RRB NTPC Graduate Level CBT-I Official Paper (Held On: 17 Jun, 2025 Shift 1) (Previous Year Paper)

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

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Q1. Who among the following led the Vidarbha team to victory in the Ranji Trophy 2024-25?

(a) Shrikant Wagh
(b) Akshay Wadkar
(c) Faiz Fazal
(d) Atharva Taide

Q2. The easternmost extension of the Himalayas does NOT include which of the following?

(a) Naga Hills
(b) Patkai Hills
(c) Khasi Hills
(d) Mizo Hills

Q3. Select the pair that follows the same pattern as that followed by the two pairs given below. Both pairs follow the same pattern.

MGP : NIS

SVB : TXE

(a) CDP : DUV
(b) DMR : CMP
(c) DNP : CPT
(d) CTR : DVU

Q4. Refer to the following number and symbol series and answer the question that follows. Counting to be done from left to right only.

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

(Left) 6 3 £ $ % 3 $ 9 8 1 8 * % 2 6 € $ £ # 8 & $ (Right)

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

(a) 4
(b) 5
(c) 6
(d) 3

Q5. Which of the following taxes has been replaced by Goods and Services Tax (GST)?

1. Additional Duty of Customs
2. State VAT
3. Central Excise Duty

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

Q6. What is the Technology & Innovation Sub-Mission (TISM), launched in 2024 as a part of PMAY-U 2.0, related to?

(a) It is intended to facilitate digitisation of urban housing records and streamline approval processes for construction permits.
(b) It is focused on promoting green building techniques and energy-efficient housing designs across geo-climatic regions.
(c) It is meant to promote skill certification and labour reforms in the real estate sector through training schemes.
(d) It is introduced to provide housing loans to first-time homebuyers with dynamic interest rates based on income levels.

Q7. A group of numbers and symbols is coded using letter codes as per the codes given below and the conditions that follow. Study the given codes and conditions and answer the question that follows. Note: If none of the conditions apply, then codes for the respective number/symbol are to be followed directly as given in the table.

Number/Symbol	9	7	8	6	$	&	3	@	#	%	•	4	9	5
Code	R	F	A	L	K	C	W	Q	D	P	R	D	U	V

Conditions: If the first element is a symbol and the last a number, the codes for these two (the first and the last elements) are to be interchanged. If the first element is an odd number and the last an even number, the first and last elements are to be coded as ©. If both second and third elements are perfect squares, the third element is to be coded as the code for the second element. What will be the code for the following group?

9 7 8 6

(a) RFAL
(b) RFFL
(c) ©FA©
(d) LFAR

Q8. Based on the English alphabetical order, three of the following four letter-cluster pairs are alike in a certain way and thus form a group. Which letter-cluster pair DOES NOT belong to that group? (Note: The odd one out is not based on the number of consonants/vowels or their position in the letter-cluster.)

(a) CH – VO
(b) KP – DW
(c) UZ – NG
(d) RW – LD

Q9. The sum of five numbers is 655. The average of the first two numbers is 77 and the third number is 102. Find the average of the remaining two numbers.

(a) 200.5
(b) 179
(c) 180
(d) 199.5

Q10. Which characteristic of the CPU determines how many instructions it can process per second?

(a) Power consumption
(b) Cache size
(c) Number of registers
(d) Clock speed

Q11. Rishi starts from Point A and drives 8 km towards North. He then takes a left turn, drives 9 km, turns left and drives 12 km. He then takes a left turn and drives 13 km. He takes a final left turn, drives 4 km and stops at Point P. How far (shortest distance) and towards which direction should he drive in order to reach Point A again? (All turns are 90° turns only, unless specified.)

(a) 5 km to the west
(b) 4 km to the west
(c) 6 km to the west
(d) 3 km to the west

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Q12. If you want your audience to NOT see your notes in the MS PowerPoint 365 slides, which view should you use during slide show?

(a) Outline View
(b) Presenter View
(c) Slide Show View
(d) Reading View

Q13. Who, writing under the pen name Ambai, is a well-known feminist writer and the author of the Tamil novel Andhi Malai?

(a) Akka Mahadevi
(b) CS Lakshmi
(c) Nalapat Balamani Amma
(d) Daya Pawar

Q14. Which of the following brings winter rainfall to northern plains of India?

(a) Norwesters
(b) Bay of Bengal cyclones
(c) Easterlies
(d) Western disturbances

Q15. A salesman marks his good 64% above the cost price and gives a discount of 25% on them. Find the percentage of this gain or loss.

(a) 24% gain
(b) 21% gain
(c) 23% gain
(d) 20% loss

Q16. Kabir, Jasbir, Urmila, Richa, Prem, Deep and Sonika are sitting around a circular table, facing the centre. Sonika sits third to the right of Prem. Kabir sits to the immediate right of Deep. Jasbir sits second to the left of Sonika. Urmila sits third to the right of Jasbir. Who sits second to the left of Urmila?

(a) Richa
(b) Jasbir
(c) Kabir
(d) Prem

Q17. Deficiency of which vitamin in the diet is most commonly linked to poor vision in dim light (night blindness)?

(a) Vitamin A
(b) Vitamin B12
(c) Vitamin D
(d) Vitamin C

Q18. Prince ranked 24th from the top and 39th from the bottom in his class. How many students are there in his class?

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

Q19. Which of the following lakes in Rajasthan is artificial?

(a) Ramgarh
(b) Ana Sagar
(c) Pushkar
(d) Sambhar

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Q20. According to Article 246 of the Indian Constitution, parliament has exclusive powers to make laws on subjects mentioned in which of the following lists?

(a) State List
(b) Local List
(c) Union List
(d) Concurrent List

Q21. During which event did DRDO outline its plan to develop Indian Integrated Combat Aerial Systems (IICAS)?

(a) Bharat Drone Summit 2024
(b) Aero India 2025
(c) Drone Industry Conclave 2025
(d) Defence Tech Expo 2025

Q22. A man spends 74% of his monthly salary on house rent. If every month, he also spends Rs. 385 on conveyance and Rs. 2,725 on grocery and saves the remaining Rs. 621, his monthly salary is:

(a) Rs. 14,287
(b) Rs. 14,350
(c) Rs. 14,373
(d) Rs. 14,389

Q23. If the equations $x^2 + 3x + 2 = 0$ and $ax^2 + bx + c = 0$ have both roots in in common, then which of the following is NOT true?

(a) $4a = 2c + 2b$
(b) $4a - 2b + c = 0$
(c) $a + c = b$
(d) $a - b + c = 0$

Q24. Where is the headquarter of the National Human Rights Commission in India?

(a) New Delhi
(b) Mumbai
(c) Chennai
(d) Kolkata

Q25. Which gas is a major product of industrial production for use in aerosol propellants and air conditioning systems?

(a) Oxygen
(b) Methane
(c) Freon-12
(d) Carbon monoxide

Q26. In the Union Budget presented on 1 February 2025, what was the new income threshold up to which individuals are exempted from paying income tax under the new regime?

(a) Rs. 10 lakh
(b) Rs. 12 lakh
(c) Rs. 15 lakh
(d) Rs. 12.75 lakh

Q27. What will come in the place of the question mark (?) in the following equation, if '+' and '−' are interchanged and '×' and '÷' are interchanged?

$131 \div 6 + 1818 \times 18 - 23 = ?$

(a) 708
(b) 705
(c) 701
(d) 711

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Q28. The value of 691 × 709 is:

(a) 480863
(b) 489919
(c) 492154
(d) 496860

Q29. A truck travels 80 km at the speed of 40 km/hr and the next 44 km at the speed of 9 km/hr. What is its average speed (in km/hr)?

(a) 24
(b) 18
(c) 12
(d) 22

Q30. Which type of wave is primarily formed on a stretched string when plucked or disturbed?

(a) Torsional wave
(b) Electromagnetic wave
(c) Transverse wave
(d) Surface wave

Q31. A right triangle with sides 60 cm, 45 cm and 75 cm is rotated about the side of 60 cm to form a cone. The curved surface area (in cm^2) of the cone so formed is:

(a) 4505π
(b) 3125π
(c) 3375π
(d) 4500π

Q32. What is the median of the following distribution?

Class	110-160	160-210	210-260	260-310	310-360
Frequency	16	15	31	24	38

(a) 245
(b) 262
(c) 278
(d) 260

Q33. Robert, Chris and Jeremy can finish a certain piece of work in 10, 14 and 21 days,respectively. All three of them started the work together. Robert left the work after 5 days and Chris left just 2 days before the work was completed. Find the total number of days taken for the work to be completed.

(a) 9.5
(b) 1.7
(c) 10.9
(d) 5.4

Q34. Dholavira site of Indus Valley Civilization is best known for which of the following practices?

(a) Making of carts
(b) Use of iron implements
(c) Water conservation system
(d) Rock-cut architecture

Q35. A retailer allows a 22% discount on the marked price. What should be the marked price (in Rs.) of an item whose cost price is Rs. 780, in order to make a profit of 26%?

(a) 1,257
(b) 1,260
(c) 1,258
(d) 1,261

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Q36. What was the real GDP Growth Rate of India in 2023-24, which was the highest in the previous 12 years, except for 2021-22?

(a) 6.2%
(b) 9.2%
(c) 5.2%
(d) 15.2%

Q37. According to the Charter Act of 1793, the charter of the east India company was renewed for how many years?

(a) 20
(b) 18
(c) 25
(d) 15

Q38. What should come in place of the question mark (?) in the given series?

86 97 73 82 60 67 47 52 ?

(a) 32
(b) 34
(c) 40
(d) 37

Q39. In a certain code language,

'A + B' means 'A is the son 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 M related to Q if 'M + N – O ÷ P × Q'?

(a) Wife's Mother's Sister's Son
(b) Wife's Mother's Brother's Son
(c) Wife's Father's Brother's Son
(d) Wife's Father's Sister's Son

Q40. In an MS Excel spreadsheet, what does the cell address B5 represent?

(a) The value 'B5' stored in a cell
(b) Row B and Column 5
(c) Column B and Row 5
(d) A formula referencing another cell

Q41. Find the smallest number by which 2527 must be multiplied to make it a perfect square.

(a) 15
(b) 7
(c) 21
(d) 19

Q42. Which Article of the Constitution of India permits minorities based on language to establish educational institutes?

(a) Article 32
(b) Article 29
(c) Article 28
(d) Article 30

Q43. 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 :: ?

: DFJ :: LNR : %

(a) = ACG, % = OQU
(b) = ACG, % = MQU

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(c) = BCG, % = OQU
(d) = ACG, % = OQP

Q44. Three numbers are in the ratio 5 : 4 : 3, and their LCM is 4980. Their HCF is:
(a) 125
(b) 132
(c) 83
(d) 101

Q45. Which of the following Sri Lankan cities did PM Modi visit in April 2025 to pay tribute at a sacred temple?
(a) Galle
(b) Colombo
(c) Anuradhapura
(d) Kandy

Q46. Seven friends, A, B, C, D, N, O and P, are sitting in a straight row facing north. No one sits to the right of A. Only three people sit between A and D. Only two people sit between D and B. C sits third to the left of P. N sits to the immediate right of P. How many people sit between O and B?
(a) Three
(b) Two
(c) One
(d) Four

Q47. Jitesh sold an article at a loss of 11%. If he had bought the item at 5% less and had sold it for Rs. 739 more, then he would have gained 20%. Find the cost price (in Rs.) of the article.
(a) 3,204
(b) 2,956
(c) 3,361
(d) 2,619

Q48. In a certain code language, ‘CALM’ is coded as ‘2468’ and ‘LIVE’ is coded as ‘8537’. What is the code for ‘L’ in the given language?
(a) 3
(b) 6
(c) 7
(d) 8

Q49. Which of the following numbers is divisible by 16?
(a) 1382
(b) 1165
(c) 1702
(d) 1584

Q50. If ‘A’ stands for ‘÷’, ‘B’ stands for ‘×’, ‘C’ stands for ‘+’ and ‘D’ stands for ‘−’, then what will come in place of the question mark (?) in the following equation?
103 C (64 A8) B 2 C 9 B 3 D 33 = ?
(a) 137
(b) 129
(c) 91
(d) 113

Q51. Select the triad that follows the same pattern as that followed by the two triads given below. Both triads follow the same pattern.
EB-GD-IF
BY-DA-FC

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(a) PM-RO-SQ
(b) GD-JF-KH
(c) KH-MI-OL
(d) UR-WT-YV

Q52. Where do deleted files go by default in Windows OS?
(a) The Recycle Bin
(b) The Downloads folder
(c) The Cloud
(d) They are permanently erased

Q53. Read the given statements and conclusions carefully. Assuming that the information given in the statements is true, even if it appears to be at variance with commonly known facts, decide which of the given conclusion(s) logically follow(s) from the statements.

Statements:

All rabbits are squirrel.

Some squirrels are rats.

All rats are mammals.

Conclusions:

(I) Some mammals are squirrel.

(II) Some rats are rabbits

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

Q54. Refer to the following number and symbol series and answer the question that follows. Counting to be done from left to right only.

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

(Left) @ $ 6 # % 1 4 £ * 1 £ © 7 # 4 8 3 % % 2 $ £ (Right)

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

(a) 0
(b) 3
(c) 1
(d) 2

Q55. Select the set in which the numbers are related in the same way as are the numbers of the following sets. (NOTE: Operations should be performed on the whole numbers, without breaking down the numbers into their constituent digits. E.g. 13 – Operations on 13 such as adding/subtracting/multiplying to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed.)

(37, 48, 59)

(41, 52, 63)

(a) (56, 67, 78)
(b) (32, 43, 64)
(c) (24, 35, 44)
(d) (47, 58, 70)

Q56. A sum when invested at the rate of 12% simple interest per annum, amounts to Rs. 8,500 after 3 years. The simple interest (in Rs.) for the given time period is:
(a) 2,350
(b) 2,250
(c) 2,450
(d) 2,150

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Q57. A vertical stick 14 m long, casts a shadow 5 m long on the ground. At the same time, a tower casts a shadow of 44.5 m long on the ground. The height of the tower is _____.

(a) 128.8 m
(b) 122.2 m
(c) 130.3 m
(d) 124.6 m

Q58. Which of the following is an incorrect statement about Cache Memory?

(a) Cache memory is faster than main memory.
(b) Cache memory stores frequently accessed data for quick retrieval.
(c) Cache memory is a form of secondary storage.
(d) Cache memory is located close to or inside the CPU.

Q59. If 38% of a number is equal to 5/9th of another number, what is the ratio of the first number to the second number?

(a) 247 : 175
(b) 246 : 169
(c) 251 : 174
(d) 250 : 171

Q60. Find the area of a parallelogram, whose base is (3x − 5y + 4) m and height is (x - 5y) m.

(a) $(3x^2 - 25y^2 + 20xy + 4x - 20y)$ m²
(b) $(3x^2 - 25y^2 - 20xy - 4x - 20y)$ m²
(c) $(3x^2 + 25y^2 - 20xy + 4x - 20y)$ m²
(d) $(3x^2 + 25y^2 + 20xy + 4x - 20y)$ m²

Q61. K, M, L, N, O and V live on six different floors of the same building. The lowermost floor in the building is numbered 1, the floor above it, number 2 and so on, till the topmost floor is numbered 6. Only one person lives below K. Only three people live between L and K. N lives on a floor below K. O lives on an even-numbered floor. M lives on an oddnumbered floor but not on floor number 5. How many people live between V and K?

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

Q62. Barun starts from Point Y and drives 19 km towards the east. He then takes a right turn, drives 28 km, turns left and drives 17 km. He then takes a left turn and drives 59 km. He takes a left turn, drives 36 km. He then turns right, drives 9 km and stops at Point Z. How far (shortest distance) and towards which direction should he drive in order to reach Point Y again? (All turns are 90-degree turns only unless specified.)

(a) 36 km towards the north
(b) 22 km towards the south
(c) 40 km towards the south
(d) 29 km towards the north

Q63. What should come in place of the question mark (?) in the given series based on the English alphabetical order?

SUX QSV OQT MOR ?

(a) KNO
(b) KMP
(c) KMO
(d) KNP

Q64. Which group of islands lies between 8° – 12° 13″ North latitude and 71° – 74° East longitude?

(a) Lakshadweep
(b) Rameswaram
(c) Nicobar
(d) Andaman

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Q65. What will come in place of the question mark (?) in the given series?

832 830 826 820 812 ?

(a) 803
(b) 802
(c) 800
(d) 801

Q66. According to the IMF's January 2025 World Economic Outlook Update, what is the projected global growth rate for 2025?

(a) 4.0%
(b) 4.8%
(c) 3.7%
(d) 3.3%

Q67. If '+' means 'subtraction', '–' means 'multiplication', '×' means 'division' and '÷' means 'addition', then what will come in place of the question mark (?) in the following equation?

171 ÷ 95 × 5 − 4 + 33 = ?

(a) 226
(b) 204
(c) 214
(d) 209

Q68. Which of the following is NOT correct with respect to the Naikdas Uprising Sankheda,1858?

(a) They resorted to guerrilla tactics, harassing the British troops and attacking the British thanas
(b) The revolt took place around Chhotaudepur district in Gujarat.
(c) The leader Rupa surrendered before the British in 1860.
(d) The Naikdas of Sankheda took arms under both the leaders Rupa Naik and K Naik

Q69. The sides (in cm) of a right triangle are (x − 18),(x − 25) and x. Its area (in cm^2) is

(a) 1329
(b) 1311
(c) 1320
(d) 1314

Q70. In early 2025, India anticipated finalising a defense export deal worth over $200 million with the Philippines for which missile system?

(a) Akash Surface-to-Air Missile
(b) Prithvi Ballistic Missile
(c) BrahMos Supersonic Cruise Missile
(d) Nag Anti-Tank Guided Missile

Q71. In January 2025, the Indian Army Day was celebrated to mark which significant event?

(a) Launch of Operation Vijay
(b) First Republic Day Parade
(c) First Indian Commander-in-Chief of the Army
(d) Establishment of Army Headquarters

Q72. Based on the English alphabetical order, three of the following four letter-cluster pairs are alike in a certain way and thus form a group. Which letter-cluster pair DOES NOT belong to that group? (Note: The odd one out is not based on the number of consonants/vowels or their position in the letter-cluster.)

(a) XV – FZ
(b) HF – PJ
(c) YX – GA
(d) BZ – JD

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Q73. The cost of 4 pens and 5 pencils is Rs. 193 and the cost of 3 pens and 6 pencils Rs. 165. The cost of 4 pens and 6 pencils is:

(a) Rs. 202
(b) Rs. 201
(c) Rs. 198
(d) Rs. 206

Q74. A UNESCO World Heritage Site, the Kakatiya Rudreshwara Temple is situated in which of the following states of India?

(a) Karnataka
(b) Telangana
(c) Andhra Pradesh
(d) Gujarat

Q75. In March 2025, the Union Home Minister inaugurated the Lachit Barphukan Police Academy in Assam to honour his legacy. Who was Lachit Barphukan?

(a) A military commander of the Mughals
(b) A poet from Assam
(c) A British-era police officer
(d) A commander of the Ahom kingdom

Q76. Select the pair that follows the same pattern as that followed by the two pairs given below. Both pairs follow the same pattern.

HKN : LOR

DJO : HNS

(a) ATB : CVE
(b) GJM : IKO
(c) AFM : EJQ
(d) WXC : YGP

Q77. The Ramoshis who worked for 'Ramoshi Uprising' were night guards protecting the forts of which community?

(a) Mughals
(b) Sikhs
(c) Rajputs
(d) Marathas

Q78. The radius of the base and the slant height of a right circular cone are 7 cm and 25 cm, respectively. Find the volume (in cm^3) of the given cone.

(Use $\pi=22/7$)

(a) 1062
(b) 982
(c) 1352
(d) 1232

Q79. When was the Lokpal and Lokayukta Act came into force in India?

(a) 17 December 2013
(b) 16 January 2011
(c) 16 January 2014
(d) 16 January 2013

Q80. A, B and C alone can do a piece of work in 11, 33 and 48 days, respectively. They all started the work together, but A left after 2 days. In how many days was the remaining work completed?

(a) 16
(b) 14
(c) 15

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(d) 13

Q81. If 2 is added to each odd digit and 2 is subtracted from each even digit in the number 6127385, then which of the following digits will be third from the right?

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

Q82. A person saves 40% of his income. If his expenditure is Rs. 360, then his income (in Rs.) is:

(a) 144
(b) 216
(c) 600
(d) 640

Q83. Three numbers are in the ratio 5/20 : 8/16 : 8/14. The difference between the largest and the smallest number is 54. Find the largest number.

(a) 96
(b) 97
(c) 94
(d) 98

Q84. Refer to the following number and symbol series and answer the question that follows. Counting to be done from left to right only. (NOTE: All numbers are single digit numbers only.)

(Left) © 9 6 £ 9 & € 8 4 4 2 @ © £ # 4 * 7 © 7 9 6 (Right)

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

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

Q85. At what rate of interest per annum will a sum of Rs. 1,000 amount to Rs. 1,728 in 1 year and 6 months, if the interest is compounded half-yearly?

(a) 42%
(b) 52%
(c) 40%
(d) 22%

Q86. In 1909, Sir William Hutt Curzon Wyllie, a British official, was shot and assassinated in London. Who was responsible for this act?

(a) Madan Lal Dhingra
(b) Ras Bihari Bose
(c) Subhas Chandra Bose
(d) Khudiram Bose

Q87. As per the Union Budget 2025-26, the remittance threshold under the Liberalized Remittance Scheme (LRS) was raised from Rs. 7 lakh to

(a) Rs. 10 lakh
(b) Rs. 11 lakh
(c) Rs. 12 lakh
(d) Rs. 13 lakh

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Q88. The ratio of the lengths of two corresponding sides of two similar triangles is 9 : 1. The ratio of the areas of these two triangles, in the order mentioned, is:

(a) 9 : 1
(b) 9√9 : 1
(c) 81 : 1
(d) 82 : 2

Q89. As per World Bank's State of Social Protection Report 2025, during the COVID-19 pandemic, emergency social protection responses reached how many people in developing countries?

(a) 4.7 billion
(b) 3.2 billion
(c) 1.7 billion
(d) 2.7 billion

Q90. The ratio between the fourth proportional of 2, 8 and 12 to the mean proportional of 9 and 4 is:

(a) 9 : 2
(b) 8 : 1
(c) 10 : 3
(d) 11 : 3

Q91. Which authority regulates civil aviation infrastructure in India?

(a) Ministry of Road Transport and Highways
(b) Directorate General of Civil Aviation
(c) Airport Authority of India
(d) Indian Civil Aviation Forum

Q92. A student spends Rs. 300, Rs. 250, Rs. 350, Rs. 200, and Rs. 400 on groceries over five weeks. What is the average amount spent per week?

(a) Rs. 320
(b) Rs. 300
(c) Rs. 280
(d) Rs. 340

Q93. Each of P, Q, R, S, T, U and V has an exam on a different day of a week starting from Monday and ending on Sunday of the same week. U has an exam on Saturday. Only 4 people have an exam between S and T, neither of whom has an exam on Monday. P has an exam immediately after R, and V has an exam immediately before R. T has an exam after P. How many people have an exam after S?

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

Q94. Trade Receivables Discounting System (TReDS) is an electronic platform for facilitating the financing/discounting of trade receivables of which sector?

(a) Exporting business
(b) Software business
(c) MSME sector
(d) Pharmaceutical sector

Q95. According to the National Family Health Survey (NFHS-5), what percentage of children under five years are underweight?

(a) 32.1%
(b) 28.5%
(c) 26.7%
(d) 19.3%

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Q96. Which Greek ambassador visited the court of Chandragupta Maurya?

(a) Strabo
(b) Ptolemy
(c) Megasthenes
(d) Pliny

Q97. The median of the observations 21, 36, 73, 71, 35, 38, 49, 37, 26, 66 and 73 is:

(a) 38
(b) 35
(c) 37
(d) 36

Q98. In a certain code language, 'GIFT' is coded as '4268' and 'TURN' is coded as '3527'. What is the code for 'T' in the given code language?

(a) 2
(b) 6
(c) 7
(d) 3

Q99. Select the letter-cluster from among the given options that can replace the question mark (?) in the following series.

VDU RGS NJQ ? FPM

(a) JLN
(b) JMO
(c) JMN
(d) JMP

Q100. A boat takes 76 minutes to go 32.2 km upstream. The ratio of the speed of the boat in still water to that of the stream is 9 : 8. How much approximate total time (in hours) will the boat take to go 44.9 km upstream and 57.8 km downstream?

(a) 2.2
(b) 1.9
(c) 4.3
(d) 0.2

ANSWER KEY

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

SOLUTIONS

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Q1. Answer: (b) Akshay Wadkar

The Correct answer is Akshay Wadkar.

Key Points

• Akshay Wadkar led the Vidarbha team to victory in the Ranji Trophy 2024-25.

• The Ranji Trophy is one of the most prestigious domestic cricket tournaments in India.

• Vidarbha has been a consistent performer in domestic cricket, and their success is attributed to the leadership and performance of players like Akshay Wadkar.

• Akshay Wadkar is known for his strategic gameplay, wicketkeeping skills, and batting proficiency, which have been instrumental in Vidarbha's success.

• Under Wadkar's captaincy, Vidarbha showcased strong teamwork, resilience, and tactical planning throughout the tournament.

• Wadkar has also played a key role in motivating the team and ensuring a balanced approach during high-pressure matches.

• Vidarbha's victory in the Ranji Trophy 2024-25 reflects the team's dedication, and Wadkar's leadership was a crucial factor in achieving this milestone.

Additional Information

• Shrikant Wagh

• Shrikant Wagh is a talented Indian cricketer who has represented Vidarbha in domestic cricket.

• He is primarily known for his bowling abilities and has contributed significantly to Vidarbha's success in previous tournaments.

• While Wagh is a key player, he did not lead the team during the Ranji Trophy 2024-25 victory.

• Faiz Fazal

• Faiz Fazal is a veteran cricketer and one of the most experienced players in Vidarbha's squad.

• He has previously captained Vidarbha and led the team to historic victories in earlier editions of the Ranji Trophy.

• Although Fazal is a significant figure in Vidarbha cricket, the leadership role during the 2024-25 Ranji Trophy was undertaken by Akshay Wadkar.

• Atharva Taide

• Atharva Taide is an emerging star in Indian domestic cricket known for his all-round abilities.

• Taide has delivered impressive performances for Vidarbha as a batsman and bowler.

• Despite being a crucial player, Taide was not the captain during Vidarbha's Ranji Trophy triumph in 2024-25.

Q2. Answer: (c) Khasi Hills

The Correct answer is Khasi Hills.

Key Points

• The Khasi Hills are located in the northeastern state of Meghalaya, India.

• They are part of the Meghalaya Plateau, which is distinct from the Himalayas.

• The Khasi Hills consist of rolling hills and are well-known for their lush green landscapes and rich biodiversity.

• This region is famous for its living root bridges, an example of traditional ecological engineering.

• The Khasi Hills are primarily inhabited by the Khasi tribal community, who have a unique culture and language.

• Unlike the Naga, Patkai, and Mizo Hills, which are considered extensions of the eastern Himalayas, the Khasi Hills belong to the Peninsular Block and are geologically older.

• They do not share the tectonic or geographical characteristics associated with the Himalayan range.

Additional Information

• Naga Hills

• The Naga Hills are located in the northeastern states of Nagaland and Manipur.

• They form part of the Arakan Yoma range, which is considered an eastern extension of the Himalayas.

• The Naga Hills are known for their rugged terrain and dense forests.

• This region is inhabited by the Naga tribes, who have a rich cultural heritage.

• Patkai Hills

• The Patkai Hills, also known as the Patkai Bum, are located along the northeastern border of India, including parts of Arunachal Pradesh and Nagaland.

• They are part of the Himalayan mountain system and are known for their high rainfall and dense vegetation.

• The Patkai Hills act as a natural barrier between India and Myanmar.

• Mizo Hills

• The Mizo Hills, also known as the Lushai Hills, are located in the northeastern state of Mizoram.

• They are considered part of the easternmost extension of the Himalayas.

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• This region is known for its undulating hills and rich flora and fauna.

• The Mizo Hills are primarily inhabited by the Mizo tribes.

Q3. Answer: (d) CTR : DVU

The pattern followed here is:

MGP : NIS

SVB : TXE

Option 1: CDP : DUV

This does not follow the pattern.

Option 2: DMR : CMP

This does not follow the pattern.

Option 3: DNP : CPT

This does not follow the pattern.

Option 4: CTR : DVU

This option correctly follows the pattern.

Hence, the correct answer is "Option 4".

Q4. Answer: (a) 4

Given series:

(Left) 6 3 £ $ % 3 $ 9 8 1 8 * % 2 6 € $ £ # 8 & $ (Right) (Right)

Condition to be checked:

Number → Symbol → Symbol

6 3 £ $ % 3 $ 9 8 1 8 * % 2 6 € $ £ # 8 & $

There are four such symbols in the above arrangement (3 £ $, 8 * %, 6 € $, 8 & $).

Hence, the correct answer is "Option 1".

Q5. Answer: (d) 1, 2 and 3

The Correct answer is 1, 2 and 3.

Key Points

• Goods and Services Tax (GST) was implemented in India on July 1, 2017 to streamline indirect taxation.

• GST replaced various indirect taxes imposed by the central and state governments, simplifying the tax structure.

• Additional Duty of Customs: This tax, also known as Countervailing Duty (CVD), was levied on imported goods to counterbalance excise duty on domestically manufactured goods. It has been subsumed under GST.

• State VAT (Value Added Tax): It was a tax levied by individual states on the sale of goods. Under GST, this tax has been unified into a single system.

• Central Excise Duty: This was a tax imposed on the manufacturing of goods within India. GST has replaced this duty for all goods except for certain products like petroleum and tobacco.

• GST is implemented as a dual system in India, comprising Central GST (CGST) and State GST (SGST).

• The introduction of GST has led to a transparent and efficient tax structure, reducing cascading effects of taxes.

Additional Information

• Additional Duty of Customs

• Additional Duty of Customs was levied on imported goods to ensure fair competition between imported and domestically manufactured products.

• This duty was primarily applicable to products that attracted excise duty within India.

• Under GST, import duties have been streamlined, and such taxes are now subsumed under the Integrated GST (IGST).

• State VAT

• State VAT was introduced in India in 2005 as a replacement for Sales Tax.

• It was levied by state governments and varied across different states.

• With the implementation of GST, VAT is now replaced by a unified tax system, reducing inter-state taxation complexities.

• Central Excise Duty

• Central Excise Duty was a tax applied to goods manufactured within India.

• It was governed by the Central Excise Act, 1944.

• Under GST, excise duty is replaced for most goods except specific items like petroleum products, alcoholic beverages, and tobacco.

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Q6. Answer: (b) It is focused on promoting green building techniques and energy-efficient housing designs across geo-climat...

The Correct answer is It is focused on promoting green building techniques and energy-efficient housing designs across geo-climatic regions.

Key Points

• The Technology & Innovation Sub-Mission (TISM) is a critical component of the PMAY-U (Pradhan Mantri Awas Yojana - Urban) 2.0, launched in 2024.

• Its primary goal is to promote the adoption of green building techniques and energy-efficient housing designs tailored to the diverse geo-climatic conditions of India.

• This initiative supports the Indian government's larger agenda of achieving sustainability and climate-resilient housing infrastructure.

• Under TISM, innovative construction methods are emphasized, such as the use of eco-friendly materials, solar energy integration, and rainwater harvesting systems.

• TISM aligns with global commitments like the Paris Agreement by contributing to reduced carbon emissions and fostering energy efficiency in urban housing.

• It also aims to reduce the dependence on conventional construction methods and encourages the adoption of modern, cost-effective, and sustainable technologies.

• The initiative enhances awareness and capacity-building among stakeholders, including urban local bodies, real estate developers, and architects, to implement these modern technologies effectively.

Additional Information

• Option 1: Digitisation of urban housing records

• This refers to the use of digital technologies to streamline housing records and approval processes for construction permits.

• While important, this is not the focus of TISM under PMAY-U 2.0.

• Digitisation initiatives are typically addressed under e-governance programs and urban development schemes.

• Option 3: Skill certification and labour reforms

• This involves training and certifying workers in the real estate sector to enhance their skills.

• Such programs are often implemented under schemes like the National Skill Development Mission, but it is not the focus of TISM.

• Option 4: Housing loans with dynamic interest rates

• This pertains to providing financial assistance to homebuyers through loans with variable interest rates.

• Such measures are generally part of housing finance schemes, not TISM.

Q7. Answer: (c) ©FA©

Number/Symbol	**9**	**7**	**8**	**6**	**$**	**&**	**3**	**@**	**#**	**%**	**•**	**4**	**9**	**5**
Code	R	F	A	L	K	C	W	Q	D	P	R	D	U	V

Given- 9 7 8 6

Rule No. (1): This condition does not apply because the first element (9) is a number, not a symbol.

Rule No. (2): This condition applies because the first element (9) is an odd number and the last element (6) is an even number. So, both will be coded as ©.

Rule No. (3): This condition does not apply because the second element (7) is not a perfect square.

Based on the applicable rule (2), the 1st and last elements will be coded as ©.

The code for 9 is R.

But, due to rule (2), 9 will be coded as ©.

The code for 7 is F.

The code for 8 is A.

The code for 6 is L.

But, due to rule (2), 6 will also be coded as ©.

Thus, '9 7 8 6' is coded as → © F A ©.

Hence, the correct answer is "Option 3".

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Q8. Answer: (d) RW – LD

The logic followed here is by observing the alphabetical position shifts from the letters of the first cluster to the corresponding letters of the second cluster.

Option (1) 'CH – VO':

Option (2) 'KP – DW':

Option (3) 'UZ – NG':

Option (4) 'RW – LD':

Thus, option 4 is the odd one.

Hence, the correct answer is "Option 4".

Q9. Answer: (d) 199.5

Shortcut Trick

Sum of remaining 2 numbers = 655 − (2 × 77) − 102

=> 655 − 154 − 102 = 399

Average = 399 ÷ 2 = 199.5

Therefore The correct answer is 199.5.

Alternate Method

Given:

Total sum of 5 numbers = 655

Average of first 2 numbers = 77

Value of the 3^(rd) number = 102

Calculations:

=> Sum of first 2 numbers = Average × Count = 77 × 2 = 154

=> Sum of first 3 numbers = (Sum of first 2) + (3^(rd) number) = 154 + 102 = 256

=> Sum of remaining 2 numbers = (Total sum) − (Sum of first 3) = 655 − 256 = 399

=> Average of remaining 2 numbers = (Sum of remaining 2) ÷ 2

=> Average = 399 ÷ 2 = 199.5

Therefore The correct answer is 199.5.

Additional Information

Definition of Average

The Arithmetic Mean or average is the ratio of the sum of all values to the total number of values. Formula: Avg = Total Sum ÷ n.

Sum of Observations

If the average and the number of observations are known, the total sum is calculated as: Sum = Average × Number of terms.

Weighted Average

When groups with different averages are combined, the total average is (n1A1 + n2A2) ÷ (n1 + n2).

Q10. Answer: (d) Clock speed

The Correct answer is Clock Speed.

Key Points

• Clock speed is the rate at which a CPU executes instructions, measured in Hertz (Hz), typically in gigahertz (GHz) for modern processors.

• It determines how many cycles per second the CPU can perform, directly impacting the number of instructions it can process per second.

• Higher clock speeds generally lead to faster processing and improved performance in computational tasks.

• Clock speed is a critical factor in determining the overall performance of a CPU, especially for tasks requiring high computational power.

• Modern CPUs also utilize techniques like turbo boost to temporarily increase clock speed for demanding applications.

• However, clock speed alone doesn’t determine performance; it must be combined with other factors like core count and architecture efficiency.

• A CPU with a higher clock speed but fewer cores may perform better for single-threaded tasks, while multi-core CPUs are better for multi-threaded applications.

Additional Information

• Power Consumption

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• Power consumption refers to the amount of electrical energy the CPU uses during its operation.

• It has an impact on heat generation and the need for cooling solutions but does not directly determine the number of instructions a CPU can process per second.

• Efficient CPUs balance power consumption and performance for tasks like mobile devices and laptops.

• Cache Size

• Cache size refers to the amount of high-speed memory available on the CPU for storing frequently used data.

• A larger cache can improve performance by reducing the need to access slower main memory, but it doesn't directly define how many instructions can be processed per second.

• It plays a crucial role in reducing latency and improving data retrieval speeds.

• Number of Registers

• The number of registers refers to the small amount of memory within the CPU used to store data temporarily during execution.

• While registers are essential for efficient data processing, their count doesn't directly determine the CPU's ability to process instructions per second.

• Registers are vital for tasks like arithmetic operations and instruction decoding.

Q11. Answer: (b) 4 km to the west

Given:

Rishi starts from Point A and drives 8 km towards North.

He then takes a left turn, drives 9 km, turns left and drives 12 km.

He then takes a left turn and drives 13 km. He takes a final left turn, drives 4 km and stops at Point P.

Thus, Rishi has drive 4 km to the west to reach point A.

Hence, the correct answer is "Option 2".

Q12. Answer: (b) Presenter View

The Correct answer is Presenter View.

Key Points

• Presenter View is a feature in MS PowerPoint 365 that allows the presenter to see notes and other tools on their screen while the audience only sees the slide presentation.

• In Presenter View, the presenter has access to tools such as a timer, navigation controls, and the ability to view their speaker notes privately.

• This mode is particularly useful for maintaining a professional presentation flow while keeping key notes and details for the presenter out of the audience's view.

• Presenter View typically requires a dual-monitor setup, where one monitor displays the presentation for the audience, and the other monitor shows the notes and controls for the presenter.

• It enhances the engagement and confidence of the presenter by providing a clear view of their notes and upcoming slides.

• To enable Presenter View, go to the Slide Show tab, and then check the box labeled "Use Presenter View".

Additional Information

• Outline View

• The Outline View in PowerPoint shows the text content of slides in an outline format.

• It is commonly used for editing and organizing content but is not suitable for hiding notes during a presentation.

• Slide Show View

• The Slide Show View is used to display slides to the audience in full-screen mode.

• While this view does not show notes to the audience, it also does not allow the presenter to view their notes privately, unlike Presenter View.

• Reading View

• The Reading View displays the presentation in a windowed format and is useful for reviewing the presentation on a single screen.

• It does not provide tools for presenting with notes hidden from the audience.

Q13. Answer: (b) CS Lakshmi

The Correct answer is CS Lakshmi.

Key Points

• CS Lakshmi, writing under the pen name Ambai, is a well-known feminist writer.

• She is the author of the Tamil novel "Andhi Malai."

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• Ambai's writings are characterized by their exploration of feminist themes, focusing on the lives and experiences of women.
• She has made significant contributions to Tamil literature and is highly respected for her works.
• CS Lakshmi has also written several short stories, essays, and critical works.
• Her works often emphasize the importance of gender equality and address issues related to identity, freedom, and societal roles.
• She is recognized as a pioneer in feminist literature in the Tamil language.
• Her contributions to literature have earned her several accolades and awards.

Additional Information

• Akka Mahadevi
• Akka Mahadevi was a prominent Veerashaiva poet and saint of the 12th century from Karnataka.
• She composed Vachanas, which are short devotional poems dedicated to Lord Shiva.
• Her works are known for their profound spiritual insights and devotional fervor.
• Nalapat Balamani Amma
• Nalapat Balamani Amma was a celebrated Malayalam poet from Kerala.
• She was often referred to as the "Grandmother of Malayalam Literature."
• Her poetry explored themes of motherhood, womanhood, and relationships.
• Daya Pawar
• Daya Pawar was an influential Dalit writer and poet from Maharashtra.
• His works reflected the struggles and challenges faced by the Dalit community in India.
• He is best known for his autobiography "Baluta," which is considered a landmark in Dalit literature.

Q14. Answer: (d) Western disturbances

The Correct answer is Western disturbances.

Key Points

• Western disturbances are extratropical storms originating in the Mediterranean region.
• They travel eastward and bring winter rainfall to the northern plains of India, particularly in Punjab, Haryana, and western Uttar Pradesh.
• These disturbances are caused due to the westerly winds in the upper atmosphere, which carry moisture from the Mediterranean Sea, the Atlantic Ocean, and sometimes even from the Caspian Sea.
• The rainfall brought by these disturbances is crucial for the rabi crops, especially wheat, in northern India.
• They usually occur during the winter months, from December to February, though they can sometimes extend into early March.
• The interaction of Western disturbances with the Himalayas often leads to snowfall in the higher altitudes and rainfall in the plains.
• This phenomenon plays a significant role in maintaining the climate balance in the region by lowering temperatures and providing moisture.
• Western disturbances are also responsible for causing cold waves in northern India during winters.

Additional Information

• Norwesters
• Norwesters, also called Kalbaisakhi in India, are thunderstorms that occur during the pre-monsoon season, mainly in eastern India, such as West Bengal, Assam, and Odisha.
• These storms are characterized by strong winds, heavy rainfall, and sometimes hailstorms, but they are not responsible for winter rainfall.
• Bay of Bengal cyclones
• Bay of Bengal cyclones are tropical cyclones that form over the Bay of Bengal, typically during the pre-monsoon (April-May) and post-monsoon (October-November) seasons.
• These cyclones are responsible for heavy rainfall in the eastern coastal states of India but do not impact the winter rainfall in northern plains.
• Easterlies
• Easterlies are trade winds that blow from the east to the west in the tropical regions.
• They are associated with the monsoon season in India and do not contribute to winter rainfall in the northern plains.

Q15. Answer: (c) 23% gain

Shortcut Trick

Net Profit% = a + b + (a × b) ÷ 100, where a = Markup% and b = Discount% (negative).

Net Profit% = 64 − 25 − (64 × 25) ÷ 100

Net Profit% = 39 − (1600 ÷ 100)

Net Profit% = 39 − 16 = 23%.

Since the result is positive, it is a 23% gain.

Therefore The correct answer is 23% gain.

Alternate Method

Given → Markup% = 64%, Discount% = 25%.

Formulas: MP = CP × (100 + Markup%) ÷ 100 | SP = MP × (100 − Discount%) ÷ 100 | Gain% = (SP − CP) ÷ CP × 100

=> Let Cost Price (CP) = 100.

=> Marked Price (MP) = 100 + 64% of 100 = 164.

=> Selling Price (SP) = 164 − 25% of 164 = 164 − (164 ÷ 4) = 164 − 41 = 123.

=> Gain = SP − CP = 123 − 100 = 23.

=> Gain% = (23 ÷ 100) × 100 = 23%.

Therefore The correct answer is 23% gain.

Additional Information

Relation between CP, MP, Discount and Profit

The relationship is given by the formula: MP ÷ CP = (100 + Profit%) ÷ (100 − Discount%).

Successive Percentage Changes

When a value is increased by x% and then decreased by y%, the net change is (x − y − xy/100)%.

Q16. Answer: (a) Richa

Given:

Kabir, Jasbir, Urmila, Richa, Prem, Deep and Sonika are sitting around a circular table, facing the centre

Sonika sits third to the right of Prem. Jasbir sits second to the left of Sonika.

Urmila sits third to the right of Jasbir.

Kabir sits to the immediate right of Deep.

Thus, Richa sits second to the left of Urmila.

Hence, the correct answer is "Option 1".

Q17. Answer: (a) Vitamin A

The Correct answer is Vitamin A.

Key Points

• Vitamin A is an essential nutrient for maintaining good vision, particularly in low-light conditions.

• A deficiency of Vitamin A often leads to a condition called night blindness, where individuals struggle to see in dim light.

• It plays a crucial role in the production of rhodopsin, a light-sensitive pigment found in the retina that is necessary for vision in low-light environments.

• Vitamin A also supports the proper functioning of the cornea and prevents dryness, which can lead to vision problems.

• It is commonly found in foods such as carrots, sweet potatoes, spinach,, and dairy products.

• Globally, Vitamin A deficiency is a major cause of preventable blindness in children, particularly in developing countries.

Additional Information

• Vitamin B12

• Vitamin B12 is essential for the production of red blood cells and proper functioning of the nervous system.

• A deficiency in Vitamin B12 can lead to conditions such as megaloblastic anemia and neurological disorders.

• It is commonly found in animal-based foods like meat, fish, eggs, and dairy products.

• Vitamin D

• Vitamin D is crucial for the absorption of calcium and phosphorus, which are necessary for strong bones and teeth.

• A deficiency can lead to conditions like rickets in children and osteomalacia in adults.

• The body synthesizes Vitamin D when exposed to sunlight, and it is also found in fortified foods such as milk, cereals, and fatty fish.

• Vitamin C

• Vitamin C, also known as ascorbic acid, is vital for the synthesis of collagen and the repair of tissues.

• A deficiency can cause scurvy, characterized by bleeding gums, fatigue, and joint pain.

• It is abundant in citrus fruits like oranges, lemons, and grapefruits, as well as in other fruits and vegetables.

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Q18. Answer: (b) 62

Given:

Prince's rank from the top = 24th

Prince's rank from the bottom = 39th

The formula for the total number of persons in a row is:

Total persons = (Rank from one end) + (Rank from other end) - 1

= (Prince's rank from top) + (Prince's rank from bottom) - 1

= 24 + 39 - 1

= 63 - 1

= 62 students.

Hence, the correct answer is "Option 2".

Q19. Answer: (b) Ana Sagar

The Correct answer is Ana Sagar Lake.

Key Points

• Ana Sagar Lake is an artificial lake located in Ajmer, Rajasthan.

• It was built in the 12th century by Arnoraja, also known as Ana, who was the grandfather of Prithviraj Chauhan.

• The lake was constructed by building a dam across the Luni River.

• The lake covers an area of approximately 12 square kilometers and is a popular tourist attraction in Ajmer.

• It is surrounded by beautiful gardens like Daulat Bagh, which were built by Emperor Jahangir.

• Ana Sagar Lake is an important example of medieval engineering and showcases the efforts to manage water resources in Rajasthan's arid climate.

• The lake also features a Baradari (marble pavilion) constructed during the Mughal period by Emperor Shah Jahan.

• The lake is a significant landmark and plays a vital role in the local ecosystem by supporting flora and fauna.

Additional Information

• Ramgarh Lake

• Located near Jaipur, Ramgarh Lake is a natural water body surrounded by hills.

• It is a seasonal lake and often dries up during the summer months.

• The lake was once a major source of water for Jaipur and has historical significance.

• Pushkar Lake

• Pushkar Lake is a natural lake located in the town of Pushkar, Rajasthan.

• It is considered sacred and is surrounded by 52 bathing ghats and numerous temples.

• The lake is a significant pilgrimage site for Hindus and is associated with the legend of Lord Brahma.

• Sambhar Lake

• Sambhar Lake is India's largest inland saline lake, located near Jaipur.

• The lake is a natural formation and is known for its salt production.

• It is also a wetland of international importance under the Ramsar Convention.

Q20. Answer: (c) Union List

The Correct answer is Union List.

Key Points

• Article 246 of the Indian Constitution specifies the legislative powers of the Union and State governments.

• The Union List includes subjects on which only the Parliament has the exclusive power to legislate.

• Examples of subjects in the Union List include defense, foreign affairs, atomic energy, railways, banking, and communication.

• This exclusive power ensures a unified approach to critical subjects that impact the entire country.

• The Union List presently consists of 97 subjects (as per the original Constitution, though amendments may have altered the number).

• It is crucial for maintaining the sovereignty and integrity of India by centralizing decision-making on essential matters.

• The subjects in the Union List are designed to address areas of national importance and ensure uniformity in governance across states.

Additional Information

• State List

• The State List includes subjects on which State Legislatures have exclusive power to legislate.

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• Examples include police, public health, agriculture, and local governments.
• This list allows states to govern matters that are primarily regional in nature.
• Local List
• The term Local List is not officially recognized within the Indian Constitution.
• Local governance is primarily addressed through the Panchayati Raj system under the 73rd and 74th Constitutional Amendments.
• Concurrent List
• The Concurrent List includes subjects on which both the Parliament and State Legislatures can legislate.
• Examples include education, marriage and divorce, bankruptcy, and adoption.
• In case of a conflict, the law made by the Parliament prevails over the State law.

Q21. Answer: (c) Drone Industry Conclave 2025

The correct answer is Drone Industry Conclave 2025.

Key Points

• The Drone Industry Conclave 2025 was a significant event aimed at showcasing the advancements in the drone and unmanned aerial vehicle (UAV) sector in India.
• During this conclave, the Defence Research and Development Organisation (DRDO) outlined its ambitious plan to develop the Indian Integrated Combat Aerial Systems (IICAS).
• The IICAS is a project that focuses on building next-generation combat aerial systems to strengthen India's defense capabilities.
• The plan includes the development of autonomous drones, UAVs, and AI-powered combat aerial platforms.
• This initiative aligns with the "Atmanirbhar Bharat" (Self-Reliant India) vision, emphasizing indigenous defense production and reducing dependency on foreign technologies.
• The Drone Industry Conclave is known for its collaborative platform, involving stakeholders from the government, private sector, and military to discuss advancements and challenges in the drone ecosystem.
• The IICAS project is expected to provide cutting-edge solutions for surveillance, reconnaissance, and combat missions.

Additional Information

• Bharat Drone Summit 2024
• The Bharat Drone Summit focuses on the civilian applications of drones, such as agriculture, logistics, and healthcare.
• It emphasizes the use of drones in non-defense sectors and their potential to transform industries.
• This summit primarily highlights the role of startups and private players in expanding the drone market in India.
• Aero India 2025
• Aero India is a biennial air show and aviation exhibition held in Bengaluru, India.
• It primarily focuses on showcasing advancements in aerospace and defense sectors.
• The event includes air displays, exhibitions, and defense-related announcements, but it does not focus exclusively on drones.
• Defence Tech Expo 2025
• The Defence Tech Expo is an event aimed at showcasing the latest technological advancements in the defense sector.
• This expo covers a wide spectrum of defense technologies, including radar systems, communication systems, and weaponry.
• It is not specifically focused on the development of drone and aerial systems.

Q22. Answer: (b) Rs. 14,350

Shortcut Trick

Total remaining percentage after paying rent = 100% − 74% = 26%

Total value of the remaining components = 385 + 2725 + 621 = 3731

Since 26% of the Salary = Rs. 3731

Total Salary = 3731 ÷ 26 × 100 = 14350

Therefore The correct answer is Rs. 14,350.

Alternate Method

Total Monthly Salary = 100%

House Rent (74%)

Others (26%)

385 + 2725 + 621

= Rs. 3731

Given:

Percentage of salary spent on house rent = 74%

Expenditure on conveyance = Rs. 385

Expenditure on grocery = Rs. 2,725

Savings = Rs. 621

Formula Used:

Total Salary = Total Expenditure + Savings

Total Salary (100%) = House Rent (%) + Remaining Components (%)

Calculations:

=> Total remaining percentage = 100% − 74% = 26%

=> Total value of remaining components = Conveyance + Grocery + Savings

=> Total value of remaining components = 385 + 2725 + 621 = Rs. 3,731

=> According to the data given, 26% of Monthly Salary = Rs. 3,731

=> 1% of Monthly Salary = 3731 ÷ 26 = 143.5

=> 100% of Monthly Salary = 143.5 × 100 = Rs. 14,350

Therefore The correct answer is Rs. 14,350.

Additional Information

Direct Percentage Division

When a total amount is directly divided into different categories by percentage of the total, their sum of percentages equals 100%. To find the total value, use the rule: Total Value = (Sum of partial values) ÷ (Sum of their percentages) × 100.

Income & Expenditure Rule

Total Income represents the entire base (100%), which is composed of all outgoings and retained money. In simple percentage terms, Income (100%) = Total Expenditure (%) + Total Savings (%).

Successive Percentage Expenditure (Alternate case)

If a question states an amount is spent on the "remaining" balance successively, the formula changes to: Final remaining amount = S × (1 − p/100) × (1 − q/100). Do not confuse direct percentage division with successive percentage spending.

Q23. Answer: (a) 4a = 2c + 2b

Shortcut Trick

For two quadratic equations to have both roots in common, the ratio of their coefficients must be equal: a1/a2 = b1/b2 = c1/c2.

Comparing x2 + 3x + 2 = 0 and ax2 + bx + c = 0, we get: a/1 = b/3 = c/2 = k.

Let k = 1, then a = 1, b = 3, c = 2.

Substituting these in Option 1: 4(1) = 2(2) + 2(3) => 4 = 10, which is NOT true.

All other options (2, 3, and 4) satisfy these values: 4(1) − 2(3) + 2 = 0; 1 + 2 = 3; 1 − 3 + 2 = 0.

Therefore The correct answer is 4a = 2c + 2b.

Alternate Method

Given Equations:

Equation 1: x2 + 3x + 2 = 0

Equation 2: ax2 + bx + c = 0

Step 1: Solve for the roots of Equation 1.

=> x2 + 2x + x + 2 = 0

=> x(x + 2) + 1(x + 2) = 0

=> (x + 1)(x + 2) = 0

=> The roots are x = −1 and x = −2.

Step 2: Substitute the roots into Equation 2.

Since both roots are common, −1 and −2 must satisfy ax2 + bx + c = 0.

=> For x = −1: a(−1)2 + b(−1) + c = 0 => a − b + c = 0 (Option 4 is True).

=> From a − b + c = 0, we get a + c = b (Option 3 is True).

=> For x = −2: a(−2)2 + b(−2) + c = 0 => 4a − 2b + c = 0 (Option 2 is True).

Step 3: Evaluate Option 1.

=> From the condition of proportionality for common roots: b = 3a and c = 2a.

=> Checking 4a = 2c + 2b => 4a = 2(2a) + 2(3a) => 4a = 4a + 6a => 4a = 10a.

=> Since a ≠ 0 (for a quadratic equation), 4a ≠ 10a.

Therefore The correct answer is 4a = 2c + 2b.

Additional Information

Condition for Both Roots Common

For two quadratic equations a1x2 + b1x + c1 = 0 and a2x2 + b2x + c2 = 0, if both roots are common, then a1/a2 = b1/b2 = c1/c2.

Condition for One Root Common

If only one root is common, then (c1a2 − c2a1)2 = (a1b2 − a2b1)(b1c2 − b2c1).

Relationship Between Roots and Coefficients

For ax2 + bx + c = 0, Sum of roots (α+β) = −b/a and Product of roots (αβ) = c/a.

Nature of Roots

Determined by the Discriminant D = b2 − 4ac. Roots are real and equal if D = 0, and complex if D < 0.

Q24. Answer: (a) New Delhi

The Correct answer is New Delhi.

Key Points

• The National Human Rights Commission (NHRC) of India was established on 12th October 1993 under the Protection of Human Rights Act, 1993.

• The NHRC's headquarters is located in New Delhi, the capital city of India.

• The commission aims to protect and promote human rights, which are guaranteed by the Constitution of India and embodied in international covenants.

• The NHRC operates autonomously and is tasked with investigating cases related to the violation of human rights across the country.

• Its headquarters is strategically located in New Delhi to ensure easy access to central government authorities and institutions for coordination and policy implementation.

• The NHRC headquarters is equipped with modern facilities to carry out its functions, including conducting inquiries, hearings, and maintaining records of cases.

• The NHRC has the power to make recommendations to the government regarding policies and measures for the protection of human rights.

• New Delhi serves as the administrative hub of India, making it an ideal location for the NHRC to function effectively.

Additional Information

• Mumbai

• Mumbai is known as the financial capital of India and is home to the headquarters of many major banks and corporations.

• It houses important institutions like the Reserve Bank of India and the Bombay Stock Exchange.

• Although Mumbai is not the headquarters of NHRC, it plays a vital role in India's economic landscape.

• Chennai

• Chennai, located in Tamil Nadu, is known for its cultural heritage and is an important industrial and educational hub in southern India.

• The city is home to several national institutions such as IIT Madras and Anna University.

• While Chennai is significant for its contributions to education and industry, it is not the location of NHRC headquarters.

• Kolkata

• Kolkata, the capital city of West Bengal, is known for its rich history and cultural significance.

• It was previously the capital of British India until 1911 and houses institutions like the Indian Museum and Victoria Memorial.

• Despite its historical importance, Kolkata is not the location of the NHRC headquarters.

Q25. Answer: (c) Freon-12

The Correct answer is Freon-12.

Key Points

• Freon-12 is a type of chlorofluorocarbon (CFC) commonly used as an aerosol propellant and refrigerant.

• It is scientifically known as Dichlorodifluoromethane, with the chemical formula CCl2F2.

• Freon-12 was extensively used in industrial production for applications such as air conditioning systems, refrigeration, and aerosol sprays.

• Its widespread use was due to its non-flammable and stable chemical properties, making it safe for various applications.

• However, the use of Freon-12 and other CFCs has been significantly reduced because they contribute to the depletion of the ozone layer.

• The Montreal Protocol, an international treaty signed in 1987, aims to phase out substances like Freon-12 that harm the ozone

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layer.

• Freon-12's alternatives, such as hydrofluorocarbons (HFCs), are now being used in many industries to minimize environmental damage.

Additional Information

• Oxygen

• Oxygen is a vital gas for the sustenance of life on Earth.

• It constitutes about 21% of Earth's atmosphere.

• Industrial applications of oxygen include steel manufacturing, welding, and medical uses like oxygen therapy.

• It is not primarily used in aerosol propellants or air conditioning systems.

• Methane

• Methane is a natural gas primarily used as a fuel for heating and electricity generation.

• It is also a significant greenhouse gas contributing to global warming.

• Methane is not suitable for use as an aerosol propellant or refrigerant.

• Carbon monoxide

• Carbon monoxide is a toxic gas produced by incomplete combustion of carbon-based fuels.

• It is used in industrial processes like the production of chemicals and metal extraction.

• Due to its toxicity, it is not used in applications like aerosol propellants or air conditioning systems.

Q26. Answer: (b) Rs. 12 lakh

The Correct answer is Rs. 12 lakh.

Key Points

• The Union Budget presented on 1 February 2025 introduced revisions to the income tax structure under the new regime.

• Individuals earning up to Rs. 12 lakh annually were exempted from paying income tax, representing an effort to provide financial relief and incentivize the adoption of the new tax regime.

• This adjustment reflects the government's focus on enhancing disposable income for the middle class and boosting economic activity.

• The new exemption threshold aligns with the government's broader vision to simplify tax compliance and encourage more taxpayers to shift to the new tax regime.

• The revised limit of Rs. 12 lakh is higher compared to previous thresholds, providing significant relief to salaried individuals and small business owners.

• Such measures also aim to promote consumer spending, which is a critical driver of economic growth.

Additional Information

• Rs. 10 lakh

• Earlier budgets had set exemption thresholds closer to Rs. 10 lakh, but with rising inflation and evolving economic conditions, this limit was deemed insufficient.

• While it might have been relevant previously, the government opted for a higher threshold to cater to the growing financial needs of individuals.

• Rs. 15 lakh

• Although a limit of Rs. 15 lakh might seem attractive, it was not implemented as it could result in significant revenue loss for the government.

• The focus remained on balancing tax relief and maintaining fiscal stability.

• Rs. 12.75 lakh

• This threshold is not part of the government’s considerations for exemption levels, as the finalized limit was rounded to Rs. 12 lakh for simplicity and effective implementation.

Q27. Answer: (a) 708

Given interchange rules:

• ‘+’ and ‘−’ are interchanged.

• ‘×’ and ‘÷’ are interchanged.

The given equation is:

131 ÷ 6 + 1818 × 18 − 23 = ?

Replace the operators with their corresponding new meanings:

131 × 6 − 1818 ÷ 18 + 23 = ?

Now, we solve the equation following the BODMAS rule:

= 131 × 6 − 1818 ÷ 18 + 23
= 786 − 101 + 23
= 685 + 23
= 708
Hence, the correct answer is "Option 1".

Q28. Answer: (b) 489919

Given:
691 × 709 = ?
Formula used:
(a - b)(a + b) = $a^2 - b^2$
Calculation:
691 × 709 = (700 - 9)(700 + 9)
=> 691 × 709 = $700^2 - 9^2$
=> 691 × 709 = 490000 - 81
=> 691 × 709 = 489919
Therefore 691 × 709 = 489919.

Q29. Answer: (b) 18

Shortcut Trick
Average Speed = Total Distance ÷ Total Time
Total Distance = 80 + 44 = 124 km
Total Time = (80 ÷ 40) + (44 ÷ 9) = 2 + 4.888 = 6.888 hours
Average Speed = 124 ÷ (62/9) = 124 × (9/62) = 2 × 9 = 18 kmph
Therefore The correct answer is 18 km/hr.
Alternate Method
Given:
Distance 1 (d1) = 80 km, Speed 1 (s1) = 40 km/hr
Distance 2 (d2) = 44 km, Speed 2 (s2) = 9 km/hr
Formula Used:
Average Speed = (d1 + d2) ÷ (t1 + t2)
=> Time taken for first part (t1) = 80 ÷ 40 = 2 hours
=> Time taken for second part (t2) = 44 ÷ 9 hours
=> Total Distance = 80 + 44 = 124 km
=> Total Time = 2 + 44/9 = (18 + 44) ÷ 9 = 62/9 hours
=> Average Speed = 124 ÷ (62/9)
=> Average Speed = 124 × 9 ÷ 62 = 2 × 9 = 18 km/hr
Therefore The correct answer is 18 km/hr.
Additional Information
Average Speed for Equal Distances
When a person covers two equal distances at speeds u and v, the average speed is 2uv ÷ (u + v).
General Average Speed Formula
Average speed is always the total distance divided by the total time taken, regardless of speed variations.
Relative Speed
If two bodies move in the same direction, relative speed is s1 − s2. In opposite directions, it is s1 + s2.

Q30. Answer: (c) Transverse wave

The Correct answer is Transverse wave.
Key Points
• Transverse waves are the type of waves that are formed on a stretched string when it is plucked or disturbed.
• In a transverse wave, the particles of the medium move in a direction that is perpendicular to the direction of wave propagation.
• When a string is plucked, the up-and-down motion of the string creates a wave pattern where the crests and troughs are visible.
• The wave travels along the length of the string, but the displacement of the string particles is at right angles to this direction.

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• This type of wave is characterized by wavelength, frequency, amplitude, and speed.
• Examples of transverse waves include light waves, water waves, and waves on a string.
• Such waves do not require a medium for propagation (if electromagnetic), but on a string, they propagate through the medium of the string material.

Additional Information

• Torsional wave
• Torsional waves involve the twisting motion of particles around the axis of wave propagation.
• Such waves are commonly found in solid bars and structures like shafts in mechanical systems.
• They are not typically formed on a stretched string.
• Electromagnetic wave
• Electromagnetic waves are waves that do not require a medium for propagation and consist of oscillating electric and magnetic fields.
• Examples include light, radio waves, and X-rays.
• These waves are not formed on a stretched string as they are inherently different in nature.
• Surface wave
• Surface waves occur at the boundary between two different mediums, such as air and water.
• Examples include water waves, where the motion of particles is a combination of longitudinal and transverse motion.
• These waves are not relevant to the case of a stretched string.

Q31. Answer: (c) 3375π

Shortcut Trick

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

Given sides: 60 cm (axis), 45 cm (base), 75 cm (hypotenuse).

=> Radius (r) = 45 cm, Slant height (l) = 75 cm.

=> Curved Surface Area = $\pi rl = \pi \times 45 \times 75 = 3375\pi$ cm².

Therefore The correct answer is 3375π cm².

Alternate Method

Given:

Sides of the right triangle are 60 cm, 45 cm, and 75 cm.

Rotation axis = 60 cm side.

Formula Used:

Curved Surface Area (CSA) of a cone = πrl

Calculations:

=> When rotated about the 60 cm side, the height (h) of the cone = 60 cm.

=> The base radius (r) of the cone = 45 cm.

=> The slant height (l) of the cone corresponds to the hypotenuse = 75 cm.

=> CSA = $\pi \times r \times l$

=> CSA = $\pi \times 45 \times 75$

=> CSA = 3375π cm².

Therefore The correct answer is 3375π cm².

Additional Information

Cone Formation by Rotation

Rotating a right triangle about its perpendicular or base generates a cone where the axis of rotation is the height.

Slant Height Relation

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

Total Surface Area of Cone

TSA = $\pi rl + \pi r^2 = \pi r(l + r)$. It includes the curved surface and the circular base.

Q32. Answer: (d) 260

Shortcut Trick

Find the cumulative frequency (cf) for each class interval:

110-160: 16 | 160-210: 31 | 210-260: 62 | 260-310: 86 | 310-360: 124

The total frequency (N) is 124, so N/2 = 62.

Since the cumulative frequency of the class 210-260 is exactly 62, the median lies precisely at the upper boundary of this class interval, which is 260.

Therefore The correct answer is 260.

Alternate Method

Given:

The frequency distribution of the classes is as follows:

Class Interval	Frequency (f)	Cumulative Frequency (cf)
110-160	16	16
160-210	15	31
210-260	31	62
260-310	24	86
310-360	38	124

Formula Used:

Median = L + [(N/2 − cf) ÷ f] × h

Where:

• L = Lower limit of the median class

• N = Total frequency

• cf = Cumulative frequency of the class preceding the median class

• f = Frequency of the median class

• h = Class width (size of the class interval)

Calculations:

=> Total frequency (N) = 124

=> N/2 = 124 ÷ 2 = 62

=> The cumulative frequency just greater than or equal to 62 is 62, which corresponds to the class interval 210-260.

=> Therefore, the median class is 210-260.

=> L = 210, cf = 31, f = 31, h = 50

=> Median = 210 + [(62 − 31) ÷ 31] × 50

=> Median = 210 + [31 ÷ 31] × 50

=> Median = 210 + 1 × 50

=> Median = 210 + 50 = 260

Why other options are incorrect:

• Option (1) 245: This is the midpoint of the median class, not the actual median value.

• Option (2) 262: This value exceeds the upper boundary of the median class (260) where the cumulative frequency exactly reaches N/2.

• Option (3) 278: This value lies in the next class interval (260-310), which is incorrect since the median is reached at the boundary 260.

Therefore The correct answer is 260.

Additional Information

Median of Grouped Data

The median is the middle value of a distribution. For grouped data, it is calculated using the formula: Median = L + [(N/2 − cf) ÷ f] × h.

Mode of Grouped Data

The mode is the value that has the maximum frequency. Formula: Mode = L + [(f1 − f0) ÷ (2f1 − f0 − f2)] × h.

Empirical Relationship

For a moderately skewed distribution, the relationship between mean, median, and mode is: Mode = 3 × Median − 2 × Mean.

Q33. Answer: (d) 5.4

Shortcut Trick

Let Total Work be LCM of (10, 14, 21) = 210 units.

Efficiencies: Robert = 21, Chris = 15, Jeremy = 10.

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Robert worked for 5 days: 21 × 5 = 105 units. Remaining = 210 − 105 = 105 units.

If Chris stayed till the end, he would do extra work for 2 days: 15 × 2 = 30 units.

Total units for Chris and Jeremy combined = 105 + 30 = 135 units.

Total days = 135 ÷ (15 + 10) = 135 ÷ 25 = 5.4 days.

Therefore The correct answer is 5.4 days.

Alternate Method

Given: Robert (R) = 10 days, Chris (C) = 14 days, Jeremy (J) = 21 days.

Formula Used: Efficiency × Time = Total Work.

Person	Days	Total Work	Efficiency
Robert	10	210	210 ÷ 10 = 21
Chris	14	210 ÷ 14 = 15	
Jeremy	21	210 ÷ 21 = 10	

=> Work done by Robert in 5 days = 21 × 5 = 105 units.

=> Let total days be x. Jeremy worked for x days and Chris worked for (x − 2) days.

=> 105 + 15 × (x − 2) + 10 × x = 210

=> 105 + 15x − 30 + 10x = 210

=> 25x + 75 = 210

=> 25x = 135

=> x = 135 ÷ 25 = 5.4 days.

Therefore The correct answer is 5.4 days.

Additional Information

Leaving Work Before Completion

If a person leaves n days before completion, add their n days of work to the total work and divide by the combined efficiency of the remaining group.

LCM Method for Total Work

Always assume Total Work as the LCM of time taken by individuals to avoid complex fraction calculations.

Efficiency Relationship

Efficiency is inversely proportional to the time taken. Efficiency = Work ÷ Time.

Q34. Answer: (c) Water conservation system

The correct answer is Water Conservation System.

Key Points

• Dholavira is one of the most prominent archaeological sites of the Indus Valley Civilization, located in the present-day state of Gujarat, India.

• The site is best known for its advanced water conservation system, which includes a network of step wells, reservoirs, and channels.

• This sophisticated water management system demonstrates the engineering expertise of the Indus Valley people in addressing water scarcity in a semi-arid region.

• Dholavira's water system ensured the storage and efficient use of water throughout the year, especially during dry periods.

• It highlights the importance of sustainable practices adopted by ancient civilizations to adapt to environmental challenges.

• The presence of reservoirs and water channels also indicates the site's role as a major urban center during the Indus Valley Civilization.

• The water conservation system at Dholavira is considered one of the earliest examples of hydraulic engineering in the world.

• Dholavira was added to the UNESCO World Heritage List in 2021 for its archaeological significance and contributions to understanding ancient urban planning.

Additional Information

• Making of carts

• The Indus Valley Civilization is known for its terracotta models of carts, which were used for transportation.

• These carts are considered some of the earliest examples of wheeled vehicles in human history.

• However, Dholavira is not specifically associated with the manufacturing of carts; this practice was more widespread across other sites like Mohenjo-Daro and Harappa.

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• Use of iron implements

• The Indus Valley Civilization primarily used copper and bronze tools and implements; iron was not yet discovered during this period.

• The use of iron became prevalent in India during the Iron Age, which followed the decline of the Indus Valley Civilization.

• Thus, iron implements are not relevant to Dholavira's history.

• Rock-cut architecture

• Rock-cut architecture refers to structures carved directly into natural rock formations, such as caves and temples.

• This architectural style is mostly associated with later periods in Indian history, such as the Mauryan Empire and the Gupta Era.

• Dholavira's architectural significance lies in its urban planning and water management, not rock-cut structures.

Q35. Answer: (b) 1,260

Shortcut Trick

Use the direct relation between Cost Price (CP) and Marked Price (MP): CP ÷ MP = (100 − D%) ÷ (100 + P%).

Given: Discount (D) = 22% and Profit (P) = 26%.

Ratio CP : MP = (100 − 22) : (100 + 26) = 78 : 126.

Given CP = Rs. 780, which is 78 × 10.

Multiplying the ratio by 10, MP = 126 × 10 = Rs. 1,260.

Therefore The correct answer is Rs. 1,260.

Alternate Method

Given → CP = Rs. 780, Profit% = 26%, Discount% = 22%.

Formulas: SP = CP × (100 + P%) ÷ 100 | MP = (SP × 100) ÷ (100 − D%)

=> First, calculate Selling Price (SP): SP = 780 × (126 ÷ 100) = 7.8 × 126 = Rs. 982.8.

=> Now, use the discount to find Marked Price (MP): MP × (100 − 22) ÷ 100 = 982.8.

=> MP × 78 ÷ 100 = 982.8.

=> MP = (982.8 × 100) ÷ 78 = 98280 ÷ 78.

=> MP = Rs. 1,260.

Therefore The correct answer is Rs. 1,260.

Additional Information

Marked Price & Discount

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

Cost Price & Profit

Cost Price (CP) is the price at which the retailer buys. Profit is always calculated on CP: SP = CP + Profit.

Q36. Answer: (b) 9.2%

The Correct answer is 0.092.

Key Points

• The real GDP growth rate of India for the financial year 2023-24 was recorded as 9.2%, which is the highest in the last 12 years, except for the recovery year 2021-22.

• This high growth rate is attributed to the post-pandemic economic recovery, with sectors like manufacturing, services, and agriculture showing significant improvements.

• The growth was supported by strong domestic demand, government policies, and investment in infrastructure.

• The Indian economy showed resilience despite challenges such as global inflationary pressures and geopolitical tensions.

• This growth is an indicator of India's economic stability and its ability to recover from disruptions caused by the COVID-19 pandemic.

• The GDP data is usually released by the Ministry of Statistics and Programme Implementation (MoSPI) and is a critical indicator of the country's economic health.

• As per projections by institutions like the World Bank and the Reserve Bank of India (RBI), India has been consistently emerging as one of the fastest-growing major economies.

Additional Information

• Key Features of GDP Measurement

• Gross Domestic Product (GDP) measures the total value of goods and services produced within a country's borders in a specific time period.

• Real GDP considers inflation-adjusted figures, providing a more accurate measure of economic growth.

• GDP growth is a critical indicator for assessing the economic performance of a country.

• Impact of Post-Pandemic Recovery

• The Indian economy rebounded strongly after the COVID-19 pandemic, supported by measures such as fiscal stimulus and vaccination drives.

• High growth rates were driven by sectors like information technology, exports, and infrastructure development.

• The government's focus on initiatives like Atmanirbhar Bharat also contributed to economic recovery.

Q37. Answer: (a) 20

The Correct answer is 20 years.

Key Points

• The Charter Act of 1793 was an important legislative act passed by the British Parliament, which renewed the charter of the East India Company for an additional period of 20 years.

• This act maintained the monopoly of the East India Company in trade, particularly in the region of India, which was a significant source of revenue for the British Empire.

• The act also made provisions to allocate a part of the company's revenue for civil and military expenses incurred by the British Government in India.

• One of the major outcomes of the act was the emphasis on the governance and administration of Indian territories controlled by the East India Company.

• The act continued the system of dual administration, where the Company had administrative control but was overseen by the British Crown.

• It was during this period that the East India Company's role transitioned more from a commercial enterprise to an administrative authority in India.

• The act also legalized the payment of the Company's employees from Indian revenue, ensuring better management and accountability.

Additional Information

• Key Features of the Charter Acts

• The Charter Acts were a series of legislative acts passed by the British Parliament to regulate the governance and trade of the East India Company.

• The Charter Act of 1813, for instance, abolished the company's monopoly over trade in India, except for trade in tea and trade with China.

• The Charter Act of 1833 centralized the administration of India and marked the beginning of the legislative council's work.

• The Charter Act of 1853 was the last in the series and paved the way for the appointment of Indians to civil services through a competitive examination.

• Importance of the East India Company

• The East India Company played a crucial role in the economic and political transformation of India.

• Its control over Indian territories laid the foundation for the establishment of the British Raj in 1858.

• It was instrumental in introducing various modern reforms, including railways, postal services, and legal systems, though often with the intention of benefiting colonial rule.

Q38. Answer: (b) 34

The pattern followed here is:

\

Thus, the missing term is 34.

Hence, the correct answer is "Option 2".

Q39. Answer: (c) Wife's Father's Brother's Son

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

Given Expression: M + N – O ÷ P × Q

M + N: M is the son of N.

N – O: N is the brother of O.

O ÷ P: O is the father of P.

P × Q: P is the wife of Q.

According to the given information Family Tree Representation:

Therefore, M is the Wife's Father's Brother's Son of Q.

Hence, the correct answer is "Option 3"

Q40. Answer: (c) Column B and Row 5

The Correct answer is Column B and Row 5.

Key Points

• In MS Excel, every cell in a spreadsheet is identified by a unique cell address.

• The cell address is formed by combining the column letter and the row number.

• In the cell address B5, B represents the column, and 5 represents the row.

• This means that the cell is located at the intersection of Column B and Row 5 in the spreadsheet.

• The addressing system in Excel is referred to as the Cell Reference System.

• It is widely used for creating formulas, data analysis, and referencing specific cells for calculations or functions.

• Excel supports both relative and absolute referencing, which allows users to manipulate data dynamically within spreadsheets.

Additional Information

• Option 1: The value 'B5' stored in a cell

• This option is incorrect because B5 refers to a cell address, not the value stored in that cell.

• In Excel, the cell content and the cell address are two different entities.

• Option 2: Row B and Column 5

• Excel uses columns identified by letters and rows identified by numbers.

• There is no Row B in Excel, making this option logically incorrect.

• Option 4: A formula referencing another cell

• While Excel allows referencing other cells in formulas, the address B5 alone does not represent a formula.

• Formulas typically begin with an = sign, for example, =B5+C5.

Q41. Answer: (b) 7

Shortcut Trick

To make a number a perfect square, every prime factor must have an even power.

Factorize 2527 → $7 \times 19 \times 19 = 7^1 \times 19^2$.

The prime factor 7 has an odd power (1).

Multiply by 7 to make the power of 7 even (7^2).

Therefore The correct answer is 7.

Alternate Method

Given: Number = 2527

Formula Used: Prime Factorization Method.

=> Prime factorization of 2527 = $7 \times 19 \times 19$

=> Grouping the factors into pairs: $(19 \times 19) \times 7$

=> Here, the prime factor 7 does not have a pair.

=> To make it a perfect square, we need to multiply by 7.

=> New number = $2527 \times 7 = 17689 = (133)^2$

Therefore The correct answer is 7.

Additional Information

Perfect Square Property

A number is a perfect square if all its prime factors appear an even number of times.

Multiplication/Division Rule

The smallest number to multiply or divide to make a perfect square is the product of all prime factors that have an odd power.

Square Roots of Common Numbers

Recognizing squares like $19^2 = 361$ or $17^2 = 289$ helps in faster prime factorization.

Q42. Answer: (d) Article 30

The correct answer is Article 30.

Key Points

• Article 30 of the Constitution of India provides the right to minorities to establish and administer educational institutions of their choice.

• This Article is part of the Fundamental Rights under Part III of the Constitution.

• It ensures that both religious and linguistic minorities have the right to preserve their culture and heritage through education.

• The Article also protects these institutions against discriminatory practices by the State in granting aid.

• The provision enshrined in this Article reflects India's commitment to the principle of secularism and inclusiveness.

• It is applicable to all minorities as identified under Article 29 and is an important measure for preserving the diverse cultural and linguistic heritage of India.

• Judicial interpretations, like in the case of St. Stephen's College v. University of Delhi, have further clarified and strengthened the scope of this Article.

Additional Information

• Article 32

• Article 32 of the Indian Constitution provides the right to individuals to move the Supreme Court for the enforcement of Fundamental Rights.

• It is often referred to as the "Right to Constitutional Remedies."

• Dr. B.R. Ambedkar described it as the "heart and soul" of the Constitution.

• This Article empowers the Supreme Court to issue writs, such as habeas corpus, mandamus, prohibition, quo warranto, and certiorari.

• Article 29

• Article 29 grants protection to the cultural and educational rights of minorities.

• It guarantees the right to conserve any distinct language, script, or culture of individuals or groups.

• This Article is applicable to both minorities and majorities.

• Article 28

• Article 28 deals with the freedom as to attendance at religious instruction or religious worship in educational institutions.

• It prohibits religious instruction in institutions wholly maintained out of State funds.

• However, it allows such instruction in institutions established by trusts or endowments that require it.

Q43. Answer: (a) = ACG, % = OQU

Given:

: DFJ :: LNR : %

Option 1) # = ACG, % = OQU

For LNR to % (OQU)

Since the pattern for ACG to DFJ (+3, +3, +3) is the same as the pattern for LNR to OQU (+3, +3, +3), Option 1 is correct.

Option 2) # = ACG, % = MQU

For # (ACG) to DFJ

For LNR to % (MQU)

Option 2 is incorrect.

Option 3) # = BCG, % = OQU

For # (BCG) to DFJ

For LNR to % (OQU)

Option 3 is incorrect.

Option 4) # = ACG, % = OQP

For # (ACG) to DFJ

The pattern derived from ACG to DFJ is: (+3, +3, +3).

For LNR to % (OQP)

Option 4 is incorrect.

Thus, the analogy holds true only for Option 1.

Hence, the correct answer is "Option 1".

Q44. Answer: (c) 83

Shortcut Trick

Ratio of numbers = 5 : 4 : 3

Let HCF be H. Then LCM = H × 5 × 4 × 3

60 × H = 4980

H = 4980 ÷ 60 = 83

Therefore The correct answer is 83.

Alternate Method

Given: Ratio = 5 : 4 : 3, LCM = 4980

Formula Used: LCM of numbers (ax, bx, cx) = x × LCM(a, b, c), where x is the HCF.

=> Let the numbers be 5x, 4x, and 3x, where x is the HCF.

=> Since 5, 4, and 3 are co-prime to each other (no common factors):

=> LCM(5x, 4x, 3x) = x × 5 × 4 × 3

=> 4980 = 60x

=> x = 4980 ÷ 60

=> x = 83

Therefore The correct answer is 83.

Additional Information

Relationship between LCM and HCF

For two numbers a and b: Product of numbers = HCF × LCM. Note: This rule does not directly apply to more than two numbers.

HCF and Ratio

If the ratio of numbers is a : b : c and HCF is H, the numbers are aH, bH, and cH. Their LCM is H × LCM(a, b, c).

Co-prime Numbers

If numbers are co-prime, their HCF is always 1 and their LCM is the product of the numbers.

Q45. Answer: (c) Anuradhapura

The correct answer is Anuradhapura.

Key Points

• Anuradhapura is one of the ancient cities in Sri Lanka and is a UNESCO World Heritage Site.

• It is known for its well-preserved ruins of an ancient Sri Lankan civilization, which was one of the greatest centers of Theravāda Buddhism.

• The city is home to the Sri Maha Bodhi, a sacred fig tree believed to be grown from a branch of the original Bodhi Tree under which Lord Buddha attained enlightenment.

• Prime Minister Narendra Modi visited Anuradhapura in April 2025 to pay tribute at the sacred temple and strengthen India-Sri Lanka cultural and historical ties.

• The visit highlighted the shared Buddhist heritage between the two nations and India's commitment to preserving it.

• Anuradhapura represents a significant part of the Buddhist pilgrimage circuit, drawing devotees and tourists from around the world.

Additional Information

• Galle

• Galle is a coastal city in the southwestern tip of Sri Lanka.

• It is famous for the Galle Fort, a historical, colonial-era fort built by the Portuguese in the 16th century.

• The city is known for its picturesque beaches and is a popular tourist destination.

• Colombo

• Colombo is the commercial capital and largest city of Sri Lanka.

• It is known for its modern skyline, historical landmarks, and the Gangaramaya Temple, which is a key Buddhist site.

• Colombo serves as a major economic and cultural hub in the country.

• Kandy

• Kandy is located in the central highlands of Sri Lanka and is known for the Sacred Temple of the Tooth Relic (Sri Dalada Maligawa).

• The temple is one of the most sacred places for Buddhists worldwide, as it houses the relic of Lord Buddha's tooth.

• The city is also famous for its annual Esala Perahera festival, which features vibrant cultural processions.

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Q46. Answer: (a) Three

Given:

Seven friends, A, B, C, D, N, O and P, are sitting in a straight row facing north.

No one sits to the right of A. Only three people sit between A and D.

Only two people sit between D and B.

C sits third to the left of P. N sits to the immediate right of P.

Thus, 3 people sit between O and B.

Hence, the correct answer is "Option 1".

Q47. Answer: (b) 2,956

Shortcut Trick

Let original Cost Price (CP1) be 100 units.

Original Selling Price (SP1) at 11% loss = 100 − 11 = 89 units.

New Cost Price (CP2) at 5% less = 95 units.

New Selling Price (SP2) at 20% gain = 95 × (120 ÷ 100) = 114 units.

Difference in SP = 114 − 89 = 25 units. Given 25 units = Rs. 739.

Therefore The correct answer is Rs. 2,956.

Alternate Method

Given: Initial loss = 11%, New CP = 95% of original, New Profit = 20%, Price increase = Rs. 739.

Formulas: SP = CP × (100 ± P/L)% | CP = (Difference in SP ÷ Difference in units) × 100.

=> Let original CP = x.

=> Original SP = 0.89x.

=> New CP = 0.95x.

=> New SP = 0.95x × 1.2 = 1.14x.

=> 1.14x − 0.89x = 739.

=> 0.25x = 739 => x = 739 ÷ 0.25 = 2,956.

Therefore The correct answer is Rs. 2,956.

Additional Information

Percentage Change in CP and SP

When both CP and SP change, calculate the new CP first, then apply the profit/loss percentage to find the new SP. The difference between SPs represents the absolute price change.

Unitary Method in Profit and Loss

Assuming base 100 simplifies complex percentage shifts. CP = (Actual Change ÷ Ratio Change) × 100.

Q48. Answer: (d) 8

The given code language is:

Thus, 'L' is coded as '8'.

Hence, the correct answer is "Option 4".

Q49. Answer: (d) 1584

Shortcut Trick

A number is divisible by 16 if its last four digits are divisible by 16.

For small numbers, check if the number is divisible by 8 (last 3 digits) and the resulting quotient is even.

1584 ÷ 16 => 16 × 100 = 1600. Since 1600 − 16 = 1584, it is perfectly divisible.

Therefore The correct answer is 1584.

Alternate Method

Given: Numbers 1382, 1165, 1702, 1584.

Divisibility Rule for 16: A number is divisible by 16 if the value formed by its last 4 digits is a multiple of 16.

=> Option 1: 1382 ÷ 16 => 1382 = 16 × 86 + 6 (Remainder = 6)

=> Option 2: 1165 (Odd number, cannot be divisible by 16)

=> Option 3: 1702 ÷ 16 => 1702 = 16 × 106 + 6 (Remainder = 6)

=> Option 4: 1584 ÷ 16 => 1584 = 16 × 99 (Remainder = 0)

Therefore The correct answer is 1584.

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Additional Information

Divisibility by 2^n

A number is divisible by 2^n if its last 'n' digits are divisible by 2^n. For 16 (2^4), check the last 4 digits.

Divisibility by 8

A number is divisible by 8 if the last three digits are divisible by 8.

Combined Divisibility

If a number is divisible by 16, it must also be divisible by 2, 4, and 8.

Q50. Answer: (d) 113

BODMAS Rule:

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

Original Letter	A	B	C	D
New Symbol	÷	×	•	–

Now, given the equation: 103 C (64 A 8) B 2 C 9 B 3 D 33 = ?

After interchanging the specified letters, the new equation is:

103 + (64 ÷ 8) × 2 + 9 × 3 − 33 = ?

Perform operations according to BODMAS:

=> 103 + (64 ÷ 8) × 2 + 9 × 3 − 33

=> 103 + 8 × 2 + 9 × 3 − 33

=> 103 + 16 + 27 − 33

=> 119 + 27 − 33

=> 146 − 33

=> 113

Hence, the correct answer is "Option 4".

Q51. Answer: (d) UR-WT-YV

The logic followed here is:

EB-GD-IF

BY-DA-FC

Option 1: PM-RO-SQ

This does not follow the pattern.

Option 2: GD-JF-KH

This does not follow the pattern.

Option 3: KH-MI-OL

This does not follow the pattern.

Option 4: UR-WT-YV

This option correctly follows the pattern.

Hence, the correct answer is "Option 4".

Q52. Answer: (a) The Recycle Bin

The Correct answer is The Recycle Bin.

Key Points

• In the Windows Operating System, deleted files are temporarily moved to the Recycle Bin by default instead of being permanently erased.

• This feature allows users to recover files that were accidentally deleted.

• The Recycle Bin acts as a holding area, providing an opportunity to restore items to their original location.

• Files in the Recycle Bin remain there until the user decides to permanently delete them by emptying the bin or until the storage limit of the bin is reached.

• The storage size of the Recycle Bin is typically a percentage of the total disk space, and this limit can be customized by the user.

• Items in the Recycle Bin retain their original file properties, such as file type, size, and modification date, until they are permanently removed.

• The Recycle Bin is located on the desktop interface of Windows, making it easily accessible to users.

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Additional Information

• The Downloads Folder

• The Downloads folder in Windows OS is a default location where files downloaded from the internet are saved.

• It is not associated with deleted files but with retrieving downloaded content like documents, videos, or software.

• Users can manually move or delete items from the Downloads folder.

• The Cloud

• The term The Cloud refers to cloud storage services like Google Drive, OneDrive, or Dropbox, which are used for storing data online.

• Deleted files are not automatically sent to the cloud unless they are synced with a cloud service.

• Files stored in the cloud may have their own recycle bin or trash folder depending on the service provider.

• They are permanently erased

• Files in Windows are not permanently erased by default when deleted. They are first moved to the Recycle Bin.

• However, files can be permanently deleted using Shift + Delete or by emptying the Recycle Bin.

Q53. Answer: (a) Only conclusion (I) follows

The least possible venn diagram is:

Conclusions:

(I) Some mammals are squirrel → True (As, Some squirrels are rats, All rats are mammals. so, Some mammals are squirrel holds true)

(II) Some rats are rabbits → False (As, there is no direct relation between rats and rabbits. so, some rats are rabbits can be a possibility but definite).

Thus, Only conclusion (I) follows.

Hence, the corrrect answer is "Option 1".

Q54. Answer: (c) 1

Given series:

(Left) @ $ 6 # % 1 4 £ * 1 £ © 7 # 4 8 3 % % 2 $ £ (Right)

Condition to be checked:

Number → Symbol → Number

@ $ 6 # % 1 4 £ * 1 £ © 7 # 4 8 3 % % 2 $ £

There is one such symbol in the above arrangement (7 # 4).

Hence, the correct answer is "Option 3".

Q55. Answer: (a) (56, 67, 78)

The logic followed in the given sets is:

Logic: 1st number + 11 = 2nd number and 2nd number + 11 = 3rd number

Now,

For, (37, 48, 59)

=> 37 + 11 = 48 (Correct)

=> 48 + 11 = 59 (Correct)

For, (41, 52, 63)

=> 41 + 11 = 52 (Correct)

=> 52 + 11 = 63 (Correct)

1) (56, 67, 78)

=> 56 + 11 = 67 (Correct)

=> 67 + 11 = 78 (Correct)

2) (32, 43, 64)

=> 32 + 11 = 43 (Correct)

=> 43 + 11 = 54 (Incorrect, as 54 ≠ 64)

3) (24, 35, 44)

=> 24 + 11 = 35 (Correct)

=> 35 + 11 = 46 (Incorrect, as 46 ≠ 44)

4) (47, 58, 70)

=> 47 + 11 = 58 (Correct)
=> 58 + 11 = 69 (Incorrect, as 69 ≠ 70)
Hence, the correct answer is "Option 1".

Q56. Answer: (b) 2,250

Shortcut Trick
Total Simple Interest percentage for 3 years = 12% × 3 = 36%
Total Amount percentage = 100% (Principal) + 36% (Interest) = 136%
Given, 136% → Rs. 8,500
Interest (36%) = (8500 ÷ 136) × 36 = 62.5 × 36 = Rs. 2,250
Therefore The correct answer is Rs. 2,250.
Alternate Method
Given: Amount (A) = Rs. 8,500 | Rate (R) = 12% p.a. | Time (T) = 3 years
Formula: Amount (A) = P + SI = P + (P × R × T ÷ 100)
=> 8500 = P × [1 + (12 × 3 ÷ 100)]
=> 8500 = P × [1 + 0.36]
=> 8500 = P × 1.36
=> Principal (P) = 8500 ÷ 1.36 = Rs. 6,250
=> Simple Interest (SI) = Amount − Principal
=> SI = 8500 − 6250 = Rs. 2,250
Therefore The correct answer is Rs. 2,250.
Additional Information
Simple Interest Calculation
Simple Interest is calculated only on the initial Principal amount: SI = (P × R × T) ÷ 100.
SI vs CI Relationship
For the first year, Simple Interest and Compound Interest are equal if the compounding is annual.
Finding Principal from Amount
To find Principal when Amount is given: P = (Amount × 100) ÷ (100 + RT).

Q57. Answer: (d) 124.6 m

Shortcut Trick
Ratio of Height to Shadow is constant at the same time.
Stick Ratio = 14 ÷ 5 = 2.8
Tower Height = 2.8 × 44.5
Tower Height = 124.6 m
Therefore The correct answer is 124.6 m.
Alternate Method
Given:
Height of vertical stick = 14 m
Shadow of vertical stick = 5 m
Shadow of tower = 44.5 m
Formula Used:
Height ÷ Shadow = Constant (due to similar triangles formed by sun's rays)
Calculations:
=> Height of stick ÷ Shadow of stick = Height of tower ÷ Shadow of tower
=> 14 ÷ 5 = Height of tower ÷ 44.5
=> 2.8 = Height of tower ÷ 44.5
=> Height of tower = 2.8 × 44.5
=> Height of tower = 124.6 m
Therefore The correct answer is 124.6 m.
Additional Information

Q58. Answer: (c) Cache memory is a form of secondary storage.

The Correct answer is Cache memory is a form of secondary storage.

Key Points

• Cache memory is a type of volatile memory that provides high-speed data access to the processor.

• It is designed to store frequently accessed data or instructions so that the processor can retrieve them quickly without accessing slower main memory (RAM).

• Cache memory is located closer to or inside the CPU, reducing the time taken to fetch data.

• Cache memory is significantly faster than main memory (RAM), but it is smaller in size and more expensive.

• It is not a form of secondary storage. Secondary storage refers to devices like hard drives, SSDs, and external storage, which are used for permanent data storage and are slower than both cache and main memory.

• The primary goal of cache memory is to enhance the speed and efficiency of the CPU by minimizing data access delays.

Additional Information

• Cache memory is faster than main memory.

• Cache memory operates at a much higher speed compared to RAM, allowing the CPU to process instructions faster.

• It uses technologies like SRAM (Static RAM), which is faster than DRAM (used in main memory).

• Cache memory stores frequently accessed data for quick retrieval.

• Cache memory identifies and temporarily stores data or instructions that are frequently used by the CPU.

• This minimizes the need to access slower main memory repeatedly, enhancing overall system performance.

• Cache memory is located close to or inside the CPU.

• Cache memory is either embedded inside the CPU (e.g., L1 and L2 cache) or placed very close to the CPU (e.g., L3 cache).

• This proximity reduces latency, allowing the processor to access data faster.

Q59. Answer: (d) 250 : 171

Shortcut Trick

Let the first number be A and the second number be B.

38% of A = 5/9 of B

A/B = (5/9) ÷ (38/100) = (5/9) × (100/38)

A/B = (5 × 50) / (9 × 19) = 250 / 171

Therefore The correct answer is 250 : 171.

Alternate Method

Given:

Percentage of first number (x) = 38%

Fraction of second number (y) = 5/9

=> 38% × x = (5/9) × y

=> (38/100) × x = (5/9) × y

=> (19/50) × x = (5/9) × y

=> x/y = (5/9) × (50/19)

=> x/y = 250 / 171

Therefore The correct answer is 250 : 171.

Additional Information

Percentage to Fraction Conversion

To convert a percentage to a fraction, divide the value by 100. Example: x% = x/100.

Ratio and Proportion Basics

If ax = by, then the ratio x : y is given by b : a. This is the inverse relationship used in cross-multiplication.

Comparing Fractions

To compare or operate on ratios, ensure they are in the simplest form by removing common factors.

Q60. Answer: (c) $(3x^2 + 25y^2 - 20xy + 4x - 20y)$ m^2

Shortcut Trick

Area of Parallelogram = Base × Height.

Multiply (3x − 5y + 4) by (x − 5y).

=> 3x(x − 5y) − 5y(x − 5y) + 4(x − 5y)

=> $3x^2 − 15xy − 5xy + 25y^2 + 4x − 20y$

=> $3x^2 + 25y^2 - 20xy + 4x - 20y$

Therefore The correct answer is $(3x^2 + 25y^2 - 20xy + 4x - 20y)$ m^2.

Alternate Method

Given:

Base (b) = (3x − 5y + 4) m

Height (h) = (x − 5y) m

Formula Used:

Area of a Parallelogram = Base × Height

Calculations:

=> Area = (3x − 5y + 4) × (x − 5y)

=> Area = 3x(x − 5y) − 5y(x − 5y) + 4(x − 5y)

=> Area = (3x × x) − (3x × 5y) − (5y × x) + (5y × 5y) + (4 × x) − (4 × 5y)

=> Area = $3x^2 - 15xy - 5xy + 25y^2 + 4x - 20y$

=> Area = $3x^2 + 25y^2 - 20xy + 4x - 20y$

Therefore The correct answer is $(3x^2 + 25y^2 - 20xy + 4x - 20y)$ m^2.

Additional Information

Properties of a Parallelogram

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

Perimeter of a Parallelogram

Perimeter = 2 × (sum of adjacent sides) = 2(a + b).

Area using Diagonals

If d1 and d2 are diagonals and θ is the angle between them, Area = 1/2 × d1 × d2 × sin(θ).

Q61. Answer: (a) Two

Given: K, M, L, N, O and V live on six different floors of the same building.

1) Only one person lives below K.

2) Only three people live between L and K.

3) N lives on a floor below K.

6	**L**
5	
4	
3	
2	K
1	N

4) O lives on an even-numbered floor.

5) M lives on an odd-numbered floor but not on floor number 5.

6) The only remaining person is V, and the only remaining floor is 5. So, V lives on Floor 5.

6	**L**
5	V
4	O
3	M
2	K
1	N

Therefore, Two people live between V and K.

Hence, the correct answer is "Option 1".

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Q62. Answer: (c) 40 km towards the south

Given:

Barun starts from Point Y and drives 19 km towards the east.

He then takes a right turn, drives 28 km, turns left and drives 17 km.

He then takes a left turn and drives 59 km. He takes a left turn, drives 36 km. He then turns right, drives 9 km and stops at Point Z.

Thus, Barun has to drive 40 km towards the south to reach point Y.

Hence, the correct answer is "Option 3".

Q63. Answer: (b) KMP

The logic followed here is:

Thus, the missing letter cluster in the series is KMP.

Hence, the correct answer is "Option 2".

Q64. Answer: (a) Lakshadweep

The Correct answer is Lakshadweep Islands.

Key Points

• The Lakshadweep Islands are a group of 36 small islands located in the Arabian Sea off the southwestern coast of India.

• These islands lie between the latitude of 8° – 12° 13′ North and the longitude of 71° – 74° East.

• The Lakshadweep archipelago includes 12 atolls, 3 reefs, and 5 submerged banks.

• It is India's smallest Union Territory and is known for its pristine beaches, coral reefs, and rich marine biodiversity.

• The capital of Lakshadweep is Kavaratti, which is also the largest city in the region.

• The islands are famous for their tourism, fishing, and coconut cultivation.

• Being of strategic importance, the Lakshadweep Islands also play a key role in India's maritime security.

• These islands are formed from coral deposits and are known for their ecological significance and beauty.

Additional Information

• Rameswaram

• Rameswaram is a town located in the state of Tamil Nadu, India, and is not a group of islands.

• It is a renowned pilgrimage site for Hindus and is part of the Char Dham Yatra.

• Rameswaram is situated on the Pamban Island, separated from mainland India by the Pamban Channel.

• Nicobar Islands

• The Nicobar Islands are located in the Bay of Bengal and are part of the Union Territory of Andaman and Nicobar Islands.

• They lie further south compared to the Lakshadweep Islands, between 6° – 10° North latitude.

• Nicobar Islands are known for their tribal communities and ecological diversity.

• Andaman Islands

• The Andaman Islands are located in the Bay of Bengal, to the north of the Nicobar Islands.

• They lie approximately between 10° – 14° North latitude, which does not match the geographical coordinates mentioned in the question.

• The Andaman Islands are famous for their beaches, coral reefs, and historical significance, including the Cellular Jail.

Q65. Answer: (b) 802

The logic followed here is:

Thus, the missing term in the series is 802.

Hence, the correct answer is "Option 2";

Q66. Answer: (d) 3.3%

The Correct answer is Option 4.

Key Points

• The January 2025 World Economic Outlook Update by the International Monetary Fund (IMF) provides projections for global economic growth and other economic indicators.

• The projected global growth rate for 2025 is 0.033, which corresponds to Option 4.

• The IMF regularly revises growth forecasts based on various factors like global economic conditions, geopolitical developments, inflation trends, and fiscal policies.

• This slight deceleration in growth may reflect challenges such as slowing global demand, inflationary pressures, and regional conflicts.

• The IMF plays a critical role in providing economic analysis and policy advice to its member countries, helping to stabilize the global economy.

• Such projections are significant for governments, businesses, and investors to plan and adapt their strategies for the upcoming year.

Additional Information

• IMF

• The International Monetary Fund (IMF) is an international organization established in 1944 to promote global monetary cooperation, secure financial stability, and facilitate international trade.

• The organization currently consists of 190 member countries.

• Its primary functions include economic surveillance, financial assistance, and technical training for member nations.

• The World Economic Outlook (WEO) is one of its flagship reports, published twice a year, with updates in between.

• World Economic Outlook (WEO)

• The WEO provides analysis and projections of global economic developments, including growth rates, inflation, trade balances, and fiscal policies.

• It is widely recognized as a critical resource for understanding the state of the global economy.

• Significance of Projections

• Economic projections like these assist governments in budget planning and setting monetary and fiscal policies.

• They also help businesses and investors forecast market trends and potential risks.

• Understanding these projections enables informed decision-making in both public and private sectors.

Q67. Answer: (c) 214

BODMAS Rule:

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

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

Now, given the equation: 171 ÷ 95 × 5 − 4 + 33 = ?

After interchanging the specified signs, the new equation is:

171 + 95 ÷ 5 × 4 − 33 = ?

Perform operations according to BODMAS:

=> 171 + 95 ÷ 5 × 4 − 33

=> 171 + 19 × 4 − 33

=> 171 + 76 − 33

=> 247 − 33

=> 214

Hence, the correct answer is "Option 3".

Q68. Answer: (c) The leader Rupa surrendered before the British in 1860.

The Correct answer is The leader Rupa surrendered before the British in 1860.

Key Points

• The Naikdas Uprising was a significant tribal revolt that occurred in the Sankheda region of Gujarat in 1858.

• It was led by Rupa Naik and K Naik, two prominent leaders of the Naikda tribal community.

• The revolt was part of the larger resistance against the British during the First War of Independence (1857).

• The Naikdas used guerrilla tactics to harass British troops, targeting British outposts and thanas (police stations).

• The Naikdas primarily revolted due to their opposition to the British administration's interference in their traditional tribal lifestyle and exploitation by local authorities.

• There is no historical evidence to suggest that Rupa Naik surrendered to the British in 1860, making this statement incorrect.

Additional Information

• Guerrilla tactics

• These tactics involve using small, mobile, and flexible combat groups to carry out surprise attacks and ambushes.

• The Naikdas adopted this method to counter the better-equipped British forces.

• Chhotaudepur district

• This district is located in eastern Gujarat and is known for its tribal population.

• The district was a key region for tribal uprisings like the Naikdas Uprising.
• Naikda tribal community
• The Naikdas are an indigenous tribal group in Gujarat, known for their strong attachment to their traditional lifestyle and customs.
• Their uprisings were driven by their resistance to British-imposed reforms and exploitation.

Q69. Answer: (c) 1320

Shortcut Trick
Identify the Hypotenuse as the longest side, which is x.
The sides must satisfy the Pythagorean Triplets logic.
By testing x = 85: Sides are (85 − 18) = 67, (85 − 25) = 60, and 85.
Check: 602 + 612? No. Test x = 88: Sides are 70, 63, 88. No.
Using x = 88: Sides are 70, 63, 88. Test x = 93: Sides are 75, 68, 93. No.
Actually, x = 73 gives sides 55, 48, 73. 552 + 482 = 3025 + 2304 = 5329 = 732. Correct.
Area = 1/2 × 55 × 48 = 55 × 24 = 1320.
Therefore The correct answer is 1320 cm2.
Alternate Method
Given: Sides of a right-angled triangle are (x − 18), (x − 25), and x.
Formula Used: Pythagoras Theorem: a2 + b2 = c2 and Area = 1/2 × Base × Height.
=> (x − 18)2 + (x − 25)2 = x2
=> (x2 − 36x + 324) + (x2 − 50x + 625) = x2
=> 2x2 − 86x + 949 = x2
=> x2 − 86x + 949 = 0
=> x2 − 73x − 13x + 949 = 0
=> x(x − 73) − 13(x − 73) = 0
=> (x − 73)(x − 13) = 0
=> x = 73 or x = 13 (But x − 18 and x − 25 must be positive, so x > 25)
=> x = 73
=> Base = 73 − 25 = 48 cm, Height = 73 − 18 = 55 cm
=> Area = 1/2 × 48 × 55 = 24 × 55 = 1320 cm2
Therefore The correct answer is 1320 cm2.
Additional Information
Pythagorean Triplets
Common triplets like (3, 4, 5), (5, 12, 13), (7, 24, 25), and (48, 55, 73) help solve right triangle problems quickly without complex algebra.
Right Triangle Area
The area of a right-angled triangle is always half the product of the two sides perpendicular to each other (Base × Height).
Quadratic Roots Selection
Always verify physical dimensions: side lengths must be positive, which often eliminates one of the two roots in a quadratic equation.

Q70. Answer: (a) Akash Surface-to-Air Missile

The correct answer is Akash Surface-to-Air Missile.
Key Points
• In early 2025, India was working towards finalizing a defense export deal with the Philippines for the supply of its Akash Surface-to-Air Missile system.
• This deal is valued at over $200 million and is expected to be concluded within the current fiscal year.
• The Akash missile system is noted for its advanced technology, cost-effectiveness, and operational efficiency, making it an attractive option for nations looking to enhance their air defense capabilities.
• Developed by the Defence Research and Development Organisation (DRDO) of India, the Akash system has been in operational service with the Indian Army and Air Force since 2009.
Additional Information
• Akash Missile System:
• Medium-range, Surface-to-Air Missile: The Akash missile system is designed to engage and destroy aerial threats, including

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aircraft, cruise missiles, and air-to-surface missiles.

• It has a range of up to 25 kilometers and can carry a 60 kg high-explosive warhead with a proximity fuse.

• Mobility: One of the key strengths of the Akash system is its mobility. It can be deployed to protect moving convoys, providing flexible defense in dynamic environments.

• Operational History: The Akash missile has been operational with the Indian armed forces since 2009 and has demonstrated reliability and effectiveness in various applications.

• Significance of the $200 Million Deal:

• This deal underscores India's growing presence in the global defense market and its strategic partnership with the Philippines.

• Tensions with China: The Philippines is enhancing its military capabilities amidst rising tensions with China over territorial disputes in the South China Sea. The Akash system would strengthen its defense operations.

• India's Defense Export Strategy: This deal exceeds India's previous defense export agreement with Armenia, valued at $230 million in 2024, and highlights India's commitment to becoming a significant exporter in the defense sector.

• Future Prospects:

• Increasing Defense Exports: By March 2024, India's defense export value had reached $2.40 billion, reflecting a rise of nearly 150% since 2020, positioning India as a key player in the global defense market.

• International Demand: Following the successful deal with the Philippines and the previous $375 million BrahMos missile sale in 2022, other countries such as Brazil and Egypt are also showing interest in Indian defense systems.

• Economic and Strategic Benefits: The growing demand for Indian-made missile systems not only boosts India's economy but also strengthens strategic partnerships worldwide.

Important Points

• Defence Research and Development Organisation (DRDO):

• DRDO is India's premier agency responsible for the development of technology for use by the military. It was established in 1958 and has played a pivotal role in enhancing India's defense capabilities.

• DRDO's development of the Akash missile system is part of its broader mandate to achieve self-reliance in defense technology and promote India's indigenous capabilities.

• Strategic Partnerships:

• India's defense export strategy emphasizes building strong defense cooperation with other countries, enhancing geopolitical relations, and countering regional threats, particularly from China.

• Deals like the one with the Philippines also create opportunities for further collaboration in defense technology and joint military exercises.

Q71. Answer: (c) First Indian Commander-in-Chief of the Army

The Correct answer is First Indian Commander-in-Chief of the Army.

Key Points

• Indian Army Day is celebrated every year on 15th January to honor the day when General (later Field Marshal) K. M. Cariappa became the first Indian Commander-in-Chief of the Indian Army.

• This event took place in 1949, marking a significant milestone in India's military history.

• Before this, the position of Commander-in-Chief was held by British officers, as India was under colonial rule.

• General Cariappa succeeded General Sir Francis Butcher, the last British Commander-in-Chief of the Indian Army.

• Field Marshal K. M. Cariappa was a celebrated figure and played a pivotal role in reorganizing the Indian Army post-independence.

• Army Day serves as a day to recognize the contributions and sacrifices of Indian soldiers and military personnel who safeguard the nation's sovereignty and security.

• Various ceremonies, parades, and events are held across the country to commemorate this day, including the main parade at the Kariappa Parade Ground in Delhi.

• The day also emphasizes the importance of the Indian Army in maintaining peace, security, and unity in the country.

Additional Information

• Launch of Operation Vijay

• Operation Vijay refers to the military operation conducted during the 1999 Kargil War to recapture Indian territory infiltrated by Pakistani forces.

• This operation showcased the valor and strategic prowess of the Indian Armed Forces.

• It is not related to the celebration of Army Day, which honors the first Indian Commander-in-Chief.

• First Republic Day Parade

• The first Republic Day Parade in India was held on 26th January 1950, marking the day when India became a republic.

• This event is distinct from Army Day and celebrates the adoption of the Constitution of India.

• Establishment of Army Headquarters

• The Indian Army Headquarters is located in New Delhi, and its establishment was a key organizational step in managing the Indian Army.

• While significant, Army Day specifically commemorates the appointment of the first Indian Commander-in-Chief.

Q72. Answer: (c) YX – GA

The logic followed here is:

Option (1) 'XV – FZ':

Option (2) 'HF – PJ':

Option (3) 'YX – GA':

Option (4) 'BZ – JD':

Thus, option 3 is the odd one.

Hence, the correct answer is "Option 3".

Q73. Answer: (a) Rs. 202

Shortcut Trick

Equation 1: 4 Pens + 5 Pencils = Rs. 193

Equation 2: 3 Pens + 6 Pencils = Rs. 165 → Dividing by 3 => 1 Pen + 2 Pencils = Rs. 55

Multiply simplified Eq 2 by 4: 4 Pens + 8 Pencils = Rs. 220

Difference (3 Pencils) = Rs. 220 − Rs. 193 = Rs. 27 => 1 Pencil = Rs. 9

Required (4 Pens + 6 Pencils) = (4 Pens + 5 Pencils) + 1 Pencil = Rs. 193 + Rs. 9 = Rs. 202

Therefore The correct answer is Rs. 202.

Alternate Method

Given:

Cost of 4 pens and 5 pencils = Rs. 193

Cost of 3 pens and 6 pencils = Rs. 165

Let the cost of one pen be x and the cost of one pencil be y.

=> 4x + 5y = 193 --- (i)

=> 3x + 6y = 165 --- (ii)

From (ii), divide by 3:

=> x + 2y = 55 => x = 55 − 2y

Substitute x in (i):

=> 4(55 − 2y) + 5y = 193

=> 220 − 8y + 5y = 193

=> 220 − 3y = 193

=> 3y = 27 => y = 9

Substitute y in the equation for x:

=> x = 55 − 2(9) = 55 − 18 = 37

Now, find the cost of 4 pens and 6 pencils:

=> 4x + 6y = 4(37) + 6(9)

=> 148 + 54 = 202

Therefore The correct answer is Rs. 202.

Additional Information

Simultaneous Linear Equations

These are equations with multiple variables solved together using substitution or elimination methods to find unique values.

Unitary Method

The technique of finding the value of a single unit and then multiplying by the required number of units to get the total cost.

Cost Price Calculation

Total Cost = (Number of Items 1 × Rate 1) + (Number of Items 2 × Rate 2).

Q74. Answer: (b) Telangana

The Correct answer is Telangana.

Key Points

• The Kakatiya Rudreshwara Temple, also known as the Ramappa Temple, is located in Palampet village, in the Mulugu district of Telangana.

• The temple was built during the reign of the Kakatiya dynasty in the 13th century.

• This temple is dedicated to Lord Shiva and is renowned for its intricate carvings and exceptional architectural style.

• The Ramappa Temple is notable for its usage of lightweight bricks, known as floating bricks, which were used in the construction of the roof.

• In 2021, the temple was inscribed as a UNESCO World Heritage Site, making it the first heritage site from Telangana to receive this recognition.

• The temple serves as an outstanding example of Kakatiya art and architecture, showcasing the cultural and historical legacy of the region.

• It attracts visitors and scholars from around the world due to its historical significance and unique craftsmanship.

Additional Information

• Karnataka

• Karnataka is home to several UNESCO World Heritage Sites, including Hampi, which was the capital of the Vijayanagara Empire.

• Hampi is famous for its monolithic sculptures and architectural ruins.

• The state also features other renowned heritage sites such as Pattadakal, known for its Chalukya-style temples.

• Andhra Pradesh

• Andhra Pradesh is known for its historical landmarks such as the Amaravati Stupa, which is an important Buddhist site.

• The Lepakshi Temple, famous for its hanging pillar, is another architectural marvel in the state.

• However, the Kakatiya Rudreshwara Temple is not located in Andhra Pradesh but in Telangana, which was carved out as a separate state in 2014.

• Gujarat

• Gujarat has several UNESCO World Heritage Sites, such as the Rani ki Vav, an intricately designed stepwell located in Patan.

• The Champaner-Pavagadh Archaeological Park, featuring ancient forts and temples, is another recognized site in Gujarat.

• The state is also famous for its Gir National Park, the last abode of the Asiatic lions.

Q75. Answer: (d) A commander of the Ahom kingdom

The Correct answer is A commander of the Ahom kingdom.

Key Points

• Lachit Barphukan was a legendary military commander of the Ahom kingdom, which ruled over present-day Assam.

• He is best known for his role in the Battle of Saraighat (1671), where he led the Ahom forces to victory against the invading Mughal army.

• The Battle of Saraighat is considered a significant event in Indian history as it prevented the Mughal expansion into the northeastern region of India.

• Lachit Barphukan demonstrated exceptional leadership, military strategy, and patriotism during the battle.

• He is celebrated for his famous quote, "My duty to my king and my country comes before my family," which he proved by punishing his own uncle for negligence during the war.

• His legacy symbolizes courage, selflessness, and loyalty to the nation, making him an enduring figure of Assamese pride.

• The Lachit Barphukan Police Academy in Assam has been named in his honor to inspire future generations with his values and contributions.

Additional Information

• A military commander of the Mughals

• This option is incorrect because Lachit Barphukan was not associated with the Mughal Empire but fought against it in the Battle of Saraighat.

• The Mughal Empire, under Emperor Aurangzeb, sought to expand its territory into Assam during Lachit Barphukan's time.

• A poet from Assam

• Lachit Barphukan was not a poet but a military commander. However, Assam has a rich tradition of poetry and literature, including works by renowned poets like Jyoti Prasad Agarwala and Hem Barua.

• A British-era police officer

• This option is incorrect as Lachit Barphukan lived in the 17th century, long before the British colonial rule in India.

• British-era police officers were introduced during the colonial administration, mainly for maintaining law and order under British governance.

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Q76. Answer: (c) AFM : EJQ

The logic followed here is:

HKN : LOR

DJO : HNS

Option 1: ATB : CVE

Option 2: GJM : IKO

Option 3: AFM : EJQ

Option 4: WXC : YGP

Hence, the correct answer is "Option 3".

Q77. Answer: (d) Marathas

The Correct answer is Marathas.

Key Points

• The Ramoshis were a tribal community primarily found in the regions of Maharashtra.

• They were historically known for their role as night guards responsible for protecting forts, particularly during the reign of the Maratha Empire.

• The Ramoshis played a crucial role in safeguarding the forts and territories of the Marathas against enemy invasions and incursions.

• They were trained in guerrilla warfare and often worked under prominent leaders of the Maratha Empire, such as Chhatrapati Shivaji Maharaj.

• The community later became involved in uprisings against colonial rule, particularly during the British era, known as the Ramoshi Uprising.

• Over time, the Ramoshi community gained recognition for their bravery and contributions to the defense and preservation of the Maratha Empire.

Additional Information

• Mughals

• The Mughals were a prominent empire in India established by Babur in 1526.

• The Mughal Empire is known for its significant contributions to architecture, culture, and administration, including structures like the Taj Mahal and the Red Fort.

• They primarily relied on their own military forces and did not have communities like the Ramoshis working as night guards for their forts.

• Sikhs

• The Sikh community is historically associated with the Punjab region and founded under the teachings of Guru Nanak.

• Sikhs played a significant role in military resistance during the Mughal era and later against the British rule.

• However, the Ramoshis were not known to have worked for Sikh forts or territories.

• Rajputs

• The Rajputs were a warrior class primarily found in the regions of Rajasthan and surrounding areas.

• They are known for their valor, chivalry, and defense of their kingdoms against foreign invaders like the Mughals.

• The Ramoshis, being based in Maharashtra, were not historically associated with protecting Rajput forts.

Q78. Answer: (d) 1232

Shortcut Trick

Identify the Pythagorean triplet for radius (r), height (h), and slant height (l).

Given r = 7 and l = 25, the triplet is 7, 24, 25 → h = 24 cm.

Volume = (1/3) × (22/7) × 7^2 × 24 = 22 × 7 × 8.

Volume = 154 × 8 = 1232 cm^3.

Therefore The correct answer is 1232 cm^3.

Alternate Method

Given:

Radius (r) = 7 cm

Slant Height (l) = 25 cm

Formula Used:

Vertical height (h) = $\sqrt{(l^2 - r^2)}$

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Volume of cone (V) = $(1/3)\pi r^2 h$

Calculations:

=> $h = \sqrt{(25^2 - 7^2)}$

=> $h = \sqrt{(625 - 49)} = \sqrt{576}$

=> $h = 24$ cm

=> Volume = $(1/3) \times (22/7) \times 7 \times 7 \times 24$

=> Volume = $22 \times 7 \times 8$

=> Volume = $154 \times 8 = 1232$ cm³

Therefore The correct answer is 1232 cm³.

Additional Information

Curved Surface Area (CSA)

The area of the curved surface of a right circular cone is given by πrl.

Total Surface Area (TSA)

The sum of the curved surface area and the base area: $\pi r(l + r)$.

Slant Height Relation

In a right circular cone, the relation between height, radius, and slant height follows $l^2 = h^2 + r^2$.

Q79. Answer: (c) 16 January 2014

The Correct answer is Thu Jan 16 2014.

Key Points

• The Lokpal and Lokayukta Act came into force on January 16, 2014.

• The Act aims to establish a statutory body known as the Lokpal at the national level and Lokayuktas at the state level to investigate cases of corruption against public officials.

• The Lokpal consists of a Chairperson and members, including judicial and non-judicial members, to ensure fair investigation and accountability.

• The Act ensures that the Lokpal is independent and impartial in its functioning, with members appointed through a transparent process.

• This legislation was introduced as part of the efforts to combat corruption in India, following extensive public demand and advocacy, particularly during the India Against Corruption movement led by Anna Hazare and others.

• The Act defines the role and responsibilities of the Lokpal, including the power to inquire into allegations of corruption against public servants, including the Prime Minister (with some exceptions).

• It mandates the establishment of a comprehensive mechanism to investigate complaints and take action against offenders.

• The Lokpal and Lokayuktas Act is considered a landmark legislation in India's fight against corruption, emphasizing transparency and accountability in governance.

Additional Information

• Tue Dec 17 2013 00:00:00 GMT+0530 (India Standard Time)

• This date is significant as the Lokpal and Lokayukta Act was passed by the Rajya Sabha on December 17, 2013.

• However, the Act officially came into force later, on January 16, 2014.

• Sun Jan 16 2011 00:00:00 GMT+0530 (India Standard Time)

• The year 2011 was crucial in the context of anti-corruption efforts in India, marked by the India Against Corruption movement.

• Although the public movement gained momentum during this period, the Lokpal and Lokayukta Act was not passed or enforced at this time.

• Wed Jan 16 2013 00:00:00 GMT+0530 (India Standard Time)

• This date does not hold any significant relevance to the Lokpal and Lokayukta Act.

• The Act was passed and came into force in 2013–2014, but this specific date is incorrect.

Q80. Answer: (b) 14

Shortcut Trick

Total Work = LCM(11, 33, 48) = 528 units.

Efficiencies: A = 48, B = 16, C = 11.

Work done by (A+B+C) in 2 days = $(48 + 16 + 11) \times 2 = 75 \times 2 = 150$ units.

Remaining work = $528 - 150 = 378$ units.

Remaining time taken by (B+C) = $378 \div (16 + 11) = 378 \div 27 = 14$ days.

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Therefore The correct answer is 14 days.

Alternate Method

Given: Time taken by A = 11 days, B = 33 days, C = 48 days.

Formula Used: Efficiency = Total Work ÷ Time; Work Done = Efficiency × Time.

Person	Days	Total Work	Efficiency
A	11	528	48
B	33	16	
C	48	11	

=> Combined efficiency of A, B and C = 48 + 16 + 11 = 75 units/day.

=> Work completed in first 2 days = 75 × 2 = 150 units.

=> Remaining Work = 528 − 150 = 378 units.

=> Combined efficiency of B and C = 16 + 11 = 27 units/day.

=> Time taken by B and C to complete remaining work = 378 ÷ 27.

=> Time = 14 days.

Therefore The correct answer is 14 days.

Additional Information

Combined Work Efficiency

When multiple people work together, their daily efficiencies are added. Combined Efficiency = E1 + E2 + ... + E_n.

Work Left Concept

If a person leaves after 'n' days, their contribution is calculated as (Efficiency × n) and subtracted from the total work to find the remainder.

Time and Work Relation

Total Work = Efficiency × Time. For a constant work, Efficiency is inversely proportional to Time.

Q81. Answer: (c) 5

Given:

2 is added to each odd digit and 2 is subtracted from each even digit in the number 6127385.

Given	6	1	2	7	3	8	5
Operation	-2	+2	-2	+2	+2	-2	+2
New number	4	3	0	9	5	6	7

The new number formed is 4309567.

The third digit from the right in the new number is 5.

Hence, the correct answer is "Option 3".

Q82. Answer: (c) 600

Shortcut Trick

Savings = 40% → Expenditure = 100% − 40% = 60%.

Given 60% = Rs. 360.

100% = (360 ÷ 60) × 100 = 6 × 100 = Rs. 600.

Therefore The correct answer is Rs. 600.

Alternate Method

Given:

Savings Percentage = 40%

Expenditure Amount = Rs. 360

Formula Used:

Income = Expenditure + Savings

Calculations:

=> Let Income be I.

=> Savings = 40% of I.

=> Expenditure = I − 0.40I = 0.60I.
=> 0.60I = 360
=> I = 360 ÷ 0.60
=> I = 36000 ÷ 60
=> I = 600
Therefore The correct answer is Rs. 600.
Additional Information
Percentage Change
Income increase/decrease: New Income = Old Income × (100 ± x)/100.
Base Value Concept
Total Income is always considered as the base (100%) in percentage-based budget problems.
Ratio Method
Savings:Expenditure = 40:60 = 2:3. Since 3 units = Rs. 360, then 5 units (Total) = Rs. 600.

Q83. Answer: (a) 96

Shortcut Trick
Simplify initial ratio: 5/20 : 8/16 : 8/14 → 1/4 : 1/2 : 4/7.
Multiply by LCM of (4, 2, 7) = 28 to get whole numbers: 7 : 14 : 16.
Difference between largest (16 units) and smallest (7 units) = 9 units.
9 units = 54 => 1 unit = 6.
Largest number = 16 units × 6 = 96.
Therefore The correct answer is 96.
Alternate Method
Given: Ratio of three numbers = 5/20 : 8/16 : 8/14 and Difference = 54.
=> Simplified Ratio = 1/4 : 1/2 : 4/7
=> To remove denominators, multiply by LCM (4, 2, 7) = 28
=> First number = (1/4) × 28 = 7
=> Second number = (1/2) × 28 = 14
=> Third number = (4/7) × 28 = 16
=> Let the numbers be 7x, 14x, and 16x.
=> Difference between largest and smallest = 16x − 7x = 9x
=> 9x = 54 => x = 6
=> Largest number = 16 × 6 = 96
Therefore The correct answer is 96.
Additional Information
Ratio Simplification
To convert a fractional ratio a/b : c/d into a simple whole number ratio, multiply each term by the LCM of the denominators b and d.
Unitary Method in Ratios
If the difference or sum of terms is given, find the value of one unit by dividing the actual value by the difference/sum of ratio parts.
Compound Ratio
The compound ratio of (a : b) and (c : d) is (ac : bd), found by multiplying the corresponding antecedent and consequent terms.

Q84. Answer: (b) 3

Given series:
(Left) © 9 6 £ 9 & € 8 4 4 2 @ © £ # 4 * 7 © 7 9 6 (Right)
Condition to be checked:
Symbol → Number → Symbol
© 9 6 £ 9 & € 8 4 4 2 @ © £ # 4 * * 7 © 7 9 6
There are three such numbers in the above arrangement (£ 9 &, # 4 *, * 7 ©).
Hence, the correct answer is "Option 2".

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Q85. Answer: (c) 40%

Shortcut Trick

Principal (P) = Rs. 1,000, Amount (A) = Rs. 1,728, Time (t) = 1.5 years = 3 half-years.

Ratio of A : P = 1728 : 1000.

For 3 periods, take the cube root: $\sqrt[3]{1728} : \sqrt[3]{1000} = 12 : 10$.

Half-yearly rate = [(12 − 10) ÷ 10] × 100 = 20%.

Annual Rate = 20% × 2 = 40%.

Therefore The correct answer is 40%.

Alternate Method

Given:

Principal (P) = Rs. 1,000

Amount (A) = Rs. 1,728

Time (T) = 1 year 6 months = 1.5 years

Compounding: Half-yearly => Number of periods (n) = 1.5 × 2 = 3

Formula Used: $A = P(1 + r/100)^n$, where r is the half-yearly interest rate.

Calculations:

$\Rightarrow 1728 = 1000(1 + r/100)^3$

$\Rightarrow 1728 \div 1000 = (1 + r/100)^3$

$\Rightarrow 1.728 = (1 + r/100)^3$

$\Rightarrow \sqrt[3]{1.728} = 1 + r/100$

$\Rightarrow 1.2 = 1 + r/100$

$\Rightarrow r/100 = 0.2$

$\Rightarrow r = 20\%$ (Half-yearly rate)

$\Rightarrow$ Annual Rate of Interest = 2 × r = 2 × 20%

$\Rightarrow$ Annual Rate = 40%

Therefore The correct answer is 40%.

Additional Information

Half-Yearly Compounding Rule

When interest is compounded half-yearly, the annual rate is divided by 2 (R/2) and the time in years is multiplied by 2 (2n).

Quarterly Compounding Rule

When interest is compounded quarterly, the annual rate is divided by 4 (R/4) and the time is multiplied by 4 (4n).

Effective Rate of Interest

It is the actual annual interest rate when compounding occurs more than once a year, calculated as: Effective Rate = $[1 + (R/n)]^n - 1$.

Q86. Answer: (a) Madan Lal Dhingra

The correct answer is Madan Lal Dhingra.

Key Points

• Madan Lal Dhingra was an Indian revolutionary who is best known for the assassination of Sir William Hutt Curzon Wyllie in 1909 in London.

• He carried out this act as a form of protest against British colonial rule in India.

• The assassination took place during a gathering at the Imperial Institute, where Wyllie was attending an event.

• Curzon Wyllie was a high-ranking British official who had served in India and was considered a symbol of British oppression.

• Madan Lal Dhingra was deeply influenced by the nationalist ideologies of Vinayak Damodar Savarkar and other leaders of the Indian independence movement.

• After the assassination, Dhingra was arrested, tried, and executed by hanging on August 17, 1909.

• His act of defiance inspired many other revolutionaries and became a significant chapter in the history of India's freedom struggle.

• Dhingra's sacrifice is remembered as a bold stand against British imperialism and a demonstration of the lengths to which Indians were willing to go to secure independence.

Additional Information

• Ras Bihari Bose

• Ras Bihari Bose was an Indian revolutionary leader who played a key role in the Indian independence movement.

• He is best known for his association with the Ghadar Party and his efforts to organize Indian revolutionaries abroad.
• Bose later became instrumental in the formation of the Indian National Army (INA) in Southeast Asia.
• Subhas Chandra Bose
• Subhas Chandra Bose, popularly known as Netaji, was a prominent leader of the Indian independence movement.
• He is known for his leadership of the Indian National Army (INA) and his slogan, "Give me blood, and I will give you freedom."
• Bose sought to gain independence for India through armed struggle and aligned with Axis powers during World War II.
• Khudiram Bose
• Khudiram Bose was one of the youngest revolutionaries in the Indian independence movement.
• He is best known for his involvement in the attempted assassination of British magistrate Douglas Kingsford in 1908.
• Khudiram was arrested and executed at the age of 18, becoming a martyr for India's freedom struggle.

Q87. Answer: (a) Rs. 10 lakh

The Correct answer is Rs. 10 lakh.

Key Points

• The Liberalized Remittance Scheme (LRS) was introduced by the Reserve Bank of India (RBI) to facilitate individuals in India to remit funds abroad for permissible current or capital account transactions.
• Under the Union Budget 2025-26, the remittance threshold under the LRS was raised from Rs. 7 lakh to Rs. 10 lakh.
• This increase reflects the government's effort to align the scheme with the growing needs and aspirations of Indian citizens for international transactions.
• Raising the threshold allows individuals to remit a higher amount without attracting Tax Collected at Source (TCS) at a higher rate, making it beneficial for purposes like education, travel, and investment abroad.
• The adjustment in the threshold is also consistent with the inflationary trends and the evolving economic landscape.
• The LRS covers a variety of transactions, including overseas education, medical treatment, family maintenance, gifting, and investments in foreign stocks or real estate.
• This move indicates the government’s commitment to promoting financial liberalization and enhancing the ease of conducting foreign transactions.

Additional Information

• The Liberalized Remittance Scheme (LRS) was first introduced in 2004 with an initial limit of USD 25,000. Over the years, this limit has been revised multiple times to cater to evolving financial needs.
• Tax Collected at Source (TCS) is applicable on remittances exceeding the threshold under the LRS. The increase in the threshold reduces the burden of TCS for many individuals.
• The LRS does not apply to certain restricted activities, such as trading in foreign exchange or investing in prohibited sectors abroad.
• The scheme plays a significant role in facilitating global economic integration, allowing Indian citizens to participate in international markets and opportunities.

Q88. Answer: (c) 81 : 1

Shortcut Trick

For any two similar triangles, the ratio of their areas is equal to the square of the ratio of their corresponding sides.

Ratio of areas = (Ratio of corresponding sides)²

Ratio of areas = $(9 : 1)^2 = 9^2 : 1^2 = 81 : 1$

Therefore The correct answer is 81 : 1.

Alternate Method

Given:

Ratio of corresponding sides of two similar triangles = 9 : 1

Formula Used:

According to the Area of Similar Triangles Theorem, if two triangles are similar, then the ratio of the areas of both triangles is equal to the square of the ratio of their corresponding sides:

Area(Triangle 1) ÷ Area(Triangle 2) = (Side1 ÷ Side2)²

Calculations:

Let the two similar triangles be Triangle 1 and Triangle 2.

=> Side1 : Side2 = 9 : 1

=> Area(Triangle 1) : Area(Triangle 2) = $(Side1)^2 : (Side2)^2$

=> Area(Triangle 1) : Area(Triangle 2) = $9^2 : 1^2$

=> Area(Triangle 1) : Area(Triangle 2) = 81 : 1

Thus, the ratio of the areas of the two triangles is 81 : 1.

Let's analyze why the other options are incorrect:

=> Option (1) 9 : 1 is incorrect because it represents the ratio of the corresponding sides, not their areas.

=> Option (2) 9√9 : 1 is incorrect because it simplifies to 27 : 1, which is not the square of the side ratio.

=> Option (4) 82 : 2 is incorrect because it simplifies to 41 : 1, which does not satisfy the area ratio theorem.

Therefore The correct answer is 81 : 1.

Additional Information

Ratio of Perimeters of Similar Triangles

The ratio of the perimeters of two similar triangles is equal to the ratio of their corresponding sides: Perimeter1 ÷ Perimeter2 = Side1 ÷ Side2.

Ratio of Altitudes, Medians, and Angle Bisectors

For similar triangles, the ratio of any corresponding linear segments (such as altitudes, medians, or angle bisectors) is equal to the ratio of their corresponding sides.

Properties of Similarity (AAA, SAS, SSS)

Two triangles are similar if their corresponding angles are equal (AAA), or if their corresponding sides are in the same ratio (SSS), or if one angle of a triangle is equal to one angle of another triangle and the sides including these angles are proportional (SAS).

Q89. Answer: (c) 1.7 billion

The Correct answer is 1.7 billion.

Key Points

• As per the World Bank's State of Social Protection Report 2025, during the COVID-19 pandemic, emergency social protection measures were implemented to assist vulnerable populations in developing countries.

• These responses reached a significant number of 1.7 billion people, showcasing the scale and urgency of the interventions.

• The efforts included a wide range of measures such as cash transfers, food distribution, and subsidized healthcare services to mitigate the economic and social impacts of the pandemic.

• The pandemic highlighted the critical need for robust social protection systems worldwide to address crises and support marginalized communities.

• This initiative was part of a global effort to strengthen social safety nets and prevent extreme poverty during unprecedented times.

• The data reflects the role of international organizations and governments in providing targeted support during emergencies.

• Such large-scale interventions underscore the importance of collaboration between governments, non-governmental organizations, and multilateral agencies.

Additional Information

• World Bank

• The World Bank is an international financial institution that provides loans and grants to the governments of low- and middle-income countries for the purpose of pursuing capital projects.

• It was established in 1944 and is headquartered in Washington, D.C., USA.

• The World Bank Group consists of five institutions, including the International Bank for Reconstruction and Development (IBRD) and the International Development Association (IDA).

• Its primary goal is to reduce poverty and support sustainable development.

• Social Protection

• Social protection refers to policies and programs designed to reduce poverty and vulnerability by promoting efficient labor markets, diminishing people's exposure to risks, and enhancing their capacity to manage economic and social risks.

• Examples of social protection measures include unemployment benefits, pensions, and disaster relief programs.

• During the COVID-19 pandemic, social protection measures were crucial for providing immediate relief to populations affected by lockdowns and economic slowdowns.

Q90. Answer: (b) 8 : 1

Shortcut Trick

Fourth Proportional (d) = (b × c) ÷ a = (8 × 12) ÷ 2 = 48.

Mean Proportional (m) = √(a × b) = √(9 × 4) = 6.

Required Ratio = 48 : 6 = 8 : 1.

Therefore The correct answer is 8 : 1.

Alternate Method

Given: Numbers for Fourth Proportional are 2, 8, 12. Numbers for Mean Proportional are 9, 4.

Formula Used: Fourth proportional (x) of a, b, c is given by a/b = c/x. Mean proportional (y) of a, b is √(ab).

Calculation for Fourth Proportional:

=> 2/8 = 12/x

=> x = (8 × 12) / 2

=> x = 48

Calculation for Mean Proportional:

=> y = √(9 × 4)

=> y = √36 = 6

Final Ratio Calculation:

=> Ratio = x : y = 48 : 6

=> Ratio = 8 : 1

Therefore The correct answer is 8 : 1.

Additional Information

Third Proportional

The third proportional of two numbers a and b is c, such that a : b :: b : c, calculated as $c = b^2/a$.

Mean Proportional

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

Continued Proportion

Three numbers a, b, c are in continued proportion if a/b = b/c.

Q91. Answer: (b) Directorate General of Civil Aviation

The Correct answer is Directorate General of Civil Aviation.

Key Points

• The Directorate General of Civil Aviation (DGCA) is a statutory body under the Ministry of Civil Aviation in India.

• The DGCA is responsible for regulating civil aviation safety and standards across India.

• It oversees the implementation of international standards for civil aviation as recommended by the International Civil Aviation Organization (ICAO).

• The DGCA grants various licenses, certifications, and approvals to pilots, aircraft maintenance engineers, and air operators.

• It formulates and enforces civil aviation regulations and safety standards to ensure the safe operation of aircraft.

• The DGCA monitors and investigates aviation accidents and incidents to improve safety measures.

• It plays a crucial role in the development of civil aviation infrastructure, ensuring compliance with national and international regulations.

• The organization also oversees the registration and inspection of aircraft and ensures that airlines operate within the prescribed guidelines.

• The DGCA works in coordination with other aviation-related bodies like the Airport Authority of India (AAI) and Bureau of Civil Aviation Security (BCAS).

Additional Information

• Ministry of Road Transport and Highways

• This ministry is responsible for planning, development, and maintenance of road infrastructure in India.

• Its functions include the formulation of policies related to road transport and highways and the implementation of national-level projects like the Golden Quadrilateral.

• It does not oversee the aviation sector but focuses on land transport infrastructure.

• Airport Authority of India (AAI)

• The AAI is responsible for the development, management, and operation of airports in India.

• It provides air traffic management services and ensures smooth functioning of airport facilities.

• While the AAI manages airport infrastructure, it does not regulate aviation safety and standards, which is the role of the DGCA.

• Indian Civil Aviation Forum

• This is not a regulatory authority but may refer to forums or organizations focused on discussions about civil aviation policies, challenges, and advancements.

• Such forums aim to foster collaboration between stakeholders but do not hold legal or statutory powers like the DGCA.

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Q92. Answer: (b) Rs. 300

Shortcut Trick

Assume an average of 300.

Net deviation = (300−300) + (250−300) + (350−300) + (200−300) + (400−300)

Net deviation = 0 − 50 + 50 − 100 + 100 = 0

New Average = Assumed Average + (Net Deviation ÷ Total Weeks) = 300 + (0 ÷ 5) = 300

Therefore The correct answer is Rs. 300.

Alternate Method

Given:

Expenditure for Week 1 = Rs. 300

Expenditure for Week 2 = Rs. 250

Expenditure for Week 3 = Rs. 350

Expenditure for Week 4 = Rs. 200

Expenditure for Week 5 = Rs. 400

Formula Used:

Average = (Sum of all observations) ÷ (Total number of observations)

Calculations:

=> Total Spend = 300 + 250 + 350 + 200 + 400

=> Total Spend = Rs. 1500

=> Total number of weeks = 5

=> Average Spend = 1500 ÷ 5

=> Average Spend = Rs. 300

Therefore The correct answer is Rs. 300.

Additional Information

Arithmetic Mean

It is the most common type of average, calculated by dividing the sum of values by the number of values.

Weighted Average

Used when different data points have different levels of importance or frequency. Formula: ∑(Value × Weight) ÷ ∑Weights.

Properties of Average

If every value in a set is increased or decreased by a constant 'k', the average also increases or decreases by 'k'.

Q93. Answer: (c) 5

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

1) U has an exam on Saturday.

Weekday	Person
Monday	
Tuesday	
Wednesday	
Thursday	
Friday	
Saturday	U
Sunday	

2) Only 4 people have an exam between S and T, neither of whom has an exam on Monday.

For there to be 4 people between S and T, they must be at the two ends of the week. Since neither can be on Monday, this means one must be on Tuesday and the other on Sunday.

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

This forms a consecutive block: V-R-P. This block requires three consecutive empty slots.

4) T has an exam after P.

Let's consider the two cases for S and T:

Weekday	Case 1	Case 2
Monday		
Tuesday	S	T
Wednesday		
Thursday		
Friday		
Saturday	U	U
Sunday	T	S

In both cases, the three consecutive empty slots for the V-R-P block are Wednesday, Thursday, and Friday. Thus, V is on Wednesday, R is on Thursday, and P is on Friday.

Case 1 (T on Sunday): P is on Friday and T is on Sunday. T has an exam after P. This matches the condition. Thus, Case 1 is Valid.

Case 2 (T on Tuesday): P is on Friday and T is on Tuesday. T has an exam before P, which contradicts the condition that T has an exam after P.

Thus, Case 2 is Eliminated.

The final arrangement is based on Case 1. The only remaining person is Q, and the only remaining empty slot is Monday.

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

Thus, there are 5 people who have an exam after S.

Hence, the correct answer is "Option 3".

Q94. Answer: (c) MSME sector

The Correct answer is MSME sector.

Key Points

• The Trade Receivables Discounting System (TReDS) is an institutional mechanism set up in India to facilitate the financing of trade receivables, specifically for the Micro, Small, and Medium Enterprises (MSME) sector.

• It enables MSMEs to auction their trade receivables at a competitive rate through an electronic platform.

• TReDS aims to address the issue of delayed payments, which is a major challenge for MSMEs in maintaining their operational liquidity.

• This platform connects various stakeholders, including buyers, suppliers, and financiers, ensuring a seamless flow of funds.

• It is regulated by the Reserve Bank of India (RBI), which ensures transparency and safeguards the interests of all parties involved.

• The receivables on the platform are mostly backed by an invoice, making the system reliable and trustworthy for financiers.

• TReDS provides a win-win situation for MSMEs as they get faster access to working capital, while financiers gain access to an additional avenue for investment.

• Examples of TReDS platforms in India include RXIL (Receivables Exchange of India), A.TReDS, and M1xchange.

Additional Information

• Exporting Business

• The exporting business involves companies or entities that sell goods and services to other countries.

• While TReDS indirectly supports exporting MSMEs, its primary focus is on the domestic MSME sector.

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• Export-focused financial mechanisms include Export Credit Guarantee Corporation (ECGC) and Export-Import Bank of India (EXIM).

• Software Business

• Software businesses focus on developing, distributing, and maintaining software solutions.

• Although some MSMEs operate in the software industry, TReDS is designed to benefit all MSME sectors, not limited to software companies.

• Pharmaceutical Sector

• The pharmaceutical sector involves the research, production, and distribution of drugs and healthcare solutions.

• While the pharmaceutical industry contributes significantly to the economy, TReDS specifically caters to the working capital needs of MSMEs, irrespective of their industry type.

Q95. Answer: (a) 32.1%

The Correct answer is 0.321.

Key Points

• According to the National Family Health Survey (NFHS-5), 32.1% of children under the age of five years are categorized as underweight in India.

• The term underweight refers to a condition where a child's weight is significantly below the norm for their age, indicating potential issues such as malnutrition or inadequate dietary intake.

• NFHS-5 is the fifth round of the National Family Health Survey, conducted under the supervision of the Ministry of Health and Family Welfare of the Government of India.

• The survey provides valuable insights into various health and demographic indicators, such as nutrition, maternal and child health, family planning, immunization, and sanitation.

• The data for NFHS-5 was collected during 2019–2021, and it covered 707 districts across all states and union territories in India.

• The findings of NFHS-5 help policymakers and stakeholders to address issues such as child malnutrition and implement targeted programs to improve nutrition and health standards.

• The percentage of underweight children has shown a slight decline over the years, highlighting the impact of initiatives like the Integrated Child Development Services (ICDS) and Poshan Abhiyan.

Additional Information

• Option 2: 0.285

• This value does not accurately represent the percentage of underweight children under five years as per the NFHS-5.

• Option 3: 0.267

• While this figure may be relevant for other health-related metrics or surveys, it does not pertain to the percentage of underweight children as per NFHS-5.

• Option 4: 0.193

• Although this value might be applicable to other parameters like stunting or wasting, it is not the correct percentage of underweight children under five years according to NFHS-5.

Q96. Answer: (c) Megasthenes

The Correct answer is Megasthenes.

Key Points

• Megasthenes was a Greek ambassador who visited the court of Chandragupta Maurya, the founder of the Maurya Empire in India.

• He served as an envoy of the Seleucid Emperor Seleucus I Nicator, who sent him to establish diplomatic relations with the Mauryan Empire.

• Megasthenes is best known for his work, Indica, which is a detailed account of Indian society, geography, culture, and governance during the Mauryan period.

• His writings provide valuable insights into the Mauryan administration, including the functioning of the capital city Pataliputra, the use of a well-organized bureaucracy, and the king's role in governance.

• Megasthenes described the Indian caste system, the way of life of the people, and the flora and fauna of India, which were considered unique by the Greeks.

• The information provided by Megasthenes serves as one of the earliest foreign accounts of India and helps historians reconstruct the history of ancient India.

Additional Information

• Strabo

• Strabo was a Greek geographer, philosopher, and historian who lived during the Roman Empire.

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• He is best known for his work Geographica, which provides a comprehensive description of the world known to the Romans and Greeks.

• Strabo did not visit India and thus was not associated with the Mauryan court.

• Ptolemy

• Ptolemy was a Greek-Roman mathematician, astronomer, geographer, and astrologer.

• He is famous for his work Geography, which includes maps and descriptions of the known world.

• Ptolemy lived centuries after the Mauryan Empire and did not visit Chandragupta Maurya's court.

• Pliny

• Pliny the Elder was a Roman author, naturalist, and philosopher.

• He is renowned for his encyclopedic work Natural History, which covers a wide range of topics, including geography, biology, and astronomy.

• Pliny never visited India or the Mauryan court, but he mentioned India in his writings based on secondary sources.

Q97. Answer: (a) 38

Shortcut Trick

Arrange the given 11 observations in ascending order:

21, 26, 35, 36, 37, 38, 49, 66, 71, 73, 73

Since the number of observations (n = 11) is odd, the median is the ((n + 1) ÷ 2)^(th) term.

Median = 6^(th) term = 38.

Therefore The correct answer is 38.

Alternate Method

Given:

Observations: 21, 36, 73, 71, 35, 38, 49, 37, 26, 66, 73

Total number of observations (n) = 11

Formula Used:

When n is odd, Median = Value of ((n + 1) ÷ 2)^(th) observation after sorting in ascending order.

Calculations:

First, arrange the given observations in ascending order:

=> 21, 26, 35, 36, 37, 38, 49, 66, 71, 73, 73

Count the total number of observations:

=> n = 11

Since n is odd, the median is calculated as:

=> Median = ((11 + 1) ÷ 2)^(th) observation

=> Median = 6^(th) observation

Looking at the sorted list, the 6^(th) observation is 38.

Let us verify why the other options are incorrect:

=> Option (2) 35 is the 3^(rd) observation, which is not the middle term.

=> Option (3) 37 is the 5^(th) observation, which is just before the middle term.

=> Option (4) 36 is the 4^(th) observation, which is not the middle term.

Therefore The correct answer is 38.

Additional Information

Median for Even Number of Observations

If the number of observations (n) is even, the median is the average of the (n ÷ 2)^(th) and ((n ÷ 2) + 1)^(th) observations. Formula: Median = [Value of (n/2)^(th) term + Value of (n/2 + 1)^(th) term] ÷ 2.

Mean (Arithmetic Average)

The sum of all observations divided by the total number of observations. Formula: Mean = (Σ x_i) ÷ n.

Mode

The value that appears most frequently in a data set. In the given data set, 73 appears twice, so the mode is 73.

Empirical Relationship

The relationship between Mean, Median, and Mode for moderately skewed distributions is given by: Mode = 3 × Median − 2 × Mean.

Q98. Answer: (a) 2

The given code language is:

Thus, 'T' is coded as '2'.

Hence, the correct answer is "Option 1".

Q99. Answer: (b) JMO

The logic followed here is:

Thus, the missing term in the series is JMO.

Hence, the correct answer is "Option 2";

Q100. Answer: (b) 1.9

Shortcut Trick

Ratio of Speed of Boat (u) : Speed of Stream (v) = 9 : 8.

Upstream speed (u−v) = 9x − 8x = 1x; Downstream speed (u+v) = 9x + 8x = 17x.

Current Upstream speed = 32.2 km ÷ (76/60) h = 25.42 kmph => x ≈ 25.42.

Total time = (44.9 ÷ x) + (57.8 ÷ 17x) = (44.9 ÷ 25.42) + (57.8 ÷ 432.14) ≈ 1.76 + 0.13 = 1.89 hours.

Therefore The correct answer is 1.9 hours.

Alternate Method

Given: Upstream Distance = 32.2 km, Time = 76 min, Ratio u:v = 9:8.

Formula Used: Speed = Distance ÷ Time; Upstream = u − v; Downstream = u + v.

=> Upstream speed (s_u) = 32.2 ÷ (76/60) = 32.2 × 15 / 19 = 25.421 kmph.

=> Let u = 9x and v = 8x. Upstream speed = 9x − 8x = x.

=> Therefore x = 25.421 kmph.

=> Downstream speed (s_d) = 9x + 8x = 17x = 17 × 25.421 = 432.157 kmph.

=> Time for 44.9 km Upstream = 44.9 ÷ 25.421 ≈ 1.766 hours.

=> Time for 57.8 km Downstream = 57.8 ÷ 432.157 ≈ 0.133 hours.

=> Total Time = 1.766 + 0.133 = 1.899 hours ≈ 1.9 hours.

Therefore The correct answer is 1.9 hours.

Additional Information

Upstream and Downstream Speeds

If u is boat speed in still water and v is stream speed, then Upstream Speed = u − v and Downstream Speed = u + v.

Average Speed of Boat

For the same distance D, Average Speed = (Upstream × Downstream) ÷ Still Water Speed.

Speed Conversion

To convert kmph to m/s, multiply by 5/18. To convert minutes to hours, divide by 60.

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