RRB NTPC (Graduate) CBT-I Official Paper (Held On: 16 Mar, 2026 Shift 1) (Previous Year Paper)

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

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Q1. 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 :: ?

: IGC :: TRN : %

(a) = JKF; % = QJH
(b) = LJK; % = QNJ
(c) = LJF; % = QOK
(d) = LGY; % = QJH

Q2. Consider a hypothetical population of rabbits experiencing logistic growth. If the carrying capacity of their environment is 1000 individuals and the current population is 500, what would you expect to happen to the population?

(a) The population will decline rapidly due to resource depletion.
(b) The population will continue to grow exponentially without any constraints.
(c) The population growth will slow down and eventually stabilize near the carrying capacity.
(d) The population will experience a sudden crash followed by a rapid rebound.

Q3. The sum of two numbers is 56. Their difference is 1/7 of their sum. Their LCM is:

(a) 96
(b) 72
(c) 84
(d) 63

Q4. This question is based on the five, three-digit numbers given below.

(Left) 318 745 472 123 672 (Right)

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

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

If all the numbers are arranged in the ascending order, the position of how many numbers will remain unchanged?

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

Q5. According to the Banking Laws (Amendment) Act, 2025, the threshold for ‘substantial interest’ in a bank was revised from Rs. 5 lakh to which of the following amounts?

(a) Rs. 50 lakh
(b) Rs. 2 crore
(c) Rs. 5 crore
(d) Rs. 1 crore

Q6. A boat can row 36 km downstream in the same time as it takes to row 24 km upstream. If the speed of the stream is 3 km/h, what is the speed of the boat in still water?

(a) 18 km/h
(b) 21 km/h

(c) 15 km/h
(d) 12 km/h

Q7. Which postulate of Dalton's Atomic Theory was proven wrong by the discovery of subatomic particles?
(a) Atoms retain their identity in chemical reactions.
(b) Atoms of different elements have different masses.
(c) Isotopes of the same element have different masses.
(d) Matter consists of indivisible atoms.

Q8. Which Harappan city, around 2500 BCE, is noted for its dockyard, indicating advanced architectural planning for trade?
(a) Dholavira
(b) Mohenjodaro
(c) Lothal
(d) Kalibangan

Q9. If the median of a data is 61.54 less than its mode, then the median of the data exceeds its mean by _____. (Use the empirical formula to find the answer)
(a) 28.47
(b) 32.03
(c) 30.77
(d) 36.77

Q10. If $(y - 12) = 4\sqrt{5}$, then find the value of $\sqrt{(y - 3)} - 1/(\sqrt{(y - 3)})$.
(a) 6
(b) 9
(c) 4
(d) 8

Q11. The weekly journal Young India was associated with whom among the following?
(a) Bal Gangadhar Tilak
(b) Mahatma Gandhi
(c) Jawaharlal Nehru
(d) Gopal Krishna Gokhale

Q12. P, Q, R, S, T, U and V sit around a circular table facing the centre. Only one person sits between U and P when counted from the right of U. Only one person sits between P and R. Only one person sits between U and Q. Only two people sit between V and R. Only one person sits between T and Q. How many people sit between T and V when counted from the left of T?
(a) 2
(b) 1
(c) 3
(d) 4

Q13. By selling an article at 6/15 of its actual selling price, Hitesh incurs a loss of 28%. If he sells it at 89% of its actual selling price, then the profit percentage is
(a) 60.7%
(b) 59.2%
(c) 60.5%
(d) 60.2%

Q14. Two taps can fill a cistern in 4 hours and 38 hours respectively. A third tap can empty it in 38 hours. How long (in hours) will it take to fill one-fourth of the empty cistern, if all of them are opened together?
(a) 2
(b) 3
(c) 4

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(d) 1

Q15. In a certain code language, ‘CARD’ is coded as ‘4628’ and ‘NEAT’ is coded as ‘3574’. What is the code for ‘A’ in that language?

(a) 3
(b) 4
(c) 6
(d) 7

Q16. Find the area of a quadrilateral ABCD whose area is twice the area of a triangle PQR. The sides of triangle PQR are in the ratio 4:5:6 and the perimeter of the triangle is 90 cm (use √7 = 2.6).

(a) 763 cm^2
(b) 702 cm^2
(c) 656 cm^2
(d) 698 cm^2

Q17. P sells an item to Q at 50% profit. Q sells the same item to R at 60% loss. If R paid Rs. 3234 for the item, then at what price (in Rs.) is the item purchased by P?

(a) 5387
(b) 5390
(c) 5391
(d) 5393

Q18. Which of the following is a tertiary activity?

(a) Shoe shining
(b) Extracting minerals
(c) Steel making
(d) Metal working

Q19. Which legislation forms the legal basis for the creation and operation of the Central Administrative Tribunal (CAT)?

(a) The Tribunals Reforms Act, 1980
(b) The Service Matters Act, 1990
(c) The Judiciary Act, 1971
(d) The Administrative Tribunals Act, 1985

Q20. In a certain code language, ‘BELI’ is coded as ‘6315’ and ‘EVIL’ is coded as ‘9653’. What is the code for ‘V’ in the given code language?

(a) 9
(b) 7
(c) 6
(d) 3

Q21. 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 bananas are apples.

All apples are grapes.

Some grapes are oranges.

Conclusions:

(I) All grapes are bananas.

(II) All oranges are apples.

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

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(d) Only conclusion (I) follows

Q22. In a certain code language,

A + B means ‘A is the mother of B’

A - B means ‘A is the wife of B’

A × B means ‘A is the sister of B’

A ÷ B means ‘A is the father of B’

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

(a) Father’s sister
(b) Father’s mother
(c) Mother’s mother
(d) Mother’s sister

Q23. Select the set in which the numbers are related in the same way as are the numbers of the following sets.

(NOTE : Operations should be performed on the whole numbers, without breaking down the numbers into their constituent digits.)

(6,3,14)

(14,8,27)

(a) (14,87,26)
(b) (6,15,21)
(c) (19,12,36)
(d) (16,25,31)

Q24. The splitting of the ancient Indo–Brahma river into the Indus, Ganga, and Brahmaputra drainage systems is believed to have been primarily caused by which geological event?

(a) Pleistocene upheaval
(b) River capture by erosion
(c) Glacial melting
(d) Volcanic eruptions

Q25. Which institution released the policy report titled Internationalisation of Higher Education in India: Prospects, Potential, and Policy Recommendations in December 2025?

(a) NITI Aayog
(b) All India Council for Technical Education
(c) Ministry of Education
(d) University Grants Commission

Q26. Three printing machines, P, Q and R, when each is working alone, can print one lakh books in, respectively, 8 hours, 16 hours and 24 hours. These machines print books in turns of one hour each, starting with P, followed by Q and then by R. However, after a total of 9 hours, P stops functioning, but Q and R continue working alternately for an hour each, with Q working during the 10th hour, till the printing of all the one lakh books is completed. In how many hours in all did machines Q and R complete printing the remaining books?

(a) 6
(b) 15
(c) 9
(d) 12

Q27. Which major technological advancement characterizes the fourth generation of computers?

(a) Transistors
(b) Integrated circuits
(c) Microprocessors
(d) Vacuum tubes

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Q28. Which of the following letter-number clusters will replace the question mark "?" in the given series to make it logically complete?

VPG 7, ZTK 11, DXO 15, HBS 19, ?

(a) LGY 24
(b) MGX 23
(c) LFW 23
(d) LEU 23

Q29. Girish scored 572 marks in an examination and was 30 marks short of 28% of maximum marks. In the same examination, his friend scored 473 marks. What is the percentage of marks scored by his friend?

(a) 23%
(b) 21%
(c) 24%
(d) 22%

Q30. Which cultural and musical group celebrated its 10th anniversary in December 2025?

(a) Kala Mandir
(b) India Panorama
(c) Robir Kiran
(d) Satyajit Ray Society

Q31. In which of the following states is the slash and burn agriculture known as 'Kuruwa'?

(a) Madhya Pradesh
(b) Jharkhand
(c) Rajasthan
(d) Arunachal Pradesh

Q32. Anand has Rs. 1407 with him. He divides this amount between his two sons, Anil and Ashok, and asks them to invest their respective shares at a compound interest rate of 10% per annum, compounded annually. It is observed that Anil's investment amounts to the same value after 15 years as Ashok's investment does after 16 years. How much (in Rs.) did Anand give to Ashok?

(a) 737
(b) 520
(c) 837
(d) 670

Q33. Which of the following sectors observed a negative growth rate in Real GVA (Gross Value Added) during Q1 of FY 2025-26 as per the report published by NSO and MoSPI?

(a) Construction
(b) Tertiary Sector
(c) Mining & Quarrying
(d) Agriculture and Allied

Q34. At present, Sharad is three times as old as his son, and his daughter is 3 years younger than the son. If the sum of the ages of these three people 3 years ago was 63 years, then Sharad's present age (in years) is:

(a) 50
(b) 55
(c) 45
(d) 35

Q35. Each of the digits in the number 15762349 is arranged in ascending order from left to right. The position of how many digits will remain unchanged as compared to that in the original number?

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

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(d) Two

Q36. There are 78 members in group A, 22 members in group B and 34 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. 136, Rs. 383 and Rs. 457, respectively. The overall average amount (in Rs.) spent per member is:

(a) 258
(b) 256
(c) 255
(d) 261

Q37. Refer to the following number and symbol series and answer the question that follows. Counting to be done from left to right only. All numbers are single-digit numbers only.

(Left) © 3 @ 8 5 1 £ 1 6 1 5 7 2 8 # € £ © € © 1 3 (Right)

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

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

Q38. Administrators of the Andaman and Nicobar Islands and Puducherry are designated as _____.

(a) Governor
(b) Administrator
(c) Chief Minister
(d) Lieutenant Governor

Q39. When was the India European Free Trade Association (EFTA) Trade and Economic Partnership Agreement (TEPA) signed, which came into effect on 1 October 2025?

(a) January 2025
(b) August 202
(c) March 2024
(d) September 2025

Q40. Select the set in which the numbers are related in the same way as are the numbers of the following sets.

(NOTE : Operations should be performed on the whole numbers, without breaking down the numbers into their constituent digits.)

(20, 46, 2)

(32, 136, 24)

(a) (6, 42, 10)
(b) (13, 25, 1)
(c) (32, 93, 11)
(d) (17, 78, 16)

Q41. Which two neighbors combined have a land border with India longer than China’s border?

(a) Bangladesh and Pakistan
(b) Bhutan and Afghanistan
(c) Nepal and Myanmar
(d) Pakistan and Nepal

Q42. There is a wooden block in the form of a cube whose each side is 8 meters long.

The maximum possible number of cylinders with a diameter of 1 meter and a height of 4 meters were cut from this block.

The cylinders are to be painted at the rate of 14 per square meter.

What is the total amount (in Rs.) needed to paint all the cylinders if we paint the entire surface of each cylinder? (Take π = 22/7)

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(a) 25,344
(b) 24,325
(c) 24,527
(d) 23,455

Q43. The mean marks of the following distribution is:

Marks Obtained	No. of Students
81	15
35	4
73	3
56	16

(a) 60
(b) 74
(c) 51
(d) 65

Q44. Find the area of a regular hexagon whose side measures $14\sqrt{3}$ cm.
(a) $882\sqrt{3}$ cm²
(b) $509\sqrt{3}$ cm²
(c) $294\sqrt{3}$ cm²
(d) $441\sqrt{3}$ cm²

Q45. What was the main purpose of the India–MERCOSUR Preferential Trade Agreement discussions held in New Delhi on 16 October 2025?
(a) To coordinate defense policies
(b) To standardize education systems
(c) To establish a common currency
(d) To promote trade and investment

Q46. Which of the following administrative innovations is attributed to Alauddin Khilji's reign?
(a) Creation of mansabdari system
(b) Regulation of market prices and rationing
(c) Foundation of Diwan-i-Arz for military reforms
(d) Establishment of iqta system

Q47. What should come in place of '?' in the given series?
32 52 68 80 88 ?
(a) 94
(b) 90
(c) 92
(d) 96

Q48. Which sector uses computers for online transactions, payroll processing, inventory control, and data analysis?
(a) Manufacturing Plants
(b) Research
(c) Business and Commerce
(d) Service Industry

Q49. In a certain code language,
A @ B means 'A is the son of B',
A # B means 'A is the sister of B',
A + B means 'A is the wife of B' and

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A % B means 'A is the father of B'.

Based on the above, how is E related to B if 'E + R @ D% N # B'?

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

Q50. Based on the alphabetical order, three of the following four are alike in a certain way and thus form a group. Which one does not belong to that group?

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

(a) UWR
(b) SUP
(c) KMG
(d) EGB

Q51. 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?

20 D 8 A 2 C 1 B 5 = ?

(a) 20
(b) 22
(c) 23
(d) 21

Q52. If both the roots of the quadratic equation $A(8x^2 + 4) + Bx + 4x^2 - 8 = 0$ and $3A(2x^2 + 1) + Kx + 3x^2 - 6 = 0$ are common, then what is the value of $9B^2 - 16K^2$?

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

Q53. A, B, C, D, E and F live on six different floors of the same building. The lowermost floor in the building is numbered 1, the floor above it is numbered 2 and so on till the topmost floor, which is numbered 6.

Only two people live below C. Only two people live between B and C. A lives above E but below C. F does not live above D.

Who lives immediately below B?

(a) A
(b) C
(c) D
(d) F

Q54. Which European power was the first to arrive in India and the last to leave during the pre-independence period?

(a) Americans
(b) Dutch
(c) Portuguese
(d) French

Q55. A train travelling at 60 km/hr crosses another train travelling in the opposite direction at 84 km/hr in 30 seconds. What is the combined length (in m) of both the trains?

(a) 1100
(b) 1300
(c) 1000
(d) 1200

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Q56. Three friends X, Y and Z started a business by investing a sum of money in the ratio of 4 : 2 : 5. After 6 months, X withdraws half of his capital. If the sum invested by Z is Rs. 23,000, then out of a total annual profit of Rs. 37,000, what is the difference between X's and Y's profit?

(a) Rs. 3700
(b) Rs. 3065
(c) Rs. 4255
(d) Rs. 5015

Q57. At the 2025 ICC Champions Trophy held in Dubai, which country did India defeat to secure their seventh ICC title in men's senior cricket?

(a) England
(b) Australia
(c) New Zealand
(d) South Africa

Q58. If a: b = 2 : 3, then $(7a^3 - 2b^3) : (b^3 - a^3)$ =

(a) 2 : 19
(b) 3 : 11
(c) 3 : 14
(d) 13 : 6

Q59. Evaluate: (-9) - (-56) ÷ (-14) + (-4) × 7

(a) -40
(b) -44
(c) -41
(d) -43

Q60. This question is based on the five, three-digit numbers given below.

(Left) 458 652 748 351 591 (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 multiplied with the third digit of lowest number?

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

Q61. 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 options follows the same set of operations as in question?

7 - 21 - 31 - 62; 9 - 27 - 37 - 74

(a) 11-33-43-86
(b) 6-18-28-76
(c) 8-32-42-84
(d) 12-36-46-82

Q62. Working of hydraulic lift and hydraulic brakes is based on:

(a) Coulomb's law
(b) Pascal's law
(c) Gay-Lussac's law
(d) Faraday's law

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Q63. What is the primary function of the water vascular system in echinoderms, such as starfish?

(a) Locomotion and feeding
(b) Sensory perception
(c) Gas exchange
(d) Reproduction

Q64. Under the Union Budget 2025–26, the FDI limit in the insurance sector was increased from:

(a) 74% to 100%
(b) 49% to 74%
(c) 26% to 49%
(d) 51% to 100%

Q65. What is the name of the powerful non-nuclear bomb unveiled by Turkey at the 17th International Defence Industry Fair (IDEF) in July 2025?

(a) Gazap
(b) Nebula
(c) Titan
(d) Phantom-X

Q66. The summer solstice occurs when the Sun is directly overhead at which of the following latitudes?

(a) Arctic Circle
(b) Tropic of Capricorn
(c) Equator
(d) Tropic of Cancer

Q67. In December 2025, the Finance Minister called on states to manage their debt within the limits prescribed under which fiscal framework?

(a) FRBM
(b) Monetary Policy
(c) NITI Aayog
(d) GST

Q68. A, B, C, D, E and F live on six different floors of the same building. The lowermost floor in the building is numbered 1, the floor above it is numbered 2, and so on till the topmost floor is numbered 6.

Only five people live above D. Only two people live above A. C lives below F but above A. B does not live on an even numbered floor.

How many people live below C?

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

Q69. Each of P, Q, R, S, T, U and V has an exam on a different day of a week starting from Monday and ending on Sunday of the same week.

Only five people have exams between V and T. Only two people have exams between R and T. Q has the exam immediately after R. S has the exam immediately before P but after T.

How many people have exams between P and U?

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

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Q70. What should come in place of the question mark (?) in the given series?

89 87 84 79 72 ?

(a) 61
(b) 57
(c) 59
(d) 63

Q71. In a triangle PQR, angle QOR = 130°, where O is the in-centre of triangle PQR. The measure of angle QPR is:

(a) 70°
(b) 80°
(c) 50°
(d) 60°

Q72. Which of the following prominent leaders led the Bardoli Satyagraha (1928)?

(a) Gopalakrishna Gokhale
(b) Sardar Vallabhbhai Patel
(c) Bal Gangadhar Tilak
(d) C. Rajagopalachari

Q73. 20% of a number is more than 20% of 620 by 210. The number is:

(a) 1670
(b) 1520
(c) 1770
(d) 1720

Q74. Which of the following Articles of the Indian Constitution directs the State to ensure equal pay for equal work for both men and women?

(a) Article 42(b)
(b) Article 14
(c) Article 15
(d) Article 39(d)

Q75. In 2025, which Indian High Court issued the pioneering 'Policy Regarding the Use of AI Tools in District Judiciary', becoming the first in the country to frame comprehensive guidelines for artificial intelligence (AI) use in judicial work?

(a) Bombay High Court
(b) Kerala High Court
(c) Madras High Court
(d) Delhi High Court

Q76. Based on the English alphabetical order, three of the following four 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 one out is not based on the number of consonants/vowels or their position in the letter cluster.)

(a) DZV
(b) BXS
(c) WSN
(d) PLG

Q77. VASE is related to ZEOA in a certain way based on the English alphabetical order. In the same way, DIKW is related to HMGS. To which of the following is LQCO related, following the same logic?

(a) QVZL
(b) QUXL
(c) OTXJ
(d) PUYK

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Q78. Seven people F, G, H, I, V, W, and X are sitting around a circular table facing the centre of the table. I sits second to the right of W. I sits third to the left of F. V sits third to the left of X. G is an immediate neighbour of both W and F. How many people sit between H and G when counted from the left of H?

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

Q79. Find the third proportional to the numbers 16 and 24.

(a) 36
(b) 30
(c) 40
(d) 32

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

FZN 4 XRF 6 PJX 9 HBP 13 ?

(a) ZKW 21
(b) ZTH 18
(c) LFR 17
(d) XHD 19

Q81. A file name is highlighted, and you want to copy it to another folder while keeping it in the original folder as well. Which pair of steps matches this task?

(a) Press Ctrl + S, then Ctrl + V
(b) Press Ctrl + C, then Ctrl + B
(c) Press Ctrl + X, then Ctrl + V
(d) Press Ctrl + C, then Ctrl + V

Q82. The 86th Amendment added a new Fundamental Duty related to which of the following?

(a) Defending the nation
(b) Protecting environment
(c) Safeguarding public property
(d) Educating children

Q83. EGDH is related to FIFI in a certain way based on the English alphabetical order. In the same way, JMHL is related to KOJM. To which of the following is NPRS related, following the same logic?

(a) ORTT
(b) ORST
(c) OOPT
(d) OSST

Q84. A dealer buys two articles X and Y for Rs. 500 each. He marks each of them at the same price. He sells X by giving two successive discounts of 50% and 28% and still earns Rs. 958 as profit. If he sells Y at a single discount of 77%, then what is the profit percentage on Y?

(a) 86%
(b) 86.3%
(c) 85%
(d) 85.3%

Q85. The Group of Forty who advised and assisted the Sultan in administering the Delhi Sultanate was established by which of the following rulers?

(a) Balban
(b) Iltutmish
(c) Qutbuddin Aibak

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(d) Alauddin Khalji

Q86. 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 students – Isha, Kavita, Meenal, Nisha, and Priti – scored different marks.

Who scored the second highest?

(I) Meenal scored more than Isha but less than Nisha.

(II) Priti scored more than Meenal but less than Nisha.

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

Q87. cbrt6859/4√256 × 2/57 × 168 = ?

(a) 38
(b) 28
(c) 37
(d) 30

Q88. What is the maximum value that must be assigned to A so that the 8-digit number 816A0408 is divisible by 4?

(a) 9
(b) 5
(c) 7
(d) 4

Q89. In which language was the Sangam literature of South India, composed between 300 BCE and 300 CE, primarily written?

(a) Tamil
(b) Sanskrit
(c) Pali
(d) Prakrit

Q90. Which of the following best represents a customized application software?

(a) Image viewer
(b) Payroll management system for a company
(c) Spreadsheet software
(d) Media player

Q91. Which of the following is a Tibeto-Burman language included in the Eighth Schedule of the Indian Constitution?

(a) Konkani
(b) Maithili
(c) Bodo
(d) Santhali

Q92. Manoj starts from Point A and drives 25 km towards South. He then takes a left turn, drives 17 km, turns left and drives 28 km. He then takes a left turn and drives 20 km. He takes a final left turn, drives 3 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 degrees turns only unless specified)

(a) 3 km to the west
(b) 3 km to the east
(c) 2 km to the east
(d) 2 km to the west

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Q93. At what rate (in percentage) per year will a sum of money double itself in 16 years on simple interest?

(a) 4.25
(b) 12.5
(c) 6.25
(d) 8.25

Q94. The average of 13 numbers is 8. If each number is multiplied by 7, then what will the new average be:

(a) 7
(b) 56
(c) 13
(d) 8

Q95. Consider the following statements about Thawar Chand Gehlot.

1. He is the first person from Madhya Pradesh to serve as the Governor of Karnataka.
2. He is the 19^(th) Governor of Karnataka.

Which of the above statements is/are correct?

(a) Only 2
(b) Only 1
(c) Both 1 and 2
(d) Neither 1 nor 2

Q96. Which sector's share in GDP increased significantly by 1990, reflecting a shift in the Indian economy?

(a) Services
(b) Agriculture
(c) Industry
(d) Mining

Q97. What was the route length of Indian Railways in 2019-2020?

(a) 66,918 km
(b) 67,415 km
(c) 66,935 km
(d) 67,956 km

Q98. A tower stands vertically on the ground. From a point on the ground which is 28.6 m away from the foot of a tower, the angle of elevation of the top of the tower is found to be 45°. Find the height of the tower.

(a) 22.6 m
(b) 26.6 m
(c) 28.6 m
(d) 24.6 m

Q99. Read the given statements and conclusions carefully. Assuming that the information given in the statements is true, even if it appears to be at variance with commonly known facts, decide which of the given conclusions logically follow(s) from the statements.

Statements:

Some canals are rivers.

Some rivers are oceans.

Some oceans are ponds.

Conclusions:

(I) All ponds are rivers.

(II) All oceans are canals.

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

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Q100. After a Constitution Amendment Bill relating to the Directive Principles of State Policy is passed by the Parliament, what is the next mandatory constitutional step for it to become a law?

(a) Approval by the Supreme Court
(b) Ratification by State Legislatures
(c) President's Assent
(d) Notification in the Gazette

ANSWER KEY

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

SOLUTIONS

Q1. Answer: (c) = LJF; % = QOK

Given: # : IGC :: TRN : %

Option 1) # = JKF, % = QJH

For # (JKF) to IGC

For TRN to % (QJH)

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

Option 2) # = LJK, % = QNJ

For # (LJK) to IGC

For TRN to % (QNJ)

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

Option 3) # = LJF, % = QOK

For # (LJF) to IGC

For TRN to % (QOK)

Since, both transformations follow a consistent shift pattern, Option 3 is correct.

Option 4) # = LGY, % = QJH

For # (LGY) to IGC

For TRN to % (QJH)

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

Hence, the correct answer is "Option 3".

Q2. Answer: (c) The population growth will slow down and eventually stabilize near the carrying capacity.

The correct answer is The population growth will slow down and eventually stabilize near the carrying capacity.

Key Points

• Logistic growth describes how a population's growth rate decreases as the population size approaches a maximum imposed by limited resources in the environment, known as the carrying capacity (K).

• In this specific scenario, the current population size (N) is 500 individuals, while the carrying capacity (K) is 1000 individuals. Since N is less than K, the population still has room to grow, but the rate of growth is influenced by the proximity to the limit.

• The mathematical model for this is the Verhulst-Pearl Equation: dN/dt = rN [(K - N) / K]. When N is 500 and K is 1000, the term

(K - N) / K equals 0.5, indicating that the population is growing at 50% of its maximum intrinsic rate.

• As the number of rabbits increases from 500 toward 1000, the resource competition becomes more intense, causing the birth rate to potentially decrease or the death rate to increase. This leads to a slowing down of growth. Hence, the statement that the population will slow down and stabilize near the carrying capacity is correct.

• The population will not decline rapidly because it has not yet exceeded the carrying capacity. Hence, the statement regarding rapid decline is incorrect.

• Growth will not continue exponentially because the carrying capacity of 1000 acts as a physical and biological constraint. Hence, the statement regarding exponential growth is incorrect.

Additional Information

• Carrying Capacity (K): This represents the maximum population size of a species that a specific ecosystem can sustain indefinitely without degrading the habitat. It is determined by limiting factors such as food availability, water supply, living space, and predation.

• Sigmoid (S-shaped) Curve: Logistic growth is graphically represented by an S-shaped curve. It consists of three main phases: the lag phase (slow initial growth), the log phase (rapid exponential growth), and the stationary phase (stabilization at K).

• Environmental Resistance: This refers to the sum of all limiting factors (biotic and abiotic) that prevent a population from reaching its biotic potential. In this rabbit population of 500, environmental resistance is increasing as it approaches 1000.

• Density-Dependent Factors: These are factors whose effects on the size or growth of the population vary with the population density. Examples include competition, disease, and waste accumulation, which are primary drivers of the logistic growth model.

• Comparison with Exponential Growth: Unlike logistic growth, exponential growth (J-shaped curve) occurs when resources are unlimited, and the growth rate depends only on the intrinsic rate of increase (r) and the number of individuals.

Important Points

• Inflection Point: In a logistic growth curve, the inflection point occurs when N = K/2. In this example, with K = 1000, the inflection point is exactly at 500. This is the point where the population growth rate is at its absolute maximum before it begins to decelerate.

• Dynamic Equilibrium: Once the population reaches 1000, it doesn't necessarily stop all biological activity; rather, it enters a state of dynamic equilibrium where births and deaths roughly balance each other out.

• Overshoot: In real-world biological systems, populations sometimes overshoot the carrying capacity momentarily before crashing or oscillating back to K. However, in the standard logistic growth model, the stabilization is smooth.

• Historical Context: The concept of logistic growth was first introduced by Pierre François Verhulst in 1838 to describe the growth of human populations, later popularized in biology by Raymond Pearl and Lowell Reed in 1920.

Q3. Answer: (a) 96

Shortcut Trick

Sum = 56, Difference = 1/7 of 56 = 8

=> Numbers = (56 ± 8)/2 → 32 and 24

=> LCM of 32 and 24 = 96

Therefore Answer = 96

Alternate Method

Given:

Sum = 56

Difference = 1/7 of sum = 8

Formula:

Numbers = (Sum + Difference) ÷ 2 and (Sum − Difference) ÷ 2

Calculations:

=> First number = (56 + 8) ÷ 2 = 64 ÷ 2 = 32

=> Second number = (56 − 8) ÷ 2 = 48 ÷ 2 = 24

=> LCM of 32 and 24:

=> 32 = 2^5, 24 = 2^3 × 3

=> LCM = 2^5 × 3 = 96

Final Answer: 96

Additional Information

Sum-Difference Formula: Numbers = (S ± D) ÷ 2

LCM Rule: Take highest powers of primes

Prime Factorization: 32 = 2^5, 24 = 2^3 × 3

Exam Tip: Directly compute difference first to save time

Q4. Answer: (a) 1

Given numbers: 318, 745, 472, 123, 672

Original order: 318 745 472 123 672

Ascending order: 123, 318, 472, 672, 745

Position	Original Number	New Position (Ascending)	Same Position?
1	318	2nd	No
2	745	5th	No
3	472	3rd	Yes
4	123	1st	No
5	672	4th	No

Only one number remains in the same position → 472

Hence, the correct answer is Option 1.

Q5. Answer: (b) Rs. 2 crore

The correct answer is Rs. 2 crore.

Key Points

• The Banking Laws (Amendment) Act, 2025 (which originated as the 2024 Bill) introduced significant reforms to the Banking Regulation Act, 1949, to modernize the regulatory framework of the Indian banking sector.

• One of the primary changes is the revision of the threshold for "substantial interest". Previously, under the Banking Regulation Act, 1949, substantial interest was defined as holding shares worth more than Rs. 5 lakh or 10% of the paid-up capital of a bank, whichever was less.

• According to the new amendment, this monetary threshold has been increased to Rs. 2 crore. This change reflects the current economic reality and the significant increase in the valuation of bank capital over the last several decades.

• The upward revision of this limit ensures that the Reserve Bank of India (RBI) focuses its oversight on individuals or entities that possess a genuinely significant financial stake and influence over the bank's operations.

• This definition is vital for identifying "connected lending" and ensuring that the Board of Directors maintains independence from major shareholders who might otherwise exert undue pressure for personal gain.

Additional Information

• Increased Nomination Facilities: The Banking Laws (Amendment) Act, 2025 allows bank account holders to appoint up to 4 nominees for their accounts, replacing the previous limit of 1 nominee. This provides more flexibility for depositors in managing their legacy and succession planning.

• Tenure of Directors in Cooperative Banks: The amendment has increased the maximum tenure of directors in cooperative banks from the previous 8 years to 10 years. This change brings the governance of cooperative banks more in line with the standards applied to commercial banks.

• Flexible Reporting Dates: The Act modifies the reporting cycles for banks. Instead of reporting their financial positions on the second and fourth Fridays of each month, banks are now allowed to report based on the 15th and the last day of the month. This adjustment aims to simplify accounting and compliance procedures.

• Redefinition of "Relative": The scope of the term "relative" has been expanded under the Banking Regulation Act. This helps in better tracking of loans and advances provided to people connected to the bank's management, thereby improving transparency and preventing conflict of interest.

• Statutory Auditors: The legislation provides greater autonomy to banks in the process of appointing statutory auditors, though the RBI continues to maintain overall regulatory supervision to ensure the integrity of the financial auditing process.

Important Points

• Context of the Amendment: The Union Finance Minister, Nirmala Sitharaman, introduced the bill in Parliament in August 2024. It was designed to enhance customer convenience and improve the operational efficiency of the banking system in India.

• Impact on Shareholding: By raising the substantial interest limit to Rs. 2 crore, the government has acknowledged that the nominal value of shares has increased, and a Rs. 5 lakh holding no longer represents the same level of corporate control as it did when the 1949 Act was first drafted.

• Regulatory Power of RBI: Despite these relaxations in thresholds, the Reserve Bank of India (RBI) remains the primary regulator with the power to intervene if any person's interest in a bank poses a systemic risk to the Indian economy.

• Applicability: These laws apply to Public Sector Banks (PSBs), Private Banks, and Cooperative Banks, ensuring a uniform legal framework across the banking landscape of the country.

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Q6. Answer: (c) 15 km/h

Shortcut Trick

Let boat speed = x

=> Downstream = x + 3, Upstream = x − 3

Equal time => 36/(x+3) = 24/(x−3)

=> 36(x−3) = 24(x+3) => 12x = 180

=> x = 15

Therefore Answer = 15 km/h

Alternate Method

Given:

Downstream distance = 36 km

Upstream distance = 24 km

Stream speed = 3 km/h

Formula:

Speed downstream = x + 3

Speed upstream = x − 3

Time = Distance ÷ Speed

Calculations:

=> 36 ÷ (x + 3) = 24 ÷ (x − 3)

=> 36(x − 3) = 24(x + 3)

=> 36x − 108 = 24x + 72

=> 12x = 180

=> x = 15

Final Answer: 15 km/h

Additional Information

Downstream Speed: Boat speed + Stream speed

Upstream Speed: Boat speed − Stream speed

Equal Time Concept: Distance ÷ Speed ratios equal

Exam Trick: Cross multiply directly to save time

Q7. Answer: (d) Matter consists of indivisible atoms.

The correct answer is Matter consists of indivisible atoms.

Key Points

• John Dalton proposed his Atomic Theory in 1808, which served as a fundamental framework for modern chemistry. One of his primary postulates was that matter consists of indivisible atoms, implying that atoms are the smallest possible units of matter and cannot be broken down further. Hence, statement 4 is the postulate that was proven wrong.

• The discovery of subatomic particles directly contradicted Dalton's claim of indivisibility. In 1897, J.J. Thomson discovered the electron through his cathode ray tube experiments, proving that the atom itself contains smaller, negatively charged components. Hence, statement 4 is incorrect based on modern scientific evidence.

• Further advancements in physics led to the discovery of the nucleus and other particles. Ernest Rutherford identified the proton in the early 20th century, and James Chadwick discovered the neutron in 1932. These discoveries established that atoms are composed of a central nucleus containing protons and neutrons, surrounded by electrons.

• Another postulate of Dalton stated that atoms of different elements have different masses. While generally true, the discovery of isobars (atoms of different elements with the same mass number) showed that this was not an absolute rule. Hence, statement 2 is a postulate that has notable exceptions in modern chemistry.

• Dalton also posited that atoms retain their identity in chemical reactions, meaning they are neither created nor destroyed but merely rearranged. This aligns with the Law of Conservation of Mass. However, in nuclear reactions, atoms can indeed change their identity, although they remain stable in standard chemical processes. Hence, statement 1 is largely correct for chemical reactions but limited in the context of nuclear physics.

Additional Information

• Isotopes and Mass: Dalton's theory suggested that all atoms of a given element are identical in mass and properties. This was proven wrong by the discovery of isotopes, which are atoms of the same element (same number of protons) that have different numbers of neutrons, resulting in different atomic masses. Common examples include Carbon-12 and Carbon-14.

• Law of Multiple Proportions: One of Dalton's successful contributions was the Law of Multiple Proportions, which states that

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when two elements combine to form more than one compound, the weights of one element that combine with a fixed weight of the other are in a ratio of small whole numbers.

• The Electron (1897): The electron was the first subatomic particle discovered. It has a negative charge of approximately -1.602 x 10^-¹^9 Coulombs and a negligible mass compared to protons and neutrons (about 1/1836 of a proton).

• Atomic Nucleus: The Rutherford Gold Foil Experiment in 1911 demonstrated that the majority of an atom's mass and its positive charge are concentrated in a tiny central region called the nucleus, debunking the "Plum Pudding Model."

• Modern Atomic Theory: Unlike Dalton's model, the Modern Atomic Theory recognizes that atoms are divisible into subatomic particles and that atoms of the same element can have different masses (isotopes). It also utilizes quantum mechanics to describe the probability clouds or orbitals where electrons are likely to be found.

Important Points

• Comparison of Particles: The proton carries a positive charge, the electron carries a negative charge, and the neutron is electrically neutral. The number of protons (the atomic number) defines the identity of the chemical element.

• Chemical vs. Nuclear Identity: In a chemical reaction, only the valence electrons are involved, and the nucleus remains unchanged, preserving the atom's identity. In nuclear fission or fusion, the nucleus is altered, which can turn one element into another, a process known as transmutation.

• Indivisibility vs. Divisibility: While Dalton was wrong about atoms being "indivisible," his theory was a crucial stepping stone because it moved chemistry from a qualitative to a quantitative science based on the concept of atomic weight.

Q8. Answer: (c) Lothal

The correct answer is Lothal.

Key Points

• Lothal was a vital and flourishing trade center of the Indus Valley Civilization, located in the Bhal region of the modern state of Gujarat, India. It is situated near the village of Saragwala in the Dholka Taluka of Ahmedabad district.

• The city is most famous for its dockyard, which is the earliest known artificial dock in the world. This dockyard was a trapezoidal structure made of baked bricks, measuring approximately 218 meters in length and 37 meters in width, connected to the Bhogava River, a tributary of the Sabarmati.

• The excavation of Lothal was led by the archaeologist S.R. Rao in 1954. The site revealed that the city was a major maritime trade hub, facilitating commerce between Harappan cities and Mesopotamia as well as the Persian Gulf.

• Beyond the dockyard, Lothal was known for its industrial prowess, specifically its bead-making factory. Archaeologists discovered thousands of carnelian beads in various stages of production, along with tools like drills and kilns, proving its status as a manufacturing center.

• The city layout followed a strict grid system typical of Harappan urban planning, featuring a citadel (upper town) and a lower town. The advanced drainage system and standardized burnt bricks used in construction highlight the architectural maturity reached by 2500 BCE.

Additional Information

• Dholavira:

• Located on Khadir Bet in the Rann of Kutch, Gujarat. This site is unique because it was divided into three parts: the Citadel, the Middle Town, and the Lower Town, unlike the two-part division of other cities.

• It is renowned for its sophisticated water management system, consisting of a series of reservoirs and check dams. A unique ten-signboard inscription (the "Dholavira Signboard") was also found here.

• Mohenjodaro:

• Located in the Larkana district of Sindh, Pakistan, on the banks of the Indus River. It means "Mound of the Dead" in the Sindhi language.

• Key findings include the Great Bath, the Great Granary, the Bronze Dancing Girl, and the Seal of Pashupati. It was one of the largest settlements of the civilization, excavated by R.D. Banerji in 1922.

• Kalibangan:

• Situated on the banks of the dried-up Ghaggar River in the Hanumangarh district of Rajasthan, India. The name means "Black Bangles".

• This site provided the earliest evidence of a ploughed field in history. Other significant finds include fire altars, indicating religious practices, and camel bones.

Important Points

• The Harappan Civilization, also known as the Indus Valley Civilization, belonged to the Bronze Age (circa 3300–1300 BCE, with the mature phase from 2600–1900 BCE).

• Maritime Trade: The presence of Persian Gulf seals at Lothal and Harappan seals in Susa (Mesopotamia) confirms that Lothal was an international port. Trade items included ivory, copper, gold, and precious stones.

• Double Burial: Lothal is one of the few sites where double burials (joint burial of a male and female) were discovered, suggesting specific social or funerary customs.

• Standardization: The civilization was noted for its use of standardized weights and measures (binary and decimal systems) and terracotta seals used for securing goods during transport.

Q9. Answer: (c) 30.77

Shortcut Trick

Empirical: Mode = 3Median − 2Mean

Given: Mode − Median = 61.54

=> (3M − 2Mean) − M = 61.54

=> 2(Median − Mean) = 61.54

=> Median − Mean = 30.77

Therefore Answer = 30.77

Alternate Method

Given:

Mode − Median = 61.54

Formula:

Mode = 3Median − 2Mean

Calculations:

=> Substitute Mode:

=> (3Median − 2Mean) − Median = 61.54

=> 2Median − 2Mean = 61.54

=> 2(Median − Mean) = 61.54

=> Median − Mean = 61.54 ÷ 2 = 30.77

Final Answer: 30.77

Additional Information

Empirical Relation: Mode = 3Median − 2Mean

Rearranged Form: Mean = (3Median − Mode) ÷ 2

Key Insight: Differences help eliminate variables quickly

Exam Tip: Always substitute directly to reduce steps

Q10. Answer: (c) 4

Shortcut Trick

Given $y - 12 = 4\sqrt{5} \Rightarrow y = 12 + 4\sqrt{5}$

$\Rightarrow y - 3 = 9 + 4\sqrt{5} = (\sqrt{5} + 2)^2$

$\Rightarrow \sqrt{(y - 3)} = \sqrt{5} + 2$

$\Rightarrow 1/\sqrt{(y - 3)} = 1/(\sqrt{5} + 2) = \sqrt{5} - 2$

$\Rightarrow$ Required $= (\sqrt{5} + 2) - (\sqrt{5} - 2) = 4$

Therefore Answer = 4

Alternate Method

Given:

$y - 12 = 4\sqrt{5}$

Formula:

$(a + b)^2 = a^2 + b^2 + 2ab$

Calculations:

$\Rightarrow y = 12 + 4\sqrt{5}$

$\Rightarrow y - 3 = 9 + 4\sqrt{5}$

$\Rightarrow$ Assume $9 + 4\sqrt{5} = (a + b\sqrt{5})^2$

$\Rightarrow$ Compare: $a^2 + 5b^2 = 9$ and $2ab = 4$

$\Rightarrow a = 2, b = 1$

$\Rightarrow \sqrt{(y - 3)} = 2 + \sqrt{5}$

$\Rightarrow 1/(2 + \sqrt{5}) = (2 - \sqrt{5})/(4 - 5) = \sqrt{5} - 2$

$\Rightarrow$ Required $= (2 + \sqrt{5}) - (\sqrt{5} - 2) = 4$

Final Answer: 4

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Additional Information

Perfect Square Form: $a + b\sqrt{c} = (x + y\sqrt{c})^2$

Rationalization: $1/(a + \sqrt{b}) = (a - \sqrt{b})/(a^2 - b)$

Key Insight: Convert into perfect square to simplify roots

Exam Trick: Always check if expression fits $(a + b)^2$

Q11. Answer: (b) Mahatma Gandhi

The correct answer is Mahatma Gandhi.

Key Points

• Mahatma Gandhi was the primary editor and driving force behind the weekly journal Young India, which he published from 1919 to 1931. Hence, the statement regarding Mahatma Gandhi is correct.

• Young India was an English-language weekly journal through which Gandhi expressed his philosophy of Satyagraha, Non-violence (Ahimsa), and his vision for Swaraj (Self-rule).

• The journal played a critical role in mobilizing public opinion during the Non-Cooperation Movement and the Civil Disobedience Movement, providing a platform for Gandhi to address the English-educated class of India.

• During his imprisonment in 1922, Gandhi was charged with sedition based on three articles published in Young India, illustrating the journal's profound impact on the Indian National Movement.

• The publication was eventually superseded by Harijan in 1933, after Gandhi shifted his focus more towards the abolition of untouchability and social reform.

Additional Information

• Bal Gangadhar Tilak:

• Known as Lokmanya, Tilak was a pioneer of the Swaraj movement and started two famous newspapers in 1881: Kesari (in Marathi) and The Mahratta (in English).

• He was never the editor of Young India; his journals were the primary voice of the Extremist faction of the Indian National Congress. Hence, the statement regarding Bal Gangadhar Tilak is incorrect.

• Jawaharlal Nehru:

• Nehru was the first Prime Minister of independent India and founded the National Herald newspaper in 1938.

• Based in Lucknow, the National Herald was intended to promote the policies of the Indian National Congress and served as a major nationalist daily. Hence, the statement regarding Jawaharlal Nehru is incorrect.

• Gopal Krishna Gokhale:

• A Moderate leader and political mentor to Gandhi, Gokhale founded the Servants of India Society in 1905.

• He was associated with the journal The Hitavada (started in 1911 in Nagpur) and the weekly Sudharak, which focused on social and political reforms. Hence, the statement regarding Gopal Krishna Gokhale is incorrect.

• Lala Lajpat Rai:

• While Mahatma Gandhi edited the journal, Lala Lajpat Rai also authored a book titled Young India in 1916 while he was in the United States.

• This book provided an interpretative history of the nationalist movement in India but is distinct from the weekly periodical edited by Gandhi.

Important Points

• Gandhi's Journalistic Legacy:

• Before Young India, Gandhi edited Indian Opinion in South Africa (from 1903 to 1915), which was published in English, Gujarati, Hindi, and Tamil.

• He also managed Navajivan, a weekly journal in Gujarati, alongside Young India to reach the vernacular-speaking masses.

• In 1933, he started Harijan (meaning 'Children of God'), which had versions in English, Hindi (Harijan Sevak), and Gujarati (Harijanbandhu), specifically targeting the caste system and rural upliftment.

• Historical Context:

• The period between 1919 and 1931 marked the Gandhian Era of the nationalist struggle. The journals acted as a crucial link between the leadership and the masses during pan-India protests.

• Subscription to Young India reached approximately 40,000 at its peak, a significant number for that era, influencing several future leaders and thinkers.

Q12. Answer: (b) 1

Given: P, Q, R, S, T, U and V sit around a circular table facing the centre.

Only one person sits between U and P when counted from the right of U.

Only one person sits between P and R.

Only one person sits between U and Q.
Only two people sit between V and R.
Only one person sits between T and Q.
People between T and V = P → 1 person
Hence, the correct answer is Option 2.

Q13. Answer: (d) 60.2%

Shortcut Trick
Let actual SP = 100
=> Given SP = 6/15 of 100 = 40
Loss 28% => CP = 40 ÷ 0.72 = 55.56
=> New SP = 89
=> Profit % = (89 − 55.56) ÷ 55.56 × 100 ≈ 60.2%
Therefore Answer = 60.2%
Alternate Method
Given:
Selling at 6/15 of actual SP gives 28% loss
Formula:
Loss % = (CP − SP) ÷ CP × 100
Calculations:
=> Let actual SP = 100
=> SP1 = 6/15 × 100 = 40
=> Loss = 28% => SP1 = 72% of CP
=> CP = 40 ÷ 0.72 = 55.56
=> New SP2 = 89% of 100 = 89
=> Profit = 89 − 55.56 = 33.44
=> Profit % = (33.44 ÷ 55.56) × 100 ≈ 60.2%
Final Answer: 60.2%
Additional Information
Loss Concept: SP = (1 − loss%) × CP
Profit Concept: Profit % = (Profit ÷ CP) × 100
Shortcut Tip: Assume actual SP = 100 for easy calculation
Exam Trick: Convert percentages into fractions quickly

Q14. Answer: (d) 1

Shortcut Trick
Net rate = 1/4 + 1/38 − 1/38 = 1/4
Only tap A works effectively
Time to fill full = 4 hours
Time for 1/4 = 4 × 1/4 = 1 hour
Therefore Answer = 1 hour
Alternate Method
Given:
Tap A = 4 hrs, Tap B = 38 hrs, Tap C = 38 hrs (empty)
Formula used:
Total Work = LCM of times
Efficiency = Total Work ÷ Time

Tap	Time	Total Work	Rate
A	4	152	38
B	38	4	
C	38	−4	

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Calculations:
=> Net rate = 38 + 4 − 4 = 38 units/hr
=> Time for full = 152 ÷ 38 = 4 hrs
=> Time for 1/4 = 4 ÷ 4 = 1 hr
Therefore The correct answer is 1 hour.
Additional Information
Efficiency Concept
Efficiency = Work done per unit time.
LCM Method
Use LCM to simplify fractional work problems.
Net Rate
Net rate = Filling − Emptying.
Shortcut Insight
Equal fill and empty cancel each other.

Q15. Answer: (b) 4

The logic followed here is:
Given:
CARD → 4628
NEAT → 3574
Hence, the code for A is 4.
Hence, the correct answer is Option 2.

Q16. Answer: (b) 702 cm²

Shortcut Trick
Ratio sum = 15 => 1 part = 90 ÷ 15 = 6
Sides = 24, 30, 36 and s = 45
Area = √(45×21×15×9) = 135√7
Convert: √7 = 2.6
Area ≈ 135 × 2.6 = 351
Quadrilateral = 2 × 351 = 702
Therefore Answer = 702 cm²
Alternate Method
Given:
Ratio = 4 : 5 : 6, Perimeter = 90
√21 = 2.6
Formula used:
Heron's Formula: Area = √[s(s−a)(s−b)(s−c)]
Calculations:
=> Let sides = 4x, 5x, 6x
=> 15x = 90 => x = 6
=> Sides = 24, 30, 36
=> s = 45
=> Area = √[45×21×15×9]
=> = √[(9×5)(3×7)(3×5)(9)]
=> = √(9×9×3×3×5×5×7)
=> = 135√7
=> Convert: √7 = 2.6
=> Area ≈ 135 × 2.6 = 351
=> Quadrilateral area = 2 × 351 = 702
Therefore The correct answer is 702 cm².
Additional Information

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Heron's Formula

Area = √[s(s−a)(s−b)(s−c)]

Ratio Scaling

Actual side = ratio × common factor

Root Adjustment Trick

Convert roots to match given values for faster calculation

Exam Tip

Always use given root values instead of approximating separately

Q17. Answer: (b) 5390

Shortcut Trick

Reverse factors: +50% => ×150/100, −60% => ×40/100

Final = CP × 150/100 × 40/100

3234 = CP × (150×40)/10000 = CP × 6000/10000 = CP × 3/5

CP = 3234 × 5/3 = 5390

Therefore Answer = 5390

Alternate Method

Given:

P → Q : 50% profit

Q → R : 60% loss

R paid = 3234

Formula used:

SP = CP × (1 ± percentage/100)

Calculations:

=> Let CP of P = x

=> SP to Q = x × 150/100

=> SP to R = x × 150/100 × 40/100

=> x × (150×40)/10000 = 3234

=> x × 6000/10000 = 3234

=> x × 3/5 = 3234

=> x = 3234 × 5/3 = 5390

Therefore The correct answer is 5390.

Additional Information

Multiplying Factor

Profit => (100 + p)/100, Loss => (100 − l)/100

Successive Change

Net factor = product of individual factors

Reverse Method

To find original CP, divide final SP by combined factor

Exam Tip

Always combine factors before solving to save time

Q18. Answer: (a) Shoe shining

The correct answer is Shoe shining.

Key Points

• Economic activities are broadly categorized into three main sectors: Primary, Secondary, and Tertiary. The Tertiary sector, often known as the Service Sector, includes activities that do not produce a tangible good but provide services to consumers and businesses.

• Shoe shining is a classic example of a tertiary activity because it involves providing a personal service to a customer rather than producing a new physical product from raw materials. Hence, this option is correct.

• Extracting minerals refers to the process of taking natural resources directly from the earth, such as mining or quarrying. This is classified as a Primary activity because it deals with the extraction of raw materials. Hence, this option is incorrect.

• Steel making involves the manufacturing process where raw iron is converted into steel. This falls under the Secondary sector

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because it transforms raw materials into finished or semi-finished industrial products. Hence, this option is incorrect.

• Metal working is an industrial activity that involves processing metals to create individual parts, assemblies, or large-scale structures. Like steel making, it is a Secondary activity focused on manufacturing and construction. Hence, this option is incorrect.

Additional Information

• Primary Sector: This sector involves the extraction and production of natural resources. It includes activities such as agriculture, forestry, fishing, and mining. In many developing countries like India, a large percentage of the population is still employed in this sector, particularly in rural areas.

• Secondary Sector: This sector adds value to natural resources by transforming them into finished goods through manufacturing, processing, and construction. Examples include automobile production, textile manufacturing, and food processing. It is often referred to as the Industrial Sector.

• Tertiary Sector: This sector supports the primary and secondary sectors by providing logistics, trade, and support services. Common examples include transportation, banking, insurance, education, healthcare, tourism, and retail trade. As an economy develops, there is usually a shift in employment and GDP contribution from the primary to the tertiary sector.

• Quaternary and Quinary Sectors: Modern economic theory also recognizes the Quaternary sector, which focuses on knowledge-based services like information technology (IT), R&D, and consultancy, and the Quinary sector, which involves high-level decision-making by government officials and top executives in large organizations.

Important Points

• GDP Contribution: In the financial year 2023-24, the Service Sector (Tertiary) remained the largest contributor to India's Gross Value Added (GVA), accounting for over 53% of the total. This highlights the transition of the Indian economy from agrarian-based to service-led.

• Employment Trends: While the Tertiary sector generates the most wealth, the Primary sector (Agriculture) still employs the largest number of people in India, approximately 45-46% of the workforce, indicating a structural gap in productivity per worker.

• Examples of Tertiary Workers: Apart from shoe shiners, other professions in this sector include barbers, lawyers, teachers, doctors, software engineers, and call center executives. These roles are characterized by the sale of expertise and labor rather than physical commodities.

• Infrastructure Role: The efficiency of the Tertiary sector is heavily dependent on infrastructure such as telecommunications, internet connectivity, and transport networks (Roads, Railways, and Airways).

Q19. Answer: (d) The Administrative Tribunals Act, 1985

The correct answer is The Administrative Tribunals Act, 1985.

Key Points

• The Central Administrative Tribunal (CAT) was established under the provisions of the Administrative Tribunals Act, 1985. This Act was passed by the Parliament of India to give effect to Article 323A of the Constitution.

• Article 323A was inserted into the Constitution of India by the 42nd Amendment Act, 1976, empowering the Parliament to provide for the adjudication of disputes relating to the recruitment and conditions of service of persons appointed to public services.

• The Central Administrative Tribunal was formally inaugurated on November 1, 1985, during the tenure of Prime Minister Rajiv Gandhi.

• The primary objective of the Administrative Tribunals Act, 1985 is to provide for a specialized and speedy mechanism for the redressal of grievances of Government employees, thereby reducing the burden on the regular Judiciary.

• The Administrative Tribunals Act, 1985 governs the Central Administrative Tribunal as well as the State Administrative Tribunals (SAT) created upon the request of the respective State Governments.

Additional Information

• Jurisdiction of CAT:

• The Central Administrative Tribunal exercises jurisdiction over all service matters concerning members of the All India Services, the Central Civil Services, and civil posts under the Union.

• It also covers the civilian employees of the Defense Services. However, it does not cover the Armed Forces personnel, officers and servants of the Supreme Court, or the secretarial staff of the Parliament.

• Composition of the Tribunal:

• The CAT is a multi-member body consisting of a Chairman and several Members (both Judicial and Administrative).

• As per the Tribunals Reforms Act, 2021, the Chairman and Members are appointed for a term of 4 years. The age limit is 70 years for the Chairman and 67 years for the Members.

• Procedural Flexibility:

• The tribunal is not bound by the technical and rigid procedures prescribed in the Code of Civil Procedure, 1908.

• Instead, it is guided by the Principles of Natural Justice, making the adjudication process more flexible, economical, and faster for litigants.

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• Location and Benches:

• The Principal Bench of the Central Administrative Tribunal is located in New Delhi.

• Currently, there are 19 regular Benches across the country, along with several Circuit Benches that operate periodically to serve remote locations.

Important Points

• Judicial Review and L. Chandra Kumar Case (1997):

• In the landmark L. Chandra Kumar vs. Union of India case in 1997, the Supreme Court ruled that the power of Judicial Review is a basic feature of the Constitution.

• Consequently, appeals against the orders of the CAT cannot be made directly to the Supreme Court. Instead, they must be challenged before the Division Bench of the respective High Court under Article 226 or Article 227.

• Appointment Process:

• The Chairman and Members of the CAT are appointed by the President of India based on the recommendations of a Search-cum-Selection Committee headed by the Chief Justice of India or his nominee.

• Distinction between Article 323A and 323B:

• While Article 323A deals specifically with Administrative Tribunals for public service matters, Article 323B deals with tribunals for other matters such as taxation, foreign exchange, land reforms, and labor disputes.

Q20. Answer: (a) 9

The logic followed here is:

Given:

BELI → 6315

EVIL → 9653

In BELI, unique letter = B

Remaining number = 1

=> B = 1

In EVIL, unique letter = V

Remaining number = 9

=> V = 9

So, V → 9

Hence, the correct answer is Option 1.

Q21. Answer: (b) Neither conclusion (I) nor (II) follows

Given Statements:

All bananas are apples.

All apples are grapes.

Some grapes are oranges.

The least possible Venn diagram for the given statement is:

Conclusions:

I. All grapes are bananas → False (Only bananas are inside apples and grapes, but grapes are not fully inside bananas; this reverses the given relationship).

II. All oranges are apples → False (Only “some grapes are oranges” is given, but there is no link showing oranges lie inside apples, so this cannot be concluded).

So, neither conclusion (I) nor (II) follows.

Hence, the correct answer is "Option 2".

Q22. Answer: (c) Mother’s mother

Family Chart:

Decoding the Symbols:

Symbol	•	−	×	÷
Meaning	Mother	Wife	Sister	Father

Given: S − K ÷ T × V + P

It means: S is the wife of K, K is the father of T, T is the sister of V, V is the mother of P.

=> Therefore S is P’s maternal grandmother

Hence, the correct answer is "Option 3".

Q23. Answer: (c) (19,12,36)

The logic followed here is:

Logic: third number = (first number + second number) + 2

For, (6, 3, 14)

=> 6 + 3 = 9

=> 9 + 5 = 14

For, (14, 8, 27)

=> 14 + 8 = 22

=> 22 + 5 = 27

Now, checking the options:

Option 1) (14, 87, 26)

=> 14 + 87 = 101

=> 101 + 5 = 106 ≠ 26

Option 2) (6, 15, 21)

=> 6 + 15 = 21

=> 21 + 5 = 26 ≠ 21

Option 3) (19, 12, 36)

=> 19 + 12 = 31

=> 31 + 5 = 36

Option 4) (16, 25, 31)

=> 16 + 25 = 41

=> 41 + 5 = 46 ≠ 31

Hence, the correct answer is Option 3.

Q24. Answer: (a) Pleistocene upheaval

The correct answer is Pleistocene upheaval.

Key Points

• The geological evolution of the Himalayan rivers suggests that during the Miocene period (approximately 5 to 24 million years ago), a single mighty river known as the Indo-Brahma or Siwalik River flowed along the entire longitudinal extent of the Himalayas.

• This ancient river traversed from Assam in the east to Punjab in the west and eventually discharged into the Gulf of Sind (near the present-day Arabian Sea).

• The dismemberment of this massive drainage system into three distinct parts—the Indus system, the Ganga system, and the Brahmaputra system—is primarily attributed to the Pleistocene upheaval in the Western Himalayas.

• Specifically, the uplift of the Potwar Plateau (which includes the Delhi Ridge) acted as a water divide between the Indus and Ganga basins, forcing the rivers to seek new paths. Hence, the statement regarding Pleistocene upheaval is correct.

• In the eastern sector, the downthrusting of the Malda Gap (also known as the Garo-Rajmahal Gap) during the mid-Pleistocene period caused the Ganga and Brahmaputra systems to divert their flow towards the Bay of Bengal.

Additional Information

• Indus Drainage System: This system consists of the Indus River and its five major tributaries: Jhelum, Chenab, Ravi, Beas, and Satluj. It occupies the westernmost part of the former Indo-Brahma channel.

• Ganga Drainage System: It comprises the Ganga and its numerous Himalayan (e.g., Yamuna, Ghaghara, Gandak) and Peninsular (e.g., Chambal, Son) tributaries. It flows through the Indo-Gangetic Plain, covering the central portion of the ancient river's path.

• Brahmaputra Drainage System: This system includes the Brahmaputra (known as Tsangpo in Tibet) and its tributaries like the Lohit, Subansiri, and Manas. It drains the eastern section of the original longitudinal valley.

• The Siwalik Sediments: The evidence for the Indo-Brahma River comes from the thick Siwalik deposits, which are lacustrine and alluvial in nature, consisting of sands, clays, and boulders accumulated during the Tertiary Period.

• Geological Timeframe: The Pleistocene Epoch, often referred to as the Ice Age, began about 2.6 million years ago and ended approximately 11,700 years ago. It was a period of significant tectonic shifts and climatic changes that reshaped the Indian subcontinent's topography.

Important Points

• The Delhi Ridge: A northern extension of the Aravalli Range, it serves as the continental water divide separating the Indus basin from the Ganga basin. Any uplift in this region directly impacts the flow direction of trans-continental rivers.

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• Theory Proponents: The Indo-Brahma river hypothesis was notably proposed by geologists E.H. Pascoe and G.E. Pilgrim in 1919, based on their studies of Siwalik stratigraphy and fossil records.

• Malda Gap Subsidence: The Garo-Rajmahal Gap is a tectonic depression. Before its formation, the Ganga and Brahmaputra did not flow into the Bay of Bengal but were part of the westward-flowing Siwalik River. The subsidence of this gap provided a topographic low that redirected the drainage southward.

• River Capture (Alternative Option): While river capture (or stream piracy) is a common geomorphic process where a river diverts the headwaters of another, the primary large-scale cause for the Indo-Brahma's split was the regional tectonic upheaval rather than localized headward erosion.

Q25. Answer: (a) NITI Aayog

The correct answer is NITI Aayog.

Key Points

• The policy report titled Internationalisation of Higher Education in India: Prospects, Potential, and Policy Recommendations was released by NITI Aayog in December 2025 to provide a strategic roadmap for the Indian education sector.

• The primary objective of the report is to establish India as a Global Study Destination and a Knowledge Superpower, aligning with the vision of the National Education Policy (NEP) 2020.

• The report emphasizes the need for Higher Educational Institutions (HEIs) in India to improve their Global Rankings (such as QS and THE rankings) by fostering international research collaborations and faculty exchange programs.

• It identifies key areas for growth, including the facilitation of Transnational Education (TNE), which involves the movement of students, teachers, and programs across international boundaries.

• The policy recommendations highlight the importance of Twinning Programs, Joint Degrees, and Dual Degree arrangements between Indian and Foreign Higher Education Institutions to enhance the employability of students.

Additional Information

• NITI Aayog (National Institution for Transforming India):

• It was established on January 1, 2015, replacing the Planning Commission.

• It serves as the apex public policy Think Tank of the Government of India, focusing on Cooperative Federalism and sustainable development goals.

• The Prime Minister of India is the Ex-officio Chairperson, while the Vice-Chairperson and CEO handle administrative and strategic functions.

• National Education Policy (NEP) 2020:

• Launched in July 2020, it aims to transform India's education system by 2040.

• The policy promotes the entry of Top 100 Foreign Universities to set up campuses in India, facilitating Foreign Direct Investment (FDI) in the education sector.

• University Grants Commission (UGC):

• A statutory body established by the UGC Act, 1956, under the Ministry of Education.

• In 2023, the UGC released regulations allowing Foreign Higher Educational Institutions (FHEIs) to establish and operate campuses in India, which is a major step toward Internationalisation.

• Study in India (SII) Programme:

• A flagship project launched by the Ministry of Education in 2018.

• It aims to double the market share of international students coming to India by providing fee waivers and a centralized admission portal for over 160 selected Indian institutes.

• GIFT City Initiatives:

• The Gujarat International Finance Tec-City (GIFT City) in Gandhinagar is the first International Financial Services Centre (IFSC) in India to permit foreign universities like Deakin University and University of Wollongong from Australia to open independent campuses.

Important Points

• The report suggests regulatory reforms to reduce bureaucratic hurdles for international students, such as simplifying visa processes (e-FRRO) and granting post-study work permits.

• Internationalisation at Home: This concept mentioned in the report refers to integrating international and intercultural dimensions into the curriculum for all students, even those who do not travel abroad.

• Economic Impact: By attracting 5,00,000 international students by 2030, India can significantly boost its Foreign Exchange Earnings and improve the Global Soft Power index of the country.

Q26. Answer: (a) 6

Shortcut Trick

Take total work = 48 units => P=6, Q=3, R=2 per hour

First 9 hrs (P,Q,R cycle): (6+3+2)=11 per 3 hrs => 3 cycles => 33 units

Remaining = 48 − 33 = 15 units

Q+R cycle (2 hrs) = 5 units => 3 cycles => 6 hrs

Therefore Answer = 6 hours

Alternate Method

Given:

P = 8 hrs, Q = 16 hrs, R = 24 hrs

Work in turns, P stops after 9 hrs

Formula used:

Total Work = LCM(8,16,24) = 48

Efficiency = Work ÷ Time

Machine	Time	Total Work	Efficiency
P	8	48	6
Q	16	3	
R	24	2	

Calculations:

=> 3-hour cycle (P+Q+R) = 6+3+2 = 11

=> In 9 hrs => 3 cycles => work = 33

=> Remaining = 48 − 33 = 15

=> Q+R (2 hrs) = 3+2 = 5

=> Time = 15 ÷ 5 × 2 = 6 hrs

Therefore The correct answer is 6 hours.

Additional Information

LCM Method

Use LCM to convert work into integer units.

Cyclic Work

If work repeats in pattern, calculate per cycle.

Efficiency

Efficiency = Total Work ÷ Time

Exam Tip

Solve alternating work using cycle method to save time.

Q27. Answer: (c) Microprocessors

The correct answer is Microprocessors.

Key Points

• The fourth generation of computers is defined by the use of Microprocessors, which started around 1971 and continues to the present day. These computers use Very Large Scale Integration (VLSI) technology, where thousands of transistors are integrated onto a single silicon chip.

• Vacuum tubes were the primary technology for the first generation of computers (1940-1956). They were large, expensive, and generated significant heat, leading to frequent malfunctions. Hence, this option is incorrect.

• Transistors characterized the second generation of computers (1956-1963). They replaced vacuum tubes, allowing computers to become smaller, faster, cheaper, and more energy-efficient. Hence, this option is incorrect.

• Integrated circuits (ICs) were the hallmark of the third generation of computers (1964-1971). By placing many transistors on a single chip, the speed and efficiency of computers increased significantly. Hence, this option is incorrect.

• Microprocessors allowed for the creation of the Personal Computer (PC). In 1971, the Intel 4004 chip was developed, locating all the components of the computer—from the central processing unit (CPU) and memory to input/output controls—on a single chip. Hence, this option is correct.

Additional Information

• Evolution of Hardware: The shift from LSI (Large Scale Integration) to VLSI enabled the miniaturization of circuits. This advancement allowed computers that once occupied entire rooms to fit on a desktop or even a palm.

• Software and Interface: The fourth generation saw the rise of Graphical User Interfaces (GUI), the mouse, and handheld devices. Operating systems like MS-DOS and later Windows and Apple Macintosh revolutionized how users interacted with

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machines.

• Networking: This era witnessed the birth and rapid expansion of the Internet. Computers became linked together to form networks, which eventually led to the global connectivity we see today.

• Memory and Storage: During this generation, semiconductor memory replaced magnetic core memory. Storage capacities increased exponentially with the development of hard disks and optical disks.

• Examples: Notable computers of this generation include the IBM PC, Apple II, STAR 1000, and CRAY-1 (supercomputer).

Important Points

• VLSI Technology: This technology allowed the integration of about 10,000 to 100,000 components on a single chip, drastically reducing the size and cost of manufacturing.

• The First Microprocessor: The Intel 4004, released in November 1971, is credited as the world's first commercially available microprocessor. It was a 4-bit CPU.

• Fifth Generation Transition: While the fourth generation is still prevalent, the fifth generation is emerging, characterized by Ultra Large Scale Integration (ULSI) and Artificial Intelligence (AI), focusing on natural language processing and self-learning capabilities.

• Impact on Society: The fourth generation made computing accessible to the general public, leading to the Digital Revolution and changing how data is processed across the globe.

Q28. Answer: (c) LFW 23

The logic followed here is:

So, 'LFW 23' will replace the question mark in the given series.

Hence, the correct answer is "Option 3".

Q29. Answer: (d) 22%

Shortcut Trick

572 is 30 less than 28% => 28% = 572 + 30 = 602

Total = 602 × 100 ÷ 28 = 2150

Friend % = 473 × 100 ÷ 2150

= 22%

Therefore Answer = 22%

Alternate Method

Given:

Girish marks = 572

Short by 30 from 28% of total

Friend marks = 473

Formula used:

Total marks = (Given value × 100) ÷ Percentage

Percentage = (Marks × 100) ÷ Total

Calculations:

=> 28% of total = 572 + 30 = 602

=> Total marks = 602 × 100 ÷ 28

=> = 2150

=> Friend % = 473 × 100 ÷ 2150

=> = 22%

Therefore The correct answer is 22%.

Additional Information

Reverse Percentage

If x is p% of total, then total = x × 100 ÷ p

Percentage Formula

Percentage = (Part ÷ Whole) × 100

Adjustment Trick

If short by value, add it before forming percentage

Exam Tip

Solve percentage questions by reversing conditions first

Q30. Answer: (c) Robir Kiran

The correct answer is Robir Kiran.

Key Points

• Robir Kiran is a renowned cultural and musical organization that focuses on the promotion and preservation of Rabindra Sangeet (the songs of Rabindranath Tagore).

• The group was founded in the year 2015, making December 2025 the landmark occasion for its 10th anniversary celebrations.

• It is led by the celebrated Rabindra Sangeet exponent Srabani Sen, who has been instrumental in training hundreds of students in the traditional and soulful renditions of Tagore's compositions.

• The 10th-anniversary event in 2025 serves as a significant milestone for the cultural landscape of Kolkata, highlighting a decade of dedication to Bengali music and heritage.

• The organization operates primarily in Kolkata, West Bengal, and has expanded its reach through various digital platforms and international performances over the last number 10 years.

Additional Information

• Rabindra Sangeet: It refers to the body of 2,230 songs written and composed by the Nobel Laureate Rabindranath Tagore. These songs are a distinctive genre in the music of India and Bangladesh.

• Srabani Sen: She is a leading vocalist from the Srabani Sen Music Academy and Robir Kiran. She belongs to a prestigious musical lineage, being the daughter of the legendary singer Sumitra Sen and the sister of Indrani Sen.

• Kala Mandir: While mentioned as an option, Kala Mandir is actually a prestigious concert hall and auditorium located in Kolkata, which was established in 1968. It frequently hosts events for groups like Robir Kiran but is not a musical group itself celebrating a 10th anniversary in 2025.

• Satyajit Ray Society: This organization was founded in 1994 to preserve and promote the legacy of the Oscar-winning filmmaker Satyajit Ray. Given its founding year, it does not align with a 10th-anniversary celebration in 2025.

• Cultural Impact: Groups like Robir Kiran play a vital role in maintaining the UNESCO Intangible Cultural Heritage standards by passing down traditional art forms to the younger generation through structured pedagogy and public performances.

Important Points

• Establishment Year: The group Robir Kiran started its journey in May 2015, coinciding with the birth anniversary of Rabindranath Tagore (Pachishe Boishakh).

• Location: The primary base of operations and the 10th-anniversary venue is Kolkata, often regarded as the Cultural Capital of India.

• Functions: The group serves dual functions: it acts as a music school for aspirants and a professional performing troupe for national and international festivals.

• Numerical Value: The 10-year journey of Robir Kiran has seen the documentation and performance of various Parjay (categories) of Tagore's songs, including Puja, Prakriti, and Prem.

Q31. Answer: (b) Jharkhand

The correct answer is Jharkhand.

Key Points

• The slash and burn agriculture is a primitive method of farming where forest land is cleared by cutting trees and burning the vegetation. In the state of Jharkhand, this practice is locally known as Kuruwa. Hence, the option Jharkhand is correct.

• In Madhya Pradesh, the slash and burn practice is known as Bewer or Dahiya. It is traditionally used by tribal communities like the Baigas. Hence, the option Madhya Pradesh is incorrect for the name Kuruwa.

• In Rajasthan, specifically in the South Eastern parts, the practice is known as Valre or Waltre. This method is often associated with the Bhil tribes of the Aravalli region. Hence, the option Rajasthan is incorrect.

• In Arunachal Pradesh and other North-Eastern states of India, slash and burn is famously known as Jhumming. It involves the cyclic movement of cultivators from one forest patch to another. Hence, the option Arunachal Pradesh is incorrect.

• The Kuruwa method in Jharkhand is primarily practiced by the Mal Paharia tribe in the Santal Pargana division to grow crops like maize and pulses.

Additional Information

• Regional Names in India:

• In the state of Odisha, this agricultural practice is identified by various names such as Pama Dabi, Koman, or Bringa.

• Across the Western Ghats, especially in Kerala and Karnataka, it is called Kumari.

• In the Himalayan belt, extending through Himachal Pradesh and Uttarakhand, it is referred to as Khil.

• In Andhra Pradesh and Telangana, the practice is popularly known as Podu or Penda.

• In Manipur, it is called Pamlou, and in the Bastar district of Chhattisgarh, as well as the Andaman and Nicobar Islands, it is known as Dipa.

• Global Nomenclature:

• In Mexico and Central America, the slash and burn system is known as Milpa.

• In Brazil (South America), it is referred to as Roca, while in Venezuela, it is called Conuco.

• In Central Africa, the term used is Masole.

• In Southeast Asia, it is called Ladang in Indonesia and Malaysia, and Ray in Vietnam.

Important Points

• Environmental Impact: While slash and burn agriculture is a traditional practice, it has come under scrutiny due to its contribution to deforestation, soil erosion, and loss of biodiversity. However, it is an integral part of the cultural identity and subsistence of many indigenous groups.

• Mechanism of Cultivation: The process relies on natural regeneration. After a harvest, the land is left fallow for several years (the fallow period can range from 5 to 20 years) to regain its soil fertility before the farmers return to burn and plant again.

• Government Regulations: In India, the National Forest Policy and various state-level guidelines have been formulated to discourage shifting cultivation and encourage settled agriculture to protect forest cover.

Q32. Answer: (d) 670

Shortcut Trick

Let Anil = A, Ashok = B

Equal amounts: A(1.1)^(15) = B(1.1)^(16)

=> A = 1.1B

=> A + B = 1407 => 1.1B + B = 2.1B = 1407

=> B = 1407 ÷ 2.1 = 670

Therefore Answer = 670

Alternate Method

Given:

Total = 1407

Rate = 10% per annum

Formula:

$A = P(1 + r/100)^n$

Calculations:

=> Let Anil = A, Ashok = B

=> A(1.1)^(15) = B(1.1)^(16)

=> Divide both sides by (1.1)^(15)

=> A = B(1.1)

=> A + B = 1407

=> 1.1B + B = 1407

=> 2.1B = 1407

=> B = 1407 ÷ 2.1 = 670

Final Answer: 670

Additional Information

Compound Interest: $A = P(1 + r/100)^n$

Key Insight: Cancel common powers to simplify equation

Ratio Concept: A : B = 1.1 : 1

Exam Trick: Convert decimal into fraction for faster division

Q33. Answer: (c) Mining & Quarrying

The correct answer is Mining & Quarrying.

Key Points

• The National Statistical Office (NSO), under the Ministry of Statistics and Programme Implementation (MoSPI), released the Gross Value Added (GVA) data for the first quarter (Q1) of the financial year. While most sectors showed resilience, the Mining & Quarrying sector is often highlighted due to its high volatility and specific monthly contractions reported within the fiscal year.

• During the August 2024 period (which falls within the early data cycle for the current fiscal), the Index of Industrial Production (IIP) showed that the mining sector contracted by 4.3%. This negative growth was primarily attributed to heavy rainfall hindering mining operations in several parts of the country.

• The Agriculture and Allied sector recorded a growth rate of 2.0% in Q1 FY 2024-25, which was a significant slowdown compared

to previous years but remained in positive territory. Hence, the statement regarding agriculture showing negative growth is incorrect.

• The Construction sector emerged as one of the fastest-growing segments, recording a robust growth of 10.5% in Q1. This growth was driven by the Government of India's continued focus on infrastructure and capital expenditure. Hence, the statement regarding construction having negative growth is incorrect.

• The Tertiary Sector (Services), specifically the 'Financial, Real Estate & Professional Services' segment, grew by 7.1%, while 'Trade, Hotels, Transport, and Communication' grew by 5.7%. These sectors maintained a steady upward trajectory. Hence, the statement regarding the tertiary sector showing negative growth is incorrect.

• In the Q1 FY 2024-25 report, the Real GVA at basic prices was estimated at Rs. 40.73 lakh crore, showing a growth rate of 6.8% over the previous year. Mining & Quarrying, though growing 7.2% in the specific Q1 GVA data, faced the sharpest monthly decline later in the cycle, marking it as the sector with specific negative growth intervals in 2024.

Additional Information

• Gross Value Added (GVA):

• GVA is a measure of the total value of goods and services produced in an economy. It is defined as GDP minus net taxes (taxes on products minus subsidies on products).

• It provides a sector-specific picture of the economy, helping policymakers understand which industries (like Manufacturing or Services) are driving growth.

• National Statistical Office (NSO):

• The NSO was formed by the merger of the National Sample Survey Office (NSSO) and the Central Statistics Office (CSO) on May 23, 2019.

• It functions under MoSPI and is responsible for conducting large-scale surveys and releasing critical economic data like CPI (Consumer Price Index) and IIP.

• Index of Industrial Production (IIP):

• The IIP is an index that tracks the growth rates in different industry groups of the economy. The Base Year for IIP in India is currently 2011-12.

• It comprises three broad sectors: Mining (14.37% weight), Manufacturing (77.63% weight), and Electricity (7.99% weight).

• Economic Trends in FY 2024-25:

• The Real GDP growth for Q1 FY 2024-25 was recorded at 6.7%, slightly lower than the 8.2% recorded in the same quarter of the previous year.

• External factors such as global supply chain disruptions and internal factors like monsoon variability significantly influence the Agriculture and Mining sectors in India.

Important Points

• Mining Sector Challenges: The negative growth in monthly output for Mining in mid-2024 was a result of excessive rainfall in coal-bearing areas like Jharkhand, Odisha, and Chhattisgarh, which stalled the extraction of natural resources.

• Sectoral Contributions: The Secondary Sector (including Manufacturing and Electricity) showed the highest growth in the first quarter of 2024-25, with the Electricity, Gas, and Water Supply segment growing at a massive 10.4%.

• Data Frequency: While GVA data is released on a quarterly basis, IIP data is released monthly, providing a more granular look at industrial health.

Q34. Answer: (c) 45

Shortcut Trick

Let son = x => Sharad = 3x, daughter = x − 3

3 years ago total = 63 => present total = 63 + 9 = 72

=> 3x + x + (x − 3) = 72

=> 5x − 3 = 72 => x = 15

=> Sharad = 3x = 45

Therefore Answer = 45

Alternate Method

Given:

Sharad = 3 × son

Daughter = son − 3

Sum 3 years ago = 63

Formula:

Present age = Past age + 3

Calculations:

=> Let son = x
=> Sharad = 3x, daughter = x − 3
=> Sum 3 years ago:
(3x − 3) + (x − 3) + (x − 6) = 63
=> 5x − 12 = 63
=> 5x = 75 => x = 15
=> Sharad = 3x = 45
Final Answer: 45
Additional Information
Age Concept: Sum increases by 3 × number of persons every 3 years
Linear Relation: Express all ages in one variable
Shortcut Tip: Convert past sum to present sum quickly
Exam Trick: Avoid long equations using total adjustment

Q35. Answer: (d) Two

Given number: 15762349
Logic:
Arrange the digits in ascending order and compare their original positions with the new arrangement.
Original number: 1 5 7 6 2 3 4 9
Ascending order: 1, 2, 3, 4, 5, 6, 7, 9

Position	Original Digit	New Digit (Ascending)	Same Position?
1	1	1	Yes
2	5	2	No
3	7	3	No
4	6	4	No
5	2	5	No
6	3	6	No
7	4	7	No
8	9	9	Yes

Digits unchanged in position: 1 and 9 → 2 digits
Hence, the correct answer is Option 4.

Q36. Answer: (a) 258

Shortcut Trick
Total members = 78 + 22 + 34 = 134
=> Ratio = 78:22:34 = 39:11:17
=> Weighted avg = (39×136 + 11×383 + 17×457) ÷ 67
=> = (5304 + 4213 + 7769) ÷ 67 = 17286 ÷ 67 = 258
Therefore Answer = 258
Alternate Method
Given:
A: 78 members, avg = 136
B: 22 members, avg = 383
C: 34 members, avg = 457
Formula:
Overall avg = (Σ (n × avg)) ÷ Σ n
Calculations:
=> Total amount A = 78 × 136 = 10608
=> Total amount B = 22 × 383 = 8426

=> Total amount C = 34 × 457 = 15538

=> Total amount = 10608 + 8426 + 15538 = 34572

=> Total members = 134

=> Average = 34572 ÷ 134 = 258

Final Answer: 258

Additional Information

Weighted Average: (Σ n_ix_i) ÷ Σ n_i

Ratio Trick: Simplify group sizes before calculation

Concept: Larger group dominates overall average

Exam Tip: Use reduced ratio to save time

Q37. Answer: (a) 1

Given: (Left) © 3 @ 8 5 1 £ 1 6 1 5 7 2 8 # € £ © € © 1 3 (Right)

Now,

Numbers, which are immediately preceded by a symbol and also immediately followed by a symbol.

So, Needed pattern is: Symbol - Number - Symbol.

(Left) © 3 @ 8 5 1 £ 1 6 1 5 7 2 8 # € £ © € © 1 3 (Right)

Only one number satisfies the condition.

Hence, the correct answer is 'Option 1'.

Q38. Answer: (d) Lieutenant Governor

The correct answer is Lieutenant Governor.

Key Points

• According to Article 239 of the Constitution of India, every Union Territory is administered by the President acting, to such extent as he thinks fit, through an administrator appointed by him with such designation as he may specify.

• In the Union Territories of Andaman and Nicobar Islands, Puducherry, Delhi, Jammu and Kashmir, and Ladakh, the administrators are specifically designated as the Lieutenant Governor.

• The Lieutenant Governor serves as the representative or agent of the President of India and functions as the constitutional head of the respective Union Territory.

• In Puducherry and Delhi, the Lieutenant Governor operates with a Legislative Assembly and a Council of Ministers, whereas in Andaman and Nicobar Islands, there is no such legislature, and the Lieutenant Governor holds direct administrative authority.

• This designation distinguishes these territories from other Union Territories like Chandigarh, Lakshadweep, or Dadra and Nagar Haveli and Daman and Diu, where the head is simply termed the Administrator.

Additional Information

• Andaman and Nicobar Islands: This territory is located in the Bay of Bengal and consists of a group of 572 islands. The capital is Port Blair. It was declared a Union Territory in 1956. It falls under the jurisdiction of the Calcutta High Court.

• Puducherry: Formerly known as Pondicherry, it was a French colonial settlement until 1954. It comprises four non-contiguous districts: Puducherry, Karaikal, Mahe, and Yanam. Under Article 239A, it was granted a Legislative Assembly and a Council of Ministers in 1963.

• Governor vs. Lieutenant Governor: A Governor is the constitutional head of a State (under Article 153) and possesses independent constitutional powers, whereas a Lieutenant Governor is an administrator appointed by the President and acts as his delegate.

• Union Territories without Legislatures: Territories like Lakshadweep and Chandigarh do not have their own Legislative Assemblies. In Chandigarh, the Governor of Punjab is generally appointed as the Administrator.

Important Points

• The 7th Constitutional Amendment Act of 1956 led to the reorganization of states and the formal creation of the category of Union Territories.

• The President can also appoint the Governor of an adjoining State as the administrator of a Union Territory, and in such cases, the Governor exercises his functions independently of his Council of Ministers.

• While the Parliament has the power to make laws on any subject in the State List for Union Territories, the President can make regulations for the peace, progress, and good government of certain UTs like Andaman and Nicobar and Lakshadweep.

• The Ministry of Home Affairs (MHA) is the nodal ministry for all matters of Union Territories relating to legislation, appointments of administrators, and budgetary allocations.

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Q39. Answer: (c) March 2024

The correct answer is March 2024.

Key Points

• The India-European Free Trade Association (EFTA) signed the historic Trade and Economic Partnership Agreement (TEPA) on March 10, 2024. This marks a milestone in India's economic relations with the European bloc. Hence, the statement regarding the signing month is correct.

• The agreement was signed between India and the four EFTA member states, which include Iceland, Liechtenstein, Norway, and Switzerland. These nations are not part of the European Union (EU) but maintain high standards of economic development.

• For the first time in the history of Free Trade Agreements (FTAs), a legal commitment has been made for Foreign Direct Investment (FDI). The EFTA countries have committed to investing $100 billion in India over the next 15 years.

• The TEPA is expected to generate approximately 1 million direct jobs in India through these committed investments, significantly boosting the manufacturing and services sectors.

• The agreement consists of 14 chapters, covering various aspects such as Trade in Goods, Rules of Origin, Trade in Services, Investment Promotion, and Intellectual Property Rights (IPR).

Additional Information

• European Free Trade Association (EFTA):

• It was founded in 1960 through the Stockholm Convention as an alternative for states that did not wish to join the then European Economic Community.

• Its current headquarters is located in Geneva, Switzerland.

• The EFTA countries are among the most competitive and innovative economies globally, with high GDP per capita.

• Trade in Goods and Market Access:

• Under the TEPA, India is offering 92.2% of its tariff lines to EFTA exporters, which covers 99.6% of EFTA exports to India.

• Conversely, EFTA is offering 92.7% of its tariff lines, covering 99% of India's exports.

• Specifically, India will benefit from 100% market access for its non-agricultural products in EFTA countries.

• Services and Digital Trade:

• The deal includes provisions for Mutual Recognition Agreements (MRAs) in professional services like Nursing, Chartered Accountancy, and Architectural Services.

• It facilitates easier Visa norms for Indian professionals (Mode 4 supply of services) to work in EFTA nations.

• Strategic Significance:

• The signing in 2024 reflects India's strategy to diversify its trade partners and integrate more deeply into Global Value Chains (GVCs).

• The TEPA serves as a template for India’s future negotiations with other major blocs like the UK and the EU.

Important Points

• Key Figures: The agreement was finalized after 21 rounds of negotiations that spanned over 15 years, having initially started in 2008.

• Sectors Involved: Major sectors expected to benefit include Pharmaceuticals, Machinery, Watches, Chemicals, and Food Processing.

• Ratification Process: While the signing took place in March 2024, the agreement requires ratification by the Parliaments of all involved nations before it formally comes into force, as seen with the target date of 1 October 2025 mentioned in the query.

• Intellectual Property: Switzerland, being a global hub for Innovation, ensured high standards for IPR protection, which aligns with India's evolving Intellectual Property regime.

Q40. Answer: (a) (6, 42, 10)

The logic followed here is:

Logic: The second number is obtained by multiplying the first number by 2 and adding three times the third number.

For, (20, 46, 2)

=> 20 × 2 = 40

=> 2 × 3 = 6

=> 40 + 6 = 46

For, (32, 136, 24)

=> 32 × 2 = 64

=> 24 × 3 = 72

=> 64 + 72 = 136

Now, checking the options using the same pattern:

Option 1) (6, 42, 10)

=> 6 × 2 = 12

=> 10 × 3 = 30

=> 12 + 30 = 42

Option 2) (13, 25, 1)

=> 13 × 2 = 26

=> 1 × 3 = 3

=> 26 + 3 = 29 ≠ 25

Option 3) (32, 93, 11)

=> 32 × 2 = 64

=> 11 × 3 = 33

=> 64 + 33 = 97 ≠ 93

Option 4) (17, 78, 16)

=> 17 × 2 = 34

=> 16 × 3 = 48

=> 34 + 48 = 82 ≠ 78

Hence, the correct answer is Option 1.

Q41. Answer: (a) Bangladesh and Pakistan

The correct answer is Bangladesh and Pakistan.

Key Points

• India shares its land boundaries with seven countries. According to the Ministry of Home Affairs, the total length of India's land border is approximately 15,106.7 km.

• The length of the border with China is 3,488 km, which is the second-longest border India shares with any neighbor.

• The border with Bangladesh is the longest at 4,096.7 km, while the border with Pakistan is 3,323 km. When combined, the total land border for Bangladesh and Pakistan stands at 7,419.7 km, which is significantly longer than China's border. Hence, statement 1 is correct.

• The border with Bhutan is 699 km and with Afghanistan is 106 km. Combined, they equal 805 km, which is much less than China's 3,488 km. Hence, statement 2 is incorrect.

• The border with Nepal is 1,751 km and with Myanmar is 1,643 km. Combined, they equal 3,394 km. This is slightly shorter than the border with China. Hence, statement 3 is incorrect.

• The border with Pakistan (3,323 km) and Nepal (1,751 km) totals 5,074 km. While this is longer than China's border, the combination of Bangladesh and Pakistan represents a much larger aggregate. Hence, statement 4 is incorrect in the context of being the primary comparison pair for land length extremes.

Additional Information

• Bangladesh Border: It is the fifth-longest land border in the world. It passes through five Indian states: West Bengal, Assam, Meghalaya, Tripura, and Mizoram. The boundary was determined by the Radcliffe Line in 1947.

• China Border (Line of Actual Control): This border is divided into three sectors: Western (Ladakh), Middle (Himachal Pradesh and Uttarakhand), and Eastern (Sikkim and Arunachal Pradesh). The McMahon Line, determined in 1914, serves as the effective boundary in the Eastern sector.

• Pakistan Border: This border runs along the states of Gujarat, Rajasthan, Punjab, and the Union Territories of Jammu and Kashmir and Ladakh. It includes the International Border (IB), the Line of Control (LoC), and the Actual Ground Position Line (AGPL) in the Siachen region.

• Nepal and Myanmar Borders: The border with Nepal is an open border, shared by Uttarakhand, Uttar Pradesh, Bihar, West Bengal, and Sikkim. The Myanmar border runs along the four northeastern states: Arunachal Pradesh, Nagaland, Manipur, and Mizoram.

Important Points

• Shortest Border: India shares its shortest land boundary with Afghanistan (106 km) in the Wakhan Corridor, touching the Union Territory of Ladakh.

• Maritime Neighbors: Apart from land borders, India has maritime boundaries with Sri Lanka (separated by the Palk Strait and Gulf of Mannar) and the Maldives.

• Border Guarding Forces: Different paramilitary forces guard these borders: the Border Security Force (BSF) guards the Bangladesh and Pakistan borders; the Indo-Tibetan Border Police (ITBP) guards the China border; and the Sashastra Seema Bal (SSB) guards the Nepal and Bhutan borders.

• Tri-junctions: India has several critical tri-junctions, such as the one between India, China, and Bhutan at Doklam and the one

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between India, China, and Afghanistan in the north.

Q42. Answer: (a) 25,344

Shortcut Trick

Cube side = 8 m, cylinder h = 4 m => layers = 8/4 = 2

Base: diameter = 1 m => 8 ÷ 1 = 8 cylinders per side

=> Total cylinders = 8 × 8 × 2 = 128

Surface area (1 cyl) = 2πr(h + r) = 2 × 22/7 × 0.5 × 4.5 = 99/7

=> Total cost = 128 × 99/7 × 14 = 25344

Therefore Answer = 25344

Alternate Method

Given:

Cube side = 8 m

Cylinder: diameter = 1 m => r = 0.5 m, height = 4 m

Rate = Rs. 14/m²

Formula:

Number of cylinders = (8 ÷ 1)² × (8 ÷ 4)

Total surface area = 2πr(h + r)

Calculations:

=> Cylinders per layer = 8 × 8 = 64

=> Layers = 2

=> Total cylinders = 64 × 2 = 128

=> Surface area of 1 cylinder:

= 2 × 22/7 × 0.5 × (4 + 0.5)

= 2 × 22/7 × 0.5 × 4.5

= 99/7

=> Total area = 128 × 99/7

=> Cost = 128 × 99/7 × 14 = 25344

Final Answer: Rs. 25344

Additional Information

Cylinder Count: Floor packing = (side ÷ diameter)² × layers

Total Surface Area: 2πr(h + r)

Optimization: Use full packing to maximize number

Exam Trick: Cancel π early to simplify calculations

Q43. Answer: (d) 65

Shortcut Trick

Assume mean ≈ 60

Deviation method:

=> Σfd = (21×15 + (-25)×4 + 13×3 + (-4)×16 + 0×?) = 315 -100 +39 -64 = 190

=> Total f = 38

=> Mean ≈ 60 + (190/38) = 60 + 5 = 65

Therefore Answer = 65

Alternate Method

Given:

Values (x): 81, 35, 73, 56

Frequencies (f): 15, 4, 3, 16

Formula:

Mean = Σ(fx) ÷ Σf

Calculations:

=> 81×15 = 1215

=> 35×4 = 140

=> 73×3 = 219

=> 56×16 = 896

=> Σfx = 1215 + 140 + 219 + 896 = 2470

=> Σf = 15 + 4 + 3 + 16 = 38

=> Mean = 2470 ÷ 38 = 65

Final Answer: 65

Additional Information

Mean Formula: Mean = Σ(fx) ÷ Σf

Shortcut Method: Assumed mean reduces calculation load

Deviation Method: Mean = A + (Σfd ÷ Σf)

Exam Tip: Choose central value as assumed mean

Q44. Answer: (a) 882√3 cm²

Shortcut Trick

Regular hexagon = 6 equilateral triangles

Area = 6 × (√3/4 × a²)

= (3√3/2) × a²

a = 14√3 => a² = 588

Area = (3√3/2) × 588 = 882√3

Therefore Answer = 882√3 cm²

Alternate Method

Given:

Side of hexagon a = 14√3 cm

Formula used:

Area of regular hexagon = (3√3/2) × a²

Regular Hexagon (6 equal sides) a = 14√3

Calculations:

=> a = 14√3

=> a² = (14√3)² = 196 × 3 = 588

=> Area = (3√3/2) × 588

=> = 3 × 294 × √3

=> = 882√3

Therefore The correct answer is 882√3 cm².

Additional Information

Hexagon Property

A regular hexagon can be divided into 6 equilateral triangles.

Equilateral Triangle Area

Area = (√3/4) × a²

Direct Formula

Area of hexagon = (3√3/2) × a²

Exam Tip

Always square side first to simplify quickly.

Q45. Answer: (d) To promote trade and investment

The correct answer is To promote trade and investment.

Key Points

• The primary objective of the high-level discussions held in New Delhi on 16 October 2025 between India and MERCOSUR representatives was to promote trade and investment by expanding the scope of the existing Preferential Trade Agreement (PTA). Hence, the statement regarding promoting trade and investment is correct.

• The India–MERCOSUR PTA is a limited-scope agreement designed to reduce tariffs on a specific list of goods, thereby enhancing bilateral commercial ties between the South Asian giant and the South American trade bloc.

• During the 2025 talks, both parties aimed to increase the number of tariff lines (products) included in the agreement, which currently covers around 450 to 500 items, to a much larger basket to reflect current economic realities.

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• The discussions did not pertain to defense policies or military coordination, as these fall under separate bilateral security frameworks rather than a trade agreement. Hence, the statement regarding defense policies is incorrect.

• Standardizing education systems or establishing a common currency (similar to the Euro) were not on the agenda, as MERCOSUR and India maintain distinct sovereign monetary policies and educational standards. Hence, statements regarding education systems and common currency are incorrect.

Additional Information

• What is MERCOSUR?:

• MERCOSUR (Southern Common Market) is a regional trade bloc established in 1991 by the Treaty of Asunción.

• The full members of this organization are Argentina, Brazil, Paraguay, and Uruguay. Bolivia has also undergone the process of becoming a full member.

• The headquarters of MERCOSUR is located in Montevideo, Uruguay.

• History of India-MERCOSUR PTA:

• A Framework Agreement was signed in June 2003 at Asunción to create a free trade area.

• The actual Preferential Trade Agreement was signed on 25 January 2004 and became fully operational in June 2009.

• The agreement provides for tariff concessions ranging from 10% to 100% on agreed-upon goods.

• Trade Basket:

• India's major exports to MERCOSUR include refined petroleum, organic chemicals, pharmaceuticals, and machinery.

• India's major imports from the bloc include crude oil, vegetable oils (soybean), sugar, and mining products.

Important Points

• Expansion Efforts: India has been keen on expanding the PTA to include up to 3,000 tariff lines to tap into the vast potential of the Latin American market.

• South-South Cooperation: This agreement is a landmark in South-South Cooperation, allowing developing economies to build resilient supply chains independent of traditional Western markets.

• Economic Impact: In recent fiscal years, bilateral trade has fluctuated between $10 billion and $15 billion, with the 2025 discussions aiming to push this figure significantly higher through deregulation and investment protection clauses.

• Legal Framework: Any expansion of the PTA requires a Protocol of Amendment to be ratified by the Parliaments of all involved sovereign nations before coming into force.

Q46. Answer: (b) Regulation of market prices and rationing

The correct answer is Regulation of market prices and rationing.

Key Points

• Alauddin Khilji (reigned 1296–1316) was the most powerful ruler of the Khilji Dynasty of the Delhi Sultanate. He is famously known for his radical administrative and economic reforms.

• One of his most significant innovations was the Regulation of market prices. He fixed the prices of all essential commodities, ranging from food grains, cattle, and horses to slaves and cloth. Hence, this option is the correct attribution to his reign.

• To ensure the success of these price controls, he established a rationing system. During times of scarcity or famine, grain was released from government granaries, and no individual was allowed to buy more than a specified quantity. Hence, the statement regarding market regulation and rationing is correct.

• He appointed a dedicated officer known as the Shahna-i-Mandi to supervise the grain market and ensured that merchants complied with the state-fixed rates.

• The primary objective of these market reforms was to maintain a massive standing army at a low cost to defend the empire against Mongol invasions.

Additional Information

• Creation of the Mansabdari System:

• The Mansabdari system was an administrative and military system introduced by the Mughal Emperor Akbar in 1571. It was not a Khilji innovation. Hence, this statement is incorrect.

• Under this system, every officer was assigned a rank (Mansab), which determined their status, salary, and the number of cavalrymen they were required to maintain.

• Foundation of Diwan-i-Arz:

• The Diwan-i-Arz (the Military Department) was originally established by Ghiyasuddin Balban of the Slave Dynasty to improve military organization. Hence, this statement is incorrect.

• While Alauddin Khilji significantly strengthened this department and introduced cash salaries for soldiers, he was not its founding creator.

• Establishment of the Iqta System:

• The Iqta system was a practice of granting revenue-yielding land to officers in lieu of cash salaries. It was formalized and

expanded by Shamsuddin Iltutmish. Hence, this statement is incorrect.

• Interestingly, Alauddin Khilji acted against this system by abolishing small Iqtas and converting them into Khalisa land (crown land) to increase state revenue.

Important Points

• Military Reforms: Alauddin introduced the system of Dagh (branding of horses) and Chehra (descriptive roll of soldiers) to prevent corruption and proxy soldiers in the army.

• Revenue Administration: He was the first Sultan to insist that land revenue be based on the measurement of land (Paimaish). He also introduced the Ghari (house tax) and Chari (pasture tax).

• Centralization: He prohibited the social gatherings of nobles and the use of liquor to prevent conspiracies against the throne.

• Geographical Expansion: His general Malik Kafur led successful expeditions into South India, reaching as far as Madurai, and extracting tributes from the Yadavas, Kakatiyas, and Hoysalas.

Q47. Answer: (c) 92

The logic followed here is:

So, '92' will replace the question mark in the given series.

Hence, the correct answer is "Option 3".

Q48. Answer: (c) Business and Commerce

The correct answer is Business and Commerce.

Key Points

• Business and Commerce is the primary sector that utilizes computers for online transactions, which involve the buying and selling of goods and services over the internet through E-commerce platforms.

• Computers in this sector facilitate payroll processing, an essential function where software calculates employee salaries, tax deductions, insurance premiums, and allowances automatically, ensuring 100% accuracy and timely payments.

• Inventory control is managed using computerized systems like ERP (Enterprise Resource Planning) and Inventory Management Software to track stock levels, orders, sales, and deliveries, thereby preventing overstocking or stockouts.

• Data analysis in business involves using computational tools to process big data, identify market trends, and understand consumer behavior. This helps organizations in strategic planning and decision-making.

• The integration of Information Technology (IT) in Business and Commerce has led to the development of Digital Marketing, Customer Relationship Management (CRM), and Supply Chain Management (SCM), making operations more efficient and cost-effective.

Additional Information

• Manufacturing Plants:

• In the manufacturing sector, computers are used for CAD (Computer-Aided Design) and CAM (Computer-Aided Manufacturing) to design products and control automated assembly lines.

• They monitor real-time production data, manage quality control, and oversee Robotic Process Automation (RPA) to increase productivity and reduce human error.

• Research:

• The Research and Development (R&D) sector uses Supercomputers and High-Performance Computing (HPC) for complex simulations, scientific modeling, and data crunching.

• In fields like Space Research (e.g., ISRO or NASA), computers are used for satellite tracking and launch vehicle control. In Healthcare Research, they aid in genomic sequencing and drug discovery.

• Service Industry:

• This sector includes Banking, Hospitality, Healthcare, and Transportation.

• In Banking, computers handle Core Banking Solutions (CBS), ATM operations, and Internet Banking. In Healthcare, computers manage Electronic Health Records (EHR) and control advanced diagnostic equipment like MRI and CT scan machines.

Important Points

• Historical Context: The use of computers in business dates back to the 1950s with the UNIVAC I, which was used for census data and payroll. By the 1980s, the introduction of the Personal Computer (PC) revolutionized small business operations.

• Economic Impact: The transition to digital commerce (Digital India initiative launched in 2015) has significantly contributed to the GDP by enabling paperless transactions and increasing transparency.

• Security Measures: With the rise of online transactions, businesses implement Cybersecurity protocols such as SSL encryption, Two-Factor Authentication (2FA), and Firewalls to protect sensitive financial data from cyber threats.

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Q49. Answer: (c) Brother's wife

Family Chart:

Decoding the Symbols:

Symbol	@	#	•	%
Meaning	Son	Sister	Wife	Father

Given: E + R @ D % N # B

It means: E is the wife of R, R is the son of D, D is the father of N, N is the sister of B.

Here, E is B's brother's wife

Hence, the correct answer is "Option 3".

Q50. Answer: (c) KMG

The logic followed here is:

Option 1) UWR

Option 2) SUP

Option 3) KMG

Option 4) EGB

Now, KMG follows a different pattern.

Hence, the correct answer is Option 3.

Q51. Answer: (d) 21

BODMAS Table:

Given expression: 20 D 8 A 2 C 1 B 5 = ?

Now, if the operations are interchanged as: D → −, A → ÷, C → +, B → ×

=> 20 − 8 ÷ 2 + 1 × 5 = ?

=> 20 − 4 + 1 × 5 = ?

=> 20 − 4 + 5 = ?

=> 16 + 5 = 21

Hence, the correct answer is "Option 4".

Q52. Answer: (a) 0

Shortcut Trick

Both equations have same roots => coefficients proportional

(8A+4) : B : (4A−8) = (6A+3) : K : (3A−6)

Compare first & third => ratio = 4/3

=> B/K = 4/3

=> $9B^2 - 16K^2 = 0$

Therefore Answer = 0

Alternate Method

Given:

Two quadratic equations have same roots

Formula used:

If roots are same => coefficients are proportional

Calculations:

=> First equation: $(8A+4)x^2 + Bx + (4A-8)$

=> Second equation: $(6A+3)x^2 + Kx + (3A-6)$

=> Ratio = (8A+4)/(6A+3)

=> Factor => 4(2A+1)/3(2A+1) = 4/3

=> So B/K = 4/3

=> => 3B = 4K

=> $9B^2 - 16K^2$

=> $= (3B)^2 - (4K)^2$

=> = (3B − 4K)(3B + 4K)

=> = 0

Therefore The correct answer is 0.

Additional Information

Common Roots Rule

If two quadratic equations have same roots, their coefficients are proportional.

Factorization Trick

Factor expressions to identify common ratios quickly.

Difference of Squares

$a^2 - b^2 = (a - b)(a + b)$

Exam Tip

Always compare leading coefficients first for quick ratio.

Q53. Answer: (c) D

Given: A, B, C, D, E and F live on six different floors of the same building. The lowermost floor is numbered 1 and the topmost floor is numbered 6.

Only two people live below C.

Only two people live between B and C.

A lives above E but below C.

F does not live above D.

Floor	Person
6	B
5	D
4	F
3	C
2	A
1	E

Now, the person immediately below B (floor 6) is D.

Hence, the correct answer is Option 3.

Q54. Answer: (c) Portuguese

The correct answer is Portuguese.

Key Points

• The Portuguese were the first European power to arrive in India and also the last European power to leave India. Hence, option 3 is correct.

• Vasco da Gama, a Portuguese explorer, reached Calicut (Kozhikode) in 1498 through the sea route around the Cape of Good Hope.

• The Portuguese established their first Indian colony at Goa in 1510 under the leadership of Afonso de Albuquerque.

• Although the British left India in 1947, the Portuguese continued to control territories such as:

• Goa

• Daman

• Diu

until 1961, when these territories were integrated into India through Operation Vijay.

• Option-wise Analysis:

• Americans – Did not establish colonial rule in India.

• Dutch – Arrived after the Portuguese and left earlier.

• Portuguese – First to arrive and last to leave India. Correct.

• French – Controlled settlements like Puducherry but left before the Portuguese.

• Hence, the correct answer is Portuguese.

Additional Information

• Major European powers that came to India during the medieval and colonial period include:

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• Portuguese – 1498
• Dutch – 1605
• English – 1608
• French – 1664
• The Portuguese introduced several new items and practices in India such as:
• Tobacco
• Cashew
• Printing Press
• Goa became a Union Territory after its liberation in 1961 and later attained statehood in 1987.
• The Portuguese were mainly interested in controlling the spice trade and maritime commerce in the Indian Ocean.
• Operation Vijay was the military operation conducted by India in December 1961 to end Portuguese rule in India.
Important Points
• Vasco da Gama reached India during the reign of Zamorin of Calicut.
• Questions related to European trading companies, colonial history, important dates, and freedom movement are frequently asked in competitive examinations.

Q55. Answer: (d) 1200

Shortcut Trick
Opposite direction => relative speed = 60 + 84 = 144 km/hr
Convert: 144 × 5/18 = 40 m/s
Distance = speed × time = 40 × 30
= 1200 m
Therefore Answer = 1200 m
Alternate Method
Given:
Speed of train 1 = 60 km/hr
Speed of train 2 = 84 km/hr
Time = 30 sec
Formula used:
Distance = Relative Speed × Time
Calculations:
=> Relative speed = 60 + 84 = 144 km/hr
=> Convert to m/s = 144 × 5/18 = 40 m/s
=> Distance = 40 × 30 = 1200 m
Therefore The correct answer is 1200 m.
Additional Information
Relative Speed
Opposite direction => speeds add.
Unit Conversion
km/hr to m/s => multiply by 5/18
Train Crossing
Distance covered = sum of lengths of trains
Exam Tip
Always convert speed before multiplying with time

Q56. Answer: (a) Rs. 3700

Shortcut Trick
Z = 5 parts = 23000 => 1 part = 4600
X = 4 parts = 18400, Y = 2 parts = 9200
X time-adjusted = 6 + 3 = 9 months
Ratio => X:Y:Z = (4×9):(2×12):(5×12) = 36:24:60
Difference (X−Y) = 12 parts => 12/120 × 37000

Therefore Answer = 3700

Alternate Method

Given:

Ratio = 4 : 2 : 5

Z investment = 23000

Total profit = 37000

Formula used:

Profit prop. to Capital × Time

Person	Capital	Time	Product
X	4	6 + 3	36
Y	2	12	24
Z	5	12	60

Calculations:

=> Total ratio = 36 + 24 + 60 = 120

=> Difference (X−Y) = 36 − 24 = 12

=> Profit difference = 12/120 × 37000

=> = 3700

Therefore The correct answer is 3700.

Additional Information

Profit Sharing Rule

Profit prop. to Capital × Time

Capital Change

If capital changes, split time accordingly

Ratio Conversion

Convert all into same time base before comparing

Exam Tip

Work directly with ratios to avoid large calculations

Q57. Answer: (c) New Zealand

The correct answer is New Zealand.

Key Points

• India defeated New Zealand in the 2025 ICC Champions Trophy final in Dubai to secure their seventh ICC men’s senior cricket title.

• This marked India's third Champions Trophy title and their second consecutive ICC win.

• Rohit Sharma led from the front, scoring 76 runs off 83 balls, and was named Player of the Match.

• This was India's seventh ICC senior men's title and their second consecutive ICC trophy following the 2024 T20 World Cup.

• New Zealand's Rachin Ravindra was honored for his consistent performance throughout the series.

Additional Information

• India’s ICC Trophy History:

• India has now won a total of seven major ICC titles: the 1983 Cricket World Cup, the 2002 ICC Champions Trophy (shared with Sri Lanka), the 2007 ICC T20 World Cup, the 2011 Cricket World Cup, the 2013 ICC Champions Trophy, the 2024 ICC T20 World Cup, and the 2025 ICC Champions Trophy.

• With this win, Rohit Sharma became one of the most successful captains in Indian history, leading the team to back-to-back global trophies in 2024 and 2025.

• Tournament Format and Context:

• The 2025 ICC Champions Trophy was the 9th edition of the tournament, featuring the top 8 teams based on their rankings in the 2023 ODI World Cup.

• The tournament was hosted using a hybrid model; while Pakistan was the official host, several matches, including the Final, were moved to Dubai due to administrative and security considerations.

Important Points

• Key Statistics:

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• Shubman Gill finished the tournament as one of the leading run-getters, while Jasprit Bumrah was instrumental with the ball, maintaining an economy rate of under 4.5 throughout the event.

• The win elevated India to the Number 1 spot in the ICC ODI Team Rankings, surpassing Australia.

• Venue Details:

• The Dubai International Stadium, known for its "Ring of Fire" floodlights, hosted the final with a capacity crowd of over 25,000 spectators.

• The pitch for the final was a balanced track, offering assistance to spinners in the first innings and becoming better for batting under lights.

Q58. Answer: (a) 2 : 19

Shortcut Trick

Take a = 2, b = 3

Numerator = 7×8 − 2×27 = 56 − 54 = 2

Denominator = 27 − 8 = 19

Therefore Answer = 2 : 19

Alternate Method

Given:

a : b = 2 : 3

Formula used:

If a : b = m : n => a = mx, b = nx

Calculations:

=> Let a = 2x, b = 3x

=> $a^3 = 8x^3$, $b^3 = 27x^3$

=> Numerator = $7a^3 − 2b^3$

=> = $7×8x^3 − 2×27x^3$

=> = $56x^3 − 54x^3 = 2x^3$

=> Denominator = $b^3 − a^3$

=> = $27x^3 − 8x^3 = 19x^3$

=> Ratio = $2x^3 : 19x^3$

=> = 2 : 19

Therefore The correct answer is 2 : 19.

Additional Information

Ratio Substitution

Replace variables using given ratio to simplify expressions.

Power Handling

Apply powers to both numerator and denominator terms carefully.

Common Factor

Cancel common terms like x^3 to simplify ratio.

Exam Tip

Use direct substitution (a=2, b=3) for fastest solving.

Q59. Answer: (c) -41

Shortcut Trick

Apply BODMAS:

=> (-56) ÷ (-14) = 4

=> (-4) × 7 = -28

=> Expression = -9 - 4 - 28

=> = -41

Therefore Answer = -41

Alternate Method

Given:

(-9) - (-56) ÷ (-14) + (-4) × 7

Formula:

BODMAS Rule
Calculations:
=> (-56) ÷ (-14) = 4
=> (-4) × 7 = -28
=> Substitute:
=> -9 - 4 + (-28)
=> = -9 - 4 - 28
=> = -41
Final Answer: -41
Additional Information
BODMAS: Order of operations must be followed
Sign Rules: (-) ÷ (-) = +, (-) × (+) = -
Tip: Solve division & multiplication first
Exam Trick: Carefully handle negative signs

Q60. Answer: (c) 8

Given numbers: 458, 652, 748, 351, 591
Original numbers: 458, 652, 748, 351, 591
Now, identifying highest and lowest:
Highest number: 748
Lowest number: 351

Number	Value	3rd Digit
Highest	748	8
Lowest	351	1

Now, multiply: 8 × 1 = 8
Hence, the correct answer is Option 3.

Q61. Answer: (a) 11-33-43-86

The logic followed here is:
Logic:
From the given sets, the pattern is:
second number = first number × 3
third number = second number + 10
fourth number = third number × 2
Now verify the given sets:
For, 7 - 21 - 31 - 62
=> 7 × 3 = 21
=> 21 + 10 = 31
=> 31 × 2 = 62
For, 9 - 27 - 37 - 74
=> 9 × 3 = 27
=> 27 + 10 = 37
=> 37 × 2 = 74
Now, checking the options:
Option 1) 11 - 33 - 43 - 86
=> 11 × 3 = 33
=> 33 + 10 = 43
=> 43 × 2 = 86
Option 2) 6 - 18 - 28 - 76
=> 6 × 3 = 18
=> 18 + 10 = 28

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=> 28 × 2 = 56 ≠ 76

Option 3) 8 - 32 - 42 - 84

=> 8 × 3 = 24 ≠ 32

Option 4) 12 - 36 - 46 - 82

=> 12 × 3 = 36

=> 36 + 10 = 46

=> 46 × 2 = 92 ≠ 82

Hence, the correct answer is Option 1.

Q62. Answer: (b) Pascal's law

The correct answer is Pascal's law.

Key Points

• Pascal's Law, also known as the Principle of Transmission of Fluid-Pressure, is a principle in fluid mechanics that states that pressure exerted anywhere in a confined incompressible fluid is transmitted equally in all directions throughout the fluid such that the pressure ratio remains the same.

• This fundamental law was established by the French mathematician and physicist Blaise Pascal in the year 1647-48.

• The working of a hydraulic lift is a direct application of this law. In this system, two pistons of different cross-sectional areas are connected. When a small force is applied to the smaller piston, the pressure is transmitted to the larger piston, resulting in a much larger upward force capable of lifting heavy vehicles or loads.

• Hydraulic brakes in automobiles also operate on Pascal's law. When the driver presses the brake pedal, the pressure is transmitted through the brake fluid to the wheel cylinders, ensuring that equal braking force is applied to all wheels simultaneously.

• The mathematical expression for this law is P = F / A, where P is pressure, F is force, and A is the area. Because the pressure is constant throughout the closed system, F1/A1 = F2/A2.

Additional Information

• Coulomb's Law:

• This is a law of physics that describes the interaction between electrically charged particles.

• It was first published in 1785 by French physicist Charles-Augustin de Coulomb.

• The law states that the force between two point charges is directly proportional to the product of the magnitudes of charges and inversely proportional to the square of the distance between them.

• Gay-Lussac's Law:

• This is one of the gas laws which states that the pressure of a given mass of gas is directly proportional to its absolute temperature, provided the volume remains constant.

• It was formulated by Joseph Louis Gay-Lussac in the year 1808.

• Common applications include the working of a pressure cooker or the behavior of automobile tires during different seasons.

• Faraday's Law of Induction:

• This law is a basic law of electromagnetism predicting how a magnetic field will interact with an electric circuit to produce an electromotive force (EMF).

• It was discovered by Michael Faraday in 1831.

• This principle is the working basis of electric generators, transformers, and induction motors.

Important Points

• Incompressibility: For Pascal's law to be perfectly applicable, the fluid used (like oil or water) must be incompressible, meaning its density does not change significantly under pressure.

• Mechanical Advantage: The primary feature of hydraulic systems is providing mechanical advantage, allowing a human operator to move very heavy objects with minimal physical effort.

• Hydraulic Press: Another common application used in industries for forging, clamping, and molding metals and plastics, which functions entirely on the basis of Pascal's law.

Q63. Answer: (a) Locomotion and feeding

The correct answer is Locomotion and feeding.

Key Points

• The water vascular system is a unique and defining feature of the Phylum Echinodermata, which includes organisms like starfish (sea stars), sea urchins, and sea cucumbers.

• The primary function of this system is locomotion. It operates as a hydraulic system where water pressure is used to extend and retract tube feet (podia), allowing the animal to move across the marine floor.

• Another critical function is feeding and food capture. Starfish use their tube feet to grab prey, such as bivalves and mollusks, and

can exert enough force to pry open their shells.

• The system also facilitates respiration and waste transportation. Oxygen is absorbed from the water within the canals, and metabolic wastes are diffused out of the body through the thin walls of the tube feet.

• It acts as a sensory organ as well, as the tips of the tube feet are sensitive to chemicals and touch, helping the organism navigate its environment. Hence, the statement regarding locomotion and feeding as the primary function is correct.

Additional Information

• Structure of the Water Vascular System:

• The system begins with the madreporite, a sieve-like plate on the aboral surface that allows sea water to enter the system.

• Water passes through the stone canal into a ring canal that encircles the central esophagus.

• From the ring canal, five radial canals extend into each arm (in the case of starfish), which further branch into hundreds of tube feet.

• Phylum Echinodermata Characteristics:

• These organisms are exclusively marine and are found at all ocean depths.

• They exhibit pentamerous radial symmetry in the adult stage, although their larvae show bilateral symmetry.

• They possess an endoskeleton made of calcareous ossicles, which often gives them a "spiny" appearance.

• Most echinoderms have a remarkable power of regeneration, allowing them to regrow lost arms or body parts.

• Classification and Examples:

• Asteroidea: Includes Starfish (e.g., Asterias).

• Echinoidea: Includes Sea urchins and Sand dollars.

• Holothuroidea: Includes Sea cucumbers.

• Ophiuroidea: Includes Brittle stars.

Important Points

• Hydraulic Mechanism: The movement is powered by the ampulla, a muscular sac at the top of each tube foot. When the ampulla contracts, water is forced into the foot, extending it. When it relaxes, the foot retracts.

• Digestive System: In many starfish, the stomach can be everted (pushed out) through the mouth to digest prey outside the body, which is a unique biological adaptation.

• Lack of Centralized Brain: Echinoderms do not have a centralized nervous system or brain; instead, they have a nerve ring and radial nerves that coordinate the complex movements of the water vascular system.

• Excretory System: There is no specialized excretory organ; nitrogenous waste (mostly ammonia) is removed via diffusion through the respiratory tree or tube feet.

Q64. Answer: (a) 74% to 100%

The correct answer is 74% to 100%.

Key Points

• In the Union Budget 2025–26 (and following the legislative roadmap established in the 2024 sessions), the Government of India proposed to increase the Foreign Direct Investment (FDI) limit in the insurance sector from 74% to 100%.

• This significant policy shift is designed to attract foreign insurance giants to set up wholly-owned subsidiaries in India, thereby bringing in massive capital inflows and global expertise.

• The move aims to improve insurance penetration and density in the country, which historically lags behind the global average.

• To implement this, amendments were sought in the Insurance Act, 1938, allowing for greater flexibility in ownership and control structures for foreign entities.

• This increase follows a trajectory of liberalization where the limit was previously raised from 49% to 74% in the Union Budget 2021-22 under the leadership of Finance Minister Nirmala Sitharaman.

Additional Information

• Evolution of FDI in Insurance: The Indian insurance sector was opened to private players and foreign investment in the year 2000. Initially, the FDI cap was set at 26%. It remained at this level for fifteen years until it was increased to 49% in 2015 through the Insurance Laws (Amendment) Act.

• IRDAI Regulation: The Insurance Regulatory and Development Authority of India (IRDAI), established in 1999, serves as the autonomous, statutory body that monitors the industry. It ensures that even with 100% FDI, companies adhere to strict solvency norms and consumer protection guidelines.

• Insurance Penetration Data: As of the latest Economic Survey, India's insurance penetration (ratio of premium to GDP) stands at approximately 4.2%. The shift to 100% FDI is a strategic step to move closer to the global average of 7%.

• Investment Impact: By allowing 100% FDI, the government expects to help debt-laden domestic insurers find exit routes or gain the solvency required to expand into tier-2 and tier-3 cities.

Important Points

• Management Control: Under the 74% FDI regime, the government mandated that the majority of Directors and Key Management Persons (KMPs) must be resident Indian citizens. With the transition to 100%, specific safeguards regarding the retention of profits within India and investment in infrastructure are typically emphasized.

• Solvency Margin: Every insurer is required to maintain a Solvency Ratio of at least 150% (or 1.5) to ensure they can meet long-term claim liabilities. Foreign capital is essential for many Indian firms to meet these IRDAI requirements.

• Comparison with Other Sectors: The insurance sector now joins other critical sectors like Telecom and Single Brand Retail Trading that permit 100% FDI under the automatic route or government approval route, depending on specific conditions.

• Date of Implementation: The legislative changes for the 100% hike were prioritized in the fiscal year 2024-25 to be fully operational for the 2025-26 cycle, marking a new era of financial sector reforms.

Q65. Answer: (a) Gazap

The correct answer is Gazap.

Key Points

• The Gazap (which translates to "Wrath") is a high-yield, non-nuclear bomb unveiled by Turkey during the 17th International Defence Industry Fair (IDEF).

• The event took place in July 2025 in Istanbul, showcasing Turkey's rapidly advancing indigenous defense capabilities.

• This powerful munition was developed by TÜBİTAK SAGE (Defense Industries Research and Development Institute), which is the primary body for missile and munition R&D in the Republic of Turkey.

• The Gazap bomb is designed to deliver a massive explosive effect, categorized as a "bunker-buster" or a high-explosive thermobaric variant, capable of neutralizing heavily fortified strategic targets.

• The introduction of this weapon marks a significant milestone in Turkey's goal to achieve strategic autonomy and reduce reliance on Western-made heavy munitions like the MK-84 or BLU-109.

Additional Information

• IDEF (International Defence Industry Fair):

• It is a biennial defense industry fair held in Turkey and is considered one of the largest such exhibitions in the world.

• The 17th edition in 2025 hosted over 1,200 companies from more than 30 countries, emphasizing land, naval, and aerospace technologies.

• TÜBİTAK SAGE:

• Established in 1972, this institute has been at the forefront of developing the SOM Cruise Missile, Gökdoğan and Bozdoğan air-to-air missiles, and the HGK guidance kits.

• Their focus is on creating indigenous solutions for the Turkish Armed Forces to ensure national security without external supply chain vulnerabilities.

• Turkish Aerospace Industries (TAI) & Platforms:

• Munitions like the Gazap are intended to be integrated into advanced Turkish aerial platforms such as the KAAN (5th Generation National Combat Aircraft) and the Akıncı Unmanned Combat Aerial Vehicle (UCAV).

• The integration with indigenous drones has made Turkey a leading global exporter of armed UAV technology in the 21st century.

• Comparative Weapons:

• The Gazap is often compared to the United States' MOAB (GBU-43/B Mother of All Bombs) or the Russian FOAB (Father of All Bombs) due to its massive conventional (non-nuclear) destructive power.

Important Points

• Technical Features: The bomb utilizes advanced energetic materials and chemical compositions that allow for a much higher blast radius compared to standard 2,000-pound bombs.

• Geopolitical Impact: By unveiling such weapons in 2025, Turkey signals its transition from a regional power to a global defense hub, capable of producing the entire spectrum of military equipment.

• Date and Venue: The 17th IDEF was held at the Tüyap Fair Convention and Congress Center in Istanbul, which serves as the traditional venue for this international gathering.

• Development Timeline: The project for the Gazap began in the early 2020s as part of the "National Technology Move" initiated by the Presidency of Republic of Türkiye.

Q66. Answer: (d) Tropic of Cancer

The correct answer is Tropic of Cancer.

Key Points

• The summer solstice occurs when the Sun reaches its highest position in the sky as seen from the North Pole or the South Pole. In the Northern Hemisphere, this happens when the Sun is directly overhead at the Tropic of Cancer.

• The Tropic of Cancer is located at approximately 23.5° North latitude. This event usually takes place on June 21st or June 22nd every year. Hence, the statement that the Sun is overhead at the Tropic of Cancer during the summer solstice is correct.

• During this period, the Northern Hemisphere is tilted most toward the Sun, resulting in the longest day and the shortest night of the year for locations in this hemisphere.

• In contrast, the Tropic of Capricorn, located at 23.5° South, receives direct sunlight during the winter solstice (Northern Hemisphere perspective), which occurs around December 22nd. Hence, the statement regarding the Tropic of Capricorn is incorrect for the summer solstice.

• The Equator (0° latitude) receives the direct rays of the Sun during the Equinoxes, which occur in March and September. Hence, the statement regarding the Equator is incorrect for a solstice.

Additional Information

• Earth's Axial Tilt: The Earth rotates on an axis that is tilted at an angle of 23.5 degrees relative to its orbit around the Sun. This axial tilt is the primary reason for the changing seasons and the varying positions of the Sun throughout the year.

• The Equinoxes: There are two equinoxes in a year: the Vernal Equinox (around March 21) and the Autumnal Equinox (around September 23). During these times, the Sun is directly above the Equator, and day and night are approximately equal in length across the globe.

• Arctic and Antarctic Circles: The Arctic Circle is located at 66.5° North, while the Antarctic Circle is at 66.5° South. During the June solstice, areas within the Arctic Circle experience 24 hours of daylight, a phenomenon known as the Midnight Sun.

• Winter Solstice: This occurs when the South Pole is tilted closest to the Sun. For the Northern Hemisphere, this is the shortest day of the year, occurring when the Sun is directly over the Tropic of Capricorn at 23.5° South.

• Apsides (Perihelion and Aphelion): Perihelion is the point in the Earth's orbit where it is closest to the Sun (around January 3), while Aphelion is when it is farthest (around July 4). It is important to note that seasons are caused by tilt, not by the distance from the Sun.

Important Points

• Geographic Importance: The Tropic of Cancer passes through several countries, including India, Mexico, Egypt, Saudi Arabia, and China. In India, it passes through 8 states: Gujarat, Rajasthan, Madhya Pradesh, Chhattisgarh, Jharkhand, West Bengal, Tripura, and Mizoram.

• Solar Zenith: The term "directly overhead" refers to the Sun reaching the zenith (90-degree angle) at solar noon. This can only happen within the tropics (between 23.5° N and 23.5° S).

• Daylight Variation: On the day of the summer solstice, the amount of daylight increases as one moves north from the Equator. At the North Pole, the Sun does not set at all, whereas at the South Pole, it does not rise.

Q67. Answer: (a) FRBM

The correct answer is FRBM.

Key Points

• The Fiscal Responsibility and Budget Management (FRBM) Act is the primary legislative framework in India that sets targets for the government to reduce fiscal deficits and ensure long-term fiscal sustainability.

• The Finance Minister of India frequently urges State Governments to adhere to the borrowing limits set under this framework to prevent macroeconomic instability. For the fiscal period ending in 2025-26, the 15th Finance Commission recommended a specific fiscal deficit path for states. Hence, the option FRBM is correct.

• Under the FRBM guidelines, states are generally required to keep their Fiscal Deficit within 3% of their Gross State Domestic Product (GSDP). However, additional borrowing room of 0.5% is often allowed, contingent upon certain power sector reforms.

• The Union Government exercises control over state borrowings through Article 293(3) of the Constitution of India, which requires states to obtain the Center's consent to raise any loan if they have any outstanding liabilities to the Union.

• The Monetary Policy is a framework managed by the Reserve Bank of India (RBI) to control inflation and liquidity in the economy; it does not directly prescribe debt limits for states. Hence, this statement is incorrect in the context of state debt management.

• NITI Aayog acts as a policy think tank of the Government of India that provides strategic and technical advice; while it monitors state performance, it is not the legal framework for fiscal debt limits. Hence, this statement is incorrect.

• GST (Goods and Services Tax) is an indirect tax regime launched in July 2017; while it impacts state revenues, the limits for state debt are governed by FRBM, not the GST Act. Hence, this statement is incorrect.

Additional Information

• The FRBM Act, 2003:

• The Fiscal Responsibility and Budget Management Act was enacted in August 2003 to institutionalize financial discipline.

• The initial goal was to reduce the revenue deficit to nil and the fiscal deficit to 3% of the GDP by March 2009.

• The N.K. Singh Committee (formed in 2016) recommended that the government should target a debt-to-GDP ratio of 60% (40% for the Central Government and 20% for the State Governments) by 2023.

• 15th Finance Commission Recommendations:

• The Commission, chaired by N.K. Singh, provided a roadmap for fiscal consolidation for the period 2021-22 to 2025-26.

• It recommended that states maintain a fiscal deficit limit of 4% of GSDP in 2021-22, 3.5% in 2022-23, and 3% for the subsequent years up to 2025-26.

• The commission emphasized that debt sustainability is crucial for cooperative federalism.

• Monetary Policy Committee (MPC):

• The MPC is a statutory body under the RBI Act, 1934, responsible for fixing the benchmark interest rate (Repo Rate).

• Its primary objective is to maintain price stability while keeping in mind the objective of growth.

Important Points

• Article 293 of the Indian Constitution: This article deals with the borrowing powers of the states. Clause (3) prevents states from raising any loan without the Government of India's consent if there is still outstanding any part of a loan made to the state by the Union.

• Fiscal Deficit vs. Revenue Deficit: Fiscal Deficit is the total borrowing requirement of the government, while Revenue Deficit refers to the excess of revenue expenditure over revenue receipts.

• Off-Budget Borrowings: In recent years, the Finance Ministry has also included off-budget borrowings of states within their FRBM limits to ensure a transparent view of state debt.

• WMA (Ways and Means Advances): This is a mechanism used by the RBI to provide short-term liquidity to states to bridge temporary mismatches in cash flows, distinct from long-term debt governed by FRBM.

Q68. Answer: (a) Four

Given: A, B, C, D, E and F live on six different floors of the same building. The lowermost floor is numbered 1 and the topmost floor is numbered 6.

Only five people live above D.

Only two people live above A.

C lives below F but above A.

B does not live on an even numbered floor.

Floor	Person
6	F
5	C
4	A
3	B
2	E
1	D

Now, people below C (floor 5) are A, B, E and D = 4 people.

Hence, the correct answer is Option 1.

Q69. Answer: (b) Two

Given: P, Q, R, S, T, U and V have exams on different days of a week starting from Monday to Sunday.

Only five people have exams between V and T.

Only two people have exams between R and T.

Q has the exam immediately after R.

S has the exam immediately before P but after T.

Day	Person
1 (Monday)	T
2 (Tuesday)	S
3 (Wednesday)	P
4 (Thursday)	R
5 (Friday)	Q
6 (Saturday)	U
7 (Sunday)	V

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Now, people between P (Wednesday) and U (Saturday) are: R and Q → 2 people.

Hence, the correct answer is Option 2.

Q70. Answer: (a) 61

The logic followed here is:

So, '61' will replace the question mark in the given series.

Hence, the correct answer is "Option 1".

Q71. Answer: (b) 80°

Shortcut Trick

Use incenter property:

=> angle QOR = 90° + (angle P / 2)

=> 130 = 90 + (P/2)

=> P/2 = 40 => P = 80°

Therefore Answer = 80°

Alternate Method

O Q R P 130°

Given:

Triangle PQR with incenter O

angle QOR = 130°

Formula:

Angle at incenter: angle BIC = 90° + (A/2)

Calculations:

=> angle QOR = 90° + (angle QPR / 2)

=> 130 = 90 + (angle QPR / 2)

=> angle QPR / 2 = 40

=> angle QPR = 80°

Final Answer: 80°

Additional Information

Incenter Property: angle BIC = 90° + (A/2)

Triangle Rule: Sum of angles = 180°

Key Insight: Incenter connects angle bisectors

Exam Trick: Direct formula saves time

Q72. Answer: (b) Sardar Vallabhbhai Patel

The correct answer is Sardar Vallabhbhai Patel.

Key Points

• The Bardoli Satyagraha was a major episode of civil disobedience and revolt in the Indian Independence Movement that took place in the year 1928.

• It was organized in the Bardoli taluka of Gujarat against the British Raj's decision to increase land revenue by 30%, which the farmers found extremely oppressive during a period of financial distress.

• Sardar Vallabhbhai Patel was invited by the local farmers and leadership to spearhead the movement. He accepted the leadership on the condition that the farmers would remain completely non-violent despite any provocation from the government.

• The struggle involved the non-payment of taxes, and in response, the British Government seized thousands of acres of land, cattle, and household goods. However, the farmers remained steadfast under Patel's guidance.

• The movement was a resounding success, and as a result of his exceptional leadership, the women of Bardoli conferred the title of 'Sardar' (meaning Chief or Leader) upon Vallabhbhai Patel. Hence, the correct answer is Sardar Vallabhbhai Patel.

Additional Information

• Gopalakrishna Gokhale: He was a senior leader of the Indian National Congress and the founder of the Servants of India Society in 1905. He was known as the political guru of Mahatma Gandhi and advocated for social reform and education. Hence, this statement is not correct as he was not involved in the 1928 Satyagraha.

• Bal Gangadhar Tilak: A prominent leader of the extremist wing of the Congress, he famously declared "Swaraj is my birthright." He played a key role in the Home Rule Movement in 1916 but passed away in 1920, years before the Bardoli movement began. Hence, this statement is not correct.

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• C. Rajagopalachari: He was an eminent lawyer and statesman who led the Vedaranyam Salt March in Tamil Nadu in 1930. He later became the last Governor-General of India. While a close ally of Gandhi, he did not lead the Bardoli Satyagraha. Hence, this statement is not correct.

• The success of the Bardoli Satyagraha turned Sardar Patel into one of the most influential leaders in the Indian National Congress, paving the way for his future role in the integration of princely states.

Important Points

• To resolve the crisis, the British Government eventually appointed the Maxwell-Broomfield Commission to investigate the tax hike.

• The commission found the 30% increase to be unjust and recommended a reduced hike of approximately 6.03%, which was a significant victory for the Sardar and the local peasantry.

• The movement also saw significant participation from women, including Mani Ben Patel (Patel's daughter), Kasturba Gandhi, and Mithuben Petit, who helped mobilize the local population.

• This Satyagraha served as a model for future non-violent protests in India, demonstrating that organized peaceful resistance could force the British administration to reconsider its policies.

Q73. Answer: (a) 1670

Shortcut Trick

20% difference = 210

=> 20% of (Number − 620) = 210

=> (Number − 620) = 210 ÷ 0.2 = 1050

=> Number = 1050 + 620 = 1670

Therefore Answer = 1670

Alternate Method

Given:

20% of number is 210 more than 20% of 620

Formula:

Percentage = (value/100) × number

Calculations:

=> Let number = x

=> 20/100 × x = 20/100 × 620 + 210

=> 0.2x = 124 + 210 = 334

=> x = 334 ÷ 0.2 = 1670

Final Answer: 1670

Additional Information

Percentage Concept: x% = x/100

Shortcut Idea: Convert percentage difference directly into number difference

Exam Tip: Use decimal form for faster calculation

Key Insight: Same percentages allow direct subtraction

Q74. Answer: (d) Article 39(d)

The correct answer is Article 39(d).

Key Points

• Article 39(d) of the Indian Constitution is a part of the Directive Principles of State Policy (DPSP). It specifically mandates that the State shall direct its policy towards ensuring that there is equal pay for equal work for both men and women. Hence, this statement is correct.

• Article 14 guarantees equality before the law and equal protection of the laws to all persons within the territory of India. While it provides a broad framework for equality, it does not explicitly mention the directive for equal remuneration. Hence, this statement is incorrect.

• Article 15 prohibits discrimination against any citizen on grounds only of religion, race, caste, sex, place of birth, or any of them. Although it prevents sex-based discrimination, the specific mandate for equal pay is housed under the socio-economic goals of Article 39. Hence, this statement is incorrect.

• Article 42 directs the State to make provisions for securing just and humane conditions of work and for maternity relief. It focuses on the environment and welfare at the workplace rather than the specific wage parity. Hence, this statement is incorrect.

• The principle of Equal Pay for Equal Work was given statutory backing through the Equal Remuneration Act, 1976, which ensures that employers do not discriminate between men and women in matters of wages and recruitment for the same work or

work of a similar nature.

Additional Information

• Directive Principles of State Policy (DPSP):

• Contained in Part IV of the Constitution of India, covering Articles 36 to 51.

• These principles are non-justiciable, meaning they are not enforceable by the courts for their violation, but they are fundamental in the governance of the country.

• The concept was borrowed from the Irish Constitution, which had taken it from the Spanish Constitution.

• Article 39 - Specific Directives:

• Article 39(a): Right to an adequate means of livelihood for all citizens.

• Article 39(b): Ownership and control of material resources of the community to be distributed to subserve the common good.

• Article 39(c): Prevention of concentration of wealth and means of production to the common detriment.

• Article 39(e): Protection of the health and strength of workers and the tender age of children.

• Article 14, 15, and 16:

• These are Fundamental Rights under Part III of the Constitution.

• Article 16 provides for equality of opportunity in matters of public employment and prohibits discrimination in State offices.

Important Points

• In the landmark case of Randhir Singh vs Union of India (1982), the Supreme Court held that although the principle of 'Equal Pay for Equal Work' is not expressly declared as a Fundamental Right, it is a Constitutional objective under Articles 14, 16, and 39(d) and can be enforced through Article 32.

• Socialistic Principles: Article 39(d) is classified as a Socialistic Principle as it aims at establishing economic justice and removing inequalities in income and status.

• The 42nd Amendment Act of 1976 added Article 39A to provide free legal aid to the poor, further expanding the scope of Article 39 towards social justice.

• The State is required to apply these principles while making laws, as they serve as the instrument of instructions for the executive and legislature.

Q75. Answer: (b) Kerala High Court

The correct answer is Kerala High Court.

Key Points

• In January 2025, the Kerala High Court became the first High Court in India to officially frame and issue a comprehensive ‘Policy Regarding the Use of AI Tools in District Judiciary’.

• The policy provides a structured regulatory framework for the integration of Artificial Intelligence (AI), specifically targeting Generative AI and Large Language Models (LLMs), within the lower judicial hierarchy.

• The primary objective of this policy is to assist judicial officers in administrative and preliminary tasks such as legal research, case summarization, and document drafting to enhance judicial efficiency.

• It explicitly mandates that the use of AI tools must be limited to a supportive role and that the final judicial discretion and decision-making must remain exclusively with the human judge.

• The policy serves as a benchmark for other High Courts in India to balance technological innovation with the ethics of justice.

Additional Information

• Pioneering Initiatives of Kerala High Court: The Kerala High Court has a history of being a technological leader in the Indian judiciary. It was among the first to introduce Paperless Courts and AI-based translation of judgments into the regional language, Malayalam.

• Scope of AI Tools: The guidelines cover the use of advanced systems like ChatGPT, Claude, and Google Gemini. These tools are recommended for identifying relevant statutes or precedents, but the results must be verified for accuracy to avoid AI hallucinations (fictional data generation).

• Prohibitions and Restrictions: The policy strictly prohibits the input of confidential information, sensitive personal data, or non-public case records into open AI platforms to ensure data privacy and security.

• Application in District Courts: The guidelines are specifically tailored for the District Judiciary, aiming to help manage the massive case backlog at the grassroots level by speeding up pre-adjudicatory processes.

• Global Context: With this move, India joins a select group of countries like the United Kingdom and the United States, where judicial bodies have started issuing formal guidelines on generative AI usage.

Important Points

• SUPACE (Supreme Court Portal for Assistance in Court’s Efficiency): At the national level, the Supreme Court of India launched SUPACE, an AI-driven tool designed to assist judges in processing information and reducing pendency.

• SUVAS (Supreme Court Vidhik Anuvaad Software): This is another AI-powered software used to translate judicial documents

and orders from English into several Indian vernacular languages.

• e-Courts Project Phase III: The introduction of AI guidelines aligns with Phase III of the e-Courts Project, which is a Centrally Sponsored Scheme aimed at the ICT enablement of the Indian Judiciary.

• Ethical Accountability: The Kerala High Court policy emphasizes that the judicial officer is solely responsible for the content of their judgments. Using AI as a defense for factual errors or legal misinterpretation is not permissible under the new guidelines.

• Constitution of India: Under Article 227, the High Court has the power of superintendence over all District Courts, which grants it the legal authority to issue such administrative and operational policies.

Q76. Answer: (a) DZV

The logic followed here is:

Option 1) DZV

Option 2) BXS

Option 3) WSN

Option 4) PLG

Now, DZV follows a different pattern.

Hence, the correct answer is Option 1.

Q77. Answer: (d) PUYK

The logic followed here is:

For, VASE → ZEOA

For, DIKW → HMGS

Now, applying the same logic to LQCO:

So, LQCO → PUYK

Hence, the correct answer is Option 4.

Q78. Answer: (d) Three

Given: F, G, H, I, V, W, and X are sitting around a circular table facing the centre.

I sits second to the right of W.

I sits third to the left of F.

V sits third to the left of X.

G is an immediate neighbour of both W and F.

People between H and G = X, F, W → 3 people

Hence, the correct answer is Option 4.

Q79. Answer: (a) 36

Shortcut Trick

For two numbers a and b, the third proportional c is calculated as $b^2 \div a$.

Given: a = 16, b = 24

Third Proportional = (24 × 24) ÷ 16

= 576 ÷ 16 = 36.

Therefore Answer = 36

Alternate Method

Given:

First number (a) = 16

Second number (b) = 24

Formula used:

If a, b, c are in continued proportion, then a : b = b : c

Third Proportional (c) = $b^2 \div a$

16 1st Term (a) 24 2nd Term (b) Same Ratio x 3rd (c) Proportion: 16 : 24 :: 24 : x

Calculations:

Let the third proportional be x.

=> 16 : 24 = 24 : x

=> 16 ÷ 24 = 24 ÷ x

=> x = (24 × 24) ÷ 16

=> x = 576 ÷ 16

=> x = 36

Therefore The correct answer is 36.

Additional Information

Mean Proportional

The mean proportional between two numbers a and b is √(a × b). It is the middle term in a continued proportion.

Fourth Proportional

For three numbers a, b, and c, the fourth proportional d is found using the ratio a : b = c : d, giving d = (b × c) ÷ a.

Duplicate Ratio

The duplicate ratio of two numbers a and b is the ratio of their squares, which is $a^2 : b^2$.

Invertendo Property

If a : b = c : d, then by invertendo, b : a = d : c.

Q80. Answer: (b) ZTH 18

The logic followed here is:

So, 'ZTH 18' will replace the question mark in the given series.

Hence, the correct answer is "Option 2".

Q81. Answer: (d) Press Ctrl + C, then Ctrl + V

The correct answer is Press Ctrl + C, then Ctrl + V.

Key Points

• To copy a file or folder in most operating systems like Windows or Linux, the user must first highlight the item and press Ctrl + C. This command sends a duplicate of the file's reference to the system Clipboard without removing it from the original location.

• Once the file is copied, the user navigates to the destination folder and presses Ctrl + V. This Paste command retrieves the file from the Clipboard and places a copy in the new folder. Hence, the pair of steps Press Ctrl + C, then Ctrl + V is correct.

• Ctrl + X is the shortcut for Cut. If this were used instead of copy, the file would be moved to the new folder and deleted from the original folder. Hence, the statement involving Ctrl + X is incorrect for this specific task.

• Ctrl + S is a universal shortcut used to Save the current progress of a file or document. It does not facilitate the duplication or transfer of files between folders. Hence, the statement involving Ctrl + S is incorrect.

• Ctrl + B is generally used in text processing applications (like Microsoft Word or Google Docs) to apply Bold formatting to selected text. It has no standard function in File Explorer for moving or copying files. Hence, the statement involving Ctrl + B is incorrect.

Additional Information

• The Clipboard: This is a temporary storage area in a computer's RAM (Random Access Memory) that holds the data a user has copied or cut. In Windows 10 and 11, users can press Windows Key + V to view a history of items stored in the clipboard.

• Undo and Redo: To reverse an accidental Copy-Paste or Cut-Paste operation, users can press Ctrl + Z (Undo). To re-apply the action that was just undone, Ctrl + Y (Redo) is used.

• Select All: When a user wants to copy every file within a folder, they use Ctrl + A to Select All items simultaneously before applying the Ctrl + C command.

• File Management Efficiency: Utilizing Keyboard Shortcuts significantly increases productivity compared to using a mouse to navigate right-click context menus. These shortcuts were popularized by Larry Tesler at Xerox PARC in the 1970s.

• Cross-Platform Differences: While Windows uses the Control (Ctrl) key, macOS utilizes the Command (?) key for the same functions, such as Command + C for copy and Command + V for paste.

Important Points

• Drag-and-Drop: A common alternative to Ctrl + C and Ctrl + V is dragging a file with the mouse. If you drag a file from one folder to another on the same drive, it moves the file. To copy it using the mouse, you must hold the Ctrl key while dragging.

• Storage Impact: It is important to note that Copying (Ctrl + C) creates a duplicate, which consumes additional Disk Space. In contrast, Cutting (Ctrl + X) only changes the file's directory path without creating a second copy of the data.

• Context Menu: If the keyboard is unavailable, the same results can be achieved by Right-clicking the highlighted file name and selecting Copy, then Right-clicking in the empty space of the target folder and selecting Paste.

• Year and Origins: The concepts of Cut, Copy, and Paste were integrated into the Apple Lisa and Macintosh computers in the early 1980s, which standardized these specific X, C, V keys because of their proximity to the Ctrl/Command keys on the QWERTY keyboard.

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Q82. Answer: (d) Educating children

The correct answer is Educating children.

Key Points

• The 86th Constitutional Amendment Act, enacted in the year 2002, introduced a significant change to the list of Fundamental Duties in the Indian Constitution.

• This amendment added the 11th Fundamental Duty under Article 51A, specifically as clause (k).

• The added duty mandates that every citizen who is a parent or guardian must provide opportunities for education to his child or ward between the age of 6 and 14 years.

• The primary objective of this addition was to complement the Fundamental Right to Education by placing a moral and civic responsibility on parents to ensure their children attend school.

• Before this amendment, the Constitution of India contained only 10 Fundamental Duties, which were added earlier via the 42nd Amendment Act in 1976.

Additional Information

• Fundamental Rights and the 86th Amendment:

• The 86th Amendment also inserted Article 21A into the Constitution of India, making Free and Compulsory Education a Fundamental Right for all children in the age group of 6 to 14 years.

• This right ensures that the State provides basic education as a justiciable right, meaning it can be enforced through the courts.

• Directive Principles of State Policy (DPSP):

• The amendment also substituted the subject matter of Article 45. It now directs the State to endeavor to provide early childhood care and education for all children until they complete the age of six years.

• Origin of Fundamental Duties:

• Fundamental Duties are contained in Part IV-A of the Constitution. They were incorporated based on the recommendations of the Swaran Singh Committee during the Internal Emergency.

• These duties are non-justiciable in nature, meaning there is no direct legal sanction for their violation, although Parliament can enforce them through specific laws.

• Other Options Explained:

• Defending the nation: This is an existing Fundamental Duty under Article 51A(d), which states citizens should defend the country and render national service when called upon.

• Protecting environment: This is covered under Article 51A(g), requiring citizens to protect and improve the natural environment including forests, lakes, rivers, and wildlife.

• Safeguarding public property: This is a duty under Article 51A(i), which mandates citizens to safeguard public property and to abjure violence.

Important Points

• The Right of Children to Free and Compulsory Education (RTE) Act was enacted in August 2009 to provide the legislative framework required to implement Article 21A.

• The RTE Act came into effect on 1 April 2010, making India one of the few countries in the world to have a central law guaranteeing education.

• The Verma Committee (1999) identified the existence of legal provisions for the implementation of several Fundamental Duties, such as the Prevention of Insults to National Honour Act (1971) and the Wildlife (Protection) Act (1972).

• The inclusion of the 11th duty reflects the Indian government's commitment to achieving universal literacy and fulfilling the Sustainable Development Goals (SDGs) related to quality education.

Q83. Answer: (a) ORTT

The logic followed here is:

For, EGDH → FIFI

=> E → F (+1)

For, JMHL → KOJM

Now, applying the same logic to NPRS:

So, NPRS → ORTT

Hence, the correct answer is Option 1.

Q84. Answer: (b) 86.3%

Shortcut Trick

Successive discount => net = 50% × 72% = 36%

So SP of X = 36% of MP

Profit on X = 958 => SP = 500 + 958 = 1458

0.36 MP = 1458 => MP = 4050

Y: 77% discount => SP = 23% of MP = 931.5

Profit = 931.5 − 500 = 431.5 => % = 86.3%

Therefore Answer = 86.3%

Alternate Method

Given:

CP of each article = 500

Successive discounts = 50% and 28%

Profit on X = 958

Formula used:

Successive discount = a + b − (ab/100)

Profit% = (Profit ÷ CP) × 100

Calculations:

=> Net discount = 50 + 28 − (50×28/100) = 64%

=> SP of X = 36% of MP

=> SP = 500 + 958 = 1458

=> 0.36 MP = 1458 => MP = 4050

=> For Y: discount = 77% => SP = 23% of MP

=> SP = 0.23 × 4050 = 931.5

=> Profit = 931.5 − 500 = 431.5

=> Profit% = (431.5 ÷ 500) × 100 = 86.3%

Therefore The correct answer is 86.3%.

Additional Information

Successive Discount

Net = a + b − (ab/100)

Marked Price

Same MP used for both items

Profit Formula

Profit% = (SP − CP)/CP × 100

Exam Tip

Convert successive discounts into single percentage first

Q85. Answer: (b) Iltutmish

The correct answer is Iltutmish.

Key Points

• Shams-ud-din Iltutmish, who ruled from 1211 to 1236 AD, established the elite corps of forty loyal slave-nobles known as Turkan-i-Chahalgani or the Group of Forty.

• The formation of this group was a strategic move to consolidate the power of the Sultanate and provide a loyal support base against the rivalries of other powerful nobles like Tajuddin Yildiz and Nasiruddin Qubacha.

• The members of the Chahalgani were primarily Turkish slaves who were personally trained and promoted by Iltutmish to hold the most important administrative and military positions in the Delhi Sultanate.

• During the reign of Iltutmish, these nobles functioned as an advisory council, assisting the Sultan in governance and the expansion of the empire across North India.

• After the death of Iltutmish in 1236, the Group of Forty became extremely powerful and acted as "king-makers," often deciding who would sit on the throne of Delhi.

Additional Information

• Qutbuddin Aibak (1206–1210 AD):

• He was the founder of the Mamluk Dynasty (also known as the Slave Dynasty) and the first Sultan of Delhi.

• Though he laid the foundation of the Sultanate and began the construction of the Qutub Minar in Mehrauli, he did not establish the Chahalgani. He died in 1210 after falling from a horse while playing Chaugan (polo).

• Ghiyas-ud-din Balban (1266–1287 AD):

• Balban was originally a member of the Turkan-i-Chahalgani himself, having been purchased as a slave by Iltutmish.

• Upon ascending the throne in 1266, he realized that the group posed a significant threat to the absolute authority of the Monarchy.

• He ruthlessly liquidated and disbanded the Group of Forty through executions and poisonings to centralize all power in his own hands and introduced the policy of "Blood and Iron."

• Alauddin Khalji (1296–1316 AD):

• He was the most powerful ruler of the Khalji Dynasty and is famous for his market reforms and military expeditions into South India.

• Alauddin maintained a strict control over his nobility to prevent rebellions, but he was not the one who established the Group of Forty; the group had already been destroyed by Balban decades earlier.

Important Points

• Administrative Significance: The Chahalgani system represented the early feudal structure of the Delhi Sultanate, where the Sultan was seen as "first among equals" (Primus inter pares) among his Turkish peers.

• Conflict with Razia Sultan: The Group of Forty played a major role in the downfall of Razia Sultan (1236–1240), as they were unwilling to accept the leadership of a woman and preferred a puppet ruler they could control.

• Consolidation of Power: Iltutmish is often called the "Real Founder" of the Delhi Sultanate because he moved the capital from Lahore to Delhi, received a Mansur (Letter of Investiture) from the Caliph of Baghdad in 1229, and introduced the Iqta system of land grants alongside the Chahalgani.

• Currency Reforms: Iltutmish also introduced the first purely Arabic coinage in India, including the silver Tanka and the copper Jital.

Q86. Answer: (d) Both statements I and II together are NOT sufficient to answer the question

Given Statements:

I. Meenal scored more than Isha but less than Nisha.

II. Priti scored more than Meenal but less than Nisha.

Analysis:

Statement I alone → Not sufficient (Only partial order is known: Nisha > Meenal > Isha, but Kavita's position is unknown, so second highest cannot be determined).

Statement II alone → Not sufficient (Only partial order is known: Nisha > Priti > Meenal, but Kavita's position is unknown, so second highest cannot be determined).

Both statements I and II together → Not sufficient (Even after combining, Kavita can be placed at different positions, so the second highest scorer cannot be uniquely identified).

So, both statements I and II together are NOT sufficient to answer the question.

Hence, the correct answer is "Option 4".

Q87. Answer: (b) 28

Shortcut Trick

cbrt6859 = 19 and ^4√256 = 4

Expression = (19/4) × (2/57) × 168

Cancel: 168/4 = 42 and 42×2 = 84

Now = (19×84)/57 = 19×(84/57) = 19×(28/19)

= 28

Therefore Answer = 28

Alternate Method

Given:

cbrt6859 / ^4√256 × (2/57) × 168

Formula used:

Perfect roots: cbrta³ = a, ^4√a^4 = a

Calculations:

=> cbrt6859 = 19 (since $19^3 = 6859$)

=> ^4√256 = 4 (since 4^4 = 256)

=> Expression = (19/4) × (2/57) × 168

=> = (19 × 2 × 168) / (4 × 57)

=> = (19 × 336) / 228

=> = (19 × 28) / 19

=> = 28

Therefore The correct answer is 28.

Additional Information

Perfect Cubes

6859 = 19^3

Perfect Fourth Powers

256 = 4^4

Simplification Strategy

Always simplify roots first, then cancel terms early.

Exam Tip

Cancel numbers step-by-step to avoid large calculations.

Q88. Answer: (a) 9

Shortcut Trick

Divisible by 4 => last two digits matter

Last two digits = 08

08 is divisible by 4

A does not affect divisibility

Therefore Answer = 9

Alternate Method

Given:

Number = 816A0408

Formula used:

A number is divisible by 4 if its last two digits are divisible by 4

Calculations:

=> Last two digits = 08

=> 8 ÷ 4 = 2 => divisible

=> Condition satisfied for all values of A

=> Maximum digit A = 9

Therefore The correct answer is 9.

Additional Information

Divisibility Rule of 4

Only last two digits determine divisibility.

Irrelevant Digits

Digits before last two do not affect divisibility by 4.

Digit Range

A can be any digit from 0 to 9.

Exam Tip

Always check only last two digits for divisibility by 4.

Q89. Answer: (a) Tamil

The correct answer is Tamil.

Key Points

• The Sangam literature is the earliest known literature of South India and was primarily composed in the Tamil language. It represents the pinnacle of ancient Tamil culture and intellectual achievement.

• This literature was produced over a period spanning approximately 300 BCE to 300 CE, although some scholars suggest a slightly different timeline. This era is historically referred to as the Sangam Age.

• The term Sangam literally means an assembly or academy. According to Tamil tradition, there were three such assemblies of poets held under the royal patronage of the Pandya kings of Madurai.

• While the literature of the first two Sangams is mostly lost, the corpus of the Third Sangam has survived and provides invaluable insights into the social, economic, and political life of the people in the Tamilakam region.

• The Sangam literature is distinct from Vedic or Sanskrit literature as it is largely secular in nature, focusing on human emotions, heroism, and social conduct rather than religious rituals.

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Additional Information

• Major Classifications: The core Sangam corpus is divided into two main groups: the Ettuthogai (Eight Anthologies) and the Pattupattu (Ten Idylls). These contain 2,381 poems attributed to 473 poets, including notable women poets like Avvaiyar.

• Grammar and Ethics: The Tolkappiyam, written by Tolkappiyar, is the oldest surviving Tamil grammar work and provides the foundational rules for Tamil linguistics and poetics. Another significant later work is the Tirukkural by Thiruvalluvar, which focuses on ethics and virtue.

• Themes of Poetry: The poems are broadly categorized into Akam (inner life/love) and Puram (outer life/war/ethics). Akam poetry focuses on the nuances of romantic love, while Puram poetry celebrates the valor of kings and the glory of war.

• Five Landscapes (Tinais): Sangam poetry uses a unique geographical classification called Tinais. These are Kurinji (hilly tracks), Mullai (pastoral), Marutham (agricultural), Neythal (coastal), and Palai (desert). Each landscape is associated with specific moods and occupations.

• Epic Literature: The post-Sangam period saw the rise of the Five Great Epics of Tamil literature. The most famous among these are Silappadhikaram (The Tale of the Anklet) by Ilango Adigal and Manimekalai by Sattanar, which reflect the transition toward Buddhism and Jainism in the region.

Important Points

• Historical Context: The Sangam Age witnessed the rule of the three major dynasties of South India: the Cheras, the Cholas, and the Pandyas. The literature serves as a primary source for understanding their administration and territorial boundaries.

• Trade and Commerce: The literature and archaeological evidence from sites like Arikamedu confirm active trade between South India and the Roman Empire during this period. Foreign merchants (Yavanas) are frequently mentioned in Sangam verses.

• Social Structure: The society was composed of various groups like Panar (bardic singers), Vellalar (agriculturists), and Vanigar (merchants). Unlike Northern India, the caste system was not as rigidly defined in the Early Sangam period, though social hierarchies based on occupation existed.

• Language Comparison: While Sanskrit was the language of the Indo-Aryan civilization in the North, and Pali and Prakrit were associated with Buddhist and Jain texts respectively, Tamil maintained its status as a classical language with a rich and independent literary tradition.

Q90. Answer: (b) Payroll management system for a company

The correct answer is Payroll management system for a company.

Key Points

• Customized Application Software, also known as bespoke software or tailor-made software, is specifically developed to meet the unique requirements of a particular organization or user.

• A Payroll management system for a company is a prime example because every organization has different salary structures, tax deductions, leave policies, and employee benefits that require a specific logic and database design. Hence, this statement is correct.

• An Image viewer is considered general-purpose application software (off-the-shelf) because it is designed with standard features to be used by the general public for viewing various image formats like JPEG, PNG, and GIF. Hence, this statement is incorrect.

• Spreadsheet software, such as Microsoft Excel or Google Sheets, is generic software intended for a wide range of tasks like data entry, calculation, and graphing for millions of users worldwide rather than a specific entity. Hence, this statement is incorrect.

• A Media player is a utility application designed for the mass market to play audio and video files; it does not change its core functionality based on the specific needs of a single business client. Hence, this statement is incorrect.

Additional Information

• Classification of Application Software: Application software is broadly divided into two categories: General-purpose (designed for common tasks) and Customized (designed for specific business niches).

• General-purpose Software: These are Commercial Off-The-Shelf (COTS) products. Examples include Word Processors (MS Word), Web Browsers (Chrome, Firefox), and Presentation Software (PowerPoint). They are cost-effective because the development cost is spread across many customers.

• Bespoke/Customized Software Features: This software is highly flexible and scalable according to the client's growth. Common applications include Banking Operations Systems, Hospital Management Systems, and Reservation Systems for Airlines.

• Functions of Payroll Systems: A customized payroll system automates financial records, calculates gross-to-net earnings, manages statutory compliance (like EPF or Income Tax in India), and generates pay slips.

• User Base: While generic software targets a global user base, customized software is usually restricted to the internal employees or authorized personnel of a specific company.

Important Points

• Development Cost: Customized software typically involves a higher initial investment compared to packaged software because it requires a dedicated team of developers to build it from scratch.

• Maintenance: Unlike general software where the vendor provides updates to everyone, customized software requires specific maintenance contracts to update features as the organization's needs evolve over years.

• Efficiency: Since customized applications like Payroll systems are built for a specific workflow, they eliminate unnecessary features found in bloated generic software, thereby increasing operational efficiency.

• Ownership: In most cases of bespoke development, the organization owns the source code and intellectual property rights, providing them with full control over the application's future.

Q91. Answer: (c) Bodo

The correct answer is Bodo.

Key Points

• Bodo is a member of the Tibeto-Burman language family, specifically belonging to the Bodo-Koch group. Hence, the statement regarding Bodo being a Tibeto-Burman language is correct.

• It was officially included in the Eighth Schedule of the Indian Constitution through the 92nd Constitutional Amendment Act, 2003. This amendment also included three other languages: Dogri, Maithili, and Santhali.

• The language is primarily spoken by the Bodo people in the Northeastern state of Assam. It serves as one of the official languages of the state of Assam and is the primary language used in the Bodoland Territorial Region.

• Historically, the language was written using various scripts, but since 1963, it has officially adopted the Devanagari script for its written form.

• As a Tibeto-Burman language, it shares linguistic features with other languages in the Himalayan region and Southeast Asia, distinguishing it from the Indo-Aryan languages prevalent in Northern India. Hence, the correct answer is Bodo.

Additional Information

• Konkani:

• Konkani belongs to the Indo-Aryan language family. It is the official language of the state of Goa and is also spoken in parts of Maharashtra, Karnataka, and Kerala.

• It was added to the Eighth Schedule by the 71st Constitutional Amendment Act in 1992, along with Manipuri and Nepali. Hence, statement 1 is incorrect as it is not Tibeto-Burman.

• Maithili:

• Maithili is an Indo-Aryan language spoken mainly in the Mithila region of Bihar in India and parts of Nepal.

• It was included in the Eighth Schedule via the 92nd Constitutional Amendment Act in 2003. Despite being added at the same time as Bodo, its linguistic origin is different. Hence, statement 2 is incorrect.

• Santhali:

• Santhali belongs to the Austro-Asiatic language family (specifically the Munda subfamily). It is spoken by the Santhal tribal community in states like Jharkhand, Odisha, and West Bengal.

• It was also added to the Eighth Schedule in 2003 by the 92nd Amendment. It is written in the Ol Chiki script. Hence, statement 4 is incorrect.

• Eighth Schedule of the Constitution:

• The Eighth Schedule consists of 22 official languages. Originally, only 14 languages were mentioned in the Constitution in 1950.

• The list is governed by Article 344(1) and Article 351 of the Constitution of India.

Important Points

• Timeline of Language Additions:

• 21st Amendment Act, 1967: Added Sindhi as the 15th language.

• 71st Amendment Act, 1992: Added Konkani, Manipuri, and Nepali, bringing the total to 18.

• 92nd Amendment Act, 2003: Added Bodo, Dogri, Maithili, and Santhali, bringing the total to the current 22.

• Linguistic Diversity: The Tibeto-Burman group in India includes languages like Manipuri (also in the 8th Schedule) and various languages of the Naga, Mizo, and Himalayan tribes. However, Bodo remains the most prominent Tibeto-Burman language in the Eighth Schedule specifically associated with the Bodo-Koch branch.

Q92. Answer: (b) 3 km to the east

Given:

Manoj starts from A and drives 25 km South.

He turns left → 17 km East.

He turns left → 28 km North.

He turns left → 20 km West.

He turns left → 3 km South and reaches P.

To reach A from P → move 3 km East.

Hence, the correct answer is Option 2.

Q93. Answer: (c) 6.25

Shortcut Trick

Doubling => SI = 100% of principal

Simple interest formula shortcut: Rate = 100 ÷ Time

= 100 ÷ 16

= 6.25%

Therefore Answer = 6.25%

Alternate Method

Given:

Time = 16 years

Amount = 2P (double)

Formula used:

SI = (P × R × T) ÷ 100

Calculations:

=> SI = Amount − Principal = 2P − P = P

=> P = (P × R × 16) ÷ 100

=> Cancel P => 1 = (R × 16) ÷ 100

=> R = 100 ÷ 16

=> R = 6.25%

Therefore The correct answer is 6.25%.

Additional Information

Simple Interest Shortcut

If amount doubles => Rate = 100 ÷ Time

SI Formula

SI = (P × R × T) ÷ 100

Doubling Concept

Interest equals principal when amount doubles

Exam Tip

Use direct formula to avoid algebra

Q94. Answer: (b) 56

Shortcut Trick

If each number in a group is multiplied by a constant k, the new average will be the original average multiplied by k.

Original Average = 8

Each number is multiplied by k = 7

New Average = 8 × 7 = 56

Therefore Answer = 56

Alternate Method

Given:

Number of observations = 13

Original Average = 8

Multiplier for each observation = 7

Formula used:

Average = Sum of observations ÷ Total number of observations

New Average = Old Average × Multiplier

Original Average 8 × 7 New Average 56 Property: Every element changes → Average changes

Calculations:

Sum of 13 numbers = 13 × 8 = 104

=> If each number is multiplied by 7, the new sum = 104 × 7 => New Sum = 728 => New Average = 728 ÷ 13 => New Average = 56

Therefore The correct answer is 56 (Option 2).

Additional Information

Effect of Addition/Subtraction

If a constant 'a' is added to or subtracted from every number, the new average becomes (Original Average + a) or (Original Average − a).

Effect of Division

If every number is divided by a non-zero constant 'k', the new average is the original average divided by 'k'.

Combined Change

If each number is multiplied by 'a' and then 'b' is added, New Average = (Old Average × a) + b.

Q95. Answer: (c) Both 1 and 2

The correct answer is Both 1 and 2.

Key Points

• Thawar Chand Gehlot was appointed as the Governor of Karnataka by the President of India on July 6, 2021, and he officially took the oath of office on July 11, 2021.

• He hails from the state of Madhya Pradesh, specifically born in the Ujjain district. Historical records of the Raj Bhavan in Karnataka confirm that he is the first person from Madhya Pradesh to be appointed to this prestigious constitutional post in the state. Hence, statement 1 is correct.

• Before his appointment as Governor, the position was held by Vajubhai Vala. Upon his swearing-in, Thawar Chand Gehlot became the 19th Governor of Karnataka (excluding acting governors in the chronological sequence of permanent appointments). Hence, statement 2 is correct.

• Prior to his gubernatorial role, he had a distinguished political career, serving as the Union Minister of Social Justice and Empowerment in the Government of India from 2014 to 2021.

• He was also a prominent member of the Rajya Sabha representing Madhya Pradesh and served as the Leader of the House in the Rajya Sabha before resigning to take up the governorship.

Additional Information

• Constitutional Provisions for Governor:

• Article 153 of the Constitution of India mandates that there shall be a Governor for each state. The 7th Constitutional Amendment Act of 1956 facilitated the appointment of the same person as Governor for two or more states.

• Article 155 states that the Governor is appointed by the President by warrant under his hand and seal.

• The Governor holds office during the pleasure of the President, usually for a term of five years as per Article 156.

• Profile of Thawar Chand Gehlot:

• He was born on May 18, 1948, in Nagda, Madhya Pradesh.

• He has been a member of the Lok Sabha four times, representing the Shajapur constituency of Madhya Pradesh between 1996 and 2009.

• His contribution to the upliftment of the Scheduled Castes and marginalized sections of society during his tenure as Union Minister is widely recognized.

• Role and Powers of the Governor:

• The Governor is the Constitutional Head of the state, and all executive actions are taken in his/her name.

• He/She appoints the Chief Minister and other ministers on the advice of the Chief Minister under Article 164.

• The Governor has the power to grant pardons, reprieves, or remissions of punishment under Article 161.

Important Points

• First Governor of Karnataka: After the reorganization of states in 1956, the first Governor of the then Mysore State (renamed Karnataka in 1973) was Jayachamarajendra Wadiyar.

• First Woman Governor of Karnataka: V. S. Ramadevi holds the distinction of being the first woman to serve as the Governor of Karnataka from 1999 to 2002.

• Administrative Significance: The Governor acts as a vital link between the Central Government and the State Government, ensuring that the state administration is carried out in accordance with the provisions of the Constitution.

Q96. Answer: (a) Services

The correct answer is Services.

Key Points

• The structural transformation of the Indian economy between 1950 and 1990 saw a significant shift in the contribution of various sectors to the Gross Domestic Product (GDP).

• By the year 1990-91, the share of the Services Sector (also known as the Tertiary Sector) increased significantly to approximately 40.5%, up from just 28.5% in 1950-51. Hence, the Services sector is the correct answer.

• During the same period, the share of the Agriculture Sector in the GDP declined from about 59% in 1950-51 to around 34.9% by

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1990-91. While the share decreased, the sector remained the primary source of employment for the majority of the population. Hence, Agriculture is incorrect as its share decreased.

• The Industrial Sector (Secondary Sector) also witnessed growth, with its share in GDP rising from 13% in 1950-51 to about 24.6% in 1990-91. However, the growth in the Services sector was more pronounced and reflected a more modern economic shift. Hence, Industry is incorrect as the primary shift was toward services.

• Mining is classified as a part of the Primary Sector (often grouped with Agriculture and Allied activities). Its individual contribution to the GDP remained relatively low and did not show the same level of significant structural increase as the Services sector. Hence, Mining is incorrect.

Additional Information

• Services Sector Characteristics: This sector includes a wide range of activities such as banking, insurance, trade, transport, communication, and public administration. In India, the growth of this sector was fueled by increased urbanization and the growing demand for professional and administrative services during the Five-Year Plans.

• Economic Development Patterns: Economists like Simon Kuznets and Allan Fisher observed that as a country develops, the GDP contribution typically shifts from the Primary Sector (Agriculture) to the Secondary Sector (Industry) and finally to the Tertiary Sector (Services). India followed this trend, although it transitioned to a service-led economy faster than many other developing nations.

• Gross Domestic Product (GDP): It is the total market value of all finished goods and services produced within a country's borders in a specific time period (usually a year). It serves as a comprehensive scorecard of the country's economic health.

• Employment Disparity: Despite the Services sector contributing heavily to the GDP by 1990, the Agriculture sector continued to employ more than 60% of the workforce. This discrepancy highlighted the occupational structure's slow response to the changing GDP composition.

Important Points

• Pre-1991 Reforms Context: The period before 1991 is often referred to as the era of Planned Development. The shift toward Services happened even before the Liberalization, Privatization, and Globalization (LPG) reforms of 1991, which later further accelerated the Information Technology (IT) and BPO sectors.

• Role of the Public Sector: Between 1950 and 1990, the Government of India played a dominant role in providing services like postal, railways, and telecom, which formed the backbone of the Tertiary Sector growth during that era.

• Data Comparison: In 1950-51, Agriculture contributed 59% of GDP; by 2023, its contribution has dropped to approximately 18-19%, while Services now contributes over 53%. This long-term trend began significantly in the 1980s and was well-established by 1990.

Q97. Answer: (d) 67,956 km

The correct answer is 67,956 km.

Key Points

• According to the Indian Railways (Ministry of Railways) Yearbook for the financial year 2019-2020, the total route length of the rail network in India was 67,956 km.

• The network is categorized into different gauges based on the distance between the rails. In 2019-20, Broad Gauge (1.676 meters) formed the majority of the network, covering 63,949 km, which is approximately 94.1% of the total route length.

• The Metre Gauge (1.000 meter) route length was recorded at 2,402 km during the same period, showing a gradual decline due to the ongoing Project Unigauge.

• The Narrow Gauge (0.762 meters and 0.610 meters) covered a distance of 1,605 km, mostly located in hilly regions and heritage circuits.

• The route length refers to the actual distance between two points/stations, regardless of the number of parallel tracks (double or multiple lines) existing between those points.

Additional Information

• Indian Railways (IR):

• It was established on 16th April 1853, with the first passenger train running between Bori Bunder (Mumbai) and Thane, covering a distance of 34 km.

• As of 2020, Indian Railways is the fourth-largest railway network in the world by size, following the United States, Russia, and China.

• The railway system is managed by the Ministry of Railways and is divided into 18 Zones (including Metro Railway, Kolkata) for administrative purposes.

• Running Track vs. Route Length:

• While the route length was 67,956 km, the running track length (which includes the length of all parallel tracks) was 99,235 km in 2019-20.

• The total track length (including yard tracks, sidings, and crossings) exceeded 1,26,366 km during the same financial year.

• Electrification Progress:

• By 31st March 2020, the electrified route length of Indian Railways reached 39,329 km, which was about 58% of the total route length.

• The government has set a target for 100% Electrification of the Broad Gauge network to reduce carbon emissions and dependency on fossil fuels.

Important Points

• Project Unigauge: This project was launched in 1992 with the objective of converting Metre Gauge and Narrow Gauge tracks into Broad Gauge to ensure seamless travel and higher carrying capacity.

• Operational Scale: In 2019-20, Indian Railways operated approximately 13,523 passenger trains and 9,146 freight trains daily, connecting more than 7,321 stations across the country.

• National Rail Plan (NRP) 2030: The Government of India introduced this plan to create a "future-ready" Railway system by 2030, aiming to increase the modal share of Railways in freight to 45%.

• Employment: Indian Railways remains one of the largest employers in the world, with over 1.25 million employees as of the 2019-20 data.

Q98. Answer: (c) 28.6 m

Shortcut Trick

At 45°, height = base

=> Height = 28.6 m

Therefore Answer = 28.6 m

Alternate Method

28.6 m h 45°

Given:

Base = 28.6 m

Angle = 45°

Formula:

tan θ = height ÷ base

Calculations:

=> tan45° = h ÷ 28.6

=> 1 = h ÷ 28.6

=> h = 28.6 m

Final Answer: 28.6 m

Additional Information

tan θ: Opposite ÷ Adjacent

Special Angle: tan45° = 1

Key Insight: At 45°, height = base

Exam Trick: Memorize standard angle values

Q99. Answer: (d) Neither conclusion (I) nor (II) follows

Given Statements:

Some canals are rivers.

Some rivers are oceans.

Some oceans are ponds.

The least possible Venn diagram for the given statement is:

Conclusions:

I. All ponds are rivers → False (We only know some oceans are ponds, and some rivers are oceans, but there is no fixed or complete relation between ponds and rivers).

II. All oceans are canals → False (Only some canals are rivers and some rivers are oceans; this does not imply all oceans are canals).

So, neither conclusion (I) nor (II) follows.

Hence, the correct answer is "Option 4".

Q100. Answer: (c) President’s Assent

The correct answer is President’s Assent.

Key Points

• According to Article 368 of the Indian Constitution, there are specific procedures for amending different parts of the Constitution. For a bill relating to the Directive Principles of State Policy (DPSP), which are contained in Part IV, the bill must be passed by both Houses of Parliament by a special majority.

• Once the Constitution Amendment Bill is passed by both the Lok Sabha and the Rajya Sabha with the required majority, the next mandatory constitutional step is to present the bill to the President of India for his/her assent. Hence, the statement regarding President's Assent is correct.

• Approval by the Supreme Court is not a mandatory step in the legislative process of amending the Constitution. While the Judiciary has the power of Judicial Review to check if an amendment violates the Basic Structure Doctrine, this happens after the bill has already become an Act. Hence, the statement regarding Supreme Court approval is incorrect.

• Ratification by State Legislatures is only required for amendments that affect the federal structure of the country (as listed in the proviso to Article 368(2)). Since Directive Principles do not fall under the category of federal provisions like the Seventh Schedule or the representation of states in Parliament, ratification by states is not required. Hence, the statement regarding Ratification by State Legislatures is incorrect.

• Notification in the Official Gazette is a procedural step that takes place to inform the public and enforce the law after the President has signed the bill. However, the constitutional requirement for the bill to transition from a "Bill" to an "Act" is the Presidential Assent. Hence, the statement regarding Notification in the Gazette is incorrect as the "next mandatory constitutional step."

Additional Information

• The 24th Constitutional Amendment Act, 1971: This act made it obligatory for the President to give his assent to a Constitution Amendment Bill. Unlike ordinary bills, the President cannot withhold his assent or return the bill for reconsideration to the Parliament in the case of a constitutional amendment.

• Special Majority: For amending DPSPs or Fundamental Rights, a special majority is required, which means a majority of the total membership of each House and a majority of two-thirds of the members of each House present and voting.

• Article 368(2): This clause specifies that when a bill is passed by the required majority and, where necessary, ratified by States, it shall be presented to the President who shall give his assent to the Bill and thereupon the Constitution shall stand amended.

• Directive Principles of State Policy (DPSP): Borrowed from the Irish Constitution, these are covered under Articles 36 to 51. They are non-justiciable in nature but are fundamental in the governance of the country.

Important Points

• Federal Provisions requiring State Ratification: Amendments involving the election of the President (Articles 54 and 55), the extent of executive power of the Union and States, the Supreme Court and High Courts, distribution of legislative powers, and Article 368 itself require ratification by at least half of the State Legislatures by a simple majority.

• No Joint Sitting: There is no provision for a joint sitting of the two Houses of Parliament if there is a deadlock over a Constitution Amendment Bill. Each House must pass the bill separately.

• Initiation of Bill: A Constitution Amendment Bill can be initiated only in either House of Parliament (Lok Sabha or Rajya Sabha) and not in the State Legislatures. It can be introduced either by a Minister or a private member and does not require prior permission from the President.

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