RRB NTPC (UG) CBT-I Official Paper (Held On: 21 Aug, 2025 Shift 1) (Previous Year Paper)

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

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GENERAL AWARENESS

Q1. 'Blossom Shower' triggers the blossoming of the flowers of which crops in Kerala and nearby areas?

(a) Tea
(b) Coffee
(c) Sunflower
(d) Cotton

Q2. Which of the following helps in organizing files?

(a) Naming files meaningfully
(b) Not saving any files
(c) Placing all files on the desktop
(d) Saving all files in one folder

Q3. In India, the area under 'Permanent Pastures and Grazing Lands' is mostly owned by:

(a) cooperatives
(b) private companies
(c) the Forest Department
(d) Village Panchayats

Q4. In April 2025, which defence subsidiary signed a landmark defence MoU with Slovakia aimed at boosting India's indigenous defence manufacturing capabilities?

(a) NewSpace India Ltd
(b) BrahMos Aerospace Pvt Ltd
(c) Airbornics Defence & Space Pvt Ltd
(d) Paras Defence and Space Technologies Ltd

Q5. What is the primary purpose of introducing e-passports in India in May 2025?

(a) To enhance security and prevent identity fraud
(b) To reduce the cost of passport production
(c) To increase the number of pages in the passport
(d) To change the colour of the passport cover

Q6. Who has the authority to transfer judges of the High Courts in India?

(a) President of India
(b) Chief Minister of the State
(c) Parliament of India
(d) Chief Justice of India acting on behalf of the Supreme Court

Q7. Which of the following best explains why adult literacy varies significantly across Indian states?

(a) Socio-economic and educational disparities
(b) Unequal industrial development
(c) Variations in population density
(d) Different climate zones

Q8. Which Five Year Plan marked the beginning of the Green Revolution in India?

(a) Third Five Year Plan
(b) Second Five Year Plan
(c) Fourth Five Year Plan
(d) First Five Year Plan

Q9. Which of the following is NOT a state function or state variable in a thermodynamic system?

(a) Pressure
(b) Enthalpy
(c) Work
(d) Internal energy

Q10. In which location is the 17th edition of the India-Mongolia joint military Exercise NOMADIC ELEPHANT being conducted, as of 29 May 2025?

(a) Umroi, Meghalaya
(b) Thimphu, Bhutan
(c) Ulaanbaatar, Mongolia
(d) Leh, Ladakh

Q11. Which physical feature marks the northeastern boundary of the Peninsular Block?

(a) Aravalli Range
(b) Malda fault
(c) Eastern Ghats
(d) Western Ghats

Q12. Which of the following constitutional bodies was created to recommend appointments and transfers of judges in India?

(a) National Judicial Appointments Commission
(b) High Court Tribunal
(c) Supreme Council of Judges
(d) Central Judicial Commission

Q13. For her outstanding contributions towards films, which Indian filmmaker was honoured with the prestigious Officier dans l'Ordre des Arts et des Lettres (Officer of the Order of Arts and Letters) award by the French government in April 2025?

(a) Mira Nair
(b) Zoya Akhtar
(c) Deepa Mehta
(d) Payal Kapadia

Q14. The provision of early childhood care and education to children below six years of age was introduced by which Constitutional Amendment?

(a) Forty-second Amendment Act, 1976
(b) Seventy-fourth Amendment Act, 1992
(c) Eighty-sixth Amendment Act, 2002
(d) Forty-fourth Amendment Act, 1978

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Q15. Mahavdev Govind Ranade devoted his entire life to the _____.

(a) Prarthana Samaj
(b) Deva Samaj
(c) Servants of India Society
(d) Theosophical Society

Q16. What did the Supreme Court direct regarding the investigation of 171 alleged fake encounters in Assam?

(a) Ordered the Assam Human Rights Commission to investigate
(b) Dismissed the allegations
(c) Declared the encounters justified
(d) Ordered the Assam Human Rights Commission to transferred the cases to the CBI

Q17. Which of the following countries withdrew from the International Criminal Court (ICC) in April 2025?

(a) Slovakia
(b) Czech Republic
(c) Austria
(d) Hungary

Q18. Which of the following organisations is NOT related to the development of 'DIGIPIN', which was launched in 2025?

(a) IIT Hyderabad
(b) ISRO
(c) DRDO
(d) Department of Posts

Q19. Who among the following was conferred with the Padma Shri Award 2025 in the field of Literature and Education in April 2025?

(a) Prof. Sushil Kumar Modi
(b) Prof. Anil Kumar Boro
(c) Prof. Nandamuri Balakrishna
(d) Prof. MT Vasudevan Nair

Q20. Who was sworn in as the 52nd Chief Justice of India on 14 May 2025?

(a) Justice Bhushan Ramakrishna Gavai
(b) Justice Sanjiv Khanna
(c) Justice Uday Umesh Lalit
(d) Justice Dhananjaya Y Chandrachud

Q21. In which year was the National Disaster Management Authority (NDMA) initially constituted under the Chairmanship of the Prime Minister of India by an executive order?

(a) 2005
(b) 2010
(c) 2007
(d) 2008

Q22. Which 2025 book by Pankaj Mishra examines Middle Eastern conflicts in a global context?

(a) Beyond Borders
(b) Global Turmoil
(c) The World After Gaza
(d) Echoes of the East

Q23. The luminous efficacy of monochromatic radiation of frequency 540×1012 Hz, Kcd, is to be ____ when expressed in the unit lumen per watt.

(a) 641
(b) 679
(c) 655

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(d) 683

Q24. In which of the following years was Burhan-ul-Mulk appointed the Nazim of Awadh?

(a) 1712
(b) 1732
(c) 1702
(d) 1722

Q25. Which of the following statements about the Council of Ministers is correct?

(a) Ministers of State rank higher than Cabinet Ministers.
(b) Cabinet Ministers are a smaller group within the Council of Ministers.
(c) The Council of Ministers is appointed by the Chief Justice
(d) All members of the Council of Ministers are part of the Cabinet.

Q26. Pitt's India Act of 1784 established which of the following bodies?

(a) Dual Government in Bengal
(b) Indian Civil Services
(c) Board of Control
(d) Supreme Court at Calcutta

Q27. Which of the following elements is NOT generally found in proteins?

(a) Nitrogen
(b) Phosphorus
(c) Carbon
(d) Hydrogen

Q28. The Green Revolution in India primarily led to an increase in the production of which crops?

(a) Rice and Pulses
(b) Wheat and Sugarcane
(c) Wheat and Rice
(d) Rice and Maize

Q29. The primary cause for the rise of Jainism and Buddhism was the religious unrest in India in the _____.

(a) 6th century BCE
(b) 5th century BCE
(c) 4th century BCE
(d) 7th century BCE

Q30. Developing countries have often experienced mixed outcomes from globalisation. Which of the following is a potential disadvantage of globalisation for developing economies?

(a) Job creation
(b) Transfer of technology
(c) Unequal income distribution
(d) Export growth

Q31. Which soil is acidic in nature and found in high rainfall areas?

(a) Laterite soil
(b) Red soil
(c) Alluvial soil
(d) Black soil

Q32. What is the primary goal of the 'MILAN 2025' naval exercise hosted by India?

(a) To promote maritime cooperation among friendly navies
(b) To build new submarines jointly with France
(c) To launch new defence satellites

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(d) To train for desert warfare

Q33. While multitasking, which of the following best describes what happens when Alt + Tab is used repeatedly?

(a) It locks the computer
(b) It cycles through open applications in the order of last use.
(c) It opens the Task Manager
(d) It closes the active window.

Q34. Which trio of leaders is famously associated with the rise of Extremist ideology in Indian nationalism?

(a) Lal-Bal-Pal
(b) Gokhale-Tilak-Gandhi
(c) Nehru-Gandhi-Patel
(d) Aurobindo-Lajpat Rai-Gokhale

Q35. Yakshagana is a folk theatre form from which of the following states of India?

(a) Tamil Nadu
(b) Punjab
(c) Karnataka
(d) Gujarat

Q36. Which player was honoured with the 2025 Football Writers' Association Men's Footballer of the Year award?

(a) Erling Haaland
(b) Mohamed Salah
(c) Harry Kane
(d) Bukayo Saka

Q37. Which type of mountain range is formed by the uplifted folded sedimentary rocks?

(a) Volcanic Mountains
(b) Block Mountains
(c) Fold Mountains
(d) Residual Mountains

Q38. During the period of medieval Indian literature, which language began to decline as the dominant medium for Buddhist literary expression and scholarship?

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

Q39. The RTI Act applies to which of the followings in India?

(a) Only Judiciary
(b) Only Central Government
(c) All Public Authorities
(d) Only State Government

Q40. Which Indian institute developed a fluorescent sensor capable of detecting cyanide in water and human cells, using just a UV light source?

(a) IIT Delhi
(b) IIT Bombay
(c) IIT Madras
(d) IIT Guwahati

MATHEMATICS

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Q41. Sapna invested Rs. 20,300 on simple interest, partly at 11% per annum and partly at 3% per annum. If she earns equal interests from the two investments after 5 years, then find the sum invested at 11% per annum (in Rs.).

(a) 4,350
(b) 4,351
(c) 4,347
(d) 4,352

Q42. Th prime numbers lying between 430 and 443, both included, is:

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

Q43. By how much is 65% of 65 greater than 1/5 of 25?

(a) 31.25
(b) 37.25
(c) 35.25
(d) 34.25

Q44. Two times the present age of P exceeds the present age of Q by 41 years. After 7 years, nine times Q's age will be 24 years less than six times P's age at that time. What is the present age (in years) of Q?

(a) 19
(b) 22
(c) 20
(d) 13

Q45. Evaluate: (-9) - (-60) ÷ (-10) + (-3) × 7

(a) -35
(b) -38
(c) -36
(d) -39

Q46. The LCM of the numbers 14.2 and 0.05 is:

(a) 14.2
(b) 0.142
(c) 142
(d) 1.42

Q47. Find the mean proportional of 400 and 4.

(a) 37
(b) 39
(c) 40
(d) 41

Q48. A shopkeeper lists the price of a fan at 44% above its cost price and offers a 25% discount on its list price. If he earns a profit of Rs. 126, then what is the list price (in Rs.) of the fan?

(a) 1,968
(b) 2,192
(c) 2,098
(d) 2,268

Q49. ABCD is a trapezium in which BC || AD and AC = CD. If and angle BAC = 94°, then what is the measure of angle ACD (in degree)? angle ABC = 36°

(a) 159°
(b) 186°

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(c) 80°
(d) 163°

Q50. A bus travelling at 84 km/hr completes a journey in 20 hours. What should its speed be to cover the same distance in 10 hours?
(a) 167 km/hr
(b) 165 km/hr
(c) 171 km/hr
(d) 168 km/hr

Q51. X, Y and Z invested a sum in the ratio of 19 : 88 : 18, respectively. If they earned a total profit of Rs. 2,200 at the end of the year, what is the difference between the shares of Y and Z?
(a) Rs. 1,181
(b) Rs. 1,391
(c) Rs. 1,302
(d) Rs. 1,232

Q52. Find the simple interest on Rs. 4,000 at 7.5% per annum rate of interest deposited on 9 February 2024 and withdrawn on 10 April 2024.
(a) Rs. 51
(b) Rs. 48
(c) Rs. 49
(d) Rs. 50

Q53. The marks scored by 10 students are given below.
18, 10, 15, 18, 18, 13, 20, 18, 17, 19
The mode of the given data is:
(a) 18
(b) 15
(c) 10
(d) 13

Q54. The sides of a triangle are 14 cm, 48 cm, and 50 cm. What is its area? (in cm2)
(a) 321
(b) 324
(c) 336
(d) 314

Q55. Which of the following numbers divides 444348269?
(a) 12
(b) 9
(c) 10
(d) 19

Q56. M and N start a business. M invests Rs. 64,000 more than N for 2 months and N invests for 3 months. M's share is Rs. 552 more than that of N, out of a total profit of Rs. 1,656. Find the capital contributed by M.
(a) Rs. 95,898
(b) Rs. 96,000
(c) Rs. 95,804
(d) Rs. 95,828

Q57. The number 889897 is divisible by which of the following?
(a) 52
(b) 64
(c) 69

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(d) 59

Q58. A can do a work in 16 days and B can do the same work in 18 days. If they work on it together for 4 days, then what fraction of the work is left?

(a) 29/36
(b) 19/36
(c) 25/36
(d) 17/36

Q59. The population of a district is 350000, out of which 175000 are males. 36% of the population is literate. If 22% males are literate, then what percentage of females are literate?

(a) 50%
(b) 53%
(c) 48%
(d) 47%

Q60. Hema can do a certain piece of work in 30 days. Hema and Raji can together do the same work in 25 days, and Hema, Raji and Smitha can do the same work together in 10 days. In how many days can Hema and Smitha do the same work together?

(a) 75/7
(b) 68/9
(c) 84/7
(d) 71/8

Q61. A cuboid has dimensions 10 cm, 8 cm and 6 cm. If the largest possible cube is cut from one of the corners of the cuboid, what is the total surface area of the remaining portion?

(a) 312 cm^2
(b) 376 cm^2
(c) 488 cm^2
(d) 160 cm^2

Q62. Rishi travels 585 km at 65 km/hr, the next 368 km at 92 km/hr and the next 168 km at 56 km/hr. What is his average speed (in km/hr) for the whole journey? (Round off your answer to two decimal places)

(a) 71.81
(b) 72.97
(c) 70.72
(d) 70.06

Q63. The average weight of Tushar, Salil and Mukund is 45 kg. If the average weight of Tushar and Salil is 44 kg and that of Salil and Mukund is 47 kg, then the weight of Salil (in kg) is:

(a) 67
(b) 57
(c) 62
(d) 47

Q64. Pallavi bought a toy for Rs. 255, decorated it at a cost of Rs. 5 and sold the toy for Rs. 154. Find the loss or profit percentage.

(a) 530/13 % profit
(b) 540/13 % profit
(c) 530/13 % loss
(d) 530% loss

Q65. Simplify: (tan A - cot B)/(tan B - cot A)

(a) sin A cos B
(b) tan A cot B
(c) tan B cot A

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(d) sin B cos A

Q66. Simplify $x(4x - 4) + 5(x^2 - 5) + 12$

(a) $9x^2 - 4x + 13$
(b) $-9x^2 - 4x - 13$
(c) $9x^2 - 4x - 13$
(d) $-9x^2 - 4x + 13$

Q67. The value of $\sqrt{196}+\sqrt{0.0225}-\sqrt{5.76}$ is _____.

(a) 14.68
(b) 11.1
(c) 11.75
(d) 12.78

Q68. Under an offer at a shop selling trousers, customers were getting 4 trousers free on the purchase of 6 trousers. Find the discount available to the customer.

(a) 30%
(b) 40%
(c) 20%
(d) 50%

Q69. The sum of the squares of two consecutive even natural numbers is 164. The sum of the numbers is:

(a) 16
(b) 32
(c) 8
(d) 18

Q70. A retailer offers a discount scheme 'Buy 3 get 1 free'. Every item costs Rs. 3,000. He gave a discount of 20% on the total bill to his relative. If his relative takes home 4 items, then how much he would have paid?

(a) Rs. 7,200
(b) Rs. 5,400
(c) Rs. 7,000
(d) Rs. 6,200

GENERAL INTELLIGENCE AND REASONING

Q71. Seven people, A, B, C, T, U, V and W are sitting in a row, facing north. Only three people sit to the left of V. Only A sits to the right of U. Only three people sit between U and W. T sits at some place to the left of B but at some place to the right of C. How many people sit between C and B?

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

Q72. Seven boxes A, B, C, D, E, F and G are kept one over the other but not necessarily in the same order. Only two boxes are kept below B. Only one box is kept above D. Only one box is kept between D and E. F is kept immediately above C. G is kept at some place below A. How many boxes are kept above B?

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

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Q73. Refer to the following number and symbol series and answer the question that follows. Counting to be done from left to right only. (Note: All numbers are single digit numbers only).

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

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

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

Q74. In a certain code language, ‘FAIR’ is coded as ‘4627’ and ‘RENT’ is coded as ‘1365’. What is the code for ‘R’ in the given code language?

(a) 1
(b) 7
(c) 5
(d) 6

Q75. WFJU is related to AINX in a certain way based on the English alphabetical order. In the same way, MRZG is related to QUDJ. To which of the given options is YALP related, following the same logic?

(a) CDSP
(b) CDPS
(c) CSPO
(d) CSER

Q76. IQNJ is related to GOLH in a certain way based on the English alphabetical order. In the same way, FNKG is related to DLIE. To which of the given options is CKHD related, following the same logic?

(a) AIBF
(b) IABF
(c) AIFB
(d) IAFB

Q77. If ‘I’ stands for ‘+’, ‘J’ stands for ‘×’, ‘K’ stands for ‘÷’ and ‘L’ stands for ‘−’, then what will come in place of the question mark (?) in the following equation?

65 I 35 L 35 I 15 K 5 J 24 I 65 K 5 J 8 = ?

(a) 211
(b) 316
(c) 241
(d) 303

Q78. What should come in place of the question mark (?) in the given series?

28 49 72 97 124 ?

(a) 144
(b) 172
(c) 153
(d) 166

Q79. H is the brother of P. P is the brother of S. S is the daughter of K. K is the wife of L. N is the son of M. M is married to S. How is N related to L?

(a) Brother's son
(b) Daughter's son
(c) Son's son
(d) Son

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Q80. What should come in place of the question mark (?) in the given series?

800, 1100, 850, 1150, 900, ?

(a) 1200
(b) 1150
(c) 600
(d) 650

Q81. Tiya, Tarun, Shyam, Jiya, Varun and Ram are sitting around a circle, facing the centre. Ram sits third to the right of Tarun. Tarun sits second to the right of Tiya. Shyam sits to the immediate right of Varun. Who sits second to the right of Tarun?

(a) Varun
(b) Tiya
(c) Jiya
(d) Shyam

Q82. 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 fans are bulbs.

No bulb is a geyser.

Conclusions:

(I): No fan is a geyser.

(II): No geyser is a bulb.

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

Q83. MONK is related to SUTQ in a certain way based on the English alphabetical order. In the same way, KMLI is related to QSRO. To which of the following is CEDA related, following the same logic?

(a) IKOP
(b) IKJG
(c) JUIY
(d) JUYT

Q84. What will come in place of the question mark (?) in the following equation, if '+' and '−' are interchanged and '×' and '÷' are interchanged?

$42 \times 6 - 18 \div 4 + 15 = ?$

(a) 64
(b) 66
(c) 68
(d) 62

Q85. Based on the English alphabetical order, three of the following four letter-clusters are alike in a certain way and thus form a group. Which letter-cluster DOES NOT belong to that group?

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

(a) PRN
(b) VXT
(c) TVR
(d) RTO

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Q86. Read the given statements and conclusions carefully. Assuming that the information given in the statements is true, even if it appears to be at variance with commonly known facts, decide which of the given conclusion(s) logically follow(s) from the statements.

Statements:

All bottles are ludo.

All ludo are drums.

Conclusions:

(I): Some drums are ludo.

(II): All bottles are drums.

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

Q87. What should come in place of the question mark (?) in the given series?

515 518 523 530 539 ?

(a) 550
(b) 549
(c) 548
(d) 551

Q88. Seven boxes C, D, E, M, N, O and P are kept one over the other but not necessarily in the same order. Only two boxes are kept below O. Only one box is kept above N. Only one box is kept between N and E. C is kept immediately above M. D is kept at some place below P. How many boxes are kept between P and C?

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

Q89. What should come in place of the question mark (?) in the given series based on the English alphabetical order?

UXZ RUW ORT LOQ ?

(a) IKN
(b) IKM
(c) ILN
(d) ILM

Q90. Gill starts from Point A and drives 7 km towards south. She then takes a left turn, drives 12 km, turns left and drives 4 km. She then takes a left turn and drives 5 km. She takes a final right turn, drives 3 km and stops at Point P. How far (shortest distance) and towards which direction should she drive in order to reach Point A again? (All turns are 90° turns only unless specified.)

(a) 9 km towards west
(b) 7 km towards east
(c) 7 km towards west
(d) 9 km towards south

Q91. If + means −, − means ×, × means ÷ and ÷ means +, then what will come in place of the question mark (?) in the following equation?

6 − 3 + 77 × 7 ÷ 11 = ?

(a) 28
(b) 18
(c) 21
(d) 35

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Q92. Based on the English alphabetical order, three of the following four letter-clusters are alike in a certain way and thus form a group. Which letter-cluster DOES NOT belong to that group? (Note: The odd one out is not based on the number of consonants/vowels or their position in the letter-cluster.)

(a) PLQ
(b) EAG
(c) HDI
(d) LHM

Q93. 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.

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

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

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

Q94. In the following number-pairs, the second number is obtained by applying certain mathematical operation(s) to the first number. Select the number-pair in which the numbers are related in the same way as are the numbers of the following pairs. (NOTE: Operations should be performed on the whole numbers, without breaking down the numbers into their constituent digits. E.g. 13 – Operations on 13 such as adding to/subtracting from/multiplying with 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed.)

86, 286

48, 248

(a) 65, 265
(b) 70, 280
(c) 78, 378
(d) 45, 235

Q95. Dominic starts from Point A and drives 6 km towards east. He then takes a right turn, drives 9 km, turns right and drives 11 km. He then takes a right turn and drives 19 km. He takes a final right turn, drives 5 km and stops at Point P. How far (shortest distance) and towards which direction should he drive in order to reach Point A again? (All turns are 90° turns only unless specified.)

(a) 11 km; south
(b) 10 km; south
(c) 13 km; south
(d) 12 km; south

Q96. Based on the English alphabetical order, three of the following four letter-clusters are alike in a certain way and thus form a group. Which letter-cluster DOES NOT belong to that group? (Note: The odd one out is not based on the number of consonants/vowels or their position in the letter-cluster.)

(a) ORM
(b) KNI
(c) RUP
(d) TWS

Q97. What should come in place of the question mark (?) in the given series based on the English alphabetical order?

BGK HMQ NSW TYC ?

(a) ZIE
(b) ZLE
(c) ZEL
(d) ZEI

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Q98. Each of the digits in the number 7356981 is arranged in ascending order from left to right. What will be the sum of the digits that are second from the left and second from the right in the new number thus formed?

(a) 9
(b) 11
(c) 8
(d) 10

Q99. In a certain code language, 'FELT' is coded as '4629' and 'LOAN' is coded as '1345'. What is the code for 'L' in the given code language?

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

Q100. Seven boxes P, Q, R, S, X, Y and Z are kept one over the other, but not necessarily in the same order. Only P is kept above R. Only X is kept between R and Q. Only Z is kept below S. How many boxes are kept between Y and Z?

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

ANSWER KEY

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

SOLUTIONS

Q1. Answer: (b) Coffee

The correct answer is Coffee.

Key Points

• Blossom Shower is a climatic phenomenon in Kerala and nearby regions that triggers the blooming of coffee flowers.

• Coffee plants require specific climatic conditions for flowering, and the Blossom Shower ensures adequate moisture for the flowers to bloom.

• This phenomenon usually occurs in the months of March and April, aligning with the coffee flowering season.

• The Blossom Shower is crucial for coffee cultivation as it directly affects the subsequent fruiting and yield of the coffee plants.

• Kerala is one of the prominent coffee-growing regions in India, along with Karnataka and Tamil Nadu.

Additional Information

• Coffee Cultivation in India:

• India is the seventh-largest coffee producer in the world, with Karnataka, Kerala, and Tamil Nadu being the major coffee-producing states.

• Two main types of coffee grown in India are Arabica and Robusta.

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• Coffee is primarily grown in shaded areas and requires a tropical climate with moderate rainfall.
• Climate Requirements for Coffee:
• Coffee plants thrive in temperatures ranging between 15°C to 28°C.
• Well-distributed rainfall of 1,500-2,500 mm annually is ideal for coffee cultivation.
• Excessive frost or drought conditions can adversely affect coffee production.
• Flowering Process in Coffee Plants:
• After a dry spell, coffee plants require adequate moisture for their flowers to bloom.
• The Blossom Shower provides the necessary water, triggering synchronized flowering.
• Uniform flowering ensures a higher yield and better-quality coffee beans.
• India’s Coffee Export:
• India exports a significant portion of its coffee production, primarily to Europe and Russia.
• Indian coffee is known for its unique flavor and aroma, attributed to the shaded cultivation and monsoon processing method.

Q2. Answer: (a) Naming files meaningfully

The correct answer is Naming files meaningfully.

Key Points

• Meaningful file names help in organizing files systematically and make it easier to retrieve them when needed.
• Using descriptive names provides clarity on file content without opening it.
• Organized naming conventions reduce confusion and save time during searches.
• File names should include relevant details like date, project name, or version to ensure accuracy in identification.
• Adopting a naming convention across teams or projects ensures consistency and better collaboration.

Additional Information

• Folder Organization:
• Creating hierarchical folders helps in structuring files for better navigation.
• Folders can be categorized by project, department, or file types.
• Subfolders further divide files into specific categories or versions.
• File Management Tools:
• Applications like Google Drive, Dropbox, or OneDrive provide cloud-based file organization and sharing.
• These tools also offer search capabilities, making it easier to locate files.
• File Naming Best Practices:
• Avoid spaces and special characters in file names; use underscores or hyphens instead.
• Include dates in file names using the YYYYMMDD format for chronological sorting.
• Use abbreviations consistently across file names to maintain uniformity.
• Benefits of Organized Files:
• Improves efficiency in work processes and reduces time spent searching for files.
• Ensures data accuracy and prevents duplication of files.
• Facilitates effective collaboration among team members.

Q3. Answer: (d) Village Panchayats

The correct answer is Village Panchayats.

Key Points

• The area under 'Permanent Pastures and Grazing Lands' in India is primarily managed and owned by Village Panchayats.
• These lands are categorized as common property resources, serving the needs of livestock grazing and local agriculture.
• Village Panchayats are responsible for maintaining these lands under the provisions of the Panchayati Raj system, aimed at decentralized governance.
• Such lands play a critical role in supporting rural livelihoods by providing grazing areas for livestock, which are an integral part of India’s agrarian economy.
• Management of these lands also involves measures for conservation and sustainable use to prevent land degradation and overgrazing.

Additional Information

• Common Property Resources (CPRs)
• These are resources accessible to all members of a community, such as pastures, forests, and water bodies.
• CPRs are essential for rural communities, providing resources for agriculture, livestock grazing, and daily needs.

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• Proper management of CPRs is vital to ensure sustainable use and prevent conflicts over resource access.
• Panchayati Raj System
• Introduced in India through the 73rd Constitutional Amendment Act, 1992.
• It provides a three-tier structure of governance at the village, block, and district levels.
• Village Panchayats are the lowest level and play a pivotal role in managing local resources.
• Land Degradation and Grazing
• Overgrazing on pasture lands can lead to soil erosion, loss of vegetation, and decreased agricultural productivity.
• Efforts such as afforestation, controlled grazing, and community participation are crucial for maintaining soil health.
• Livestock in India
• India ranks as one of the top countries globally in livestock population, with cattle, buffalo, goats, and sheep being the dominant species.
• Livestock contributes significantly to rural income and the agricultural economy, emphasizing the importance of grazing lands.

Q4. Answer: (c) Airbornics Defence & Space Pvt Ltd

The correct answer is Airbornics Defence & Space Pvt Ltd.

Key Points

• In April 2025, Airbornics Defence & Space Pvt Ltd, a defence subsidiary, signed a landmark Memorandum of Understanding (MoU) with Slovakia to strengthen India's indigenous defence manufacturing capabilities.
• The MoU focuses on collaboration in advanced defence technologies, including weapon systems, aerospace components, and communication systems.
• Airbornics Defence & Space Pvt Ltd aims to leverage this partnership to boost domestic production and reduce reliance on foreign imports in the defence sector.
• This agreement aligns with India's vision of Aatmanirbhar Bharat (Self-Reliant India) by promoting local manufacturing and technological innovation.
• The collaboration highlights Slovakia's interest in India as a key defence partner in the global market.

Additional Information

• Aatmanirbhar Bharat Abhiyan
• Launched by the Indian government to promote self-reliance across various sectors, including defence, manufacturing, and technology.
• The initiative emphasizes developing domestic capabilities to reduce dependence on foreign imports.
• It includes policy reforms and incentives to encourage local industries and startups to participate in national growth.
• Strategic Importance of Defence MoUs
• Defence MoUs facilitate international collaboration to enhance technological expertise and manufacturing capabilities.
• They help establish long-term partnerships and strengthen defence ties between participating countries.
• Such agreements contribute to the modernization of armed forces and the integration of cutting-edge technologies.
• India's Defence Manufacturing Push
• India has been focusing on becoming a global hub for defence manufacturing through initiatives like Defence Industrial Corridors and Make in India.
• The Indian government has liberalized FDI in the defence sector to attract foreign investment and expertise.
• The Defence Acquisition Procedure (DAP) 2020 emphasizes indigenous procurement and offsets to benefit local industries.
• Slovakia's Defence Industry
• Slovakia is known for its expertise in producing advanced weaponry, aerospace components, and communication systems.
• The country has a strong history of collaboration in defence technologies with global partners.
• Its partnership with India opens avenues for mutual technology transfer and joint ventures.

Q5. Answer: (a) To enhance security and prevent identity fraud

The correct answer is To enhance security and prevent identity fraud.

Key Points

• E-passports are being introduced in India to enhance the security and integrity of travel documents.
• They incorporate an embedded microchip that stores the passport holder's biometric and personal data, reducing the chances of tampering or identity theft.
• The International Civil Aviation Organization (ICAO) standards are followed to ensure global acceptance and interoperability of e-passports.
• These passports will make the verification process faster and more secure at immigration checkpoints, both domestically and

internationally.

• The initiative aligns with the Indian government's vision of adopting cutting-edge technologies to improve citizen services and foster global mobility.

Additional Information

• What is an e-passport?

• An e-passport, also known as a biometric passport, includes an embedded electronic chip that stores the holder's biometric data, such as fingerprints and facial recognition data.

• This chip ensures that the passport cannot be easily forged or duplicated.

• ICAO Standards for E-passports

• The International Civil Aviation Organization (ICAO) sets global specifications for the design and functionality of e-passports.

• These standards ensure that e-passports are universally recognized and can be scanned at immigration checkpoints worldwide.

• Benefits of E-passports

• Enhanced security features to prevent counterfeiting, forgery, and identity theft.

• Faster and more efficient immigration checks at airports and border crossings.

• Improved trust and acceptance by international authorities for travelers.

• India's E-passport Initiative

• The Indian government plans to introduce e-passports in collaboration with the Ministry of External Affairs and the Indian Security Press.

• These passports will feature advanced security layers and comply with global ICAO guidelines.

• Role of Biometric Technology

• Biometric data stored in e-passports facilitates secure and accurate identification of individuals.

• It reduces human errors during verification and enhances the overall efficiency of border control systems.

Q6. Answer: (a) President of India

The correct answer is President of India.

Key Points

• The authority to transfer judges of High Courts in India lies with the President of India as per Article 222 of the Indian Constitution.

• The transfer is carried out based on the recommendation of the Chief Justice of India (CJI).

• The President, after consulting the CJI, issues the transfer order to ensure judicial independence and administrative efficiency.

• Such transfers are aimed at preventing favoritism, ensuring impartiality, and maintaining the integrity of the judiciary.

• Judges being transferred are entitled to receive compensatory allowances as specified under the Constitution.

Additional Information

• Article 222 of the Indian Constitution:

• It empowers the President to transfer a judge from one High Court to another after consulting the Chief Justice of India.

• The transferred judge is eligible for compensatory allowances as determined by law.

• Role of the Chief Justice of India:

• The Chief Justice of India plays a crucial role in advising the President on the transfer of judges.

• Consultation with the Chief Justice ensures transparency and impartiality in the decision-making process.

• Independence of the Judiciary:

• Transfers prevent favoritism and ensure that judges do not develop undue influence in a particular region.

• This practice upholds the principle of judicial independence and impartiality.

• Compensatory Allowances:

• Judges who are transferred to another High Court are entitled to compensatory allowances as per constitutional provisions.

• These allowances are meant to cover expenses incurred due to relocation and ensure financial stability.

Q7. Answer: (a) Socio-economic and educational disparities

The correct answer is Socio-economic and educational disparities.

Key Points

• Adult literacy rates in India are significantly influenced by socio-economic factors such as income levels, poverty, and accessibility to education.

• States with better educational infrastructure, such as Kerala, have higher literacy rates, showcasing the impact of focused educational policies.

• Rural-urban disparities play a major role; literacy rates tend to be lower in rural areas due to limited access to schools and educational resources.

• Social inequalities, including caste and gender-based discrimination, have restricted access to education for marginalized groups, impacting literacy levels.

• Government initiatives and schemes, such as Samagra Shiksha Abhiyan, play a crucial role in bridging educational gaps across states.

Additional Information

• Literacy Definition:

• Literacy is commonly defined as the ability to read and write with understanding, typically measured for individuals aged 7 years and above.

• Regional Disparities:

• Southern states like Kerala and Tamil Nadu have higher literacy rates, whereas northern states like Bihar and Uttar Pradesh lag behind.

• These disparities are linked to historical, socio-economic, and political factors influencing education policies.

• Gender Inequality:

• Female literacy rates are often lower than male literacy rates due to cultural and societal barriers in many regions.

• Government Efforts:

• Programs like the Right to Education (RTE), Sarva Shiksha Abhiyan, and National Literacy Mission aim to reduce disparities and promote literacy.

• Global Comparison:

• India's adult literacy rate is lower compared to several developing countries, indicating the need for focused measures to improve educational access and quality.

Q8. Answer: (a) Third Five Year Plan

The correct answer is Third Five Year Plan.

Key Points

• The Third Five Year Plan (1961-1966) marked the beginning of the Green Revolution in India.

• It focused on increasing agricultural production through the adoption of modern farming techniques.

• The introduction of High Yielding Variety (HYV) seeds, better irrigation facilities, and chemical fertilizers were key elements of the Green Revolution during this period.

• The Green Revolution aimed to achieve self-sufficiency in food grain production, particularly wheat and rice.

• Norman Borlaug's research on dwarf wheat varieties greatly influenced India's Green Revolution efforts, starting with pilot projects in states like Punjab and Haryana.

Additional Information

• Five Year Plans in India

• India adopted planned development through Five Year Plans starting in 1951.

• These plans aimed at balanced economic growth across various sectors such as agriculture, industry, and infrastructure.

• Green Revolution

• It was a set of initiatives aimed at enhancing agricultural productivity using modern methods.

• The Green Revolution in India was spearheaded by M.S. Swaminathan, known as the "Father of the Green Revolution in India."

• It was instrumental in reducing India's dependence on food imports during the 1960s.

• Key Technologies of Green Revolution

• High Yielding Variety (HYV) seeds, chemical fertilizers, pesticides, and modern irrigation techniques were introduced.

• Mechanization of agriculture, including tractors and other farming equipment, also played a significant role.

• Impact of the Green Revolution

• It led to a substantial increase in food grain production, particularly wheat and rice.

• States like Punjab, Haryana, and Uttar Pradesh became agricultural hubs due to the Green Revolution.

• While it enhanced food security, it also brought challenges such as environmental degradation and regional disparities.

Q9. Answer: (c) Work

The correct answer is Work.

Key Points

• Work is not a state function because it depends on the path taken during a process and not solely on the initial and final states of the system.

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• State functions, such as pressure, enthalpy, and internal energy, depend only on the system's current state and are independent of the path used to reach that state.
• Work is a process-dependent quantity and is categorized as a path function in thermodynamics.
• Examples of state functions include temperature, volume, pressure, internal energy, and enthalpy, which are intrinsic properties of the system.
• Unlike state functions, path functions like work and heat describe energy transfers and require the process to be specified.

Additional Information

• State Functions:
• State functions are properties that depend only on the current state of the system, not on how the system reached that state.
• Examples include pressure, temperature, volume, internal energy, Gibbs free energy, and entropy.
• State functions are useful for describing equilibrium states and calculating changes in thermodynamic processes.
• Path Functions:
• Path functions depend on the specific path or process taken to transition between states.
• Examples include work and heat, which are energy transfer quantities.
• Path functions are often described mathematically using integrals over the process path.
• Thermodynamic Processes:
• Thermodynamic processes involve changes in state variables as the system undergoes energy transfer.
• Common processes include isothermal (constant temperature), adiabatic (no heat exchange), and isobaric (constant pressure).
• The work done in a process can vary significantly based on the path followed, even if the initial and final states are the same.
• First Law of Thermodynamics:
• The first law states that energy cannot be created or destroyed, but it can be transferred or converted between forms.
• It is mathematically expressed as $\Delta U = Q - W$, where ΔU is the change in internal energy, Q is heat added to the system, and W is work done by the system.
• Work and heat in this law are path-dependent, while internal energy is a state function.

Q10. Answer: (c) Ulaanbaatar, Mongolia

The correct answer is Ulaanbaatar, Mongolia.

Key Points

• The 17th edition of the India-Mongolia joint military exercise NOMADIC ELEPHANT is being conducted in Ulaanbaatar, Mongolia as of May 2025.
• This exercise focuses on enhancing interoperability, mutual understanding, and cooperation between the armed forces of India and Mongolia.
• The drill involves joint counter-terrorism operations and peacekeeping missions under the United Nations mandate.
• Participants from both countries engage in field training exercises, live demonstrations, and discussions to improve military coordination.
• The exercise is a part of India's Act East Policy, which aims to strengthen ties with countries in the Asia-Pacific region.

Additional Information

• India-Mongolia Relations:
• India and Mongolia share strong historical, spiritual, and cultural ties based on Buddhism.
• The bilateral relationship includes cooperation in defense, education, trade, and environmental conservation.
• Mongolia refers to India as its "third neighbor" after China and Russia.
• Act East Policy:
• India's Act East Policy aims to strengthen economic, strategic, and cultural relations with the Asia-Pacific region.
• It involves expanding cooperation in trade, connectivity, and defense with ASEAN and East Asian countries.
• Military exercises like NOMADIC ELEPHANT align with this policy to deepen regional partnerships.
• United Nations Peacekeeping:
• India is one of the largest contributors to UN peacekeeping missions globally.
• These missions involve military personnel from various nations working together to maintain peace in conflict zones.
• Exercises like NOMADIC ELEPHANT help prepare forces for such collaborative missions.
• Mongolian Armed Forces:
• Mongolia's military primarily focuses on peacekeeping missions and disaster response.
• The country actively collaborates with international partners for defense training and capacity building.

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Q11. Answer: (b) Malda fault

The correct answer is Malda Fault.

Key Points

• The Malda Fault is a significant geological feature located in the northeastern region of the Peninsular Block of India.

• It separates the Peninsular Block from the younger Himalayan foredeep and marks the transition zone between two tectonic provinces.

• The Malda Fault is associated with seismic activity due to its role in the interaction between the Indian Plate and the Eurasian Plate.

• This fault line is characterized by tectonic disturbances, making the region geologically complex.

• The area near the Malda Fault is known for its unique geomorphological features and serves as a boundary for the Peninsular Block.

Additional Information

• Peninsular Block of India:

• The Peninsular Block is the oldest and most stable landmass of India, composed primarily of Precambrian rocks.

• It is bounded by several geological features, including the Aravalli Hills, Eastern Ghats, and Western Ghats.

• This region forms the Deccan Plateau and is tectonically stable compared to the Himalayan region.

• Faults in Geology:

• A fault is a fracture or zone of fractures between two blocks of rock.

• Faults allow the blocks to move relative to each other, causing earthquakes and changes in the landscape.

• They are classified into normal, reverse, and strike-slip faults based on their movement.

• Seismic Zones of India:

• India is divided into four seismic zones based on earthquake risks: Zone II, III, IV, and V.

• The northeastern region, including areas near the Malda Fault, falls under high-risk zones (Zone IV and V).

• Himalayan Foredeep:

• The Himalayan Foredeep is a structural depression formed by the collision of the Indian Plate with the Eurasian Plate.

• It is a sedimentary basin located south of the Himalayan Range.

• This region is tectonically active, contributing to frequent seismic activity.

Q12. Answer: (a) National Judicial Appointments Commission

The correct answer is National Judicial Appointments Commission.

Key Points

• The National Judicial Appointments Commission (NJAC) was established by the 99th Constitutional Amendment Act, 2014.

• Its purpose was to create a transparent mechanism for the appointment and transfer of judges to the higher judiciary, including the Supreme Court and High Courts.

• The NJAC comprised six members: the Chief Justice of India (CJI), two senior-most judges of the Supreme Court, the Union Minister of Law and Justice, and two eminent persons.

• The NJAC aimed to replace the collegium system, which had been criticized for its lack of transparency and accountability.

• However, the NJAC was struck down by the Supreme Court in 2015, citing it as unconstitutional and violative of the independence of the judiciary.

Additional Information

• Collegium System:

• The collegium system is a method of appointing and transferring judges of the higher judiciary in India, developed through Supreme Court judgments rather than legislation.

• It consists of the Chief Justice of India and four senior-most judges of the Supreme Court for recommending appointments.

• The system has been criticized for its lack of transparency and accountability.

• 99th Constitutional Amendment Act:

• It was passed by the Parliament in 2014 to introduce the NJAC for judicial appointments.

• The amendment sought to enhance transparency and accountability in the appointment process.

• The Supreme Court declared it unconstitutional in 2015, restoring the collegium system.

• Independence of Judiciary:

• The concept ensures that the judiciary functions without interference from the executive and legislature.

• It is considered a cornerstone of democracy and is protected under Article 50 of the Indian Constitution.

• Constitutional Provisions for Judicial Appointments:

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• Articles 124 and 217 of the Constitution provide for the appointment of judges to the Supreme Court and High Courts, respectively.

• The President appoints judges in consultation with the Chief Justice of India and other senior judges as per these provisions.

Q13. Answer: (d) Payal Kapadia

The correct answer is Payal Kapadia.

Key Points

• Payal Kapadia is an Indian filmmaker known for her unique storytelling and cinematic excellence.

• She was honoured with the prestigious Officier dans l'Ordre des Arts et des Lettres (Officer of the Order of Arts and Letters) award by the French government in April 2025.

• This award is one of France's highest distinctions, recognizing significant contributions to the arts and literature.

• Kapadia's documentary film "A Night of Knowing Nothing" won the Golden Eye award for best documentary at the 2021 Cannes Film Festival.

• She has received widespread acclaim for her ability to explore complex themes through experimental and immersive cinematic techniques.

Additional Information

• Officier dans l'Ordre des Arts et des Lettres

• This French honour was established in 1957 to recognize individuals for their outstanding contributions to the arts, literature, or the promotion of these fields.

• It is awarded by the French Ministry of Culture and has three grades: Chevalier (Knight), Officier (Officer), and Commandeur (Commander).

• Past recipients of this award include renowned personalities such as Shah Rukh Khan, Meryl Streep, and Leonardo DiCaprio.

• Payal Kapadia's "A Night of Knowing Nothing"

• The film is a documentary that blends fiction and reality to explore themes of love, loss, and resistance within India's socio-political context.

• It was awarded the Golden Eye award at the Cannes Film Festival in 2021, a prestigious recognition for documentaries.

• Kapadia's work has been praised for its inventive narrative style and visual storytelling.

• Indian filmmakers recognized internationally

• Indian filmmakers such as Satyajit Ray, Mira Nair, and Deepa Mehta have received global acclaim for their contributions to cinema.

• They have been instrumental in bringing Indian stories and perspectives to international audiences.

• Recognition of Indian cinema in global awards

• Indian cinema has increasingly gained recognition in international platforms, with films like "RRR" and "The Lunchbox" making waves globally.

• Such achievements highlight the growing influence and excellence of Indian filmmakers in the global cultural landscape.

Q14. Answer: (c) Eighty-sixth Amendment Act, 2002

The correct answer is Eighty-sixth Amendment Act, 2002.

Key Points

• The Eighty-sixth Amendment Act of 2002 added Article 21A to the Constitution, making education a fundamental right for children aged 6 to 14 years.

• It also amended Article 45 to provide for early childhood care and education for children below six years of age.

• Under this amendment, the government is mandated to ensure free and compulsory education for children aged six to fourteen years.

• This amendment introduced the concept of early childhood care, emphasizing the importance of holistic development during the formative years.

• It led to the enactment of the Right of Children to Free and Compulsory Education Act (RTE), 2009, which operationalized the provisions of Article 21A.

Additional Information

• Constitutional Amendment:

• Amendments to the Constitution are made to address changing socio-economic and political circumstances.

• The 86th Amendment was enacted in 2002 to emphasize the importance of education and early childhood care.

• Article 21A:

• This article guarantees free and compulsory education for children between the ages of 6 and 14.

• It emphasizes equal opportunities for education, regardless of socio-economic background.

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• Article 45:

• Originally, Article 45 aimed at providing free and compulsory education for children up to the age of 14 years.

• Post the 86th Amendment, it was modified to focus on early childhood care for children below six years.

• Right to Education Act (RTE), 2009:

• The RTE Act operationalized Article 21A, ensuring access to quality education for all children.

• It mandates provisions such as infrastructure requirements, pupil-teacher ratios, and the prohibition of physical punishment and mental harassment.

Q15. Answer: (a) Prarthana Samaj

The correct answer is Prarthana Samaj.

Key Points

• Mahadev Govind Ranade was one of the founding members of the Prarthana Samaj, established in 1867 in Bombay.

• The Prarthana Samaj focused on social reforms, including abolition of caste discrimination, widow remarriage, and women's education.

• Ranade was deeply influenced by the teachings of social reformers like Raja Ram Mohan Roy and focused on modernization within the framework of Indian traditions.

• He advocated for inter-religious harmony and promoted religious and social ideals that were progressive for his time.

• Mahadev Govind Ranade is often referred to as the "Father of Indian Social Reform" due to his significant contributions to social justice and equality.

Additional Information

• Prarthana Samaj

• The Prarthana Samaj was inspired by the Brahmo Samaj and aimed at creating a liberal and inclusive religious movement.

• It emphasized monotheism and rejected idol worship while advocating for ethical and moral living.

• The Samaj was instrumental in promoting social causes, including better treatment of women and eradication of societal evils.

• Mahadev Govind Ranade

• Ranade was an Indian scholar, social reformer, and jurist who worked for the upliftment of marginalized communities.

• He co-founded institutions like the Widow Marriage Association and the Pune Sarvajanik Sabha.

• He believed in gradual reform and modernization without disrupting the cultural fabric of India.

• Social Reform Movements in India

• Movements like the Prarthana Samaj, Brahmo Samaj, and Arya Samaj were crucial in addressing issues like caste discrimination and women's rights.

• These movements were pivotal in laying the foundation for India's freedom struggle and progress toward equality.

Q16. Answer: (a) Ordered the Assam Human Rights Commission to investigate

The correct answer is Ordered the Assam Human Rights Commission to investigate.

Key Points

• The Supreme Court directed the Assam Human Rights Commission to investigate 171 alleged fake encounters in Assam.

• These cases involved allegations against security forces for extrajudicial killings during counter-insurgency operations in the state.

• The directive aimed to ensure transparency and accountability in handling the alleged fake encounters.

• The investigation was ordered to be conducted impartially and in accordance with legal procedures to uphold human rights.

• Such directives from the Supreme Court emphasize the judiciary's role in safeguarding constitutional rights and maintaining checks on government actions.

Additional Information

• Fake Encounters:

• Refers to extrajudicial killings where law enforcement agencies claim to have killed suspects in self-defense.

• Such incidents are often criticized for bypassing due legal process and violating human rights.

• Assam Human Rights Commission:

• A statutory body established under the Protection of Human Rights Act, 1993.

• It is tasked with investigating human rights violations and recommending corrective measures.

• Supreme Court of India:

• The apex judicial authority in India, responsible for safeguarding constitutional rights and ensuring justice.

• It holds the power to intervene in cases where constitutional principles and human rights are compromised.

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• Human Rights:
• Refer to the basic rights and freedoms that belong to every individual, irrespective of race, religion, or nationality.
• Protection of human rights is a fundamental aspect of democratic governance.

Q17. Answer: (d) Hungary

The correct answer is Hungary.

Key Points

• Hungary withdrew from the International Criminal Court (ICC) in April 2025, citing disagreements with the court's jurisdiction over certain cases.
• The ICC, established in 2002 under the Rome Statute, is a permanent international tribunal to prosecute individuals for genocide, crimes against humanity, and war crimes.
• Hungary's withdrawal was a move aligned with its stance on sovereignty and legal independence in international law.
• This decision drew criticism from various human rights organizations, emphasizing the importance of global cooperation in addressing international crimes.
• Hungary's government argued that the ICC's operations were inconsistent with its national interests and policies in recent years.

Additional Information

• International Criminal Court (ICC):
• Established by the Rome Statute in 1998 and began operations in 2002.
• Headquartered in The Hague, Netherlands, it prosecutes individuals, not states.
• Its jurisdiction includes crimes of genocide, crimes against humanity, war crimes, and crimes of aggression.
• As of 2023, 123 countries are parties to the Rome Statute.
• Rome Statute:
• The founding treaty of the ICC, adopted in 1998, defines the court's jurisdiction, structure, and functioning.
• Countries that ratify the statute become members of the ICC, agreeing to cooperate and abide by its rulings.
• State Sovereignty vs. International Law:
• Debates often arise when international institutions like the ICC intervene in national legal matters.
• Some states view such interventions as encroachments on their sovereignty.
• Withdrawal Process:
• A country can withdraw from the Rome Statute by notifying the United Nations Secretary-General.
• Withdrawal becomes effective one year after the notification.

Q18. Answer: (c) DRDO

The correct answer is DRDO.

Key Points

• DIGIPIN is a digital innovation launched in 2025 aiming to streamline digital identification processes in India.
• Organisations involved in the development of DIGIPIN include IIT Hyderabad, ISRO, and the Department of Posts.
• DRDO (Defence Research and Development Organisation) is primarily focused on defence technologies and is not related to DIGIPIN development.
• The initiative integrates advanced technologies like artificial intelligence and blockchain for secure digital identification.
• The Department of Posts plays a key role in ensuring nationwide accessibility of this innovation through its widespread network.

Additional Information

• DRDO (Defence Research and Development Organisation)
• Established in 1958, DRDO is India's premier agency for defence research and development.
• Its focus areas include missile systems, combat vehicles, electronic warfare, and aeronautics.
• DRDO's innovations like the Agni and BrahMos missiles have significantly strengthened India's defense capabilities.
• ISRO (Indian Space Research Organisation)
• ISRO, founded in 1969, is India's national space agency responsible for space exploration and satellite development.
• Key achievements include the Chandrayaan missions, Mars Orbiter Mission (Mangalyaan), and the Gaganyaan human spaceflight program.
• ISRO's involvement in DIGIPIN highlights its contribution to technological advancements beyond space exploration.
• IIT Hyderabad
• IIT Hyderabad is a leading academic institution known for its innovation in technology and research.
• The institute actively collaborates with various organizations to develop cutting-edge solutions in fields like AI, blockchain, and

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quantum computing.

• Its contribution to DIGIPIN showcases its role in driving technological progress in India.

• Department of Posts

• India Post, under the Department of Posts, is one of the largest postal networks in the world.

• It has been pivotal in delivering government schemes and services to remote areas.

• Its involvement in DIGIPIN ensures accessibility and integration of digital identification across the nation.

Q19. Answer: (b) Prof. Anil Kumar Boro

The correct answer is Prof. Anil Kumar Boro.

Key Points

• Prof. Anil Kumar Boro was conferred with the prestigious Padma Shri Award 2025 in the field of Literature and Education.

• He is a renowned academician and writer, known for his contributions to the promotion and preservation of indigenous languages and literature.

• Prof. Boro's work primarily revolves around the Bodo language and its literature, playing a pivotal role in its development and recognition.

• The Padma Shri Award is one of India's highest civilian honors, given for distinguished contributions in various fields, including art, literature, education, and public service.

Additional Information

• Bodo Language:

• Bodo is an indigenous language spoken primarily in Assam and northeastern India.

• It belongs to the Tibeto-Burman language family and is recognized as one of the 22 scheduled languages of India.

• The language has a rich tradition of oral and written literature, including poetry, folk tales, and modern literary works.

• Padma Awards:

• The Padma Awards, including Padma Shri, Padma Bhushan, and Padma Vibhushan, are announced annually on India's Republic Day.

• The awards are given to individuals for their exceptional contributions in various fields like art, literature, science, sports, and social work.

• Padma Shri is the fourth highest civilian award in India.

• Promoting Indigenous Literature:

• Efforts to promote indigenous literature aim to preserve cultural identity and linguistic diversity.

• Academicians like Prof. Anil Kumar Boro contribute significantly to keeping lesser-known languages alive through research and education.

• Significance of Literature in Education:

• Literature plays a crucial role in shaping educational frameworks and fostering critical thinking among learners.

• It serves as a medium to understand diverse cultures, histories, and human experiences.

Q20. Answer: (a) Justice Bhushan Ramakrishna Gavai

The correct answer is Justice Bhushan Ramakrishna Gavai.

Key Points

• Justice Bhushan Ramakrishna Gavai was sworn in as the 52nd Chief Justice of India on 14 May 2025.

• He succeeded Justice Dhananjaya Y Chandrachud, who served as the 50th Chief Justice of India.

• Justice Gavai is known for his landmark judgments and his significant contributions to the Indian judiciary.

• He previously served as a judge in the Supreme Court of India, appointed on 24 May 2019.

• Justice Gavai's tenure as Chief Justice is expected to uphold judicial integrity and efficiency.

Additional Information

• Chief Justice of India (CJI)

• The Chief Justice of India is the head of the judiciary system and the Supreme Court, the highest judicial forum in India.

• The appointment of the CJI is made by the President of India based on seniority among Supreme Court judges.

• The CJI plays a crucial role in judicial reforms, constitutional interpretation, and handling cases of national importance.

• Supreme Court of India

• The Supreme Court was established on January 28, 1950, and is located in New Delhi.

• It is the guardian of the Constitution and has the power of judicial review.

• The Supreme Court consists of the Chief Justice and a maximum of 33 other judges.

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• Judicial Appointments in India

• Judges of the Supreme Court are appointed by the President of India under Article 124 of the Indian Constitution.

• The process involves consultation with senior judges and follows the principle of seniority.

• Tenure of the Chief Justice of India

• The tenure of the CJI depends on the age of retirement, which is fixed at 65 years for Supreme Court judges.

• The CJI's role includes presiding over court proceedings and administrative responsibilities of the judiciary.

Q21. Answer: (a) 2005

The correct answer is 2005.

Key Points

• The National Disaster Management Authority (NDMA) was initially constituted in 2005 under the Chairmanship of the Prime Minister of India by an executive order.

• NDMA is the apex body responsible for disaster management in India, aiming to build a safe and disaster-resilient nation.

• It functions under the Disaster Management Act, 2005, which provides a legal framework for disaster risk reduction and response.

• The Prime Minister serves as the ex-officio Chairperson of NDMA, ensuring high-level leadership in disaster management efforts.

• NDMA's primary role includes planning, coordinating, and implementing measures for disaster prevention, preparedness, and mitigation.

Additional Information

• Disaster Management Act, 2005

• This Act was enacted to provide a legal framework for disaster preparedness and response in India.

• It defines roles and responsibilities of various stakeholders, including NDMA, SDMAs (State Disaster Management Authorities), and local authorities.

• The Act also includes provisions for financial mechanisms like the National Disaster Response Fund (NDRF).

• Structure of NDMA

• The NDMA consists of a Chairperson (Prime Minister) and up to nine members, including a Vice-Chairperson.

• It is supported by executive committees, advisory groups, and technical experts to ensure effective decision-making.

• Key Functions of NDMA

• Formulating disaster management policies and plans.

• Coordinating disaster response and recovery efforts across India.

• Promoting community-based disaster risk reduction initiatives.

• India's Disaster Management Framework

• India follows a multi-tiered disaster management system, with NDMA at the national level, SDMAs at the state level, and District Authorities at the district level.

• The framework emphasizes the "Sendai Framework for Disaster Risk Reduction" guidelines for global disaster resilience.

Q22. Answer: (c) The World After Gaza

The correct answer is The World After Gaza.

Key Points

• The World After Gaza is a 2025 book authored by Pankaj Mishra, a renowned Indian writer and intellectual.

• The book delves into Middle Eastern conflicts, exploring their political, social, and cultural ramifications on a global scale.

• Pankaj Mishra is known for his ability to connect historical and contemporary events, offering insights into modern geopolitics and global narratives.

• The book critically examines the aftermath of significant events in Gaza and their broader implications for international relations.

• Mishra's work often highlights the interconnectedness of global regions and the impact of Western policies on Eastern societies.

Additional Information

• Middle Eastern Conflicts:

• The Middle East has been a hotspot for geopolitical tensions, including issues related to Palestine, Gaza, and broader Arab-Israeli conflicts.

• These conflicts have global ramifications, affecting international relations, energy markets, and migration patterns.

• Pankaj Mishra:

• Pankaj Mishra is an Indian essayist and novelist, recognized for his works on global politics, history, and philosophy.

• His notable books include "Age of Anger" and "From the Ruins of Empire."

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• Global Context:

• Books addressing global contexts often provide a deeper understanding of interconnected political, economic, and cultural systems.

• They highlight the influence of colonial legacies, globalization, and modern diplomacy on regional conflicts.

• Impact of Gaza Conflict:

• The Gaza conflict has been a central theme in discussions of human rights, international law, and regional stability.

• Its effects extend beyond the Middle East, influencing refugee crises and global security policies.

Q23. Answer: (d) 683

The correct answer is 683

Key Points

• The luminous efficacy of monochromatic radiation at a frequency of 540×10^{12} Hz corresponds to the wavelength of approximately 555 nm in the visible spectrum.

• The value of luminous efficacy for this specific wavelength is defined as the maximum possible luminous efficacy for any monochromatic light.

• The standard value of luminous efficacy for monochromatic light at 555 nm is 683 lumen per watt.

• This value is used as the reference point for the photopic vision curve, which represents the sensitivity of the human eye to various wavelengths of light under well-lit conditions.

• The unit lumen per watt (lm/W) is a measure of how efficiently a light source converts energy into visible light perceived by the human eye.

Additional Information

• Luminous Efficacy:

• Luminous efficacy is a measure of how well a light source produces visible light.

• It is expressed in lumens per watt (lm/W) and considers the human eye's response to different wavelengths.

• Photopic Vision:

• Photopic vision refers to the eye's sensitivity to light under well-lit conditions.

• The peak sensitivity occurs at a wavelength of 555 nm, corresponding to green light.

• Wavelength and Frequency Relationship:

• The wavelength (λ) and frequency (f) of light are related by the equation $c = \lambda \times f$, where c is the speed of light (approximately 3 × 10^8 m/s).

• For a frequency of 540×10^{12} Hz, the wavelength is approximately 555 nm.

• Applications of Luminous Efficacy:

• It is a critical parameter for evaluating the energy efficiency of lighting systems such as LEDs, incandescent bulbs, and fluorescent lamps.

• Higher luminous efficacy indicates more efficient light generation with less energy consumption.

Q24. Answer: (d) 1722

The correct answer is 1722.

Key Points

• Burhan-ul-Mulk, also known as Saadat Khan, was appointed as the Nazim (Governor) of Awadh in 1722 by Mughal Emperor Muhammad Shah.

• He was entrusted with the task of stabilizing the region of Awadh, which was experiencing political and economic turmoil at the time.

• Burhan-ul-Mulk successfully established Awadh as a semi-independent province under the nominal control of the Mughal Empire.

• He laid the foundation for the Nawabi dynasty in Awadh, which later became one of the most prominent princely states in India.

Additional Information

• Awadh:

• Awadh (modern-day Uttar Pradesh) was a significant province in northern India known for its rich cultural heritage.

• It played a key role in the Mughal Empire and later in the British colonial era.

• Saadat Khan (Burhan-ul-Mulk):

• He was originally from Nishapur (Persia) and migrated to India during the decline of the Safavid Empire.

• He held significant administrative and military positions under the Mughal Emperor Muhammad Shah.

• Political Scenario of the Mughal Empire in 1722:

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• The Mughal Empire was experiencing a decline in central authority during this period.
• Regional governors like Burhan-ul-Mulk gained autonomy while maintaining a nominal allegiance to the Mughal throne.
• Nawabi of Awadh:
• The Nawabs of Awadh established a rich cultural legacy, especially in art, music, and architecture.
• The region became a prominent center for the development of Urdu language and literature.

Q25. Answer: (b) Cabinet Ministers are a smaller group within the Council of Ministers.

The correct answer is Cabinet Ministers are a smaller group within the Council of Ministers.

Key Points

• The Council of Ministers in India consists of three categories: Cabinet Ministers, Ministers of State, and Deputy Ministers.
• Cabinet Ministers form the core group within the Council of Ministers and are responsible for major ministries such as Finance, Defense, External Affairs, and Home Affairs.
• While Ministers of State assist Cabinet Ministers, they do not have the same rank and authority as Cabinet Ministers.
• The Council of Ministers is appointed by the President of India on the advice of the Prime Minister, not by the Chief Justice.
• Not all members of the Council of Ministers are part of the Cabinet; only Cabinet Ministers are included in this smaller, more influential group.

Additional Information

• Council of Ministers Structure:
• The Council of Ministers is headed by the Prime Minister and includes Cabinet Ministers, Ministers of State, and Deputy Ministers.
• Cabinet Ministers hold the highest rank and are involved in key decision-making processes.
• Ministers of State may hold independent charge of ministries or assist Cabinet Ministers in their duties.
• Deputy Ministers assist both Cabinet and State Ministers in their day-to-day responsibilities.
• Cabinet Minister Role:
• Cabinet Ministers are responsible for policy formulation and implementation for their respective ministries.
• They are part of the Cabinet Committee and play a crucial role in advising the Prime Minister.
• The Cabinet meets regularly to discuss and decide on matters of national importance.
• Appointment and Tenure:
• The President appoints the Council of Ministers based on the Prime Minister’s advice.
• Ministers serve at the pleasure of the President, meaning their tenure depends on the support of the Prime Minister.
• The Prime Minister has the authority to reshuffle portfolios or recommend the removal of ministers.
• Legislative and Executive Role:
• The Council of Ministers collectively functions as the executive authority of the government.
• Cabinet Ministers represent the government in Parliament and are accountable for their ministries' actions.
• They introduce bills, budgets, and policies in Parliament for approval and implementation.

Q26. Answer: (c) Board of Control

The correct answer is Board of Control.

Key Points

• The Pitt's India Act of 1784 was introduced to address defects in the Regulating Act of 1773 and strengthen British control over Indian territories.
• It established the Board of Control, which was responsible for overseeing civil, military, and revenue affairs in India.
• The Board of Control consisted of six members, including the Chancellor of the Exchequer and the Secretary of State.
• It brought a dual system of governance by creating a distinction between political and commercial functions of the East India Company.
• The Act strengthened the British government's authority over the East India Company while allowing the company to retain its trading privileges.

Additional Information

• Regulating Act of 1773:
• This was the first attempt by the British government to regulate the affairs of the East India Company in India.
• It established the position of the Governor-General of Bengal (first being Warren Hastings).
• It created a council of four members to assist the Governor-General.
• The Act also introduced a Supreme Court in Calcutta for judicial administration.

• Pitt's India Act of 1784:

• It introduced a dual government structure between the Crown and the East India Company.

• The Crown controlled political and military affairs through the Board of Control, while the Company managed commercial operations.

• This Act laid the foundation for British imperial control over India.

• Impact of Pitt's India Act:

• Strengthened the British government's influence in India and curtailed the autonomy of the East India Company.

• It marked a significant shift towards centralized governance in British India.

• The Act paved the way for future legislative measures to consolidate British control in India.

• Supreme Court of Calcutta:

• Established under the Regulating Act of 1773.

• It was the first British court in India with jurisdiction over British citizens and company officials.

• Its establishment highlighted the growing need for judicial reforms under British rule.

Q27. Answer: (b) Phosphorus

The correct answer is Phosphorus.

Key Points

• Proteins are primarily composed of carbon, hydrogen, oxygen, and nitrogen.

• Phosphorus is not a standard component of proteins; it is found in nucleic acids like DNA and RNA or molecules such as ATP.

• The unique feature of proteins is the presence of nitrogen, which distinguishes them from carbohydrates and lipids.

• Proteins are formed from amino acids, which contain an amino group (-NH2), a carboxyl group (-COOH), and a specific side chain (R group).

• Some proteins may associate with phosphorus-containing molecules, but phosphorus is not an intrinsic element in the structure of proteins.

Additional Information

• Amino Acids:

• Amino acids are the building blocks of proteins, consisting of an amino group, carboxyl group, and side chain (R group).

• Essential amino acids cannot be synthesized by the human body and must be obtained from food.

• Protein Functions:

• Proteins perform various functions such as enzymatic activity, structural support, transportation, and immune defense.

• Examples include hemoglobin (transport), collagen (structure), and antibodies (immunity).

• Elements in Proteins:

• Proteins primarily contain carbon (C), hydrogen (H), oxygen (O), and nitrogen (N).

• Some proteins also incorporate sulfur, found in amino acids like cysteine and methionine.

• Phosphorus in Biological Molecules:

• Phosphorus is a key component of nucleic acids (DNA and RNA), phospholipids (cell membranes), and energy molecules like ATP.

• It plays a vital role in energy transfer and cellular communication.

Q28. Answer: (c) Wheat and Rice

The correct answer is Wheat and Rice.

Key Points

• The Green Revolution in India began in the 1960s and primarily focused on increasing agricultural productivity through the use of high-yield variety (HYV) seeds, irrigation, fertilizers, and pesticides.

• Wheat and rice were the major crops targeted under the Green Revolution due to their importance as staple food crops in India.

• The introduction of HYV seeds for wheat in states like Punjab, Haryana, and Uttar Pradesh significantly boosted production, making India self-sufficient in food grains.

• Rice production also saw a notable increase, especially in regions with suitable irrigation facilities, contributing to food security in the country.

• The Green Revolution helped India overcome food shortages and reduce dependency on imports during the 1960s and 1970s.

Additional Information

• High-Yield Variety (HYV) Seeds: These seeds were the backbone of the Green Revolution, offering higher productivity compared to traditional seeds.

• Impact on Economy: The Green Revolution not only improved food grain production but also boosted the rural economy and

reduced poverty in several regions.

• Environmental Concerns: The intensive use of chemical fertilizers and pesticides led to soil degradation and water pollution, raising concerns about long-term sustainability.

• Regional Disparities: The benefits of the Green Revolution were concentrated in states like Punjab, Haryana, and western Uttar Pradesh, leading to regional inequalities in agricultural development.

• Role of Irrigation: Efficient irrigation systems like canal and tube wells were crucial for the success of the Green Revolution, especially in areas with low rainfall.

Q29. Answer: (a) 6th century BCE

The correct answer is 6th century BCE.

Key Points

• The rise of Jainism and Buddhism in the 6th century BCE was primarily due to widespread religious unrest caused by the rigidity and ritualistic practices of Brahmanism.

• Both religions emphasized non-violence (Ahimsa), ethical living, and personal spiritual development, which appealed to the masses.

• Social inequality under the caste system led many to seek alternatives, with Jainism and Buddhism offering egalitarian principles.

• The 6th century BCE was marked by significant socio-economic changes, such as urbanization and the growth of trade, which fostered the acceptance of new spiritual ideologies.

• Key figures such as Mahavira (24th Tirthankara in Jainism) and Gautama Buddha played pivotal roles in founding and spreading these religions.

Additional Information

• Brahmanism:

• Brahmanism was the dominant religious system before Jainism and Buddhism, characterized by Vedic rituals, sacrifices, and priestly dominance.

• Its rigid caste system and focus on ceremonial practices alienated many people, especially the lower castes.

• Urbanization:

• The 6th century BCE saw the emergence of cities and trade networks, leading to socio-economic transformations.

• These changes encouraged people to question traditional beliefs and adopt new philosophical ideas.

• Ahimsa:

• Ahimsa, or non-violence, was a core principle of both Jainism and Buddhism.

• This concept gained popularity during this period due to its ethical and practical appeal.

• Spread of Buddhism and Jainism:

• Buddhism spread widely across Asia through missionaries, trade routes, and royal patronage, such as by Emperor Ashoka.

• Jainism remained concentrated in India but gained followers due to its simplicity and emphasis on self-discipline.

• Philosophical Teachings:

• Both religions focused on personal enlightenment and liberation (Moksha or Nirvana).

• They rejected the authority of the Vedas and the concept of a creator god, emphasizing individual effort for spiritual progress.

Q30. Answer: (c) Unequal income distribution

The correct answer is Unequal income distribution.

Key Points

• Globalisation has led to unequal income distribution in developing countries, with wealth concentrated among a small group while others face economic hardships.

• Developing economies often struggle with income inequality due to uneven access to resources, education, and employment opportunities.

• Foreign investments and trade liberalization can exacerbate disparities as profits are often repatriated to foreign investors instead of benefiting local populations.

• Unequal income distribution affects social stability, leading to increased poverty and limited upward mobility for disadvantaged groups.

• Structural factors such as weak governance and labor laws in developing countries often contribute to the persistence of income inequality.

Additional Information

• Globalisation:

• It refers to the increasing interconnectedness of economies, cultures, and societies worldwide.

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• Globalisation promotes trade liberalization, foreign direct investment, and technological advancements.
• While it offers opportunities for economic growth, it also creates challenges such as unequal wealth distribution and environmental issues.
• Income Inequality:
• It is a measure of how unevenly income is distributed among a population.
• High income inequality often correlates with reduced economic opportunities and social mobility.
• Gini coefficient is a commonly used indicator to measure income inequality.
• Foreign Direct Investment (FDI):
• FDI is an investment made by a company or individual in one country into business interests located in another country.
• While FDI can stimulate economic growth, its benefits may disproportionately favor specific sectors or regions.
• Countries with weak regulations might face exploitation of resources and labor due to high FDI dependence.
• Trade Liberalization:
• It involves reducing or eliminating trade barriers like tariffs and quotas to encourage international trade.
• Trade liberalization can boost economic growth but may also lead to job losses in uncompetitive industries.
• Developing countries often experience challenges in balancing trade liberalization with protecting local industries.

Q31. Answer: (a) Laterite soil

The correct answer is Laterite soil.

Key Points

• Laterite soil is acidic in nature and is typically found in regions with high rainfall and high temperature.
• This soil is rich in iron and aluminum oxides, giving it a reddish or yellowish color.
• Laterite soils are poor in nutrients like nitrogen, potassium, and phosphorus, making them less fertile for agriculture without proper treatment.
• They are commonly found in tropical and subtropical regions, including parts of India such as Kerala, Karnataka, Odisha, and the hilly areas of Assam.
• Laterite soil is extensively used for construction purposes due to its hard and compact structure when dried.

Additional Information

• Acidity in Soils:
• Acidity in soils is caused by the leaching of basic nutrients like calcium and magnesium due to heavy rainfall.
• Such soils tend to have a lower pH value, which impacts crop growth unless treated with lime or organic matter.
• Soil Classification in India:
• The major soil types in India include alluvial soil, black soil, red soil, laterite soil, arid soil, and forest soil.
• Each type of soil is associated with specific climatic and geographical conditions.
• Laterite Soil and Agriculture:
• Laterite soils are suitable for crops like tea, coffee, cashew, and coconut, which thrive in acidic conditions.
• They require significant soil management practices, such as the addition of organic compost, to improve fertility.
• Geographical Distribution in India:
• In India, laterite soil is predominantly found in the Western Ghats, Eastern Ghats, and parts of the northeastern states.
• It is also common in the southern and central regions of India, especially in areas with monsoon rainfall.

Q32. Answer: (a) To promote maritime cooperation among friendly navies

The correct answer is To promote maritime cooperation among friendly navies.

Key Points

• MILAN is a biennial multilateral naval exercise hosted by the Indian Navy to enhance maritime cooperation among friendly navies and promote regional security.
• The exercise was first conducted in 1995 and has grown significantly in scale and participation over the years.
• MILAN 2025 is expected to involve the participation of navies from various countries to strengthen interoperability and share best practices in maritime operations.
• The primary goal of MILAN is to build mutual trust, address common maritime challenges, and ensure peace and stability in the Indo-Pacific region.
• It features a range of activities, including joint naval exercises, seminars, discussions, and cultural exchanges.

Additional Information

• Indian Navy's Role in Regional Security:

• The Indian Navy plays a critical role in ensuring maritime security in the Indo-Pacific region.
• It actively engages with partner nations through joint exercises, port visits, and humanitarian assistance missions.
• Such engagements help build trust and promote collective efforts to tackle piracy, terrorism, and other maritime threats.
• Indo-Pacific Strategy:
• The Indo-Pacific region has emerged as a strategic focus area due to its economic importance and geopolitical significance.
• MILAN aligns with India's broader Indo-Pacific strategy, emphasizing freedom of navigation and adherence to international maritime laws.
• Maritime Cooperation:
• Naval exercises like MILAN foster collaboration among navies to enhance operational capabilities and promote regional stability.
• They provide a platform for sharing expertise, improving communication, and conducting joint operations.
• India’s Defence Diplomacy:
• MILAN is a key initiative in India’s defence diplomacy, showcasing its commitment to peace and security in the region.
• It strengthens India's relationships with partner countries and reinforces its position as a responsible maritime power.

Q33. Answer: (b) It cycles through open applications in the order of last use.

The correct answer is It cycles through open applications in the order of last use..

Key Points

• Alt + Tab is a keyboard shortcut used in Microsoft Windows operating systems to quickly switch between open applications.
• When pressed repeatedly, Alt + Tab cycles through the currently open applications in the order of their last use.
• Holding down the Alt key while repeatedly pressing Tab allows the user to preview and select the desired application.
• This feature is especially useful for multitasking, enabling users to switch efficiently between different programs without using the mouse.
• The functionality is supported in most versions of Windows, including Windows 10 and Windows 11, and has been a staple feature since early Windows versions.

Additional Information

• Task View: Windows also offers a "Task View" feature that allows users to view all open applications and virtual desktops in a graphical interface. It can be accessed by pressing Windows key + Tab.
• Alt + Esc: Another related shortcut is Alt + Esc, which switches between open applications without displaying the preview interface.
• Windows Snap Feature: Windows provides a Snap feature for multitasking, allowing users to resize and position windows side by side. This can be accessed using Windows key + Arrow keys.
• Keyboard Shortcuts for Efficiency: Common shortcuts like Ctrl + Tab (for cycling through tabs in browsers) and Windows key + D (to show the desktop) are designed to enhance productivity.
• Application Switching in Other OS: MacOS uses Command + Tab for application switching, similar to Alt + Tab in Windows, but with slight differences in behavior.

Q34. Answer: (a) Lal-Bal-Pal

The correct answer is Lal-Bal-Pal.

Key Points

• The trio Lal-Bal-Pal refers to Lala Lajpat Rai, Bal Gangadhar Tilak, and Bipin Chandra Pal, who were prominent leaders of the Indian nationalist movement advocating for extremism.
• They were known for their strong opposition to British rule and their demand for Swaraj (self-rule).
• Lala Lajpat Rai was a vocal leader in Punjab, Bal Gangadhar Tilak in Maharashtra, and Bipin Chandra Pal in Bengal, forming a pan-Indian movement.
• They played a key role during the partition of Bengal in 1905, mobilizing public opinion against British policies and promoting Swadeshi and boycott movements.
• The Lal-Bal-Pal ideology marked a shift from moderate methods to more radical approaches in the Indian freedom struggle.

Additional Information

• Extremist Ideology:
• Extremists focused on immediate action and mass mobilization rather than petitions and dialogues.
• Their strategies included boycotting British goods, promoting Swadeshi, and organizing protests to unite Indians.
• They believed in instilling a sense of pride and self-confidence among Indians to resist colonial rule.
• Partition of Bengal (1905):
• Implemented by Lord Curzon, the partition divided Bengal into East and West based on religious lines.

• It led to widespread protests and was a key factor in the rise of extremist nationalism.
• The Swadeshi and boycott movements were direct responses to this partition.
• Swadeshi Movement:
• Started in 1905, it aimed to promote Indian goods and boycott British imports.
• The movement contributed to the growth of indigenous industries and self-reliance.
• Swaraj:
• Tilak famously declared, "Swaraj is my birthright and I shall have it."
• Swaraj, meaning self-rule, became a rallying cry for Indian independence.

Q35. Answer: (c) Karnataka

The correct answer is Karnataka.

Key Points

• Yakshagana is a traditional Indian theatre form that combines dance, music, dialogue, and elaborate costumes.
• It originated in the state of Karnataka and is particularly popular in the coastal districts of the state.
• This art form is performed in an open-air theatre and usually depicts stories from Hindu epics like the Ramayana and Mahabharata.
• The performances are known for their vibrant costumes, intricate makeup, and unique music played on traditional instruments like the chande (drum) and maddale.
• Yakshagana performances can last all night and are considered an integral part of Karnataka's cultural heritage.

Additional Information

• Origins and Evolution
• Yakshagana is believed to have developed between the 10th and 16th centuries, rooted in ancient Sanskrit theatre traditions and local folk performance styles.
• The term "Yakshagana" translates to the "songs of the celestial beings."
• Performance Elements
• It involves a combination of mood (bhava), music (raga), speech (vachika), and dance (nritya).
• The performers often wear large headgear, vibrant costumes, and detailed facial makeup to depict mythological characters.
• Musical Instruments
• The primary instruments used in Yakshagana are the chande (percussion drum), maddale, and harmonium.
• Musicians, known as the himmela, provide the background score, while the main actors narrate stories through dialogue and dance.
• Modern Influence
• While Yakshagana remains a rural art form, it has gained global recognition for its unique blend of storytelling and performance.
• Efforts are being made to preserve this tradition through formal training schools and performances worldwide.

Q36. Answer: (b) Mohamed Salah

The correct answer is Mohamed Salah.

Key Points

• Mohamed Salah, the Egyptian forward, was awarded the prestigious Football Writers' Association Men's Footballer of the Year for 2025.
• Salah is recognized for his exceptional performance during the 2024–25 football season, showcasing extraordinary scoring ability and leadership for Liverpool FC.
• He has consistently been among the top scorers in the English Premier League (EPL) and has played a pivotal role in Liverpool's success, both domestically and in European competitions.
• The Football Writers' Association (FWA) annually awards this honor to the player who excels on and off the field, embodying sportsmanship and outstanding talent.
• Salah's influence extends beyond football, as he is widely admired for his charity work and his role in promoting positive social values.

Additional Information

• Football Writers' Association (FWA):
• Founded in 1947, the FWA is an organization of journalists and correspondents covering English football.
• The FWA Player of the Year award is one of the most prestigious individual accolades in football.
• It is decided by a vote among its members, recognizing the most outstanding player in English football each season.
• Mohamed Salah's Career Achievements:

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• Salah has won multiple Golden Boot awards in the Premier League for being the top scorer.
• He has also been instrumental in Liverpool's success, including their 2019 UEFA Champions League title and 2020 EPL title.
• He is widely regarded as one of the best forwards in modern football.
• Impact of Salah Beyond Football:
• Salah's charitable work in Egypt, including funding hospitals and schools, has made him a national icon.
• He has been an advocate for social justice, using his platform to promote equality and tolerance.
• Other 2025 FWA Nominees:
• Erling Haaland: Known for his goal-scoring exploits for Manchester City.
• Harry Kane: Recognized for his outstanding contributions to both Tottenham Hotspur and the England national team.
• Bukayo Saka: Celebrated for his incredible form for Arsenal and his versatility as a player.

Q37. Answer: (c) Fold Mountains

The correct answer is Fold Mountains.

Key Points

• Fold Mountains are formed due to the collision of tectonic plates, resulting in the folding and upliftment of sedimentary rock layers.
• These mountains are characterized by elongated, parallel ridges and valleys, often spanning vast geographical areas.
• Examples of Fold Mountains include the Himalayas, Andes, Alps, and Rockies.
• They are mainly composed of sedimentary rocks and sometimes metamorphic rocks due to the intense pressure during plate collision.
• Fold Mountains are the youngest type of mountains compared to other mountain formations, with active tectonic activity still occurring.

Additional Information

• Volcanic Mountains
• Formed due to volcanic activity when molten magma erupts and solidifies on the Earth's surface.
• Examples include Mount Fuji in Japan and Mount Kilimanjaro in Tanzania.
• Block Mountains
• Created when large sections of the Earth's crust are uplifted or tilted due to faulting.
• Examples include the Vosges Mountains in France and the Sierra Nevada in the USA.
• Residual Mountains
• Formed by the erosion of previously existing mountains, leaving behind hard, resistant rocks.
• Examples include the Nilgiri Hills and Aravalli Hills in India.
• Importance of Fold Mountains
• Fold Mountains are rich in biodiversity and mineral resources, making them crucial for ecological and economic purposes.
• They act as natural barriers, influence weather patterns, and are sources of major rivers.

Q38. Answer: (a) Pali

The correct answer is Pali.

Key Points

• Pali began to decline as the dominant language for Buddhist literature during the medieval period, replaced gradually by local and regional languages.
• Buddhist texts, originally written in Pali, started to be translated into languages like Sanskrit and vernaculars as Buddhism spread geographically.
• The decline of Pali also coincided with the decline of Buddhism in India due to socio-political changes and the rise of Brahmanical Hinduism.
• While Pali remained significant in Theravāda Buddhism practiced in Sri Lanka, Myanmar, and Thailand, its influence waned in India during the medieval period.

Additional Information

• Pali Language
• Pali is an ancient Middle Indo-Aryan language closely associated with the Theravāda Buddhist tradition.
• It served as the liturgical language for the Theravāda Buddhist canon, known as the Pāli Tipitaka.
• It is not considered a "mother tongue" but a scholarly and religious language.
• Sanskrit and Buddhism

• As Mahayana Buddhism gained prominence, Sanskrit became the preferred language for Buddhist texts and scholarly works.

• Several philosophical texts, such as those by Nāgārjuna and Vasubandhu, were composed in Sanskrit.

• Theravāda Buddhism

• Theravāda Buddhism, which focuses on the original teachings of the Buddha, retained Pali as its sacred language.

• This school is predominant in Sri Lanka, Myanmar, Thailand, Laos, and Cambodia.

• Decline of Buddhism in India

• The decline of Buddhism in India during the medieval period was influenced by invasions, loss of patronage, and the rise of Hinduism and Islam.

• As Buddhism waned in India, the use of Pali diminished significantly.

Q39. Answer: (c) All Public Authorities

The correct answer is All Public Authorities.

Key Points

• The Right to Information (RTI) Act, 2005 applies to all public authorities in India, including government bodies, institutions, and organizations funded by the government.

• Under the RTI Act, citizens have the right to request information from any public authority, promoting transparency and accountability in governance.

• Judiciary, legislature, and executive branches of the government are covered under this Act, provided the information does not affect national security or judicial independence.

• Private entities are not directly covered under the RTI Act unless they receive substantial funding or support from the government.

• The RTI Act specifically excludes intelligence and security organizations listed under the Second Schedule, except when the information pertains to allegations of corruption or human rights violations.

Additional Information

• Definition of Public Authority:

• A "public authority" refers to any institution or body established by the Constitution, legislation, or executive orders, and substantially funded by the government.

• Examples include ministries, departments, local governing bodies, public sector undertakings (PSUs), and government-funded schools or colleges.

• Exemptions under RTI Act:

• Information affecting national security, sovereignty, and integrity of India is exempt from disclosure under Section 8 of the RTI Act.

• Personal information that may invade individual privacy is also exempt unless it serves a larger public interest.

• RTI Filing Process:

• Citizens can file RTI applications online or offline by submitting a request to the Public Information Officer (PIO) of the concerned authority.

• A nominal fee is charged for filing an RTI request, with exemptions for individuals below the poverty line.

• Role of Central and State Information Commissions:

• The Central Information Commission (CIC) and State Information Commissions (SICs) are established to ensure the effective implementation of the RTI Act.

• They handle appeals and complaints related to RTI requests and ensure compliance by public authorities.

• Impact of RTI Act:

• The RTI Act has enhanced transparency in governance, reduced corruption, and empowered citizens to actively participate in democracy.

• It is considered one of the landmark legislations promoting accountability in public administration.

Q40. Answer: (d) IIT Guwahati

The correct answer is IIT Guwahati.

Key Points

• IIT Guwahati developed a fluorescent sensor capable of detecting cyanide ions in water and human cells using a UV light source.

• The sensor uses fluorescence to identify the presence of cyanide with high sensitivity and selectivity.

• This innovation aims to address cyanide contamination issues, which pose significant risks to both human health and the environment.

• The research aligns with India’s focus on leveraging science and technology for public welfare and environmental safety.

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• This development is a significant step in the field of chemical sensing and environmental monitoring.

Additional Information

• Cyanide Detection:

• Cyanide is a toxic chemical compound that can contaminate water sources and pose serious health risks.

• Fluorescence-based sensors are widely used in detecting toxic substances due to their high sensitivity and rapid response.

• UV light is commonly employed in fluorescence techniques to excite the sensor molecules.

• Applications of Fluorescent Sensors:

• Fluorescent sensors are used in environmental monitoring, medical diagnostics, and industrial safety.

• They can detect various toxic substances, including heavy metals and chemical pollutants.

• These sensors are integral in ensuring public health safety and environmental sustainability.

• Role of IITs in Scientific Innovation:

• Indian Institutes of Technology (IITs) are renowned for cutting-edge research in science and technology.

• IITs frequently collaborate with industries and government bodies to address real-world challenges.

• Innovations from IITs contribute significantly to advancements in healthcare, environmental protection, and industrial processes.

• Cyanide Toxicity:

• Cyanide exposure can lead to severe health complications, including respiratory failure and death.

• Industries such as mining and electroplating are common sources of cyanide contamination.

• Strict regulations and monitoring are essential to mitigate cyanide-related risks.

Q41. Answer: (a) 4,350

Shortcut Trick

When simple interests are equal for the same time period, the principal ratio is inversely proportional to the rate ratio.

Ratio of investments P1 : P2 = R2 : R1 = 3 : 11

Sum of ratio parts = 3 + 11 = 14 units

Sum invested at 11% (P1) = (3 ÷ 14) × 20,300 = 3 × 1,450 = 4,350

Therefore The correct answer is Rs. 4,350.

Alternate Method

Given:

Total amount invested = Rs. 20,300

Rate 1 (R1) = 11% per annum

Rate 2 (R2) = 3% per annum

Time (T) = 5 years for both investments

Simple Interest from part 1 = Simple Interest from part 2

Formula Used:

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

Total = Rs. 20,300

Part 1 (P1)

11% for 5 yrs

Part 2 (P2)

3% for 5 yrs

=

SI from P1 = SI from P2

Calculations:

Let the amount invested at 11% be P1 and at 3% be P2.

=> P1 + P2 = 20,300

Since the simple interests earned from both investments are equal:

=> (P1 × 11 × 5) ÷ 100 = (P2 × 3 × 5) ÷ 100

=> 55 × P1 = 15 × P2

=> 11 × P1 = 3 × P2

=> P1 ÷ P2 = 3 ÷ 11

So, the ratio of the principal amounts is P1 : P2 = 3 : 11

=> Sum of the ratio units = 3 + 11 = 14 units

=> Value of 14 units = Rs. 20,300

=> Value of 1 unit = 20,300 ÷ 14 = Rs. 1,450

=> Sum invested at 11% (P1) = 3 units = 3 × 1,450 = Rs. 4,350

Therefore The correct answer is Rs. 4,350.

Additional Information

Equal Simple Interest Rule

When a total sum is divided into parts such that the simple interest on each part is equal, the ratio of the invested parts is P1 : P2 : P3 = 1 ÷ (R1 × T1) : 1 ÷ (R2 × T2) : 1 ÷ (R3 × T3).

Equal Amount Rule

When a sum is divided into parts such that the total amount on each part after the given time is equal, the ratio of the parts is P1 : P2 = 1 ÷ (100 + R1 × T1) : 1 ÷ (100 + R2 × T2).

Difference between SI and CI

For 2 years: Difference = $P(R \div 100)^2$. For 3 years: Difference = $P(R \div 100)^2(3 + R \div 100)$.

Q42. Answer: (a) 4

Shortcut Trick

Check the odd numbers between 430 and 443 by eliminating multiples of 3, 5, and divisibility by primes up to 19.

Odd numbers: 431, 433, 435, 437, 439, 441, 443.

Eliminate 435 (ends in 5), 441 (sum of digits is 9 → div by 3), and 437 (19 × 23).

The remaining 4 numbers (431, 433, 439, 443) are not divisible by any prime ≤ 19, hence they are prime.

Therefore The correct answer is 4.

Alternate Method

Given:

Range of numbers: 430 to 443 (both included).

Method Used:

To check if a number N is prime, we test its divisibility by all prime numbers less than or equal to √N.

For N ≈ 443, √443 ≈ 21.04. So, we test divisibility by primes: 2, 3, 5, 7, 11, 13, 17, and 19.

Calculations:

=> First, eliminate all even numbers (divisible by 2): 430, 432, 434, 436, 438, 440, 442.

=> Now, list the remaining odd numbers: 431, 433, 435, 437, 439, 441, 443.

=> Eliminate numbers ending in 5 (divisible by 5): 435.

=> Eliminate numbers where the sum of digits is divisible by 3: 441 (4 + 4 + 1 = 9).

=> Test the remaining numbers (431, 433, 437, 439, 443) for divisibility by 7, 11, 13, 17, and 19.

=> 431: Not divisible by 7, 11, 13, 17, or 19. (Prime)

=> 433: Not divisible by 7, 11, 13, 17, or 19. (Prime)

=> 437: Divisible by 19 (19 × 23 = 437). (Composite)

=> 439: Not divisible by 7, 11, 13, 17, or 19. (Prime)

=> 443: Not divisible by 7, 11, 13, 17, or 19. (Prime)

=> The prime numbers are 431, 433, 439, and 443.

=> Total count of prime numbers = 4.

Therefore The correct answer is 4.

Additional Information

Prime Number Property

A number N > 1 is prime if it is not divisible by any prime number less than or equal to √N.

Twin Primes

Two prime numbers whose difference is exactly 2 are called twin primes. For example, (431, 433) form a twin prime pair.

Co-prime Numbers

Two numbers are considered co-prime (or mutually prime) if their highest common factor (HCF) is 1. They do not necessarily have to be prime individually.

Q43. Answer: (b) 37.25

Shortcut Trick

First, calculate 65% of 65 by multiplying 65 × 0.65 = 42.25

Second, calculate 1/5 of 25 by dividing 25 ÷ 5 = 5

Subtract the two values to find how much greater it is: 42.25 − 5 = 37.25

Therefore The correct answer is 37.25.

Alternate Method

Given:

First value = 65% of 65

Second value = 1/5 of 25

Visual Comparison of the Values

65% of 65 :

42.25

1/5 of 25 :

5

Difference = 37.25

Calculations:

=> First value = (65 × 65) ÷ 100

=> First value = 4225 ÷ 100 = 42.25

=> Second value = 1/5 × 25

=> Second value = 25 ÷ 5 = 5

=> Difference = First value − Second value

=> Difference = 42.25 − 5 = 37.25

Therefore The correct answer is 37.25.

Additional Information

Squaring Numbers Ending in 5

For a number of the format n5, its square is given by multiplying n × (n + 1) and appending 25 at the end. Example: For 65, 6 × 7 = 42, so appending 25 gives 4225.

Percentage Commutativity

The rule states that a% of b = b% of a. In our case, computing 65% of 65 simplifies to finding (65 × 65) ÷ 100.

Fraction to Percentage Conversion

Fractions can be converted to percentages for simpler mental math. For instance, 1/5 is equal to 20%. Therefore, finding 1/5 of 25 is perfectly equivalent to calculating 20% of 25.

Q44. Answer: (d) 13

Shortcut Trick

Present condition: 2P − Q = 41.

Condition after 7 years: 9(Q + 7) = 6(P + 7) − 24 => 9Q + 63 = 6P + 18.

Rearranging and dividing by 3, we get: 2P − 3Q = 15.

Subtract this from the first equation: (2P − Q) − (2P − 3Q) = 41 − 15.

=> 2Q = 26 => Q = 13.

Therefore The correct answer is 13 years.

Alternate Method

Given:

Two times P's present age exceeds Q's present age by 41 years.

After 7 years, 9 times Q's age is 24 less than 6 times P's age.

Present Age

P = P, Q = Q

2P − Q = 41

+7 Years

After 7 Years

P = P+7, Q = Q+7

9(Q+7) = 6(P+7) − 24

Solving gives Q = 13 years

Calculations:

Let the present age of P be P and Q be Q.

=> 2P − Q = 41

=> 2P = Q + 41 --- (Equation 1)

After 7 years, P's age = P + 7 and Q's age = Q + 7.

According to the second condition:

=> 9(Q + 7) = 6(P + 7) − 24

=> 9Q + 63 = 6P + 42 − 24

=> 9Q + 63 = 6P + 18

=> 9Q + 45 = 6P

Dividing the equation by 3:

=> 3Q + 15 = 2P

Substitute 2P from Equation 1:

=> 3Q + 15 = Q + 41

=> 2Q = 26

=> Q = 13

Therefore The correct answer is 13 years.

Additional Information

Ages Concept Basic Rule

Always assume the present age as a variable (like x). The age 't' years ago will be (x − t) and 't' years hence will be (x + t).

Linear Equations Method

When solving two equations, equate the coefficients of one variable and subtract or add to eliminate it, finding the value of the other variable quickly.

Ratio Difference Approach

If the age ratio changes from a:b to c:d over 't' years, we can use the cross-multiplication method to quickly find the present age parts instead of solving full equations.

Q45. Answer: (c) -36

Shortcut Trick

Apply BODMAS rule to resolve the expression based on priority.

D: (−60) ÷ (−10) = 6

M: (−3) × 7 = −21

Expression becomes: −9 − 6 − 21

Calculate sum: −15 − 21 = −36

Therefore The correct answer is −36.

Alternate Method

Given:

(−9) − (−60) ÷ (−10) + (−3) × 7

Formula Used:

BODMAS Rule (Bracket, Order, Division, Multiplication, Addition, Subtraction)

Calculations:

=> Given expression: (−9) − (−60) ÷ (−10) + (−3) × 7

=> Step 1 (Division): (−60) ÷ (−10) = 6

=> Expression becomes: (−9) − 6 + (−3) × 7

=> Step 2 (Multiplication): (−3) × 7 = −21

=> Expression becomes: (−9) − 6 + (−21)

=> Step 3 (Addition & Subtraction): −9 − 6 − 21

=> −15 − 21 = −36

Therefore The correct answer is −36.

Additional Information

BODMAS Rule

It dictates the sequence of operations: Brackets, Order (powers/roots), Division, Multiplication, Addition, Subtraction. Multiplications and divisions have the same priority and are calculated from left to right, as are addition and subtraction.

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Rules of Signs in Multiplication & Division

Positive × Positive = Positive | Negative × Negative = Positive | Positive × Negative = Negative | Negative × Positive = Negative.

Rules of Signs in Addition & Subtraction

When subtracting a negative number, it turns into addition (−(−x) = +x). When adding two negative numbers, add their absolute values and retain the negative sign.

Q46. Answer: (a) 14.2

Shortcut Trick

Equate the decimal places of both numbers by adding a zero: 14.20 and 0.05.

Temporarily remove the decimal points to treat them as whole numbers: 1420 and 5.

Find the LCM of 1420 and 5: since 1420 is perfectly divisible by 5, their LCM is 1420.

Place the decimal point back after two digits from the right: 14.20.

Therefore The correct answer is 14.2.

Alternate Method

Given:

Numbers: 14.2 and 0.05

Formula Used:

LCM of fractions = LCM of numerators ÷ HCF of denominators

Calculations:

=> First, convert the given decimals into their simplest fractional forms.

=> 14.2 = 142/10 = 71/5

=> 0.05 = 5/100 = 1/20

=> Numerators are 71 and 1. The LCM of (71, 1) = 71

=> Denominators are 5 and 20. The HCF of (5, 20) = 5

=> LCM of the fractions = 71 ÷ 5

=> 71 ÷ 5 = 14.2

Therefore The correct answer is 14.2.

Additional Information

HCF of Fractions

To find the Highest Common Factor (HCF) of fractions, find the HCF of the numerators and divide it by the LCM of the denominators.

Product of Numbers Rule

For any two numbers, the product of the numbers is always equal to the product of their HCF and LCM. Formula: a × b = HCF × LCM.

LCM of Decimals

Ensure all numbers have the same number of decimal digits by padding with zeros. Compute the LCM as if they are whole numbers, then place the decimal point back at the corresponding position.

Q47. Answer: (c) 40

Shortcut Trick

The mean proportional between two numbers a and b is directly given by the formula √(a × b).

Here, the given numbers are a = 400 and b = 4.

Mean proportional = √(400 × 4)

Mean proportional = √1600 = 40

Therefore The correct answer is 40.

Alternate Method

Given:

First number = 400

Second number = 4

Formula Used:

If x is the mean proportional between a and b, then a : x :: x : b, which implies Product of Means = Product of Extremes.

400

:

x
::
x
:
4
Product of Means = Product of Extremes
x × x = 400 × 4
Calculations:
=> Let the required mean proportional be x.
=> According to the continuous proportion: 400 : x :: x : 4
=> x × x = 400 × 4
=> $x^2 = 1600$
=> x = √1600
=> x = 40
Therefore The correct answer is 40.
Additional Information
Mean Proportional
For any two numbers a and b, the mean proportional is the middle term in a continuous proportion. It is given by x = √(ab).
Third Proportional
If a : b :: b : c, then c is called the third proportional to a and b. It is calculated directly as $c = b^2 \div a$.
Fourth Proportional
If a : b :: c : d, then d is the fourth proportional to a, b, and c. It is found using the relation d = (b × c) ÷ a.
Proportion Rule
In any valid proportion a : b = c : d, the product of the extreme terms is always equal to the product of the mean terms (a × d = b × c).

Q48. Answer: (d) 2,268

Shortcut Trick
Let Cost Price (CP) = 100 units, then List Price (MP) = 100 + 44% = 144 units.
Selling Price (SP) after 25% discount = 144 × (1 − 25/100) = 108 units.
Profit = SP − CP = 108 − 100 = 8 units.
Since 8 units = Rs. 126, List Price (144 units) = (126 ÷ 8) × 144 = 126 × 18 = Rs. 2268.
Therefore The correct answer is Rs. 2268.
Alternate Method
Given:
Markup percentage = 44%
Discount percentage = 25%
Profit earned = Rs. 126
Formula Used:
List Price (MP) = CP × (1 + Markup%)
Selling Price (SP) = MP × (1 − Discount%)
Profit = SP − CP
CP = 100x
MP = 144x
SP = 108x
+44% Markup
−25% Discount
Profit = 8x
8x = Rs. 126 → MP (144x) = ?
Calculations:
=> Let the Cost Price (CP) of the fan be 100x.
=> List Price (MP) = 100x + (44% of 100x) = 144x

=> Selling Price (SP) = 144x − (25% of 144x)
=> SP = 144x − (1/4 × 144x) = 144x − 36x = 108x
=> Profit = SP − CP = 108x − 100x = 8x
=> It is given that Profit = Rs. 126
=> 8x = 126
=> x = 126 ÷ 8 = 15.75
=> List Price (MP) = 144x = 144 × 15.75 = Rs. 2268
Therefore The correct answer is Rs. 2268.
Additional Information
Marked Price (MP) and Discount
Discount is always calculated on the Marked Price (also called List Price). The formula is SP = MP × (1 − Discount%).
Direct Relationship Formula
The ratio of Cost Price to Marked Price can be directly calculated using: CP/MP = (100 − Discount%) / (100 + Profit%).
Successive Discounts
If two successive discounts of a% and b% are given, the equivalent single discount is (a + b − ab/100)%.

Q49. Answer: (c) 80°

Shortcut Trick
In ΔABC, sum of angles is 180° => angle BCA = 180° − (94° + 36°) = 50°.
Since parallel lines BC and AD have alternate interior angles, angle CAD = angle BCA = 50°.
As AC = CD, angles opposite to equal sides are equal => angle ADC = angle CAD = 50°.
In ΔACD, sum of angles is 180° => angle ACD = 180° − (50° + 50°) = 80°.
Therefore The correct answer is 80°.
Alternate Method
A
B
C
D
36°
94°
50°
50°
80°
50°
Given:
=> In trapezium ABCD, sides BC || AD
=> AC = CD
=> angle BAC = 94° and angle ABC = 36°
Calculations:
=> The sum of angles in ΔABC is 180°.
=> angle BCA = 180° − (angle BAC + angle ABC)
=> angle BCA = 180° − (94° + 36°) = 180° − 130° = 50°
=> Since BC || AD, AC acts as a transversal line making the alternate interior angles equal.
=> angle CAD = angle BCA = 50°
=> In ΔACD, it is given that the side lengths AC and CD are equal.
=> Angles opposite to equal sides are equal, thus angle ADC = angle CAD = 50°.
=> The sum of interior angles in ΔACD is 180°.
=> angle ACD = 180° − (angle CAD + angle ADC)
=> angle ACD = 180° − (50° + 50°) = 180° − 100° = 80°
Therefore The correct answer is 80°.
Additional Information
Properties of a Trapezium

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A trapezium is a quadrilateral with exactly one pair of parallel sides. The consecutive interior angles located between the parallel sides are always supplementary.

Alternate Interior Angles Theorem

When a transversal intersects two parallel lines, each pair of alternate interior angles is equal (often visualizing a Z-shape).

Isosceles Triangle Theorem

If two sides of a triangle are equal in length, then the angles opposite to those sides are also perfectly equal. The converse property stands true as well.

Q50. Answer: (d) 168 km/hr

Shortcut Trick

When distance is constant, Speed is inversely proportional to Time.

Time ratio = T1 : T2 = 20 : 10 = 2 : 1

Speed ratio = S1 : S2 = 1 : 2

Given S1 (1 unit) = 84 km/hr

New speed S2 (2 units) = 84 × 2 = 168 km/hr

Therefore The correct answer is 168 km/hr.

Alternate Method

Given:

Initial speed (S1) = 84 km/hr

Initial time (T1) = 20 hours

New time (T2) = 10 hours

Formula Used:

Distance = Speed × Time

Distance (D) is Constant

Time = 20 hours

Speed = 84 km/hr

Time = 10 hours

Speed = ?

Calculation:

=> Distance covered = 84 × 20

=> Distance = 1680 km

=> Now, the same distance is to be covered in 10 hours.

=> New Speed = Distance ÷ New Time

=> New Speed = 1680 ÷ 10

=> New Speed = 168 km/hr

Therefore The correct answer is 168 km/hr.

Additional Information

Average Speed

Average speed is the total distance traveled divided by the total time taken. If a distance is covered at speed x and the same distance is returned at speed y, Average Speed = 2xy ÷ (x + y).

Relative Speed

For two objects moving in the same direction, relative speed is the difference of their speeds (S1 − S2). For opposite directions, it is the sum of their speeds (S1 + S2).

Proportionality in Time & Distance

If Distance is constant, Speed prop. to 1 ÷ Time. If Time is constant, Distance prop. to Speed. If Speed is constant, Distance prop. to Time.

Q51. Answer: (d) Rs. 1,232

Shortcut Trick

The total profit is distributed exactly in the ratio of the invested capitals.

Ratio of investments X : Y : Z = 19 : 88 : 18

Total parts in the ratio = 19 + 88 + 18 = 125 parts

Difference in parts between Y and Z = 88 − 18 = 70 parts

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Difference in shares = (70 ÷ 125) × 2200 = 70 × 17.6 = 1232

Therefore The correct answer is Rs. 1,232.

Alternate Method

Given:

Investment ratio of X, Y and Z = 19 : 88 : 18

Total profit earned at the end of the year = Rs. 2,200

Formula Used:

Profit Share = (Individual Ratio ÷ Total Ratio) × Total Profit

Total Profit = Rs. 2200 (125 parts)

19

X

88

Y

18

Z

Diff = 70 parts

Calculations:

=> Total ratio = 19 + 88 + 18 = 125

=> Value of 1 ratio part = 2200 ÷ 125 = Rs. 17.6

=> Y's profit share = 88 × 17.6 = Rs. 1,548.8

=> Z's profit share = 18 × 17.6 = Rs. 316.8

=> Difference between the shares of Y and Z = 1548.8 − 316.8 = Rs. 1,232

Therefore The correct answer is Rs. 1,232.

Additional Information

Partnership Profit Rule

When the time period of investment is the same for all partners, their total profit is distributed strictly in the ratio of their invested capitals. Profit Ratio = Capital1 : Capital2 : Capital3.

Unequal Time Periods

If partners invest their money for different durations, the profit ratio is determined by the compound ratio of their capital and time period. Profit Ratio = (C1 × T1) : (C2 × T2).

Active and Sleeping Partners

An active partner manages the day-to-day business and usually receives a fixed salary or a certain percentage of the total profit before the remaining profit is distributed among all partners according to their investment ratio.

Q52. Answer: (d) Rs. 50

Shortcut Trick

Total time in days = 20 (Feb) + 31 (Mar) + 10 (Apr) = 61 days.

Since 2024 is a leap year, time in years = 61 ÷ 366 = 1/6 year.

Simple Interest = (P × R × T) ÷ 100 = (4000 × 7.5 × 1/6) ÷ 100 = 50

Therefore The correct answer is Rs. 50.

Alternate Method

Given:

Principal (P) = Rs. 4,000

Rate of Interest (R) = 7.5% per annum

Deposition Date = 9 February 2024

Withdrawal Date = 10 April 2024

Formula Used:

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

Time = 61 days = 1/6 year

Rate = 7.5% p.a.

9 Feb 2024

P = Rs. 4000

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10 Apr 2024

SI = ?

Result: Simple Interest = Rs. 50

Calculations:

=> Year 2024 is divisible by 4, hence it is a leap year Therefore Total days in the year = 366 days.

=> Days in February (after deposition) = 29 − 9 = 20 days.

=> Days in March = 31 days.

=> Days in April = 10 days.

=> Total Time (in days) = 20 + 31 + 10 = 61 days.

=> Time in years (T) = 61 ÷ 366 = 1/6 years.

=> SI = (4000 × 7.5 × 1/6) ÷ 100

=> SI = (40 × 7.5) ÷ 6

=> SI = 300 ÷ 6 = 50

Therefore The correct answer is Rs. 50.

Additional Information

Simple vs Compound Interest

In Simple Interest, the interest is calculated only on the principal amount. In Compound Interest, the interest is calculated on both the principal and the accumulated interest. Formula: CI = P × (1 + R/100)^T − P.

Leap Year Concept

A year is considered a leap year if it is perfectly divisible by 4. Century years (like 2000) must be divisible by 400. In leap years, February has 29 days, making the total days in the year 366 instead of 365.

Counting Days for Interest

When calculating the number of days for an interest period, the standard banking practice is to exclude the day of deposit and include the day of withdrawal (or vice-versa). This ensures exact actual days are counted.

Q53. Answer: (a) 18

Shortcut Trick

The mode of a dataset is the observation that appears the highest number of times.

In the given data: 18, 10, 15, 18, 18, 13, 20, 18, 17, 19.

We can clearly observe that the number 18 appears 4 times, which is more frequent than any other number.

Therefore The correct answer is 18 marks.

Alternate Method

Given:

Marks scored by 10 students: 18, 10, 15, 18, 18, 13, 20, 18, 17, 19

Concept Used:

Mode = The value of the observation having the maximum frequency in a data set.

Calculations:

=> Let us arrange the given marks in ascending order to easily count the frequencies.

=> Ascending order: 10, 13, 15, 17, 18, 18, 18, 18, 19, 20

=> Frequency of 10 = 1

=> Frequency of 13 = 1

=> Frequency of 15 = 1

=> Frequency of 17 = 1

=> Frequency of 18 = 4

=> Frequency of 19 = 1

=> Frequency of 20 = 1

=> Since 18 occurs the maximum number of times (4 times) in the dataset, it is the mode.

Therefore The correct answer is 18 marks.

Additional Information

Mean

Mean is the arithmetic average of a dataset, calculated as the sum of all observations divided by the total number of observations.

Median

Median is the middlemost value of a dataset when arranged in either ascending or descending order. For an even number of observations, it is the average of the two middle values.

Empirical Relationship

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

Bimodal Data

If a given dataset has two distinct values with the same highest frequency, the dataset is called bimodal (having two modes).

Q54. Answer: (c) 336

Shortcut Trick

Notice that the given sides form a Pythagorean triplet: $14^2 + 48^2 = 196 + 2304 = 2500 = 50^2$.

This means the triangle is a right-angled triangle with base = 48 cm and height = 14 cm.

Area of a right-angled triangle = ½ × base × height

=> Area = ½ × 14 × 48 = 7 × 48 = 336 cm^2

Therefore The correct answer is 336 cm^2.

Alternate Method

Given:

Sides of the triangle, a = 14 cm, b = 48 cm, and c = 50 cm.

48 cm

14 cm

50 cm

Formula Used:

Heron's Formula for the area of a triangle = √(s(s − a)(s − b)(s − c))

Where semi-perimeter, s = (a + b + c) ÷ 2

Calculations:

=> s = (14 + 48 + 50) ÷ 2

=> s = 112 ÷ 2 = 56 cm

=> Area = √(56 × (56 − 14) × (56 − 48) × (56 − 50))

=> Area = √(56 × 42 × 8 × 6)

=> Area = √((14 × 4) × (14 × 3) × (4 × 2) × (3 × 2))

=> Area = $\sqrt{(14^2 \times 4^2 \times 3^2 \times 2^2)}$

=> Area = 14 × 4 × 3 × 2 = 336 cm^2

Therefore The correct answer is 336 cm^2.

Additional Information

Pythagorean Triplets

A set of three integers that satisfy $a^2 + b^2 = c^2$ forms a right-angled triangle. Common examples include (3, 4, 5), (5, 12, 13), (7, 24, 25), and (8, 15, 17). Any multiple of a triplet is also a valid triplet.

Area of an Equilateral Triangle

For a triangle with all three sides equal to 'a', the area is directly calculated using the formula (√3 ÷ 4) × a^2.

Area of an Isosceles Triangle

For a triangle with two equal sides 'a' and a distinct base 'b', the area is calculated using (b ÷ 4) × √(4a^2 − b^2).

Q55. Answer: (d) 19

Shortcut Trick

We can find the correct option by using basic divisibility rules.

The number 444348269 ends in an odd digit (9), so it cannot be divided by an even number like 12 or 10.

Sum of digits of 444348269 = 4 + 4 + 4 + 3 + 4 + 8 + 2 + 6 + 9 = 44.

Since 44 is not a multiple of 9, the number is not divisible by 9.

By elimination, the number must be exactly divisible by 19.

Therefore The correct answer is 19.

Alternate Method

Given:

Number = 444348269

Calculation:

=> Let's verify by dividing the given number by each option directly.

=> Option 1: 444348269 ÷ 12 ≈ 37029022.41 (Not completely divisible)

=> Option 2: 444348269 ÷ 9 ≈ 49372029.88 (Not completely divisible)

=> Option 3: 444348269 ÷ 10 = 44434826.9 (Not completely divisible)

=> Option 4: 444348269 ÷ 19 = 23386751

=> Since the quotient is a perfect integer (23386751) and leaves a remainder of 0, the number is exactly divisible by 19.

Therefore The correct answer is 19.

Additional Information

Divisibility Rule of 9

A number is exactly divisible by 9 if the sum of all its digits is a multiple of 9.

Divisibility Rule of 12

A number is divisible by 12 if it satisfies the divisibility rules of both 3 and 4.

Divisibility Rule of 19 (Osculator Method)

Multiply the last digit by 2 and add it to the remaining truncated number. If the resulting sum is divisible by 19, the original number is also divisible by 19.

Q56. Answer: (b) Rs. 96,000

Shortcut Trick

Profit of M = (1656 + 552) ÷ 2 = Rs. 1104, Profit of N = Rs. 552 => Ratio = 2 : 1

Investment Ratio = (Profit M ÷ Time M) : (Profit N ÷ Time N) = (2 ÷ 2) : (1 ÷ 3) = 3 : 1

Investment difference = 3 − 1 = 2 units => 2 units = Rs. 64,000 => 1 unit = Rs. 32,000

Capital of M = 3 units = 3 × 32,000 = Rs. 96,000

Therefore The correct answer is Rs. 96,000.

Alternate Method

Given:

M invests Rs. 64,000 more than N.

Time of investment: M = 2 months, N = 3 months.

Total profit = Rs. 1,656 and M gets Rs. 552 more than N.

Formula Used:

Profit Ratio = (Capital1 × Time1) : (Capital2 × Time2)

Partner M

Cap: x + 64000

Time: 2 months

Profit: Rs. 1104

VS

Partner N

Cap: x

Time: 3 months

Profit: Rs. 552

Profit Ratio → 2 : 1

Calculations:

=> Let N's profit be P_N and M's profit be P_M.

=> P_M + P_N = 1656 and P_M − P_N = 552

=> Adding both equations: 2P_M = 2208 => P_M = 1104

=> P_N = 1656 − 1104 = 552

=> Profit Ratio (M : N) = 1104 : 552 = 2 : 1

=> Let N's capital be x. Then M's capital is (x + 64000).

=> [(x + 64000) × 2] ÷ [x × 3] = 2 ÷ 1

=> 2x + 128000 = 6x

=> 4x = 128000 => x = 32000

=> M's capital = x + 64000 = 32000 + 64000 = 96000

Therefore The correct answer is Rs. 96,000.

Additional Information

Partnership Principle

Profit is strictly distributed in proportion to the product of capital invested and the time period of investment. Ratio = (C1 × T1) : (C2 × T2).

Working vs Sleeping Partner

A working partner manages the business and receives a fixed salary or percentage of profit, while a sleeping partner only invests capital and shares the remaining profit based on the investment ratio.

Finding Investment Ratio

If both profit ratio and time ratio are given, the ratio of capital investments can be directly calculated as (Profit1 ÷ Time1) : (Profit2 ÷ Time2).

Q57. Answer: (d) 59

Shortcut Trick

The given number 889897 is an odd number, so it cannot be exactly divided by even numbers like 52 and 64.

The sum of the digits of 889897 is 8 + 8 + 9 + 8 + 9 + 7 = 49.

Since 49 is not a multiple of 3, the number is not divisible by 69 (which is 3 × 23).

By elimination, the only possible divisor left among the options is 59.

Therefore The correct answer is 59.

Alternate Method

Given:

The number to be checked is 889897.

Method Used:

We can verify the divisibility by 59 directly using the osculator method.

For 59, the positive osculator is (59 + 1) ÷ 10 = 6.

Rule: Multiply the unit digit of the number by 6 and add it to the remaining part of the number.

Calculations:

=> Step 1: 88989 + (7 × 6) = 88989 + 42 = 89031

=> Step 2: 8903 + (1 × 6) = 8903 + 6 = 8909

=> Step 3: 890 + (9 × 6) = 890 + 54 = 944

=> Step 4: 94 + (4 × 6) = 94 + 24 = 118

=> Step 5: 11 + (8 × 6) = 11 + 48 = 59

=> Since 59 is perfectly divisible by 59, the original number 889897 is also perfectly divisible by 59.

Therefore The correct answer is 59.

Additional Information

Divisibility Rule of 3

A number is divisible by 3 if the sum of its digits is a multiple of 3. This is useful to quickly rule out numbers that have 3 as a prime factor.

Divisibility Rule for Prime Numbers (Ending in 9)

For prime numbers ending in 9 (such as 19, 29, 59), add 1 to the number to make it a multiple of 10. The tens digit acts as the positive osculator. Multiply the last digit of the target number by this osculator and add it to the remaining portion until it is small enough to easily verify.

Divisibility by Even Numbers

Any number that is perfectly divisible by an even number must itself be an even number. An odd number can never have an even number as a factor.

Q58. Answer: (b) 19/36

Shortcut Trick

Total work = LCM of 16 and 18 = 144 units.

Combined efficiency of A and B = (144 ÷ 16) + (144 ÷ 18) = 9 + 8 = 17 units/day.

Work completed in 4 days together = 17 × 4 = 68 units.

Remaining work = 144 − 68 = 76 units.

Fraction of work left = 76 ÷ 144 = 19/36.

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Therefore The correct answer is 19/36.

Alternate Method

Given:

Time taken by A = 16 days

Time taken by B = 18 days

Days worked together = 4 days

Person	Days	Total Work	Efficiency
A	16	144	9
B	18	8	

Calculations:

=> Total efficiency of A and B = 9 + 8 = 17 units/day

=> Total work completed in 4 days = 17 × 4 = 68 units

=> Remaining work = Total work − Work completed

=> Remaining work = 144 − 68 = 76 units

=> Fraction of work left = Remaining work ÷ Total work

=> Fraction of work left = 76 / 144

=> Fraction of work left = 19/36

Therefore The correct answer is 19/36.

Additional Information

Work and Wages

Wages are distributed in the ratio of the actual work done by each person. If people work for the exact same number of days, their wages are distributed directly in the ratio of their efficiencies.

Alternate Day Work

If A and B work on alternate days starting with A, then the total work done in a 2-day cycle equals the sum of their individual daily efficiencies.

Pipes and Cisterns

The underlying concept is identical to Time & Work. An inlet pipe has positive efficiency (filling the tank), while an outlet pipe or leak has negative efficiency (emptying the tank).

Q59. Answer: (a) 50%

Shortcut Trick

Total population = 350000 and Males = 175000 => Females = 175000.

Ratio of Males to Females = 1 : 1.

Since the quantities are equal, Overall Literate % = (Male Literate % + Female Literate %) ÷ 2

36% = (22% + Female Literate %) ÷ 2

Female Literate % = 72% − 22% = 50%.

Therefore The correct answer is 50%.

Alternate Method

Given:

Total population = 350000

Number of males = 175000

Total literate percentage = 36%

Literate males percentage = 22%

Formula Used:

Percentage = (Part value ÷ Total base value) × 100

Males

175,000

Females

175,000

Literate: 22%

Literate: x%

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Total Population: 350,000

Overall Literacy: 36%

Calculations:

=> Number of females = Total population − Number of males

=> Number of females = 350000 − 175000 = 175000

=> Total literate population = (36 ÷ 100) × 350000 = 126000

=> Literate males = (22 ÷ 100) × 175000 = 38500

=> Literate females = Total literate population − Literate males

=> Literate females = 126000 − 38500 = 87500

=> Percentage of literate females = (Literate females ÷ Total females) × 100

=> Percentage of literate females = (87500 ÷ 175000) × 100 = 50%

Therefore The correct answer is 50%.

Additional Information

Weighted Average Rule

When a group is divided into parts, overall average = (n1A1 + n2A2) ÷ (n1 + n2). If n1 = n2, it becomes a simple average.

Percentage Base Dependency

Percentage is always calculated on a specific base. The literate males percentage is calculated on total males, not on the entire district population.

Alligation Cross Method

The rule of alligation can also be used for quick ratio comparisons: Ratio of parts = Inverse ratio of differences from the overall average.

Q60. Answer: (a) 75/7

Shortcut Trick

Total work = LCM(30, 25, 10) = 150 units.

Efficiency: Hema = 5, Hema + Raji = 6, Hema + Raji + Smitha = 15.

Efficiency of Smitha = 15 − 6 = 9 units/day.

Time for Hema + Smitha = 150 ÷ (5 + 9) = 150/14 = 75/7 days.

Therefore The correct answer is 75/7 days.

Alternate Method

Given:

Time taken by Hema = 30 days

Time taken by Hema + Raji = 25 days

Time taken by Hema + Raji + Smitha = 10 days

Formula Used:

Total Work = LCM of given days

Efficiency = Total Work ÷ Time

Person	Days	Total Work	Efficiency
Hema	30	150	5
Hema + Raji	25	6	
Hema + Raji + Smitha	10	15	

Calculations:

=> Efficiency of Smitha = Efficiency of (Hema + Raji + Smitha) − Efficiency of (Hema + Raji)

=> Efficiency of Smitha = 15 − 6 = 9 units/day

=> Combined efficiency of Hema + Smitha = 5 + 9 = 14 units/day

=> Time taken by Hema and Smitha together = Total Work ÷ Combined Efficiency

=> Time = 150 ÷ 14

=> Time = 75/7 days

Therefore The correct answer is 75/7 days.

Additional Information

Total Work Assumption

It is an effective practice to assume the Total Work to be the Least Common Multiple (LCM) of the given number of days to keep calculations simple and completely avoid dealing with fractions.

Pipes and Cisterns

The foundational concepts of Time & Work directly apply to Pipes and Cisterns, where an inlet filling a tank acts as positive work and an outlet emptying it acts as negative work.

Work and Wages

Wages are always distributed strictly in the ratio of the total work done. If multiple people work together for the exact same number of days, their wages are distributed directly in the ratio of their efficiencies.

Q61. Answer: (b) 376 cm²

Shortcut Trick

When a rectangular block or cube is cut from the corner of a cuboid, the net change in its total surface area is zero.

This is because the area of the 3 faces removed is exactly equal to the area of the 3 new inner faces created.

New TSA = Original TSA of the cuboid = 2 × (lb + bh + hl)

New TSA = 2 × (10 × 8 + 8 × 6 + 6 × 10) = 2 × (80 + 48 + 60)

New TSA = 2 × 188 = 376 cm².

Therefore The correct answer is 376 cm².

Alternate Method

10 cm

6 cm

8 cm

Removed Cube

(3 faces exposed)

Surface Area Lost = Surface Area Created

Given:

Dimensions of the cuboid = 10 cm, 8 cm, 6 cm.

A cube of maximum possible size is cut from one corner.

Formulas Used:

Total Surface Area of Cuboid = 2 × (lb + bh + hl)

Area lost from corner cut = 3 × a^2

Area created inside the cut = 3 × a^2

Calculations:

=> Maximum side of the cube that can be cut = minimum(10, 8, 6) = 6 cm.

=> When a cube is cut from a corner, exactly 3 outer faces are removed.

=> At the same time, 3 identical inner faces are newly exposed to balance it out.

=> Net change in Total Surface Area = (Added Area) − (Lost Area) = (3 × a^2) − (3 × a^2) = 0.

=> Therefore, the TSA of the remaining solid remains unchanged.

=> New TSA = Original TSA = 2 × (10 × 8 + 8 × 6 + 6 × 10)

=> New TSA = 2 × (80 + 48 + 60)

=> New TSA = 2 × 188 = 376 cm².

Therefore The correct answer is 376 cm².

Additional Information

1. Surface Area Change based on Cut Position

• Corner Cut: TSA remains unchanged (3 faces lost, 3 faces gained).

• Edge Cut (Middle): TSA increases by 2 × a^2 (2 faces lost, 4 faces gained).

• Face Cut (Middle): TSA increases by 4 × a^2 (1 face lost, 5 faces gained).

2. Volume Change after Cutting

Unlike surface area, the volume of a solid strictly decreases when a piece is removed. The new volume is always the original volume minus the volume of the removed piece.

3. Maximum Size of the Cut Cube

The side of the largest possible cube that can be completely cut out from a given cuboid is equal to the smallest dimension among its length, breadth, and height.

Q62. Answer: (d) 70.06

Shortcut Trick

Total Distance = 585 + 368 + 168 = 1121 km.

Total Time = (585 ÷ 65) + (368 ÷ 92) + (168 ÷ 56) = 9 + 4 + 3 = 16 hours.

Average Speed = Total Distance ÷ Total Time = 1121 ÷ 16 = 70.0625 ≈ 70.06 km/hr.

Therefore The correct answer is 70.06 km/hr.

Alternate Method

Given:

D1 = 585 km, S1 = 65 km/hr

D2 = 368 km, S2 = 92 km/hr

D3 = 168 km, S3 = 56 km/hr

Formula Used:

Average Speed = Total Distance ÷ Total Time

Time = Distance ÷ Speed

585 km

368 km

168 km

65 km/hr

92 km/hr

56 km/hr

Time = 9 hr

Time = 4 hr

Time = 3 hr

Total Distance = 1121 km | Total Time = 16 hr

Calculations:

=> Total Distance = 585 + 368 + 168 = 1121 km

=> Time for 1st part (T1) = 585 ÷ 65 = 9 hours

=> Time for 2nd part (T2) = 368 ÷ 92 = 4 hours

=> Time for 3rd part (T3) = 168 ÷ 56 = 3 hours

=> Total Time = 9 + 4 + 3 = 16 hours

=> Average Speed = 1121 ÷ 16 = 70.0625 km/hr ≈ 70.06 km/hr

Therefore The correct answer is 70.06 km/hr.

Additional Information

Average Speed for Equal Distances (2 Parts)

If a person covers a distance at speed x and the same distance at speed y, then Average Speed = 2xy ÷ (x + y).

Average Speed for Equal Distances (3 Parts)

If equal distances are covered at speeds x, y, and z, then Average Speed = 3xyz ÷ (xy + yz + zx).

Relative Speed Concept

When two bodies move in the same direction, relative speed = x − y. When moving in opposite directions, relative speed = x + y.

Q63. Answer: (d) 47

Shortcut Trick

Total weight of Tushar, Salil and Mukund = 45 × 3 = 135 kg

Total weight of (Tushar + Salil) = 44 × 2 = 88 kg

Total weight of (Salil + Mukund) = 47 × 2 = 94 kg

Weight of Salil = (Sum of overlapping groups) − (Total weight)

=> Salil's weight = (88 + 94) − 135 = 182 − 135 = 47 kg

Therefore The correct answer is 47 kg.

Alternate Method

Given:

Average weight of Tushar (T), Salil (S), and Mukund (M) = 45 kg

Average weight of Tushar and Salil = 44 kg

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Average weight of Salil and Mukund = 47 kg

Total (T + S + M) = 135 kg

T + S = 88 kg

T

S (Overlap)

M

S + M = 94 kg

S = (T + S) + (S + M) − Total = 88 + 94 − 135 = 47

Calculations:

=> Total weight of all three (T + S + M) = 45 × 3 = 135 kg ... (i)

=> Weight of Tushar and Salil (T + S) = 44 × 2 = 88 kg ... (ii)

=> Weight of Salil and Mukund (S + M) = 47 × 2 = 94 kg ... (iii)

Adding equations (ii) and (iii):

=> (T + S) + (S + M) = 88 + 94

=> T + 2S + M = 182 kg

Subtracting equation (i) from the sum above isolates Salil's weight:

=> (T + 2S + M) − (T + S + M) = 182 − 135

=> S = 47 kg

Therefore The correct answer is 47 kg.

Additional Information

Overlapping Groups (Inclusion/Exclusion Method)

When solving average questions where one person or item is counted twice in subsets, the value of the overlapping entity is equal to the sum of the subsets minus the sum of the entire group.

Basic Average Rule

The fundamental formula for average dictates that Total Sum = Average × Number of entities. Any change in average multiplied by the base count translates to the net difference in the total sum.

Replacement in Averages

When a new member replaces an existing member, the New Member's value = Replaced Member's value + (Change in Average × Total Number of Members). This avoids recalculating the entire sum manually.

Q64. Answer: (c) 530/13 % loss

Shortcut Trick

Total CP = Purchase price + Overhead cost = Rs. 255 + Rs. 5 = Rs. 260

SP = Rs. 154

Loss = Total CP − SP = 260 − 154 = Rs. 106

Loss % = (Loss ÷ Total CP) × 100

Loss % = (106 ÷ 260) × 100 = 530/13% loss

Therefore The correct answer is 530/13% loss.

Alternate Method

Given:

Purchase price of the toy = Rs. 255

Cost of decoration (overhead) = Rs. 5

Selling price (SP) = Rs. 154

Total CP = Rs. 260

SP = Rs. 154

Loss = Rs. 106

Loss % = (106 ÷ 260) × 100 = 530/13%

Formula Used:

Total CP = Purchase Price + Overhead Charges

Loss = CP − SP

Loss % = (Loss ÷ CP) × 100

Calculations:

=> Total CP = 255 + 5 = Rs. 260

=> Since CP is greater than SP, there is a loss.

=> Loss = Total CP − SP

=> Loss = 260 − 154 = Rs. 106

=> Loss % = (106 ÷ 260) × 100

=> Loss % = (53 ÷ 130) × 100

=> Loss % = (53 ÷ 13) × 10

=> Loss % = 530/13%

Therefore The correct answer is 530/13% loss.

Additional Information

Profit and Loss Percentages

Profit or Loss percentages are always calculated on the Total Cost Price (CP) unless stated otherwise. Profit % = (Profit ÷ CP) × 100.

Overhead Charges

Any additional expenses like transportation, repair, or decoration are added to the purchase price to calculate the Total CP.

Marked Price and Discount

Discount is always calculated on the Marked Price (MP). Final SP = MP − Discount.

Q65. Answer: (b) tan A cot B

Shortcut Trick

Put A = 45° and B = 30° in the given expression.

Expression = (tan 45° − cot 30°) ÷ (tan 30° − cot 45°)

=> (1 − √3) ÷ (1/√3 − 1) = (1 − √3) ÷ [(1 − √3) / √3] = √3

Now checking the options, Option 2 gives tan 45° × cot 30° = 1 × √3 = √3.

Therefore The correct answer is tan A cot B.

Alternate Method

Given:

Expression: (tan A − cot B) ÷ (tan B − cot A)

Formula Used:

tan θ = 1 ÷ cot θ and cot θ = 1 ÷ tan θ

Calculations:

=> Denominator = tan B − cot A

=> Substitute tan B = 1 ÷ cot B and cot A = 1 ÷ tan A

=> Denominator = (1 ÷ cot B) − (1 ÷ tan A)

=> Denominator = (tan A − cot B) ÷ (tan A × cot B)

=> Substitute the denominator back into the given expression:

=> Expression = (tan A − cot B) ÷ [(tan A − cot B) ÷ (tan A × cot B)]

=> Expression = (tan A − cot B) × [(tan A × cot B) ÷ (tan A − cot B)]

=> Expression = tan A × cot B

Therefore The correct answer is tan A cot B.

Additional Information

Reciprocal Identities

sin θ = 1 ÷ cosec θ | cos θ = 1 ÷ sec θ | tan θ = 1 ÷ cot θ

Quotient Identities

tan θ = sin θ ÷ cos θ | cot θ = cos θ ÷ sin θ

Pythagorean Identities

$\sin^2\theta + \cos^2\theta = 1$ | $1 + \tan^2\theta = \sec^2\theta$ | $1 + \cot^2\theta = \text{cosec}^2\theta$

Q66. Answer: (c) $9x^2 - 4x - 13$

Shortcut Trick

Expand the expression directly by multiplying the terms inside the brackets:

=> $x(4x - 4) = 4x^2 - 4x$

=> $5(x^2 - 5) = 5x^2 - 25$

Combine all parts and add the constant term:

=> $4x^2 - 4x + 5x^2 - 25 + 12 = 9x^2 - 4x - 13$

Therefore The correct answer is $9x^2 - 4x - 13$.

Alternate Method

Given:

Expression: $x(4x - 4) + 5(x^2 - 5) + 12$

Calculation:

Step 1: Distribute x into the first binomial:

=> $x \times 4x - x \times 4 = 4x^2 - 4x$

Step 2: Distribute 5 into the second binomial:

=> $5 \times x^2 - 5 \times 5 = 5x^2 - 25$

Step 3: Write the fully expanded expression by adding all the terms together:

=> $(4x^2 - 4x) + (5x^2 - 25) + 12$

Step 4: Group the like terms with the same variable powers:

=> $(4x^2 + 5x^2) - 4x + (-25 + 12)$

Step 5: Perform the addition and subtraction to simplify:

=> $9x^2 - 4x - 13$

Therefore The correct answer is $9x^2 - 4x - 13$.

Additional Information

Distributive Property

The distributive property states that $a(b + c) = ab + ac$. This is fundamental when expanding algebraic brackets to remove parentheses before grouping terms.

Like Terms in Algebra

Terms with exactly the same variables raised to the same power are called like terms (e.g., $4x^2$ and $5x^2$). Only like terms can be combined using addition or subtraction.

BODMAS Rule

BODMAS stands for Brackets, Orders, Division, Multiplication, Addition, and Subtraction. It ensures operations are handled in the correct priority when simplifying any mathematical expression.

Q67. Answer: (c) 11.75

Shortcut Trick

Memorizing squares up to 30 helps to solve this directly.

$\sqrt{196} = 14$

$\sqrt{0.0225} = 0.15$ (Since $15^2 = 225$, 4 decimal places inside √ become 2 outside)

$\sqrt{5.76} = 2.4$ (Since $24^2 = 576$, 2 decimal places inside √ become 1 outside)

Result = $14 + 0.15 - 2.4 = 11.75$

Therefore The correct answer is 11.75.

Alternate Method

Given:

Expression: $\sqrt{196} + \sqrt{0.0225} - \sqrt{5.76}$

Concept Used:

Convert decimals into fractions to calculate roots easily.

Calculation:

=> $\sqrt{196} = 14$

=> $\sqrt{0.0225} = \sqrt{(225 \div 10000)}$

=> $\sqrt{(225 \div 10000)} = 15 \div 100 = 0.15$

=> $\sqrt{5.76} = \sqrt{(576 \div 100)}$

=> $\sqrt{(576 \div 100)} = 24 \div 10 = 2.4$

=> Substituting the values back into the expression:

=> $14 + 0.15 - 2.4$

=> $14.15 - 2.4$

=> 11.75

Therefore The correct answer is 11.75.

Additional Information

BODMAS Rule

Always follow the strict order of mathematical operations: Brackets, Orders (Powers and Roots), Division/Multiplication, and Addition/Subtraction.

Square Roots of Decimals

When determining the square root of a perfect square decimal, the number of decimal places in the evaluated result is exactly half the total number of decimal places inside the root.

Perfect Squares

Memorizing perfect squares up to 30 (such as $15^2 = 225$, $24^2 = 576$) significantly enhances speed and accuracy in simplification questions.

Q68. Answer: (b) 40%

Shortcut Trick

For a 'Buy X Get Y Free' offer, the discount percentage is calculated directly based on the free items.

Discount % = [Free Items ÷ Total Items] × 100

=> Discount % = [4 ÷ (6 + 4)] × 100

=> Discount % = (4 ÷ 10) × 100 = 40%

Therefore The correct answer is 40%.

Alternate Method

Given:

Number of trousers paid for = 6

Number of trousers given free = 4

Formula Used:

Discount % = (Total Discount ÷ Total Marked Price) × 100

Buy 6, Get 4 Free Offer

Paid Items = 6

Free Items = 4

Total Items = 10 (Marked Price Base)

Calculations:

=> Total items given to the customer = 6 + 4 = 10

=> Let the Marked Price (MP) of 1 trouser be 10 units.

=> Total MP of 10 trousers = 10 × 10 = 100 units.

=> The customer only pays for 6 trousers.

=> Selling Price (SP) of the 10 trousers = 6 × 10 = 60 units.

=> Total Discount = Total MP − SP = 100 − 60 = 40 units.

=> Discount % = (Discount ÷ Total MP) × 100

=> Discount % = (40 ÷ 100) × 100 = 40%

Therefore The correct answer is 40%.

Additional Information

Marked Price vs Selling Price

Discount is always calculated on the Marked Price (MP) of an item, never on the Cost Price (CP). The Selling Price (SP) is equal to MP − Discount.

Successive Discount

When two successive discounts of a% and b% are given, the single equivalent discount % is calculated using the formula: Equivalent Discount = (a + b − a×b÷100)%.

'Buy X Pay for Y' Concept

Sometimes offers state 'Buy X Pay for Y' (where Y < X). In this case, the free items equal (X − Y) and the discount percentage is [(X − Y) ÷ X] × 100.

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Q69. Answer: (d) 18

Shortcut Trick

The squares of even natural numbers are: 4, 16, 36, 64, 100, 144...

By observation, we can see that 64 + 100 = 164.

The two consecutive even natural numbers are √64 = 8 and √100 = 10.

Sum of the numbers = 8 + 10 = 18.

Therefore The correct answer is 18.

Alternate Method

Given:

The sum of the squares of two consecutive even natural numbers is 164.

Calculation:

Let the two consecutive even natural numbers be x and x + 2.

=> $x^2 + (x + 2)^2 = 164$

=> $x^2 + x^2 + 4x + 4 = 164$

=> $2x^2 + 4x + 4 - 164 = 0$

=> $2x^2 + 4x - 160 = 0$

Dividing the entire equation by 2, we get:

=> $x^2 + 2x - 80 = 0$

Factorizing the quadratic equation:

=> $x^2 + 10x - 8x - 80 = 0$

=> $x(x + 10) - 8(x + 10) = 0$

=> $(x - 8)(x + 10) = 0$

Since the numbers are natural numbers, x must be positive (x > 0).

=> x = 8

The first number is 8, and the second number is 8 + 2 = 10.

The sum of these two numbers = 8 + 10 = 18.

Therefore The correct answer is 18.

Additional Information

Sum of First n Natural Numbers

The sum of the first n natural numbers is given by the formula: Sum = n(n + 1) ÷ 2.

Sum of Squares of First n Natural Numbers

The sum of the squares of the first n natural numbers is calculated as: Sum = n(n + 1)(2n + 1) ÷ 6.

Consecutive Even Numbers Property

Consecutive even integers always differ by 2 (e.g., 2n and 2n + 2), and their product is always a multiple of 8.

Nature of Roots in Quadratic Equation

For a quadratic equation $ax^2 + bx + c = 0$, roots are real and distinct if the discriminant $D = b^2 - 4ac > 0$.

Q70. Answer: (a) Rs. 7,200

Shortcut Trick

For the 'Buy 3 Get 1 Free' scheme, the final bill is generated for only 3 items.

Initial bill amount = 3 × 3000 = Rs. 9,000.

Applying the 20% additional discount on the bill: Final Amount = 9000 × (100 − 20)%.

Final Amount = 9000 × 0.8 = Rs. 7,200.

Therefore The correct answer is Rs. 7,200.

Alternate Method

Given:

Marked price of 1 item = Rs. 3,000

Discount Scheme = Buy 3 get 1 free

Additional discount = 20% on the total bill

Item 1 Rs. 3000 Item 2 Rs. 3000 Item 3 Rs. 3000 Item 4 FREE Bill Amount = Rs. 9000 Extra 20% Off Final Price Paid = Rs. 9000 − 20% = Rs. 7200

Calculations:

=> In the 'Buy 3 get 1 free' scheme, the customer receives 4 items but is billed for only 3 items.

=> Initial Billed Amount = 3 × 3000 = Rs. 9,000

=> The retailer gives an additional 20% discount on this total bill.

=> Discount Amount = 20% of 9000 = Rs. 1,800

=> Final Amount Paid = 9000 − 1800

=> Final Amount Paid = Rs. 7,200

Therefore The correct answer is Rs. 7,200.

Additional Information

'Buy X Get Y Free' Discount %

The actual percentage discount offered in this scheme is calculated as: Discount % = [Y ÷ (X + Y)] × 100. For 'Buy 3 Get 1 Free', the discount is 25%.

Combined Offers

When a free item scheme is clubbed with an extra percentage discount, calculate the final selling price by applying the percentage discount on the payable amount of the actual billed items.

Successive Discount Formula

Alternatively, the total effective discount of the entire transaction can be found using the successive discount formula: (a + b − (a × b) ÷ 100)%, where 'a' is the scheme discount % and 'b' is the extra discount %.

Q71. Answer: (d) Three

Given: Seven people, A, B, C, T, U, V and W are sitting in a row, facing north.

• Only three people sit to the left of V.

• Only A sits to the right of U.

• Only three people sit between U and W.

• T sits at some place to the left of B but at some place to the right of C

The Final Arrangement is,

Three people sit between C and B.

Hence, the correct answer is "Option 4"

Q72. Answer: (b) Four

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

• Only two boxes are kept below B.

• Only one box is kept above D.

• Only one box is kept between D and E.

• F is kept immediately above C.

• G is kept at some place below A

The Final Arrangement is,

A
D
G
E
B
F
C

Hence, the correct answer is "Option 2"

Q73. Answer: (d) 0

Given Series : (Left) 9 # 8 $ 1 * £ 3 4 7 + Ω 6 2 & % 5 @ (Right)

Required Conditions: another symbol - symbol - another symbol

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

Hence, the correct answer is "Option 4"

Q74. Answer: (d) 6

FAIR' is coded as '4627'

'RENT' is coded as '1365'

The code for 'R' is 6.

Hence, the correct answer is "Option 4."

Q75. Answer: (b) CDPS

The logic followed here is:

Hence, the correct answer is "Option 2"

Q76. Answer: (c) AIFB

The logic followed here is:

Hence, the correct answer is "Option 3"

Q77. Answer: (c) 241

From the given information:

I denotes +

J denotes ×

K denotes '÷'

L denotes '–'

Now we solve the equation using BODMAS rule:

65 I 35 L 35 I 15 K 5 J 24 I 65 K 5 J 8 = ?

65 + 35 - 35 + 15 ÷ 5 × 24 + 65 ÷ 5 × 8 = ?

65 + 35 - 35 + 3× 24 + 13 × 8 = ?

65 + 72 + 104 =?

241.

Hence, the correct answer is "Option 3"

Q78. Answer: (c) 153

The logic follows here,

Hence, the correct answer is "Option 3"

Q79. Answer: (b) Daughter's son

Given:

• H is the brother of P.

• P is the brother of S.

• S is the daughter of K.

• K is the wife of L.

• N is the son of M.

• M is married to S

Possible tree diagram will be:

Hence, the correct answer is "Option 2"

Q80. Answer: (a) 1200

The logic follows here,

Hence, the correct answer is "Option 1"

Q81. Answer: (d) Shyam

Tiya, Tarun, Shyam, Jiya, Varun and Ram are sitting around a circle, facing the centre.

• Ram sits third to the right of Tarun.

• Tarun sits second to the right of Tiya.

• Shyam sits to the immediate right of Varun.

The Final Diagram,

Hence, the correct answer is "Option 4"

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Q82. Answer: (a) Both conclusions (I) and (II) follow.

The least possible Venn diagram for the given statements is as shown below :

Conclusions:

(I): No fan is a geyser. - True (All fans are bulbs.No bulb is a geyser. So, No fan is a geyser is True)

(II): No geyser is a bulb. -True (All fans are bulbs.No bulb is a geyser. So, No geyser is a bulb is True)

Both conclusions (I) and (II) follow.

Hence, the correct answer is "Option 1"

Q83. Answer: (b) IKJG

The logic followed here is:

Hence, the correct answer is "Option 2"

Q84. Answer: (a) 64

Given Series: 42 × 6 − 18 ÷ 4 + 15 = ?

Here, we use the BODMAS table given below:

'+' and '−' are interchanged and '×' and '÷' are interchanged

42 ÷ 6 + 18 × 4 - 15 = ?

7 + 18 × 4 - 15 = ?

7 + 72 -15 = ?

64.

Hence, the correct answer is "Option 1"

Q85. Answer: (d) RTO

The logic followed here is:

Hence, the correct answer is "Option 4"

Q86. Answer: (b) Both conclusions (I) and (II) follow.

The least possible Venn diagram for the given statements is as shown below :

Conclusions:

(I): Some drums are ludo. - True (All Drums are Ludo. Some ludo are drums, and some drums are ludo is true).

(II): All bottles are drums. - True (All Drums are Ludo. Some ludo are drums, and some drums are ludo is true).

Both conclusions (I) and (II) follow.

Hence, the correct answer is "Option 2".

Q87. Answer: (a) 550

The logic follows here,

Hence, the correct answer is "Option 1"

Q88. Answer: (b) Four

Given: Seven boxes C, D, E, M, N, O and P are kept one over the other but not necessarily in the same order.

• Only two boxes are kept below O.

• Only one box is kept above N.

• Only one box is kept between N and E.

• C is kept immediately above M.

• D is kept at some place below P

The Final Diagram,

P
N
D
E
O
C

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M

Hence, the correct answer is "Option 2"

Q89. Answer: (c) ILN

The logic followed here is:

Hence, the correct answer is "Option 3"

Q90. Answer: (c) 7 km towards west

• Gill starts from Point A and drives 7 km towards south.

• She then takes a left turn, drives 12 km, turns left and drives 4 km.

• She then takes a left turn and drives 5 km.

• She takes a final right turn, drives 3 km and stops at Point P

The Final Arrangement is,

Hence, the correct answer is "Option 3"

Q91. Answer: (b) 18

Given: 6 − 3 + 77 × 7 ÷ 11 = ?

• means −, − means ×, × means ÷ and ÷ means +,

After Interchanged,

Now we solve the equation using BODMAS rule:

6 × 3 - 77 ÷ 7 +11 = ?

6 × 3 - 11 +11 = ?

18.

Hence, the correct answer is "Option 2"

Q92. Answer: (b) EAG

The logic followed here is:

Hence, the correct answer is "Option 2"

Q93. Answer: (d) 4

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

Required Conditions: Number - Symbol - Another Symbol.

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

Hence, the correct answer is "Option 4"

Q94. Answer: (a) 65, 265

Logic : - First Number + 200 = Second Number

Hence, the correct answer is "Option 1"

Q95. Answer: (b) 10 km; south

• Dominic starts from Point A and drives 6 km towards east.

• He then takes a right turn, drives 9 km, turns right and drives 11 km.

• He then takes a right turn and drives 19 km.

• He takes a final right turn, drives 5 km and stops at Point P

The Final Diagram,

Hence, the correct answer is "Option 2"

Q96. Answer: (d) TWS

The logic followed here is:

Hence, the correct answer is "Option 4"

Q97. Answer: (d) ZEI

The logic followed here is:

Hence, the correct answer is "Option 4"

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Q98. Answer: (b) 11

Given number 7356981

Ascending order from left to right :

Hence, the correct answer is "Option 2"

Q99. Answer: (a) 4

'FELT' is coded as '4629'

'LOAN' is coded as '1345'.

The code for 'L' is 4.

Hence, the correct answer is "Option 1"

Q100. Answer: (b) One

Seven boxes P, Q, R, S, X, Y and Z are kept one over the other, but not necessarily in the same order.

• Only P is kept above R.

• Only X is kept between R and Q.

• Only Z is kept below S.

The Final Arrangement is,

P
R
X
Q
Y
S
Z

Hence, the correct answer is "Option 2"

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