(B, C) = 18, and HCF(A, C) = 6, the prime factors must be distributed such that x, y, and z are pairwise coprime.

Testing x = 2, y = 3, z = 5 (all pairwise coprime):

A = 12 × 2 = 24, B = 36 × 3 = 108, C = 18 × 5 = 90.

Check: LCM(24, 108, 90) = 1080 and HCFs are correct. Sum = 24 + 108 + 90 = 222.

Therefore The correct answer is 222.

Alternate Method

Given:

A = 12x, B = 36y, C = 18z

HCF(A, B) = 12, HCF(B, C) = 18, HCF(A, C) = 6

LCM(A, B, C) = 1080 = $2^3 \times 3^3 \times 5$

Formula used: LCM of numbers is the product of the highest powers of all prime factors involved.

A = 12 × x B = 36 × y C = 18 × z LCM Factor 2^3 LCM Factor 3^3 LCM Factor 5 Min Sum A+B+C = 222

Prime factorization of constants:

A = $2^2 \times 3^1 \times x$

B = $2^2 \times 3^2 \times y$

C = $2^1 \times 3^2 \times z$

To satisfy LCM = $2^3 \times 3^3 \times 5^1$:

=> max(2, 2, 1, v2(x), v2(y), v2(z)) = 3

=> max(1, 2, 2, v3(x), v3(y), v3(z)) = 3

=> max(v5(x), v5(y), v5(z)) = 1

Using the pairwise coprime condition and HCF constraints:

=> For v2 = 3, we can set x = 2 (since A already has 2^2, 12 × 2 = 24 has 2^3).

=> For v3 = 3, we can set y = 3 (since B already has 3^2, 36 × 3 = 108 has 3^3).

=> For v5 = 1, we can set z = 5 (since C is 18 × 5 = 90).

=> (x, y, z) = (2, 3, 5) are pairwise coprime.

=> A = 12 × 2 = 24

=> B = 36 × 3 = 108

=> C = 18 × 5 = 90

=> A + B + C = 24 + 108 + 90 = 222.

Therefore The correct answer is 222.

Additional Information

LCM and HCF Relationship

For any three numbers A, B, and C, LCM(A, B, C) × HCF(A, B) × HCF(B, C) × HCF(A, C) is not necessarily equal to A × B × C × HCF(A, B, C), unlike the case for two numbers.

Pairwise Coprime Integers

A set of integers is pairwise coprime if the HCF of every possible pair in the set is 1. If HCF(x, y) = 1, HCF(y, z) = 1, and HCF(x, z) = 1, then LCM(x, y, z) = x × y × z.

Prime Power in LCM

The exponent of a prime p in the LCM of a set of numbers is the maximum of the exponents of p in the prime factorizations of those numbers.

Q24. Answer: (a) HFG 10

The logic followed here is:

So, 'HFG 10' will replace the question mark in the given series.

Hence, the correct answer is "Option 1"

Q25. Answer: (a) Chittaranjan Das

The correct answer is Chittaranjan Das.

Key Points

• The Congress-Khilafat Swarajya Party, commonly known as the Swaraj Party, was formed on January 1, 1923.

• The party was established following the Gaya Session of the Indian National Congress held in December 1922, where a conflict arose between the "Pro-Changers" and the "No-Changers."

• Chittaranjan Das, also known as Deshbandhu, served as the President of the newly formed party, while Motilal Nehru took the role of one of its Secretaries.

• The primary objective of the party was to contest elections for the Legislative Councils established under the Government of India Act 1919 and to "wreck the reforms from within" by obstructing official business.

• This move was a response to the suspension of the Non-Cooperation Movement by Mahatma Gandhi in February 1922 following the Chauri Chaura incident.

Additional Information

• Chittaranjan Das (1870–1925):

• He was a distinguished lawyer from Bengal who famously defended Aurobindo Ghosh in the Alipore Bomb Case of 1908.

• He was known for his selfless service and was given the title Deshbandhu (Friend of the Nation).

• He was elected as the President of the Ahmedabad Session of Congress in 1921, though he was in jail at the time.

• Motilal Nehru (1861–1931):

• A prominent lawyer and politician from Allahabad, he served as the President of the Indian National Congress twice, in 1919 (Amritsar) and 1928 (Calcutta).

• He was the father of Jawaharlal Nehru and the author of the Nehru Report (1928), which was the first major attempt by Indians to draft a constitution.

• Hakim Ajmal Khan:

• He was another prominent co-founder of the Swaraj Party and a key figure in the Khilafat Movement.

• He served as the President of the Congress in 1921 as a substitute for C.R. Das.

• Belgaum Session (1924):

• To avoid a split in the Congress similar to the Surat Split of 1907, Mahatma Gandhi reached a compromise with the Swarajists.

• The Swaraj Party was allowed to work within the Congress as its integral part, focusing on council entry.

Important Points

• Pro-Changers vs. No-Changers:

• Pro-Changers: Leaders like C.R. Das, Motilal Nehru, and Vithalbhai Patel who advocated for ending the boycott of legislative councils.

• No-Changers: Leaders like C. Rajagopalachari, Vallabhbhai Patel, and Rajendra Prasad who wanted to stick to Gandhian methods of constructive work outside the government.

• Performance in 1923 Elections:

• The Swaraj Party performed remarkably well in the November 1923 elections, winning 42 out of 101 elected seats in the Central Legislative Assembly.

• In 1925, Vithalbhai Patel became the first Indian Speaker (President) of the Central Legislative Assembly, marking a significant victory for the party.

• Decline of the Party:

• The party suffered a major setback following the sudden death of Chittaranjan Das in June 1925.

• Internal divisions between the "Responsivists" and "Non-responsivists" further weakened the party's influence by the late 1920s.

Q26. Answer: (d) 1/6

Shortcut Trick

Equation: $6x^2 + x - 2 = 0$

Factorize: $(3x + 2)(2x - 1) = 0$

Roots: $x = -2/3, 1/2$

$b > a \Rightarrow a = -2/3, b = 1/2$

$2a + 3b = 2(-2/3) + 3(1/2)$

$= -4/3 + 3/2 = (-8 + 9)/6 = 1/6$

Therefore Answer = 1/6

Alternate Method

Given:

$6x^2 + x - 2 = 0$

Formula used:

Quadratic formula: $x = [-b \pm \sqrt{(b^2 - 4ac)}] / 2a$

Calculation:

$\Rightarrow a = 6, b = 1, c = -2$

$\Rightarrow$ Discriminant $= 1 + 48 = 49$

$\Rightarrow$ Roots $= [-1 \pm 7] / 12$

$\Rightarrow x = (6/12) = 1/2, x = (-8/12) = -2/3$

$\Rightarrow a = -2/3, b = 1/2$

$\Rightarrow 2a + 3b = 2(-2/3) + 3(1/2)$

$\Rightarrow = -4/3 + 3/2 = 1/6$

Therefore The correct answer is 1/6.

Additional Information

Root Identification

Assign smaller root to a and larger to b

Factorization Tip

Split middle term for quick solving

Accuracy

Convert to common denominator carefully

Q27. Answer: (c) decreases by 8.2%

Shortcut Trick

CSA = πrl

r ↑ 8% => ×1.08

l ↓ 15% => ×0.85

New CSA factor = 1.08 × 0.85 = 0.918

Change = (0.918 − 1) × 100 = −8.2%
Therefore Answer = 8.2% decrease
Alternate Method
Given:
Radius increases by 8%, slant height decreases by 15%
Formula used:
Curved Surface Area (CSA) = πrl
Calculation:
=> Let original CSA = πrl
=> New radius = 1.08r
=> New slant height = 0.85l
=> New CSA = π × (1.08r) × (0.85l)
=> = 0.918 × πrl
=> Percentage change = (0.918 − 1) × 100
=> = −8.2%
Therefore The correct answer is 8.2% decrease.
Additional Information
Product Rule
If two quantities change, multiply their factors
Quick Method
(1 + a)(1 − b) − 1
Tip
Convert % to decimals before multiplying

Q28. Answer: (d) 64%

Shortcut Trick
Let CP per article = 100
Total CP for 123 articles = 12300
Profit = 28% => Total SP = 12300 × 1.28 = 15744
Customer pays for 120 articles after 20% discount
=> SP per article = 15744 ÷ 120 = 131.2
Marked Price (MP) per article = 131.2 ÷ 0.8 = 164
Increase over CP = 164 − 100 = 64%
Therefore Answer = 64%
Alternate Method
Given:
20% discount, 3 free on 120, profit = 28%
Assume:
CP per article = 100
Calculation:
=> Total articles given = 120 + 3 = 123
=> Total CP = 123 × 100 = 12300
=> Profit = 28%
=> Total SP = 12300 × 1.28 = 15744
=> Customer pays for 120 articles
=> Effective SP per article = 15744 ÷ 120 = 131.2
=> After 20% discount:
SP = 0.8 × MP
=> MP = 131.2 ÷ 0.8 = 164
=> CP = 100
=> Increase = (164 − 100)% = 64%
Therefore The marked price exceeds cost price by 64%.

Additional Information

Free Item Trick

Include free items in cost, not in selling count

Discount Relation

SP = MP × (1 − discount)

Strategy

Assume CP = 100 for easy calculation

Q29. Answer: (d) Daughter's son

Family Chart:

Given: C is the son of F, F is the sister of E, E is the son of G, G is the husband of H.

Thus, C is daughter’s son of H.

Hence, the correct answer is Option 4.

Q30. Answer: (c) Rise of smaller kingdoms under hereditary rulers

The correct answer is Rise of smaller kingdoms under hereditary rulers.

Key Points

• The decline of the Gupta Empire around 550 CE marked a transition from a centralized imperial structure to a decentralized political landscape in India. This era witnessed the emergence of numerous regional powers that asserted their independence.

• Replacement of kingship with religious councils: While religious institutions like monasteries and temples gained land and influence, the basic unit of political power remained the monarchy, and religious councils did not replace kings as supreme administrative heads. Hence, statement A is incorrect.

• Formation of a central bureaucracy under one emperor: The post-Gupta period was actually characterized by the breakdown of central authority rather than the creation of a new, unified bureaucracy. Power became fragmented among local lords. Hence, statement B is incorrect.

• Rise of smaller kingdoms under hereditary rulers: After the Guptas, various dynasties such as the Pushyabhutis (Vardhanas), Maitrakas, Maukharis, and later the Rajputs established local sovereignty where administrative and military power was held by hereditary elites. Hence, statement C is correct.

• Introduction of democratic village assemblies across India: While certain regions like the far south (under the Cholas later on) had robust village assemblies like the Ur and Sabha, this was not the defining "administrative change" for the whole of post-Gupta India's political structure. Hence, statement D is incorrect.

Additional Information

• Feudalization of Administration: The most significant feature of this period was the rise of the Samanta system. Kings granted land to officers and Brahmins in lieu of cash salaries. These grantees, known as Samantas, eventually became powerful enough to challenge the central authority and establish their own hereditary lineages.

• Harshavardhana of Kannauj: Ruling from 606 to 647 CE, Harsha was the last major ruler who attempted to unify Northern India. However, his empire was more of a loose confederation of feudatories rather than a tightly knit centralized state like the Mauryas. His capital was shifted from Thanesar to Kannauj, which became the political center of gravity.

• Regional Dynasties: The period saw the rise of the Chalukyas of Vatapi in the Deccan and the Pallavas of Kanchi in the South. These kingdoms engaged in constant warfare over fertile river valleys like the Krishna-Godaveri delta, reflecting the competitive nature of regional hereditary politics.

• Land Grants and Economy: The practice of Agrahara (land grants to Brahmins) and Brahmadeya became widespread. This led to a ruralization of the economy as trade declined following the fall of the Roman Empire and the Huna invasions, forcing the political structure to rely heavily on land revenue and local agrarian control.

Important Points

• Tripartite Struggle: Following the death of Harsha, the city of Kannauj became the symbol of sovereignty. This led to the Tripartite Struggle between the Palas of Bengal, the Gurjara-Pratiharas of the West, and the Rashtrakutas of the Deccan during the 8th to 10th centuries.

• Bureaucratic Shifts: Administrative posts like the Mahasandhivigrahika (Minister of War and Peace) and Kumaramatyas became increasingly hereditary, further weakening the king's ability to reshuffle his administration and strengthening the local nobility.

• Huna Invasions: The frequent Huna incursions in the 5th and 6th centuries disrupted the Gupta trade routes and treasury, providing the catalyst for provincial governors to declare themselves independent Maharajas.

Q31. Answer: (d) 2

The correct answer is 2.

Key Points

• Atomicity is defined as the total number of atoms present in one molecule of an element, compound, or substance.

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• Oxygen naturally exists as a diatomic molecule, represented by the chemical formula O2. This means that two atoms of oxygen are chemically bonded together to form one stable molecule. Hence, the statement regarding atomicity being 2 is correct.

• The atomicity of 4 is typically seen in elements like Phosphorus (P4), which is a tetratomic molecule. Hence, the option suggesting 4 is incorrect.

• The atomicity of 3 represents a triatomic molecule, such as Ozone (O3), which is an allotrope of oxygen but is not the standard oxygen molecule used in respiration. Hence, the option suggesting 3 is incorrect.

• The atomicity of 1 represents monoatomic elements, which are primarily Noble Gases like Helium (He) and Argon (Ar) that do not usually form bonds with other atoms of the same element. Hence, the option suggesting 1 is incorrect.

Additional Information

• Monoatomic Elements: These consist of single atoms. Most metals (in their solid state representation) and noble gases (Group 18 elements) like Neon (Ne) and Krypton (Kr) exhibit an atomicity of 1.

• Diatomic Molecules: Apart from Oxygen (O2), other common diatomic molecules include Hydrogen (H2), Nitrogen (N2), Fluorine (F2), Chlorine (Cl2), Bromine (Br2), and Iodine (I2). These are often remembered using the mnemonic "Have No Fear Of Ice Cold Beer".

• Triatomic and Polyatomic Molecules: Ozone (O3) is a triatomic molecule that forms a protective layer in the Earth's stratosphere to absorb harmful UV radiation. Sulfur usually exists as S8, making it a polyatomic (octatomic) molecule.

• Chemical Nature of Oxygen: Oxygen has an atomic number of 8 and its electronic configuration is 2, 6. To achieve a stable octet, two oxygen atoms share two pairs of electrons, forming a double covalent bond.

Important Points

• Discovery: Oxygen was independently discovered by Carl Wilhelm Scheele in 1772 and Joseph Priestley in 1774. However, Antoine Lavoisier was the one who named it in 1777.

• Abundance: Oxygen is the most abundant element in the Earth's crust, making up about 46.6% of its mass, and it constitutes approximately 21% of the Earth's atmosphere by volume.

• Applications: Oxygen is crucial for aerobic respiration in almost all living organisms. In industrial settings, it is used in steel manufacturing, welding (oxy-acetylene torches), and as rocket propellant in its liquid form (LOX).

• Allotropes: Oxygen has two main allotropes: Dioxygen (O2), which is essential for life, and Ozone (O3), which is highly reactive and can be toxic at ground level but vital in the upper atmosphere.

Q32. Answer: (a) 162/19 days

Shortcut Trick

P's 1 day work = 1/14

Q's 1 day work = 1/19

In 2 days = 1/14 + 1/19 = 33/266

In 16 days = 264/266

Remaining = 2/266 = 1/133

Extra time by P = 14/133 = 2/19

Therefore Answer = 162/19 days

Alternate Method

Given:

P = 14 days, Q = 19 days

Day	Worker	Work Done	Total Work
1	P	19	19
2	Q	14	33
After 16 days	8 cycles	•	264
Remaining	•	•	2

Calculation:

Take LCM of 14 and 19 = 266 units.

P does 19 units/day and Q does 14 units/day.

In 2 days, total work done = 33 units.

In 16 days (8 cycles), total work = 264 units.

Remaining work = 2 units.

Next turn is P, so time taken = 2/19 day.

Total Time = 162/19 days

Therefore The correct answer is 162/19 days.

Additional Information

Alternate Work Concept

Work is calculated in cycles (P + Q = 2 days)

LCM Method

Assume total work = LCM of individual times

Key Insight

After full cycles, check whose turn comes next

Exam Tip

Always convert final answer into mixed fraction if required

Q33. Answer: (a) October 10, 2025

The correct answer is October 10, 2025.

Key Points

• World Mental Health Day is observed globally every year on October 10. In 2025, this date falls on a Friday, as indicated in the first option.

• The day was first celebrated in 1992 at the initiative of the World Federation for Mental Health, a global mental health organization with members and contacts in more than 150 countries.

• The primary objective of this observance is to raise awareness of mental health issues around the world and to mobilize efforts in support of mental health. It provides an opportunity for all stakeholders working on mental health issues to talk about their work and what more needs to be done to make mental health care a reality for people worldwide.

• The World Health Organization (WHO) supports this day by developing technical and communication materials and coordinating global efforts to emphasize the importance of mental well-being as a fundamental human right.

• The theme for World Mental Health Day varies annually, focusing on specific aspects such as mental health in the workplace, suicide prevention, or access to services during emergencies.

Additional Information

• October 24, 2025: This date marks United Nations Day. It celebrates the anniversary of the entry into force of the UN Charter in 1945. With the ratification of this founding document by the majority of its signatories, the United Nations officially came into being.

• July 28, 2025: This date is recognized as World Hepatitis Day. It aims to raise global awareness of hepatitis, a group of infectious diseases known as Hepatitis A, B, C, D, and E, and encourage prevention, diagnosis, and treatment. The date was chosen to honor the birthday of Nobel Laureate Baruch Samuel Blumberg, who discovered the hepatitis B virus.

• August 12, 2025: This date is observed as International Youth Day. Designated by the United Nations in 1999, this day serves as an annual celebration of the role of young women and men as essential partners in change, and an opportunity to raise awareness of challenges and problems facing the world's youth.

• In India, National Youth Day is celebrated on January 12 to commemorate the birth anniversary of Swami Vivekananda.

Important Points

• National Mental Health Programme (NMHP): In India, the government launched the NMHP in 1982 to ensure the availability and accessibility of minimum mental healthcare for all.

• Mental Healthcare Act, 2017: This significant Act was passed in India to provide for mental healthcare and services for persons with mental illness and to protect, promote, and fulfill the rights of such persons during the delivery of mental healthcare. It effectively decriminalized suicide attempts under Section 309 of the Indian Penal Code.

• KIRAN Helpline: The Ministry of Social Justice and Empowerment launched a 24/7 toll-free mental health rehabilitation helpline number (1800-599-0019) to provide relief and support to persons facing mental health issues.

• MANAS App: Standing for Mental Health and Normalcy Augmentation System, it is a comprehensive national digital wellbeing platform launched by the Government of India to augment mental well-being across age groups.

• Global statistics indicate that nearly 1 billion people live with a mental disorder, and one person dies every 40 seconds by suicide.

Q34. Answer: (b) resource manager

The correct answer is resource manager.

Key Points

• The Operating System (OS) is known as a resource manager because its primary function is to manage and allocate the various hardware resources of a computer system, such as the CPU, Main Memory (RAM), Storage, and Input/Output (I/O) devices.

• It acts as an intermediary between the computer user and the computer hardware, providing an environment in which a user can execute programs in a convenient and efficient manner.

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• As a resource manager, the OS ensures that multiple programs and users do not conflict with each other by managing how processes access the processor and how much memory is assigned to each task. Hence, the statement describing the OS as a resource manager is correct.

• The Operating System is responsible for process management, where it handles the creation, scheduling, and deletion of processes, ensuring that the CPU is utilized to its maximum potential. Hence, this function is a core part of its resource management role.

• It also handles Memory Management, which involves tracking every single byte in the primary memory and deciding which process will get memory, when it will get it, and how much. Hence, this statement is correct.

Additional Information

• Types of Operating Systems:

• Batch Operating System: This type does not interact with the computer directly; users prepare their jobs on an offline device like punch cards and submit them to the computer operator.

• Time-Sharing Operating System: Allows multiple users to share the computer resources simultaneously. Each task is given a small time slot (quantum) of the CPU time.

• Real-Time Operating System (RTOS): Used in environments where a large number of events, mostly external to the computer system, must be accepted and processed in a short time. Examples include Air Traffic Control systems and Industrial Control Systems.

• Distributed Operating System: Uses multiple central processors to serve multiple real-time applications and multiple users. Data processing jobs are distributed among the processors.

• Common Examples of OS:

• Microsoft Windows: A widely used GUI-based OS for personal computers, first introduced in 1985 by Microsoft.

• Linux: An open-source OS kernel first released on September 17, 1991, by Linus Torvalds. It is known for its security and CLI (Command Line Interface) capabilities.

• macOS: A proprietary graphical operating system developed by Apple Inc. since 2001 for its Macintosh line of computers.

• Android: A mobile operating system based on a modified version of the Linux kernel, designed primarily for touchscreen mobile devices such as smartphones and tablets.

• Key Functions of OS:

• File Management: Managing directories and files on secondary storage (Hard Disks, SSDs).

• Security: Protecting data and programs from unauthorized access through passwords and encryption.

• Device Management: Controlling all the peripheral devices connected to the system using Device Drivers.

Important Points

• Kernel: The Kernel is the central component of an operating system. It is the first program loaded into memory during booting and remains in memory to manage system calls and hardware communication.

• Shell: The Shell is the outer layer of the OS that acts as an interface between the user and the Kernel. It interprets user commands and executes them.

• User Interface (UI): Modern operating systems provide a Graphical User Interface (GUI), which uses WIMP (Windows, Icons, Menus, Pointers) to interact with the user. Older systems used a Character User Interface (CUI) or CLI.

• Booting Process: The process of starting or restarting a computer is called booting. Cold booting happens when the computer is turned on from a completely off state, while warm booting is the process of restarting a computer that is already on.

• History: The first operating system used for real work was GM-NAA I/O, produced in 1956 by General Motors' Research division for its IBM 704.

Q35. Answer: (b) = PUQ, % = QVR

Given: # : NSO :: SXT : %

Option 1) # = PUQ, % = QVS

For # (PUQ) to NSO

For % (QVS) to SXT

Since, the patterns do not match, Option 1 is incorrect.

Option 2) # = PUQ, % = QVR

For # (PUQ) to NSO

For % (QVR) to SXT

Since, both transformations follow a consistent shift pattern, Option 2 is correct.

Option 3) # = PUQ, % = QWS

For # (PUQ) to NSO

For % (QWS) to SXT

Since, the patterns do not match, Option 3 is incorrect.

Option 4) # = PUR, % = QVS

For # (PUR) to NSO

For % (QVS) to SXT

Since, the patterns do not match, Option 4 is incorrect.

Hence, the correct answer is Option 2.

Q36. Answer: (c) Violin

The correct answer is Violin.

Key Points

• Ms. N. Rajam is a world-renowned virtuoso of the Violin, specifically within the Hindustani Classical Music tradition.

• She is widely credited with pioneering the "Gayaki Ang" (vocal style) on the violin, a technique that allows the instrument to mimic the nuances, ornaments, and emotional depth of the human voice.

• Born in 1938 in Chennai, she belongs to a family of illustrious musicians; she is the daughter of Vidwan A. Narayana Iyer and the sister of the legendary Carnatic violinist T. N. Krishnan.

• She received her advanced training in Hindustani music under the tutelage of the legendary vocalist Pandit Omkarnath Thakur of the Gwalior Gharana.

• Beyond her performance career, she served as a professor and later as the Dean of the Faculty of Performing Arts at Banaras Hindu University (BHU) for nearly 40 years, contributing significantly to music education in India.

Additional Information

• Musical Instruments and Styles:

• Violin: While traditionally a Western instrument, it was integrated into Indian Classical Music (both Carnatic and Hindustani) due to its ability to produce continuous slides (meend) and microtones (gamakas).

• Sitar: A plucked string instrument popular in Hindustani music, famously played by Pandit Ravi Shankar and Ustad Vilayat Khan.

• Sarod: A fretless string instrument known for its deep, introspective sound, mastered by icons like Ustad Amjad Ali Khan.

• Flute (Bansuri): A woodwind instrument made of bamboo, brought to the international stage by Pandit Hariprasad Chaurasia.

• The Gayaki Ang Technique:

• This technique involves complex bowing and fingering methods to reproduce the Khayal style of singing, including Taan, Meend, and Murki.

• N. Rajam broke the conventional barrier where the violin was mostly used for "Gat" (instrumental compositions) in Hindustani music.

• Padma Awards Categories:

• Padma Vibhushan: Awarded for exceptional and distinguished service; it is the second-highest civilian award in India.

• Padma Bhushan: Awarded for distinguished service of a high order.

• Padma Shri: Awarded for distinguished service in any field.

Important Points

• Award History of N. Rajam:

• She was honored with the Padma Shri in the year 1984.

• She received the Padma Bhushan in the year 2004 for her monumental contribution to Indian Art.

• She is also a recipient of the Sangeet Natak Akademi Fellowship (Akademi Ratna), the highest honor conferred by India's national academy for music, dance, and drama.

• Geographic and Cultural Impact:

• Though born in South India (home of Carnatic music), she became a leading figure of the North Indian (Hindustani) tradition, symbolizing the cultural unity of the country.

• Her daughters, Dr. Sangeeta Shankar, and granddaughters, Nandini Shankar and Ragini Shankar, continue her legacy, popularly known as the "Violin Dynasty".

Q37. Answer: (d) Article 21A

The correct answer is Article 21A.

Key Points

• Article 21A of the Constitution of India declares that the State shall provide free and compulsory education to all children in the age group of six to fourteen years in such a manner as the State may, by law, determine. Hence, Option D is correct.

• This provision was not part of the original Constitution but was inserted by the 86th Constitutional Amendment Act in the year 2002 to make education a Fundamental Right.

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• The term "Compulsory" casts an obligation on the appropriate government and local authorities to provide and ensure admission, attendance, and completion of elementary education by all children in the 6-14 age group.

• The term "Free" signifies that no child shall be liable to pay any kind of fee or charges or expenses which may prevent him or her from pursuing and completing elementary education.

• Consequent to this amendment, the Right of Children to Free and Compulsory Education (RTE) Act, 2009 was enacted to provide the legal framework for the implementation of Article 21A.

Additional Information

• Article 45:

• This is a Directive Principle of State Policy (DPSP). Initially, it provided for free and compulsory education for all children until they complete the age of 14 years.

• However, after the 86th Amendment Act (2002), its scope was changed to "Early Childhood Care and Education" for all children until they complete the age of six years. Hence, Option B is incorrect.

• Article 51A(k):

• This falls under Fundamental Duties (Part IV-A). The 86th Amendment Act added a new fundamental duty under Article 51A.

• It states that it shall be the duty of every citizen of India who is a parent or guardian to provide opportunities for education to his child or ward between the age of six and fourteen years. Hence, Option A is incorrect.

• Article 19:

• This Article guarantees six fundamental freedoms to the citizens of India, including freedom of speech and expression, assembly, association, movement, residence, and profession.

• It does not specifically deal with the right to primary education. Hence, Option C is incorrect.

Important Points

• The RTE Act, 2009: This Act became operative on 1st April 2010. India became one of the 135 countries in the world to make education a fundamental right for every child.

• Judicial Precedents: Before the amendment, the Supreme Court in the Mohini Jain vs. State of Karnataka (1992) and Unnikrishnan vs. State of Andhra Pradesh (1993) cases ruled that the Right to Education is a concomitant to the Fundamental Rights enshrined under Article 21 (Right to Life).

• Provisions of the Act: The RTE Act mandates a 25% reservation for disadvantaged groups and economically weaker sections (EWS) in all private unaided schools.

• Monitoring: The National Commission for Protection of Child Rights (NCPCR) is the designated body to monitor the implementation of the rights provided under the Act.

• Exemptions: It is important to note that Minority Educational Institutions (both religious and linguistic) are exempt from the 25% reservation quota as per various Supreme Court judgments to protect their rights under Article 30.

Q38. Answer: (c) Entertainment

The correct answer is Entertainment.

Key Points

• The use of computers in movie studios for creating special effects allows filmmakers to simulate complex environments, characters, and events that cannot be captured via traditional filming. Hence, the statement regarding special effects is correct.

• Animation in modern cinema is almost entirely dependent on Computer-Generated Imagery (CGI), which involves creating 3D models and 2D textures to bring characters to life. Hence, the statement regarding animations is correct.

• The primary sector for these applications is Entertainment, where computers are used to enhance the visual and auditory experience of the audience through post-production techniques.

• Powerful computers called Render Farms are utilized to process the massive amounts of data required to generate a single frame of a high-definition movie, often taking several hours per frame.

• This application has transitioned the industry from hand-drawn animation to digital photorealistic rendering, making movies like Toy Story (1995) and Avatar (2009) possible.

Additional Information

• Scientific Research: In this field, computers are used for complex simulations, data analysis, and modeling of natural phenomena. For example, NASA uses computers to simulate space missions and weather forecasting models rely on Supercomputers to process atmospheric data.

• Accounting: Computers in this domain are used for maintaining financial records, managing inventories, and calculating taxes. Specialized software like Tally, SAP, and Microsoft Excel are standard tools for auditors and accountants to ensure accuracy and transparency.

• Banking: This sector employs computers for Online Banking, managing customer databases, and processing electronic fund transfers (EFT). Technologies like Core Banking Solutions (CBS) and Blockchain are used to secure transactions and provide 24/7 access to services through ATMs and mobile apps.

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• Other Applications: Education uses computers for E-learning and Digital Libraries; Healthcare utilizes them for MRI, CT scans, and managing Electronic Health Records (EHR); and Defense relies on them for missile guidance systems and cryptography.

Important Points

• Visual Effects (VFX): This is the process by which imagery is created or manipulated outside the context of a live-action shot. Software such as Autodesk Maya, Blender, and Adobe After Effects are industry standards.

• Motion Capture (Mo-cap): A specific computer application where the actions of human actors are recorded and used to animate digital character models, popularized by the character Gollum in The Lord of the Rings.

• Digital Compositing: The technique of combining multiple images from different sources into a single seamless image, which is a core part of post-production in the Entertainment industry.

• Evolution: The first major use of CGI in a feature film was Westworld (1973), which featured a 2D digital image. Today, AI-driven special effects are becoming the new frontier in Hollywood.

Q39. Answer: (c) 662/3%

Shortcut Trick

Amount = 5 × Principal => SI = 4P

SI = (P × R × T) / 100

=> 4P = (P × R × 6) / 100

=> 4 = (6R) / 100

=> R = (4 × 100) / 6 = 662/3%

Therefore Answer = 662/3%

Alternate Method

Given:

Amount becomes 5 times in 6 years

Formula used:

SI = (P × R × T) / 100

Calculation:

=> Amount = P + SI = 5P

=> SI = 4P

=> Substitute:

4P = (P × R × 6) / 100

=> Cancel P:

4 = (6R) / 100

=> R = (4 × 100) / 6

=> = 662/3%

Therefore The required rate is 662/3% per annum.

Additional Information

Simple Interest Concept

SI = Amount − Principal

Shortcut Insight

If amount = nP => SI = (n−1)P

Tip

Cancel P early to simplify

Q40. Answer: (b) Two

The logic followed here is:

Given: D, E, F, G, S, T and U are sitting around a circular table facing the centre

U sits to the immediate right of G

Only three people sit between U and E when counted from the left of U

Only three people sit between G and T when counted from the left of G

D sits to the immediate right of S

Thus, number of people between S and F = 2

Hence, the correct answer is Option 2.

Q41. Answer: (c) 2014

The correct answer is 2014.

Key Points

• The Expert Group to Review the Methodology for Measurement of Poverty, chaired by Dr. C. Rangarajan, was constituted by the Planning Commission in June 2012.

• The committee submitted its final report in July 2014, providing a revised framework for identifying the poor in India.

• The Rangarajan Committee estimated that the poverty ratio in India was 29.5% in the year 2011-12, which meant approximately 363 million people were living below the poverty line.

• It recommended a higher poverty line than the previous Tendulkar Committee, setting the monthly per capita expenditure at Rs. 972 for rural areas and Rs. 1407 for urban areas at 2011-12 prices.

• The methodology adopted by the committee moved away from a solely calorie-based approach to a more comprehensive basket of goods including nutrition, clothing, house rent, conveyance, and education.

Additional Information

• Methodology of Rangarajan Committee:

• The group based its estimates on the NSSO 68th Round survey data on Household Consumer Expenditure for the year 2011-12.

• It proposed a poverty line based on an ideal diet consisting of 2155 kcal of calories, 48 grams of protein, and 28 grams of fat per capita per day in rural areas.

• For urban areas, the requirements were slightly lower at 2090 kcal of calories, 50 grams of protein, and 26 grams of fat.

• The daily per capita expenditure was calculated to be Rs. 32 for rural and Rs. 47 for urban residents.

• Comparison with Tendulkar Committee:

• The Tendulkar Committee, which submitted its report in 2009, had estimated the poverty ratio at 21.9% for 2011-12.

• The Rangarajan Committee's higher estimates (29.5%) resulted from the inclusion of a wider variety of non-food essential items and a modified food basket.

• While Tendulkar used a Uniform Reference Period (URP), Rangarajan preferred the Modified Mixed Reference Period (MMRP) to gather expenditure data.

Important Points

• Evolution of Poverty Estimation in India:

• Alagh Committee (1979): Established the first poverty line based on nutritional requirements (2400 kcal rural and 2100 kcal urban).

• Lakdawala Committee (1993): Introduced state-specific poverty lines and used the Consumer Price Index for Agricultural Labourers (CPI-AL) and Consumer Price Index for Industrial Workers (CPI-IW).

• NITI Aayog: Following the dissolution of the Planning Commission in 2014, NITI Aayog now acts as the nodal agency for poverty estimation and monitoring through its Task Force on Elimination of Poverty.

• Global Context:

• The World Bank currently uses a poverty line of $2.15 per person per day (in 2017 Purchasing Power Parity terms) as the International Poverty Line.

• India's domestic measurements remain crucial for targeting government subsidies, the Public Distribution System (PDS), and welfare schemes like MGNREGA.

Q42. Answer: (d) 6

The logic followed here is:

Given number: 6587134

Logic:

Add 1 to each odd digit

Subtract 2 from each even digit

Original number: 6 5 8 7 1 3 4

Digit	Type	Operation	New Digit
6	Even	6 − 2	4
5	Odd	5 + 1	6
8	Even	8 − 2	6
7	Odd	7 + 1	8
1	Odd	1 + 1	2

3	Odd	3 + 1	4
4	Even	4 − 2	2

New number: 4 6 6 8 2 4 2

Now, second digit from the left = 6

Hence, the correct answer is Option 4.

Q43. Answer: (b) 8

Shortcut Trick

Convert decimals to fractions:

3.6 = 18/5, 2.4 = 12/5, 1.4 = 7/5

(18/5 ÷ 3/5) = (18/5 × 5/3) = 6

(7/3 × (12/5 ÷ 7/5)) = (7/3 × 12/7) = 4

(5/6 + 14/12) = (5/6 + 7/6) = 12/6 = 2

Total = 6 + 4 − 2 = 8

Therefore Answer = 8

Alternate Method

Given:

(3.6 ÷ 3/5) + (7/3 × 2.4/1.4) − (5/6 + 14/12)

Calculation:

Convert decimals into fractions:

3.6 = 18/5, 2.4 = 12/5, 1.4 = 7/5

=> (18/5 ÷ 3/5) = 18/5 × 5/3 = 6

=> (7/3 × (12/5 ÷ 7/5))

= 7/3 × (12/5 × 5/7) = 7/3 × 12/7 = 4

=> (5/6 + 14/12)

= 5/6 + 7/6 = 12/6 = 2

=> Final value = 6 + 4 − 2 = 8

Therefore The correct answer is 8.

Additional Information

Decimal Conversion

Convert decimals to fractions for easier calculation

Division Rule

a ÷ b = a × (reciprocal of b)

Simplification Tip

Cancel common factors early

Order of Operations

Solve brackets first, then multiply/divide

Q44. Answer: (b) 244

The logic followed here is:

48 → 192

=> 48 × 4 = 192

52 → 208

=> 52 × 4 = 208

So, the pattern is:

Result = Number × 4

Now, applying the same pattern for 61:

=> 61 × 4 = 244

Hence, the correct answer is Option 2.

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Q45. Answer: (b) Carbon dioxide, methane, nitrous oxide

The correct answer is Carbon dioxide, methane, nitrous oxide.

Key Points

• Greenhouse Gases (GHGs) are components of the atmosphere that contribute to the greenhouse effect by absorbing and emitting radiant energy within the thermal infrared range. The primary greenhouse gases in Earth's atmosphere include Carbon Dioxide (CO_2), Methane (CH_4), and Nitrous Oxide (N_2O).

• Carbon dioxide (CO_2) is the most significant long-lived greenhouse gas in Earth's atmosphere. Since the Industrial Revolution, anthropogenic emissions—primarily from the use of fossil fuels and deforestation—have caused its atmospheric concentration to rise significantly. Hence, the inclusion of Carbon dioxide in the answer is correct.

• Methane (CH_4) is a potent greenhouse gas with a Global Warming Potential (GWP) much higher than CO_2. It is emitted during the production and transport of coal, natural gas, and oil, as well as from livestock (enteric fermentation) and agricultural practices. Hence, the inclusion of Methane in the answer is correct.

• Nitrous oxide (N_2O) is emitted during agricultural and industrial activities, combustion of fossil fuels and solid waste, as well as during treatment of wastewater. It has a long atmospheric life and a high GWP. Hence, the inclusion of Nitrous oxide in the answer is correct.

• Gases like Nitrogen (N_2), Oxygen (O_2), and Argon (Ar) are not greenhouse gases because they consist of symmetrical diatomic molecules or single atoms that do not absorb infrared radiation. Hence, options containing these gases are incorrect.

Additional Information

• Kyoto Protocol: This international treaty, adopted in 1997, initially identified six main greenhouse gases that required emission reductions: Carbon dioxide (CO_2), Methane (CH_4), Nitrous oxide (N_2O), Hydrofluorocarbons (HFCs), Perfluorocarbons (PFCs), and Sulfur hexafluoride (SF_6).

• Atmospheric Composition: Earth's atmosphere is primarily composed of Nitrogen (78%) and Oxygen (21%). While they are the most abundant, they do not contribute to the greenhouse effect. Trace gases, including GHGs, make up less than 1% of the atmosphere but have a profound impact on global temperature.

• Global Warming Potential (GWP): This is a measure of how much energy the emissions of 1 ton of a gas will absorb over a given period (usually 100 years), relative to the emissions of 1 ton of carbon dioxide. Methane has a GWP of approximately 25-28, while Nitrous Oxide has a GWP of around 265-298.

• Industrial and Synthetic Gases: Fluorinated gases like HFCs, PFCs, and SF_6 are man-made and used in applications like refrigeration and electronics manufacturing. Although present in small concentrations, they are extremely potent.

Important Points

• Water Vapor: It is actually the most abundant greenhouse gas in the atmosphere. However, it is not directly increased by human activity; instead, its concentration depends on the atmospheric temperature, creating a feedback loop.

• Concentration Milestones: Atmospheric Carbon dioxide concentrations have surpassed 400 parts per million (ppm) in recent years, a level not seen in millions of years. This rise is primarily attributed to the burning of fossil fuels since the year 1750.

• Impact of Deforestation: Forests act as carbon sinks. When they are cleared or burned, they release stored carbon back into the atmosphere as CO_2, exacerbating the greenhouse effect.

• Agricultural Impact: Rice cultivation and cattle rearing are the largest human-related sources of Methane emissions globally.

Q46. Answer: (c) 5

Shortcut Trick

Sum of exterior angles = 360°

Sum of interior angles = $(n - 2) \times 180°$

Given:

$360 = (2/3) \times (n - 2) \times 180$

$\Rightarrow 360 = 120(n - 2)$

$\Rightarrow 3 = n - 2$

$\Rightarrow n = 5$

Therefore Answer = 5

Alternate Method

Given:

Sum of exterior angles = (2/3) of sum of interior angles

Formula used:

Sum of exterior angles = 360°

Sum of interior angles = $(n - 2) \times 180°$

Calculation:

=> 360 = (2/3) × (n − 2) × 180
=> 360 = 120(n − 2)
=> Divide by 120:
3 = n − 2
=> n = 5
Therefore The number of sides = 5.
Additional Information
Exterior Angle Sum
Always equals 360° for any polygon
Interior Angle Sum
(n − 2) × 180°
Key Insight
Use given relation to form equation
Tip
Simplify constants first (360/120 = 3)

Q47. Answer: (c) 210 m

Shortcut Trick
Relative speed = 40 + 52 = 92 km/hr
= 92 × (5/18) = 460/18 = 230/9 m/s
Total distance = speed × time
= (230/9) × 18 = 460 m
Length of other train = 460 − 250 = 210 m
Therefore Answer = 210 m
Alternate Method
Given:
Speeds = 40 km/hr and 52 km/hr
Time = 18 sec
One train = 250 m
Formula used:
Distance = Relative speed × Time
Calculation:
=> Relative speed = 40 + 52 = 92 km/hr
=> Convert to m/s:
92 × (5/18) = 230/9 m/s
=> Total distance = (230/9) × 18
=> = 460 m
=> Total distance = sum of lengths
=> Length of other train = 460 − 250 = 210 m
Therefore The correct answer is 210 m.
Additional Information
Relative Speed
Opposite direction => speeds add
Unit Conversion
km/hr to m/s => multiply by 5/18
Train Concept
Crossing => total length = sum of both trains

Q48. Answer: (c) 8

The logic followed here is:
Given number: 53764821
Logic:

Add 1 to each odd digit

Subtract 1 from each even digit

Original number: 5 3 7 6 4 8 2 1

Digit	Type	Operation	New Digit
5	Odd	5 + 1	6
3	Odd	3 + 1	4
7	Odd	7 + 1	8
6	Even	6 − 1	5
4	Even	4 − 1	3
8	Even	8 − 1	7
2	Even	2 − 1	1
1	Odd	1 + 1	2

New number: 6 4 8 5 3 7 1 2

Greatest digit = 8

Smallest digit = 1

Product = 8 × 1 = 8

Hence, the correct answer is Option 3.

Q49. Answer: (d) Chairman and Deputy Chairman of the State Legislative Council

The correct answer is Chairman and Deputy Chairman of the State Legislative Council.

Key Points

• Article 182 of the Constitution of India specifically provides for the Chairman and Deputy Chairman of the Legislative Council. It mandates that every State having a Legislative Council (Vidhan Parishad) shall, as soon as may be, choose two members of the Council to be respectively Chairman and Deputy Chairman thereof. Hence, statement D is correct.

• The Chairman acts as the presiding officer of the house. In the absence of the Chairman, the Deputy Chairman performs the duties of the office.

• This Article ensures the continuity of the leadership within the upper house of the State Legislature. If the office of the Chairman or Deputy Chairman becomes vacant, the Council is constitutionally obligated to choose another member to fill the vacancy.

• Unlike the Speaker of the Legislative Assembly, who is elected by the lower house, the Chairman is elected solely by the members of the Legislative Council from among its own members.

Additional Information

• Composition of State Legislative Assemblies: This is addressed under Article 170. It states that the Legislative Assembly of each State shall consist of not more than 500, and not less than 60, members chosen by direct election from territorial constituencies in the State. Hence, statement A is incorrect in the context of Article 182.

• Disqualification for membership: The criteria for the disqualification of members of either House of the State Legislature are laid down in Article 191. Reasons for disqualification include holding an office of profit, being of unsound mind, insolvency, or not being a citizen of India. Hence, statement B is incorrect in the context of Article 182.

• Special address by the Governor: This provision is found in Article 176. The Governor addresses the Legislative Assembly (or both Houses in bicameral states) at the commencement of the first session after each general election and at the commencement of the first session of each year. Hence, statement C is incorrect in the context of Article 182.

• Article 171: This article deals with the Composition of the Legislative Councils. It specifies that the total number of members in the Legislative Council of a State shall not exceed one-third of the total number of members in the Legislative Assembly of that State, but shall in no case be less than 40.

Important Points

• Vacation and Resignation (Article 183): A member holding office as Chairman or Deputy Chairman of a Legislative Council shall vacate his office if he ceases to be a member of the Council. The Chairman may resign by writing to the Deputy Chairman, and the Deputy Chairman may resign by writing to the Chairman.

• Removal: They can be removed from office by a resolution of the Council passed by a majority of all the then members of the Council, provided that at least 14 days' notice has been given of the intention to move the resolution.

• States with Legislative Councils: Currently, only six states in India have a bicameral legislature (both Vidhan Sabha and Vidhan Parishad). These are Andhra Pradesh, Bihar, Karnataka, Maharashtra, Telangana, and Uttar Pradesh.

• Role of the Chairman: The Chairman has the power to adjourn the House or suspend the meeting in the absence of a quorum.

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The Chairman does not vote in the first instance but exercises a casting vote in the case of an equality of votes.

Q50. Answer: (a) 56

Shortcut Trick

First 13 multiples of 8 form an AP

First term = 8, Last term = 8 × 13 = 104

Average = (First + Last) / 2

= (8 + 104) / 2 = 112 / 2 = 56

Therefore Answer = 56

Alternate Method

Given:

First 13 multiples of 8

Formula used:

Average of AP = (First term + Last term) / 2

Calculation:

=> Sequence: 8, 16, 24, ..., 104

=> First term = 8

=> Last term = 8 × 13 = 104

=> Average = (8 + 104) / 2

=> = 112 / 2 = 56

Therefore The correct answer is 56.

Additional Information

Arithmetic Progression

Multiples form an AP with common difference

Quick Formula

Average = (first + last) / 2

Tip

No need to list all terms

Q51. Answer: (a) Part XII

The correct answer is Part XII.

Key Points

• The Right to Property was originally a Fundamental Right in the Indian Constitution, protected under Article 19(1)(f) and Article 31 in Part III.

• The 44th Amendment Act, 1978, passed during the tenure of the Janata Party government, abolished the Right to Property as a fundamental right. Hence, the statement that it was removed from Part III is correct.

• Following its removal from Part III, it was re-introduced as a Constitutional Right (or legal right) under Article 300A.

• This new article, Article 300A, is located in Part XII of the Constitution, specifically under the chapter titled 'Finance, Property, Contracts and Suits'. Hence, the statement that it was added to Part XII is correct.

• The primary objective of this shift was to prevent property rights from becoming a hurdle in the implementation of land reforms and other socialist policies aimed at equitable distribution of wealth.

Additional Information

• Article 300A: This article states that "no person shall be deprived of his property save by authority of law." This means that while the state can still acquire private property, it must do so by following a valid law passed by the legislature, rather than through executive action alone.

• Status as a Legal Right: Unlike Fundamental Rights, a legal right does not allow a citizen to directly approach the Supreme Court under Article 32 for its violation. However, a person can still seek remedy through a High Court under Article 226.

• Compensation: After the 44th Amendment, the state is not constitutionally obligated to pay "compensation" for acquired property except in two specific instances: when the state acquires property of a minority educational institution or land held by a person under personal cultivation within the statutory ceiling limits.

• Historical Context: The conflict between the Judiciary and the Executive over property rights was a defining feature of Indian politics in the 1950s, 1960s, and 1970s, leading to landmark cases like Kameshwar Singh v. State of Bihar and the Bank Nationalization case.

Important Points

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• Fundamental Rights (Part III): These are justiciable rights that are fundamental to the development of an individual and are protected by the basic structure of the Constitution. Before 1978, there were seven fundamental rights; currently, there are only six.

• Janata Party Government: The amendment was spearheaded by Prime Minister Morarji Desai in 1978 to reverse several changes made during the Emergency and to settle the long-standing debate on property acquisition.

• Part XII Structure: This part of the Constitution deals with Finance (Articles 264-291), Borrowing (Articles 292-293), Property, Contracts, Rights, Liabilities, Obligations and Suits (Articles 294-300), and the Right to Property (Article 300A).

• Significance of "Authority of Law": This phrase ensures that the Executive cannot seize property arbitrarily. There must be a specific Act or Statute that authorizes such deprivation, ensuring a check on arbitrary power.

Q52. Answer: (c) Santhal Revolt

The correct answer is Santhal Revolt.

Key Points

• Sidhu Murmu and Kanhu Murmu were the two primary brothers who led the Santhal Rebellion, also known as the Santhal Hool, which broke out in 1855.

• The revolt took place in the Rajmahal Hills region, covering parts of present-day Jharkhand, Bihar, and West Bengal.

• The uprising was a direct response to the oppressive Zamindari system, the exploitation by money lenders (Mahajans), and the revenue policies of the British East India Company.

• The leaders claimed they had received a divine message from Thakur Jiu (God) to liberate the Santhal people from the clutches of the Dikus (outsiders) and establish Santhal Raj.

• On June 30, 1855, nearly 60,000 Santhals gathered at Bhognadih to declare their independence and resolve to fight against the British authorities.

Additional Information

• Paralkot Rebellion (1825):

• This rebellion occurred in the Abujhmarh region of Chhattisgarh.

• It was led by Gend Singh against the interference of the Marathas and the British in the tribal way of life and the imposition of heavy taxes.

• Koi Revolt (1859):

• This was a significant tribal uprising in the Bastar region against the felling of Teak (Sal) trees.

• The revolt is famously remembered for the slogan "One head for one Sal tree," indicating the tribals' readiness to sacrifice their lives for the forest.

• Bastar Rebellion (1910):

• Also known as the Bhumkal Rebellion, it was a major uprising in the princely state of Bastar in Chhattisgarh.

• The rebellion was led by Gunda Dhur and was triggered by forest reservation policies and the exploitation of the local population by colonial officers.

• Daman-i-Koh:

• The British had demarcated a large area of land in the Rajmahal Hills as Daman-i-Koh for the Santhals to settle and practice agriculture.

• The subsequent influx of non-tribal money lenders and zamindars into this area eventually led to the social and economic friction that caused the Santhal Revolt.

Important Points

• The Santhal Rebellion was suppressed by the British Army using modern weaponry, such as artillery and muskets, against the tribal bows and arrows; however, it resulted in significant administrative changes.

• Following the revolt, the British government passed the Santhal Parganas Tenancy Act in 1876, which provided protection to tribal lands by prohibiting their transfer to non-tribal people.

• Every year on June 30th, Hool Diwas (Martyr's Day) is celebrated in Jharkhand to honor the courage of Sidhu, Kanhu, Chand, and Bhairav.

• The movement is historically considered a major precursor to the First War of Indian Independence in 1857, showcasing organized tribal resistance against colonial hegemony.

Q53. Answer: (b) 9

Given:

‘TIME’ is coded as ‘3519’

‘EARS’ is coded as ‘6894’

Here, E consistently maps to 9 in the given code set pattern.

Hence, the correct answer is Option 2.

Q54. Answer: (b) Kathak

The correct answer is Kathak.

Key Points

• Nalini Asthana and Kamalini Asthana are a distinguished sister duo who have been honored with the Sangeet Natak Akademi Award for the year 2022 for their profound contribution to the field of Kathak.

• They are celebrated exponents of the Benaras Gharana of Kathak, a style that emphasizes graceful movements, spiritual storytelling, and the Bhakti (devotional) tradition of Varanasi.

• In addition to the national academy award, the sisters were also recipients of the Padma Shri, India's fourth-highest civilian award, in the year 2022, presented by the President of India for their excellence in the Arts.

• The duo is famously known for their Jugalbandi (duet) performances, where they showcase intricate synchronization and rhythmic mastery.

• They have performed extensively on international platforms in over 40 countries, including the USA, Russia, and the UK, serving as cultural ambassadors of Indian heritage.

Additional Information

• Kathak Dance Form:

• Kathak is one of the eight major classical dances of India, originating from the state of Uttar Pradesh in North India.

• The name is derived from the Sanskrit word 'Katha', which means "story", and 'Kathakar', which means "storyteller".

• Key features of Kathak include Tatkar (rapid footwork), Chakkars (lightning-fast spins), and Abhinaya (facial expressions).

• There are three primary Gharanas or schools of Kathak: Lucknow, Jaipur, and Benaras (Varanasi).

• Other Classical Dances in Options:

• Odissi: A classical dance from Odisha, known for its Tribhanga posture (three-fold bending of the body) and fluid movements.

• Kuchipudi: Originating from Andhra Pradesh, this dance-drama form is unique for its Tarangam, where dancers perform on the edge of a brass plate.

• Bharatanatyam: One of the oldest classical dance traditions from Tamil Nadu, characterized by fixed upper torso, bent legs, and complex Mudras (hand gestures).

• Sangeet Natak Akademi:

• The Sangeet Natak Akademi was established in 1952 by the Ministry of Education and is the national level academy for music, dance, and drama in India.

• The Sangeet Natak Akademi Award is the highest national recognition conferred on practicing artists, carrying a purse of Rs. 1,00,000, a citation, and an Angavastram.

Important Points

• The Asthana sisters received their specialized training under Guru Jitendra Maharaj, a legendary figure of the Varanasi (Benaras) school of Kathak.

• The Sangeet Natak Akademi Awards for the years 2022 and 2023 were presented by the President of India, Droupadi Murmu, during a ceremony held at Vigyan Bhawan, New Delhi, in March 2024.

• They are credited with reviving the Temple style of Kathak and have established the Azhar-e-Banaras institute to educate the youth in classical arts.

• Their choreography often integrates Sanskrit literature and ancient Indian poetry, maintaining the traditional essence of the Ganga-Jamuni Tehzeeb.

Q55. Answer: (d) GI-JM

The logic followed here is based on the alphabetical position pattern:

Option 1: CE → FH

Option 2: HJ → KM

Option 3: MO → PR

Option 4: GI → JM

Thus, GI–JM does not follow the same consistent pattern.

Hence, the odd one out is Option 4.

Q56. Answer: (a) Legal Services Authorities Act, 1987

The correct answer is Legal Services Authorities Act, 1987.

Key Points

• The National Legal Services Authority (NALSA) was constituted under the Legal Services Authorities Act, 1987, to monitor and evaluate the implementation of legal aid programs and to lay down policies and principles for making legal services available under the Act.

• The Legal Services Authorities Act officially came into force on 9th November 1995 to establish a nationwide uniform network for providing free and competent legal services to the weaker sections of the society.

• The primary function of NALSA is to organize Lok Adalats for amicable settlement of disputes and to spread legal literacy and awareness across the country.

• The Chief Justice of India serves as the Patron-in-Chief of NALSA, while the second senior-most Judge of the Supreme Court of India acts as the Executive Chairman.

• In every State, a State Legal Services Authority (SLSA) has been constituted to give effect to the policies and directions of NALSA and to give free legal services to the people and conduct Lok Adalats in the State.

Additional Information

• Legal Services Authorities Act, 1987 (Option A): This Act provides for the statutory constitution of legal services authorities at the National, State, and District levels. It ensures that opportunities for securing justice are not denied to any citizen by reason of economic or other disabilities. Hence, this statement is correct.

• Advocates Act, 1961 (Option B): This Act was enacted to amend and consolidate the law relating to legal practitioners and to provide for the constitution of Bar Councils and an All-India Bar. It regulates the professional conduct of advocates but did not establish NALSA. Hence, this statement is incorrect.

• Code of Criminal Procedure, 1973 (Option C): Under Section 304 of the CrPC, the court provides legal aid to an accused person if they do not have sufficient means to engage a lawyer at the State's expense. While it supports the concept of legal aid, the administrative body NALSA was not created by this code. Hence, this statement is incorrect.

• Legal Aid and Advice Act, 1972 (Option D): While various committees on legal aid were formed in the 1970s (like the Krishna Iyer Committee in 1973), there is no specific central Act by this name that serves as the founding legislation for NALSA. Hence, this statement is incorrect.

Important Points

• Constitutional Basis: Article 39A of the Constitution of India (inserted by the 42nd Amendment Act, 1976) directs the State to provide free legal aid by suitable legislation or schemes to ensure that justice is not denied to any citizen due to economic or other disabilities.

• Eligibility: According to Section 12 of the Legal Services Authorities Act, 1987, eligible persons include Women and Children, members of SC/ST, Industrial workmen, victims of mass disasters, violence, floods, or disabled persons.

• National Legal Services Day: To commemorate the 1987 Act, 9th November is celebrated annually as Legal Services Day across India.

• Administrative Structure: The District Legal Services Authority (DLSA) is constituted in every District to implement legal aid programs, with the District Judge acting as the ex-officio Chairman.

• Funding: NALSA receives grants from the Central Government, which are then distributed to the State and District authorities to facilitate legal aid clinics and awareness camps.

Q57. Answer: (d) 13

The logic followed here is:

Given numbers: 571, 769, 642, 598, 796

Logic: Find the highest and lowest numbers, then perform the required operation.

Arranging in descending order: 796, 769, 642, 598, 571

Highest number = 796

→ Third digit = 6

Lowest number = 571

→ Second digit = 7

Result = 6 + 7 = 13

Hence, the correct answer is Option 4.

Q58. Answer: (b) 20 km, east

The logic followed here is:

Given:

Shivani walks 7 km East

She turns left → 4 km North

She turns right → 6 km East

She turns right → 4 km South

She turns left → 7 km East

So, final position = 20 km East from starting point

Hence, the correct answer is Option 2.

Q59. Answer: (d) = NXF % = EOW

Given: # : XHP :: UEM : %

Option 1) # = NXF, % = EKW

For # (NXF) to XHP

For % (EKW) to UEM

Since, the patterns do not match, Option 1 is incorrect.

Option 2) # = NOF, % = EOW

For # (NOF) to XHP

For % (EOW) to UEM

Since, the patterns do not match, Option 2 is incorrect.

Option 3) # = NXF, % = EOO

For # (NXF) to XHP

For % (EOO) to UEM

Since, the patterns do not match, Option 3 is incorrect.

Option 4) # = NXF, % = EOW

For # (NXF) to XHP

For % (EOW) to UEM

Since, both transformations follow a consistent pattern Option 4 is correct.

Hence, the correct answer is Option 4.

Q60. Answer: (d) United States of America

The correct answer is United States of America.

Key Points

• On 31 October 2025, India and the United States signed a landmark 10-year Defence Framework Agreement in Kuala Lumpur, Malaysia.

• The agreement was exchanged between India's Defence Minister Rajnath Singh and U.S. Secretary of War Pete Hegseth on the sidelines of the ASEAN–India Defence Ministers' Informal Meeting.

• Duration: The framework establishes a roadmap for bilateral defence cooperation over the next 10 years (2025–2035).

• Purpose: It is intended to provide a unified vision and long-term policy direction for the U.S.–India Major Defence Partnership.

• Focus Areas: The pact emphasizes enhancing coordination, information sharing, and defence technology collaboration, particularly in the context of maintaining a free and open Indo-Pacific region.

• Strategic Context: The signing took place during a visit by Rajnath Singh to attend the ASEAN Defence Ministers' Meeting Plus (ADMM-Plus), reflecting India's "Act East Policy" and deepening strategic convergence with the U.S. despite evolving geopolitical dynamics.

• While India also engaged in significant defence dialogues with Malaysia (MIDCOM meeting in February 2025) and Australia (inaugural Defence Ministers' Dialogue in October 2025), the specific 10-year framework agreement mentioned in your query was signed with the United States.

Additional Information

• Bilateral Defence Exercises: India and Malaysia regularly participate in joint military drills, most notably Exercise Harimau Shakti. This exercise focuses on counter-insurgency and jungle warfare, enhancing interoperability between the Indian Army and the Malaysian Army.

• Defence Production and Exports: Malaysia has shown significant interest in Indian defense platforms, particularly the LCA Tejas (Light Combat Aircraft) and the BrahMos supersonic cruise missile system. The 2025 framework facilitates a smoother roadmap for defence exports and technical support.

• Strategic Location: Malaysia is situated along the Strait of Malacca, one of the world's most important shipping lanes. Cooperation with Kuala Lumpur is vital for India's Mission SAGAR (Security and Growth for All in the Region) and the Act East Policy initiated in 2014.

• ASEAN-India Relations: The ASEAN–India Defence Ministers' Informal Meeting is a crucial platform for India to engage with the Association of Southeast Asian Nations. It operates under the broader ADMM-Plus (ASEAN Defence Ministers' Meeting Plus) framework, which includes eight dialogue partners like India, USA, and China.

• Historical Context: Defence relations between the two nations were previously guided by a Memorandum of Understanding (MoU) on Defence Cooperation signed in 1993. The 2025 agreement modernizes these ties to meet contemporary security challenges.

Important Points

• Cyber and Space Security: The new framework specifically mentions collaboration in emerging technologies, including Artificial

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Intelligence (AI), cyber defence, and satellite tracking, reflecting the changing nature of modern warfare.

• Maintenance and Repair (MRO): A key feature of the 2025 talks was the establishment of Maintenance, Repair, and Overhaul (MRO) facilities in Malaysia for Russian-origin platforms (like the Su-30 MKM), leveraging India's extensive experience with Su-30 MKI jets.

• HADR Operations: Both countries committed to increasing coordination in Humanitarian Assistance and Disaster Relief (HADR) operations to tackle natural calamities in the Bay of Bengal and South China Sea.

Q61. Answer: (d) Ctrl+Z

The correct answer is Ctrl+Z.

Key Points

• Ctrl+Z is the standard keyboard shortcut used to undo the last action performed in most software applications, including Microsoft Windows, macOS (where it is Command+Z), and various Linux distributions.

• The function of this shortcut is to revert the state of a document or system to the immediate previous step, allowing users to quickly correct mistakes or accidental changes. Hence, statement D is correct.

• In many advanced software programs like Adobe Photoshop, Microsoft Word, or Visual Studio Code, this shortcut can be pressed repeatedly to reverse a sequence of multiple actions stored in the undo history.

• This feature is a fundamental part of the Graphical User Interface (GUI) design philosophy, encouraging non-destructive editing by providing a safety net for users during complex tasks.

• The Ctrl+Z command is widely supported across various file explorers, text editors, web browsers, and integrated development environments (IDEs) globally.

Additional Information

• Ctrl+U (Underline):

• This shortcut is used to underline selected text in word processing applications like MS Word and Google Docs.

• It is a text-formatting feature used to emphasize specific content or headings within a document. Hence, statement A is incorrect in the context of undoing actions.

• Ctrl+E (Center Alignment):

• In software like Microsoft PowerPoint or Word, this shortcut is used to center align the selected paragraph or text block.

• In certain web browsers like Chrome or Edge, it may also be used to focus the address bar for a search query. Hence, statement B is incorrect.

• Ctrl+X (Cut):

• The Ctrl+X shortcut is used to cut a selected item, such as text, a file, or an image, and move it to the system clipboard.

• Unlike copying (Ctrl+C), "cutting" removes the item from its original location so it can be pasted (Ctrl+V) elsewhere. Hence, statement C is incorrect.

• Redo Functionality:

• The opposite of the undo function is Redo, which is typically mapped to the Ctrl+Y shortcut in Windows or Cmd+Shift+Z in macOS.

• This allows users to re-apply an action that was previously reversed by the undo command.

Important Points

• Historical Context: The "Undo" concept and its shortcut were popularized by Xerox PARC in the 1970s and later standardized by Apple and Microsoft in the 1980s to improve human-computer interaction.

• Application Variety: While Ctrl+Z is near-universal for "Undo," its behavior can vary; for example, in a Command Prompt or Terminal, Ctrl+Z might be used to suspend a running process rather than undo text input.

• Software Limitations: Some applications have a limited undo buffer, meaning they can only remember a finite number of actions (e.g., the last 20 to 100 actions) before the oldest actions are permanently saved and cannot be reverted.

• Productivity Impact: Mastering these keyboard shortcuts significantly increases workflow efficiency and digital literacy for professionals across industries, from data entry to software engineering.

Q62. Answer: (b) 5

Shortcut Trick

Triangles ABC and DEF are congruent

Given angle A = angle D => Correspondence: A ↔ D

So sides correspond as:

AC ↔ DF, AB ↔ DE

Given DE = 5 cm

=> AB = 5 cm

Therefore Answer = 5 cm

Alternate Method

Given:

ABC ~= DEF, angle A = angle D

AC = DF = 6 cm, DE = 5 cm

Concept used:

In congruent triangles, corresponding sides are equal

Calculation:

=> From angle A = angle D, match vertices:

A ↔ D, B ↔ E, C ↔ F

=> Therefore, corresponding sides:

AB ↔ DE

AC ↔ DF (given)

=> Since DE = 5 cm

=> AB = 5 cm

Therefore The correct answer is 5 cm.

Additional Information

Congruent Triangles

All corresponding sides and angles are equal

Vertex Matching

Order of naming gives correspondence

Key Insight

Once mapping is known, directly equate sides

Q63. Answer: (c) International Monetary Fund (IMF)

The correct answer is International Monetary Fund (IMF).

Key Points

• The International Monetary Fund (IMF) is the global organization responsible for the Article IV consultation, which involves a periodic review of a member country's economic health and its exchange rate policies.

• In 2025, following an assessment of the Indian Rupee's (INR) performance against the US Dollar, the IMF reclassified India’s de facto exchange rate regime from a stabilised arrangement to a crawl-like arrangement.

• A crawl-like arrangement is a technical classification used when the exchange rate remains within a narrow margin of 2% relative to a statistically identified trend for a period of at least 6 months.

• This reclassification indicates that the IMF observed the exchange rate moving in a more predictable trend compared to the earlier stabilised classification, where the currency was kept within a very tight range without a definitive trend.

• The Reserve Bank of India (RBI) often contests such reclassifications, maintaining that its interventions in the Foreign Exchange Market are only intended to curb volatility rather than to target a specific exchange rate level or trend.

Additional Information

• International Monetary Fund (IMF):

• Established in 1944 during the Bretton Woods Conference, the IMF is headquartered in Washington, D.C., and currently has 190 member countries.

• The primary mission of the IMF is to ensure the stability of the international monetary system, facilitate international trade, and provide financial assistance to countries facing balance of payments crises.

• The organization is currently led by Managing Director Kristalina Georgieva (as of 2024-2025).

• Exchange Rate Classifications:

• Stabilised Arrangement: Occurs when the exchange rate remains within a 2% margin against an anchor currency for at least 6 months but does not follow a specific trend.

• Floating: A regime where the exchange rate is largely market-determined, with interventions by the Central Bank being rare and aimed only at managing market conditions.

• India officially describes its regime as floating (de jure), but the IMF assigns a de facto classification based on observed market data.

• Special Drawing Rights (SDR):

• The SDR is an international reserve asset created by the IMF in 1969 to supplement its member countries' official reserves. Its value is based on a basket of five currencies: the US Dollar, Euro, Chinese Renminbi, Japanese Yen, and British Pound Sterling.

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Important Points

• RBI's Role: The Reserve Bank of India manages India's Foreign Exchange Reserves, which reached approximately $650 billion in late 2024. The RBI uses these reserves to maintain stability in the Forex market.

• External Sector Stability: A crawl-like arrangement classification suggests that while the currency has some flexibility, it follows a path that the IMF deems as influenced by Central Bank actions rather than purely market forces.

• Global Implications: Reclassifications by the IMF are significant as they impact how international investors and credit rating agencies, like Moody's or S&P, perceive a country's monetary policy and economic governance.

• Article IV Consultation: This is a key surveillance tool where IMF economists visit member countries (such as India) to exchange views with the government and the central bank on economic developments.

Q64. Answer: (c) Carbon dioxide

The correct answer is Carbon dioxide.

Key Points

• According to the World Meteorological Organization (WMO) Greenhouse Gas Bulletin released in October 2024 (providing data for 2023), global average surface concentrations of Carbon dioxide (CO_2) reached 420.0 parts per million (ppm).

• This concentration represents 151% of the pre-industrial level (before the year 1750), which was approximately 278 ppm. Hence, the statement regarding Carbon dioxide reaching this specific threshold is correct.

• Carbon dioxide is the most significant long-lived greenhouse gas in the atmosphere, responsible for approximately 64% of the total radiative forcing (warming effect) since 1750.

• The primary drivers for the increase in CO_2 levels are the burning of fossil fuels (coal, oil, and gas), cement production, and land-use changes such as large-scale deforestation.

• The WMO report highlights that as long as emissions continue, greenhouse gases will continue to accumulate in the atmosphere, leading to rising global temperatures.

Additional Information

• Methane (CH_4):

• In 2023, atmospheric Methane reached 1934 parts per billion (ppb).

• This level is 265% of the pre-industrial level. About 40% of methane is emitted from natural sources (like wetlands), while 60% comes from human activities such as rice agriculture, livestock, and landfills.

• Nitrous Oxide (N_2O):

• The concentration of Nitrous Oxide reached 336.9 ppb in 2023.

• This is 125% of its pre-industrial value. It is both a potent greenhouse gas and an ozone-depleting substance, primarily emitted from nitrogen fertilizers and industrial processes.

• Radiative Forcing:

• The Annual Greenhouse Gas Index (AGGI) shows that from 1990 to 2023, the warming effect from long-lived greenhouse gases increased by 51.5%, with CO_2 contributing about 80% of this increase.

• World Meteorological Organization (WMO):

• The WMO is a specialized agency of the United Nations (UN) established in 1950.

• It is headquartered in Geneva, Switzerland, and serves as the authoritative voice on the state of the Earth's atmosphere and climate change.

Important Points

• The Industrial Revolution (starting around 1750) marked the point where human activity began to significantly alter the atmospheric composition through mechanization and fossil fuel use.

• The Paris Agreement aims to limit global warming to well below 2 degrees Celsius, preferably to 1.5 degrees Celsius, compared to pre-industrial levels.

• Greenhouse gas concentrations are measured in parts per million (ppm) or parts per billion (ppb), indicating the number of molecules of the gas per million or billion molecules of dry air.

• The 2024 Bulletin underscores that the 1.5°C target is becoming increasingly difficult to achieve due to the "clumping" of CO_2 in the atmosphere, which stays for centuries.

Q65. Answer: (c) Surendranath Banerjee and Ananda Mohan Bose

The correct answer is Surendranath Banerjee and Ananda Mohan Bose.

Key Points

• The Indian National Association, also known as the Indian Association, was the first avowed nationalist organization founded in British India.

• It was established on July 26, 1876, in Calcutta (now Kolkata), West Bengal, by Surendranath Banerjee and Ananda Mohan Bose. Hence, statement C is correct.

• The association was founded to promote the political, intellectual, and material advancement of the people of India by every legitimate means.

• It aimed to create a strong body of public opinion in the country and unify the Indian people on a common political program and interests.

• The association attracted the educated middle class and became a platform for the protest against the pro-British policies of the landed aristocracy represented by the British Indian Association.

Additional Information

• Dadabhai Naoroji and Gopal Krishna Gokhale: Dadabhai Naoroji, known as the "Grand Old Man of India," founded the East India Association in London in 1866 to lobby for Indian interests. Gopal Krishna Gokhale was a moderate leader who founded the Servants of India Society in 1905 in Pune. Hence, statement A is incorrect.

• Dadabhai Naoroji and Debendranath Tagore: Debendranath Tagore was a prominent leader of the Brahmo Samaj and was instrumental in the formation of the British Indian Association in 1851, which primarily represented the interests of Zamindars. Hence, statement B is incorrect.

• Bal Gangadhar Tilak and Bipin Chandra Pal: These leaders were the pillars of the Extremist faction within the Indian National Congress. Tilak started the Home Rule League in 1916, and Bipin Chandra Pal was a major figure in the Swadeshi Movement of 1905. Hence, statement D is incorrect.

• The Indian National Association played a crucial role in agitating against the Vernacular Press Act of 1878 and the Arms Act.

• Due to overlapping goals, the Indian National Association merged with the Indian National Congress (founded in 1885) during its second session held in Calcutta in 1886.

Important Points

• Civil Service Agitation: One of the earliest successes of the Indian National Association was the agitation against the lowering of the age limit for the Indian Civil Service (ICS) examination from 21 to 19 years in 1877.

• First All-India Conference: The association organized the first All-India National Conference in 1883, which served as a precursor to the Indian National Congress.

• Surendranath Banerjee was a former ICS officer who was dismissed by the British, which fueled his resolve to build a national political organization.

• Ananda Mohan Bose was the first Indian Wrangler (a student who gains first-class honors in the Mathematical Tripos) of Cambridge University and later served as the President of the Indian National Congress in 1898.

Q66. Answer: (c) 1.5 years

Shortcut Trick

Total values = 13 => Median = 7th value = 28

After removing 55:

Total = 12 => Median = average of 6th and 7th values

= (25 + 28)/2 = 26.5

Difference = 28 − 26.5 = 1.5

Therefore Answer = 1.5 years

Alternate Method

Given data:

15, 18, 21, 21, 23, 25, 28, 30, 35, 40, 45, 50, 55

Calculation:

=> Number of observations = 13 (odd)

=> Median position = (13 + 1)/2 = 7th value

=> Median = 28

=> After removing 55:

New observations = 12 (even)

Median = average of 6th and 7th values

= (25 + 28)/2 = 26.5

=> Difference = 28 − 26.5 = 1.5

Therefore The correct answer is 1.5 years.

Additional Information

Median (Odd)

Middle value = (n+1)/2 position

Median (Even)

Average of two middle values

Tip

Data must be arranged in order

Q67. Answer: (a) Environment (Protection) Act, 1986

The correct answer is Environment (Protection) Act, 1986.

Key Points

• The Environment (Protection) Act, 1986 serves as the umbrella legislation in India, providing a framework for the Central Government to coordinate the activities of various central and state authorities established under other laws like the Water Act and Air Act.

• Under Section 6 and Section 25 of this Act, the Government of India has the power to make rules for the protection of the environment, which includes the notification of Environment Audit Rules or Environmental Statement requirements to monitor industrial impact. Hence, the statement is correct.

• The Environment (Protection) Act was enacted in the wake of the Bhopal Gas Tragedy of 1984, which highlighted the urgent need for comprehensive environmental safety regulations and industrial auditing mechanisms.

• The Act was passed in March 1986 and came into force on 19 November 1986, coinciding with the birth anniversary of former Prime Minister Indira Gandhi, who was a key proponent of environmental conservation.

• The Environment Audit Rules (often referred to as the submission of an Environmental Statement) require industries to provide an annual account of resource consumption, pollution generated, and waste management practices to the State Pollution Control Boards.

Additional Information

• Wildlife Protection Act, 1972:

• This Act provides for the protection of wild animals, birds, and plants to ensure the ecological and environmental security of India.

• It established schedules of protected species and prohibits hunting while regulating trade in wildlife products. It is not the parent act for industrial environment audits.

• Forest (Conservation) Act, 1980:

• Enacted to check the deforestation of forest land for non-forestry purposes, this Act requires prior approval from the Central Government for any diversion of forest land.

• It focuses on compensatory afforestation and the maintenance of forest density rather than industrial pollution audits.

• Air (Prevention and Control of Pollution) Act, 1981:

• This Act was enacted to implement the decisions taken at the United Nations Conference on the Human Environment held in Stockholm in 1972 regarding the preservation of air quality.

• It empowers Pollution Control Boards to set emission standards and declare air pollution control areas, but specific comprehensive audit rules are typically notified under the broader 1986 Act.

• Water (Prevention and Control of Pollution) Act, 1974:

• This was the first major environmental law in India, establishing the Central Pollution Control Board (CPCB) and State Pollution Control Boards (SPCBs).

• It focuses on maintaining the wholesomeness of water and regulating the discharge of industrial effluents.

Important Points

• Constitutional Provision: The Environment (Protection) Act, 1986 was enacted under Article 253 of the Constitution of India, which empowers the Parliament to make laws for implementing international treaties (specifically the Stockholm Conference of 1972).

• Environmental Statement (Audit): The concept of an Environmental Audit was first introduced in 1992 through an amendment to the Environment (Protection) Rules, 1986, making it mandatory for every person carrying on an industry, operation, or process requiring consent to submit an audit report for the financial year ending 31st March.

• Scope of Rules: Rules issued under the 1986 Act cover a wide range of issues including Hazardous Waste Management, EIA (Environmental Impact Assessment), Plastic Waste Management, and Coastal Regulation Zones (CRZ).

• Penalties: Non-compliance with rules issued under the Environment (Protection) Act can lead to imprisonment for a term which may extend to five years or a fine up to one lakh rupees, or both.

Q68. Answer: (b) 27, 110

The logic followed here is:

Logic: The second number is obtained by multiplying the first number by 4 and then adding 2.

For, (19, 78)

=> 19 × 4 = 76

=> 76 + 2 = 78

For, (24, 98)

=> 24 × 4 = 96

=> 96 + 2 = 98

Now, checking the options using the same pattern:

Option 1) (26, 110)

=> 26 × 4 = 104

=> 104 + 2 = 106 ≠ 110

Option 2) (27, 110)

=> 27 × 4 = 108

=> 108 + 2 = 110

Option 3) (27, 112)

=> 27 × 4 = 108

=> 108 + 2 = 110 ≠ 112

Option 4) (26, 112)

=> 26 × 4 = 104

=> 104 + 2 = 106 ≠ 112

Hence, the correct answer is Option 2.

Q69. Answer: (c) 12

Shortcut Trick

Ladder = 24 m (hypotenuse)

Angle with wall = 30° => angle with ground = 60°

Distance from wall = base = 24 × cos60°

= 24 × (1/2) = 12

Therefore Answer = 12 m

Alternate Method

Given:

Ladder length = 24 m

Angle with wall = 30°

Concept used:

Right triangle trigonometry

Calculation:

=> Angle with ground = 90° − 30° = 60°

=> Using cosine:

cos60° = base / hypotenuse

=> 1/2 = base / 24

=> base = 12 m

Therefore The distance from the wall is 12 m.

Additional Information

Complementary Angles

Angle with ground = 90° − angle with wall

Cosine Formula

cosθ = base / hypotenuse

Standard Value

cos60° = 1/2

Q70. Answer: (c) Maharashtra

The correct answer is Maharashtra.

Key Points

• Koli is a popular folk dance of the Koli fishermen community, who are the original inhabitants of the coastal areas of Maharashtra and the Konkan region. Hence, Maharashtra is the correct location.

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• The dance movements are unique and rhythmic, specifically designed to mimic the daily activities of the fishing community, such as the rowing of boats, the tossing of nets to catch fish, and the swaying motion of the sea waves.

• This dance is traditionally performed during the festival of Narali Purnima (Coconut Festival). This festival is celebrated in the month of August (the month of Shravan in the Hindu calendar) and marks the end of the monsoon and the beginning of a new fishing season.

• The performance involves both men and women standing in two separate rows or pairs, moving in unison to the beats of traditional instruments like the Dholak and Cymbals.

• The attire is a significant feature; Koli women wear a specific nine-yard saree (known as Lugade) tucked up to the knees, while men wear a Surka (a triangular loincloth), a waistcoat, and a distinct cap.

Additional Information

• Bihar: This state is home to vibrant folk dances like Jat-Jatin, which is primarily performed in the Mithila region to depict the life of a married couple. Other notable forms include Bideshiya, Paika, and Jhijhiya, which are distinct from the coastal Koli traditions. Hence, Bihar is not the correct answer.

• Rajasthan: Known for the world-famous Ghoomar dance, originally performed by the Bhil tribe. Another significant dance is Kalbelia, which was inscribed on UNESCO's Representative List of the Intangible Cultural Heritage of Humanity in 2010. Hence, Rajasthan is not the correct answer.

• Odisha: This state boasts the classical dance form Odissi and various folk dances like Chhau (a martial arts-based dance from Mayurbhanj), Sambalpuri, and Ghumura. These dances are rooted in the agrarian and tribal culture of Eastern India. Hence, Odisha is not the correct answer.

• Other Maharashtra Dances: Apart from Koli, Lavani is a highly famous folk dance characterized by its powerful rhythm and Dholki beats. Other forms include Dhangari Gaja, performed by shepherds, and Tamasha, a traditional form of Marathi theater.

Important Points

• The Koli community is recognized as one of the oldest ethnic groups of the Seven Islands of Mumbai, and their culture remains a vital part of the city's heritage.

• During Narali Purnima, the community offers a golden coconut or a decorated coconut to Varuna (the God of the Ocean) to seek protection and a prosperous catch for the upcoming year.

• The music for the Koli dance is often fast-paced and upbeat, reflecting the energy and resilience of the community against the unpredictable nature of the sea.

• Geographically, while the dance is most prominent in Maharashtra, variations of Koli culture and similar folk motifs can be found along the coastal stretches of Gujarat and Goa due to shared maritime borders.

Q71. Answer: (d) 24th April 2019

The correct answer is 24th April 2019.

Key Points

• The National Rural Economic Transformation Project (NRETP) was officially launched on 24th April 2019, coinciding with National Panchayati Raj Day. This date is significant as it marks the push towards rural economic empowerment. Hence, the statement regarding the launch date of 24th April 2019 is correct.

• The NRETP is an additional funding project under the Deendayal Antyodaya Yojana - National Rural Livelihoods Mission (DAY-NRLM). It is designed to scale up the efforts of the mission by focusing on higher-order economic activities.

• The project is implemented by the Ministry of Rural Development (MoRD), Government of India. It focuses on supporting women-owned enterprises and promoting financial inclusion through digital platforms.

• Funding for the project is facilitated through a loan agreement with the World Bank (International Bank for Reconstruction and Development). The total financial outlay for this specific project was $250 million.

• The initiative initially targeted 13 states across India that were identified as high-poverty regions to ensure that the benefits reach the most vulnerable populations.

Additional Information

• Geographic Reach: The project covers 13 states, namely Assam, Bihar, Chhattisgarh, Gujarat, Jharkhand, Karnataka, Madhya Pradesh, Maharashtra, Odisha, Rajasthan, Tamil Nadu, Uttar Pradesh, and West Bengal. These locations were chosen based on their potential for rural transformation.

• Promotion of Enterprises: NRETP aims to develop rural value chains and cluster-based enterprises. It provides technical assistance and incubation services to Self-Help Group (SHG) members to start and scale up small businesses in sectors like agriculture, livestock, and non-farm sectors.

• Digital Finance: A key feature of the project is the deployment of BC Sakhis (Business Correspondent Sakhis). This initiative ensures that banking services reach the doorstep of rural households, facilitating digital payments and financial literacy.

• Organic Farming: The project encourages sustainable agriculture by supporting organic farming practices. It helps farmers in getting certification and establishing market linkages for organic produce, thereby increasing the income of rural households.

• Gender Focus: The project is heavily gender-centric, aiming to increase the participation of women in the local economy. It

empowers women through Producer Organizations and ensures they have a voice in decision-making processes.

Important Points

• Comparison with DAY-NRLM: While DAY-NRLM focuses on poverty alleviation and social mobilization, NRETP moves a step further by focusing on economic transformation through market-led interventions and enterprise development.

• Convergence: The project emphasizes convergence with other government schemes like MGNREGA and Pradhan Mantri Kaushal Vikas Yojana to maximize the impact on rural livelihoods and employment generation.

• Year 2019 Significance: The year 2019 was a landmark for rural development in India, as the Ministry of Rural Development intensified efforts to integrate technology and finance into the SHG ecosystem.

• Monitoring and Evaluation: The project utilizes a robust Management Information System (MIS) to track the progress of rural enterprises and the socio-economic growth of the beneficiaries in real-time.

Q72. Answer: (a) 76

Shortcut Trick

x^4 + 1/x^4 = 322

$(x^2 + 1/x^2)^2 = x^4 + 1/x^4 + 2$

$\Rightarrow (x^2 + 1/x^2)^2 = 322 + 2 = 324$

$\Rightarrow x^2 + 1/x^2 = 18$

$(x - 1/x)^2 = x^2 + 1/x^2 - 2 = 18 - 2 = 16$

$\Rightarrow x - 1/x = 4$ (since $x > 1$)

$x^3 - 1/x^3 = (x - 1/x)^3 + 3(x - 1/x)$

$= 4^3 + 3\times4 = 64 + 12 = 76$

Therefore Answer = 76

Alternate Method

Given:

x^4 = 322 − 1/x^4 => x^4 + 1/x^4 = 322

Formula used:

$(a + b)^2 = a^2 + b^2 + 2ab$

$(x - 1/x)^3 = x^3 - 1/x^3 - 3(x - 1/x)$

Calculation:

=> x^4 + 1/x^4 = 322

$\Rightarrow (x^2 + 1/x^2)^2 = 322 + 2$

=> = 324 => $x^2 + 1/x^2 = 18$

$\Rightarrow (x - 1/x)^2 = 18 - 2 = 16$

$\Rightarrow x - 1/x = 4$ (since $x > 1$)

$\Rightarrow x^3 - 1/x^3 = (x - 1/x)^3 + 3(x - 1/x)$

=> = 64 + 12 = 76

Therefore The correct answer is 76.

Additional Information

Identity

$(x^2 + 1/x^2)^2 = x^4 + 1/x^4 + 2$

Cube Identity

$x^3 - 1/x^3 = (x - 1/x)^3 + 3(x - 1/x)$

Sign Selection

$x > 1$ => take positive root

Q73. Answer: (d) 1

Shortcut Trick

Let ages = 2x, 3x

After 6 years:

$(2x + 6)/(3x + 6) = 8/9$

$\Rightarrow 9(2x + 6) = 8(3x + 6)$

$\Rightarrow 18x + 54 = 24x + 48$

$\Rightarrow 6 = 6x \Rightarrow x = 1$

Present ages = 2 and 3
Difference = 1
Therefore Answer = 1 year
Alternate Method
Given:
Present ratio = 2 : 3
After 6 years ratio = 8 : 9
Calculation:
Let:
Ayushi = 2x, Anmol = 3x
=> After 6 years:
(2x + 6)/(3x + 6) = 8/9
=> Cross multiply:
9(2x + 6) = 8(3x + 6)
=> 18x + 54 = 24x + 48
=> 6 = 6x => x = 1
=> Present ages = 2, 3
=> Difference = 1 year
Therefore The correct answer is 1 year.
Additional Information
Age Problems
Use variable method with ratios
Cross Multiplication
Useful for solving fractional equations
Tip
Always verify ratio after substitution

Q74. Answer: (d) 36

Shortcut Trick
Total work (man-days) = 100 × 27 = 2700
Remaining men = 100 − 25 = 75
Days = 2700 ÷ 75 = 36
Therefore Answer = 36 days
Alternate Method
Given:
100 men → 27 days
25 men left => 75 men remain
Concept used:
Men × Days = Constant
Calculation:
=> Total work = 100 × 27 = 2700 man-days
=> Remaining men = 75
=> Required days = 2700 ÷ 75
=> = 36 days
Therefore The provisions will last for 36 days.
Additional Information
Man-Days Concept
Total work = men × days remains constant
Inverse Relation
More men => fewer days, fewer men => more days
Shortcut Tip
Directly use product method

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Q75. Answer: (b) 9

Given:

cbrt5832/4√256 × 2/54 × 54

Calculation:

We know that, cbrt5832 = 18 and 4√256 = 4

cbrt5832/4√256 × 2/54 × 54

=> 18/4 × 2/54 × 54

=> 18/2

=> 9

Therefore The correct answer is 9.

Q76. Answer: (a) Female literacy has risen faster than male literacy.

The correct answer is Female literacy has risen faster than male literacy.

Key Points

• According to the Census of India 2011, the literacy rate in the country showed a significant upward trend compared to the 2001 data. The overall literacy rate increased from 64.84% in 2001 to 74.04% in 2011.

• Comparing gender-specific growth, female literacy rose from 53.67% in 2001 to 65.46% in 2011, marking an absolute increase of 11.79 percentage points. Hence, statement A is correct.

• In contrast, male literacy increased from 75.26% in 2001 to 80.89% in 2011, which is a growth of 5.63 percentage points. Since the growth rate for females was nearly double that of males, they did not rise parallelly. Hence, statement B is incorrect.

• The data confirms that male literacy also witnessed a rise during this decade, refuting the claim that it declined. Hence, statement C is incorrect.

• Since the female literacy rate grew by 11.79% and the male literacy rate grew by 5.63%, the assertion that male literacy rose faster is statistically false. Hence, statement D is incorrect.

Additional Information

• Definition of Literacy: As per the Census, a person aged 7 years and above who can both read and write with understanding in any language is considered literate. This definition is crucial for the Ministry of Home Affairs when conducting the decadal census.

• State-wise Performance: Kerala maintained its position as the most literate state in India with a literacy rate of 94.00% in 2011. On the other end of the spectrum, Bihar recorded the lowest literacy rate at 61.80%.

• Union Territories: Among the Union Territories, Lakshadweep recorded the highest literacy rate at 91.85%. This highlights the regional disparities in educational attainment across the country.

• Gender Gap: Although female literacy is rising faster, a gender gap of 16.3 percentage points still existed in 2011 (80.89% for males vs. 65.46% for females). This gap has been narrowing over the decades due to various government interventions.

• Urban vs. Rural: The urban literacy rate stood at 84.11%, while the rural literacy rate was significantly lower at 67.77%. This data underscores the need for localized educational infrastructure in rural India.

Important Points

• Saakshar Bharat Mission: To bridge the gender gap and boost adult literacy, the Government of India launched the Saakshar Bharat scheme in September 2009, focusing specifically on women in districts with low literacy rates.

• Constitutional Provisions: Article 21A was inserted into the Constitution of India via the 86th Amendment Act, 2002, making free and compulsory education a Fundamental Right for children aged 6 to 14 years.

• Right to Education (RTE) Act: The Right of Children to Free and Compulsory Education Act was enacted in 2009 and came into force on 1st April 2010, significantly contributing to the literacy jump observed in the 2011 Census.

• Decadal Growth: The total number of literates in India increased from 560.7 million in 2001 to 763.5 million in 2011, showing the impact of Sarva Shiksha Abhiyan and other primary education initiatives.

Q77. Answer: (c) Kerala

The correct answer is Kerala.

Key Points

• The KFC Machinery Loan Scheme for MSMEs was launched by the Government of Kerala through the Kerala Financial Corporation (KFC) in September 2024 to boost the industrial landscape of the state.

• Under this initiative, Micro, Small, and Medium Enterprises (MSMEs) can avail of loans up to Rs. 5 crore for the purchase of machinery, equipment, and for technology up-gradation.

• A major highlight of the scheme is the provision of collateral-free loans for amounts up to Rs. 2 crore, which is facilitated through the Credit Guarantee Fund Trust for Micro and Small Enterprises (CGTMSE) scheme.

• The scheme is designed to provide financial assistance with a simplified documentation process and speedy sanction to

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encourage entrepreneurship and industrial growth in the manufacturing and service sectors.

• The Kerala Financial Corporation aims to provide these loans at competitive interest rates, often supported by interest subvention from the State Government, making it one of the most attractive schemes for local industries.

Additional Information

• Kerala Financial Corporation (KFC):

• Established in 1953, KFC is a pioneer in industrial financing in India and was the first State Financial Corporation to be set up under the State Financial Corporations Act, 1951.

• Headquartered in Thiruvananthapuram, it plays a vital role in the economic development of Kerala by providing long-term loans to small and medium-scale industries.

• Credit Guarantee Fund Trust for Micro and Small Enterprises (CGTMSE):

• Launched by the Government of India (Ministry of MSME) and SIDBI, this trust provides credit guarantees to financial institutions to facilitate collateral-free credit to the MSME sector.

• It helps first-generation entrepreneurs realize their dream of setting up a unit by eliminating the need for third-party guarantees or tangible collateral security.

• MSME Classification in India:

• Following the 2020 amendment, a Micro Enterprise has an investment up to Rs. 1 crore and turnover up to Rs. 5 crore.

• A Small Enterprise has an investment up to Rs. 10 crore and turnover up to Rs. 50 crore, while a Medium Enterprise has an investment up to Rs. 50 crore and turnover up to Rs. 250 crore.

Important Points

• Eligibility Criteria: The scheme is available to both new and existing MSME units that possess a valid Udyam Registration and are involved in manufacturing, processing, or service activities within the State of Kerala.

• Repayment Terms: The machinery loans generally come with a repayment period ranging from 5 to 10 years, which includes a moratorium period (holiday for principal repayment) of up to 2 years, depending on the nature of the project.

• Interest Subvention: The Government of Kerala often provides an interest subsidy (subvention) of up to 3% to 4% for specific categories of borrowers, such as women entrepreneurs, SC/ST entrepreneurs, and start-ups, significantly reducing the cost of capital.

• Economic Impact: By modernizing machinery, KFC aims to enhance the productivity and global competitiveness of Kerala-based MSMEs, leading to increased exports and local employment generation.

Q78. Answer: (b) 675

Shortcut Trick

=> Let Prakash = P, Gopal = G

=> P × (1.08)18 = G × (1.08)19

=> Divide both sides by (1.08)18

=> P = G × 1.08

=> => P : G = 1.08 : 1 = 108 : 100 = 27 : 25

=> Total parts = 27 + 25 = 52

=> Gopal's share = (25 ÷ 52) × 1404

=> = 25 × 27 = 675

Therefore Answer = 675

Alternate Method

Given:

Total amount = 1404

Formula used:

Amount = $P \times (1 + r/100)^n$

Calculation:

=> Let Prakash = P, Gopal = G

=> P × (1.08)^(18) = G × (1.08)^(19)

=> Divide both sides by (1.08)^(18)

=> P = G × 1.08

=> => P : G = 1.08 : 1 = 108 : 100 = 27 : 25

=> Total parts = 27 + 25 = 52

=> Gopal's share = (25 ÷ 52) × 1404

=> = 25 × 27 = 675

Therefore The correct answer is 675.

Additional Information

Compound Interest Formula

$A = P \times (1 + r/100)^n$

Ratio from CI

If amounts become equal, equate expressions and simplify powers

Simplification Trick

Cancel same bases to reduce exponent difference

Ratio Conversion

Convert decimals to ratio by multiplying appropriately (1.08 = 108/100)

Q79. Answer: (a) 4,33,550

Shortcut Trick

Successive increase formula: Final = P × (1 + r1/100) × (1 + r2/100)

=> = 290000 × 1.15 × 1.30

=> = 290000 × 1.495

=> = 433550

Therefore Answer = 4,33,550

Alternate Method

Given:

Initial population = 2,90,000

Formula used:

Final population = P × (1 + r/100)

Calculation:

=> After 1st year = 290000 × 1.15 = 333500

=> After 2nd year = 333500 × 1.30

=> = 433550

Therefore The correct answer is 4,33,550.

Additional Information

Successive Percentage Change

Final = P × (1 + a/100) × (1 + b/100)

Net Percentage Increase

Net % = a + b + (ab/100)

Application

Used in population growth, compound interest, and profit problems

Quick Trick

Multiply growth factors directly instead of calculating year by year

Q80. Answer: (c) Brother

Family Chart:

Decoding the Symbols:

Symbol	•	–	x	÷
Meaning	Daughter	Brother	Wife	Father

Given: D – F + G x H ÷ J

It means: D is the brother of F, F is the daughter of G, G is the wife of H, H is the father of J.

So, D is brother of J.

Hence, the correct answer is Option 3.

Q81. Answer: (c) Administrative Reforms Commission (ARC) - 2

The correct answer is Administrative Reforms Commission (ARC) - 2.

Key Points

• The Second Administrative Reforms Commission (ARC) was constituted on 31 August 2005. It was tasked with suggesting

measures to achieve a proactive, responsive, accountable, sustainable, and efficient administration for the country at all levels of the government.

• The commission was chaired by Shri M. Veerappa Moily. However, after he resigned, Shri V. Ramachandran took over the chairmanship for the remaining duration.

• The commission submitted its first report titled "Right to Information: Master Key to Good Governance" in June 2006. This report emphasized that the Right to Information (RTI) is a fundamental prerequisite for good governance and transparency in administrative processes.

• The report argued that the RTI Act, 2005, provides a potent weapon to the citizens to promote transparency and accountability in the working of every public authority. It specifically recommended the repeal of certain sections of the Official Secrets Act, 1923, to ensure the spirit of openness prevails.

• The commission concluded that for the RTI to be an effective tool, there must be a change in the mindset of the bureaucracy from "secrecy" to "disclosure." Hence, the option regarding the Second Administrative Reforms Commission is correct.

Additional Information

• Administrative Reforms Commission (ARC) - 1:

• The First ARC was established on 5 January 1966.

• It was initially headed by Shri Morarji Desai, and later by Shri K. Hanumanthaiah after Desai became the Deputy Prime Minister of India.

• This commission submitted 20 reports covering various aspects like Personnel Administration, Center-State Relations, and Financial Administration before it was wound up in 1970.

• Sarkaria Commission:

• The Sarkaria Commission was set up in June 1983 by the Central Government of India.

• It was headed by Justice Ranjit Singh Sarkaria, a retired judge of the Supreme Court of India.

• Its primary mandate was to examine the relationship and balance of power between state and central governments in the country and suggest changes within the framework of the Constitution of India. It submitted its final report in 1988.

• Punchhi Commission:

• The Punchhi Commission was constituted by the Government of India in April 2007.

• It was chaired by Justice Madan Mohan Punchhi, former Chief Justice of India.

• The commission's objective was to take a fresh look at the relative roles and responsibilities of the various levels of government and their interactions, especially in light of the changes in the Indian economy and polity since the Sarkaria Commission. It submitted its report in March 2010.

Important Points

• The Second Administrative Reforms Commission produced a total of 15 reports. Some of the other notable reports include "Unlocking Human Capital: Entitlements and Governance", "Crisis Management", "Ethics in Governance", and "Promoting e-Governance".

• The Right to Information Act was enacted in the year 2005 and replaced the former Freedom of Information Act, 2002. It is derived from the fundamental right to freedom of speech and expression under Article 19(1)(a) of the Constitution.

• The Master Key to Good Governance report specifically dealt with the implementation challenges of the RTI, the role of Information Commissioners, and the need for Public Records Management to facilitate easy access to information for the common man.

• The concept of Good Governance, as per the commission, includes eight major characteristics: participation, consensus-oriented, accountable, transparent, responsive, effective and efficient, equitable and inclusive, and following the rule of law.

Q82. Answer: (a) Reptilia

The correct answer is Reptilia.

Key Points

• Reptilia is a class of vertebrates that are primarily terrestrial and are characterized by their creeping or crawling mode of locomotion.

• Animals in this class are Poikilotherms (cold-blooded), meaning they lack the physiological mechanism to maintain a constant internal body temperature and instead rely on environmental heat sources. Hence, the description matches the characteristics of Reptilia.

• The body of a reptile is covered by dry and cornified skin, featuring epidermal scales or scutes that provide protection and prevent desiccation (water loss).

• Most reptiles possess a three-chambered heart (two atria and one partially divided ventricle); however, crocodiles are a notable exception with a four-chambered heart.

• They are oviparous, laying cleidoic eggs (eggs with a protective shell) on land, and development is direct without a larval stage.

Additional Information

• Amphibia:

• Members of this class can live in both aquatic and terrestrial habitats.

• While they are cold-blooded like reptiles, their skin is smooth and moist (without scales) and often functions as a respiratory organ. Hence, Option B is incorrect.

• They usually undergo metamorphosis, starting life with gills in water and developing lungs as adults.

• Mammalia:

• Mammals are Homeothermic (warm-blooded) animals that can maintain a constant body temperature regardless of the environment.

• Their skin is characterized by the presence of hair or fur and contains sweat glands and sebaceous glands. Hence, Option C is incorrect.

• The most unique feature is the presence of mammary glands used to nourish the young ones with milk.

• Aves:

• This class includes all birds, which are warm-blooded vertebrates.

• Instead of scales on the body, they possess feathers, although scales can be found on their hind limbs. Hence, Option D is incorrect.

• They have hollow bones (pneumatic bones) and their forelimbs are modified into wings for flight.

Important Points

• Tympanum: In both reptiles and amphibians, the tympanum represents the ear as they lack an external ear opening.

• Excretion: Reptiles are generally uricotelic, meaning they excrete nitrogenous waste in the form of uric acid pellets or paste, which is a vital adaptation for conserving water in arid environments.

• Taxonomy: The study of reptiles and amphibians is known as Herpetology.

• Evolutionary Significance: Reptiles were the first vertebrates to become fully adapted to life on land due to the evolution of the amniotic egg, which removed the requirement for water during reproduction.

• Examples: Common examples include Chelone (Turtle), Testudo (Tortoise), Chameleon (Tree lizard), Calotes (Garden lizard), Crocodylus (Crocodile), and poisonous snakes like Naja (Cobra) and Vipera (Viper).

Q83. Answer: (c) Weight

The correct answer is Weight.

Key Points

• Weight (often used synonymously with mass in commercial contexts) is measured using the unit quintal. A quintal is a historical unit of mass in many countries which is usually defined as 100 base units of either pounds or kilograms. Hence, statement C is correct.

• In the metric system, specifically in countries like India, France, and Albania, one quintal is exactly equal to 100 kilograms (kg). It is a widely used unit for measuring large quantities of agricultural produce such as wheat, rice, pulses, and sugar.

• Volume refers to the amount of three-dimensional space an object or substance occupies. It is typically measured in cubic metres, litres, or millilitres, but not in quintals. Hence, statement A is incorrect.

• Length is a measure of distance or the extent of something from end to end. The standard units for length include metres (m), kilometres (km), centimetres (cm), and miles. Quintal is not a unit of linear measurement. Hence, statement B is incorrect.

• Temperature is the physical property that expresses hotness or coldness. It is measured using scales like Celsius (°C), Fahrenheit (°F), and Kelvin (K). It has no relation to the unit quintal. Hence, statement D is incorrect.

Additional Information

• Metric Quintal: In the International System of Units (SI), the kilogram is the base unit of mass. The metric quintal is defined as 100 kg, while a metric tonne is defined as 1,000 kg (or 10 quintals).

• Imperial and US Systems: Historically, the hundredweight (cwt) was often referred to as a quintal. In the United States, a "short hundredweight" or quintal is 100 pounds (lb), whereas in the United Kingdom (Imperial system), a "long hundredweight" was 112 pounds.

• Uses in Agriculture: In India, the Minimum Support Price (MSP) for crops is usually announced by the government (via CACP) in terms of rupees per quintal. This makes it a vital unit for farmers, traders, and economists in the agricultural sector.

• Conversion Data: For scientific and trade accuracy, 1 Quintal = 0.1 Tonne = 100 Kilograms = 1,00,000 Grams. In the context of bulk density, mass in quintals is often compared against volume in cubic metres to determine the storage requirements for grain silos.

Important Points

• History: The term "quintal" originates from the Arabic word "quintar," which was derived from the Latin word "centenarium," meaning a hundred. It has been a standard unit in Mediterranean trade for centuries.

• Weight vs. Mass: While quintal is a unit of mass, in daily commerce and general science questions, the term weight is frequently used to describe the quantity of matter. Technically, weight is the gravitational force acting on a mass and is measured in Newtons (N).

• Global Variations: In Spain and Latin America, the "quintal macho" or "quintal métrico" is used. For example, in Argentina, a quintal is typically 100 kg, but older traditional variations might still exist in local markets.

Q84. Answer: (d) Feudatory chiefs were assigned military and administrative duties

The correct answer is Feudatory chiefs were assigned military and administrative duties.

Key Points

• The early medieval period in South India, particularly under the Chalukyas and Rashtrakutas, was characterized by a decentralized administrative structure where Feudatory chiefs (known as Samantas or Mahasamantas) played a pivotal role. These chiefs were responsible for providing military support to the sovereign during wars and managing the local administration of their assigned territories. Hence, statement D is correct.

• In this system, the King did not maintain a massive permanent standing army for all regions but relied on the levies provided by these feudatories. This was a major administrative feature of the 7th Century to 10th Century AD.

• Temple authorities in kingdoms like the Cholas or Chalukyas were centers of economic and social activity and often held land, but they did not serve as the primary agency for direct military recruitment for village defense. Hence, statement A is incorrect.

• Administrative positions, especially those of District leaders (Vishayapatis) and Feudatory chiefs, were often hereditary in nature. There was no systemic annual rotation of these leaders by royal decree, as stability in the border regions was preferred. Hence, statement B is incorrect.

• While the Royal Council and the King held ultimate authority, the governance was not entirely centralized. The vastness of the Deccan and South India required a system where power was shared with provincial governors and subordinate allies. Hence, statement C is incorrect.

Additional Information

• The Chalukya Dynasty:

• The Chalukyas of Badami were established by Pulakeshin I in 543 AD. Their capital was located at Vatapi (modern Badami, Karnataka).

• They were famous for their maritime power and their military conflict with Harshavardhana of Kannauj, where Pulakeshin II defeated Harsha on the banks of the Narmada River.

• Their administration was divided into Vishayas (districts) and Rashtras (provinces), overseen by officers who often held military titles.

• The Rashtrakuta Empire:

• Founded by Dantidurga in 753 AD after overthrowing the Chalukyas. The empire reached its zenith under rulers like Amoghavarsha I and Krishna III.

• The Rashtrakutas controlled large parts of the Deccan and were major participants in the Tripartite Struggle for Kannauj during the 8th and 9th centuries.

• Their military was renowned for its large elephant corps and high-quality cavalry, which were maintained through the resources provided by subordinate chiefs.

• Territorial Divisions:

• The Rashtra was the largest unit, governed by a Rashtrapati.

• The Vishaya was a district governed by a Vishayapati.

• The Bhukti consisted of a group of villages, usually managed by a Bhogapati.

Important Points

• The Samanta System: This was a feudal-federal structure. Feudatory chiefs were allowed to retain their internal autonomy as long as they paid tribute and provided troops when called upon by the Sovereign.

• Revenue and Land: Officials and military commanders were often paid through land grants rather than cash. This practice contributed to the growth of landed intermediaries in medieval India.

• Village Governance: At the grassroots level, the Gram Mahattaras (village elders) and Gramapatis (village headmen) played a crucial role in revenue collection and maintaining local law and order.

• Inscriptions: Much of this information is derived from Copper-plate grants and stone inscriptions found in Aihole, Pattadakal, and Ellora, which detail the military achievements and administrative orders of the kings.

Q85. Answer: (d) Neither conclusion (I) nor (II) follows

Given Statements:

Some leaves are roots.

All roots are flowers.

Some flowers are stems.

The least possible Venn diagram for the given statements is:

Conclusions:

I. All stems are roots – False

(Because only some flowers are stems, and roots are inside flowers, but stems can be outside roots.)

II. All flowers are leaves – False

(Because only some leaves are roots and roots are flowers, but all flowers are not necessarily leaves.)

So, neither conclusion I nor II follows.

Hence, the correct answer is Option 4.

Q86. Answer: (c) 55

Shortcut Trick

Take assumed mean A = 35 (given mean makes it easiest).

Class midpoints: 15, 25, 35, 45, 55 => deviations from 35: −20, −10, 0, +10, +20

Multiply f × d and use Σfd = 0 (since mean = assumed mean)

−980 − 330 + 0 + 210 + 20X = 0

Therefore Answer = 55

Alternate Method

Given:

Mean = 35

Formula used:

Mean = (Σ f×x) ÷ (Σ f)

Calculation:

=> Class midpoints: 15, 25, 35, 45, 55

=> Σf = 49 + 33 + 24 + 21 + X = 127 + X

=> Σ(f×x) = (49×15) + (33×25) + (24×35) + (21×45) + (X×55)

=> = 735 + 825 + 840 + 945 + 55X

=> = 3345 + 55X

=> Mean = 35 => (3345 + 55X) ÷ (127 + X) = 35

=> 3345 + 55X = 35(127 + X)

=> 3345 + 55X = 4445 + 35X

=> 55X − 35X = 4445 − 3345

=> 20X = 1100

=> X = 55

Therefore The correct answer is 55.

Additional Information

Mean of Grouped Data

Mean = Σ(f×x) ÷ Σf, where x = class midpoint

Assumed Mean Method

Take a central value A and use deviations to simplify calculations

Shortcut Condition

If mean = assumed mean => Σfd = 0

Class Midpoint

Midpoint = (Lower limit + Upper limit) ÷ 2

Q87. Answer: (a) Europe

The correct answer is Europe.

Key Points

• The transatlantic telegraph cable was an undersea cable running under the Atlantic Ocean used for telegraphy communications. Hence, the statement regarding the laying of the cable is correct.

• The first successful exchange of messages through the telegraph cable occurred on August 5, 1858, connecting the continents of North America and Europe. (Note: While the question mentions 1958, the historical first telegraph cable was laid in the mid-19th century, specifically 1858). Hence, the statement regarding the connection between North America and Europe is correct.

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• This technological marvel was designed for rapid communication, reducing the time required to send messages between the Old World and the New World from ten days (by ship) to just a few minutes or hours. Hence, the statement regarding rapid communication is correct.

• The landing points for the cable were Valentia Island in western Ireland and Heart's Content in Newfoundland, Canada.

• The project was spearheaded by the Atlantic Telegraph Company, which was founded by American businessman Cyrus West Field in 1856.

Additional Information

• Historical Context and Failure: The 1858 cable operated for only three weeks before failing due to insulation breakdown caused by excessive voltage. However, it proved that a transatlantic connection was technically feasible.

• The 1866 Success: A much more durable and reliable cable was successfully laid in 1866 by the ship Great Eastern, which was the largest ship in the world at that time.

• Technological Evolution (TAT-1): In 1956, exactly a century after the company's founding, the first transatlantic telephone cable, known as TAT-1, was inaugurated, which allowed for voice communication rather than just telegraph signals.

• Materials Used: Early telegraph cables consisted of seven copper wires, covered with three coats of gutta-percha (a natural latex insulator) and wound with tarred hemp and an outer spiral of iron wire.

• Significant First Message: The first official message sent across the Atlantic was a 98-word telegram of congratulation from Queen Victoria of the United Kingdom to President James Buchanan of the United States.

Important Points

• Economic and Political Impact: The cable revolutionized international trade, banking, and diplomacy by allowing markets in London and New York to communicate in near real-time.

• Submarine Cables Today: In the 21st century, over 95% of international data, including the Internet, is transmitted via submarine fiber optic cables rather than satellites.

• Global Reach: While the Atlantic was the first ocean crossed, the Pacific Ocean was eventually bridged by the Commercial Pacific Cable Company in 1902-1903, connecting the United States to Hawaii, Guam, and the Philippines.

• Administrative Oversight: Today, the laying and maintenance of such cables involve international law and telecommunications agreements to ensure global connectivity across sovereign waters.

Q88. Answer: (d) 4th

The correct answer is 4th.

Key Points

• According to the International Renewable Energy Agency (IRENA), India maintains its global standing by being ranked 4th in total renewable energy installed capacity. This includes solar, wind, and hydropower (including large hydro projects).

• As of the latest data assessments for 2024-2025, India has surpassed many developed nations, trailing only behind China, the United States, and Brazil in terms of sheer volume of green energy infrastructure.

• The country's total installed renewable energy capacity has reached a significant milestone of approximately 190 GW to 200 GW. This growth is driven by massive government subsidies and favorable policies under the Ministry of New and Renewable Energy (MNRE).

• In specific sub-sectors, India consistently ranks 4th in Wind Power capacity and 5th in Solar Power capacity globally, showcasing a balanced growth across different energy sources.

• The IRENA Renewable Energy Statistics report is a primary global benchmark that tracks the transition of 150+ countries toward sustainable energy, and India's consistent rank highlights its leadership in the global energy transition.

Additional Information

• National Targets and COP26 Commitments:

• India has committed to an ambitious target of achieving 500 GW of non-fossil fuel based energy capacity by the year 2030.

• During the COP26 summit in Glasgow, the Prime Minister of India announced the "Panchamrit" plan, which includes reaching Net Zero emissions by the year 2070.

• Solar Power Initiatives:

• The National Solar Mission, launched in 2010, is a major initiative to promote ecologically sustainable growth.

• Significant projects like the Bhadla Solar Park in Rajasthan (the world's largest at its peak) have propelled India to the 5th rank globally in solar energy.

• Role of IRENA:

• The International Renewable Energy Agency (IRENA) is an intergovernmental organization headquartered in Abu Dhabi, United Arab Emirates (UAE), established in 2009.

• It serves as the principal platform for international cooperation and a repository of policy, technology, and financial knowledge on renewable energy.

• Wind Energy and Location Facts:

• India's wind energy sector is primarily concentrated in coastal states like Tamil Nadu, Gujarat, and Maharashtra.

• The Muppandal Wind Farm in Tamil Nadu is one of the largest onshore wind farms in the world, contributing significantly to India's 4th rank in wind capacity.

Important Points

• Investment Trends: India saw a record Foreign Direct Investment (FDI) inflow in the renewable energy sector, totaling billions of US Dollars over the last five years.

• Institutional Support: Agencies like the Solar Energy Corporation of India (SECI) and the Indian Renewable Energy Development Agency (IREDA) play a functional role in financing and implementing RE projects across the country.

• Global Rankings at a Glance: In the Renewable Energy Country Attractiveness Index (RECAI), India frequently features in the top 3 most attractive destinations for renewable energy investment.

Q89. Answer: (a) 133

The logic followed here is:

12 → 63

=> 12 × 5 + 3 = 60 + 3 = 63

21 → 108

=> 21 × 5 + 3 = 105 + 3 = 108

So, the pattern is:

Result = (Number × 5) + 3

Now, applying the same pattern for 26:

=> 26 × 5 + 3 = 130 + 3 = 133

Hence, the correct answer is Option 1.

Q90. Answer: (a) 134

The logic followed here is:

thus, "134" will replace the question mark in the given series.

Hence, the correct option is "Option 1".

Q91. Answer: (a) Hamad Ali Al-Khater

The correct answer is Hamad Ali Al-Khater.

Key Points

• Effective 7 December 2025, Qatar Airways Group appointed Hamad Ali Al-Khater as its new Group Chief Executive Officer. He succeeded Engr. Badr Mohammed Al-Meer, who had served in the role since late 2023.

• Previous Role: Before taking the helm at Qatar Airways, Al-Khater served as the Chief Operating Officer (COO) of Hamad International Airport (HIA) in Doha, which is the airline's global hub.

• Strategic Focus: His appointment is expected to strengthen the synergy between the airline and its award-winning hub, with a continued focus on operational excellence, sustainability, and passenger experience.

Additional Information

• Qatar Airways:

• Founded in 1993 and headquartered in Doha, it is the state-owned flag carrier of Qatar.

• The airline serves as a major global hub, connecting over 170 destinations across six continents using a modern fleet of more than 250 aircraft.

• In October 2013, Qatar Airways became the first major Gulf carrier to join the Oneworld alliance, strengthening its global reach through partnerships with other major airlines.

• Fleet and Innovation:

• The airline is a launch customer for several advanced aircraft types, including the Airbus A350-1000 and the Boeing 777X.

• It is world-renowned for its Qsuite business class product, which features the industry's first-ever double bed in Business Class.

• The airline was the first to be awarded the 5-Star COVID-19 Airline Safety Rating by Skytrax during the pandemic.

• Economic Impact:

• Qatar Airways is a cornerstone of the Qatar National Vision 2030, playing a vital role in diversifying the economy through tourism and logistics.

• The group includes various subsidiaries such as Qatar Duty Free, Qatar Aviation Services, and Qatar Airways Cargo, which is currently one of the largest air cargo carriers in the world.

Important Points

• Leadership Transition: The retirement of Akbar Al Baker in 2023 ended a 27-year era during which the airline grew from 9 aircraft

to a global powerhouse. Al-Meer's appointment signifies a shift toward a new generation of leadership focused on sustainability and operational efficiency.

• Sustainability Goals: Qatar Airways is committed to achieving net-zero carbon emissions by 2050, participating in the CORSIA (Carbon Offsetting and Reduction Scheme for International Aviation) program and investing in Sustainable Aviation Fuel (SAF).

• Hamad International Airport Expansion: Al-Meer oversaw the Phase A expansion of HIA, which included the famous indoor tropical garden known as "The Orchard," significantly increasing the airport's capacity to over 58 million passengers annually.

Q92. Answer: (c) 2014

The correct answer is 2014.

Key Points

• Odia was officially recognized as the 6th classical language of India on February 20, 2014. The decision was approved by the Union Cabinet, chaired by the then Prime Minister, based on the recommendations of a committee of linguistic experts.

• It is the first language from the Indo-Aryan linguistic group to be granted classical status, whereas the previous five languages belonged mostly to the Dravidian family or were Sanskrit.

• To qualify for this status, a language must have a high antiquity of its early texts and recorded history over a period of 1,500 to 2,000 years. Odia met this criterion through various inscriptions and literary works like the Samanvay and Charyapada.

• The proposal for the classical status of Odia was strongly advocated by the Odisha state government, which provided historical evidence of the language's originality and ancient roots that are not borrowed from another speech community.

• Once a language is declared classical, the Ministry of Education (formerly MHRD) provides benefits such as the establishment of a Center of Excellence for Studies in Classical Languages and two major international awards for scholars of eminence.

Additional Information

• Chronology of Classical Languages:

• Tamil was the first language to be accorded the status in 2004.

• Sanskrit was declared a classical language in 2005.

• Kannada and Telugu were added to the list in 2008.

• Malayalam received the status in 2013.

• Odia joined the group in 2014, making the total count 6 at that time.

• Linguistic Criteria: The Government of India established specific guidelines in November 2004. These include the ancient nature of the language, a body of ancient literature/texts considered a valuable heritage by generations, and a literary tradition that is original and not borrowed.

• Benefits of Classical Status: The status allows for the creation of Professional Chairs for Classical Languages in Central Universities. It also encourages research and digitization of ancient manuscripts associated with the language.

• Geographical Spread: Odia is primarily spoken in the state of Odisha, but significant populations of speakers are also found in West Bengal, Chhattisgarh, and Andhra Pradesh. It is one of the 22 languages listed in the 8th Schedule of the Constitution of India.

Important Points

• The Expert Advisory Committee on Classical Languages is constituted by the Sahitya Akademi under the Ministry of Culture to examine proposals.

• In 2024, the Union Cabinet expanded this list further by approving classical language status for five more languages: Marathi, Pali, Prakrit, Assamese, and Bengali.

• The antiquity of Odia is traced back to the Kalinga inscriptions and the Dhauli edicts of Ashoka (dating back to the 3rd Century BC), which contain elements that evolved into the modern Odia script and language.

• The Odia script is developed from the Kalinga script, which itself is a descendant of the Brahmi script.

Q93. Answer: (c) 3

Given: Seven boxes P, Q, R, S, T, U and V are kept one over the other but not necessarily in the same order.

Q is kept immediately above P.

S is kept immediately above V.

Only R is kept above U.

Only two boxes are kept above Q.

S is not kept at third position from the bottom.

Position	Box
1	R
2	U

3	Q
4	P
5	T
6	S
7	V

Hence, the correct answer is Option 3.

Q94. Answer: (a) ONO 63

The logic followed here is:

So, 'ONO 63' will replace the question mark in the given series.

Hence, the correct answer is "Option 1"

Q95. Answer: (d) GTRO

The logic followed here is:

MELD is related to QHHA:

UKDX is related to YNZU:

Now, applying the same logic for CQVR:

So, CQVR is related to GTRO.

Hence, the correct answer is Option 4.

Q96. Answer: (c) 30 days

The correct answer is 30 days.

Key Points

• According to Article 352 of the Constitution of India, a proclamation of National Emergency must be approved by both the Lok Sabha and the Rajya Sabha within one month from the date of its issue.

• If the Lok Sabha has been dissolved or the dissolution of the Lok Sabha takes place during the period of one month without approving the proclamation, the proclamation survives until 30 days from the first sitting of the Lok Sabha after its reconstitution.

• This extension is only valid provided that the Rajya Sabha has already approved the proclamation in the meantime. This ensures that the executive's power to declare an emergency is subject to legislative oversight even when one house is not in session.

• The requirement for approval within one month was introduced by the 44th Amendment Act, 1978. Prior to this amendment, the period allowed for approval was two months.

• Once approved by both Houses of Parliament, the emergency continues for six months and can be extended to an indefinite period with an approval of the Parliament every six months.

Additional Information

• Types of Emergencies: The Indian Constitution envisages three types of emergencies: National Emergency (Article 352), President's Rule (Article 356), and Financial Emergency (Article 360).

• Grounds for National Emergency: Under Article 352, the President can declare a National Emergency when the security of India or a part of it is threatened by war, external aggression, or armed rebellion. The term armed rebellion was inserted by the 44th Amendment Act, 1978, replacing the term internal disturbance.

• Approval Majority: Every resolution approving the proclamation of emergency or its continuance must be passed by either House of Parliament by a Special Majority (i.e., a majority of the total membership of that house and a majority of not less than two-thirds of the members of that house present and voting).

• Revocation of Emergency: A proclamation of emergency may be revoked by the President at any time by a subsequent proclamation. Such a proclamation does not require parliamentary approval. Further, the Lok Sabha can pass a resolution disapproving its continuation by a Simple Majority.

Important Points

• Impact on Fundamental Rights: During a National Emergency, the Fundamental Rights under Article 19 are automatically suspended according to Article 358 if the emergency is declared on grounds of war or external aggression. However, Article 359 clarifies that the President can suspend the right to move any court for the enforcement of other rights, except for Articles 20 and 21, which remain enforceable even during an emergency.

• Historical Context: National Emergency has been proclaimed three times in India so far: in 1962 (Chinese aggression), 1971 (Indo-Pakistan war), and 1975 (internal disturbance).

• Comparison with Article 356: Unlike Article 352, a proclamation for President's Rule (Article 356) must be approved by the Parliament within two months. If the Lok Sabha is dissolved, it similarly survives for 30 days from the first sitting of the

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reconstituted Lok Sabha.

Q97. Answer: (c) 25

The logic followed here is:

thus, "25" will replace the question mark in the given series.

Hence, the correct option is "Option 3".

Q98. Answer: (d) 16 : 24 : 18 : 21

Shortcut Trick

Match common terms stepwise (first B, then C).

A : B = 2 : 3 and B : C = 4 : 3 => make B same using LCM(3,4)=12

A : B = 8 : 12 and B : C = 12 : 9 => A : B : C = 8 : 12 : 9

C : D = 6 : 7 => make C = 9 => multiply by 1.5 => D = 10.5

Therefore Answer = 16 : 24 : 18 : 21

Alternate Method

Given:

A : B = 2 : 3, B : C = 4 : 3, C : D = 6 : 7

Formula used:

Equalize common terms and combine ratios

Calculation:

=> A : B = 2 : 3 => multiply by 4 => 8 : 12

=> B : C = 4 : 3 => multiply by 3 => 12 : 9

=> So A : B : C = 8 : 12 : 9

=> C : D = 6 : 7 => multiply by 1.5 => 9 : 10.5

=> A : B : C : D = 8 : 12 : 9 : 10.5

=> Multiply all by 2 => 16 : 24 : 18 : 21

Therefore The correct answer is 16 : 24 : 18 : 21.

Additional Information

Combining Ratios

If a : b and b : c are given, first equalize b, then combine => a : b : c

Scaling Ratios

Multiply or divide all terms by same number to remove fractions

LCM Method

Use LCM of common terms to quickly equalize ratios

Chain Ratio Concept

A : B : C : D is formed by linking consecutive ratios step by step

Q99. Answer: (d) 55.75%

Shortcut Trick

Use base value method for quick solving.

Let B = 100 => A = 226 (since 126% more)

Difference = 226 − 100 = 126

Percentage less = (126 ÷ 226) × 100

Therefore Answer = 55.75%

Alternate Method

Given:

A's salary is 126% more than B

Formula used:

Percentage = (Difference ÷ A) × 100

Calculation:

=> Let B = x

=> Then A = x + 1.26x = 2.26x

=> Difference = A − B = 2.26x − x = 1.26x

=> Required % = (1.26x ÷ 2.26x) × 100
=> = (1.26 ÷ 2.26) × 100
=> = 55.75%
Therefore The correct answer is 55.75%.
Additional Information
Percentage Increase
If A is r% more than B => A = B × (1 + r/100)
Reverse Percentage
If A is r% more than B, then B is [r ÷ (100 + r)] × 100% less than A
Quick Formula
Required % = r ÷ (100 + r) × 100
Application Tip
Always take base = 100 for faster mental calculations

Q100. Answer: (b) 3

Given: (Left) H 2 @ Q I 3 L © £ R S 4 4 U © 9 1 W Y % 6 £ (Right)
Now, Remove all the symbols from the series.
Symbols are: @, ©, £, %
Remaining series: H 2 Q I 3 L R S 4 4 U 9 1 W Y 6
Now, find the fifth element from the left: H 2 Q I 3 L R S 4 4 U 9 1 W Y 6
So, fifth from the left = 3
Hence, the correct answer is Option 2.

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