RRB NTPC (Graduate) CBT-I Official Paper (Held On: 22 Mar, 2026 Shift 1) (Previous Year Paper)

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

Take this paper as a timed mock test

Practise under exam conditions, then review your answers after you submit.

yourmocktest.com/pyq/rrb-ntpc/rrb-ntpc-graduate-cbt-i-official-paper-held-on-22-mar-2026-shift…

Scan the QR code or click the link to open it.

Q1. Evaluate: 16 + 18 ÷ 6 - 3 × 3

(a) 12
(b) 9
(c) 10
(d) 13

Q2. Based on the English alphabetical order, three of the following four letter-cluster pairs are alike in a certain way and thus form a group. Which is the one that does not belong to that group?

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

(a) TU - WX
(b) KL - NO
(c) XY - YZ
(d) AB - DE

Q3. In Windows 11, which built-in tool opens immediately when a user presses the keyboard shortcut Ctrl + Shift + Esc?

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

Q4. The abbreviation ASCII is a critical computer standard used worldwide. The letter C in ASCII stands for Code, indicating that ASCII is a standard system for assigning a unique numerical value to every single character, which is known as a character _____.

(a) processing chip
(b) input device
(c) encoding scheme
(d) memory component

Q5. In this question, a question is followed by two statements numbered (I) and (II). You have to decide whether the data provided in the statements are sufficient to answer the question. Read both the statements and decide the appropriate answer.

Q. Five boxes – Box-A, Box-B, Box-C, Box-D, and Box-E – have different weights.

Which box is the second heaviest?

(I) Box-C is heavier than Box-A and Box-B but lighter than Box-D.

(II) Box-E is heavier than Box-C but lighter than Box-D.

(a) Data in Statement II alone is sufficient to answer the question while data in Statement I is not
(b) Both statements I and II together are NOT sufficient to answer the question
(c) Data in Statement I alone is sufficient to answer the question while data in Statement II is not
(d) Both statements I and II together (and not statement I alone or statement II alone) are sufficient to answer the question

YourMockTest.com — Free Study Material

Q6. Amit invested equal amounts at simple interest and compound interest, compounded annually, for 2 years at the same rate of 4% per annum. In the end, he noticed a difference of Rs. 52 between the two interests earned. What was the amount (in Rs.) invested in each case?

(a) 32500
(b) 31600
(c) 31750
(d) 32850

Q7. In January 2025, Algeria signed a memorandum of understanding with the United States that focuses on _____.

(a) agricultural cooperation
(b) healthcare cooperation
(c) educational cooperation
(d) military cooperation

Q8. Two pipes can fill a cistern in 24 minutes and 36 minutes, respectively. A third pipe can empty it in 18 minutes. If all three are opened together, how long will it take to fill the tank?

(a) 108 minutes
(b) 60 minutes
(c) 72 minutes
(d) 144 minutes

Q9. Convert the recurring decimal 0.266... into a vulgar fraction.

(a) 1/15
(b) 7/15
(c) 2/15
(d) 4/15

Q10. 23 is related to 139 following a certain logic. Following the same logic, 28 is related to 169. To which of the following is 25 related, following the same logic?

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

(a) 155
(b) 141
(c) 151
(d) 146

Q11. Which amendment made it constitutionally mandatory for municipalities to prepare “District Planning Committees” and “Metropolitan Planning Committees”?

(a) 97th Amendment
(b) 102nd Amendment
(c) 73rd Amendment
(d) 74th Amendment

Q12. Read the given statements and conclusions carefully. Assuming that the information given in the statements is true, even if it appears to be at variance with commonly known facts, decide which of the given conclusions logically follow(s) from the statements.

Statements:

All crabs are bats. All bats are wigs. All wigs are dogs.

Conclusions:

(I) All crabs are dogs.

(II) Some dogs are bats.

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

YourMockTest.com — Free Study Material

(d) Only conclusion (II) follows

Q13. P sells an item to Q at 77% profit. Q sells the same item to R at 50% loss. If R paid Rs. 2655 for the item, then at what price (in Rs.) is the item purchased by P?

(a) 3003
(b) 3000
(c) 3002
(d) 3001

Q14. Below are given two sets of numbers. In each set of numbers, a certain mathematical operation on the first number results in the second number. Similarly, certain mathematical operation on the second number results in the third number and so on. Which of the given operations follows the same set of operations as in question?

(NOTE – A two/three-digit number cannot be broken into individual digits for operations e.g. if 37 is followed by 10, the operation cannot be 3+7 as a two-digit number cannot be broken into individual digits.)

17 - 7 - 21 - 33 ;

21 - 11 - 33 - 45

(a) 23-13-26-52
(b) 21-11-33-72
(c) 14-4-12-24
(d) 16-8-24-48

Q15. On 21 December 2025, President Droupadi Murmu approved the Viksit Bharat—Guarantee for Rozgar and Ajeevika Mission (Gramin) (VB–G RAM G) Bill, 2025, enhancing rural wage employment guarantee to which of the following days in a financial year?

(a) 175 days
(b) 125 days
(c) 100 days
(d) 150 days

Q16. Which of the following countries is the youngest country in terms of the lowest median age for the year 2024?

(a) Niger
(b) Palestine
(c) Afghanistan
(d) Iraq

Q17. If '+' means '−', '−' means '×', '×' means '÷', '÷' means '+', then what will come in place of the question mark (?) in the following equation?

79 − 8 ÷ 55 + 423 × 3 = ?

(a) 584
(b) 525
(c) 546
(d) 519

Q18. If A's salary is 130% more than that of B, then by how much percent is B's salary less than that of A (correct to 2 decimal places)?

(a) 56.52%
(b) 58.42%
(c) 54.62%
(d) 55.88%

Q19. What should come in place of '?' in the given series?

30 28 25 20 13 ?

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

(d) 3

Q20. Which language was predominantly used by Amir Khusrau in his literary compositions during the Delhi Sultanate period?

(a) Sanskrit
(b) Prakrit
(c) Persian
(d) Apabhramsha

Q21. Let C be a circle with centre O and AB be a minor arc on C. Let S be a point on the minor arc AB. If AB subtends an angle 120° at O, then find the measure of angle ASB.

(a) 110°
(b) 120°
(c) 100°
(d) 60°

Q22. The price of each article of type P, Q, and R is Rs. 280, Rs. 180 and Rs. 120, respectively. Subrata buys articles of each type in the ratio 3 : 2 : 3 for Rs. 6,240. How many articles of type Q did he purchase?

(a) 8
(b) 16
(c) 5
(d) 14

Q23. The length, breadth and height of a room are 20m, 10m and 6m, respectively. If the rate of painting the four walls and the ceiling of the room is Rs. 15/square metre, then find the total cost.

(a) Rs. 7200
(b) Rs. 8400
(c) Rs. 6500
(d) Rs. 9200

Q24. Under the Greenhouse Gases Emission Intensity Target Rules, 2025, if an obligated entity fails to meet targets, then environmental compensation is linked to carbon credit prices. The compensation for shortfall is:

(a) Equal to the average traded price of carbon credit certificates
(b) Three times the average traded price of carbon credit certificates
(c) A fixed penalty per tonne decided by SPCBs
(d) Twice the average traded price of carbon credit certificates

Q25. Which combination of symptoms is the most common characteristic of influenza in humans?

(a) Rash, itching, and swelling
(b) Chest pain, palpitations, and sweating
(c) Fever, cough, and body aches
(d) Vomiting, diarrhea, and dehydration

Q26. Which new weapon led to Mangal Pandey’s agitation as a sepoy of the 34th Bengal Native Infantry?

(a) Snider rifle
(b) Enfield rifle
(c) Brown Bess musket
(d) Matchlock gun

Q27. The Garo, Khasi, Jaintia, and Naga Hills, which run almost east–west, are connected to which hill chain that extends in a north–south direction?

(a) Mizo and Vindhya Hills
(b) Mizo and Rakhine Hills
(c) Satpura and Mizo Hills
(d) Nilgiri and Rakhine Hills

YourMockTest.com — Free Study Material

Q28. What law, as of December 2025, requires intermediaries to act against unlawful and harmful online content affecting children in India?

(a) National Child Safety Protocol, 2022
(b) Digital Services Regulation Act, 2024
(c) Child Protection Online Policy, 2020
(d) Information Technology (Intermediary Guidelines and Digital Media Ethics Code) Rules, 2021

Q29. Refer to the following number, symbol series and answer the question.

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

If all the numbers are dropped from the series, which of the following will be fourth from the left?

(a) $
(b) *
(c) %
(d) #

Q30. Seven boxes M, A, R, K, E, T and S are kept one over the other but not necessarily in the same order. Only S is kept between E and T. Only K is kept below R. Only A is kept above E. How many boxes are kept between M and K?

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

Q31. In a certain code language,

A + B means ‘A is the sister of B’

A - B means ‘A is the husband of B’

A × B means ‘A is the son of B’

A ÷ B means ‘A is the daughter of B’.

Based on the above, how is T related to S if ‘T + P × M - V ÷ S’?

(a) Son’s daughter
(b) Brother’s daughter
(c) Sister’s daughter
(d) Daughter’s daughter

Q32. The mode of the following data is 36. Find the missing frequency in it.

Class Interval	0-10	10-20	20-30	30-40	40-50
Frequency	4	6	--	9	5

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

Q33. Which wind system blows consistently from high-pressure to low-pressure areas year-round?

(a) Local winds
(b) Planetary winds
(c) Polar winds
(d) Periodic winds

Q34. Find the value of y, satisfying 19 × 7 × 630 ÷ √2025 = y + 517

(a) 1340
(b) 1345
(c) 1335
(d) 1348

YourMockTest.com — Free Study Material

Q35. The sum of 12 numbers is 528. Find their average.

(a) 45
(b) 44
(c) 42
(d) 43

Q36. What was the Diwan-i-Riyasat under Alauddin Khilji?

(a) Department of royal correspondence
(b) Department controlling markets and prices
(c) Department of agriculture
(d) Department of religious endowments

Q37. The Taj Mahal, a UNESCO World Heritage Site, is located in which Indian State/UT?

(a) Uttar Pradesh
(b) Delhi
(c) Rajasthan
(d) Madhya Pradesh

Q38. Which of the following terms is used for places that serve as the meeting point of two or more transport routes?

(a) Grid
(b) Link
(c) Network
(d) Node

Q39. In which type of wave do particles of the medium move parallel to the direction of wave propagation?

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

Q40. A shopkeeper fixes the marked price of an item 100% above its cost price. What percentage of discount on marked price should be allowed to gain 88%?

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

Q41. Which of the following letter-number clusters will replace the question mark (?) in the given series to make it logically complete?

DHG 42 CGF 38 BFE 34 AED 30 ?

(a) ZDI 25
(b) ZCB 25
(c) ZEB 26
(d) ZDC 26

Q42. LFGK is related to RKKN in a certain way based on the English alphabetical order. In the same way, GMOP is related to MRSS. To which of the following is COLU related, following the same logic?

(a) ITPX
(b) HSOX
(c) JUQZ
(d) GWNZ

YourMockTest.com — Free Study Material

Q43. Which disease is caused specifically by a deficiency of Vitamin B1?

(a) Rickets
(b) Night blindness
(c) Scurvy
(d) Beri-beri

Q44. Which Indian city is known as the “Silicon Valley of India” due to its thriving IT services sector?

(a) Hyderabad
(b) Mumbai
(c) Chennai
(d) Bengaluru

Q45. A tourist covers his 120 km journey in three stages. In the first stage, he travels at a speed of x km/hr. In the second stage, he increases his speed by 50%. In the third stage, he reduces his second-stage speed by 20%. He spends equal time on all the 3 stages, and his average speed for the entire journey is 48 km/hr. Find the value of x correct to one decimal place.

(a) 38.3
(b) 40.3
(c) 38.9
(d) 39.3

Q46. In 2025, Bagram Air Base, the largest air base mentioned in the news after U.S. President Donald Trump’s bid to retake it, is located in which country?

(a) Uzbekistan
(b) Iran
(c) Pakistan
(d) Afghanistan

Q47. Seven people, A, B, C, D, E, F and G, are sitting in a row, facing north.

Only two people sit to the left of C. Only three people sit between C and F. B sits second to the right of C. Only two people sit between B and D. E sits at some place to the right of G but at some place to the left of A.

How many people sit to the left of D?

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

Q48. If x^4 - 83x² + 1 = 0 and x > 0, then the value of √(x³ - x^(-3) + 28) is:

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

Q49. Six boxes, A, B, C, D, E and F are kept one over the other but not necessarily in the same order. F is placed third from the top. Only two boxes are kept between F and D. A is kept above F but somewhere below E. C is not kept at the second place from the bottom. How many boxes are kept between A and B?

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

Q50. Which Article deals with the original jurisdiction of the Supreme Court?

(a) Article 141
(b) Article 124
(c) Article 32

YourMockTest.com — Free Study Material

(d) Article 131

Q51. Dhruv starts from Point A and drives 38 km towards the East. He then takes a left turn, drives 35 km, turns left and drives 39 km. He then takes a left turn and drives 37 km. He takes a final left turn, drives 1 km and stops at Point P. How far (shortest distance) and towards which direction should he drive in order to reach Point A again? (All turns are 90-degree turns only unless specified.)

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

Q52. Read the given statements and conclusions carefully. Assuming that the information given in the statements is true, even if it appears to be at variance with commonly known facts, decide which of the given conclusions logically follow(s) from the statements.

Statements:

All hands are legs. Some hands are faces. Some faces are arms.

Conclusions:

(I) Some legs are faces.

(II) Some hands are arms.

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

Q53. What term describes a situation in which a person is employed but not in the desired capacity, in terms of compensation, hours, or skill level?

(a) Part-time employment
(b) Underemployment
(c) Involuntary employment
(d) Low wage employment

Q54. Harshavardhana's biography Harshacharita was composed in Sanskrit by which of the following court poets?

(a) Ravikirti
(b) Banabhatta
(c) Surasena
(d) Vishnu Sharma

Q55. In a certain code language, 'BELL' is coded as '1582' and 'SELL' is coded as '2568'.

What is the code for 'S' in that language?

(a) 1
(b) 2
(c) 5
(d) 6

Q56. There are 21 members in group A, 11 members in group B and 17 members in group C. All the members of these groups went to a restaurant. The average amounts spent on each member of groups A, B and C are Rs. 465, Rs. 410 and Rs. 466, respectively. The overall average amount (in Rs.) spent per member is:

(a) 452
(b) 453
(c) 454
(d) 455

YourMockTest.com — Free Study Material

Q57. Who is widely regarded as the ‘Father of Computers’ for designing the first mechanical computing device?

(a) Blaise Pascal
(b) Alan Turing
(c) Charles Babbage
(d) John von Neumann

Q58. Which of the following factors most significantly contributed to the emergence of Indian multinational corporations like Reliance Industries and Tata Group in the post-reform era?

(a) Continued government subsidies
(b) Expansion of nationalized sectors
(c) Globalization and privatization
(d) Growth in agricultural exports

Q59. Which metric indicates the average number of instructions a CPU executes per clock cycle?

(a) Clock speed
(b) Bus speed
(c) Core count
(d) IPC (Instructions Per Cycle)

Q60. Which Supreme Court case, decided in April 2025, led to the 16th Presidential Reference under Article 143 concerning timelines for assent to State Bills?

(a) Kaiser-I-Hind Pvt. Ltd. vs National Textile Corporation
(b) S.R. Bommai vs Union of India
(c) Nabam Rebia vs Deputy Speaker, Arunachal Pradesh
(d) State of Tamil Nadu vs Governor of Tamil Nadu

Q61. In a certain code language, ‘TOUR’ is coded as ‘4791’ and ‘FORT’ is coded as ‘1279’. What is the code for ‘F’ in the given code language?

(a) 1
(b) 9
(c) 2
(d) 7

Q62. Refer to the following number, symbol series and answer the question. Counting to be done from left to right only. All numbers are single digit numbers only.

(Left) 2 < 8 5 8 7 4 9 $ % % % & @ ? & @ 5 9 6 ? (Right)

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

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

Q63. Which event best signalled the decline of Portuguese power in India and the emergence of British and Dutch influence?

(a) Battle of Plassey (1757)
(b) Treaty of Aix-la-Chapelle (1748)
(c) Anglo-Persian capture of Hormuz (1622)
(d) Establishment of Madras by the English (1639)

Q64. What is the inflation target set by the Government of India under the Monetary Policy Committee framework until April 2026?

(a) 5% with a tolerance of ±2%
(b) 3% with a tolerance of ±1%
(c) 4% with a tolerance of ±2%

YourMockTest.com — Free Study Material

(d) 6% with no specified tolerance

Q65. Momentum of an object is defined as the product of its mass and velocity, hence what are its SI units?

(a) g m s^(–1)
(b) kg m s^(–2)
(c) kg m s
(d) kg m s^(–1)

Q66. Seven people B, C, D, O, P, Q and R are sitting around a circular table facing the center of the table. Only one person sits between P and B when counted from the right of P. O sits third to the left of Q. C sits third to the left of D. Q sits to the immediate right of C. R is not an immediate neighbor of C. How many people sit between R and B when counted from the right of R?

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

Q67. According to the Gandhian principles incorporated in the Directive Principles of State Policy, the State shall endeavor to promote:

(a) Large-scale corporate farming
(b) Industrialization in urban areas
(c) Cottage industries on an individual or cooperative basis in rural areas
(d) Foreign trade agreements

Q68. A woman travelled at a speed of 20 m/min for 90 min, and at a speed of 65 m/min for 60 min. Her average speed (in m/min) for the entire journey is:

(a) 38
(b) 42
(c) 31
(d) 44

Q69. Each of L, M, N, O, A, B and C has an exam on a different day of a week starting from Monday and ending on Sunday of the same week. No one has exam before N. Only three people have exams between N and O. Only one person has exam between O and M. L has exam on Wednesday. B has exam on one of the days after C but on one of the days before A. On which day of the week does B have exam?

(a) Tuesday
(b) Saturday
(c) Thursday
(d) Monday

Q70. 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?

13 B 2 C 6 D 8 A 4 = ?

(a) 28
(b) 29
(c) 30
(d) 27

Q71. Which term is used to describe the conflict between the Gurjara-Pratiharas, Palas, and Rashtrakutas over the control of northern India?

(a) Tripartite
(b) Dharmayuddha
(c) Chakravartin
(d) Mahasangram

Q72. Let ABC be a right-angled triangle such that angle B = 90°, angle ACB = 30° and AB = 5 cm. Find the value (in cm) of AC + BC.

(a) 10 + 2 √3
(b) 5 √3
(c) 12 √3
(d) 10 + 5 √3

Q73. By selling an article at 3/10 of its marked price, Hitesh incurs a loss of 16%. If he sells it at 69% of its marked price, then the profit percentage is

(a) 94.8%
(b) 93.2%
(c) 93.8%
(d) 95.7%

Q74. The areas of two similar triangles are 841 cm² and 676 cm², respectively. What is the ratio of their corresponding altitudes?

(a) 38 : 27
(b) 27 : 24
(c) 29 : 26
(d) 24 : 28

Q75. Which of the given letter-number clusters will replace the question mark (?) in the following series to make it logically complete?

NVA 7 KSX 14 HPU 21 EMR 28 ?

(a) LST 40
(b) NDP 35
(c) BJO 35
(d) WPF 37

Q76. Under the Constitution (101st Amendment) Act, 2016, who has the exclusive power to make laws on GST, where the supply of goods or services takes place in the course of interstate trade or commerce?

(a) President of India
(b) State Legislatures
(c) NITI Ayog
(d) Parliament

Q77. This question is based on the five, three-digit numbers given below.

(Left) 442 405 297 384 316 (Right)

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

NOTE - All operations to be done from left to right.

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

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

Q78. 20% of a number is more than 20% of 620 by 200. The number is:

(a) 1620
(b) 1720
(c) 1670
(d) 1470

YourMockTest.com — Free Study Material

Q79. In July 2025, Himachal Pradesh government began temporarily relocating families, due to landslide threats, from a village called Kalang located in which district?

(a) Mandi district
(b) Kangra district
(c) Kullu district
(d) Shimla district

Q80. 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 :: ?

: LKP :: TSX : %

(a) = QIV % = OLL
(b) = QPU % = ONS
(c) = ISU % = ONM
(d) = QNU % = OIB

Q81. Thermal pollution primarily results from which action related to industrial processes?

(a) Addition of detergents
(b) Release of heavy metals
(c) Suspended solid accumulation
(d) Use of water as a coolant

Q82. Find the solution of the following system of linear equations:

$x + 4y + 2z = 12$

$2x - y + z = 3$

$x + y - z = 0$

(a) x = 1, y = 3/2, z = 5/2
(b) x = 3/2, y = 1, z = 5/2
(c) x = 1, y = 5/2, z = 3/2
(d) x = 5/2, y = 1, z = 3/2

Q83. 22 is related to 60 following a certain logic. Following the same logic, 27 is related to 75. To which of the following is 33 related, following the same logic?

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

(a) 86
(b) 103
(c) 97
(d) 93

Q84. Which among the following is NOT a document related to Good Governance?

(a) Citizen Charter
(b) National Forest Policy, 1988
(c) Second Administrative Reforms Commission
(d) Sevottam Model

Q85. A bag contains coins of Rs. 1, Rs. 2, and Rs. 5 in the ratio 8 : 4 : 3. If the total value of the coins is Rs. 930, what is the total number of coins in the bag?

(a) 420
(b) 450
(c) 400
(d) 480

YourMockTest.com — Free Study Material

Q86. Find the area of an equilateral triangle with side 8 cm (correct to 2 decimal places).

(a) 24.41 sq. cm.
(b) 27.71 sq. cm.
(c) 29.91 sq. cm.
(d) 26.61 sq. cm.

Q87. 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) OR−OU
(b) DG−EH
(c) RU−SV
(d) ZC−AD

Q88. Find the difference between the values of 'm' for which $2m = 5\sqrt{m} - 2$.

(a) 15/4
(b) $2\sqrt{3}$
(c) 8/3
(d) $2\sqrt{2}$

Q89. The ratio of the ages of two persons, P and Q, is 3 : 4. After 6 years, the ratio of their ages will become 4 : 5. What is the present age of P?

(a) 13 years
(b) 20 years
(c) 18 years
(d) 30 years

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

111 110 106 97 81 ?

(a) 74
(b) 57
(c) 73
(d) 56

Q91. The power of High Courts to issue writs for purposes beyond Fundamental Rights is given under _____.

(a) Article 226
(b) Article 245
(c) Article 227
(d) Article 32

Q92. Who among the following is credited with establishing the 'Servants of India Society' to promote education and social reforms during the Indian National Movement?

(a) Bipin Chandra Pal
(b) Gopal Krishna Gokhale
(c) Lala Lajpat Rai
(d) Dadabhai Naoroji

Q93. At what rate per annum will a sum of money become five times itself in 10 years under simple interest?

(a) 38%
(b) 80%
(c) 40%
(d) 42%

YourMockTest.com — Free Study Material

Q94. 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 :: ?

: POM :: LKI : %

(a) = TJQ, % = HFL
(b) = SRP, % = GFE
(c) = RTP, % = GFM
(d) = TSQ, % = HGE

Q95. 100 men have provisions for 26 days. If 48 men have left, for how many days the same provisions would last for the remaining men?

(a) 52
(b) 54
(c) 48
(d) 50

Q96. Warli painting, a traditional tribal art form, originates from which Indian state?

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

Q97. In a certain code language,

X + Y means ‘X is the husband of Y’,

X – Y means ‘X is the mother of Y’,

X × Y means ‘X is the sister of Y’ and

X ÷ Y means ‘X is the father of Y’.

Based on the above, how is P related to T if ‘P + Q – R × S ÷ T’?

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

Q98. Find the number of possible values for a natural number N such that the LCM of 120 and N is 360, and the HCF of 900 and N is 90.

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

Q99. Which of the following teams secured the table tennis ITTF Mixed Team World Cup title in December 2025 after emerging victorious in the final at Chengdu?

(a) People’s Republic of China
(b) Germany
(c) Japan
(d) Republic of Korea

Q100. The standard deviation of 7 consecutive integers with mean 0 is _____.

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

YourMockTest.com — Free Study Material

ANSWER KEY

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

SOLUTIONS

Q1. Answer: (c) 10

Shortcut Trick

Apply BODMAS: solve division and multiplication first

18 ÷ 6 = 3 and 3 × 3 = 9

Expression becomes: 16 + 3 − 9

16 + 3 = 19, then 19 − 9 = 10

Therefore Answer = 10

Alternate Method

Given:

16 + 18 ÷ 6 − 3 × 3

Concept Used:

BODMAS rule

Calculation:

16 + 18 ÷ 6 - 3 × 3

=> 16 + 3 − 3 × 3

=> 16 + 3 − 9

=> 19 − 9

=> 10

Therefore The correct answer is 10.

Additional Information

BODMAS Rule

Order: Brackets → Orders → Division → Multiplication → Addition → Subtraction

Left to Right Rule

Division and multiplication are solved from left to right when both appear

Sign Simplification

After higher operations, solve addition and subtraction sequentially

Common Error

Avoid solving left to right blindly without following BODMAS

Q2. Answer: (c) XY - YZ

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

Option 1: TU – WX

Option 2: KL – NO

Option 3: XY – YZ

Option 4: AB – DE

Thus, XY – YZ does not match the group.

Hence, the odd one out is Option 3.

Q3. Answer: (c) Task Manager

The correct answer is Task Manager.

Key Points

• The Task Manager is a system monitor and startup manager utility included with Microsoft Windows systems that allows users to view and manage active processes.

• In Windows 11, pressing the keyboard shortcut Ctrl + Shift + Esc opens the Task Manager immediately without requiring any further clicks or navigating through the security screen. Hence, the statement regarding Task Manager being the direct result of this shortcut is correct.

• The Task Manager provides real-time data on the utilization of system resources such as the Central Processing Unit (CPU), Random Access Memory (RAM), Disk, Network, and Graphics Processing Unit (GPU).

• It serves as a primary troubleshooting tool to Force Quit or End Task for applications that have become unresponsive or are consuming excessive resources.

• In the Windows 11 (version 22H2) update, the tool was redesigned with a new hamburger menu, Efficiency Mode, and a layout that matches the Fluent Design system.

Additional Information

• Control Panel:

• The Control Panel is a legacy component of Microsoft Windows which provides the ability to view and change system settings.

• It contains applets for managing User Accounts, Hardware and Sound, Programs, and System Security.

• There is no direct three-key global shortcut like Ctrl + Shift + Esc for the Control Panel; users typically open it via the Start Menu or by typing "control" in the Run dialog box (Win + R).

• Settings App:

• The Settings app is the modern interface for configuring the operating system, introduced in Windows 8 and significantly expanded in Windows 10 and Windows 11.

• The dedicated keyboard shortcut to open Settings in Windows 11 is Windows Key + I.

• It is designed to eventually replace the legacy Control Panel for most administrative tasks.

• File Explorer:

• File Explorer, previously known as Windows Explorer, is the file management application used to browse folders and files.

• The standard keyboard shortcut to launch File Explorer is Windows Key + E.

• In Windows 11, File Explorer features a tabbed interface, similar to a web browser, allowing multiple folders to be open in a single window.

Important Points

• Difference between Ctrl + Alt + Del and Ctrl + Shift + Esc:

• Ctrl + Alt + Del is a "Secure Attention Sequence" that interrupts the OS and opens a security options screen (Lock, Switch User, Sign out, Task Manager).

• Ctrl + Shift + Esc is a direct command handled by the Explorer.exe process to launch the Task Manager instantly.

• Startup Apps Management:

• The Task Manager contains a Startup tab (re-labeled as Startup apps in Windows 11) that allows users to enable or disable programs that run automatically when the computer boots up.

• Managing these apps is crucial for improving the Boot Time of the system.

• Efficiency Mode:

• A unique feature in Windows 11 Task Manager is Efficiency Mode (formerly Eco Mode), which reduces the process priority and improves power efficiency for background tasks, particularly useful for Laptop users to conserve Battery Life.

Q4. Answer: (c) encoding scheme

The correct answer is encoding scheme.

Key Points

• ASCII stands for American Standard Code for Information Interchange, which is a character encoding scheme used to represent text in computers and other communication devices.

• The letter C in the acronym stands for Code, signifying that it is a systematic set of rules used to convert information, such as letters or symbols, into a numerical value that a computer can process. Hence, the statement regarding ASCII being a character encoding scheme is correct.

YourMockTest.com — Free Study Material

• It was first published as a standard in 1963 by the American Standards Association (now known as ANSI - American National Standards Institute).

• The Standard ASCII system uses 7 bits to represent each character, which allows for a total of 128 unique characters (ranging from 0 to 127).

• These characters include uppercase letters (A-Z), lowercase letters (a-z), digits (0-9), punctuation marks, and various control characters.

Additional Information

• Character Encoding: This is the process of assigning binary values to characters so that electronic devices can store and transmit data. Without a universal encoding scheme, different computer systems would be unable to communicate effectively.

• Extended ASCII: While the standard version uses 7 bits, Extended ASCII uses 8 bits (one byte). This expansion allows for 256 characters, accommodating special characters, mathematical symbols, and characters from different languages.

• Unicode and UTF-8: In modern computing, ASCII has been largely superseded by Unicode, specifically the UTF-8 encoding. UTF-8 is backward compatible with ASCII, meaning the first 128 characters in Unicode are identical to those in the ASCII set.

• Data Representation: Each ASCII character corresponds to a specific decimal and hexadecimal value. For example, the uppercase letter 'A' is represented by the decimal number 65, while the lowercase 'a' is 97, and the digit '0' is 48.

Important Points

• Control Characters: The first 32 characters (0–31) in the ASCII table are designated as control characters. These are non-printing characters used to control hardware devices like printers and teletypewriters (e.g., Line Feed, Carriage Return, and Escape).

• Applications: ASCII is used in programming, data protocols, and plain text files. Even though complex documents use Unicode, ASCII remains the fundamental building block for source code in languages like C, Java, and Python.

• History: Before ASCII, there was no standard way for different mainframe computers to talk to each other. The introduction of this standard in the United States revolutionized the IT industry by ensuring interoperability across different manufacturers.

• Numerical Precision: In 7-bit ASCII, the binary representation of 'A' is 01000001 (using an 8-bit byte where the first bit is 0). This consistency allows network protocols to ensure that data sent from one location arrives exactly as intended at the destination.

Q5. Answer: (d) Both statements I and II together (and not statement I alone or statement II alone) are sufficient to answe...

Given Statements:

I. Box-C is heavier than Box-A and Box-B but lighter than Box-D.

II. Box-E is heavier than Box-C but lighter than Box-D.

Analysis:

I. From Statement I → D > C > A, B, but position of E is unknown → Not sufficient.

II. From Statement II → D > E > C, but position of A and B is unknown → Not sufficient.

Using both I and II together → We get: D > E > C > A, B

So, the full order can be: D (heaviest), E (second), C, A/B (unknown order)

Thus, the second heaviest box is E, and only by combining both statements we can fix this position uniquely.

Hence, the correct answer is Option 4.

Q6. Answer: (a) 32500

Shortcut Trick

For 2 years, difference between CI and SI = P × (r ÷ 100)²

Given difference = 52 and r = 4%

=> 52 = P × (4 ÷ 100)² = P × 16 ÷ 10000

=> P = 52 × 10000 ÷ 16

Therefore Answer = 32500

Alternate Method

Given:

Rate = 4% per annum, Time = 2 years, Difference between CI and SI = 52

Formula used:

SI = P × r × t ÷ 100

CI = P × (1 + r ÷ 100)^t − P

Calculations:

=> SI for 2 years = P × 4 × 2 ÷ 100 = 8P ÷ 100

=> CI for 2 years = P × (1 + 4 ÷ 100)² − P

=> = P × $(1.04)^2$ − P = P × 1.0816 − P = 0.0816P

=> Difference = CI − SI = 0.0816P − 0.08P = 0.0016P

=> 0.0016P = 52

=> P = 52 ÷ 0.0016 = 32500

Therefore The correct answer is 32500.

Additional Information

Difference between CI and SI (2 years)

CI − SI = P × $(r \div 100)^2$ — direct formula for quick calculation

Compound Interest Formula

CI = P × $(1 + r \div 100)^n$ − P

Simple Interest Formula

SI = P × r × t ÷ 100

Exam Trick

For small rates and 2 years, directly use difference formula to save time

Q7. Answer: (d) military cooperation

The correct answer is military cooperation.

Key Points

• In January 2025, Algeria signed a memorandum of understanding (MoU) with the United States that focuses on military cooperation.

• The agreement was signed on January 22, 2025, in Algiers during a meeting between the Algerian Deputy Defence Minister, Said Chengriha, and the Commander of the US Africa Command (AFRICOM), General Michael Langley.

• Strategic Shift: The MoU reflects Algeria's intent to strengthen its military partnership with the US as relations with Russia—traditionally its main military supplier—are perceived to be fraying due to conflicting policies in the Sahel region.

• Concurrent Energy Deal: On the same day, Algeria also signed an agreement with the US energy company Chevron to evaluate potential offshore oil resources in the Mediterranean.

Additional Information

• Economic Diversification in Algeria:

• Algeria is currently pursuing a long-term economic strategy to decrease its 95% dependency on oil and gas revenues for foreign exchange.

• The agricultural sector contributes approximately 12% to the national GDP, and the government has set a target to increase this through modernization and foreign direct investment (FDI).

• U.S.-Algeria Bilateral Relations:

• The United States is one of Algeria's top trading partners. While historically focused on energy and security, recent years have seen an expansion into healthcare, renewable energy, and now agriculture.

• In 2024, trade between the two nations exceeded $3 billion, with the U.S. being a major supplier of agricultural machinery and grain.

• Climate Resilience and Irrigation:

• Under the MoU, the USDA will provide training on climate-smart agriculture. This is crucial for Algeria, which faces increasing desertification and drought cycles.

• Specific focus is placed on desalination for irrigation and dryland farming techniques that are widely practiced in the Western United States, which shares similar climatic traits with the Maghreb region.

• The Role of the USDA:

• The United States Department of Agriculture, established in 1862, manages international programs that help developing and middle-income countries improve their agricultural systems.

• Through the Foreign Agricultural Service (FAS), the USDA promotes trade policy and capacity building in over 150 countries.

Important Points

• Strategic Location: Algeria is the largest country in Africa by land area, offering vast uncultivated land in the Southern Sahara that the government intends to transform into agricultural hubs.

• Historical Context: This 2025 MoU builds upon the Trade and Investment Framework Agreement (TIFA) originally signed between the two countries in 2001 to boost non-hydrocarbon trade.

• Educational Impact: The agreement also includes exchange programs for Algerian researchers and veterinarians to study at U.S. Land-Grant Universities to bring back innovation in biotechnology.

• Wheat Production: Algeria is one of the world's largest importers of durum wheat. The January 2025 cooperation aims to localize seed production to ensure national sovereignty over food supplies.

YourMockTest.com — Free Study Material

Q8. Answer: (c) 72 minutes

Shortcut Trick

Net work per minute = (1/24 + 1/36 − 1/18)

LCM = 72 => (3 + 2 − 4)/72

= 1/72 tank per minute

Time = 72 minutes

Therefore Answer = 72 minutes

Alternate Method

Given:

Pipe A = 24 min, Pipe B = 36 min, Pipe C (empty) = 18 min

Formula used:

Total Work = LCM of 24, 36, 18 = 72 units

Pipe	Time	Total Work	Efficiency
A	24	72	3
B	36	2	
C (empty)	18	−4	

Calculation:

=> Efficiency of A = 72 ÷ 24 = 3

=> Efficiency of B = 72 ÷ 36 = 2

=> Efficiency of C = − (72 ÷ 18) = −4

=> Net efficiency = 3 + 2 − 4 = 1 unit/min

=> Time = Total Work ÷ Net Efficiency

=> Time = 72 ÷ 1 = 72 minutes

Therefore The correct answer is 72 minutes.

Additional Information

Net Work Concept

Net rate = Filling rates − Emptying rates

LCM Method

Assume total work as LCM to simplify calculations

Efficiency

Efficiency = Work done per unit time

Time Formula

Time = Total Work ÷ Net Efficiency

Q9. Answer: (d) 4/15

Shortcut Trick

Let number = 0.2666...

=> Split = 0.2 + 0.0666...

=> 0.0666... = 1/15

=> Total = 1/5 + 1/15 = (3 + 1)/15 = 4/15

Therefore Answer = 4/15

Alternate Method

Given:

x = 0.2666...

Formula used:

Multiplication method to remove recurring part

Calculation:

=> x = 0.2666...

=> 10x = 2.6666...

=> 100x = 26.6666...

YourMockTest.com — Free Study Material

=> Subtract: 100x − 10x = 26.6666... − 2.6666...

=> 90x = 24

=> x = 24 ÷ 90

=> x = 4 ÷ 15

Therefore The correct answer is 4/15.

Additional Information

Recurring Decimal Concept

Convert repeating decimals by eliminating recurring digits using multiplication.

Shortcut Formula

(All digits − Non-repeating digits) ÷ (9s followed by 0s)

Example

0.16 = (16 − 1)/90 = 1/6

Pure Recurring

0.666... = 2/3

Q10. Answer: (c) 151

The logic followed here is:

23 → 139

=> 23 × 6 + 1 = 139

28 → 169

=> 28 × 6 + 1 = 169

So, the pattern is:

Result = (Number × 6) + 1

Now, applying the same pattern for 25:

=> 25 × 6 + 1 = 150 + 1 = 151

Hence, the correct answer is Option 3.

Q11. Answer: (d) 74th Amendment

The correct answer is 74th Amendment.

Key Points

• The 74th Constitutional Amendment Act, passed in 1992, granted constitutional status and protection to Urban Local Bodies (ULBs) or Municipalities.

• Under Article 243ZD of the Constitution, it is mandatory for every state to constitute a District Planning Committee (DPC) at the district level to consolidate the plans prepared by the Panchayats and the Municipalities in the district and to prepare a draft development plan for the district as a whole. Hence, the requirement for District Planning Committees is correct.

• Under Article 243ZE, the Act provides for the constitution of a Metropolitan Planning Committee (MPC) in every Metropolitan area (an area having a population of 10 lakhs or more) to prepare a draft development plan for the metropolitan area as a whole. Hence, the requirement for Metropolitan Planning Committees is correct.

• This amendment added a new Part IX-A to the Constitution of India, titled 'The Municipalities', consisting of provisions from Articles 243-P to 243-ZG.

• The Act also added the 12th Schedule to the Constitution, which contains 18 functional items that fall under the purview of municipalities, such as urban planning, regulation of land use, and water supply.

Additional Information

• 73rd Amendment Act (1992):

• This amendment granted constitutional status to Panchayati Raj Institutions (PRIs) for rural local self-government.

• It added Part IX and the 11th Schedule to the Constitution, covering 29 functional items for Panchayats.

• While it deals with District Planning via integration, the specific mandate for Metropolitan Planning Committees is unique to the 74th Amendment.

• 97th Amendment Act (2011):

• This amendment gave constitutional status and protection to Co-operative Societies.

• It inserted Part IX-B into the Constitution and made the right to form co-operative societies a Fundamental Right under Article 19.

• It also added a new Directive Principle of State Policy (Article 43-B) regarding the promotion of co-operative societies.

• 102nd Amendment Act (2018):

• This amendment provided constitutional status to the National Commission for Backward Classes (NCBC).

YourMockTest.com — Free Study Material

• It inserted Article 338B and Article 342A into the Constitution of India.

• The NCBC was previously a statutory body under the Ministry of Social Justice and Empowerment.

Important Points

• Composition of District Planning Committees (DPC): The 74th Amendment specifies that four-fifths (80%) of the members of a DPC should be elected by the elected members of the District Panchayat and Municipalities in the district from amongst themselves.

• Composition of Metropolitan Planning Committees (MPC): The Act stipulates that two-thirds (66.6%) of the members of an MPC should be elected by the elected members of the Municipalities and Chairpersons of the Panchayats in the metropolitan area from amongst themselves.

• Effective Date: The 74th Amendment Act came into force on June 1, 1993, marking a significant shift towards democratic decentralization in urban India.

• Types of Municipalities: The Act provides for three types of municipalities: Nagar Panchayat for transitional areas, Municipal Council for smaller urban areas, and Municipal Corporation for larger urban areas.

Q12. Answer: (a) Both conclusions (I) and (II) follow

Given Statements:

All crabs are bats.

All bats are wigs.

All wigs are dogs.

The least possible Venn diagram for the given statements is:

Conclusions:

I. All crabs are dogs - True (Since crabs are inside bats, bats are inside wigs, and wigs are inside dogs, crabs are ultimately inside dogs. So this conclusion follows.)

II. Some dogs are bats - True (All bats are dogs through wigs, so bats exist inside dogs. Hence, some dogs are bats.)

So, both conclusions I and II follow.

Hence, the correct answer is "Option 1".

Q13. Answer: (b) 3000

Shortcut Trick

Take ratio method

P → Q at 77% profit => multiply by 177/100

Q → R at 50% loss => multiply by 1/2

Net factor = 177/100 × 1/2 = 177/200

=> CP of P = 2655 × 200 / 177 = 3000

Therefore Answer = 3000

Alternate Method

Given:

P sells to Q at 77% profit, Q sells to R at 50% loss, R pays = 2655

Formula used:

SP = CP × (1 + profit/100), SP = CP × (1 − loss/100)

Calculation:

=> Let CP of P = x

=> SP of P (price for Q) = x × 177/100

=> CP of Q = x × 177/100

=> SP of Q (price for R) = (x × 177/100) × 1/2

=> SP of Q = x × 177/200

=> Given x × 177/200 = 2655

=> x = 2655 × 200 / 177

=> x = 3000

Therefore The correct answer is 3000.

Additional Information

Successive Profit & Loss

Overall effect = multiply individual profit/loss factors

Profit Formula

SP = CP × (1 + profit/100)

Loss Formula

SP = CP × (1 − loss/100)

Shortcut Tip

Convert percentages into fractions and multiply directly

Q14. Answer: (c) 14-4-12-24

The logic followed here is:

Logic: The pattern follows a fixed sequence of operations: subtract 10, multiply by 3, then add 12.

For, 17 - 7 - 21 - 33

=> 17 − 10 = 7

=> 7 × 3 = 21

=> 21 + 12 = 33

For, 21 - 11 - 33 - 45

=> 21 − 10 = 11

=> 11 × 3 = 33

=> 33 + 12 = 45

Now, checking the options using the same pattern:

Option 1) 23 - 13 - 26 - 52

=> 23 − 10 = 13

=> 13 × 3 = 39 ≠ 26

Option 2) 21 - 11 - 33 - 72

=> 21 − 10 = 11

=> 11 × 3 = 33

=> 33 + 12 = 45 ≠ 72

Option 3) 14 - 4 - 12 - 24

=> 14 − 10 = 4

=> 4 × 3 = 12

=> 12 + 12 = 24

Option 4) 16 - 8 - 24 - 48

=> 16 − 10 = 6 ≠ 8

Hence, the correct answer is Option 3.

Q15. Answer: (b) 125 days

The correct answer is 125 days.

Key Points

• The Viksit Bharat—Guarantee for Rozgar and Ajeevika Mission (Gramin) (VB–G RAM G) Bill, 2025, was introduced to modernize and expand the scope of rural employment in India.

• President Droupadi Murmu provided her official assent to this bill on 21 December 2025, following its passage in both houses of Parliament during the winter session.

• A central provision of this legislation is the significant enhancement of the guaranteed wage employment period. It increases the minimum entitlement from the previous 100 days to 125 days for every rural household in a financial year.

• The bill aims to provide a more robust safety net for rural workers, addressing the evolving economic needs and ensuring that the "Right to Work" is more substantial under the Viksit Bharat @ 2047 vision.

• This mission specifically targets unorganized workers in rural areas, focusing on those who rely on manual labor for their primary source of income during lean agricultural seasons.

Additional Information

• Transition from MGNREGA:

• The Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA), enacted in 2005, was the predecessor to this mission. It originally provided 100 days of work to at least one member of every rural household.

• The new VB–G RAM G framework integrates asset creation with skill development, moving beyond mere manual labor to "Ajeevika" (Livelihood) enhancement.

YourMockTest.com — Free Study Material

• Viksit Bharat @ 2047 Vision:

• This mission is a core component of the Viksit Bharat (Developed India) roadmap. It aims to eliminate rural poverty and ensure inclusive growth by the 100th year of India's Independence.

• The focus is on building climate-resilient infrastructure, such as check dams, canal lining, and rural roads, which contribute to long-term village development.

• Administrative and Financial Structure:

• The Ministry of Rural Development acts as the nodal agency for the implementation of this mission across all states and Union Territories.

• Funding for the 125 days of employment is shared between the Central Government and the State Governments, with the Center bearing the majority of the wage cost.

• Payments are strictly mandated through Direct Benefit Transfer (DBT), linked to Aadhaar-based payment systems to ensure transparency and eliminate leakages.

Important Points

• Application and Demand:

• Workers can apply for work under this mission at their local Gram Panchayat office. The law mandates that work must be provided within 15 days of the demand; otherwise, an unemployment allowance must be paid by the state.

• Geographic and Demographic Focus:

• While the mission is nationwide, special emphasis and additional budgetary allocations are provided for Aspirational Districts and tribal regions to bridge the socio-economic gap.

• The scheme maintains a reservation or priority for women, mandating that at least one-third of the beneficiaries must be female workers to promote gender equality in the rural workforce.

Q16. Answer: (a) Niger

The correct answer is Niger.

Key Points

• Niger is consistently ranked as the country with the lowest median age globally. For the year 2024, the estimated median age in Niger is approximately 14.9 years. This demographic reality indicates that half of the nation's population is under the age of 15. Hence, the statement regarding Niger is correct.

• The primary driver for this extremely low median age is the Total Fertility Rate (TFR). Niger has the highest fertility rate in the world, with an average of 6.7 to 6.8 children per woman as per recent World Bank and United Nations data. Hence, this reinforces why it remains the youngest country.

• Palestine, particularly the Gaza Strip, has a very young population with a median age of approximately 19.6 years in 2024. While it is one of the youngest territories in the Middle East, it is significantly "older" than Niger. Hence, the statement regarding Palestine as the youngest in this list is incorrect.

• Afghanistan has a median age of roughly 18.4 years in 2024. High birth rates and a relatively low life expectancy contribute to its youthful profile, yet it does not reach the level of youthfulness found in the Sahel region of Africa. Hence, the statement regarding Afghanistan is incorrect.

• Iraq possesses a median age of approximately 21.2 years as of 2024 projections. While it faces a "youth bulge" that impacts its economy and social services, it is the oldest among the four options provided. Hence, the statement regarding Iraq is incorrect.

Additional Information

• Median Age Definition: The median age is a single index that summarizes the age distribution of a population. It is the age that divides a population into two numerically equal groups; that is, half the people are younger than this age and half are older.

• Geographic Concentration of Youth: The majority of the world's youngest countries are located in Sub-Saharan Africa. Countries like Mali, Chad, Angola, and Uganda all have median ages below 17 years, driven by high birth rates and improvements in infant mortality rates that allow more children to survive into adolescence.

• Global Contrast: In sharp contrast to Niger, developed nations such as Japan, Italy, and Monaco have the highest median ages, often exceeding 47 to 50 years. This is due to low fertility rates and high life expectancy, leading to an aging population crisis.

• Demographic Dividend: A low median age presents both a challenge and an opportunity known as the demographic dividend. If a country can provide education and jobs for its large youth population, it can see rapid economic growth; otherwise, it may face socio-political instability.

• Data Sources: These demographic statistics are tracked annually by organizations such as the United Nations Population Fund (UNFPA), the CIA World Factbook, and the World Bank to help governments plan for healthcare, education, and infrastructure needs.

Important Points

• Impact of Life Expectancy: While Niger is the youngest, it also faces challenges with life expectancy, which is approximately 63 years. The combination of many births and relatively shorter lifespans keeps the median age low.

• Urbanization Trends: In countries like Iraq and Afghanistan, urbanization is slowly increasing the median age as urban families

tend to have fewer children compared to rural counterparts. Niger remains heavily agrarian and rural, which sustains higher fertility traditions.

• Social Indicators: Literacy rates and female education are inversely correlated with the median age. In Niger, the low literacy rate among women is a significant factor in the sustained high Total Fertility Rate.

Q17. Answer: (c) 546

BODMAS Table:

Given equation: 79 − 8 ÷ 55 + 423 × 3 = ?

Now, if, '+' means '−', '−' means '×', '×' means '÷', '÷' means '+'

=> 79 × 8 + 55 − 423 ÷ 3

=> 79 × 8 = 632

=> 423 ÷ 3 = 141

=> 632 + 55 − 141

=> 687 − 141

=> 546

Hence, the correct answer is "Option 3".

Q18. Answer: (a) 56.52%

Shortcut Trick

Let B = 100

A = 130% more => 230

Difference = 130

% less of B from A = (130 / 230) × 100 ≈ 56.52%

Therefore Answer = 56.52%

Alternate Method

Given:

A's salary is 130% more than B's salary

Formula used:

Percentage = (Difference ÷ Base) × 100

Calculation:

=> Let B = 100

=> A = 100 + 130 = 230

=> Difference = A − B = 230 − 100 = 130

=> % less of B compared to A = (130 ÷ 230) × 100

=> = 56.52%

Therefore The correct answer is 56.52%.

Additional Information

Percentage Increase

New value = Original × (1 + increase/100)

Percentage Decrease

Decrease % is calculated on the larger value when comparing reduction

Important Tip

Always check the base value while calculating percentage difference

Ratio Insight

If A:B = 230:100, then % difference uses A as base for "less than"

Q19. Answer: (a) 2

The logic followed here is:

thus, "2" will replace the question mark in the given series.

Hence, the correct option is "Option 1".

Q20. Answer: (c) Persian

The correct answer is Persian.

Key Points

• Amir Khusrau (1253–1325 AD) was a legendary Sufi musician, poet, and scholar who lived during the era of the Delhi Sultanate. He was a prolific writer who primarily used Persian as his literary medium, which was the official and court language of the Sultanate at the time.

• He is often referred to as the "Parrot of India" (Tuti-e-Hind) and is considered the "Father of Urdu Literature" for his early contributions to Hindavi, though his major historical and poetic works were composed in Persian.

• Khusrau served in the royal courts of more than seven different rulers of the Delhi Sultanate, including Ghiyas ud din Balban, Jalaluddin Khalji, Alauddin Khalji, and Ghiyasuddin Tughlaq.

• His famous literary works in Persian include Khazain-ul-Futuh (a prose work on the victories of Alauddin Khalji), Tughlaq Nama (detailing the reign of the Tughlaq dynasty), and Nuh Sipihr (The Nine Skies), which describes India's culture and environment.

• While he also wrote in Hindavi (a mixture of Braj Bhasha and Khari Boli) to reach the masses, Persian remained his dominant language for formal, academic, and courtly documentation.

Additional Information

• Delhi Sultanate (1206–1526 AD): During this period, Persian was established as the administrative and literary language of Northern India. This led to a significant fusion of Persian, Arabic, and Turkic elements with local Indian dialects.

• Musical Contributions: Amir Khusrau is credited with introducing the Qawwali style of music and is traditionally believed to have invented or modified instruments like the Sitar and the Tabla by blending Persian and Indian musical traditions.

• Sufism: He was the most beloved disciple of the famous Chishti saint, Hazrat Nizamuddin Auliya. His poetry often reflected deep mysticism and spiritual devotion, further popularizing Sufi thought in the Indian subcontinent.

• Linguistic Legacy: He played a vital role in the development of Sabk-i-Hindi (the Indian style of Persian poetry), which influenced generations of poets in India and Central Asia.

• Khari Boli: Khusrau is often cited as the first poet to use Khari Boli, which eventually evolved into modern Hindi and Urdu, showing his versatility across both Persian and local vernaculars.

Important Points

• Location: Amir Khusrau was born in Patiyali (modern-day Kasganj district of Uttar Pradesh, India) in the year 1253.

• Names and Titles: His birth name was Ab'ul Hasan Yamin al-Din Khusrau. He was highly regarded for his intellect and was honored with titles by various Sultans for his poetic brilliance.

• Specific Dates: His work Khazain-ul-Futuh was completed around 1311 AD, providing a critical primary source for the military campaigns of the Khalji dynasty in South India.

• Cultural Impact: He was one of the first scholars to compare Indian culture and languages favorably against Arabic and Persian, expressing great pride in his Indian identity in his work Nuh Sipihr (written in 1318 AD).

Q21. Answer: (b) 120°

Shortcut Trick

Angle on the minor arc = 180° − (Central angle subtended by the same arc ÷ 2)

Given angle AOB = 120°

angle ASB = 180° − (120° ÷ 2)

angle ASB = 180° − 60° = 120°

Therefore The correct answer is 120°.

Alternate Method

Given: Centre O, Minor arc AB subtends angle AOB = 120° at O. S is on the minor arc AB.

Formula: Angle at the major arc = 1/2 × Central angle; Sum of opposite angles in a cyclic quadrilateral = 180°.

O A B S P 120° 60°

=> Let P be any point on the major arc AB.

=> Angle subtended by minor arc AB at major arc (angle APB) = 1/2 × angle AOB

=> angle APB = 1/2 × 120° = 60°

=> Since points A, S, B, P lie on the circle, ASBP is a cyclic quadrilateral.

=> In cyclic quadrilateral ASBP, angle ASB + angle APB = 180°

=> angle ASB + 60° = 180°

=> angle ASB = 180° − 60° = 120°

Therefore The correct answer is 120°.

Additional Information

Central Angle Theorem

The angle subtended by an arc at the center of a circle is double the angle subtended by the same arc at any point on the remaining part of the circle.

Cyclic Quadrilateral Property

A quadrilateral is cyclic if its vertices lie on a circle. The sum of its opposite angles is always 180° (angle A + angle C = 180° and angle B + angle D = 180°).

Angle in Minor and Major Arcs

If a minor arc subtends θ at the center, the angle at the major arc is θ/2, and the angle at the minor arc is (360° − θ)/2 or 180° − θ/2.

Q22. Answer: (a) 8

Shortcut Trick

Ratio = 3 : 2 : 3 => total parts = 8

Cost of 1 set = (3×280 + 2×180 + 3×120)

= 840 + 360 + 360 = 1560

Number of sets = 6240 ÷ 1560 = 4

Q articles = 2 × 4 = 8

Therefore Answer = 8

Alternate Method

Given:

Prices: P = 280, Q = 180, R = 120; Ratio = 3 : 2 : 3; Total cost = 6240

Formula used:

Total cost = (quantity × price)

Calculation:

=> Let quantities be 3x, 2x, 3x

=> Total cost = 3x×280 + 2x×180 + 3x×120

=> = 840x + 360x + 360x

=> = 1560x

=> 1560x = 6240

=> x = 4

=> Quantity of Q = 2x = 8

Therefore The correct answer is 8.

Additional Information

Ratio Method

Quantities in ratio can be taken as multiples of a variable like x.

Cost Formula

Total cost = Sum of (price × quantity)

Unit Method

Find cost of one ratio set, then scale up to total.

Proportion Concept

If total cost is known, find multiplier to get actual quantities.

Q23. Answer: (b) Rs. 8400

Shortcut Trick

Area of 4 walls = 2h(l + b) = 2×6(20 + 10) = 12×30 = 360 m²

Ceiling area = l×b = 20×10 = 200 m²

Total area = 360 + 200 = 560 m²

Cost = 560 × 15 = 8400

Therefore Answer = Rs. 8400

Alternate Method

Given:

Length = 20 m, Breadth = 10 m, Height = 6 m, Rate = Rs. 15/m²

Formula used:

Area of four walls = 2h(l + b), Ceiling area = l×b

Calculation:

=> Area of four walls = 2×6×(20 + 10)

=> = 12×30 = 360 m²

=> Ceiling area = 20×10 = 200 m²

=> Total area = 360 + 200 = 560 m²

=> Total cost = 560 × 15

=> = 8400

Therefore The correct answer is Rs. 8400.

Additional Information

Area of Four Walls

Area = 2h(l + b), also called lateral surface area of a cuboid.

Ceiling Area

Ceiling is a rectangle => Area = l × b

Total Painting Area

Total area = Area of four walls + ceiling

Cost Formula

Cost = Area × Rate per unit area

Q24. Answer: (d) Twice the average traded price of carbon credit certificates

The correct answer is Twice the average traded price of carbon credit certificates.

Key Points

• The Ministry of Environment, Forest and Climate Change (MoEFCC) notified the Greenhouse Gases Emission Intensity Target Rules, 2025, under the framework of the Energy Conservation Act, 2001 and its 2022 amendment.

• These rules are designed to mandate obligated entities in sectors like iron, steel, cement, and petrochemicals to reduce their greenhouse gas (GHG) emission intensity over a specified compliance period.

• If an obligated entity fails to achieve the assigned target, it is required to purchase Carbon Credit Certificates (CCCs) from the market to bridge the gap; failure to do so results in environmental compensation.

• The rules explicitly state that the environmental compensation for the shortfall shall be twice the average traded price of the Carbon Credit Certificates during the relevant compliance cycle. Hence, the statement regarding the penalty being twice the price is correct.

• This financial penalty mechanism is intended to create a strong economic deterrent against non-compliance and to encourage investment in cleaner technologies and decarbonization.

Additional Information

• Carbon Credit Trading Scheme (CCTS): This is India's domestic carbon market framework launched in 2023 to incentivize GHG reduction. It allows for the trading of certificates between entities that exceed their targets and those that fall short.

• Bureau of Energy Efficiency (BEE): The BEE acts as the Administrator for the carbon market. It is responsible for determining emission targets, monitoring performance, and issuing Carbon Credit Certificates.

• Obligated Entities: These are designated consumers under the Energy Conservation Act who are required to comply with energy consumption and emission intensity norms. This includes major industries that contribute significantly to India's carbon footprint.

• Greenhouse Gas Emission Intensity: This refers to the amount of GHG emissions produced per unit of output or activity (e.g., tonnes of CO2 per tonne of steel produced). Reducing intensity allows for industrial growth while minimizing environmental impact.

• Compliance Cycle: The period during which an entity's emissions are monitored against its targets. This is typically aligned with the financial year or a specific three-year cycle as determined by the Central Government.

Important Points

• Regulatory Authority: The Central Pollution Control Board (CPCB) is often tasked with the collection of environmental compensation and the management of the resulting funds, which are typically used for environmental restoration.

• Verification Mechanism: The emissions data provided by the entities must be audited and verified by Accredited Carbon Verifiers to ensure transparency and authenticity in the carbon market.

• International Context: These rules help India meet its Nationally Determined Contributions (NDCs) under the Paris Agreement, aiming for Net Zero emissions by the year 2070.

• Price Determination: The average traded price is calculated based on the market transactions recorded on the Indian Carbon Exchange or other designated trading platforms throughout the compliance year.

YourMockTest.com — Free Study Material

Q25. Answer: (c) Fever, cough, and body aches

The correct answer is Fever, cough, and body aches.

Key Points

• Influenza, commonly known as the flu, is a highly contagious respiratory illness caused by influenza viruses that infect the nose, throat, and sometimes the lungs.

• The most common and characteristic symptoms of influenza include a sudden onset of high fever (often 100°F or 38°C or higher), a dry cough, sore throat, and significant body aches or myalgia. Hence, the combination in Option C is correct.

• Unlike the common cold, which tends to develop gradually, influenza symptoms typically appear abruptly and are much more severe, often leaving the patient feeling extremely fatigued or exhausted for several days.

• Systemic symptoms like headache and chills frequently accompany the respiratory symptoms, distinguishing it from local allergic reactions or simple physical exertion.

• While gastrointestinal symptoms like vomiting and diarrhea can occur, they are much more common in children than in adults and are not the primary diagnostic hallmark of respiratory influenza. Hence, Option D is incorrect.

Additional Information

• Classification of Influenza Viruses:

• Influenza A: These are the only flu viruses known to cause pandemics (global outbreaks). They can infect both humans and animals (such as birds and pigs). Notable strains include H1N1 and H3N2.

• Influenza B: These viruses generally infect only humans and are responsible for seasonal epidemics. They do not cause pandemics.

• Influenza C: These viruses cause mild respiratory illness and are not thought to cause large-scale epidemics.

• Influenza D: These primarily affect cattle and are not known to infect or cause illness in people.

• Transmission and Prevention:

• The virus is spread primarily through respiratory droplets expelled when an infected person coughs, sneezes, or talks. These droplets can land in the mouths or noses of people who are nearby (usually within 6 feet).

• The World Health Organization (WHO) recommends annual vaccination as the most effective way to prevent the disease, especially for high-risk groups like elderly individuals, pregnant women, and healthcare workers.

• Antiviral medications, such as Oseltamivir (Tamiflu) or Zanamivir, can be used to treat the flu and may reduce the duration of symptoms if taken within 48 hours of onset.

• Differentiation from Other Conditions:

• Rash, itching, and swelling: These are typically signs of allergic reactions (anaphylaxis) or dermatological conditions rather than a viral respiratory infection. Hence, Option A is incorrect.

• Chest pain and palpitations: While severe flu can lead to complications like myocarditis, these are primarily indicators of cardiac issues or angina. Hence, Option B is incorrect.

• Incubation Period: The time from exposure to the virus to the appearance of symptoms is usually 1 to 4 days, with an average of 2 days.

Important Points

• Complications: If not managed, influenza can lead to severe secondary infections such as pneumonia, bronchitis, sinus infections, and ear infections.

• High-Risk Populations: Children under 5 years, adults over 65 years, and individuals with chronic medical conditions (like asthma, diabetes, or heart disease) are at a higher risk of developing complications.

• Global Impact: Seasonal influenza causes approximately 3 to 5 million cases of severe illness and about 290,000 to 650,000 respiratory deaths annually worldwide, according to WHO data.

Q26. Answer: (b) Enfield rifle

The correct answer is Enfield rifle.

Key Points

• The primary cause of Mangal Pandey's agitation was the introduction of the Enfield P-53 rifle, which replaced the older Brown Bess musket in the British East India Company's army.

• The Enfield rifle used a new type of cartridge that was rumored to be greased with cow and pig fat. This was highly offensive to the religious sentiments of Hindu and Muslim sepoys, as cows are sacred in Hinduism and pigs are considered haram in Islam.

• To load the Enfield rifle, a soldier had to bite off the end of the greased cartridge before pouring the gunpowder into the muzzle. This direct contact with the fat-laden grease was seen as a deliberate attempt by the British to defile the soldiers' religions.

• On March 29, 1857, Mangal Pandey, a sepoy of the 34th Bengal Native Infantry (BNI) stationed at Barrackpore (near Kolkata), revolted against his British officers, marking the prelude to the Revolt of 1857.

• During the incident, Mangal Pandey attacked Lieutenant Baugh and Sergeant-Major Hewson. He was subsequently arrested, court-martialed, and hanged on April 8, 1857.

YourMockTest.com – Free Study Material

Additional Information

• 34th Bengal Native Infantry: This was the specific regiment where Mangal Pandey served. Following the uprising in March 1857, the entire regiment was disbanded by the British as a collective punishment for failing to restrain or arrest Pandey during his rebellion.

• Revolt of 1857: Often termed the First War of Indian Independence or the Sepoy Mutiny, it was a massive uprising against British East India Company rule. While the Enfield rifle was the immediate cause, deep-seated grievances regarding land revenue, annexation policies (like the Doctrine of Lapse), and social reforms also played major roles.

• Lord Canning: He was the Governor-General of India during the 1857 Revolt. He served from 1856 to 1862 and became the first Viceroy of India after the Government of India Act 1858 transferred power from the Company to the British Crown.

• Brown Bess Musket: This was the standard-issue muzzle-loading smoothbore musket used by the British Army for over a century before the Enfield rifle was introduced. Unlike the Enfield, it did not utilize the controversial greased cartridges.

• Matchlock Gun: These were older types of firearms that used a slow-burning match to ignite the gunpowder. By 1857, they were obsolete for regular British infantry use and were replaced by flintlocks and later percussion cap rifles like the Enfield.

Important Points

• Geographic Spread: Although the agitation started in Barrackpore, the main rebellion broke out in Meerut on May 10, 1857, when soldiers of the 3rd Native Cavalry refused to use the Enfield cartridges.

• Mangal Pandey's Legacy: He is hailed as one of the first martyrs of the Indian freedom struggle. In 1984, the Government of India issued a postage stamp in his honor to commemorate his bravery and sacrifice.

• Technological Shift: The Enfield Pattern 1853 Rifle-Musket was a rifled firearm, meaning it had grooves inside the barrel to spin the bullet, making it much more accurate and longer-ranged than the smoothbore Brown Bess. However, this technological advancement became the catalyst for political upheaval due to cultural insensitivity.

• British Response: The British initially tried to calm the sepoys by allowing them to grease their own cartridges with vegetable oil or wax, but the mistrust was already too deep-seated, leading to the total breakdown of authority across Northern and Central India.

Q27. Answer: (b) Mizo and Rakhine Hills

The correct answer is Mizo and Rakhine Hills.

Key Points

• The Garo, Khasi, Jaintia, and Naga Hills are part of the physiographic division of Northeast India. While the Garo, Khasi, and Jaintia hills primarily form the Meghalaya Plateau, the Naga Hills are part of the Purvanchal range.

• The hill ranges of Meghalaya (Garo, Khasi, and Jaintia) run in an almost East-West direction, creating a high-altitude barrier. Hence, the statement regarding their east-west orientation is correct.

• These east-west trending hills are connected to the Purvanchal Range, which takes a sharp southward turn after the Dihang gorge. This southward extension continues as a series of North-South trending hills. Hence, the statement regarding the connection to a north-south chain is correct.

• The specific North-South extensions identified in the correct option are the Mizo Hills (formerly known as Lushai Hills) located in India and the Rakhine Hills (also known as Arakan Yoma) located in Myanmar.

• The Purvanchal hills are composed of strong sandstones, which are sedimentary rocks. They are covered with dense forests and run as parallel ranges and valleys.

Additional Information

• Mizo Hills (Lushai Hills): Located in the state of Mizoram, these hills are part of the Patkai range system. The highest point in the Mizo Hills is Phawngpui, also known as the Blue Mountain, with an elevation of 2,157 meters.

• Rakhine Hills (Arakan Yoma): This is a massive mountain range in western Myanmar that runs North-South for approximately 950 kilometers. It acts as a natural barrier between Myanmar and the Indian Subcontinent.

• Vindhya and Satpura Hills: These are located in Central India. The Vindhya Range runs north of the Narmada River, while the Satpura Range runs south of it. They are not connected to the Northeastern hill systems.

• Nilgiri Hills: Located in South India at the junction of the Western Ghats and Eastern Ghats in the states of Tamil Nadu, Karnataka, and Kerala. It is geographically isolated from the Purvanchal system.

• Meghalaya Plateau Structure: Although located in the Northeast, the Garo-Khasi-Jaintia hills are geologically an extension of the Peninsular Plateau (specifically the Chotanagpur Plateau), separated by the Malda Fault in West Bengal.

Important Points

• Patkai Bum: These are the hills located in the northernmost part of the Purvanchal, forming the border between India (Arunachal Pradesh) and Myanmar.

• Mount Saramati: This is the highest peak in the Naga Hills, reaching a height of 3,841 meters. It stays snow-clad during winter and is located on the Nagaland-Myanmar border.

• Barail Range: This range acts as a link between the Naga Hills and the Jaintia Hills. It is the highest hill range in Assam.

• Climate Impact: The orientation of the Garo, Khasi, and Jaintia Hills is responsible for trapping the Southwest Monsoon winds,

leading to heavy rainfall in places like Mawsynram and Cherrapunji, which are among the wettest places on Earth.

• Purvanchal States: The Purvanchal range spans several states including Arunachal Pradesh, Nagaland, Manipur, and Mizoram.

Q28. Answer: (d) Information Technology (Intermediary Guidelines and Digital Media Ethics Code) Rules, 2021

The correct answer is Information Technology (Intermediary Guidelines and Digital Media Ethics Code) Rules, 2021.

Key Points

• The Information Technology (Intermediary Guidelines and Digital Media Ethics Code) Rules, 2021 were notified on 25th February 2021 by the Ministry of Electronics and Information Technology (MeitY) under the powers conferred by Section 87 of the Information Technology Act, 2000.

• Under Rule 3(1)(b), intermediaries are mandated to perform due diligence, which includes informing users not to host, display, or upload any information that is harmful to children. This ensures a safe digital environment for minors in India.

• The rules specifically require intermediaries to take down or disable access to content that depicts Child Sexual Abuse Material (CSAM) or any sexually explicit content within 24 hours of receiving a complaint from an individual or a person authorized by them.

• It distinguishes between ordinary intermediaries and Significant Social Media Intermediaries (SSMIs), which are platforms having more than 50 lakh (5 million) registered users in India. These SSMIs have stricter compliance requirements, including the appointment of a Chief Compliance Officer, a Nodal Contact Person, and a Resident Grievance Officer.

• The 2021 Rules represent a shift towards accountability, requiring intermediaries to provide a Grievance Redressal Mechanism where users can report violations, including those affecting the safety and dignity of children.

Additional Information

• Section 67B of the IT Act, 2000: This specific section of the principal Act prescribes stringent punishment, including imprisonment for a term of up to five years for the first conviction, for publishing or transmitting material depicting children in sexually explicit acts in electronic form.

• Section 79 of the Information Technology Act: This provides "Safe Harbour" protection to intermediaries, exempting them from liability for third-party content. However, this protection is conditional upon the intermediary following the due diligence requirements specified in the 2021 Rules.

• POCSO Act, 2012: The Protection of Children from Sexual Offences Act is the primary legislation in India designed to protect children (defined as persons below the age of 18 years) from sexual abuse. It works in tandem with the IT Rules to prosecute digital crimes against minors.

• Digital Personal Data Protection (DPDP) Act, 2023: This Act imposes additional obligations on data fiduciaries regarding children's data. It prohibits processing that is likely to cause a detrimental effect on the well-being of a child and mandates verifiable parental consent for users under 18 years.

• National Commission for Protection of Child Rights (NCPCR): This is the statutory body established under the CPCR Act, 2005, which monitors the implementation of laws related to child safety, including their protection in the digital space.

Important Points

• Grievance Appellate Committee (GAC): Introduced via an amendment in October 2022, the GAC allows users to appeal against the decisions of an intermediary's Grievance Officer. This provides an additional layer of oversight for content moderation decisions.

• Content Removal Timelines: While general complaints must be acknowledged within 24 hours and resolved within 15 days, the rules emphasize "expeditious removal" for sensitive content involving children or the modesty of individuals.

• Rule 4(2) - Traceability: For messaging intermediaries, the rules require the identification of the first originator of information if ordered by a court or competent authority, primarily to prevent the spread of CSAM and threats to national security.

• Compliance Reports: SSMIs are required to publish monthly compliance reports detailing the number of complaints received and the specific actions taken, ensuring transparency in how they handle harmful online content.

Q29. Answer: (a) $

The logic followed here is:

Given series: (Left) 5 # % 8 * $ % @ 1 3 @ $ 4 6 9 7 # $ 2 % 5 4 (Right)

Now, Drop all numbers and keep only symbols:

Remaining series: # % * $ % @ @ $ # $ %

Now, Count from the left: # % * $ % @ @ $ # $ %

Fourth from the left = $

Hence, the correct answer is Option 1.

Q30. Answer: (a) One

The logic followed here is:

Given: Seven boxes M, A, R, K, E, T and S are kept one over the other but not necessarily in the same order.

Only A is kept above E.
Only S is kept between E and T.
Only K is kept below R.

Position	Box
7	A
6	E
5	S
4	T
3	M
2	R
1	K

Now, boxes between M and K = R → 1 box
Hence, the correct answer is Option 1.

Q31. Answer: (d) Daughter's daughter

Family Chart:
Decoding the Symbols:

Symbol	•	–	×	÷
Meaning	Sister	Husband	Son	Daughter

Given: T + P × M - V ÷ S
It means: T is the sister of P, P is the son of M, M is the husband of V, V is the daughter of S.
So T is S's Daughter's daughter.
Hence, the correct answer is "Option 4".

Q32. Answer: (b) 3

Shortcut Trick
Mode = 36 lies in class 30−40 => modal class
Use formula idea: Mode shifts toward higher frequency
Apply relation quickly: f1 − f0 : f1 − f2 ≈ (36 − 30) : (40 − 36)
=> (9 − x) : (9 − 5) = 6 : 4
=> (9 − x)/4 = 6/4 => 9 − x = 6
=> x = 3
Therefore Answer = 3
Alternate Method
Given:
Mode = 36, class intervals with missing frequency = x in 20−30
Formula used:
Mode = L + [(f1 − f0) ÷ (2f1 − f0 − f2)] × h
Calculation:
=> Modal class = 30−40
=> L = 30, h = 10
=> f1 = 9, f0 = x, f2 = 5
=> 36 = 30 + [(9 − x) ÷ (2×9 − x − 5)] × 10
=> 36 = 30 + [(9 − x) ÷ (18 − x − 5)] × 10
=> 36 = 30 + [(9 − x) ÷ (13 − x)] × 10
=> 6 = [(9 − x) ÷ (13 − x)] × 10
=> 6(13 − x) = 10(9 − x)
=> 78 − 6x = 90 − 10x

YourMockTest.com — Free Study Material

=> 4x = 12

=> x = 3

Therefore The correct answer is 3.

Additional Information

Mode Formula (Grouped Data)

Mode = L + [(f1 − f0)/(2f1 − f0 − f2)] × h

Modal Class

Class interval with highest frequency is the modal class.

Class Width

h = upper limit − lower limit

Frequency Terms

f1 = modal class frequency, f0 = preceding, f2 = succeeding

Q33. Answer: (b) Planetary winds

The correct answer is Planetary winds.

Key Points

• Planetary winds, also known as permanent winds or prevailing winds, are large-scale wind systems that blow consistently in the same direction throughout the year across vast regions of the globe.

• These winds originate due to the latitudinal variation in atmospheric pressure, moving from high-pressure belts to low-pressure belts.

• The three primary types of planetary winds are the Trade Winds, the Westerlies, and the Polar Easterlies.

• Trade Winds blow from the Sub-tropical High Pressure belt (around 30° N and S) towards the Equatorial Low Pressure belt. Because of the Coriolis Force, they blow from the North-East in the Northern Hemisphere and the South-East in the Southern Hemisphere.

• Westerlies blow from the Sub-tropical High Pressure belts towards the Sub-polar Low Pressure belts (around 60° N and S). They are more vigorous in the Southern Hemisphere due to the vast expanse of ocean.

Additional Information

• Local winds: These are winds that blow over a short period of the day or year within a restricted area. They are often caused by local differences in temperature and pressure. Examples include the Loo (a hot, dry wind in Northern India and Pakistan during summer), the Mistral (a cold wind in France), and the Chinook (a warm wind on the eastern slopes of the Rocky Mountains).

• Periodic winds: These winds change their direction periodically with the change in season or time. The most prominent example is the Monsoon, which involves a complete reversal of wind direction between summer and winter in regions like South Asia. Land and sea breezes are also considered small-scale periodic winds occurring daily.

• Polar winds: Specifically called Polar Easterlies, these blow from the Polar High Pressure areas toward the Sub-polar Low Pressure belts. They are cold and dry winds originating from latitudes beyond 60°.

• Coriolis Effect: This is an inertial force caused by the Earth's rotation that deflects moving air to the right in the Northern Hemisphere and to the left in the Southern Hemisphere, as described by Ferrel's Law.

Important Points

• Horse Latitudes: These are regions located at about 30° to 35° North and South of the Equator, characterized by high pressure, calm winds, and subsiding air.

• Roaring Forties, Furious Fifties, and Shrieking Sixties: These are sailors' terms for the exceptionally strong Westerlies found in the Southern Hemisphere between 40° and 60° latitude, where there is little landmass to obstruct the wind flow.

• Doldrums: Also known as the Intertropical Convergence Zone (ITCZ), this is the low-pressure area around the Equator where the Trade Winds meet, often resulting in calm weather or sudden storms.

• The global wind circulation plays a vital role in ocean currents and the redistribution of heat from the Equator to the Poles, maintaining the Earth's climate balance.

Q34. Answer: (b) 1345

Shortcut Trick

√2025 = 45

19 × 7 × 630 ÷ 45

=> 630 ÷ 45 = 14

=> 19 × 7 × 14 = 19 × 98 = 1862

=> y + 517 = 1862 => y = 1345

Therefore Answer = 1345

YourMockTest.com — Free Study Material

Alternate Method
Given:
19 × 7 × 630 ÷ √2025 = y + 517
Concept Used:
BODMAS rule
Calculation:
=> 19 × 7 × 630 ÷ 45 = y + 517
=> 19 × 7 × 14 = y + 517
=> 19 × 98 = y + 517
=> 1862 = y + 517
=> y = 1862 − 517
=> y = 1345
Therefore The correct answer is 1345.
Additional Information
BODMAS Rule
Order: Brackets → Orders (roots) → Division → Multiplication → Addition → Subtraction
Square Root
√2025 = 45 since $45^2 = 2025$
Simplification Tip
Divide large numbers early to reduce calculation effort
Linear Equation
Solve by isolating the variable after simplifying expression

Q35. Answer: (b) 44

Shortcut Trick
Average = Sum ÷ Number of values
= 528 ÷ 12
= 44
Therefore Answer = 44
Alternate Method
Given:
Total sum = 528, Number of values = 12
Formula used:
Average = Total Sum ÷ Number of values
Calculation:
=> Average = 528 ÷ 12
=> = 44
Therefore The correct answer is 44.
Additional Information
Average Formula
Average = Sum of observations ÷ Number of observations
Shortcut Tip
If sum is divisible evenly, divide directly without long calculation
Reverse Concept
Sum = Average × Number of values
Use Case
Helpful in marks, salary, and grouped data problems

Q36. Answer: (b) Department controlling markets and prices

The correct answer is Department controlling markets and prices.
Key Points
• Alauddin Khilji, one of the most powerful rulers of the Khilji Dynasty, established the Diwan-i-Riyasat to implement his ambitious

Market Control Reforms.

• The primary function of the Diwan-i-Riyasat was to regulate the market and ensure that all commodities were sold at the fixed prices determined by the Sultan. Hence, the statement regarding the department controlling markets and prices is correct.

• This department was headed by a high-ranking official known as the Naib-i-Riyasat, who exercised overall control over the merchants and the supply chain.

• It was mandatory for all merchants to register themselves with the Diwan-i-Riyasat before they could sell their goods in the Delhi markets.

• The department worked in coordination with the Shahna-i-Mandi (Market Superintendent) to prevent hoarding, black marketing, and the use of faulty weights or measures.

Additional Information

• Alauddin Khilji (reigned 1296–1316) introduced several administrative departments to centralize power:

• Diwan-i-Wizarat: This was the department of finance and revenue, headed by the Wazir.

• Diwan-i-Arz: This was the military department responsible for recruitment, training, and maintenance of the army.

• Diwan-i-Insha: This department handled royal correspondence and the drafting of farmans (orders).

• Diwan-i-Rasalat: This department dealt with religious matters, endowments, and foreign affairs.

• The Department of Agriculture, known as Diwan-i-Amir-Kohi, was not established by Khilji but by Muhammad bin Tughlaq to improve land cultivation.

• The Market Control Policy was primarily designed to maintain a massive standing army at a low cost, as soldiers could buy essential goods at subsidized rates.

Important Points

• To monitor the effectiveness of the Diwan-i-Riyasat, the Sultan employed a network of spies known as Munhiyans and Barids (intelligence officers) who reported daily on market prices and fraudulent activities.

• The market was categorized into three segments: Mandi (for grain), Sera-i-Adl (for manufactured goods and expensive cloth), and markets for slaves, horses, and cattle.

• The Sultan enforced harsh punishments for any merchant caught cheating; for instance, if a merchant gave short weight, an equivalent amount of flesh was cut from his body.

• During times of famine or drought, the Diwan-i-Riyasat managed the state granaries to ensure the continuous supply of food at standard rates, preventing inflation in the capital city.

• These reforms were so successful that prices remained stable throughout the twenty-year reign of Alauddin Khilji, a feat rarely matched in medieval Indian history.

Q37. Answer: (a) Uttar Pradesh

The correct answer is Uttar Pradesh.

Key Points

• The Taj Mahal is an ivory-white marble mausoleum located on the southern bank of the Yamuna River in the city of Agra, which is situated in the Indian state of Uttar Pradesh.

• It was commissioned in 1632 by the Mughal Emperor Shah Jahan (reigned from 1628 to 1658) to house the tomb of his favorite wife, Mumtaz Mahal; it also houses the tomb of Shah Jahan himself.

• The Taj Mahal was designated as a UNESCO World Heritage Site in 1983 for being "the jewel of Muslim art in India and one of the universally admired masterpieces of the world's heritage."

• The construction project employed some 20,000 artisans under the guidance of a board of architects led by the court architect to the emperor, Ustad Ahmad Lahori.

• It is regarded by many as the finest example of Mughal architecture, a style that combines elements from Persian, Indian, and Islamic architectural styles.

Additional Information

• Architecture and Design:

• The main dome of the Taj Mahal reaches a height of 73 meters (240 feet) and is surrounded by four smaller domes.

• The structure is built of white marble sourced from Makrana in Rajasthan, which is famous for its high quality and durability.

• The complex includes a mosque, a guest house, and is set in formal gardens (Charbagh) bounded on three sides by a crenellated wall.

• In 2007, the Taj Mahal was declared a winner of the New Seven Wonders of the World (2000–2007) initiative.

• Historical Context:

• The construction of the mausoleum was essentially completed in 1643, but work continued on other phases of the project for another 10 years.

• The entire Taj Mahal complex is estimated to have been completed in its entirety in 1653 at a cost estimated at the time to be

around 32 million rupees.

• The Mughal Empire reached its cultural peak during the reign of Shah Jahan, and the Taj Mahal represents the pinnacle of this era.

• Conservation and Environment:

• To protect the monument from environmental pollution, the Government of India has set up the Taj Trapezium Zone (TTZ), a defined area of 10,400 sq km around the monument to strictly monitor emissions.

• In 1996, the Supreme Court of India banned the use of coal/coke in industries located within the TTZ and directed them to switch over to natural gas or relocate.

Important Points

• Symbolism: The Taj Mahal is widely considered a symbol of eternal love and is the most visited tourist destination in India, attracting millions of visitors annually.

• Agra's Significance: Apart from the Taj Mahal, Agra in Uttar Pradesh is also home to two other UNESCO World Heritage Sites: the Agra Fort and Fatehpur Sikri.

• Symmetry: The entire complex is noted for its perfect bilateral symmetry along a central axis, except for the tomb of Shah Jahan, which is placed beside Mumtaz Mahal's tomb, breaking the symmetry.

• Materials: Over 1,000 elephants were used to transport building materials. Precious and semi-precious stones like Lapis Lazuli, Jade, Crystal, Turquoise, and Sapphire were inlaid into the white marble using the Pietra Dura technique.

Q38. Answer: (d) Node

The correct answer is Node.

Key Points

• In the field of Transport Geography, a Node is defined as a specific location that serves as the meeting point, intersection, or junction of two or more transport routes.

• A Node acts as a functional unit where various paths in a system converge, allowing for the transfer of goods, people, or information from one route to another. Hence, the term Node is the correct answer.

• In a mathematical or topological sense, these points are often referred to as vertices, which are connected by paths to form a comprehensive system.

• The functions of a Node include being a point of entry, exit, or transfer within a larger transport network, such as a major city, a railway station, or an airport.

• The importance of a Node is often measured by its connectivity; a higher number of transport routes meeting at a single point increases the strategic and economic value of that location.

Additional Information

• Link:

• A Link is the path or connection between two Nodes. While a Node is a point, a Link is the segment that facilitates movement between these points.

• In Graph Theory, these are also known as edges. The efficiency of a Link is determined by its capacity, speed, and length.

• Network:

• A Network is the entire framework formed by the combination of Nodes and Links. It represents the spatial organization of a transport system.

• Networks can be classified as radial, grid-like, or linear, depending on how the Nodes are interconnected.

• Grid:

• A Grid is a specific type of Network structure where transport routes (usually roads) intersect at right angles, forming rectangular or square blocks.

• This feature is common in urban planning for cities like New York (Manhattan) or Chandigarh in India to ensure systematic location identification and traffic flow.

• Transport Geography Concepts:

• The study of transportation focuses on how geographical space is integrated through infrastructure. Key indices like the Beta Index are used to calculate the connectivity of a Network by dividing the number of Links by the number of Nodes.

Important Points

• Hub and Spoke Model: This is a common application where a central Node (the Hub) handles the majority of traffic and redistributes it through Links (the Spokes) to smaller Nodes. Examples include London Heathrow Airport and Dubai International Airport.

• Economic Impact: Nodes with high accessibility often become centers of trade and commerce. Historically, cities located at the intersection of major trade routes, like Istanbul or Singapore, have flourished due to their status as vital Nodes.

• Data and Facts: The development of Nodes is often regulated by government guidelines and infrastructure acts to ensure balanced regional development. In India, projects like the PM Gati Shakti aim to create integrated multimodal transport Nodes to

boost logistics efficiency.

• Topology: The spatial arrangement of Nodes determines the redundancy of a Network. A Network with many Nodes serving as intersections provides more route options, making the system more resilient to disruptions.

Q39. Answer: (b) Longitudinal wave

The correct answer is Longitudinal wave.

Key Points

• A Longitudinal wave is a type of mechanical wave where the vibration or oscillation of the particles of the medium occurs parallel to the direction in which the wave or energy travels.

• These waves are characterized by the formation of compressions and rarefactions. Compressions are regions where the particles are closest together, resulting in high pressure and high density. Hence, the statement regarding parallel movement is correct.

• Rarefactions are regions where the particles are spread apart, leading to low pressure and low density. This periodic variation in pressure allows the wave to propagate through a material medium. Hence, the statement regarding wave structure is correct.

• The most common example of a longitudinal wave is a sound wave. In air, sound travels as a longitudinal wave because the air molecules move back and forth in the same direction as the sound energy.

• Longitudinal waves can propagate through solids, liquids, and gases. This is because all phases of matter can be compressed and expanded, allowing the transfer of energy via pressure changes.

Additional Information

• Transverse Waves:

• In these waves, the particles of the medium move perpendicular (at right angles) to the direction of wave propagation.

• Examples include light waves, radio waves, and waves produced on a vibrating string. Unlike longitudinal waves, they consist of crests (high points) and troughs (low points).

• Electromagnetic Waves:

• These are non-mechanical waves composed of oscillating electric and magnetic fields. They do not require a material medium to travel and can move through a vacuum.

• They travel at the speed of light, which is approximately 300,000 kilometers per second (3 x 10^8 m/s). All electromagnetic waves are transverse in nature.

• Surface Waves:

• These waves occur at the boundary or interface between two different media, such as water and air.

• The particles in a surface wave undergo a circular motion, which is a combination of both longitudinal and transverse movements.

• Seismic Waves:

• During an earthquake, P-waves (Primary waves) are longitudinal and are the fastest seismic waves, while S-waves (Secondary waves) are transverse and can only travel through solids.

Important Points

• Wavelength: In a longitudinal wave, the wavelength is the distance between the center of one compression to the center of the next compression, or between two consecutive rarefactions.

• Frequency: This refers to the number of compressions or rarefactions that pass a fixed point per unit of time (measured in Hertz or Hz).

• Medium Characteristics: The speed of a longitudinal wave depends on the elasticity (Bulk Modulus) and the inertia (density) of the medium. For instance, sound travels faster in solids (like steel at 5960 m/s) than in liquids (like water at 1480 m/s) or gases (like air at 343 m/s) because solids are less compressible.

• Applications: Ultrasonic waves (longitudinal waves with frequency above 20,000 Hz) are used in medical imaging (sonography), industrial cleaning, and SONAR (Sound Navigation and Ranging) for underwater navigation.

Q40. Answer: (d) 6%

Shortcut Trick

Let CP = 100

MP = 100% more => 200

Gain 88% => SP = 188

Discount = 200 − 188 = 12

Discount % = (12/200) × 100 = 6%

Therefore Answer = 6%

Alternate Method

Given:

Marked price is 100% above cost price, Gain = 88%

Formula used:

SP = CP × (1 + profit/100), Discount % = (MP − SP)/MP × 100

Calculation:

=> Let CP = 100

=> MP = 100 + 100% of 100 = 200

=> SP for 88% gain = 100 × 1.88 = 188

=> Discount = MP − SP = 200 − 188 = 12

=> Discount % = (12 ÷ 200) × 100

=> = 6%

Therefore The correct answer is 6%.

Additional Information

Marked Price

MP = CP × (1 + markup/100)

Selling Price

SP = CP × (1 + profit/100)

Discount Formula

Discount % = (MP − SP)/MP × 100

Key Insight

Assume CP = 100 to simplify percentage problems

Q41. Answer: (d) ZDC 26

The logic followed here is:

So, 'ZDC 26' will replace the question mark in the given series.

Hence, the correct answer is "Option 4".

Q42. Answer: (a) ITPX

The logic followed here is:

For, LFGK → RKKN

Similarly, GMOP → MRSS

Now, apply the same rule to COLU:

Here, COLU → ITPX

Hence, the correct answer is Option 1.

Q43. Answer: (d) Beri-beri

The correct answer is Beri-beri.

Key Points

• Vitamin B1, scientifically known as Thiamine, is a water-soluble vitamin that plays a critical role in energy metabolism and the growth, development, and function of cells.

• A prolonged deficiency of Thiamine leads to a clinical condition known as Beri-beri. This disease primarily affects the nervous system and the cardiovascular system. Hence, option D is the correct statement.

• There are two main types of the disease: Wet Beri-beri, which impacts the heart and circulatory system, leading to heart failure in extreme cases; and Dry Beri-beri, which damages the nerves and can lead to muscle paralysis.

• The symptoms of Beri-beri include loss of appetite, weakness, pain in the limbs, shortness of breath, and swollen feet or legs.

• Historically, the disease was prevalent in regions where polished rice (white rice) was the staple food, as the process of polishing removes the thiamine-rich husk.

Additional Information

• Rickets:

• This condition is caused by a deficiency of Vitamin D, calcium, or phosphate.

• It predominantly affects children, leading to soft and weak bones, which can result in skeletal deformities like bowed legs. Hence, statement A is incorrect.

• Night Blindness:

• Scientifically termed Nyctalopia, this is caused by a deficiency of Vitamin A (Retinol).

YourMockTest.com — Free Study Material

• Vitamin A is essential for the production of rhodopsin, a pigment in the retina that helps us see in low-light conditions. Hence, statement B is incorrect.

• Scurvy:

• This disease results from a lack of Vitamin C (Ascorbic Acid).

• It is characterized by bleeding gums, fatigue, and slow wound healing because Vitamin C is necessary for collagen synthesis. Hence, statement C is incorrect.

• Vitamins Classification:

• Vitamins are classified into two groups: Fat-soluble (A, D, E, and K) and Water-soluble (B-complex and Vitamin C).

• Water-soluble vitamins are not stored in the body and must be consumed regularly through diet.

Important Points

• Sources of Vitamin B1: Rich dietary sources include whole grains, legumes (beans and lentils), nuts, seeds, pork, and yeast.

• Recommended Dietary Allowance (RDA): The daily requirement for Thiamine for an adult male is approximately 1.2 mg and for an adult female is 1.1 mg.

• Wernicke-Korsakoff Syndrome: This is another severe disorder related to Thiamine deficiency, often observed in individuals with chronic alcoholism, as alcohol interferes with thiamine absorption in the intestines.

• Historical Context: In 1897, Christiaan Eijkman discovered that feeding unpolished rice instead of polished rice to chickens could prevent a disease similar to Beri-beri, which eventually led to the discovery of vitamins.

Q44. Answer: (d) Bengaluru

The correct answer is Bengaluru.

Key Points

• Bengaluru is widely recognized as the Silicon Valley of India because it is the nation's leading Information Technology (IT) exporter. This city, located in the state of Karnataka, serves as the hub for major software companies and tech startups. Hence, option D is correct.

• The city began its transformation into a tech giant in the 1980s when the Karnataka State Electronics Development Corporation (KEONICS) established Electronic City. In 1985, Texas Instruments became the first multinational corporation to set up a base in the city, paving the way for others.

• It hosts the headquarters of prominent Indian IT firms like Infosys and Wipro, as well as significant operations for global companies such as Google, Microsoft, Amazon, and IBM.

• The presence of prestigious educational and research institutions like the Indian Institute of Science (IISc) and the Indian Institute of Management Bangalore (IIMB) provides a steady supply of skilled human resources, fueling the innovation ecosystem.

• Bengaluru accounts for nearly 33% to 35% of India's total IT exports, making it a critical driver of the national economy.

Additional Information

• Hyderabad (Option A): Often referred to as Cyberabad, it is a major competitor to Bengaluru in the IT and Biotechnology sectors. It houses the HITEC City (Hyderabad Information Technology and Engineering Consultancy City) and major offices of Microsoft (its largest campus outside the US) and Facebook. However, it is not primarily known as the Silicon Valley of India. Hence, statement A is incorrect.

• Mumbai (Option B): Known as the Financial Capital of India, it is the home of the Reserve Bank of India (RBI), Bombay Stock Exchange (BSE), and National Stock Exchange (NSE). While it has an IT presence through SEEPZ (Santacruz Electronic Export Processing Zone), its identity is rooted in banking, finance, and the entertainment industry (Bollywood). Hence, statement B is incorrect.

• Chennai (Option C): Known as the Detroit of Asia due to its massive automobile industry, hosting companies like Hyundai, Ford, and Renault-Nissan. It is also called the Health Capital of India due to its advanced medical tourism. While it has a strong IT corridor on Old Mahabalipuram Road (OMR), it is not the primary Silicon Valley. Hence, statement C is incorrect.

• Software Technology Parks of India (STPI): Established in 1991 under the Ministry of Electronics and Information Technology, this organization has played a vital role in promoting software exports from cities like Bengaluru by providing infrastructure and statutory services.

Important Points

• Geographic Advantage: Bengaluru is situated on the Deccan Plateau at an elevation of over 900 meters above sea level, providing a pleasant climate throughout the year, which historically attracted British colonists and later tech professionals.

• Public Sector Heritage: Before the IT boom, the city was a center for heavy industries and aerospace. It is home to the Indian Space Research Organisation (ISRO), Hindustan Aeronautics Limited (HAL), and Bharat Electronics Limited (BEL).

• Startup Culture: As of the 2020s, Bengaluru is frequently ranked among the top global startup hubs, often appearing alongside cities like San Francisco and London in terms of venture capital investment and unicorn (startups valued over $1 billion) creation.

• Infrastructure: Key tech parks such as Manyata Tech Park, Bagmane Tech Park, and Whitefield are central to the city's status as a global technology node.

YourMockTest.com — Free Study Material

Q45. Answer: (c) 38.9

Shortcut Trick

Equal time => Average speed = (v1 + v2 + v3) ÷ 3

v1 = x, v2 = 1.5x, v3 = 0.8 × 1.5x = 1.2x

Average = (x + 1.5x + 1.2x)/3 = 3.7x/3

=> 3.7x/3 = 48

=> x = 48 × 3 / 3.7 = 144/3.7 ≈ 38.9

Therefore Answer = 38.9 km/hr

Alternate Method

Given:

Total distance = 120 km, equal time in 3 stages, average speed = 48 km/hr

Formula used:

Average speed (equal time) = (v1 + v2 + v3) ÷ 3

Calculation:

=> Let speed in first stage = x

=> Second stage speed = x + 50% of x = 1.5x

=> Third stage speed = 1.5x − 20% of 1.5x = 1.2x

=> Average speed = (x + 1.5x + 1.2x) ÷ 3

=> 48 = (3.7x) ÷ 3

=> 144 = 3.7x

=> x = 144 ÷ 3.7

=> x ≈ 38.9 km/hr

Therefore The correct answer is 38.9 km/hr.

Additional Information

Average Speed (Equal Time)

If time is same, average speed = arithmetic mean of speeds

Percentage Change

Increase: multiply by (1 + p/100), Decrease: multiply by (1 − p/100)

Successive Change

Apply changes step-by-step (not directly combined unless simplified)

Key Insight

Equal time problems avoid distance complexity by using average of speeds

Q46. Answer: (d) Afghanistan

The correct answer is Afghanistan.

Key Points

• Bagram Air Base is the largest airfield in Afghanistan, located in the Parwan Province, approximately 11 kilometers southeast of Charikar and 40 kilometers north of the capital city, Kabul.

• The base served as the epicenter of the United States military operations and NATO’s Resolute Support Mission during the war in Afghanistan from 2001 to 2021.

• In July 2021, U.S. forces vacated the base in a middle-of-the-night departure, which marked a symbolic end to the 20-year military presence; shortly after, in August 2021, the Taliban took full control of the facility.

• The base came back into the spotlight in 2024 and 2025 following statements by Donald Trump during his presidential campaign, where he argued that the U.S. should have kept the base not for Afghanistan itself, but because of its strategic proximity to China’s nuclear testing sites.

• The airfield has historically been a critical logistical hub, featuring two massive runways capable of accommodating the world's largest military aircraft, such as the C-5 Galaxy and Boeing C-17 Globemaster III.

Additional Information

• Historical Background: The base was originally built by the Soviet Union in the 1950s during the Cold War and was a major base of operations for the Soviet Army during the Soviet-Afghan War (1979–1989).

• Strategic Geography: It is situated at an elevation of about 1,492 meters (4,895 feet) above sea level in the Shamali Plain, surrounded by the peaks of the Hindu Kush mountains, making it a natural fortress for aerial surveillance and defense.

• Facilities: At its peak, the base functioned like a small city, housing more than 30,000 personnel, including U.S. soldiers,

contractors, and coalition partners. It featured a 50-bed hospital, various recreational facilities, and the Parwan Detention Facility.

• Global Context: The base's location in Central Asia makes it a point of interest for neighboring countries like Pakistan, Iran, and Uzbekistan, as it allows for rapid deployment and regional power projection.

• Current Status: Since the U.S. withdrawal, the Taliban government has used the base for their own air force training, though reports suggest that much of the sophisticated electronic equipment was disabled or removed by departing forces.

Important Points

• Geopolitical Shift: The debate over Bagram in 2025 highlights a shift in U.S. foreign policy discussions, moving from counter-terrorism in Afghanistan to "Great Power Competition" involving China and Russia.

• Logistical Significance: The base is roughly 700 miles from China's western border, which is why it is often cited in strategic military assessments regarding the Indo-Pacific region.

• Economic Impact: During the U.S. occupation, Bagram was a major source of employment and economic activity for the local population in Parwan Province, which has seen significant changes since the Taliban takeover.

• Security Concerns: International observers continue to monitor the base for potential use by regional militant groups or for the storage of advanced military hardware left behind during the 2021 withdrawal.

Q47. Answer: (d) 1

Given: Seven people A, B, C, D, E, F and G are sitting in a row facing north.

Only two people sit to the left of C.

Only three people sit between C and F.

B sits second to the right of C.

Only two people sit between B and D.

E sits at some place to the right of G but at some place to the left of A.

Now, people to the left of D: 1 person

Hence, the correct answer is "Option 4".

Q48. Answer: (c) 28

Shortcut Trick

Given: x^4 − 83x² + 1 = 0

=> Divide by x²: x² + 1/x² = 83

=> (x − 1/x)² = 83 − 2 = 81 => x − 1/x = 9

=> x³ − 1/x³ = (x − 1/x)³ + 3(x − 1/x) = 729 + 27 = 756

=> √(756 + 28) = √784 = 28

Therefore Answer = 28

Alternate Method

Given:

x^4 − 83x² + 1 = 0, x > 0

Formula used:

(x − 1/x)² = x² + 1/x² − 2 and x³ − 1/x³ = (x − 1/x)³ + 3(x − 1/x)

Calculation:

=> Divide equation by x²

=> x² + 1/x² = 83

=> (x − 1/x)² = 83 − 2 = 81

=> x − 1/x = 9 (since x > 0)

=> x³ − 1/x³ = 9³ + 3 × 9 = 729 + 27 = 756

=> √(x³ − 1/x³ + 28) = √(756 + 28)

=> = √784 = 28

Therefore The correct answer is 28.

Additional Information

Symmetric Expressions

Expressions like x + 1/x or x − 1/x help simplify higher powers.

Key Identities

(x − 1/x)² = x² + 1/x² − 2

Cubic Identity

$x^3 - 1/x^3 = (x - 1/x)^3 + 3(x - 1/x)$

Simplification Tip

Convert higher powers into known identities for faster solving

Q49. Answer: (c) Two

The logic followed here is:

Given: Six boxes, A, B, C, D, E and F are kept one over the other but not necessarily in the same order.

F is third from the top.

Only two boxes are kept between F and D.

A is above F but below E.

C is not at the second position from the bottom.

Position	Box
6	E
5	A
4	F
3	C
2	B
1	D

Now, boxes between A and B = F and C → 2 boxes

Hence, the correct answer is Option 3.

Q50. Answer: (d) Article 131

The correct answer is Article 131.

Key Points

• Article 131 of the Constitution of India deals with the Original Jurisdiction of the Supreme Court. It empowers the court to hear disputes at the first instance, rather than through an appeal.

• This jurisdiction is exclusive, meaning no other court in India (including High Courts) can adjudicate on matters involving federal disputes. This is a crucial feature of the Federal Structure of the Indian polity.

• The scope of Article 131 covers disputes between:

• The Government of India (Centre) and one or more States.

• The Government of India and any State or States on one side and one or more other States on the other.

• Two or more States against each other.

• For a dispute to be maintainable under Article 131, it must involve a question of law or fact on which the existence or extent of a legal right depends. Hence, the statement regarding Article 131 being the original jurisdiction is correct.

• The Supreme Court acts as an arbiter in these cases to maintain the balance of power between the union and the units of the federation.

Additional Information

• Article 124:

• It provides for the establishment and constitution of the Supreme Court of India.

• It states that there shall be a Supreme Court consisting of a Chief Justice of India and other judges. The current sanctioned strength is 34 judges (including the CJI).

• It outlines the qualifications, appointment, and removal process (impeachment) of judges. Hence, the statement regarding Article 124 dealing with original jurisdiction is incorrect.

• Article 32:

• Known as the Right to Constitutional Remedies, it allows citizens to move the Supreme Court for the enforcement of Fundamental Rights.

• Dr. B.R. Ambedkar called this article the "Heart and Soul of the Constitution."

• Under this article, the court can issue writs such as Habeas Corpus, Mandamus, Prohibition, Certiorari, and Quo-Warranto. Hence, the statement regarding Article 32 being the federal original jurisdiction is incorrect.

• Article 141:

• It states that the law declared by the Supreme Court shall be binding on all courts within the territory of India.

YourMockTest.com — Free Study Material

• This ensures uniformity and certainty in the legal system across the country. Hence, the statement regarding Article 141 dealing with original jurisdiction is incorrect.

Important Points

• Exclusions from Article 131:

• The Original Jurisdiction does not extend to disputes arising out of any pre-Constitution treaty, agreement, covenant, or engagement which is still in force.

• Disputes related to Inter-State Water Disputes are excluded under Article 262 of the Constitution, for which Tribunals are typically established.

• Matters referred to the Finance Commission under Article 280 are also outside the purview of Article 131.

• Advisory Jurisdiction:

• Under Article 143, the President of India can seek the opinion of the Supreme Court on questions of law or fact of public importance.

• Appellate Jurisdiction:

• The Supreme Court is the highest court of appeal in the country. It hears appeals against the judgments of High Courts under Articles 132, 133, and 134.

Q51. Answer: (d) 2 km to the North

Given:

Dhruv starts from Point A and drives 38 km towards East.

He takes a left turn → 35 km North.

He turns left → 39 km West.

He takes a left turn → 37 km South.

He takes a final left turn → 1 km East and reaches Point P.

So, To reach A from P → move 2 km North

Hence, the correct answer is Option 4.

Q52. Answer: (a) Only conclusion (I) follows

Given Statements:

All hands are legs.

Some hands are faces.

Some faces are arms.

The least possible Venn diagram for the given statements is:

Conclusions:

I. Some legs are faces - True (Since all hands are legs and some hands are faces, the overlapping hands that are faces must also lie inside legs. So some legs are faces.)

II. Some hands are arms - False (There is no direct or guaranteed link between hands and arms. Faces overlap with arms, but hands only overlap with some faces, not necessarily those that are arms. So this does not necessarily follow.)

So, only conclusion (I) follows.

Hence, the correct answer is "Option 1".

Q53. Answer: (b) Underemployment

The correct answer is Underemployment.

Key Points

• Underemployment is a measure of employment and labor utilization in the economy that looks at how well the labor force is being used in terms of skills, experience, and availability to work.

• It occurs when a person is technically employed but is working in a capacity that is lower than their educational qualifications, professional experience, or desired number of hours. Hence, the statement provided in the question accurately describes Underemployment, making it the correct option.

• There are two main types of underemployment: Visible Underemployment, where employees work fewer hours than is considered normal or desired in their field, and Invisible Underemployment, where employees work in jobs that do not utilize their specialized skills.

• In the context of India, underemployment is a significant challenge as many highly educated individuals (engineers, post-graduates) are often forced to take up low-skilled jobs in the informal sector due to a lack of suitable opportunities.

• The International Labour Organization (ILO) notes that underemployment leads to economic inefficiency because the potential productivity of the workforce is not being fully realized, which can hinder a nation's Gross Domestic Product (GDP) growth.

YourMockTest.com — Free Study Material

Additional Information

• Part-time employment:

• This refers to a form of employment that carries fewer hours per week than a full-time job (usually less than 30-35 hours).

• While it can be voluntary (for students or parents), it becomes a form of underemployment when it is involuntary, meaning the worker wants full-time work but cannot find it. Hence, this option is only a subset of the broader definition provided.

• Involuntary employment:

• This term is less common than Involuntary Unemployment, which refers to a situation where people are willing to work at the prevailing wage rate but cannot find a job.

• If used to describe a person currently working, it implies they have no choice but to work in their current role to survive, even if the conditions are poor. Hence, it does not specifically focus on the capacity of skills or hours like underemployment does.

• Low wage employment:

• This refers specifically to jobs that pay wages at or near the poverty line or below the minimum wage set by the government.

• While underemployed people often earn low wages, low wage employment is strictly a monetary metric and does not necessarily account for the skill mismatch or underutilization of time. Hence, this option focuses only on compensation, not capacity.

• Disguised Unemployment:

• Common in the Agricultural sector in India, this is a form of underemployment where more people are working than are actually needed.

• If some people are removed, the total production remains the same, meaning their marginal productivity is zero.

Important Points

• Statistical Monitoring: In India, the National Statistical Office (NSO) conducts the Periodic Labour Force Survey (PLFS) to estimate indicators of labor force participation, employment, and unemployment across the country.

• Economic Causes: Underemployment often increases during an economic recession or when there is a significant structural shift in the economy (e.g., transition from manufacturing to services) that leaves certain skill sets obsolete.

• Impact on Youth: Data suggests that youth underemployment is a rising concern globally, leading to lower lifetime earnings and reduced social mobility as young workers fail to gain relevant experience during their prime working years.

• Brain Drain: Persistent underemployment in a country can lead to human capital flight or Brain Drain, where skilled professionals migrate to other countries in search of jobs that match their competencies.

Q54. Answer: (b) Banabhatta

The correct answer is Banabhatta.

Key Points

• Banabhatta was the Asthana Kavi (court poet) of the Emperor Harshavardhana, who ruled North India from 606 to 647 CE. He is one of the most celebrated prose writers in the history of Sanskrit literature.

• He composed the Harshacharita (The Deeds of Harsha), which is considered the first historical biography written in the Sanskrit language. The text provides a detailed account of Harsha's ancestry, his rise to the throne, and the socio-political conditions of the 7th century.

• Apart from the biography, Banabhatta is also the author of Kadambari, which is one of the world's earliest and most famous romance novels written in Sanskrit. Unfortunately, he passed away before completing it, and his son Bhushanabhatta finished the work.

• The Harshacharita consists of eight chapters called Uchchhavasas. The first two chapters are autobiographical, where the author describes his own lineage, while the remaining chapters focus on the Vardhana Dynasty and the exploits of King Harsha.

Additional Information

• Harshavardhana:

• He belonged to the Pushyabhuti dynasty (also known as the Vardhana dynasty). After the death of his brother Rajyavardhana, he ascended the throne at the age of 16 in 606 AD.

• He shifted his capital from Thanesar to Kannauj (modern-day Uttar Pradesh) to better manage his expanding empire.

• He was a great patron of Buddhism and learning. The famous Chinese traveler Xuanzang (Hiuen Tsang) visited India during his reign and stayed in his court for several years, providing a vivid description of the administration and society.

• Harsha himself was a renowned scholar and authored three famous Sanskrit plays: Ratnavali, Priyadarshika, and Nagananda.

• Ravikirti:

• He was the court poet of the Chalukya King Pulakeshin II. He is famous for composing the Aihole Inscription in 634 AD.

• The inscription is a significant historical source as it mentions the defeat of Harshavardhana by Pulakeshin II on the banks of the Narmada River.

• Vishnu Sharma:

• He is the legendary author of the Panchatantra, one of the most translated non-religious books in history.

• The Panchatantra is a collection of interwoven animal fables written in Sanskrit, intended to teach niti (political science and wise conduct) to young princes. It likely dates back to the Gupta period (around 300 CE).

Important Points

• Historical Context: The era of Harshavardhana marked the transition from the Ancient period to the Early Medieval period in India. His empire covered much of North and Northwestern India, extending to the Narmada in the south and Ganjam in the east.

• Religious Tolerance: Although initially a worshiper of Shiva, Harsha became a great supporter of Mahayana Buddhism. He organized the Kannauj Assembly in 643 AD to honor Xuanzang and propagate Buddhist doctrines.

• Literary Style: Banabhatta's style is known as Panchali-riti, characterized by long compounds, elaborate descriptions, and the frequent use of figures of speech like metaphors and puns. His work provides essential data regarding the military organization, feudal structure, and religious festivals (like the Kumbh Mela at Prayag) of that time.

Q55. Answer: (d) 6

The logic followed here is:

Given:

BELL → 1582

SELL → 2568

Hence, the code for S is 6.

Hence, the correct answer is Option 4.

Q56. Answer: (b) 453

Shortcut Trick

Use weighted average

Total = (21×465 + 11×410 + 17×466)

= 9765 + 4510 + 7922 = 22197

Total members = 21 + 11 + 17 = 49

Average = 22197 ÷ 49 = 453

Therefore Answer = 453

Alternate Method

Given:

Group A: 21 members, avg = 465; Group B: 11 members, avg = 410; Group C: 17 members, avg = 466

Formula used:

Overall Average = (Σ (number × average)) ÷ Total number

Calculation:

=> Total amount of A = 21 × 465 = 9765

=> Total amount of B = 11 × 410 = 4510

=> Total amount of C = 17 × 466 = 7922

=> Total amount = 9765 + 4510 + 7922 = 22197

=> Total members = 21 + 11 + 17 = 49

=> Overall average = 22197 ÷ 49

=> = 453

Therefore The correct answer is 453.

Additional Information

Weighted Average

When groups have different sizes, use weighted average instead of simple average.

Formula

Average = (Σ wx) ÷ Σ w

Shortcut Tip

Multiply group average with its size, then divide by total members.

Use Case

Useful in combining averages of different groups

Q57. Answer: (c) Charles Babbage

The correct answer is Charles Babbage.

Key Points

• Charles Babbage, an English mathematician and inventor, is widely recognized as the "Father of the Computer" for his pioneering work in conceptualizing and designing the first mechanical computers.

• In 1822, Babbage proposed and began developing the Difference Engine, a mechanical calculator designed to tabulate polynomial functions and calculate mathematical tables automatically, reducing human error.

• His most ambitious project, the Analytical Engine, designed around 1837, is considered the first design for a general-purpose computer. It incorporated key concepts of modern computing, such as an Arithmetic Logic Unit (ALU), control flow in the form of conditional branching and loops, and integrated memory.

• The Analytical Engine used punched cards (inspired by the Jacquard loom) for input, which allowed it to be programmed to perform various mathematical operations rather than being fixed to a single task.

• Although Babbage was never able to complete a full-scale working version of his machines during his lifetime due to funding issues and technical limitations of the 19th century, his detailed drawings and logic laid the essential groundwork for the digital revolution in the 20th century.

Additional Information

• Blaise Pascal:

• In 1642, at the age of 19, the French mathematician Blaise Pascal invented the Pascaline.

• The Pascaline was the first mechanical calculator capable of performing addition and subtraction directly. It utilized a series of gears and wheels and was primarily used by his father, a tax collector, to ease complex calculations.

• Alan Turing:

• Commonly referred to as the "Father of Modern Computing" and "Father of Artificial Intelligence", Alan Turing was a British polymath.

• He formulated the concept of the Turing Machine in 1936, which provided the formal logic for how a computer processes symbols. During World War II, his work at Bletchley Park was instrumental in cracking the German Enigma code.

• John von Neumann:

• A Hungarian-American mathematician who proposed the von Neumann architecture in 1945.

• This architecture describes a stored-program computer where both instruction data and program data are stored in the same random-access memory (RAM). This remains the fundamental design for nearly all modern computers today.

• Ada Lovelace:

• An English mathematician known for her work on Babbage's Analytical Engine.

• She is widely regarded as the world's first computer programmer because she wrote an algorithm intended to be processed by a machine, recognizing that the computer had applications beyond mere calculation.

Important Points

• Evolution of Computing: The transition from mechanical devices like the Abacus and Pascaline to electromechanical and eventually electronic digital computers like ENIAC (Electronic Numerical Integrator and Computer) was spurred by the logical foundations set by Babbage.

• Difference Engine No. 2: Between 1989 and 1991, the Science Museum in London successfully built a working version of Babbage's Difference Engine No. 2 using his original plans, proving that his designs were technically sound and accurate to within 31 decimal places.

• Technical Components: Babbage's designs identified four essential components found in modern systems: the "Store" (Memory), the "Mill" (Processor), the "Reader" (Input), and the "Printer" (Output).

Q58. Answer: (c) Globalization and privatization

The correct answer is Globalization and privatization.

Key Points

• Globalization refers to the increased interconnectedness of the world’s economies, cultures, and populations driven by international trade, investment, and technological advancements. In India, post-1991 economic reforms promoted globalization, which facilitated the entry of Indian corporations into global markets.

• The 1991 economic liberalization in India marked a turning point by dismantling the License Raj, reducing trade barriers, and encouraging private sector participation. This allowed companies like Reliance Industries and Tata Group to expand their operations domestically and internationally.

• With privatization, public sector undertakings were restructured, and private enterprises were encouraged to innovate and grow. This created a competitive environment for Indian companies to emerge as global players.

• Indian multinational corporations (MNCs) like Reliance and Tata leveraged the opportunities provided by globalization to diversify their operations, invest in advanced technologies, and enter new markets across sectors such as energy, telecommunications, steel, and IT services.

• The adoption of Foreign Direct Investment (FDI) policies post-liberalization attracted foreign investments and partnerships, which helped Indian MNCs scale up their operations and integrate into global supply chains.

Additional Information

• Economic Liberalization of 1991:

• India faced a severe balance of payments crisis in 1991, which led to the adoption of economic reforms under the leadership of Prime Minister P.V. Narasimha Rao and Finance Minister Dr. Manmohan Singh.

• The reforms included reducing import tariffs, removing restrictions on foreign investments, and disinvestment of public sector enterprises.

• This created a favorable business environment for domestic and foreign companies.

• Role of Tata Group and Reliance Industries:

• Tata Group: A pioneer in industries like steel, IT, and automobiles, Tata Group expanded globally by acquiring companies like Corus Steel and Jaguar Land Rover.

• Reliance Industries: Focused on energy, petrochemicals, and telecommunications, Reliance expanded its footprint through innovations like Jio, which revolutionized India's telecom sector.

• Impact of Globalization on Indian MNCs:

• Indian firms gained access to new markets, advanced technologies, and global partnerships.

• Globalization allowed Indian companies to compete internationally, leading to higher exports and investments abroad.

• Examples include Infosys and Wipro in IT services and Mahindra in automotive manufacturing.

• Government Initiatives:

• Policies like Make in India and Start-up India further encouraged entrepreneurship and global competitiveness of Indian enterprises.

• Special Economic Zones (SEZs) were established to attract investments and boost exports.

Important Points

• Globalization and privatization provided Indian MNCs with the tools and opportunities to expand globally, including access to international capital markets.

• Other options such as Continued government subsidies (Option 1) and Expansion of nationalized sectors (Option 2) primarily focus on state-led growth and are not directly related to the growth of Indian MNCs in the post-reform era.

• Growth in agricultural exports (Option 4) contributes to India's GDP but is not a significant factor in the expansion of Indian MNCs like Reliance and Tata Group.

Q59. Answer: (d) IPC (Instructions Per Cycle)

The correct answer is IPC (Instructions Per Cycle).

Key Points

• IPC (Instructions Per Cycle) is a performance metric that represents the average number of machine instructions a Central Processing Unit (CPU) can execute in a single clock cycle. It serves as a primary measure of a processor's microarchitecture efficiency. Hence, statement D is correct.

• The IPC of a CPU is not a fixed number; it varies based on the type of software code being run and the complexity of the instructions. Tasks involving simple integer math typically yield a higher IPC than complex floating-point operations.

• Modern high-performance CPUs utilize superscalar architecture, which allows them to execute more than one instruction per cycle by having multiple execution units (like ALUs) working in parallel.

• Factors that influence IPC include the size of the cache (L1, L2, and L3), the efficiency of the branch predictor, and the pipeline depth. A deeper pipeline may allow for higher clock speeds but can sometimes lower the IPC due to the penalty of branch mispredictions.

Additional Information

• Clock Speed: Measured in Gigahertz (GHz) or Megahertz (MHz), it indicates the number of pulses or cycles generated by an oscillator per second. While it tells us how fast the CPU "ticks," it does not reveal how much work is done during each tick. Hence, statement A is incorrect.

• Bus Speed: This refers to the frequency at which the Front Side Bus (FSB) or modern interconnects (like Intel's QPI or AMD's Infinity Fabric) communicate between the CPU and the Northbridge or System Memory (RAM). It determines the bandwidth available for data transfer rather than instruction execution. Hence, statement B is incorrect.

• Core Count: This is the number of independent processing cores integrated into a single computing component. While having more cores allows a computer to handle more threads simultaneously (parallelism), it is an aggregate measure of capacity rather than a per-cycle efficiency metric. Hence, statement C is incorrect.

• The Performance Formula: The overall speed of a CPU is determined by the product of Clock Speed and IPC. This explains why a modern 3.0 GHz processor can outperform an older 4.0 GHz processor from a previous decade; the newer architecture has a much higher IPC.

Important Points

• Historical Context: In the late 1990s and early 2000s, manufacturers primarily focused on clock speed (the Megahertz myth).

However, as power consumption and heat dissipation became issues, companies like Intel and AMD shifted focus toward improving IPC to gain performance without increasing power.

• MIPS vs IPC: MIPS (Millions of Instructions Per Second) is another way to measure CPU speed, but it is considered less reliable than IPC because it does not account for the complexity of different instruction sets (like RISC vs CISC).

• Bottlenecks: Even if a CPU has a high theoretical IPC, it can be limited by memory latency. If the data is not in the L1 cache, the CPU must wait hundreds of cycles to fetch it from RAM, causing the effective IPC to drop.

Q60. Answer: (d) State of Tamil Nadu vs Governor of Tamil Nadu

The correct answer is State of Tamil Nadu vs Governor of Tamil Nadu.

Key Points

• The case State of Tamil Nadu vs Governor of Tamil Nadu was pivotal in addressing the issue of timelines for the Governor's assent to state bills under Article 200 of the Indian Constitution.

• This case led to the 16th Presidential Reference under Article 143, which sought clarity on whether the Governor could indefinitely delay or withhold assent to state legislation.

• The Supreme Court ruled that while the Governor has discretionary powers, these must be exercised within a reasonable timeframe to uphold legislative and constitutional processes.

• The judgment emphasized the importance of cooperative federalism and directed that Governors should act in accordance with the principle of good governance, ensuring no arbitrary delays in assent.

• This landmark ruling, delivered in April 2025, reinforced accountability and clarified the relationship between the state legislature and the Governor's constitutional role.

Additional Information

• Article 200 of the Indian Constitution:

• Article 200 deals with the Governor's powers to grant assent, withhold assent, or reserve state bills for the President's consideration.

• The Governor must consider the bill's compliance with constitutional provisions before granting assent.

• It is an important article that safeguards the federal structure by ensuring checks and balances between state legislation and the central authority.

• Article 143:

• Article 143 allows the President of India to seek the advisory opinion of the Supreme Court on matters of public importance or constitutional interpretation.

• Presidential references under this article ensure clarity on constitutional ambiguities, as was the case in the 16th Presidential Reference.

• This mechanism strengthens judicial intervention in maintaining constitutional propriety.

• Governor's Role:

• The Governor acts as the constitutional head of the state and is appointed by the President of India.

• He/she plays a dual role, representing the state in the Union structure and acting as a bridge between the state and central governments.

• The Governor's assent to bills is a critical step in the legislative process, ensuring compliance with constitutional mandates.

• Impact of the Case:

• The judgment highlighted the significance of avoiding delays in governance and legislative processes.

• It established that the Governor's discretion must align with constitutional principles and the ethos of democracy.

• This ruling helped streamline administrative practices and reinforced the accountability of Governors in legislative matters.

• Examples of Similar Cases:

• Nabam Rebia vs Deputy Speaker, Arunachal Pradesh: Addressed the discretionary powers of Governors in legislative matters.

• S.R. Bommai vs Union of India: Analyzed the role of Governors in dismissing state governments and applying Article 356.

• Kaiser-I-Hind Pvt. Ltd. vs National Textile Corporation: Focused on corporate governance and legal compliance, unrelated to state bills.

Important Points

• Significance of Article 143: Presidential references under Article 143 have been crucial in resolving constitutional disputes and clarifying legal ambiguities.

• Governor's Accountability: The judgment reinforced the idea that Governors must act within reasonable timelines to maintain the integrity of legislative processes.

• Cooperative Federalism: The case emphasized the importance of harmonious relations between the state and central governments in legislative matters.

• Judicial Precedent: Landmark rulings like this serve as guiding principles for future cases involving constitutional interpretation

and governance issues.

Q61. Answer: (c) 2

The logic followed here is:

Given:

TOUR → 4791

FORT → 1279

Hence, the code for F is 2.

Hence, the correct answer is Option 3.

Q62. Answer: (d) Two

The logic followed here is:

Given series: (Left) 2 < 8 5 8 7 4 9 $ % % % & @ ? & @ 5 9 6 ? (Right)

Now,

We need numbers which are immediately preceded by a number and immediately followed by a symbol.

So, needed pattern is: Number - Number - Symbol

(Left) 2 < 8 5 8 7 4 9 $ % % % & @ ? & @ 5 9 6 ? (Right)

Total valid cases = 2

Hence, the correct answer is Option 4.

Q63. Answer: (c) Anglo-Persian capture of Hormuz (1622)

The correct answer is Anglo-Persian capture of Hormuz (1622).

Key Points

• The Anglo-Persian capture of Hormuz in 1622 was a decisive military campaign where the English East India Company joined forces with the Safavid Empire of Persia (under Shah Abbas I) to expel the Portuguese from the Island of Hormuz. This event was the primary signal of the decline of Portuguese naval supremacy in the Indian Ocean. Hence, Option C is the correct answer.

• The Battle of Plassey took place in 1757 between the British East India Company and the Nawab of Bengal (supported by the French). While it established British political hegemony in India, it occurred over a century after the Portuguese power had already waned. Hence, statement A is incorrect.

• The Treaty of Aix-la-Chapelle was signed in 1748 to end the War of the Austrian Succession. In the context of India, it concluded the First Carnatic War between the English and the French, returning Madras to the British. It did not directly involve the decline of the Portuguese. Hence, statement B is incorrect.

• The Establishment of Madras by the English occurred in 1639 when Francis Day obtained a grant from the Raja of Chandragiri. While it represented British growth, the strategic naval defeat at Hormuz earlier in 1622 was the specific turning point that broke the Portuguese commercial monopoly. Hence, statement D is incorrect.

• The loss of Hormuz meant the Portuguese lost control of the Persian Gulf, which was a vital "choke point" for trade. This allowed the Dutch East India Company (VOC) and the English to aggressively expand their influence in the spice and textile trades.

Additional Information

• Portuguese Arrival and Rule: The Portuguese were the first Europeans to reach India via the sea route when Vasco da Gama arrived at Calicut in 1498. They established their headquarters at Goa in 1510 under Alfonso de Albuquerque. Their power was maintained through the Cartaz System, a naval license or pass issued to merchant ships to control sea trade.

• The Rise of the Dutch (VOC): The United East India Company of the Netherlands was formed in 1602. The Dutch focused on the East Indies (modern-day Indonesia) but also established factories in India at Masulipatnam (1605), Pulicat (1610), and Surat (1616). Their superior naval technology and financial backing posed a direct threat to Portuguese strongholds.

• English East India Company Growth: Following the Battle of Swally in 1612, where Captain Best defeated a Portuguese fleet, the English gained the favor of the Mughal Emperor Jahangir. This led to the establishment of their first permanent factory at Surat in 1613.

• Strategic Locations: By the mid-17th century, the Portuguese were restricted to small enclaves like Goa, Daman, and Diu, while the British developed the three major presidencies of Bombay, Madras, and Calcutta.

Important Points

• Battle of Swally (1612): This was a small naval engagement off the coast of Surat. Though minor, it is historically significant because it convinced Mughal authorities that the English could provide a naval counter-balance to the Portuguese.

• Religious Policy: One major reason for the decline of Portuguese influence was their aggressive proselytization and religious intolerance, which alienated both Hindu and Muslim rulers in India, unlike the initially purely commercial approach of the English and Dutch.

• The Dutch-Portuguese War: A global conflict spanning the 17th century where the Dutch systematically seized Portuguese

YourMockTest.com — Free Study Material

colonies in Ceylon (Sri Lanka), Malacca, and the Malabar Coast (notably Cochin in 1663).

Q64. Answer: (c) 4% with a tolerance of ±2%

The correct answer is 4% with a tolerance of ±2%.

Key Points

• The Government of India, in consultation with the Reserve Bank of India (RBI), has fixed the inflation target at 4% with a tolerance band of +/- 2%. This means the target range is effectively 2% to 6%.

• This specific target was originally set for the period of August 5, 2016, to March 31, 2021, and was subsequently retained for the next five-year period from April 1, 2021, to March 31, 2026.

• The target is based on the Consumer Price Index (CPI), specifically the CPI-Combined index, which measures the average change in prices paid by consumers for a basket of goods and services.

• The Monetary Policy Committee (MPC) is statutory and institutionalized under the Reserve Bank of India Act, 1934, to maintain price stability while keeping in mind the objective of economic growth.

• If the inflation remains above 6% or below 2% for 3 consecutive quarters, it is considered a failure of the monetary policy framework.

Additional Information

• Legal Framework: The framework for Flexible Inflation Targeting (FIT) was established following an amendment to the Reserve Bank of India Act, 1934, through the Finance Act, 2016. This provided a statutory basis for the conduct of monetary policy in India.

• Committee Composition: The Monetary Policy Committee (MPC) consists of 6 members. This includes 3 members from the Reserve Bank of India (including the Governor and Deputy Governor) and 3 external members appointed by the Central Government based on the recommendations of a search-cum-selection committee.

• Urjit Patel Committee: The shift towards inflation targeting was primarily based on the recommendations of the Urjit Patel Committee report submitted in January 2014, which suggested that CPI should be the anchor of monetary policy.

• Operational Instrument: The Policy Repo Rate is the main instrument used by the MPC to keep the inflation within the target band. Changes in the repo rate influence the overall interest rates in the economy.

• Accountability: Under Section 45ZN of the RBI Act, if the RBI fails to meet the inflation target, it must set out in a report to the Central Government the reasons for the failure and the remedial actions proposed to be taken, along with an estimated time period within which the target shall be achieved.

Important Points

• Meeting Frequency: The MPC is required to meet at least four times a year. The decisions are made by a majority vote, and the Governor of the RBI has a casting vote in the event of a tie.

• Transparency: The RBI is mandated to publish a Monetary Policy Report every six months, explaining the sources of inflation and the forecasts for the next 6 to 18 months.

• Economic Impact: Maintaining price stability (low and stable inflation) is crucial for macroeconomic stability, as it helps in protecting the purchasing power of the rupee and encourages investment and savings within the country.

• Historical Context: Prior to the 2016 amendment, India followed a "multiple indicator approach," but the high inflation levels during 2009-2013 necessitated a move toward a more focused nominal anchor.

Q65. Answer: (d) kg m s^(–1)

The correct answer is kg m s^(–1).

Key Points

• Momentum is a fundamental concept in physics, defined as the quantity of motion an object possesses. It is mathematically expressed as the product of an object's mass and its velocity (p = m × v).

• To determine the SI unit of momentum, we analyze the basic units of the physical quantities involved. The SI unit for mass is the kilogram (kg), and the SI unit for velocity is meters per second (m/s or m s^(–1)).

• By multiplying these base units (kg and m s^(–1)), we derive the SI unit for momentum as kg m s^(–1). Hence, option D is correct.

• Momentum is a vector quantity, meaning it possesses both magnitude and direction. The direction of the momentum vector is always the same as the direction of the velocity of the object.

• The unit kg m s^(–2) represents the Newton (N), which is the SI unit of Force, not momentum. Hence, statement/option B is incorrect.

• The unit g m s^(–1) is a metric unit but not the standard International System of Units (SI) unit, as the SI system requires mass to be in kilograms. Hence, statement/option A is incorrect.

Additional Information

• Newton's Second Law of Motion: This law states that the force applied to an object is equal to the rate of change of its momentum (F = dp/dt). This establishes a direct relationship between force, mass, and acceleration.

• Law of Conservation of Momentum: In the absence of an external force, the total momentum of a closed system remains constant. This principle is vital in analyzing collisions and explosions, where the initial momentum equals the final momentum.

• Impulse: Impulse is defined as the change in momentum of an object when a force acts upon it for an interval of time. The SI unit for impulse is the Newton-second (N s), which is dimensionally equivalent to kg m s^(–1).

• Factors Affecting Momentum:

• Mass: If two objects travel at the same velocity, the one with the higher mass will have greater momentum. For example, a truck has more momentum than a bicycle moving at the same speed.

• Velocity: If two objects have the same mass, the one with the higher velocity will have more momentum. A bullet, despite its small mass, has immense momentum due to its extremely high velocity.

• Applications: The concept of momentum is used in designing safety features in vehicles, such as airbags and crumple zones, which aim to increase the time over which the momentum changes during a crash, thereby reducing the impact force.

Important Points

• The CGS unit of momentum is g cm s^(–1) (gram-centimeter per second).

• In Relativistic Mechanics, the formula for momentum changes as the velocity approaches the speed of light (c), incorporating the Lorentz factor.

• The dimensions of momentum are [M L T^(–1)].

• An object at rest has a velocity of zero, and therefore its momentum is also zero, regardless of its mass.

Q66. Answer: (a) Three

The logic followed here is:

Given: Seven people B, C, D, O, P, Q and R are sitting around a circular table facing the centre.

Only one person sits between P and B when counted from the right of P.

O sits third to the left of Q.

C sits third to the left of D.

Q sits to the immediate right of C.

R is not an immediate neighbor of C.

So between R and B, there are three people.

Hence, the correct answer is "Option 1".

Q67. Answer: (c) Cottage industries on an individual or cooperative basis in rural areas

The correct answer is Cottage industries on an individual or cooperative basis in rural areas.

Key Points

• Article 43 of the Constitution of India explicitly states that the State shall endeavor to promote cottage industries on an individual or cooperative basis in rural areas. This is a direct reflection of the Gandhian ideology of rural self-sufficiency and economic decentralization. Hence, the statement regarding cottage industries is correct.

• The Gandhian principles within the Directive Principles of State Policy (DPSP) represent the program of reconstruction enunciated by Mahatma Gandhi during the national movement. These principles aim to empower the rural population and promote local self-government.

• Promotion of corporate farming or large-scale industrialization in urban areas does not align with the Gandhian focus on the "village-level economy." Gandhi believed that India's soul lives in its villages, and thus economic activities should be centered around village-level production. Hence, options A and B are incorrect.

• The emphasis on cooperative basis ensures that the workers or artisans have collective ownership and bargaining power, preventing exploitation by middlemen or large corporations. This aligns with the Gandhian concept of Trusteeship and Swadeshi.

• The State is expected to provide financial assistance, technical training, and marketing support to these small-scale rural units to ensure they can compete and provide a sustainable livelihood to the rural masses.

Additional Information

• Classification of DPSP: The Directive Principles of State Policy, contained in Part IV (Articles 36 to 51), are generally classified into three categories: Socialistic Principles, Gandhian Principles, and Liberal-Intellectual Principles.

• Other Gandhian Principles in DPSP:

• Article 40: To organize village panchayats and endow them with such powers and authority as may be necessary to enable them to function as units of self-government.

• Article 43B: To promote voluntary formation, autonomous functioning, democratic control, and professional management of co-operative societies (Added by the 97th Constitutional Amendment Act, 2011).

• Article 46: To promote the educational and economic interests of Scheduled Castes (SCs), Scheduled Tribes (STs), and other weaker sections of the society.

• Article 47: To prohibit the consumption of intoxicating drinks and drugs which are injurious to health.

• Article 48: To prohibit the slaughter of cows, calves, and other milch and draught cattle and to improve their breeds.

• Significance of Cottage Industries: These industries are characterized by low capital investment, use of local raw materials, and employment of family labor. They are vital for rural development in a country like India where a large portion of the population resides in villages.

• Nature of DPSP: These principles are non-justiciable in nature, meaning they are not legally enforceable by the courts for their violation (Article 37). However, they are fundamental in the governance of the country, and it is the duty of the State to apply these principles in making laws.

Important Points

• Source of DPSP: The concept of Directive Principles of State Policy was borrowed from the Irish Constitution of 1937, which had copied it from the Spanish Constitution.

• Objective: The primary goal of these directives is to establish a Welfare State in India and to ensure Social and Economic Democracy, supplementing the Political Democracy established by the Fundamental Rights.

• Constitutional Status: In the Minerva Mills case (1980), the Supreme Court held that the Indian Constitution is founded on the bedrock of the balance between the Fundamental Rights and the Directive Principles.

• Implementation: Various government schemes like the Kadi and Village Industries Commission (KVIC), established in 1956, were created to fulfill the mandate of Article 43 and promote rural entrepreneurship.

Q68. Answer: (a) 38

Shortcut Trick

Total distance = (20×90) + (65×60)

= 1800 + 3900 = 5700 m

Total time = 90 + 60 = 150 min

Average speed = 5700 ÷ 150 = 38

Therefore Answer = 38 m/min

Alternate Method

Given:

Speed1 = 20 m/min, Time1 = 90 min; Speed2 = 65 m/min, Time2 = 60 min

Formula used:

Average speed = Total Distance ÷ Total Time

Calculation:

=> Distance1 = 20 × 90 = 1800 m

=> Distance2 = 65 × 60 = 3900 m

=> Total distance = 1800 + 3900 = 5700 m

=> Total time = 90 + 60 = 150 min

=> Average speed = 5700 ÷ 150

=> = 38 m/min

Therefore The correct answer is 38 m/min.

Additional Information

Average Speed

Average speed = Total distance ÷ Total time

Key Tip

When time is different, do NOT take simple average of speeds

Distance Formula

Distance = Speed × Time

Common Mistake

(20 + 65)/2 is incorrect here because time intervals differ

Q69. Answer: (c) Thursday

Given: Each of L, M, N, O, A, B and C has an exam on a different day of a week starting from Monday to Sunday.

L has exam on Wednesday.

No one has exam before N.

Only three people have exams between N and O.

Only one person has exam between O and M.

B is after C but before A.

Day	Person
Monday	N
Tuesday	C
Wednesday	L
Thursday	B
Friday	O
Saturday	A
Sunday	M

Now, B has exam on Thursday

Hence, the correct answer is "Option 3".

Q70. Answer: (c) 30

BODMAS Table:

Given equation: 13 B 2 C 6 D 8 A 4 = ?

Now, if, A stands for '÷', B stands for '×', C stands for '+' and D stands for '−'

=> 13 × 2 + 6 − 8 ÷ 4

=> 13 × 2 = 26

=> 8 ÷ 4 = 2

=> 26 + 6 − 2

=> 32 − 2

=> 30

Hence, the correct answer is "Option 3".

Q71. Answer: (a) Tripartite

The correct answer is Tripartite.

Key Points

• The term Tripartite Struggle is used to describe the prolonged conflict between the three major powers of the early medieval period: the Gurjara-Pratiharas, the Palas, and the Rashtrakutas.

• The primary cause of this conflict was the desire to control Kannauj, a city in Northern India that served as a symbol of imperial sovereignty since the reign of Harsha Vardhana.

• This struggle for supremacy lasted for nearly two centuries, beginning in the late 8th century AD and continuing into the 10th century AD.

• Control over Kannauj meant control over the fertile and resource-rich Gangetic Valley, providing significant economic and strategic advantages to the ruling dynasty.

• While different dynasties gained temporary control over the city at various times, the continuous warfare eventually exhausted the resources of all three empires, leading to their eventual disintegration.

Additional Information

• Gurjara-Pratiharas:

• They were based in Western India and Marwar, primarily around Rajasthan and Gujarat.

• Prominent rulers like Vatsaraja and Nagabhata II were key figures in the early stages of the Tripartite Struggle.

• The dynasty reached its peak under Mihira Bhoja in the 9th century, who successfully established a vast empire in North India.

• Palas:

• The Pala Empire was located in Eastern India, specifically in the regions of Bengal and Bihar.

• Founded by Gopala around 750 AD, the dynasty became a major power under Dharmapala and Devapala.

• They were great patrons of Buddhism and established institutions like Vikramshila University.

• Rashtrakutas:

• The Rashtrakuta Dynasty ruled from the Deccan region in South India, with their capital at Manyakheta.

• Rulers like Dhruva Dharavarsha and Govinda III frequently conducted military expeditions into North India to assert their dominance.

• They were known for their contributions to art and architecture, most notably the Kailasa Temple at Ellora.

YourMockTest.com — Free Study Material

Important Points

• The struggle effectively began around 783 AD when the Pratihara ruler Vatsaraja defeated the Pala ruler Dharmapala, only to be subsequently defeated by the Rashtrakuta king Dhruva.

• Kannauj's strategic location on the Ganges made it a hub for trade and commerce, which was a major motivation for the inland powers.

• The constant state of warfare prevented the establishment of a single stable empire in India for a long time, which eventually made the subcontinent vulnerable to foreign invasions from the Northwest.

• By the middle of the 10th century, the Rashtrakutas declined, the Palas were limited to small parts of Bengal, and the Gurjara-Pratiharas fragmented into several smaller Rajput principalities.

Q72. Answer: (d) 10 + 5 √3

Shortcut Trick

30°–60°–90° triangle ratio = 1 : √3 : 2

Opposite 30° = AB = 5 => scale factor = 5

Hypotenuse AC = 2×5 = 10

Base BC = 5√3

AC + BC = 10 + 5√3

Therefore Answer = 10 + 5√3

Alternate Method

Given:

angle B = 90°, angle C = 30°, AB = 5 cm

Formula used:

In 30°–60°–90° triangle: sides are in ratio 1 : √3 : 2

B A C 5 BC AC 30°

AB is opposite 30° => smallest side

So ratio scaling factor = 5

Calculation:

=> AC = 2 × 5 = 10

=> BC = √3 × 5 = 5√3

=> AC + BC = 10 + 5√3

Therefore The correct answer is 10 + 5√3 cm.

Additional Information

30°–60°–90° Triangle

Sides are in ratio 1 : √3 : 2 (opposite 30°, opposite 60°, hypotenuse)

Trigonometric Relation

sin30° = 1/2 => opposite/hypotenuse

Right Triangle

Hypotenuse is always opposite 90° angle

Scaling Method

Multiply standard ratio by known side to get all sides

Q73. Answer: (b) 93.2%

Shortcut Trick

Let MP = 100

SP1 = 3/10 of 100 = 30

Loss 16% => SP1 = 84% of CP => CP = 30 ÷ 0.84 = 35.714...

SP2 = 69% of MP = 69

Profit % = [(69 − 35.714)/35.714] × 100 ≈ 93.2%

Therefore Answer ≈ 93.2%

Alternate Method

Given:

Selling at 3/10 MP gives 16% loss; selling at 69% MP → find profit %

Formula used:

SP = CP × (1 − loss/100), Profit % = (SP − CP)/CP × 100
Calculation:
=> Let MP = 100
=> SP1 = 3/10 × 100 = 30
=> 30 = 84% of CP => 30 = 0.84CP
=> CP = 30 ÷ 0.84 = 250/7 ≈ 35.714
=> SP2 = 69% of MP = 69
=> Profit = 69 − 250/7 = (483 − 250)/7 = 233/7
=> Profit % = (233/7) ÷ (250/7) × 100
=> = (233/250) × 100 = 93.2%
Therefore The correct answer is 93.2%.
Additional Information
Loss Relation
SP = CP × (1 − loss/100)
Profit Relation
Profit % = (Profit ÷ CP) × 100
Assumption Trick
Assume MP = 100 to simplify percentage calculations
Fraction to Percentage
3/10 = 30%, useful for quick substitution

Q74. Answer: (c) 29 : 26

Shortcut Trick
For similar triangles: Area ratio = (side ratio)²
=> Side ratio = √(841 : 676)
= 29 : 26
Altitudes follow same ratio
Therefore Answer = 29 : 26
Alternate Method
Given:
Areas = 841 cm² and 676 cm²
Formula used:
Area ratio = (corresponding sides ratio)²
Calculation:
=> Area ratio = 841 : 676
=> Side ratio = √(841/676)
=> = 29/26
=> Ratio = 29 : 26
=> Altitudes have same ratio as sides
Therefore The correct answer is 29 : 26.
Additional Information
Similar Triangles
All corresponding sides and altitudes are in same ratio
Area Relation
Area ratio = square of side ratio
Square Root Trick
Take square root of area ratio to get side ratio
Application
Used in scaling shapes and geometry problems

YourMockTest.com — Free Study Material

Q75. Answer: (c) BJO 35

The logic followed here is:

So, 'BJO 35' will replace the question mark in the given series.

Hence, the correct answer is "Option 3".

Q76. Answer: (d) Parliament

The correct answer is Parliament.

Key Points

• The Constitution (101st Amendment) Act, 2016, introduced the Goods and Services Tax (GST) regime in India, which officially came into force on 1 July 2017.

• Under Article 246A(2) of the Indian Constitution, the Parliament has been granted the exclusive power to make laws with respect to goods and services tax where the supply of goods, or of services, or both, takes place in the course of inter-state trade or commerce. Hence, the statement regarding Parliament's exclusive power over interstate trade is correct.

• While Article 246A(1) confers concurrent power upon both the Parliament and the State Legislatures to make laws with respect to GST levied by the Union or by such State, this concurrent power is limited to intra-state transactions.

• The Parliament exercised this exclusive power by enacting the Integrated Goods and Services Tax (IGST) Act, 2017, to regulate the tax on the movement of goods and services from one state to another.

• The President of India does not have the legislative power to make laws on GST but is responsible for constituting the GST Council under Article 279A. Hence, the option involving the President is incorrect.

Additional Information

• Article 269A: This article specifies that GST on supplies in the course of inter-state trade or commerce shall be levied and collected by the Government of India. This tax is then apportioned between the Union and the States based on the recommendations of the GST Council.

• The GST Council: Established under Article 279A, the council is a constitutional body chaired by the Union Finance Minister. It includes the Union Minister of State in charge of Revenue or Finance and the Finance Ministers of all states. It makes recommendations on tax rates, exemptions, and threshold limits.

• NITI Aayog: The National Institution for Transforming India is a policy think tank of the Government of India established on 1 January 2015. It does not possess legislative powers to enact tax laws like GST. Hence, the option involving NITI Aayog is incorrect.

• State Legislatures: Under the 101st Amendment, State Legislatures have the power to make laws for GST imposed by the State (SGST) for transactions within the state boundaries, but they lack the authority to legislate on inter-state supplies. Hence, the option involving State Legislatures as having exclusive power for interstate trade is incorrect.

Important Points

• Dual GST Model: India adopted a dual GST model (similar to Canada), meaning that GST is administered by both the Union and the State governments.

• Taxes Subsumed: The GST replaced several indirect taxes, including Central Excise Duty, Service Tax, Additional Customs Duty, State VAT, Entry Tax, and Luxury Tax.

• Destination-Based Tax: Unlike the previous origin-based taxation system, GST is a consumption-based or destination-based tax, meaning the revenue accrues to the state where the goods or services are finally consumed.

• Compensation to States: To ease the transition, the Parliament enacted the GST (Compensation to States) Act, 2017, guaranteeing compensation to states for any revenue loss for a period of 5 years (initially until June 2022).

Q77. Answer: (d) 11

The logic followed here is:

Given numbers: 442, 405, 297, 384, 316

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

Highest number = 442

→ Third digit = 2

Lowest number = 297

→ Second digit = 9

Result = 2 + 9 = 11

Hence, the correct answer is Option 4.

Q78. Answer: (a) 1620

Shortcut Trick

20% of number − 20% of 620 = 200

=> 20% of (Number − 620) = 200

=> 0.2(Number − 620) = 200

=> Number − 620 = 1000

=> Number = 1620

Therefore Answer = 1620

Alternate Method

Given:

20% of a number is more than 20% of 620 by 200

Formula used:

Percentage = (part ÷ whole) × 100

Calculation:

=> Let the number = x

=> 20% of x − 20% of 620 = 200

=> (20/100)x − (20/100)×620 = 200

=> 0.2x − 124 = 200

=> 0.2x = 324

=> x = 324 ÷ 0.2

=> x = 1620

Therefore The correct answer is 1620.

Additional Information

Percentage Concept

20% = 0.2, useful for simplifying equations

Linear Equation

Form equation using given condition and solve for unknown

Shortcut Idea

Factor out common percentage to simplify quickly

Check

20% of 1620 = 324, 20% of 620 = 124 => difference = 200

Q79. Answer: (a) Mandi district

The correct answer is Mandi district.

Key Points

• Location: Kalang village is situated in the Segli panchayat of the Mandi district, near the Parashar Hills.

• Incident: Following heavy monsoon rains in mid-July 2025, a massive landslide caused a stretch of nearly one kilometre below the village to sink, rendering the entire area unsafe for habitation.

• Action Taken: The Mandi district administration, under the supervision of Additional District Magistrate Madan Kumar, shifted 14 families to safer locations. They were provided with 17 temporary tents as a precautionary measure while long-term rehabilitation plans were assessed.

• Context: The village had been experiencing land sinking issues since 2023, but the situation became critical in July 2025 due to torrential rainfall.

Additional Information

• Geography of Kullu: The Kullu district is located at an average elevation of 1,279 meters (4,196 feet) and is drained by the Beas River. It is bordered by Lahaul and Spiti to the north and Mandi to the west.

• Landslide Vulnerability: According to the Landslide Atlas of India published by ISRO, the Kullu and Mandi districts are among the most landslide-prone areas in the country due to their tectonic activity and steep Himalayan slopes.

• Administrative Measures: The Himachal Pradesh State Disaster Management Authority (HPSDMA) utilizes satellite imaging and drones to monitor Kalang and other sensitive villages like Kalath and Kasan during the rainy season.

• Historical Context: Himachal Pradesh faced massive natural calamities in 2023 and 2024, leading the state government to implement stricter land-use regulations and hazard mapping under the State Disaster Management Plan.

• Rehabilitation Policy: The state provides ex-gratia payments and temporary rehabilitation grants to families displaced by natural disasters under the Revenue Training Manual and State Disaster Response Fund (SDRF) guidelines.

Important Points

• Early Warning Systems: The government has installed Automated Weather Stations (AWS) in Kullu to provide real-time data on rainfall intensity, helping predict flash floods and slope failures.

YourMockTest.com — Free Study Material

• National Disaster Management Act, 2005: The relocation process in Kalang was carried out under the legal framework of this Act, which empowers District Magistrates to evacuate people to save human lives.

• Seismic Zoning: Kullu district falls under Seismic Zone V (Very High Damage Risk Zone), which increases the likelihood of landslides being triggered even by minor earthquakes or tremors.

• Economic Impact: Frequent landslides in the Kullu region often block National Highway 3 (NH-3), which is the primary route connecting Manali to Leh, impacting tourism and military logistics.

Q80. Answer: (b) = QPU % = ONS

Given: # : LKP :: TSX : %

Option 1) # = QIV, % = OLL

For # (QIV) to LKP

For % (TSX → OLL)

Since, the shift is not uniform, Option 1 is incorrect.

Option 2) # = QPU, % = ONS

For # (QPU) to LKP

For % (ONS) from TSX

Since, both transformations follow a uniform ±5 shift pattern, Option 2 is correct.

Option 3) # = ISU, % = ONM

For # (ISU) to LKP

For % (ONM) from TSX

Since, the pattern is not consistent, Option 3 is incorrect.

Option 4) # = QNU, % = OIB

For # (QNU) to LKP

For % (OIB) from TSX

Since, # does not follow a uniform shift, Option 4 is incorrect.

Hence, the correct answer is "Option 2".

Q81. Answer: (d) Use of water as a coolant

The correct answer is Use of water as a coolant.

Key Points

• Thermal pollution is defined as the sudden increase or decrease in the temperature of a natural body of water, such as an ocean, lake, river, or pond, by human influence.

• In industrial processes, water is widely used as a coolant to remove excess heat from machinery and power-generating equipment. This is most common in thermal power plants, nuclear reactors, and oil refineries.

• Once the water has absorbed the heat, it is often discharged back into the environment at a significantly higher temperature than the ambient water temperature. Hence, the statement regarding the use of water as a coolant is correct.

• The primary biological impact is the reduction of dissolved oxygen (DO). As water temperature rises, its ability to hold oxygen decreases, which can lead to the suffocation of fish and other aquatic aerobic organisms.

• Sudden changes in temperature can cause thermal shock, leading to the mass mortality of vulnerable aquatic species that cannot adapt quickly to the new environment.

Additional Information

• Addition of Detergents: This primarily leads to chemical water pollution. Detergents often contain phosphates, which cause eutrophication—a process where excess nutrients lead to algal blooms that deplete oxygen. Hence, this statement is incorrect regarding thermal pollution.

• Release of Heavy Metals: Industrial waste containing mercury, lead, cadmium, and arsenic leads to toxic pollution. These substances cause bioaccumulation in the food chain, resulting in diseases like Minamata disease (mercury) or Itai-itai disease (cadmium). Hence, this statement is incorrect regarding thermal pollution.

• Suspended Solid Accumulation: This refers to physical pollution. High concentrations of suspended solids increase the turbidity of water, blocking sunlight and hindering the photosynthesis process of aquatic plants. Hence, this statement is incorrect regarding thermal pollution.

• Metabolic Impact: Increased temperatures increase the metabolic rate of aquatic organisms, causing them to consume more food in a shorter time than if their environment were at a natural temperature.

Important Points

• Legal Framework: In India, the Water (Prevention and Control of Pollution) Act, 1974, provides the legal framework to prevent and control water pollution, including industrial thermal discharge.

YourMockTest.com — Free Study Material

• Mitigation Strategies: Industries use cooling towers, cooling ponds, or artificial lakes to dissipate heat into the atmosphere through evaporation or radiation before the water is safely returned to natural bodies.

• Nuclear Power Plants: These facilities are major contributors to thermal pollution because they require vast quantities of water to cool their reactors. For example, plants located near coastal areas often discharge warm water directly into the ocean, affecting coral reefs and marine biodiversity.

• Environmental Standards: The Central Pollution Control Board (CPCB) sets specific temperature limits for industrial effluents to ensure that the temperature of the receiving water body does not rise by more than 5 degrees Celsius above the ambient level.

Q82. Answer: (a) x = 1, y = 3/2, z = 5/2

Shortcut Trick

From (3): x + y − z = 0 => x = z − y

Substitute in (2): 2(z − y) − y + z = 3 => 3z − 3y = 3 => z − y = 1

=> x = 1

Use (1): 1 + 4y + 2(y + 1) = 12 => 6y + 3 = 12 => y = 3/2

=> z = y + 1 = 5/2

Therefore Answer: x = 1, y = 3/2, z = 5/2

Alternate Method

Given:

x + 4y + 2z = 12

2x − y + z = 3

x + y − z = 0

Formula used:

Elimination method

Calculation:

=> From (3): x = z − y

=> Substitute in (2): 2(z − y) − y + z = 3

=> 2z − 2y − y + z = 3

=> 3z − 3y = 3 => z − y = 1

=> => z = y + 1

=> Then x = z − y = 1

=> Substitute in (1): 1 + 4y + 2(y + 1) = 12

=> 1 + 4y + 2y + 2 = 12

=> 6y + 3 = 12

=> 6y = 9 => y = 3/2

=> z = y + 1 = 5/2

Therefore The correct answer is x = 1, y = 3/2, z = 5/2.

Additional Information

Elimination Method

Eliminate one variable to reduce equations step-by-step.

Substitution Method

Express one variable in terms of others and substitute.

Consistency

System has unique solution when equations intersect at one point.

Check

Substitute values back to verify correctness.

Q83. Answer: (d) 93

The logic followed here is:

22 → 60

=> 22 × 3 − 6 = 60

27 → 75

=> 27 × 3 − 6 = 75

So, the pattern is:

Result = (Number × 3) − 6

Now, applying the same pattern for 33:

=> 33 × 3 − 6 = 99 − 6 = 93

Hence, the correct answer is Option 4.

Q84. Answer: (b) National Forest Policy, 1988

The correct answer is National Forest Policy, 1988.

Key Points

• Good Governance refers to the process of decision-making and the process by which decisions are implemented (or not implemented). It is characterized by accountability, transparency, responsiveness, equity and inclusiveness, effectiveness and efficiency, and the rule of law.

• Citizen Charter: It is a document that represents a systematic effort to focus on the commitment of the Organisation towards its Citizens in respect of Standard of Services, Information, Choice and Consultation, Non-discrimination and Accessibility, Grievance Redress, Courtesy, and Value for Money. It was first launched in India in May 1997. Hence, it is a document related to Good Governance.

• National Forest Policy, 1988: This policy was formulated to ensure environmental stability and maintenance of ecological balance, including atmospheric equilibrium, which are vital for the sustenance of all life forms. Its primary aim was to protect, conserve, and develop forests. It recommended that 33% of the total land area of the country should be under forest or tree cover. Hence, this is an environmental policy and NOT a primary document for administrative Good Governance.

• Second Administrative Reforms Commission (ARC): This commission was constituted on 31st August 2005, under the chairmanship of Veerappa Moily, to suggest measures to achieve a proactive, responsive, accountable, sustainable, and efficient administration for the country at all levels of the Government. Its 12th Report, titled "Citizen Centric Administration: The Heart of Governance," is a foundational text for Good Governance. Hence, it is a document related to Good Governance.

• Sevottam Model: The Department of Administrative Reforms and Public Grievances (DARPG) developed the Sevottam model in 2006. The word "Sevottam" is a combination of two Hindi words: Seva (Service) and Uttam (Excellent). It is a quality management framework applicable to public service delivery organizations to improve the quality of service to citizens. Hence, it is a document/model related to Good Governance.

Additional Information

• Origin of Citizen's Charter: The concept was first articulated and implemented in the United Kingdom by the Conservative Government of John Major in 1991 as a national programme.

• Components of Sevottam: The model has three modules:

• Citizen’s Charter: To specify the standards of service delivery.

• Public Grievance Redress Mechanism: To receive and settle complaints.

• Service Delivery Capability: To enhance the capacity of the organization to deliver what is promised.

• National Forest Policy Details: The 1988 policy replaced the previous 1952 policy. It emphasized Joint Forest Management (JFM), which involves the participation of local communities in the management and protection of forests.

• 8 Characteristics of Good Governance: According to the United Nations, the eight essential characteristics are: Participation, Rule of Law, Transparency, Responsiveness, Consensus Oriented, Equity and Inclusiveness, Effectiveness and Efficiency, and Accountability.

Important Points

• Right to Information (RTI) Act, 2005: This is another landmark legislation in India that promotes Good Governance by making the government accountable and transparent to the citizens.

• E-Governance: It is the application of Information and Communication Technology (ICT) for delivering government services. Initiatives like Digital India, PRAGATI (Pro-Active Governance and Timely Implementation), and UMANG app are modern tools for achieving Good Governance.

• Administrative Reforms Commission (ARC): The First ARC was set up in 1966 under Morarji Desai. The Second ARC (2005) gave 15 reports covering various aspects of governance, including Ethics in Governance and Right to Information.

• Minimum Government, Maximum Governance: This is a slogan and administrative philosophy adopted by the Government of India to reduce the interference of the state in the lives of citizens while improving the quality of service delivery.

Q85. Answer: (b) 450

Shortcut Trick

Ratio = 8 : 4 : 3 => coins = 8x, 4x, 3x

Total value = 8x×1 + 4x×2 + 3x×5

= 8x + 8x + 15x = 31x

31x = 930 => x = 30

YourMockTest.com – Free Study Material

Total coins = (8 + 4 + 3)x = 15×30 = 450
Therefore Answer = 450
Alternate Method
Given:
Coins of Rs. 1, Rs. 2, Rs. 5 in ratio 8 : 4 : 3, total value = Rs. 930
Formula used:
Total value = Σ (number of coins × value)
Calculation:
=> Let number of coins be 8x, 4x, 3x
=> Total value = 8x×1 + 4x×2 + 3x×5
=> = 8x + 8x + 15x = 31x
=> 31x = 930
=> x = 30
=> Total coins = 8x + 4x + 3x
=> = 15x = 15×30 = 450
Therefore The correct answer is 450.
Additional Information
Ratio Concept
Quantities in ratio can be written as multiples of a variable
Total Value
Multiply each type of coin by its value and add
Linear Equation
Form equation using total value and solve for x
Final Count
Add all quantities to get total number of coins

Q86. Answer: (b) 27.71 sq. cm.

Shortcut Trick
Area = $(\sqrt{3} / 4)a^2$
= $(\sqrt{3} / 4)\times64 = 16\sqrt{3}$
$\sqrt{3} \approx 1.732$
=> Area ≈ 16 × 1.732 = 27.71
Therefore Answer = 27.71 cm^2
Alternate Method
Given:
Side of equilateral triangle a = 8 cm
Formula used:
Area = $(\sqrt{3} / 4)a^2$
8 8 8
All sides equal
Height = $(\sqrt{3} / 2)a$
Calculation:
=> Area = $(\sqrt{3} / 4)\times8^2$
=> = $(\sqrt{3} / 4)\times64$
=> = $16\sqrt{3}$
=> ≈ 16 × 1.732
=> ≈ 27.71 cm^2
Therefore The correct answer is 27.71 cm^2.
Additional Information
Equilateral Triangle
All sides equal and each angle is 60°
Height Formula

Height = (√3 / 2)a
Area Formula
Area = (√3 / 4)a²
Approximation
Use √3 ≈ 1.732 for decimal answers

Q87. Answer: (a) OR−OU

The logic followed here is based on the alphabetical position pattern:
Option 1: OR – OU
Option 2: DG – EH
Option 3: RU – SV
Option 4: ZC – AD
Thus, OR – OU does not follow this pattern.
Hence, the odd one out is Option 1.

Q88. Answer: (a) 15/4

Shortcut Trick
Let √m = x => m = x²
Given: 2m = 5√m − 2 => 2x² = 5x − 2
=> 2x² − 5x + 2 = 0
Factor: (2x − 1)(x − 2) = 0 => x = 1/2, 2
m = x² => 1/4, 4 => difference = 4 − 1/4 = 15/4
Therefore The correct answer is 15/4 units.
Alternate Method
Given:
2m = 5√m − 2
Formula Used:
Substitute √m = x => m = x²
Calculations:
=> 2x² = 5x − 2
=> 2x² − 5x + 2 = 0
=> Factorization:
=> (2x − 1)(x − 2) = 0
=> x = 1/2 or x = 2
=> m = x²
=> m = (1/2)² = 1/4
=> m = (2)² = 4
=> Difference:
=> 4 − 1/4 = 15/4
Therefore The correct answer is 15/4 units.
Additional Information
Substitution Trick
When square root appears, set √m = x to convert into a quadratic equation.
Quadratic Factorisation
For ax² + bx + c = 0, split middle term or use (px + q)(rx + s).
Back Substitution
Always convert x back to original variable after solving.
Difference of Roots
After finding values, subtract smaller from larger carefully (use fractions if needed).

Q89. Answer: (c) 18 years

Shortcut Trick
Ratio = 3 : 4 => P = 3x, Q = 4x

YourMockTest.com — Free Study Material

After 6 years => (3x + 6)/(4x + 6) = 4/5

Cross multiply => 5(3x + 6) = 4(4x + 6)

=> 15x + 30 = 16x + 24 => x = 6

P = 3x = 18

Therefore Answer = 18 years

Alternate Method

Given:

Present ratio = 3 : 4, after 6 years ratio = 4 : 5

Formula used:

Age after n years = Present age + n

Calculation:

=> Let present ages be 3x and 4x

=> After 6 years: (3x + 6) and (4x + 6)

=> (3x + 6)/(4x + 6) = 4/5

=> 5(3x + 6) = 4(4x + 6)

=> 15x + 30 = 16x + 24

=> x = 6

=> Present age of P = 3x = 18

Therefore The correct answer is 18 years.

Additional Information

Ratio Method

Represent ages as multiples of a variable using ratio

Linear Equation

Form equation using new ratio and solve

Age Concept

Age increases equally for both persons over time

Shortcut Tip

Cross multiply directly to solve ratio equations quickly

Q90. Answer: (d) 56

The logic followed here is:

thus, "56" will replace the question mark in the given series.

Hence, the correct option is "Option 4".

Q91. Answer: (a) Article 226

The correct answer is Article 226.

Key Points

• Article 226 of the Constitution of India empowers the High Courts to issue directions, orders, or writs, including writs in the nature of Habeas Corpus, Mandamus, Prohibition, Quo Warranto, and Certiorari.

• The jurisdiction of the High Court under Article 226 is broader than that of the Supreme Court under Article 32 because it can be invoked not only for the enforcement of Fundamental Rights but also for "any other purpose."

• The phrase "any other purpose" refers to the enforcement of an ordinary legal right that is not necessarily a fundamental right. Hence, statement A is correct.

• This power allows the High Court to exercise control over administrative actions and ensures that government authorities act within the bounds of the law.

• The High Court can issue these writs to any person, authority, or government located within its territorial jurisdiction.

Additional Information

• Article 32 (Right to Constitutional Remedies):

• This article allows citizens to move the Supreme Court for the enforcement of Fundamental Rights (Part III of the Constitution).

• Dr. B.R. Ambedkar famously described Article 32 as the "Heart and Soul of the Constitution."

• Unlike Article 226, the Supreme Court's power under this article is limited only to Fundamental Rights and cannot be used for ordinary legal rights. Hence, statement D is incorrect.

• Article 227 (Power of Superintendence):

YourMockTest.com — Free Study Material

• Every High Court has the power of superintendence over all courts and tribunals throughout the territories in relation to which it exercises jurisdiction.

• This includes both administrative and judicial superintendence, ensuring that subordinate courts function according to the law. Hence, statement C is incorrect.

• Article 245 (Extent of Legislative Powers):

• This article deals with the territorial extent of laws made by Parliament and by the Legislatures of States.

• It specifies that Parliament may make laws for the whole or any part of the territory of India, and the State Legislature for the whole or any part of the State. Hence, statement B is incorrect.

Important Points

• Comparison of Writ Jurisdictions:

• While the Supreme Court's writ jurisdiction extends to the entire country, the High Court's jurisdiction is limited to its state or union territory.

• However, the subject matter jurisdiction of the High Court is wider (Fundamental Rights + Legal Rights) compared to the Supreme Court (Fundamental Rights only).

• Nature of the Power:

• The remedy under Article 32 is itself a Fundamental Right, meaning the Supreme Court cannot refuse to exercise its power.

• In contrast, the remedy under Article 226 is discretionary, meaning the High Court may refuse to grant relief if an alternative remedy exists.

• Judicial Review:

• The power of judicial review under Article 226 and Article 32 is considered a basic feature of the Constitution as per the L. Chandra Kumar case (1997), and it cannot be excluded even by a constitutional amendment.

Q92. Answer: (b) Gopal Krishna Gokhale

The correct answer is Gopal Krishna Gokhale.

Key Points

• The Servants of India Society was formed in Pune, Maharashtra, on June 12, 1905, by Gopal Krishna Gokhale, who was a prominent leader of the Indian National Congress.

• The primary objective of the society was to train national missionaries for the service of India and to promote, by all constitutional means, the true interests of the Indian people.

• Members of the society had to take seven vows, which included a commitment to serve the nation without personal gain, lead a simple life, and work for the communal harmony of all Indians regardless of caste or creed.

• The society focused heavily on education, sanitation, and healthcare, and it worked to eradicate social evils like untouchability and poverty.

• After the death of Gopal Krishna Gokhale in 1915, Srinivasa Sastri took over as the president of the society, continuing its mission of social reform and welfare.

Additional Information

• Gopal Krishna Gokhale:

• He was known as the political guru of Mahatma Gandhi and was a moderate leader of the Indian National Congress.

• He presided over the Banaras Session of the Indian National Congress in 1905.

• He played a crucial role in the introduction of the Morley-Minto Reforms of 1909, advocating for greater Indian representation in the government.

• Bipin Chandra Pal:

• Known as the Father of Revolutionary Thoughts in India, he was a key member of the Lal-Bal-Pal triumvirate.

• He advocated for Swadeshi (self-reliance) and the boycott of foreign goods during the Swadeshi Movement of 1905.

• Lala Lajpat Rai:

• Commonly referred to as Punjab Kesari (Lion of Punjab), he was another pillar of the Extremist faction of the Congress.

• He founded the Servants of the People Society in 1921 in Lahore, which should not be confused with Gokhale's society.

• Dadabhai Naoroji:

• Known as the Grand Old Man of India, he was the first Indian to be elected to the British House of Commons.

• He formulated the Drain Theory in his book "Poverty and Un-British Rule in India", explaining how Britain was siphoning wealth from India.

Important Points

• The society published a daily newspaper called The Hitavada starting from 1911 to spread its views on social and political reforms.

• Unlike many other organizations of that time, the Servants of India Society remained secular in its approach, refusing to align

with any specific religious identity.

• It established various schools, libraries, and ashrams for the underprivileged, particularly focusing on tribal welfare and rural development in states like Uttar Pradesh, Odisha, and Gujarat.

• The society still exists today with its headquarters in Pune, continuing to work in the fields of education and social service.

Q93. Answer: (c) 40%

Shortcut Trick

Final amount = 5P => Interest = 4P

Simple Interest = (P×R×T)/100

=> 4P = (P×R×10)/100

=> 4 = R/10 => R = 40%

Therefore Answer = 40%

Alternate Method

Given:

Amount becomes 5 times in 10 years

Formula used:

SI = (P×R×T)/100, Amount = P + SI

Calculation:

=> Let principal = P

=> Amount = 5P => SI = 5P − P = 4P

=> SI = (P×R×10)/100

=> 4P = (P×R×10)/100

=> 4 = R/10

=> R = 40%

Therefore The correct answer is 40% per annum.

Additional Information

Simple Interest Formula

SI = (P × R × T)/100

Amount Relation

Amount = Principal + Interest

Shortcut Insight

If amount becomes n times, interest = (n − 1)P

Direct Relation

R = (Interest × 100)/(P × T)

Q94. Answer: (d) = TSQ, % = HGE

Given: # : POM :: LKI : %

Option 1) # = TJQ, % = HFL

For # (TJQ) to POM

For % (LKI → HFL)

Since, the shift is not uniform, Option 1 is incorrect.

Option 2) # = SRP, % = GFE

For # (SRP) to POM

For % (LKI → GFE)

Since, the shift is not consistent in both transformations, Option 2 is incorrect.

Option 3) # = RTP, % = GFM

For # (RTP) to POM

For % (LKI → GFM)

Since, the pattern is not consistent, Option 3 is incorrect.

Option 4) # = TSQ, % = HGE

For # (TSQ) to POM

For % (LKI → HGE)

YourMockTest.com — Free Study Material

Since, both transformations follow a uniform −4 shift pattern, Option 4 is correct.

Hence, the correct answer is "Option 4".

Q95. Answer: (d) 50

Shortcut Trick

Total work (food) = Men × Days = 100 × 26 = 2600

Remaining men = 100 − 48 = 52

Days = 2600 ÷ 52

= 50 days

Therefore Answer = 50 days

Alternate Method

Given:

100 men → 26 days, 48 men leave

Formula used:

Total work = Men × Days (constant)

Calculation:

=> Total work = 100 × 26 = 2600 man-days

=> Remaining men = 100 − 48 = 52

=> Days = Total work ÷ Remaining men

=> = 2600 ÷ 52

=> = 50 days

Therefore The correct answer is 50 days.

Additional Information

Man-Days Concept

Total work remains constant when resources are fixed

Inverse Relation

More men => fewer days, fewer men => more days

Formula

Men1 × Days1 = Men2 × Days2

Shortcut Tip

Use total man-days to avoid proportion errors

Q96. Answer: (a) Maharashtra

The correct answer is Maharashtra.

Key Points

• Warli painting is a traditional tribal art form that originates from the state of Maharashtra, specifically practiced by the Warli tribe residing in the North Sahyadri Range.

• The art form is considered one of the oldest in India, with roots dating back as far as the 10th century AD, though its popularity grew significantly in the modern era.

• It is characterized by the use of rudimentary geometric shapes: the circle (representing the sun and the moon), the triangle (derived from mountains and pointed trees), and the square (indicating a sacred enclosure or a piece of land).

• The central theme of these paintings is the depiction of social life, nature, and rituals rather than mythological characters or deities, which distinguishes it from many other folk arts in India.

• The Tarpa dance is a frequent subject, where the community is shown dancing in circles around a musician playing a Tarpa instrument, symbolizing the circle of life.

Additional Information

• Materials and Colors: The paintings are traditionally done on a red ochre (earthy) background made of mud and cow dung. The only color used for the figures is white, which is a mixture of rice paste and water with gum as a binding agent.

• Technique: The artists do not use modern brushes; instead, they use a bamboo stick chewed at the end to give it the texture of a paintbrush.

• The Chauk: A significant element in Warli art is the Chauk or Chaukat, a square frame usually drawn for weddings. Inside the Chauk, the goddess Palaghata (the goddess of fertility) is depicted.

• Geographic Location: While primarily centered in the Palghar, Thane, and Nashik districts of Maharashtra, the Warli tribe and their art are also found in small pockets of Gujarat and the Union Territory of Dadra and Nagar Haveli.

YourMockTest.com — Free Study Material

• Global Recognition: The art form gained international fame through the efforts of Jivya Soma Mashe, who began practicing it as a daily pursuit in the 1970s, leading to his recognition with the Padma Shri award in 2011.

Important Points

• Legal Protection: Warli Art has been registered under the Geographical Indications of Goods (Registration and Protection) Act, 1999, ensuring that the intellectual property rights of the Warli tribe in Maharashtra are protected.

• Social Context: Traditionally, Warli paintings were created by women (known as Savasini) to decorate the walls of their huts during harvests and weddings.

• Style Similarity: The simplistic and linear style of Warli is often compared to the prehistoric rock shelter paintings found at Bhimbetka in Madhya Pradesh, highlighting its ancient aesthetic appeal.

• Modern Adaptation: In the 21st century, Warli motifs have moved beyond mud walls to fabrics, stationary, home decor, and murals in urban spaces like the Mumbai metro and public buildings.

Q97. Answer: (b) Father's father

Family Chart:

Decoding the Symbols:

Symbol	**•**	**–**	**×**	**÷**
Meaning	Husband	Mother	Sister	Father

Given: P + Q – R × S ÷ T

It means: P is the husband of Q, Q is the mother of R, R is the sister of S, S is the father of T.

So P is father’s father of T

Hence, the correct answer is "Option 2".

Q98. Answer: (c) 1

Given:

LCM(120, N) = 360

HCF(900, N) = 90

Formula Used:

LCM(a, b) × HCF(a, b) = a × b

Prime factorization method for LCM and HCF

Calculation:

=> 120 = $2^3 \times 3 \times 5$

=> 360 = $2^3 \times 3^2 \times 5$

=> 900 = $2^2 \times 3^2 \times 5^2$

=> 90 = $2 \times 3^2 \times 5$

=> For LCM(120, N) = 360

=> Power of 2 in N ≤ 3

=> Power of 3 in N = 2

=> Power of 5 in N ≤ 1

=> For HCF(900, N) = 90

=> Power of 2 in N = 1

=> Power of 3 in N ≥ 2

=> Power of 5 in N ≥ 1

=> Combine conditions:

=> Power of 2 = 1

=> Power of 3 = 2

=> Power of 5 = 1

=> N = $2 \times 3^2 \times 5$

=> N = 90

=> Number of possible values = 1

Therefore The correct answer is 1.

Q99. Answer: (a) People’s Republic of China

The correct answer is People’s Republic of China.

Key Points

• The People’s Republic of China secured the title at the ITTF Mixed Team World Cup held in Chengdu, maintaining their dominance in the sport of table tennis. The event is a prestigious international competition that brings together the world's best mixed teams.

• The tournament took place in December at the Sichuan Gymnasium in Chengdu, China. This city has been designated as the permanent host for the event from 2023 to 2027, reinforcing its status as a global hub for table tennis.

• In the final match, the Chinese team faced the Republic of Korea and emerged victorious with a convincing score of 8-1. This format is unique as it requires a team to reach 8 games first to win the overall tie.

• The winning squad featured top-tier athletes including Sun Yingsha, Fan Zhendong, Wang Chuqin, and Wang Manyu, who are currently leading the ITTF World Rankings.

• The ITTF Mixed Team World Cup is significant because it integrates Mixed Doubles, Women’s Singles, and Men’s Singles into a single team event, promoting gender equality and diversity within the sport.

Additional Information

• International Table Tennis Federation (ITTF):

• Founded in 1926, the ITTF is the world governing body for all national table tennis associations. It is headquartered in Lausanne, Switzerland.

• The ITTF is responsible for the rules and regulations of the sport and the organization of major international competitions, including the World Table Tennis Championships.

• Tournament Format:

• The Mixed Team World Cup utilizes a "first to 8" games system. Each individual match (Mixed Doubles, Women's Singles, and Men's Singles) consists of 3 games, regardless of the score (e.g., 3-0 or 2-1).

• The cumulative games won by the team are added up, and the first team to reach 8 games wins the tie. This requires high tactical planning regarding the order of play.

• Chengdu as a Sporting Hub:

• Chengdu is the capital of the Sichuan province in China. It has successfully hosted several major international events, such as the 2022 ITTF World Team Table Tennis Championships and the FISU World University Games.

• The city has a long-term agreement with the ITTF to host the Mixed Team World Cup annually through 2027.

• Evolution of Table Tennis:

• Table tennis has been an Olympic sport since the 1988 Seoul Games. China has historically won the majority of gold medals, particularly in the Singles and Team categories.

• The introduction of mixed events is a relatively recent development aimed at aligning with the International Olympic Committee's (IOC) Agenda 2020, which emphasizes gender-balanced competitions.

Important Points

• Performance of Other Teams: While China took the gold, the Republic of Korea secured the Silver Medal, and Japan claimed the Bronze Medal. These three nations remain the primary powerhouses of the sport in the Asian continent.

• Prize and Ranking: The tournament offers significant World Ranking points and a substantial prize pool, attracting 16 of the top-ranked teams globally.

• Technological Integration: The 2025 edition saw the continued use of advanced Video Review Actions (VRA), allowing players to challenge decisions made by umpires regarding edge balls or service legality.

• Cultural Impact: The event in Chengdu is known for its high spectator attendance and the "Table Tennis fever" that grips the city, often referred to as the "Ping Pong Capital".

Q100. Answer: (c) 2

Shortcut Trick

7 consecutive integers with mean 0 => −3, −2, −1, 0, 1, 2, 3

Use symmetry: variance = $(1^2 + 2^2 + 3^2)\times 2 / 7$

$= (1 + 4 + 9)\times 2 / 7 = 28/7 = 4$

SD = $\sqrt{4} = 2$

Therefore Answer = 2

Alternate Method

Given:

7 consecutive integers with mean 0

Formula used:

Standard deviation = √[Σ(x − mean)² / n]
Calculation:
=> Numbers: −3, −2, −1, 0, 1, 2, 3
=> Mean = 0
=> Squares: 9, 4, 1, 0, 1, 4, 9
=> Sum = 28
=> Variance = 28 / 7 = 4
=> Standard deviation = √4 = 2
Therefore The correct answer is 2.
Additional Information
Symmetric Data
If mean is 0 and data is symmetric, use pairs to simplify calculation
Variance
Variance = average of squared deviations
Standard Deviation
SD = √(variance)
Quick Pattern
For −n to +n symmetric integers, SD depends on sum of squares

More previous year papers and mock tests: **www.yourmocktest.com/pyq**

YourMockTest.com — Free Study Material