RRB NTPC Graduate Level CBT-I Official Paper (Held On: 13 Jun, 2025 Shift 3) (Previous Year Paper)

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

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

Q1. What should come in place of the question mark (?) in the given series?

952 950 946 940 932 ?

(a) 921
(b) 919
(c) 922
(d) 918

Q2. Two positive numbers differ by 2880. When the greater number is divided by the smaller number, the quotient is 6 and the remainder is 120. What is the HCF of the greater of the two given numbers and 3916?

(a) 44
(b) 48
(c) 42
(d) 45

Q3. What is the median of the following data?

13, 43, 81, 27, 25, 28, 87, 57, 77, 89, 73

(a) 57.5
(b) 57
(c) 56.5
(d) 58

Q4. The curved surface area of a right circular cone is 5904π cm², and the diameter of its base is 72 cm. Find the height (in cm) of the cone.

(a) 158
(b) 160
(c) 159
(d) 162

Q5. The Tapti River originates from which mountain range?

(a) Satpura Range
(b) Western Ghats
(c) Aravalli Range
(d) Vindhya Range

Q6. What is the purpose of the Find and Replace feature (Ctrl + H) in MS Word 2019?

(a) To adjust paragraph spacing
(b) To change the font of the selected text
(c) To search for specific text and replace it with other text
(d) To insert hyperlinks

Q7. If the ratio of two numbers a and b is 5 : 3, then find the value of (3a − 2b) : (6a + 2b).

(a) 4 : 5
(b) 2 : 3
(c) 1 : 3
(d) 1 : 4

Q8. Bal Gangadhar Tilak, a prominent extremist leader, wrote the newspaper 'Mahratta' in which language?

(a) Bengali
(b) Hindi
(c) English
(d) Marathi

Q9. Select the triad that follows the same pattern as that followed by the two triads given below. Both triads follow the same pattern.

NJ-QM-TV

JF-MI-PR

(a) GB-IE-LM
(b) GB-ID-LM
(c) FB-IE-LM
(d) FB-IE-LN

Q10. What should come in place of the question mark (?) in the given series?

23 29 35 41 47 ?

(a) 53
(b) 62
(c) 59
(d) 65

Q11. India Infoline Finance Limited (IIFL Finance), India’s leading non-banking financial companies (NBFCs), has rebranded how many of its existing branches as all-women staffed ‘Shakti’ branches to mark Women’s Day (8 March 2025)?

(a) Six
(b) Eight
(c) Seven
(d) Five

Q12. A tap fills a cistern in 18 hours. Another tap empties the full tank in 24 hours. How long (in hours) will it take to fill one-fourth of the tank, if the tank is empty initially and both the taps are open together?

(a) 36
(b) 72
(c) 18
(d) 54

Q13. P, Q, R, S, T, U and V have an exam on different days of the week, starting on Monday and ending on Sunday. S has an exam on Tuesday. Exactly 3 people have an exam between S and V. T has an exam immediately before P and U has an exam immediately after P. Only 1 person has an exam between T and R. Who has an exam on Monday?

(a) P
(b) R
(c) T
(d) Q

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Q14. Which of the following letter-clusters should replace # and % so that the pattern and relationship followed between the letter-cluster pair on the left side of :: is the same as that on the right side of ::?

: MLI :: LKH : %

(a) = POL, % = IHE
(b) = FRL, % = QHE
(c) = UIL, % = IXC
(d) = FRL, % = QHF

Q15. Following the provisions of the 74th Constitutional Amendment, 1992, which of the following terms is used for urban governance in areas transitioning from rural to urban?

(a) Block Development Councils
(b) Nagar Panchayats
(c) Special Economic Zones
(d) Zila Parishads

Q16. Radhe starts from Point A and drives 8 km towards North. He then takes a left turn, drives 9 km, turns left and drives 12 km. He then takes a left turn and drives 11 km. He takes a final left turn, drives 4 km and stops at Point P. How far (shortest distance) and towards which direction should he drive in order to reach Point A again? (All turns are 90° turns only unless specified)

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

Q17. What is the IMF's revised global growth forecast for 2025 as per IMF's April 2025 Global Financial Stability Report?

(a) 1.7%
(b) 3.5%
(c) 2.8%
(d) 2.9%

Q18. What major power did the 74^(th) Amendment Act, 1992, provide to Urban Local Bodies?

(a) Constitutional outline for governance
(b) Right to enact national laws
(c) Complete independence from State contro
(d) Authority to control State Legislatures

Q19. Based on the English alphabetical order, three of the following four letter-cluster pairs are alike in a certain way and thus form a group. Which letter-cluster pair DOES NOT belong to that group?

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

(a) TX – ZV
(b) CG – ID
(c) MQ – SN
(d) HL – NI

Q20. When appointing judges to the High Courts, the President of India is required to consult which officials apart from the Chief Justice of India and the Chief Justice of the respective State?

(a) The State Governor
(b) The local district magistrates
(c) The members of the State Legislature
(d) Only the Union Cabinet

Q21. In one of his famous works, Yahya bin Ahmad Sirhindi claims that the founder of the _____ was a descendant of the Prophet Muhammad

(a) Ghaznavid Dynasty
(b) Sayyid Dynasty

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(c) Ghurid Dynasty
(d) Tughlaq Dynasty

Q22. Who among the following was awarded the Ramsar Award for 'Wetland Wise Use' in March 2025?
(a) Jayashree Vencatesan
(b) Vandana Shiva
(c) Sunita Narain
(d) Medha Patkar

Q23. Which of the following is NOT allowed under the Citizenship Act, 1955?
(a) Naturalisation
(b) Dual citizenship
(c) Registration
(d) Descent-based citizenship

Q24. Which Russian city hosted the 2024 BRICS Summit in October 2024?
(a) Kazan
(b) Moscow
(c) Sochi
(d) St. Petersburg

Q25. In India, judicial review is considered as:
(a) The power of the judiciary to pronounce upon the constitutionality of laws and executive orders
(b) the power of the judiciary to question the wisdom of the executive orders after they are passed by the Union cabinet
(c) the power of the judiciary to review all the legislative enactments before they are assented to by the President
(d) the power of the judiciary to question the wisdom of the laws enacted by the legislatures

Q26. In a certain code language, ‘FUSE’ is coded as ‘6482’ and ‘SORT’ is coded as ‘3671’. What is the code for ‘S’ in the given code language?
(a) 8
(b) 6
(c) 1
(d) 3

Q27. Simplify : √0.028224/√0.000784
(a) 24
(b) 22
(c) 19
(d) 6

Q28. What is the primary industrial process of producing phenol worldwide, and what is the intermediate used in this process?
(a) Raschig process, chlorobenzene
(b) Hock process, benzene
(c) Cumene process, cumene hydroperoxide
(d) Dow process, toluene

Q29. Which Gumpha at Khandagiri in Odisha, India is known for carvings of twenty-four Jain Teerthankars?
(a) Ambika Gumpha
(b) Trushula Gumpha
(c) Barabhuji Gumpha
(d) Hathi Gumpha

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Q30. If 1 is added to each odd digit and 2 is subtracted from each even digit in the number 3154872, what will be the difference between the digits which are second from the left and second from the right in the new number thus formed?

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

Q31. IJF is related to PQM in a certain way based on the English alphabetical order. In the same way, RSO is related to YZV. To which of the following is EFB related, following the same logic?

(a) MNJ
(b) MNK
(c) LMI
(d) LMJ

Q32. 731 metallic cubes with a side length of 3.6 cm are available to be melted and formed into a machine part consisting of two solid cones with a base radius of 5.4 cm, joined at their bases. The heights of the cones are 49 cm and 35 cm, respectively. How many cubes will be surplus after the formation of the two cones? (Take $\pi = 3.14$)

(a) 666
(b) 680
(c) 676
(d) 668

Q33. Chandragupta was succeeded by which of the following rulers, who ruled between 297 and 273 BCE?

(a) Samprati
(b) Ashoka
(c) Devavarman
(d) Bindusara

Q34. A, B, C, D, G, H and I are sitting around a circular table facing the centre of the table. Only two people sit between H and B when counted from the right of H. Only three people sit between A and C when counted from the right of C. B sits to the immediate right of C. G sits to the immediate right of I. Who sits fourth to the right of D?

(a) C
(b) A
(c) I
(d) G

Q35. Which darts tournament was held at the SACHSENarena in Riesa, Germany, from 4 to 6 April 2025?

(a) German Darts Grand Prix
(b) European Darts Open
(c) International Darts Open
(d) German Darts Championship

Q36. Who among the following was appointed as the new Chairperson of the National Human Rights Commission (NHRC) in December 2024?

(a) V Ramasubramanian
(b) Justice Bidyut Ranjan Sarangi
(c) Justice HL Dattu
(d) Arun Mishra

Q37. The percentage profit earned by selling an article for Rs. 3,471 is equal to the percentage loss incurred by selling the same article for Rs. 2,577. At what price should the article be sold (in Rs.) to make a 25% profit?

(a) 3,780
(b) 3,781
(c) 3,778
(d) 3,783

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Q38. Seven boxes, A, B, C, D, E, F and G, are kept one over the other but not necessarily in the same order. Only A is kept above C. Only F is kept between C and E. Only B is kept below G. How many boxes are kept above E?

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

Q39. Post 1991 economic reforms, India witnessed significant changes in the banking sector. What is one major reform introduced in the banking sector?

(a) Increase in SLR
(b) Abolition of all private banks
(c) Deregulation of interest rates
(d) Freezing interest rates

Q40. In December 2024, Pooja Sharma was named among BBC's 100 Most Inspiring Women. What remarkable social service is she known for?

(a) Performing last rites for unclaimed bodies
(b) Rescuing abandoned animals
(c) Running a free kitchen
(d) Educating tribal girls

Q41. Which of the following rivers forms the Majuli Island, the world's largest river island?

(a) Mahanadi
(b) Godavari
(c) Brahmaputra
(d) Ganga

Q42. In March 2025, which Indian state experienced violent clashes resulting in multiple injuries over demands to remove the tomb of Mughal emperor Aurangzeb?

(a) Karnataka
(b) Rajasthan
(c) Maharashtra
(d) Uttar Pradesh

Q43. A man receives Rs. 4,900 per month as salary. He saves 17% of his salary every month. His expenditure per month is:

(a) Rs. 4,132
(b) Rs. 3,972
(c) Rs. 4,067
(d) Rs. 4,112

Q44. Mahesh borrowed a sum of Rs. 14,000 at a certain rate of simple interest for 4 years. If he paid an interest of Rs. 3,500 at the end of the period at x% per annum rate of interest, the value of x is:

(a) 7.25
(b) 8.25
(c) 6.25
(d) 5.25

Q45. What is India's rank in Transparency International's 2024 Corruption Perceptions Index?

(a) 98^(th)
(b) 93^(rd)
(c) 96^(th)
(d) 95^(th)

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Q46. Refer to the following number and symbol series and answer the question that follows. Counting to be done from left to right only

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

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

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

Q47. What should come in place of the question mark (?) in the given series based on the English alphabetical order?

MPI KNG ILE GJC ?

(a) EGA
(b) EGB
(c) EHA
(d) EHB

Q48. From the top of a 60 m high building, the angles of depression of the top and bottom of a lamp post are 30° and 60°, respectively. Find the height of the lamp post.

(a) 60 m
(b) 40 √2 m
(c) 60 √3 m
(d) 40 m

Q49. The selling price of 24 books is equal to the cost price of 30 books. Find the loss or gain percentage.

(a) 25% gain
(b) 50/3 % gain
(c) 50/3 % loss
(d) 25% loss

Q50. Which of the following organisms exhibits both autotrophic and heterotrophic modes of nutrition?

(a) Amoeba
(b) Euglena
(c) Plasmodium
(d) Paramecium

Q51. This question is based on the five, three-digit numbers given below. (Left) 194 932 446 225 493 (Right)

(Example- 697 – First digit = 6, second digit = 9 and third digit = 7) (NOTE: All operations to be done from left to right.)

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

(a) 16
(b) 18
(c) 15
(d) 17

Q52. If 2.5 : 40.6 :: 40.6 : x, then find the value of x.

(a) 655.425
(b) 659.344
(c) 658.357
(d) 665.032

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Q53. In everyday life, higher population density in cities like Delhi leads to _____.

(a) stress on the environment
(b) reduced land prices
(c) increased per capita income
(d) decrease in school enrolments

Q54. 2 times the present age of Urvashi is 6 years more than the present age of Ayushi. The present age of Mohan is 4 times the present age of Urvashi, and Ayushi is 8 years younger than Sanju. If the sum of the present ages of Mohan and Sanju is 50 years, then Urvashi's present age (in years) is:

(a) 14
(b) 8
(c) 15
(d) 7

Q55. Simplify the following :

96/39 (91 + 26) - 103

(a) 9
(b) 10
(c) 88
(d) 185

Q56. Why did Mahatma Gandhi travel to Noakhali in 1946?

(a) To support the Bengal famine victims
(b) To organise the Quit India Movement
(c) To lead a protest against British rule
(d) To promote communal harmony after religious violence

Q57. When applying a watermark to an MS Word document, which of the following settings offers the LEAST control over its precise placement and size on each page?

(a) Utilising a predefined watermark template from the 'Watermark' gallery
(b) Inserting a custom picture watermark and adjusting its scale and wash-out settings
(c) Inserting a graphic as a header or footer and positioning it behind the text
(d) Inserting a custom text watermark with specific layout options

Q58. A quadratic equation is given by $x^2 - 6x + k = 0$. Find the value of k for which the equation has equal real roots.

(a) 5
(b) 11
(c) 4
(d) 9

Q59. Select the triad that follows the same pattern as that followed by the two triads given below. Both triads follow the same pattern.

KG-NJ-PR

MI-PL-RT

(a) OK-RN-TU
(b) PK-RN-TU
(c) PK-RM-TU
(d) OK-RN-TV

Q60. This question is based on the five, three-digit numbers given below. (Left) 236 758 230 563 263 (Right)

(Example- 697 – First digit = 6, second digit = 9 and third digit = 7) (NOTE: All operations to be done from left to right.)

What will be the resultant if the first digit of the lowest number is subtracted from the first digit of the highest number?

(a) 5
(b) 4

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(c) 7
(d) 6

Q61. What is the primary focus of the S. Ramakrishnan Centre of Excellence in Fluid and Thermal Science Research 2025?
(a) Renewable energy and sustainability
(b) Robotics and automation
(c) Artificial intelligence and machine learning
(d) Critical advancements in spacecraft and launch vehicle thermal management

Q62. The sum of five numbers is 655. The average of the first two numbers is 77 and the third number is 128. Find the average of the remaining two numbers.
(a) 206
(b) 187.5
(c) 186.5
(d) 205

Q63. What should come in place of the question mark (?) in the given series based on the English alphabetical order?
XCH RWB LQV FKP ?
(a) ZEJ
(b) JZE
(c) JEZ
(d) ZJE

Q64. In a certain code language, 'MOVE' is coded as '4826' and 'IRON' is coded as '1352'.
What is the code for 'O' in the given code language?
(a) 4
(b) 2
(c) 8
(d) 5

Q65. A local train without stoppages runs at an average speed of 88 km/hr, and with stoppages, at an average speed of 24 km/hr. What is the total time (in hours) taken by the local train for stoppages on a route of length 528 km?
(a) 10
(b) 25
(c) 7
(d) 16

Q66. If 'P' stands for '÷', 'Q' stands for '×', 'R' stands for '+' and 'S' stands for '−', then the resultant of which of the following would be 38?
(a) 32 S 8 R 30 Q 16 P 4
(b) 32 R 8 S 30 Q 16 P 4
(c) 32 Q 8 R 30 S 16 P 4
(d) 32 P 8 S 30 R 16 Q 4

Q67. A man spends 75% of his monthly salary on house rent. If every month, he also spends Rs. 653 on conveyance and Rs. 6,229 on grocery and saves the remaining Rs. 446, his monthly salary is:
(a) Rs. 29,251
(b) Rs. 29,230
(c) Rs. 29,312
(d) Rs. 29,308

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Q68. Which of the following scenarios would most likely result in a '#REF!' error in an MS Excel formula?

(a) Entering a formula that exceeds the maximum allowed length in Excel
(b) Referring to a cell that contains a text value in a mathematical operation
(c) Deleting a row or column that contains cells referenced by a formula in another worksheet
(d) Attempting to divide a number by zero within a cell

Q69. Which Act transferred the power of governance from the East India Company to the British Crown?

(a) Charter Act, 1833
(b) Regulating Act, 1773
(c) Government of India Act, 1858
(d) Pitt's India Act, 1784

Q70. The larger of two supplementary angles is 62° more than the smaller one. The smaller angle (in degree) is:

(a) 57°
(b) 59°
(c) 68°
(d) 65°

Q71. Which of the following best describes the shape of a sinusoidal wave signal during one complete cycle?

(a) Rectangular wave
(b) Triangular wave
(c) Square wave
(d) S-shaped wave

Q72. The lines L1 and L2 are parallel lines cut by a transversal. If the measure of one of the corresponding angles is 75°, then what is the measure of the other corresponding angle?

(a) 85°
(b) 65°
(c) 75°
(d) 45°

Q73. Mukesh starts from point A and drives 9 km towards the north. He then takes a right turn, drives 7 km, turns right and drives 10 km. He then takes a right turn and drives 8 km. He takes a final right turn, drives 1 km and stops at point P. How far (shortest distance) and towards which direction should he drive in order to reach point A again? (All turns are 90 degree turns only unless specified.)

(a) 2 km to the west
(b) 1 km to the west
(c) 1 km to the east
(d) 2 km to the east

Q74. What is the average of the following numbers: 14, 16, 27, 31, 39, 44, 51 and 58.

(a) 39
(b) 35
(c) 37
(d) 33

Q75. How many major ragas are there in Carnatic music?

(a) 75
(b) 70
(c) 72
(d) 62

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Q76. Seven boxes, D, E, F, G, S, T and U, are kept one over the other but not necessarily in the same order. Only three boxes are kept below D. Only two boxes are kept between D and U. Only G is kept above T. E is kept at some place below F and at some place above S. Which box is kept at second position from the bottom?

(a) F
(b) S
(c) U
(d) D

Q77. The marked price of a sofa is Rs. 578, which is 34% above the cost price. If the profit percentage is 10%, find the discount percentage (rounded off to two decimal places).

(a) 20.61%
(b) 17.91%
(c) 15.83%
(d) 21.84%

Q78. Each of the digits in the number 4917523 is arranged in the ascending order from left to right. Which of the following digits will be third from the left?

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

Q79. In a certain code language, 'RIPE' is coded as '5987' and 'FIRE' is coded as '8751'. What is the code for 'F' in the given code language?

(a) 1
(b) 7
(c) 5
(d) 8

Q80. What is the mean of the following distribution?

Marks	**12**	**22**	**58**	**79**	**89**
No. of Students	98	74	17	28	44

(a) 53
(b) 22
(c) 38
(d) 60

Q81. 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 keys are doors.

Some doors are cupboards.

All cupboards are big.

Conclusions:

(I) Some keys are doors.

(II) All doors are cupboards.

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

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Q82. 6 is related to 42 following a certain logic. Following the same logic, 4 is related to 28. To which of the following is 7 related, following the same logic?

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

(a) 42
(b) 49
(c) 45
(d) 38

Q83. Which of the following scheduling algorithms is most prone to convoy effect, where a long-running process blocks shorter processes behind it?

(a) First-Come, First-Served (FCFS)
(b) Priority Scheduling (non-preemptive)
(c) Shortest Job First (SJF)
(d) Round Robin

Q84. M is inversely proportional to N. If M is 18, then N is 10. If N = 9, then what is the value of M?

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

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

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

(a) HI - CD
(b) PQ - KL
(c) QR - LM
(d) LK - KJ

Q86. A train overtakes two persons walking along a railway track. The first one walks at 12.6 km/hr. The other one walks at 27 km/hr. The train takes 12.5 and 14 seconds, respectively, to overtake them. What is the speed of the train if both the persons are walking in the same direction as the train?

(a) 154 km/hr
(b) 147 km/hr
(c) 142 km/hr
(d) 143 km/hr

Q87. According to the Economic Survey 2023-24, what percentage of India's population is expected to reside in urban areas by 2030?

(a) 50%
(b) 35%
(c) 45%
(d) 40%

Q88. F is the sister of G. G is the husband of H. H is the daughter of I. I is the husband of J. How is F related to J?

(a) Husband's sister
(b) Daughter's husband's sister
(c) Daughter's husband's mother
(d) Husband's mother

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Q89. A cistern has a hole in the bottom through which the water is leaking. A tap can fill the cistern in 8 hours and the hole in the bottom can empty the fully filled cistern in 12 hours. If both the tap and the hole are open, then what will be the time taken to completely fill the empty cistern?

(a) 24 hours
(b) 36 hours
(c) 44.7 hours
(d) 30.9 hours

Q90. What is the focus of the National Technical Textiles Mission?

(a) Promoting traditional handloom textiles
(b) Growth of technical textiles
(c) Providing subsidies for fashion apparel industry
(d) Import substitution of technical textiles

Q91. What will come in the place of the question mark (?) in the following equation, if '+' and '−' are interchanged and '×' and '÷' are interchanged?

$127 \div 7 + 324 \times 4 - 47 = ?$

(a) 885
(b) 855
(c) 755
(d) 795

Q92. Which of the following statements regarding the Industrial Sector in India post the launch of the New Economic Policy in 1991 is/are NOT correct?

1. Compulsory licensing on several industries was abolished.
2. Many industries that were only reserved for the government were dereserved.
3. There was quota and price control for all the goods produced in the industrial sector.

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

Q93. Which feature in MS-PowerPoint 2019 allows you to reuse slides from another presentation without copying content manually?

(a) Animation Painter
(b) Reuse Slides (under the Home tab)
(c) Format Painter
(d) Slide Master

Q94. In April 2025, India launched a strategic initiative to boost its defence exports by offering low-cost loans to countries traditionally reliant on Russian arms. Which Indian institution is primarily responsible for facilitating these loans?

(a) Export-Import Bank of India (EXIM Bank)
(b) Reserve Bank of India (RBI)
(c) National Bank for Agriculture and Rural Development (NABARD)
(d) State Bank of India (SBI)

Q95. The compound interest earned in 1 year on Rs. 4,80,000 at the rate of 20% per annum, compounded quarterly, is:

(a) Rs. 1,04,200
(b) Rs. 1,04,435
(c) Rs. 1,03,443
(d) Rs. 1,04,227

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Q96. To promote agricultural exports and global competitiveness, reforms were extended to the agricultural sector as well. Which of the following initiatives aims to create a seamless national market for agricultural commodities?

(a) e-NAM
(b) APMC Act
(c) PM-KISAN
(d) Kisan Credit Card

Q97. The value of 43 + [2 + { 55 - (28 ÷ 7)} ÷ 3] is:

(a) 68
(b) 55
(c) 62
(d) 65

Q98. Where is the Indian naval air station INS Baaz located?

(a) Great Nicobar Island
(b) Minicoy Island
(c) Little Andaman Island
(d) Car Nicobar Island

Q99. A, B, C, D, E, F and G are sitting around a circular table facing the centre. A sits third to the right of G. C sits second to the right of D. G is not an immediate neighbour of C. E sits to the immediate left of B. How many people sit between D and B when counted from the left of D?

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

Q100. Four numbers are in the ratio of 16 : 10 : 9 : 17 respectively. If the sum of these four numbers is 6292, then what is the sum of the first and the third number?

(a) 3074
(b) 3070
(c) 3025
(d) 3031

ANSWER KEY

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

SOLUTIONS

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Q1. Answer: (c) 922

The logic followed here is:

Hence, "Option 3" is the correct answer.

Q2. Answer: (a) 44

Shortcut Trick

Let the smaller number be x and the greater be x + 2880.

Using Division Algorithm: Greater = 6 × Smaller + 120

x + 2880 = 6x + 120 => 5x = 2760 => x = 552.

Greater number = 552 + 2880 = 3432.

HCF(3432, 3916): 3916 − 3432 = 484. Factors of 484 are 44 × 11. Checking 44: 3432 ÷ 44 = 78, 3916 ÷ 44 = 89.

Therefore The correct answer is 44.

Alternate Method

Given: Difference = 2880, Quotient = 6, Remainder = 120.

Let the smaller number be S and the greater number be G.

=> G − S = 2880 --- (i)

=> G = 6S + 120 --- (ii)

Substitute (ii) in (i):

=> (6S + 120) − S = 2880

=> 5S + 120 = 2880

=> 5S = 2760

=> S = 552

Calculating the Greater Number (G):

=> G = 552 + 2880 = 3432

Finding HCF(3432, 3916) using long division or factor method:

=> 3916 = 3432 × 1 + 484

=> 3432 = 484 × 7 + 44

=> 484 = 44 × 11 + 0

Therefore The correct answer is 44.

Additional Information

Division Algorithm

For any two integers, Dividend = (Divisor × Quotient) + Remainder, where 0 ≤ Remainder < Divisor.

Euclidean Algorithm for HCF

HCF of two numbers a and b is the same as the HCF of b and the remainder of a/b. This continues until the remainder is zero.

HCF and Difference Rule

The HCF of two numbers must also be a factor of their difference. This often helps in narrowing down options quickly.

Q3. Answer: (b) 57

Shortcut Trick

Arrange the data in ascending order: 13, 25, 27, 28, 43, 57, 73, 77, 81, 87, 89.

Count the total number of terms (n) = 11 (which is an odd number).

The median is the middle-most term, which is the ((11 + 1) ÷ 2) = 6^(th) term.

The 6^(th) term in the sorted sequence is 57.

Therefore The correct answer is 57.

Alternate Method

Given: Data set = {13, 43, 81, 27, 25, 28, 87, 57, 77, 89, 73}

Formula Used: Median = ((n + 1) ÷ 2)^(th) term, where n is the number of observations (when n is odd).

=> Arrange the observations in ascending order: 13, 25, 27, 28, 43, 57, 73, 77, 81, 87, 89

=> Total number of observations (n) = 11

=> Median = ((11 + 1) ÷ 2)^(th) observation

=> Median = 6^(th) observation

=> Median = 57

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Therefore The correct answer is 57.

Additional Information

Median for Even Number of Terms

If the number of observations (n) is even, the median is the average of the (n ÷ 2)^(th) and ((n ÷ 2) + 1)^(th) terms.

Arithmetic Mean

The mean is the sum of all observations divided by the total number of observations (Sum ÷ n).

Mode

The mode is the value that occurs most frequently in a data set. A data set can be unimodal, bimodal, or multimodal.

Q4. Answer: (b) 160

Shortcut Trick

Given: CSA = 5904π, Radius (r) = 36 cm.

Using CSA = πrl => 5904π = π × 36 × l

l = 5904 ÷ 36 = 164 cm.

Height h = √(l² − r²) = √(164² − 36²) = √((164 − 36)(164 + 36)) = √(128 × 200) = √25600 = 160 cm.

Therefore The correct answer is 160 cm.

Alternate Method

Given:

Curved Surface Area (CSA) = 5904π cm²

Diameter (d) = 72 cm => Radius (r) = 72 ÷ 2 = 36 cm

Formula Used:

1. Curved Surface Area (CSA) of cone = πrl

2. Slant height (l) = √(h² + r²) => h = √(l² − r²)

Calculations:

=> π × 36 × l = 5904π

=> 36 × l = 5904

=> l = 5904 ÷ 36

=> l = 164 cm

=> h² = l² − r²

=> h² = 164² − 36²

=> h² = (164 − 36)(164 + 36)

=> h² = 128 × 200

=> h² = 25600

=> h = √25600 = 160 cm

Therefore The correct answer is 160 cm.

Additional Information

Total Surface Area of Cone

The total surface area includes the curved surface area and the base area: TSA = πr(l + r).

Volume of Cone

The volume of a right circular cone is exactly one-third of the volume of a cylinder with the same radius and height: V = (1/3)πr²h.

Pythagorean Relation

In a right circular cone, the height (h), radius (r), and slant height (l) always form a right-angled triangle: l² = h² + r².

Q5. Answer: (a) Satpura Range

The correct answer is Satpura Range.

Key Points

• The Tapti River originates from Multai, located in the Satpura Range of Madhya Pradesh, India.

• The Tapti River flows westward, one of the few rivers in peninsular India to do so, and drains into the Arabian Sea.

• It is approximately 724 km long, making it one of the major rivers of central India.

• The Tapti River passes through three states: Madhya Pradesh, Maharashtra, and Gujarat.

• The river is known for supporting agricultural activities in its basin, which covers a total area of around 65,145 square kilometers.

Additional Information

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• Satpura Range:
• The Satpura Range is a hill range in central India, stretching across Madhya Pradesh and Maharashtra.
• The range is a part of the Deccan Plateau and is known for its rich biodiversity and dense forests.
• Prominent peaks in the Satpura Range include Dhupgarh (the highest point in Madhya Pradesh) and Pachmarhi.
• It is an important source of rivers such as the Tapti, Narmada, and Godavari.
• Westward Flowing Rivers in India:
• Most rivers in India flow eastward towards the Bay of Bengal; however, a few like the Tapti, Narmada, and Mahi flow westward.
• These rivers drain into the Arabian Sea, contributing significantly to the western coastal ecosystem.
• Arabian Sea Drainage System:
• The Tapti River forms part of the Arabian Sea drainage system along with other westward flowing rivers.
• These rivers often carve narrow valleys and are important for irrigation and hydroelectric projects.
• Multai:
• Multai is a town in Madhya Pradesh known as the origin point of the Tapti River.
• The name "Tapti" is derived from the goddess Tapti, worshipped in Hindu mythology.

Q6. Answer: (c) To search for specific text and replace it with other text

The correct answer is To search for specific text and replace it with other text.

Key Points

• The Find and Replace feature in MS Word 2019 is used to locate specific text or phrases within a document and replace them with alternative text if required.
• It is accessed using the keyboard shortcut Ctrl + H or through the "Home" tab in the "Editing" group.
• This feature enables users to make bulk changes in a document efficiently, saving time and effort for repetitive edits.
• Advanced options in "Find and Replace" allow users to search for text with specific formatting, such as bold, italic, or specific fonts, and replace it with similar or modified formatting.
• It helps in maintaining consistency across large documents by ensuring uniform corrections or modifications.

Additional Information

• Search Options in Find and Replace:
• Users can perform case-sensitive searches by enabling the "Match Case" option.
• The "Find Whole Words Only" option ensures only complete words matching the search term are located.
• Wildcard characters can be used to perform advanced and flexible searches.
• Go To Feature:
• The "Go To" tab within the Find and Replace dialog box allows users to navigate to specific pages, sections, or line numbers in a document.
• Formatting Search:
• Users can search for text with specific formatting attributes, such as font size, color, or paragraph settings, using the "Format" option in the dialog box.
• Limitations:
• The feature does not support searching for non-text elements such as images or tables directly.
• Complex edits may require manual intervention despite using the Replace function.
• Applications:
• Ideal for editing large documents, such as legal contracts, research papers, or reports, where repetitive terms or formatting need adjustment.

Q7. Answer: (d) 1 : 4

Shortcut Trick

Put the direct values of a = 5 and b = 3 into the expression.

Expression = (3 × 5 − 2 × 3) : (6 × 5 + 2 × 3)

Expression = (15 − 6) : (30 + 6) = 9 : 36

Simplified Ratio = 1 : 4

Therefore The correct answer is 1 : 4.

Alternate Method

Given: Ratio a : b = 5 : 3

Formula Used: Ratio substitution method where a = 5k and b = 3k.

=> Let a = 5k and b = 3k

=> Required Ratio = (3a − 2b) / (6a + 2b)

=> Required Ratio = [3(5k) − 2(3k)] / [6(5k) + 2(3k)]

=> Required Ratio = (15k − 6k) / (30k + 6k)

=> Required Ratio = 9k / 36k

=> Required Ratio = 1 / 4

Therefore The correct answer is 1 : 4.

Additional Information

Componento and Dividendo

If a/b = c/d, then (a+b)/(a−b) = (c+d)/(c−d), used to simplify complex fractional ratios.

Duplicate and Sub-duplicate Ratio

Duplicate ratio of a:b is $a^2:b^2$ and sub-duplicate ratio is √a:√b.

Inverse Ratio

The inverse ratio of a : b is 1/a : 1/b, which simplifies to b : a.

Q8. Answer: (c) English

The correct answer is English.

Key Points

• Bal Gangadhar Tilak, a key leader of the Indian independence movement, was a staunch nationalist and one of the pioneers of the extremist faction.

• Tilak edited two newspapers: 'Kesari', published in Marathi, and 'Mahratta', published in English.

• The newspaper 'Mahratta' was founded to promote nationalism and disseminate Tilak's political ideologies among educated Indians.

• Through his writings in 'Mahratta', Tilak criticized British policies and advocated for Swaraj (self-rule).

• The English-language newspaper was instrumental in reaching a wider audience, including educated Indians and intellectuals across the country.

Additional Information

• Bal Gangadhar Tilak:

• He was popularly known as 'Lokmanya Tilak', meaning 'accepted by the people as their leader.'

• He is regarded as the 'Father of Indian Unrest' due to his strong opposition to British rule.

• Tilak was one of the first leaders to demand complete independence (Purna Swaraj) for India.

• His famous slogan was "Swaraj is my birthright, and I shall have it."

• 'Kesari' and 'Mahratta' Newspapers:

• 'Kesari' (Marathi) and 'Mahratta' (English) were used as platforms to spread anti-colonial sentiments.

• 'Kesari' was especially influential among the Marathi-speaking population.

• Both newspapers played a crucial role in inspiring Indians to fight for independence.

• Concept of Swaraj:

• Swaraj, meaning self-rule, was a central theme of Tilak's political philosophy.

• Tilak believed in empowering Indians politically, culturally, and economically to achieve independence.

• His ideas laid the foundation for future leaders like Mahatma Gandhi in the struggle for freedom.

• Legacy:

• Bal Gangadhar Tilak remains one of the most respected and influential leaders of India’s freedom struggle.

• His contributions continue to be studied and celebrated in Indian political and historical discourse.

Q9. Answer: (d) FB-IE-LN

The logic followed here is:

NJ-QM-TV

And,

JF-MI-PR

So, checking each option one by one:

Option 1) GB-IE-LM

Option 2) GB-ID-LM

Option 3) FB-IE-LM

Option 4) FB-IE-LN

Thus, out of all the options, 'FB-IE-LN' follows the same logic as given.

Hence, "Option 4" is the correct answer.

Q10. Answer: (a) 53

The logic followed here is:

Hence, "Option 1" is the correct answer.

Q11. Answer: (c) Seven

The correct answer is Seven.

Key Points

• India Infoline Finance Limited (IIFL Finance) is one of India's leading non-banking financial companies (NBFCs) offering diversified financial services.

• On the occasion of Women's Day (8 March 2025), IIFL Finance rebranded seven of its existing branches as all-women staffed 'Shakti' branches.

• The 'Shakti' branches aim to promote women empowerment by creating an inclusive workplace environment and serving as centers for women-led financial services.

• These branches are staffed entirely by women and are designed to provide financial products and services tailored to women entrepreneurs and customers.

• The initiative emphasizes IIFL Finance's commitment to gender diversity and the empowerment of women in the financial sector.

Additional Information

• Non-Banking Financial Companies (NBFCs):

• NBFCs are financial institutions that provide banking services without meeting the legal definition of a bank.

• They offer products such as loans, asset financing, and investment products but cannot accept demand deposits like savings accounts.

• NBFCs play a critical role in financial inclusion, especially in rural and underserved areas.

• Women Empowerment in Finance:

• Empowering women in the financial sector includes promoting gender diversity, leadership roles, and equal opportunities.

• Initiatives like all-women branches encourage women's participation in economic decision-making.

• Importance of Women's Day:

• International Women's Day, celebrated annually on March 8, highlights the social, economic, cultural, and political achievements of women.

• The day is also a call to action for accelerating gender parity and women's rights worldwide.

• Financial Products for Women:

• Several financial institutions offer customized products for women, including lower interest rates on loans and exclusive savings accounts.

• These products aim to encourage women's entrepreneurship and financial independence.

Q12. Answer: (c) 18

Shortcut Trick

Net efficiency = 4 (fill) − 3 (empty) = 1 unit/hour.

Total Capacity (LCM of 18, 24) = 72 units.

One-fourth of the tank = 72 ÷ 4 = 18 units.

Time taken = 18 units ÷ 1 unit/hour = 18 hours.

Therefore The correct answer is 18 hours.

Alternate Method

Given: Filling Tap (A) time = 18 hours, Emptying Tap (B) time = 24 hours.

Formula Used: Efficiency = Total Work ÷ Time; Required Time = Required Work ÷ Net Efficiency.

Tap	Time (hours)	Total Capacity (LCM)	Efficiency
Tap A (Fill)	18	72	+4
Tap B (Empty)	24	−3	

=> Net efficiency when both open = 4 + (−3) = 1 unit/hour.

=> Work to be done = 1/4 × Total Capacity = 1/4 × 72 = 18 units.
=> Time required = 18 ÷ 1 = 18 hours.
Therefore The correct answer is 18 hours.
Additional Information
Net Work Done
When one pipe fills and another empties, net work per hour = (1/x − 1/y), where x is filling time and y is emptying time.
LCM Method
Always assume total capacity as the LCM of individual times to avoid working with complex fractions.
Inlet and Outlet Pipes
Inlet pipes have positive efficiency (+), whereas outlet/leakage pipes have negative efficiency (−).

Q13. Answer: (b) R

Given: P, Q, R, S, T, U and V have an exam on different days of the week, starting on Monday and ending on Sunday.
1) S has an exam on Tuesday.
2) Exactly 3 people have an exam between S and V.

Weekdays	Person
Monday	
Tuesday	S
Wednesday	
Thursday	
Friday	
Saturday	V
Sunday	

3) T has an exam immediately before P and U has an exam immediately after P.

Weekdays	Person
Monday	
Tuesday	S
Wednesday	T
Thursday	P
Friday	U
Saturday	V
Sunday	

4) Only 1 person has an exam between T and R.
After positioning R only one position is left which will be occupied by the only person left i.e. Q.

Weekdays	Person
Monday	R
Tuesday	S
Wednesday	T
Thursday	P
Friday	U
Saturday	V
Sunday	Q

Thus, R has an exam on Monday.

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Hence, "Option 2" is the correct answer.

Q14. Answer: (a) = POL, % = IHE

The logic followed here is:

Given: # : MLI :: LKH : %

Option 1) # = POL, % = IHE → POL : MLI :: LKH : IHE

Option 2) # = FRL, % = QHE → FRL : MLI :: LKH : QHE

Option 3) # = UIL, % = IXC → UIL : MLI :: LKH : IXC

Option 4) # = FRL, % = QHF → FRL : MLI :: LKH : QHF

Hence, "Option 1" is the correct answer.

Q15. Answer: (b) Nagar Panchayats

The correct answer is Nagar Panchayats.

Key Points

• es Nagar Panchayats are urban local bodiestablished under the provisions of the 74th Constitutional Amendment Act, 1992.

• They are constituted for areas transitioning from rural to urban due to population growth or other factors of urbanization.

• The primary purpose of Nagar Panchayats is to manage urban governance in these transitional areas while ensuring smooth administrative operations.

• As per the Constitution, Nagar Panchayats are recognized as one of the three types of municipal entities: Municipal Corporations, Municipal Councils, and Nagar Panchayats.

• Nagar Panchayats consist of elected representatives and function under the control of the state government, addressing urban planning, development, and basic infrastructure needs.

Additional Information

• 74th Constitutional Amendment Act, 1992

• This amendment introduced the concept of urban local bodies, including Municipal Corporations, Municipal Councils, and Nagar Panchayats.

• It provided constitutional recognition to local governance and decentralized decision-making in urban areas.

• The act aimed at empowering urban local bodies to function as institutions of self-government under Article 243Q.

• Urbanization in India

• India's urban population is steadily growing due to migration, industrialization, and expansion of economic opportunities.

• Transitional areas often require structured urban governance to address challenges like housing, sanitation, and infrastructure.

• Difference Between Nagar Panchayats and Rural Bodies

• While rural bodies like Gram Panchayats cater to villages, Nagar Panchayats focus on urban governance in transitioning areas.

• Nagar Panchayats deal with urban challenges such as traffic management, waste disposal, and urban planning.

• Role of State Governments

• State governments play a crucial role in defining the criteria for establishing Nagar Panchayats.

• They provide funds, guidance, and administrative support to enable effective urban governance.

Q16. Answer: (d) 2 km to the west

Given:

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

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

He then takes a left turn and drives 11 km.

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

Thus, Radhe should drive 2 km (11 km - 9 km) in the west direction in order to reach Point A again.

Hence, "Option 4" is the correct answer.

Q17. Answer: (c) 2.8%

The correct answer is 2.8%.

Key Points

• As per the IMF's April 2025 Global Financial Stability Report, the revised global growth forecast for 2025 is 2.8%.

• The IMF slightly adjusted its global economic outlook due to persistent inflationary pressures and geopolitical uncertainties.

• Developing economies are expected to contribute significantly to global growth, with a stronger rebound in sectors like

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manufacturing and services.

• Advanced economies are predicted to experience slower growth due to tightening monetary policies and sluggish consumer demand.

• The revised forecast reflects a cautious optimism, with the IMF emphasizing the need for structural reforms to sustain long-term economic resilience.

Additional Information

• International Monetary Fund (IMF):

• Established in 1944, the IMF aims to foster global monetary cooperation, secure financial stability, and promote sustainable economic growth.

• It publishes the Global Financial Stability Report biannually to analyze the stability of global financial markets and emerging risks.

• Global Growth Trends:

• Global growth rates fluctuate based on factors like inflation, trade policies, geopolitical conflicts, and technological advancements.

• Growth projections are essential for policymakers to plan fiscal and monetary interventions.

• Inflationary Pressures:

• Inflation impacts consumer purchasing power and overall economic activity, influencing growth forecasts.

• Central banks often adjust interest rates to manage inflation and stabilize economies.

• Structural Reforms:

• Reforms like enhancing labor market flexibility, improving infrastructure, and reducing trade barriers can boost long-term growth potential.

• Such measures are pivotal for emerging markets aiming for sustainable economic development.

Q18. Answer: (a) Constitutional outline for governance

The correct answer is Constitutional outline for governance.

Key Points

• The 74th Amendment Act, 1992, provided a constitutional status to Urban Local Bodies (ULBs), ensuring their governance framework under the Indian Constitution.

• The amendment added Part IX-A (The Municipalities) to the Constitution, detailing the structure, composition, and functions of ULBs.

• It mandated the creation of three types of municipalities: Nagar Panchayats, Municipal Councils, and Municipal Corporations, based on population size.

• It introduced the concept of decentralized governance, empowering ULBs to plan and implement development programs and manage local resources effectively.

• The act also provided for the establishment of a State Finance Commission (SFC) to allocate financial resources to these bodies, ensuring fiscal autonomy.

Additional Information

• Part IX-A of the Constitution:

• Introduced by the 74th Amendment, it provides a constitutional framework for urban governance.

• It includes Articles 243P to 243ZG, outlining the composition, powers, and responsibilities of municipalities.

• State Finance Commission (SFC):

• Established under Article 243-I, it ensures equitable distribution of financial resources between the state government and ULBs.

• The SFC reviews financial positions of ULBs and recommends measures for their fiscal sustainability.

• District Planning Committees (DPCs):

• Mandated under Article 243ZD, DPCs integrate plans prepared by Panchayats and Municipalities into a cohesive district development plan.

• Empowered Municipalities:

• The 12th Schedule of the Constitution lists 18 functional areas for ULBs, including urban planning, water supply, sanitation, and public health.

• This ensures enhanced autonomy and accountability in addressing local governance issues.

Q19. Answer: (a) TX – ZV

The logic followed here is:

Option 1) TX – ZV

Option 2) CG – ID

Option 3) MQ – SN

Option 4) HL – NI

Thus, out of all 'TX – ZV' is the odd one out.

Hence, "Option 1" is the correct answer.

Q20. Answer: (a) The State Governor

The correct answer is The State Governor.

Key Points

• Under Article 217 of the Indian Constitution, the President is required to consult the Chief Justice of India, the Chief Justice of the respective High Court, and the Governor of the concerned State before appointing judges to the High Courts.

• The role of the State Governor in this process is advisory, and the final decision is made by the President.

• The consultation process ensures the appointment of qualified and unbiased individuals to the judiciary, maintaining the integrity of the judicial system.

• The Chief Justice of India plays a critical role in providing recommendations to the President based on merit and judicial expertise.

• This constitutional provision is designed to promote a collaborative process involving key stakeholders in the judiciary and executive.

Additional Information

• Article 217 of the Constitution of India:

• It deals with the appointment and conditions of service of High Court judges.

• The President appoints judges after consultation with the Chief Justice of India, the Governor of the concerned state, and sometimes other judges as deemed necessary.

• Role of the Chief Justice of India:

• The Chief Justice of India provides recommendations to the President, ensuring judicial appointments are based on merit and integrity.

• This role is crucial for maintaining the independence of the judiciary.

• High Court Judges:

• They are responsible for adjudicating cases and upholding the Constitution within their respective jurisdictions.

• High Court judges hold office until the age of 62.

• Governor's Advisory Role:

• The Governor of the state provides input during the consultation process, representing the state’s interests.

• While the Governor’s role is advisory, the President has the final say in judicial appointments.

Q21. Answer: (b) Sayyid Dynasty

The correct answer is Sayyid Dynasty.

Key Points

• The Sayyid Dynasty ruled Delhi Sultanate from 1414 to 1451 CE after the fall of the Tughlaq Dynasty.

• The founder of the dynasty, Khizr Khan, claimed to be a descendant of the Prophet Muhammad through his lineage.

• Yahya bin Ahmad Sirhindi, a chronicler of the era, documented the claim of Khizr Khan's prophetic descent in his historical works.

• The Sayyids were known for their relatively weak control over the Delhi Sultanate and faced constant challenges from regional rulers.

• The dynasty ended when Bahlul Lodi established the Lodi Dynasty in 1451 CE, marking the end of the Sayyid rule.

Additional Information

• Delhi Sultanate:

• The Delhi Sultanate was a series of Islamic dynasties that ruled over India from 1206 to 1526 CE.

• It consisted of five dynasties: Slave Dynasty, Khilji Dynasty, Tughlaq Dynasty, Sayyid Dynasty, and Lodi Dynasty.

• The Sultanate played a significant role in the cultural and architectural development of India, introducing Persian art and Islamic architecture.

• Khizr Khan:

• Khizr Khan was the founder of the Sayyid Dynasty and ruled from 1414 to 1421 CE.

• He was appointed as the governor of Multan by Timur before ascending to power in Delhi.

• Khizr Khan did not assume the title of Sultan but ruled as a vassal of the Timurid Empire.

• Yahya bin Ahmad Sirhindi:

• He was a historian during the Sayyid period and authored the Tarikh-i-Mubarak Shahi, which chronicles the history of the Delhi Sultanate.

• His works provide valuable insights into the political, social, and cultural aspects of the era.

• Timur's Invasion of Delhi:

• Timur invaded Delhi in 1398 CE, leading to massive destruction and weakening the Tughlaq Dynasty.

• This invasion set the stage for the rise of the Sayyid Dynasty, which emerged as Timur's vassal rulers in Delhi.

Q22. Answer: (a) Jayashree Vencatesan

The correct answer is Jayashree Vencatesan.

Key Points

• Jayashree Vencatesan was awarded the Ramsar Award for "Wetland Wise Use" in March 2025 for her significant contributions to wetland conservation and sustainable management.

• The Ramsar Award recognizes individuals, organizations, and governments for exceptional efforts in the conservation and wise use of wetlands.

• Jayashree Vencatesan is a renowned environmentalist and the managing trustee of Care Earth Trust, an organization working on biodiversity conservation.

• Her work includes promoting community-based wetland management and advocating for policies that ensure the ecological and socio-economic sustainability of wetlands.

• The Ramsar Award is one of the most prestigious global recognitions in the field of wetland conservation, presented by the Ramsar Convention on Wetlands.

Additional Information

• Ramsar Convention:

• It is an international treaty adopted in 1971 in Ramsar, Iran, aimed at conserving wetlands and promoting their sustainable use.

• The convention designates specific wetlands as "Ramsar Sites" for their ecological significance.

• Wetlands play a crucial role in biodiversity conservation, water purification, flood control, and climate regulation.

• Wetland Wise Use:

• Wise use refers to the sustainable utilization of wetlands to maintain their ecological character.

• It ensures that wetland resources are used in a way that benefits both biodiversity and local communities.

• India and Ramsar Sites:

• India is home to over 75 Ramsar Sites, making it one of the countries with the highest number of wetlands designated under the Ramsar Convention.

• These sites include Sundarbans, Chilika Lake, and Keoladeo National Park, among others.

• Care Earth Trust:

• Care Earth Trust is a Chennai-based NGO focused on biodiversity conservation and ecosystem management.

• It works extensively on wetland restoration, urban biodiversity, and climate change mitigation strategies.

Q23. Answer: (b) Dual citizenship

The correct answer is Dual citizenship.

Key Points

• The Citizenship Act, 1955 governs the acquisition, determination, and termination of Indian citizenship.

• India does not allow dual citizenship. A citizen of India cannot hold citizenship of another country simultaneously.

• The Act provides for citizenship through five modes: birth, descent, registration, naturalization, and incorporation of territory.

• Dual citizenship is not permitted because India follows a policy of single citizenship, ensuring uniform national identity and allegiance.

• Indian citizens acquiring foreign citizenship must renounce their Indian citizenship as per the provisions of the Act.

Additional Information

• Naturalization:

• Naturalization is a mode of acquiring citizenship for foreign nationals who fulfill eligibility criteria like residence in India for a specified period and good character.

• Applicants must renounce their citizenship of another country to become Indian citizens.

• Descent-based Citizenship:

• A person born outside India is considered an Indian citizen by descent if either of their parents is an Indian citizen.

• Specific conditions apply based on the date of birth and registration requirements under the Citizenship Act, 1955.

• Registration:

• Citizenship through registration is available for individuals like persons of Indian origin or spouses of Indian citizens who meet prescribed conditions.

• They must reside in India for a specific period before applying for registration.

• Overseas Citizenship of India (OCI):

• Though dual citizenship is not allowed, the government offers the OCI scheme for people of Indian origin who are citizens of other countries.

• OCI status provides several rights but does not equate to full citizenship, such as voting rights or eligibility for government jobs.

• Renunciation and Termination of Citizenship:

• Citizenship can be renounced voluntarily by individuals or terminated by the government in case of fraud or disloyalty.

• The Act specifies detailed procedures for renunciation and termination to ensure compliance with legal frameworks.

Q24. Answer: (a) Kazan

The correct answer is Kazan.

Key Points

• The 2024 BRICS Summit was hosted in Kazan, Russia, from October 22-24, 2024.

• Kazan is the capital city of the Republic of Tatarstan, Russia, and is known for its rich cultural heritage and history.

• The summit focused on key issues like economic cooperation, global governance reform, sustainable development, and technological collaboration among BRICS nations.

• BRICS comprises five major economies: Brazil, Russia, India, China, and South Africa, collectively representing approximately 42% of the world's population and 27% of global GDP.

• This summit marked the continuation of discussions on expanding the BRICS group and enhancing intra-member trade in local currencies.

Additional Information

• BRICS Overview:

• BRICS was established in 2009 as a platform for economic and political cooperation among emerging economies.

• Its members aim to reform global financial institutions like the IMF and World Bank to better reflect the interests of developing nations.

• Kazan's Significance:

• Kazan is a prominent city in Russia, known for its unique blend of Eastern and Western cultures.

• It is a UNESCO-recognized city for its historical landmarks, including the Kazan Kremlin, a World Heritage site.

• Key Outcomes of the 2024 BRICS Summit:

• Discussions on the establishment of a new development bank to enhance financial collaboration among BRICS nations.

• Agreements to promote the use of national currencies for trade within BRICS countries, reducing reliance on the US dollar.

• Commitments toward advancing green energy projects and combating climate change.

• Future of BRICS:

• Continued efforts to include more member countries, enhancing the group's global influence.

• Focus on achieving equitable growth and sustainable development across member nations.

Q25. Answer: (a) The power of the judiciary to pronounce upon the constitutionality of laws and executive orders

The correct answer is the power of the judiciary to pronounce upon the constitutionality of laws and executive orders.

Key Points

• Judicial review in India is a power granted to the judiciary to examine the constitutionality of legislative acts and executive orders.

• This principle ensures that laws and executive actions do not violate the provisions of the Constitution of India.

• The concept is derived from Article 13, which states that any law inconsistent with the Constitution shall be void.

• Judicial review in India encompasses reviewing administrative decisions, legislative enactments, and constitutional amendments.

• It acts as a crucial mechanism for maintaining the supremacy of the Constitution and protecting fundamental rights.

Additional Information

• Judicial Review

• Judicial review originated in the United States through the landmark case of Marbury v. Madison (1803).

• It ensures checks and balances among the three organs of the government: executive, legislature, and judiciary.

• In India, judicial review is limited compared to the United States but is pivotal in safeguarding constitutional democracy.

• Articles Related to Judicial Review in India

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• Article 13: Declares that laws inconsistent with or in derogation of fundamental rights are void.
• Article 32: Provides the right to constitutional remedies, allowing citizens to approach the Supreme Court for enforcement of rights.
• Article 226: Empowers High Courts to issue orders or writs for enforcement of fundamental rights and other purposes.
• Types of Judicial Review
• Review of Legislative Actions: Ensures that laws passed by the legislature adhere to constitutional provisions.
• Review of Executive Actions: Examines the validity of decisions made by the executive branch.
• Review of Constitutional Amendments: Determines whether amendments violate the basic structure of the Constitution.
• Basic Structure Doctrine
• This doctrine was established in the landmark Keshavananda Bharati Case (1973).
• The judiciary can strike down constitutional amendments if they violate the essential features of the Constitution.
• Examples of basic structure elements include the supremacy of the Constitution, secularism, and judicial independence.

Q26. Answer: (b) 6

According to the given information,

Thus, 'S' is coded as '6'.

Hence, "Option 2" is the correct answer.

Q27. Answer: (d) 6

Given:

√0.028224/√0.000784

Calculation:

√0.028224/√0.000784

=> (√(0.028224 × 10^6))/(√(0.000784 × 10^6))

=> √28224/√784

=> √28224/√784

=> √36

=> 6

Therefore The simplified value of the expression is 6.

Q28. Answer: (c) Cumene process, cumene hydroperoxide

The correct answer is Cumene process, cumene hydroperoxide.

Key Points

• The Cumene process, also known as the Hock process, is the most widely used industrial method for producing phenol globally.
• The process involves the oxidation of cumene (isopropylbenzene) to form cumene hydroperoxide as an intermediate.
• Cumene hydroperoxide is then cleaved to produce phenol and acetone as major products.
• This method is preferred due to its economic efficiency and the simultaneous production of acetone, which is a valuable byproduct.
• The process is primarily conducted in large-scale petrochemical plants and is used extensively in the production of plastics, resins, and other industrial materials.

Additional Information

• Cumene (Isopropylbenzene):
• Cumene is an organic compound derived from benzene and propylene.
• It serves as the precursor for the production of phenol and acetone via the Cumene process.
• Its synthesis involves Friedel-Crafts alkylation of benzene with propylene.
• Phenol:
• Phenol is an aromatic organic compound with the molecular formula C6H5OH.
• It is widely used in the production of plastics, resins, and other industrial chemicals such as bisphenol A.
• Phenol is also utilized in pharmaceuticals, dyes, and antiseptics.
• Acetone:
• Acetone (CH3COCH3) is a colorless, volatile solvent and a major byproduct of the Cumene process.
• It is commonly used in the production of acrylic plastics and as a solvent in various industries.
• Acetone is also used in household applications like nail polish removers.

• Industrial Importance of the Cumene Process:
• The Cumene process accounts for the majority of phenol production globally due to its cost-effectiveness.
• The co-production of acetone enhances the economic feasibility of the process.
• Advancements in catalyst technology have improved the efficiency and environmental sustainability of the process.

Q29. Answer: (b) Trushula Gumpha

The correct answer is Trushula Gumpha.

Key Points

• Trushula Gumpha at Khandagiri in Odisha is renowned for its intricate carvings of twenty-four Jain Teerthankars.
• The carvings depict the Jain Teerthankars in meditative poses, showcasing a deep connection to Jain spirituality and philosophy.
• Khandagiri and Udayagiri caves are significant archaeological sites that date back to the reign of King Kharavela of the Mahameghavahana dynasty.
• Trushula Gumpha stands out for its artistic and religious importance, reflecting the influence of Jainism in ancient Odisha.
• The caves are located near Bhubaneswar and are visited for their historical, architectural, and religious significance.

Additional Information

• Jain Teerthankars:
• The Teerthankars are revered spiritual teachers in Jainism who have attained liberation and enlightenment.
• There are twenty-four Jain Teerthankars, with Lord Mahavira being the last and most significant.
• Khandagiri and Udayagiri Caves:
• These caves are part of a historical site that represents Jain rock-cut architecture.
• They were carved during the reign of King Kharavela in the 1st century BCE.
• The site consists of numerous caves with inscriptions and carvings depicting Jain teachings and practices.
• King Kharavela:
• He was a ruler of the Mahameghavahana dynasty in ancient Odisha.
• Kharavela is known for his patronage of Jainism and contributions to art and architecture.
• The famous Hathi Gumpha inscription provides insights into his reign and achievements.
• Jain Rock-Cut Architecture:
• It involves carving sanctuaries, temples, and monasteries into natural rock formations.
• The architecture is marked by simplicity, reflecting Jain principles of non-attachment and minimalism.

Q30. Answer: (d) 6

Given number: 3154872

According to the question,

Number given	**3**	**1**	**5**	**4**	**8**	**7**	**2**
Odd digit → (+1) Even digit → (-2)	(+1)	(+1)	(+1)	(-2)	(-2)	(+1)	(-2)
Resultant number	4	2	6	2	6	8	0

So, the difference between the digits which are second from the left and second from the right in the new number thus formed → 8 - 2 = 6

Hence, "Option 4" is the correct answer.

Q31. Answer: (c) LMI

The logic followed here is:

IJF is related to PQM

And,

RSO is related to YZV

Similarly,

EFB is related to

Hence, "Option 3" is the correct answer.

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Q32. Answer: (c) 676

Shortcut Trick

Volume of 1 cube = $3.6^3 = 46.656$ cm³

Volume of machine part = $(1/3) \times 3.14 \times 5.4^2 \times (49 + 35) = 2563.9104$ cm³

Number of cubes used = $2563.9104 \div 46.656 = 55$

Surplus cubes = $731 - 55 = 676$

Therefore The correct answer is 676 cubes.

Alternate Method

Given: Total cubes = 731, Side (a) = 3.6 cm, Radius (r) = 5.4 cm, Heights (h1, h2) = 49 cm, 35 cm, $\pi = 3.14$

Formula Used: Volume of cube = a^3; Volume of cone = $(1/3)\pi r^2 h$

=> Volume of 1 cube = $3.6 \times 3.6 \times 3.6 = 46.656$ cm³

=> Total volume of machine part = $(1/3) \times \pi \times r^2 \times h1 + (1/3) \times \pi \times r^2 \times h2$

=> Volume = $(1/3) \times 3.14 \times (5.4)^2 \times (49 + 35)$

=> Volume = $(1/3) \times 3.14 \times 29.16 \times 84$

=> Volume = $3.14 \times 29.16 \times 28 = 2563.9104$ cm³

=> Number of cubes used (n) = Total Volume ÷ Volume of 1 cube

=> $n = 2563.9104 \div 46.656 = 55$

=> Surplus cubes = Total cubes − Cubes used = $731 - 55 = 676$

Therefore The correct answer is 676 cubes.

Additional Information

Volume of Solid Figures

For a cone, Volume = $(1/3)\pi r^2 h$. For a cube, Volume = a^3. When melting and recasting, the total volume remains constant.

Surplus Calculation

Surplus = Total Available Units − Units Utilized. Utilized units must be an integer if discrete items (like cubes) are used.

Q33. Answer: (d) Bindusara

The solution is in Hindi. Read it online.

Q34. Answer: (d) G

Given: A, B, C, D, G, H and I are sitting around a circular table facing the centre of the table.

1) Only two people sit between H and B when counted from the right of H.

2) B sits to the immediate right of C.

3) Only three people sit between A and C when counted from the right of C.

4) G sits to the immediate right of I.

After positioning G and I only one position is left which will be occupied by the only person left i.e. D.

Thus, G sits fourth to the right of D.

Hence, "Option 4" is the correct answer.

Q35. Answer: (c) International Darts Open

The correct answer is International Darts Open.

Key Points

• The International Darts Open is a professional darts tournament part of the PDC (Professional Darts Corporation) European Tour.

• In 2025, the tournament took place at the SACHSENarena in Riesa, Germany, from 4 to 6 April.

• The event is renowned for attracting top darts players from across the globe and is a critical stop in the PDC calendar.

• It is one of several tournaments that form the European Tour, offering players ranking points and prize money.

• The International Darts Open provides an opportunity for players to qualify for other major PDC events, such as the European Championship.

Additional Information

• Professional Darts Corporation (PDC)

• The PDC is one of the leading organizations in the sport of darts, established in 1992.

• It hosts numerous prestigious tournaments, including the World Darts Championship and Premier League Darts.

• PDC events often feature the world's best players, ensuring high competition levels.

• SACHSENarena
• Located in Riesa, Germany, the SACHSENarena is a prominent venue for sporting and cultural events.
• It is known for hosting darts tournaments, concerts, and exhibitions.
• The venue offers modern facilities to accommodate large audiences and international events.
• European Tour
• The European Tour is a series of darts tournaments organized by the PDC.
• These events take place in various European cities, promoting darts across the continent.
• They are instrumental in providing opportunities for emerging players to compete on an international stage.
• Darts Ranking Points System
• PDC tournaments, including the European Tour, award ranking points to players based on their performance.
• These points contribute to players' standings on the PDC Order of Merit, determining qualification for major events.
• Higher rankings offer players greater career opportunities and sponsorship deals.

Q36. Answer: (a) V Ramasubramanian

The correct answer is V Ramasubramanian.

Key Points

• Shri Justice V Ramasubramanian, former Judge of the Supreme Court of India, assumed the charge of the Chairperson of the National Human Rights Commission.
• The NHRC is tasked with protecting and promoting human rights in India, including rights related to life, liberty, equality, and dignity.
• Justice V Ramasubramanian succeeded Justice Arun Mishra, who previously held the position of NHRC Chairperson.
• Justice Arun Mishra is known for delivering several landmark judgments during his tenure at the Supreme Court of India.
• The appointment of the NHRC Chairperson is made by the President of India based on recommendations from a committee comprising the Prime Minister, Speaker of the Lok Sabha, Deputy Chairman of the Rajya Sabha, Leaders of Opposition in both Houses, and the Union Home Minister.

Additional Information

• National Human Rights Commission (NHRC)
• Established on October 12, 1993, under the Protection of Human Rights Act, 1993.
• It is a statutory body tasked with investigating complaints of human rights violations and ensuring their protection.
• The NHRC can recommend corrective measures and compensation for human rights violations but does not have judicial powers.
• It has powers of a civil court for summoning, examining witnesses, and requisitioning public records during inquiries.
• Composition of NHRC
• NHRC consists of a Chairperson, four full-time members, and seven ex-officio members.
• The Chairperson must be a retired Chief Justice or Judge of the Supreme Court of India.
• Other members include experts in law, human rights, and public administration.
• Judicial Contributions of Justice Arun Mishra
• Known for interpreting laws related to land acquisition, environment, and constitutional provisions.
• Played a key role in delivering judgments impacting corporate governance and public interest.
• Protection of Human Rights Act, 1993
• This Act provides for the establishment of NHRC and State Human Rights Commissions.
• Defines "human rights" as rights related to life, liberty, equality, and dignity guaranteed by the Constitution or international covenants.

Q37. Answer: (a) 3,780

Shortcut Trick

When Percentage Profit at SP1 equals Percentage Loss at SP2, the Cost Price (CP) is the average of the two selling prices.

CP = (SP1 + SP2) ÷ 2 = (3,471 + 2,577) ÷ 2 = 6,048 ÷ 2 = 3,024.

To make 25% profit, required SP = CP × 1.25 (or CP × 5/4).

Required SP = 3,024 × (125 ÷ 100) = 3,024 × 1.25 = 3,780.

Therefore The correct answer is Rs. 3,780.

Alternate Method

Given → SP1 = Rs. 3,471, SP2 = Rs. 2,577, Profit% = Loss%, Target Profit = 25%.

Formulas: Profit% = ((SP − CP) ÷ CP) × 100 | Loss% = ((CP − SP) ÷ CP) × 100 | New SP = CP × (100 + P%) ÷ 100.

=> Let CP be x. According to question: (3,471 − x)/x × 100 = (x − 2,577)/x × 100.

=> 3,471 − x = x − 2,577 => 2x = 3,471 + 2,577 = 6,048.

=> x = 3,024.

=> New SP = 3,024 × (100 + 25) ÷ 100 = 3,024 × 1.25.

=> New SP = 3,780.

Therefore The correct answer is Rs. 3,780.

Additional Information

Equating Profit and Loss

If numerical profit equals numerical loss, CP is the midpoint. If Profit% = Loss%, it also results in CP being the midpoint because the denominator (CP) is the same for both calculations.

Fractional Conversion

25% profit is equivalent to a multiplier of 5/4. To find the new price, simply multiply the CP by 1.25.

Q38. Answer: (c) 3

Given: Seven boxes, A, B, C, D, E, F and G, are kept one over the other.

1) Only A is kept above C.

2) Only B is kept below G.

Person
A
C
G
B

3) Only F is kept between C and E.

After positioning F and E only one position is left which will be occupied by the only box left i.e. D.

Person
A
C
F
E
D
G
B

Thus, three boxes are kept above E.

Hence, "Option 3" is the correct answer.

Q39. Answer: (c) Deregulation of interest rates

The correct answer is Deregulation of interest rates.

Key Points

• Deregulation of interest rates was a key reform introduced in the Indian banking sector as part of the post-1991 economic reforms.

• Prior to this, the Reserve Bank of India (RBI) tightly regulated interest rates, but deregulation allowed banks to determine interest rates based on market conditions.

• This reform enhanced competition among banks, resulting in better services and improved financial efficiency.

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• LiberalCreation approved financials to meet diverse customer demands to compete on deposits and loans

• It aimed to develop a more flexible and market-driven banking system, which was crucial for India's transition to a more liberalized economy.

Additional Information

• Statutory Liquidity Ratio (SLR):

• SLR is the percentage of a bank's net demand and time liabilities (NDTL) that must be maintained in liquid assets like cash, gold, or government-approved securities before providing credit to customers.

• It is used by the RBI to control inflation and regulate the credit flow in the economy.

• Repo Rate and Reverse Repo Rate:

• The repo rate is the rate at which the RBI lends money to commercial banks, while the reverse repo rate is the rate at which RBI borrows money from banks.

• These tools are used to control liquidity and inflation in the economy.

• Banking Sector Liberalization:

• Reforms after 1991 allowed the entry of private and foreign banks into India, leading to growth and innovation in services.

• This also led to significant investments in technology, improving efficiency and customer experience.

• Non-Performing Assets (NPAs):

• NPAs are loans or advances where the borrower has stopped making interest or principal repayments for a specified period.

• The banking reforms also aimed to address the issue of rising NPAs through better credit risk management and recovery mechanisms.

Q40. Answer: (a) Performing last rites for unclaimed bodies

The correct answer is Performing last rites for unclaimed bodies.

Key Points

• Pooja Sharma was included in BBC's 100 Most Inspiring Women in December 2024 for her exceptional contributions to society.

• She is widely recognized for her work in performing last rites for unclaimed bodies, ensuring dignity in death for the neglected and abandoned.

• Her initiatives involve identifying unclaimed bodies, completing legal formalities, and conducting respectful cremation or burial rites.

• Pooja collaborates with local authorities, hospitals, and NGOs to carry out this humanitarian work effectively and ethically.

• Her efforts aim to bring attention to the plight of unclaimed bodies and encourage societal responsibility towards the deceased.

Additional Information

• Unclaimed Bodies:

• Unclaimed bodies are those found without any identifiable relatives or guardians to claim them.

• They are often the result of homelessness, estrangement, or unidentified accidents.

• Legal procedures are typically followed to determine the next steps, including post-mortem examinations and public notices.

• Importance of Last Rites:

• Last rites are rituals performed to honor the deceased and provide closure to their souls, as per various religious or cultural traditions.

• In many societies, performing last rites is considered essential for ensuring peace in the afterlife.

• For unclaimed bodies, these rites restore their dignity and humanity, regardless of their social status.

• Humanitarian Efforts:

• Individuals like Pooja Sharma play a critical role in addressing societal neglect and abandonment.

• Such efforts highlight the importance of compassion and inclusivity in society.

• Organizations and volunteers often work in collaboration to support these initiatives.

• BBC 100 Women:

• The BBC's 100 Women list celebrates influential and inspiring women globally.

• It highlights the contributions of women in various fields, including social work, science, arts, and activism.

• The initiative aims to recognize and amplify the voices of women making a difference.

Q41. Answer: (c) Brahmaputra

The correct answer is Brahmaputra.

Key Points

• Majuli Island is located in the state of Assam, India, and is formed by the Brahmaputra River.

• The Brahmaputra River flows through Tibet (China), India, and Bangladesh, making it one of the major rivers in South Asia.

• Majuli became the world's largest river island and is renowned for its vibrant culture, particularly the neo-Vaishnavite monasteries called "Satras."

• The island is surrounded by the Brahmaputra River on the south and the Kherkutia Xuti and Subansiri River on the north.

• Majuli Island covers an area of approximately 352 square kilometers and is prone to erosion due to the dynamic nature of the Brahmaputra River.

Additional Information

• Brahmaputra River

• The Brahmaputra originates from the Angsi Glacier in Tibet, where it is known as the Yarlung Tsangpo.

• It is one of the few rivers in the world that is considered a male river due to its strong currents and dynamic nature.

• The Brahmaputra is known for its high sediment load, which contributes to the formation and erosion of islands like Majuli.

• It is vital for agriculture, transportation, and water resources in northeastern India.

• River Islands and Erosion

• River islands are formed due to sediment deposition caused by the dynamic flow of rivers.

• Majuli faces severe erosion, losing significant land area over time due to changes in the Brahmaputra's course.

• Efforts are underway to combat erosion and preserve the cultural heritage of Majuli.

• Cultural Significance of Majuli

• Majuli is a center for the neo-Vaishnavite tradition initiated by Srimanta Sankardeva in Assam.

• It hosts numerous "Satras," which are monasteries that serve as hubs for religious and cultural activities.

• The island is also known for its traditional art forms, pottery, and festivals.

Q42. Answer: (c) Maharashtra

The correct answer is Maharashtra.

Key Points

• In March 2025, Maharashtra witnessed violent clashes over demands to remove the tomb of Mughal emperor Aurangzeb.

• The clashes occurred in the town of Khuldabad, Aurangabad district, where the tomb is located.

• Protesters demanded the removal of the tomb, claiming that it symbolizes a controversial legacy of Aurangzeb's rule.

• The incident led to multiple injuries and heightened communal tensions, prompting the deployment of additional police forces to maintain order.

• The Maharashtra government called for restraint and emphasized the need for peaceful resolution of the issue.

Additional Information

• Aurangzeb's Tomb:

• Located in Khuldabad, Maharashtra, this modest tomb reflects Aurangzeb's wish for simplicity in death.

• Aurangzeb, the sixth Mughal emperor, ruled from 1658 to 1707 and is a polarizing historical figure.

• Khuldabad:

• A town in Aurangabad district, it is known as the "Valley of Saints" due to the presence of numerous Sufi shrines.

• It holds historical significance as a spiritual and cultural center during the Mughal era.

• Communal Tensions in India:

• India has a history of communal tensions rooted in its diverse religious and cultural fabric.

• Such incidents often require careful handling to prevent escalation and ensure harmony among communities.

• Government Response to Clashes:

• Authorities typically impose curfews and deploy additional security forces to maintain peace.

• Efforts are made to mediate between conflicting parties to prevent further violence.

Q43. Answer: (c) Rs. 4,067

Shortcut Trick

Salary is always 100%.

Savings = 17%

Expenditure = 100% − 17% = 83%

Expenditure = 4900 × 0.83 = 4067

Therefore The correct answer is Rs. 4,067.

Alternate Method

Given:

Monthly Salary = Rs. 4,900
Savings Percentage = 17%
Calculations:
=> Monthly Savings = 17% of Rs. 4,900
=> Monthly Savings = (17 ÷ 100) × 4900 = 17 × 49 = Rs. 833
=> Monthly Expenditure = Total Salary − Monthly Savings
=> Monthly Expenditure = 4900 − 833
=> Monthly Expenditure = Rs. 4,067
Therefore The correct answer is Rs. 4,067.
Additional Information
Income, Expenditure and Savings Relationship
The fundamental relation is Income = Expenditure + Savings. Any change in one component affects the others accordingly.
Percentage Change
If Income increases by x% and Expenditure increases by y%, the new values can be calculated using Base × (100 + Change)/100.
Effective Savings Ratio
Savings Ratio = (Savings ÷ Income) × 100. It represents the portion of total earning kept aside for future use.

Q44. Answer: (c) 6.25

Shortcut Trick
Total interest percentage = (Simple Interest ÷ Principal) × 100
Total interest % = (3500 ÷ 14000) × 100 = 25%
Annual Rate of Interest (x) = Total interest % ÷ Time
x = 25% ÷ 4 = 6.25
Therefore The correct answer is 6.25.
Alternate Method
Given:
Principal (P) = Rs. 14,000
Time (T) = 4 years
Simple Interest (SI) = Rs. 3,500
Formula Used:
Simple Interest (SI) = (P × R × T) / 100
Calculations:
=> 3500 = (14000 × x × 4) / 100
=> 3500 = 140 × 4 × x
=> 3500 = 560 × x
=> x = 3500 ÷ 560
=> x = 350 ÷ 56
=> x = 25 ÷ 4
=> x = 6.25
Therefore The correct answer is 6.25.
Additional Information
Simple Interest Components
The Principal is the initial sum, Rate is the annual percentage, and Time must be in years for the SI formula.
Total Amount Formula
The Total Amount (A) paid back is the sum of Principal and Interest: A = P + SI = P(1 + RT/100).
Rate and Time Relationship
If the Rate or Time doubles, the Simple Interest also doubles, provided the other variables remain constant.

Q45. Answer: (c) 96^(th)

The correct answer is 96th.
Key Points
• India ranked 96th in Transparency International's Corruption Perceptions Index (CPI) for the year 2024.

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• The CPI measures perceived corruption in the public sector across 180 countries and territories using expert assessments and opinion surveys.
• Countries are scored on a scale of 0 (highly corrupt) to 100 (very clean); India's score has been improving gradually over the years.
• India’s ranking reflects its ongoing efforts to combat corruption and improve transparency in governance.
• Denmark, Finland, and New Zealand typically top the CPI rankings as the least corrupt countries globally.
Additional Information
• Transparency International:
• An independent, non-governmental organization focused on combating global corruption.
• Founded in 1993, headquartered in Berlin, Germany.
• Publishes the annual Corruption Perceptions Index (CPI) to highlight corruption trends globally.
• Corruption Perceptions Index (CPI):
• Ranks countries based on perceived levels of public sector corruption as scored by experts and businesspeople.
• Uses data sources from organizations like the World Bank, World Economic Forum, and others.
• Higher scores indicate lower levels of corruption; lower scores indicate higher corruption levels.
• India’s anti-corruption initiatives:
• Implementation of laws like the Prevention of Corruption Act and the Lokpal Act.
• Promotion of digital governance to reduce bureaucratic corruption.
• Efforts to increase transparency in public procurement and financial transactions.
• Global perspective:
• Countries like Somalia and Syria often rank at the bottom of the CPI due to weak governance and systemic corruption.
• Strong institutions, freedom of press, and public access to information are key factors for higher CPI rankings.

Q46. Answer: (d) 2

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

According to the question,

Required condition: Number - Number - Number

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

Thus, there are two such numbers are there which are immediately preceded by a number and also immediately followed by a number.

Hence, "Option 4" is the correct answer.

Q47. Answer: (c) EHA

The logic followed here is:

Hence, "Option 3" is the correct answer.

Q48. Answer: (d) 40 m

Shortcut Trick

Height of building (H) = 60 m.

Ratio of heights H : (H − h) = tan 60° : tan 30° = √3 : (1/√3) = 3 : 1.

Total height 3 units → 60 m, so 1 unit → 20 m.

Lamp post height (h) = 3 units − 1 unit = 2 units → 2 × 20 = 40 m.

Therefore The correct answer is 40 m.

Alternate Method

Given: Height of building AB = 60 m. Let height of lamp post CD = h. Distance BD = x.

Formula Used: tan θ = Perpendicular / Base

=> In ΔABD: tan 60° = AB / BD

=> √3 = 60 / x

=> x = 60 / √3 = 20√3 m

=> In small triangle at top (height 60 − h): tan 30° = (60 − h) / x

=> 1 / √3 = (60 − h) / (20√3)

=> 20√3 / √3 = 60 − h

=> 20 = 60 − h

=> h = 60 − 20 = 40 m

Therefore The correct answer is 40 m.

Additional Information

Angle of Depression

The angle formed between the horizontal line and the line of sight when looking downwards at an object.

Standard Ratios for 30-60-90 Triangles

In a right triangle with angles 30° and 60°, the sides opposite to them are in the ratio 1 : √3 : 2 respectively.

Relationship between two heights

When the distance is same, h = H × (1 − tan θ1 / tan θ2) where θ1 is the top angle and θ2 is the bottom angle.

Q49. Answer: (a) 25% gain

Shortcut Trick

Ratio of Selling Price (SP) to Cost Price (CP) can be derived from the given condition.

24 × SP = 30 × CP => SP ÷ CP = 30 ÷ 24 = 5 ÷ 4.

Here, CP = 4 units and SP = 5 units. Since SP > CP, it is a gain.

Gain = 5 − 4 = 1 unit.

Gain% = (Gain ÷ CP) × 100 = (1 ÷ 4) × 100 = 25%.

Therefore The correct answer is 25% gain.

Alternate Method

Given → SP of 24 books = CP of 30 books.

Formulas: Profit = SP − CP | Profit% = (Profit ÷ CP) × 100.

=> Let the Cost Price of one book be Re. 1.

=> Cost Price (CP) of 30 books = Rs. 30.

=> Selling Price (SP) of 24 books = CP of 30 books = Rs. 30.

=> CP of 24 books = Rs. 24.

=> Profit = SP − CP = 30 − 24 = Rs. 6.

=> Profit% = (6 ÷ 24) × 100 = 1/4 × 100 = 25%.

Therefore The correct answer is 25% gain.

Additional Information

Profit and Loss on Article Quantity

When the CP of 'x' articles equals the SP of 'y' articles, the Profit or Loss percentage is given by [(x − y) ÷ y] × 100. A positive result indicates profit, and a negative result indicates loss.

Cost Price vs Selling Price

If SP > CP, it is a Gain. If CP > SP, it is a Loss. Percentages are always calculated on the Cost Price unless stated otherwise.

Q50. Answer: (b) Euglena

The correct answer is Euglena.

Key Points

• Euglena is a unique single-celled organism that exhibits both autotrophic and heterotrophic modes of nutrition.

• In the presence of sunlight, Euglena performs photosynthesis using chlorophyll, making it autotrophic.

• In the absence of sunlight, Euglena can obtain nutrition heterotrophically by absorbing organic matter from its environment.

• Euglena belongs to the kingdom Protista and is often studied as an example of a mixotrophic organism.

• This dual nutritional capability enables Euglena to survive in a variety of habitats, making it highly adaptable.

Additional Information

• Autotrophic Nutrition:

• It refers to the mode of nutrition where organisms synthesize their own food using simple inorganic substances like carbon dioxide and water.

• Photosynthesis, using sunlight, is the most common method of autotrophic nutrition.

• Examples include plants, algae, and some bacteria.

• Heterotrophic Nutrition:

• In this mode, organisms depend on other organisms for food.

• Heterotrophs are unable to synthesize their own food and rely on consuming organic matter.

• Examples include animals, fungi, and certain protists like Amoeba.

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• Mixotrophic Nutrition:
• Organisms like Euglena that can switch between autotrophic and heterotrophic modes of nutrition exhibit mixotrophic nutrition.
• This ability provides flexibility and survival advantages in fluctuating environmental conditions.
• Kingdom Protista:
• It includes a diverse group of eukaryotic organisms that are primarily unicellular.
• Protists can be autotrophic, heterotrophic, or mixotrophic.
• Examples include Euglena, Amoeba, and Paramecium.

Q51. Answer: (b) 18

Given: (Left) 194 932 446 225 493 (Right)

According to the question:

Given numbers	194	932	446	225	493
Arranged in ascending order	194	225	446	493	932

First digit of the highest number → 932 → 9

Second digit of the lowest number → 194 → 9

Thus, the resultant if the first digit of the highest number is added to the second digit of the lowest number is → 9 + 9 → 18

Hence, "Option 2" is the correct answer.

Q52. Answer: (b) 659.344

Shortcut Trick

For a continued proportion a : b :: b : x, the third proportional is $x = b^2 \div a$.

$x = (40.6 \times 40.6) \div 2.5$

$x = 1648.36 \div 2.5 = 659.344$

Therefore The correct answer is 659.344.

Alternate Method

Given:

Ratio 1 = 2.5 : 40.6

Ratio 2 = 40.6 : x

Formula Used:

If a : b :: c : d, then $a \times d = b \times c$

Calculations:

$\Rightarrow 2.5 \div 40.6 = 40.6 \div x$

$\Rightarrow 2.5 \times x = 40.6 \times 40.6$

$\Rightarrow 2.5x = 1648.36$

$\Rightarrow x = 1648.36 \div 2.5$

$\Rightarrow x = 659.344$

Therefore The correct answer is 659.344.

Additional Information

Fourth Proportional

If four quantities a, b, c, d are in proportion, then d is the fourth proportional where $d = (b \times c) \div a$.

Mean Proportional

The mean proportional between two numbers a and b is $\sqrt{(a \times b)}$.

Third Proportional

In a continued proportion a : b :: b : c, c is called the third proportional and $c = b^2 \div a$.

Q53. Answer: (a) stress on the environment

The correct answer is stress on the environment.

Key Points

• Higher population density in cities increases resource consumption, leading to a strain on natural resources such as water, air, and land.
• Urban areas like Delhi experience elevated levels of air pollution due to increased vehicular emissions and industrial activities.

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• Overcrowding and rapid urbanization cause improper waste management and disposal, contributing to environmental degradation.
• High population density results in deforestation and encroachment on green spaces to accommodate housing and infrastructure needs.
• Excessive human activity in densely populated cities disrupts ecological balance, impacting biodiversity and ecosystem services.

Additional Information

• Population Density:
• It refers to the number of people living per unit area, typically measured in persons per square kilometer.
• High population density can lead to increased demand for housing, transportation, and public services.
• Environmental Stress:
• This term denotes the pressure exerted on environmental systems due to human activities.
• Examples include pollution, resource depletion, and habitat destruction.
• Urbanization:
• It is the process by which rural areas transform into urban areas due to migration and infrastructure development.
• Unplanned urbanization often leads to environmental challenges like water scarcity and air pollution.
• Pollution Types:
• Air pollution: Caused by vehicle emissions and industrial activities.
• Water pollution: Results from untreated sewage and industrial discharge.
• Land pollution: Caused by improper waste disposal and deforestation.
• Sustainable Urban Development:
• Focuses on creating eco-friendly cities with efficient waste management, green spaces, and renewable energy usage.
• Encourages practices like rainwater harvesting and reducing carbon footprints.

Q54. Answer: (b) 8

Shortcut Trick

Let Urvashi's age be U. Ayushi = 2U − 6.

Mohan = 4U and Sanju = Ayushi + 8 = (2U − 6) + 8 = 2U + 2.

Sum of Mohan and Sanju: 4U + 2U + 2 = 50 => 6U = 48.

U = 48 ÷ 6 = 8 years.

Therefore The correct answer is 8 years.

Alternate Method

Given:

2 × Urvashi = Ayushi + 6 => Ayushi = 2U − 6

Mohan = 4 × Urvashi = 4U

Sanju = Ayushi + 8 = (2U − 6) + 8 = 2U + 2

Calculations:

=> Mohan + Sanju = 50

=> 4U + (2U + 2) = 50

=> 6U + 2 = 50

=> 6U = 48

=> U = 8

Therefore The correct answer is 8 years.

Additional Information

Age Relation Modeling

Express all individuals' ages in terms of a single variable (usually the youngest or the one mentioned most) to reduce the number of equations.

Sum and Difference Properties

The difference between the ages of two people remains constant regardless of the number of years passed or preceding.

Ratio of Ages

If the ratio of ages is given as a:b, their ages can be assumed as ax and bx for calculation purposes.

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Q55. Answer: (d) 185

Given:

Simplify:

Calculation:

96/39 (91 + 26) - 103 = 96/39 (117) - 103

=> 96 × 3 - 103

=> 288 - 103

=> 185

Therefore The correct answer is option (4).

96/39 (91 + 26) - 103 = 96/39 (117) - 103

Q56. Answer: (d) To promote communal harmony after religious violence

The correct answer is To promote communal harmony after religious violence.

Key Points

• Mahatma Gandhi traveled to Noakhali in 1946 to address the widespread communal violence that erupted between Hindus and Muslims in the region.

• He undertook a "peace mission" to restore harmony and rebuild trust between the communities affected by the riots.

• Gandhi adopted the strategy of walking through the villages of Noakhali, preaching non-violence and communal unity to the people.

• He stayed in the region for several months, undertaking constructive work such as promoting mutual understanding, resolving disputes, and advocating for peaceful coexistence.

• Noakhali became a symbol of Gandhi's commitment to non-violence and communal reconciliation, even in the face of intense societal strife.

Additional Information

• Background of Noakhali Riots:

• The Noakhali riots occurred in October 1946 in Bengal, marked by communal violence primarily targeted at the Hindu community in Muslim-majority areas.

• These riots were part of the larger communal unrest during the pre-Partition period in India, fueled by political and religious tensions.

• Gandhi's Non-Violent Approach:

• Gandhi emphasized the principles of ahimsa (non-violence) and satyagraha (truth force) to resolve conflicts.

• He believed in addressing the root causes of hatred and mistrust through dialogue and personal interaction.

• Key Activities in Noakhali:

• Gandhi conducted prayer meetings, encouraged interfaith dialogue, and engaged in relief efforts for victims of the violence.

• He advocated for women’s safety and empowerment, as many women were victims of violence during the riots.

• Significance of Noakhali Mission:

• Gandhi’s efforts in Noakhali are remembered as a testament to his unwavering commitment to peace and communal harmony.

• It highlighted the importance of grassroots-level engagement in addressing societal conflicts.

Q57. Answer: (a) Utilising a predefined watermark template from the 'Watermark' gallery

The correct answer is Utilising a predefined watermark template from the 'Watermark' gallery.

Key Points

• Predefined watermark templates in MS Word are designed for quick application but offer limited customization options for placement and size.

• These templates allow users to add watermarks like "Confidential," "Draft," or other predefined text, but the precise positioning and scaling are controlled automatically by MS Word.

• Unlike custom image or text watermarks, predefined templates restrict users from making fine-tuned adjustments to placement on the page.

• While predefined templates are convenient for general use, they lack the flexibility required to meet specific formatting or design requirements.

• Using other methods such as custom text, image watermarks, or graphic headers/footers provides greater control over design elements.

Additional Information

• Watermarking in MS Word

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• A watermark is a text or image that appears behind the main document content.
• Commonly used for branding, document security, or indicating document status (e.g., "Draft").
• MS Word allows users to apply predefined or custom watermarks through the "Design" tab.
• Custom Picture Watermark
• Allows users to insert images as watermarks.
• Settings like "Scale" and "Washout" can be adjusted for better visual integration with the document.
• Provides flexibility in resizing and positioning the image.
• Custom Text Watermark
• Enables users to input specific text as the watermark.
• Offers options to adjust font, size, color, orientation, and placement.
• Highly customizable compared to predefined templates.
• Using Graphics in Headers/Footers
• Inserting graphics into headers or footers allows users to create custom watermarks.
• Provides full control over image placement, layering, and size.
• Graphics can be positioned behind text for a subtle watermark effect.

Q58. Answer: (d) 9

Shortcut Trick

For a quadratic equation of the form x2 + bx + c = 0 to have equal real roots, the constant term must be the square of half the coefficient of x.

Value of k = (Coefficient of x ÷ 2)2

k = (−6 ÷ 2)2

k = (−3)2 = 9

Therefore The correct answer is 9.

Alternate Method

Given:

Quadratic equation: x2 − 6x + k = 0

Comparing with the standard form ax2 + bx + c = 0:

=> a = 1, b = −6, c = k

Formula Used:

For a quadratic equation to have equal real roots, the discriminant (D) must be equal to zero.

=> D = b2 − 4ac = 0

Calculations:

=> (−6)2 − 4 × 1 × k = 0

=> 36 − 4k = 0

=> 4k = 36

=> k = 36 ÷ 4

=> k = 9

Therefore The correct answer is 9.

Additional Information

Nature of Roots

The nature of roots is determined by the Discriminant (D). If D > 0, roots are real and distinct; if D < 0, roots are imaginary; and if D = 0, roots are real and equal.

Sum and Product of Roots

For a quadratic equation ax2 + bx + c = 0, the Sum of roots is −b/a and the Product of roots is c/a.

Quadratic Formula

The roots of a quadratic equation can be found using x = [−b ± √(b2 − 4ac)] ÷ 2a.

Q59. Answer: (d) OK-RN-TV

The logic followed here is:

KG-NJ-PR

And,

MI-PL-RT

So, checking each option one by one:

Option 1) OK-RN-TU

Option 2) PK-RN-TU

Option 3) PK-RM-TU

Option 4) OK-RN-TV

Thus, out of all the options, 'OK-RN-TV' follows the same logic as given.

Hence, "Option 4" is the correct answer.

Q60. Answer: (a) 5

Given: (Left) 236 758 230 563 263 (Right)

According to the question:

Given numbers	236	758	250	563	263
Arranged in ascending order	236	250	263	563	758

First digit of the lowest number → 236 → 2

First digit of the highest number → 758 → 7

Thus, the resultant if the first digit of the lowest number is subtracted from the first digit of the highest number is → 7 - 2 → 5

Hence, "Option 1" is the correct answer.

Q61. Answer: (d) Critical advancements in spacecraft and launch vehicle thermal management

The correct answer is Critical advancements in spacecraft and launch vehicle thermal management.

Key Points

• The S. Ramakrishnan Centre of Excellence focuses on cutting-edge research in fluid and thermal sciences, aimed specifically at improving spacecraft and launch vehicle thermal management systems.

• It plays a pivotal role in enhancing the thermal control mechanisms required for space exploration and satellite technology.

• Thermal management in spacecraft is critical to ensure operational efficiency, preventing overheating or freezing in extreme space environments.

• The research conducted at the center supports the development of advanced cooling systems, heat shields, and thermal protection materials for launch vehicles.

• The center collaborates with leading scientists, engineers, and institutions to foster innovation in the field of aerospace thermal management.

Additional Information

• Thermal Management in Spacecraft:

• Spacecraft face extreme temperatures ranging from freezing cold to intense heat, making thermal management systems vital for survival and functionality.

• Techniques include active cooling systems, radiators, heat pipes, and thermal insulation materials.

• Thermal shields prevent damage during re-entry into Earth's atmosphere.

• Fluid and Thermal Science:

• This field focuses on the behavior of fluids and heat transfer mechanisms in various systems, including aerospace applications.

• Research in fluid dynamics helps optimize fuel usage and propulsion systems for launch vehicles.

• Launch Vehicle Technologies:

• Launch vehicles require robust thermal systems to protect sensitive equipment during liftoff and operation.

• Advancements in thermal science improve launch vehicle efficiency, payload capacity, and reliability.

• Applications in Space Exploration:

• Thermal management research benefits satellite technology, interplanetary missions, and human space exploration.

• Improved systems ensure the safety of astronauts and scientific instruments in harsh space conditions.

Q62. Answer: (c) 186.5

Shortcut Trick

Sum of first three numbers = (2 × 77) + 128 = 154 + 128 = 282.

Sum of last two numbers = Total Sum − Sum of first three = 655 − 282 = 373.

Average of remaining two = 373 ÷ 2 = 186.5.

Therefore The correct answer is 186.5.

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Alternate Method
Given:
Total sum of 5 numbers = 655
Average of the first two numbers = 77
Third number = 128
Formula Used:
Sum = Average × Number of observations
Calculations:
=> Sum of the first two numbers = 77 × 2 = 154
=> Sum of the first three numbers = 154 + 128 = 282
=> Sum of the remaining two numbers = Total Sum − Sum of first three numbers
=> Sum of the remaining two numbers = 655 − 282 = 373
=> Average of the remaining two numbers = 373 ÷ 2
=> Average = 186.5
Therefore The correct answer is 186.5.
Additional Information
Definition of Average
The arithmetic mean or average is the ratio of the Sum of all observations to the Total number of observations.
Combined Average Formula
If two groups have sizes n1, n2 and averages A1, A2, then Combined Average = (n1A1 + n2A2) ÷ (n1 + n2).
Sum from Average
To find the total value when the average is known, use the relation: Sum = Average × Count.

Q63. Answer: (a) ZEJ

The logic followed here is:

Hence, "Option 1" is the correct answer.

Q64. Answer: (b) 2

According to the given information,
Thus, 'O' is coded as '2'.
Hence, "Option 2" is the correct answer.

Q65. Answer: (d) 16

Shortcut Trick
Stoppage time per hour = (Difference in speed ÷ Faster speed)
Stoppage time per hour = (88 − 24) ÷ 88 = 64 ÷ 88 = 8/11 hours
Total travel time (with stoppages) = Distance ÷ Speed with stoppages = 528 ÷ 24 = 22 hours
Total stoppage time = 22 × (8/11) = 2 × 8 = 16 hours
Therefore The correct answer is 16 hours.
Alternate Method
Given:
Average speed without stoppages = 88 km/hr
Average speed with stoppages = 24 km/hr
Total distance = 528 km
Calculations:
=> Time taken without stoppages = Distance ÷ Speed = 528 ÷ 88
=> Time taken without stoppages = 6 hours
=> Time taken with stoppages = Distance ÷ Speed = 528 ÷ 24
=> Time taken with stoppages = 22 hours
=> Total stoppage time = Time (with stops) − Time (without stops)
=> Total stoppage time = 22 − 6 = 16 hours
Therefore The correct answer is 16 hours.

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Additional Information

Stoppage Time Calculation

The formula for stoppage time per hour is: (S_(fast) − S_(slow)) ÷ S_(fast). Multiply this by total travel time to get absolute stoppage time.

Average Speed

Average Speed = Total Distance ÷ Total Time. Stoppages reduce the average speed because they increase the total time taken for the same distance.

Relative Speed

When two objects move in the same direction, relative speed is S1 − S2. In opposite directions, it is S1 + S2.

Q66. Answer: (d) 32 P 8 S 30 R 16 Q 4

Decoding signs:

Sign	P	Q	R	S
Stands For	÷	×	•	•

Required resultant: 38

So, checking each option one by one:

Option 1) 32 S 8 R 30 Q 16 P 4 => 32 - 8 + 30 × 16 ÷ 4

=> 32 - 8 + 30 × 16 ÷ 4

=> 32 - 8 + 30 × 4

=> 32 + 120 - 8

=> 152 - 8

=> 148

Option 2) 32 R 8 S 30 Q 16 P 4 => 32 + 8 - 30 × 16 ÷ 4

=> 32 + 8 - 30 × 16 ÷ 4

=> 32 + 8 - 30 × 4

=> 32 + 8 - 120

=> 40 - 120

=> -80

Option 3) 32 Q 8 R 30 S 16 P 4 => 32 × 8 + 30 - 16 ÷ 4

=> 32 × 8 + 30 - 16 ÷ 4

=> 32 × 8 + 30 - 4

=> 256 + 30 - 4

=> 286 - 4

=> 282

Option 4) 32 P 8 S 30 R 16 Q 4 => 32 ÷ 8 - 30 + 16 × 4

=> 32 ÷ 8 - 30 + 16 × 4

=> 4 - 30 + 16 × 4

=> 4 + 64 - 30

=> 68 - 30

=> 38

Hence, "Option 4" is the correct answer.

Q67. Answer: (c) Rs. 29,312

Shortcut Trick

Remaining 25% of salary covers conveyance, grocery, and savings.

25% of Salary = Rs. 653 + Rs. 6,229 + Rs. 446 = Rs. 7,328

Total Salary (100%) = 4 × Rs. 7,328 = Rs. 29,312

Therefore The correct answer is Rs. 29,312.

Alternate Method

Given House Rent = 75% of Salary

Given Conveyance = Rs. 653, Grocery = Rs. 6,229, Savings = Rs. 446

=> Let total monthly salary be S.

=> Total spending other than rent + Savings = 100% − 75% = 25% of S

=> 25% of S = 653 + 6229 + 446

=> (25/100) × S = 7328

=> S/4 = 7328

=> S = 7328 × 4

=> S = 29312

Therefore The correct answer is Rs. 29,312.

Additional Information

Percentage Expenditure

Total Salary is always considered 100%. If X% is spent, then (100 − X)% is the remaining amount which equals the sum of all other expenses and savings.

Successive Percentage

If the question mentions 'spending X% of the remaining amount', apply the formula: Remaining = Total × (100 − r1)/100 × (100 − r2)/100.

Basic Salary Formula

Income = Total Expenditure + Savings. All individual expense components must be summed to find total expenditure.

Q68. Answer: (c) Deleting a row or column that contains cells referenced by a formula in another worksheet

The correct answer is Deleting a row or column that contains cells referenced by a formula in another worksheet.

Key Points

• The '#REF!' error in Excel occurs when a formula attempts to reference a cell that is no longer valid, often due to deletion of rows or columns.

• Deleting rows, columns, or worksheets containing referenced cells in formulas can break the link and result in a '#REF!' error.

• This error indicates the formula is unable to locate the cell or range it was previously referencing.

• To avoid this error, ensure that any referenced cells or ranges are not deleted or moved while formulas depend on them.

• Users can troubleshoot the error by reviewing the formula and updating the references to valid cells or ranges.

Additional Information

• '#REF!' Error:

• It is one of the most common error messages in Excel, signaling invalid cell references.

• Occurs when referenced cells or ranges in a formula are deleted or removed.

• Can also occur when trying to use a formula referencing another workbook that has been closed or moved.

• Other Common Excel Errors:

• #DIV/0!: Appears when attempting to divide by zero or an empty cell.

• #VALUE!: Indicates incorrect data types used in a formula.

• #NAME?: Occurs when Excel cannot recognize a text string as a valid name or function.

• #NUM!: Signals invalid numeric inputs or computations that exceed Excel's capabilities.

• Preventing Errors:

• Always verify cell references in formulas before deleting rows, columns, or worksheets.

• Use named ranges or structured references to minimize issues caused by cell movements.

• Regularly audit formulas when performing data modifications to avoid breaking dependencies.

• Excel Formula Limits:

• Excel formulas can have up to 8,192 characters, but exceeding this limit does not result in a '#REF!' error.

• Excel supports up to 255 arguments in a single formula.

Q69. Answer: (c) Government of India Act, 1858

The correct answer is Government of India Act, 1858.

Key Points

• The Government of India Act, 1858 marked the end of the East India Company’s rule and transferred the administration of India directly to the British Crown.

• The act established the position of a Secretary of State for India, who was responsible for overseeing Indian affairs in Britain.

• It introduced the Council of India to assist the Secretary of State, comprising 15 members, mainly former directors of the East India Company.

• This act formally ended the dual governance system and centralized power under the British government, following the failure of

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the East India Company during the 1857 Revolt.

• The Governor-General of India was renamed as Viceroy of India, representing the Crown directly in India.

Additional Information

• Charter Act, 1833

• This act centralized legislative powers in India by establishing a single legislative council for all British territories in India.

• It marked the end of the East India Company's trading rights and made it an administrative body.

• It introduced the idea of an open competition for civil services, but the provision was not implemented until later.

• Regulating Act, 1773

• This was the first attempt by the British government to regulate the affairs of the East India Company in India.

• It established a Governor-General in Bengal and created a Supreme Court at Fort William, Kolkata.

• The act aimed to curb corruption and mismanagement but had limited success.

• Pitt's India Act, 1784

• This act introduced the concept of dual control between the British government and the East India Company.

• It created a Board of Control to supervise civil, military, and revenue administration in India.

• The act aimed to address issues of governance after the shortcomings of the Regulating Act.

• Indian Rebellion of 1857

• The widespread uprising against British rule revealed the flaws in the East India Company's administrative structure.

• It directly led to the implementation of the Government of India Act, 1858, which centralized power under the Crown.

• The rebellion is considered one of the most significant events in Indian history, leading to the dissolution of the East India Company.

Q70. Answer: (b) 59°

Shortcut Trick

Sum of two supplementary angles = 180°

Difference between the angles = 62°

Smaller angle = (Sum − Difference) ÷ 2

Smaller angle = (180° − 62°) ÷ 2 = 118° ÷ 2 = 59°

Therefore The correct answer is 59°.

Alternate Method

Given:

Larger angle = Smaller angle + 62°

Sum of supplementary angles = 180°

Formula Used:

If two angles are supplementary, their sum is 180°.

Calculations:

=> Let the smaller angle be x.

=> Then the larger angle = x + 62°.

=> Since they are supplementary, x + (x + 62°) = 180°

=> 2x + 62° = 180°

=> 2x = 180° − 62°

=> 2x = 118°

=> x = 59°

Therefore The correct answer is 59°.

Additional Information

Q71. Answer: (d) S-shaped wave

The correct answer is S-shaped wave.

Key Points

• A sinusoidal wave signal completes one cycle in a characteristic smooth, oscillatory motion resembling an S-shaped curve.

• Sinusoidal waves are represented mathematically as $y = A \sin(\omega t + \varphi)$, where A is the amplitude, ω is the angular frequency, and φ is the phase.

• The wave transitions smoothly between its maximum and minimum values, creating a symmetrical S-shape over one complete cycle.

• Sinusoidal waves are fundamental in physics, engineering, and mathematics due to their periodic and harmonic nature.
• Such waves are commonly used in AC electrical signals, sound waves, and other oscillatory systems.
Additional Information
• Amplitude:
• The maximum displacement of the wave from its mean position.
• Represents the strength or intensity of the wave.
• Frequency:
• The number of cycles completed per second, measured in Hertz (Hz).
• Higher frequency corresponds to faster oscillations.
• Phase:
• Defines the offset of the wave relative to a reference point.
• Critical for understanding wave interference and synchronization.
• Applications of Sinusoidal Waves:
• Used in alternating current (AC) electricity supply systems.
• Fundamental to sound wave analysis and signal processing.
• Critical in studying harmonic motion in physics and engineering.
• Wave Equation:
• A sinusoidal wave can be expressed as $y = A \sin(2\pi ft + \varphi)$.
• This equation helps model real-world oscillatory phenomena.

Q72. Answer: (c) 75°

Shortcut Trick
When two parallel lines are intersected by a transversal, the corresponding angles are always equal.
Given: One corresponding angle = 75°
Therefore The other corresponding angle = 75°.
Therefore The correct answer is 75°.
Alternate Method
Given:
Lines L1 || L2
Transversal line T cuts L1 and L2.
Measure of one corresponding angle = 75°
Formula Used:
For parallel lines, the Corresponding Angles Postulate states that corresponding angles are congruent (equal).
Calculations:
Let the two corresponding angles be angle 1 and angle 2.
=> angle 1 = 75°
=> Since L1 || L2, angle 1 = angle 2 (Corresponding angles property)
=> angle 2 = 75°
Therefore The correct answer is 75°.
Additional Information
Alternate Interior Angles
Angles on opposite sides of the transversal and between the parallel lines are always equal.

Q73. Answer: (c) 1 km to the east

Given:
Mukesh starts from point A and drives 9 km towards the north.
He then takes a right turn, drives 7 km, turns right and drives 10 km.
He then takes a right turn and drives 8 km.
He takes a final right turn, drives 1 km and stops at point P.
Thus, Mukesh should drive 1 km (8 km - 7 km) in the east direction in order to reach Point A again.
Hence, "Option 3" is the correct answer.

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Q74. Answer: (b) 35

Shortcut Trick

Assume an average of 35 (approximate middle value).

Calculate deviations: (14−35), (16−35), (27−35), (31−35), (39−35), (44−35), (51−35), (58−35)

Deviations: −21, −19, −8, −4, +4, +9, +16, +23

Sum of deviations = −52 + 52 = 0

Since the net deviation is 0, the assumed average is the correct average.

Therefore The correct answer is 35.

Alternate Method

Given: Numbers = 14, 16, 27, 31, 39, 44, 51, 58

Formula Used: Average = Sum of all observations ÷ Total number of observations

Calculations:

=> Sum = 14 + 16 + 27 + 31 + 39 + 44 + 51 + 58

=> Sum = 30 + 58 + 83 + 109 = 280

=> Total number of observations (n) = 8

=> Average = 280 ÷ 8

=> Average = 35

Therefore The correct answer is 35.

Additional Information

Arithmetic Mean

The arithmetic mean of a set of data is the sum of all values divided by the total count of values.

Deviation Method for Average

Average = Assumed Mean + (Sum of Deviations ÷ Total Count). This is useful for large numbers.

Weighted Average

When different values have different importance (weights), use Average = (w1x1 + w2x2 + ...) ÷ (w1 + w2 + ...).

Average of Consecutive Numbers

For numbers in Arithmetic Progression (AP), Average = (First Term + Last Term) ÷ 2.

Q75. Answer: (c) 72

The correct answer is 72.

Key Points

• In Carnatic music, there are 72 Melakarta ragas, which are also called parent or fundamental ragas.

• The Melakarta system is a comprehensive framework for classifying all possible ragas based on specific scales.

• Each Melakarta raga consists of seven swaras (notes): Sa, Ri, Ga, Ma, Pa, Da, Ni, in ascending (Arohana) and descending (Avarohana) order.

• The 72 Melakarta ragas are divided into 12 chakras (groups), each containing six ragas.

• These Melakarta ragas serve as a foundation for deriving Janya ragas, which are more specific and commonly used in compositions.

Additional Information

• Melakarta Ragas:

• Each Melakarta raga must have all seven swaras (notes) in both ascending (Arohana) and descending (Avarohana) scales.

• They strictly follow the rules of Carnatic music theory, such as having a fixed set of intervals between notes.

• Chakras in Melakarta System:

• The 72 Melakarta ragas are grouped into 12 chakras (sets), each named after a specific concept (e.g., Indu, Netra, Agni).

• Each chakra contains six Melakarta ragas, differentiated by variations in the Ri, Ga, Da, and Ni swaras.

• Janya Ragas:

• Janya ragas are derived from Melakarta ragas and may include fewer than seven swaras or employ irregular note patterns.

• They are more commonly used in Carnatic compositions and improvisations.

• Swaras in Carnatic Music:

• The seven basic swaras are: Shadja (Sa), Rishabha (Ri), Gandhara (Ga), Madhyama (Ma), Panchama (Pa), Dhaivata (Da), and Nishada (Ni).

• Each swara has variants (e.g., Shuddha, Chatushruti, Antara) that define the raga's scale.

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Q76. Answer: (b) S

Given: Seven boxes, D, E, F, G, S, T and U, are kept one over the other but not necessarily in the same order.

1) Only three boxes are kept below D.

2) Only G is kept above T.

Boxes
G
T
D

3) Only two boxes are kept between D and U.

4) E is kept at some place below F and at some place above S.

Boxes
G
T
F
D
E
S
U

Thus, S box is kept at second position from the bottom.

Hence, "Option 2" is the correct answer.

Q77. Answer: (b) 17.91%

Shortcut Trick

Use the ratio relationship between Cost Price (CP) and Marked Price (MP).

Formula: CP ÷ MP = (100 − D%) ÷ (100 + P%)

Let CP be 100. Then MP = 100 + 34 = 134.

100 ÷ 134 = (100 − D) ÷ (100 + 10)

100 ÷ 134 = (100 − D) ÷ 110 => 11000 = 13400 − 134D

134D = 2400 => D = 2400 ÷ 134 ≈ 17.91%

Therefore The correct answer is 17.91%.

Alternate Method

Given → Marked Price (MP) = Rs. 578, Markup% = 34%, Profit% = 10%.

Formulas: CP = MP ÷ (1 + Markup%) | SP = CP × (1 + Profit%) | Discount% = (MP − SP) ÷ MP × 100

=> Step 1: Find CP. MP = 134% of CP => 578 = 1.34 × CP => CP = 578 ÷ 1.34 ≈ Rs. 431.34

=> Step 2: Find Selling Price (SP) for 10% profit. SP = 431.34 × 1.10 ≈ Rs. 474.47

=> Step 3: Calculate Discount. Discount = MP − SP = 578 − 474.47 = Rs. 103.53

=> Step 4: Discount Percentage = (103.53 ÷ 578) × 100 ≈ 17.9117%

Therefore The correct answer is 17.91%.

Additional Information

Marked Price and Discount

Marked Price (MP) is the price printed on an item. Discount is always calculated on the MP to arrive at the Selling Price (SP).
Formula: SP = MP × (100 − D%) ÷ 100.

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CP-MP Relationship

The direct link between Cost Price and Marked Price bypassing SP calculation is given by: MP ÷ CP = (100 + Profit%) ÷ (100 − Discount%).

Q78. Answer: (a) 3

Given series: 4917523

According to the question, arranged in ascending order from left to right:

4917523 → 1234579

Digits that will be third from the left end in the new number thus formed is → 1234579 → 3

Hence, "Option 1" is the correct answer.

Q79. Answer: (a) 1

According to the given information,

Thus, 'F' is coded as '1'.

Hence, "Option 1" is the correct answer.

Q80. Answer: (c) 38

Shortcut Trick

Let the assumed mean (A) be 22.

Calculate deviations ($d_i = x_i - 22$):

$\sum f_i d_i = 98\times(-10) + 74\times0 + 17\times36 + 28\times57 + 44\times67 = -980 + 0 + 612 + 1596 + 2948 = 4176$

Total frequency (N) = 98 + 74 + 17 + 28 + 44 = 261

Actual Mean = A + ($\sum f_i d_i \div N$) = 22 + (4176 ÷ 261) = 22 + 16 = 38

Therefore The correct answer is 38.

Alternate Method

Given:

Marks (x_i) and Number of Students (f_i).

Formula Used:

Mean = $\sum(f_i \times x_i) \div \sum f_i$

Let us calculate the sum of the products of marks and number of students ($\sum f_i x_i$):

=> 12 × 98 = 1176

=> 22 × 74 = 1628

=> 58 × 17 = 986

=> 79 × 28 = 2212

=> 89 × 44 = 3916

=> Total sum ($\sum f_i x_i$) = 1176 + 1628 + 986 + 2212 + 3916 = 9918

=> Total number of students ($\sum f_i$) = 98 + 74 + 17 + 28 + 44 = 261

=> Mean = $\sum f_i x_i \div \sum f_i$

=> Mean = 9918 ÷ 261 = 38

Why other options are incorrect:

=> Option (1) 53: This value is much higher than the actual weighted average because the majority of students (172 out of 261) scored lower marks (12 and 22).

=> Option (2) 22: This is one of the individual marks, not the overall mean of the entire distribution.

=> Option (4) 60: This value is incorrect as it does not represent the correct ratio of total marks to total students.

Therefore The correct answer is 38.

Additional Information

Arithmetic Mean for Grouped Data

The mean of a grouped frequency distribution can be calculated using the direct method: Mean = $\sum f_i x_i \div \sum f_i$, where x_i is the class mark or individual value and f_i is the frequency.

Assumed Mean Method

This method simplifies calculations by choosing an arbitrary value 'A' as the assumed mean. The formula is Mean = A + $\sum f_i d_i \div \sum f_i$, where $d_i = x_i - A$.

Step-Deviation Method

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When class intervals are of equal width 'h', calculations can be further simplified using $u_i = (x_i - A) \div h$. The formula is Mean = $A + h \times (\sum f_i u_i \div \sum f_i)$.

Q81. Answer: (d) Only conclusion (I) follows.

The least possible Venn diagram for the given statements is as shown below :

Conclusions:

(I) Some keys are doors → Does not follow (As all keys are doors. As whole keys comes in doors, therefore it is true.)

(II) All doors are cupboards → Follow (As all keys are doors and some doors are cupboards. So it is possible but not definite.)

Therefore Here, Only conclusion (I) follows.

Hence, the correct answer is "Option 4".

Q82. Answer: (b) 49

The logic followed here:

6 is related to 42 → $6 \times 7 = 42$

And,

4 is related to 28 → $4 \times 7 = 28$

Similarly,

7 is related to→ $7 \times 7 = 49$

Hence, "Option 2" is the correct answer.

Q83. Answer: (a) First-Come, First-Served (FCFS)

The correct answer is First-Come, First-Served (FCFS).

Key Points

• FCFS is a non-preemptive scheduling algorithm where processes are executed in the order they arrive in the ready queue.

• This algorithm suffers from the convoy effect, where longer processes delay the execution of shorter ones, leading to inefficiency.

• Convoy effect occurs because FCFS does not consider the burst time of processes, causing an imbalance in CPU utilization.

• It is simple to implement but performs poorly in environments with a mix of long and short processes.

• In scenarios where a long process occupies the CPU, other processes must wait, leading to higher average waiting time and reduced throughput.

Additional Information

• Convoy Effect

• It is a situation in CPU scheduling where short processes get delayed due to a longer process occupying the CPU.

• It leads to increased waiting time, reduced throughput, and inefficient CPU utilization.

• Other Scheduling Algorithms

• Priority Scheduling (non-preemptive): Prioritizes processes based on a given priority, which can prevent convoy effect but may lead to starvation of lower-priority processes.

• Shortest Job First (SJF): Executes processes with the shortest burst time first, minimizing average waiting time and avoiding convoy effect in most cases.

• Round Robin: Uses a time quantum to ensure fair CPU allocation, effectively reducing the chances of convoy effect.

• Preemptive vs Non-Preemptive Scheduling

• Preemptive Scheduling: Allows the CPU to be taken away from a running process to execute a higher-priority or shorter process.

• Non-Preemptive Scheduling: Once a process starts execution, it runs to completion without interruption.

• Metrics for Evaluating Scheduling Algorithms

• Turnaround Time: Total time taken from process submission to completion.

• Waiting Time: Total time a process spends in the ready queue.

• Throughput: Number of processes completed per unit of time.

• CPU Utilization: Percentage of time the CPU remains active.

Q84. Answer: (c) 20

Shortcut Trick

For inverse proportion, the product of variables remains constant (M1N1 = M2N2).

Initial product = $18 \times 10 = 180$.

New product = $M \times 9 = 180$.

M = 180 ÷ 9 = 20.

Therefore The correct answer is 20.

Alternate Method

Given: M prop. to 1/N

Formula Used: M × N = k (where k is the proportionality constant)

=> Case 1: M = 18, N = 10

=> k = 18 × 10 = 180

=> Case 2: N = 9, M = ?

=> M × 9 = 180

=> M = 180 ÷ 9

=> M = 20

Therefore The correct answer is 20.

Additional Information

Inverse Variation

Two quantities are in inverse proportion if an increase in one causes a proportional decrease in the other, such that their product remains constant (xy = k).

Direct Variation

In direct proportion, the ratio of the two quantities remains constant (y/x = k), meaning both increase or decrease together.

Proportionality Constant (k)

The constant k defines the relationship between the variables; for M prop. to 1/N, k = M × N.

Q85. Answer: (d) LK - KJ

The logic followed here is:

Option 1) HI - CD

Option 2) PQ - KL

Option 3) QR - LM

Option 4) LK - KJ

Thus, out of all 'LK - KJ' is the odd one out.

Hence, "Option 4" is the correct answer.

Q86. Answer: (b) 147 km/hr

Shortcut Trick

In same direction, (S_T − S1) × T1 = (S_T − S2) × T2 = Length of Train.

(S_T − 12.6) × 12.5 = (S_T − 27) × 14

12.5S_T − 157.5 = 14S_T − 378

1.5S_T = 220.5 => S_T = 220.5 ÷ 1.5 = 147 km/hr.

Therefore The correct answer is 147 km/hr.

Alternate Method

Given: Speed of Person 1 (S1) = 12.6 km/hr, Time 1 (T1) = 12.5 s

Given: Speed of Person 2 (S2) = 27 km/hr, Time 2 (T2) = 14 s

Formula: Distance = Relative Speed × Time

=> Let Train Speed be S km/hr.

=> Length L = (S − 12.6) × (5/18) × 12.5 --- (i)

=> Length L = (S − 27) × (5/18) × 14 --- (ii)

=> (S − 12.6) × 12.5 = (S − 27) × 14

=> 12.5S − 157.5 = 14S − 378

=> 14S − 12.5S = 378 − 157.5

=> 1.5S = 220.5

=> S = 220.5 ÷ 1.5 = 147 km/hr

Therefore The correct answer is 147 km/hr.

Additional Information

Relative Speed

When moving in the same direction, relative speed is the difference (u − v). When moving in opposite directions, it is the sum (u + v).

Unit Conversion

To convert km/hr to m/s, multiply by 5/18. To convert m/s to km/hr, multiply by 18/5.

Train Overtaking a Moving Object

Length of Train = (Relative Speed) × (Time taken to cross). This formula assumes the length of the person/point object is negligible.

Q87. Answer: (d) 40%

The correct answer is 0.4.

Key Points

• According to the Economic Survey 2023-24, 40% of India's population is projected to live in urban areas by 2030.

• This projection indicates a significant rise in urbanization, driven by economic growth and migration trends.

• Urbanization is expected to have a direct impact on infrastructure, housing, transportation, and public services.

• The survey highlights the need for sustainable urban planning and development to accommodate the growing urban population.

• India's ongoing urbanization aligns with global trends, where developing countries experience rapid urban growth.

Additional Information

• Urbanization in India

• Urbanization refers to the process by which more people live and work in cities and urban areas than in rural areas.

• In India, urbanization is driven by factors like industrialization, better employment opportunities, and improved living standards.

• As of the 2011 Census, approximately 31% of India’s population lived in urban areas.

• Smart Cities Mission

• Launched by the Government of India in 2015, the Smart Cities Mission aims to develop urban areas with advanced infrastructure and technology-driven solutions.

• The mission focuses on improving the quality of life through better housing, transportation, water supply, and waste management.

• Challenges of Urbanization

• Urbanization in India faces challenges such as overcrowding, inadequate infrastructure, traffic congestion, and pollution.

• Affordable housing and slum redevelopment are critical areas that require attention.

• UN Sustainable Development Goals (SDGs)

• Goal 11 of the UN SDGs aims to make cities inclusive, safe, resilient, and sustainable.

• Urbanization in India contributes to achieving these global objectives through better urban planning and development initiatives.

Q88. Answer: (b) Daughter's husband's sister

Given:

1) F is the sister of G.

2) G is the husband of H.

3) H is the daughter of I.

4) I is the husband of J.

Thus, F is J's daughter's husband's sister.

Hence, the correct answer is "Option 2"

Q89. Answer: (a) 24 hours

Shortcut Trick

Net work done per hour = (1 ÷ Filling time) − (1 ÷ Emptying time)

Net filling rate = (1 ÷ 8) − (1 ÷ 12) = (3 − 2) ÷ 24 = 1 ÷ 24

Total time taken = 24 hours

Therefore The correct answer is 24 hr.

Alternate Method

Given:

Time taken by Tap (Inlet) = 8 hours

Time taken by Hole (Outlet) = 12 hours

Source
Time (hr)
Total Work (LCM)
Efficiency
Tap
8
24 units
+3
Hole
12
−2
Calculations:
=> Total Capacity (LCM of 8 and 12) = 24 units
=> Net efficiency (when both open) = 3 − 2 = 1 unit/hr
=> Time required = Total Capacity ÷ Net Efficiency
=> Time required = 24 ÷ 1 = 24 hours
Therefore The correct answer is 24 hr.
Additional Information
Net Rate Formula
When one pipe fills (x) and another empties (y), the time taken (T) is given by 1/T = 1/x − 1/y, provided x < y.
Pipes and Cisterns Logic
Inlet pipe efficiency is taken as positive (+) and outlet/leak efficiency is taken as negative (−).
Efficiency and Time
Efficiency is inversely proportional to the time taken to complete the work.

Q90. Answer: (b) Growth of technical textiles

The correct answer is Growth of technical textiles.
Key Points
• The National Technical Textiles Mission was approved by the Cabinet Committee on Economic Affairs in February 2020.
• The mission aims to promote the growth of the technical textiles sector in India through research, development, and innovation.
• It is a four-year program (2020-21 to 2023-24) with a budget allocation of Rs. 1,480 crore.
• The mission focuses on areas like agro-textiles, geo-textiles, medical textiles, and protective textiles, among others.
• It also emphasizes capacity building and skill development to strengthen India's position as a global leader in technical textiles production.
Additional Information
• Technical Textiles
• Technical textiles are functional fabrics designed for specific applications rather than aesthetics, such as agriculture, healthcare, construction, and defense.
• They include products like medical implants, protective clothing, airbags, and industrial filters.
• Components of the Mission
• The mission has four components: Research, Innovation, and Development; Promotion and Market Development; Export Promotion; and Education, Training, and Skill Development.
• Global Market
• The global technical textiles market is projected to grow significantly, offering India an opportunity to become a leading exporter.
• India aims to increase its market share in global technical textiles from 4% to 10% by 2024.
• Import Substitution
• India currently imports a significant portion of technical textiles. The mission aims to reduce dependence on imports by promoting domestic production.

Q91. Answer: (b) 855

Given: 127 ÷ 7 + 324 × 4 − 47 =?
According to the question, after '+' and '−' are interchanged and '×' and '÷' are interchanged:
127 ÷ 7 + 324 × 4 − 47 = ? => 127 × 7 - 324 ÷ 4 + 47 = ?

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=> 127 × 7 - 324 ÷ 4 + 47 = ?

=> 127 × 7 - 81 + 47 = ?

=> 889 + 47 - 81 = ?

=> 936 - 81 = ?

=> 855 = ?

Hence, "Option 2" is the correct answer.

Q92. Answer: (d) Only 3

The correct answer is Option 4.

Key Points

• The New Economic Policy of 1991 aimed at liberalization, privatization, and globalization, drastically altering India's industrial landscape.

• Compulsory licensing was abolished for most industries except for a few sectors like alcohol, hazardous chemicals, and pharmaceuticals.

• Several industries, previously reserved for the government, were dereserved, allowing private sector participation.

• The statement "There was quota and price control for all goods produced in the industrial sector" is incorrect as the policy eliminated most price controls and quotas to promote a free-market economy.

• Post-1991, industries experienced reduced government intervention, which led to increased competition and efficiency in production.

Additional Information

• Liberalization:

• The 1991 reforms reduced trade barriers, eased restrictions on foreign investments, and promoted economic openness.

• Licensing requirements were removed for most industries, except for a few critical sectors.

• Privatization:

• Many public sector enterprises were privatized or opened up for private participation.

• This led to an increase in efficiency and better resource allocation in the economy.

• Globalization:

• Foreign companies were allowed to invest in Indian markets, which boosted technology transfer and competition.

• The reforms integrated India's economy with the global markets, leading to export growth.

• Price Controls:

• Price controls and quotas were largely abolished, promoting a free-market economy.

• This allowed industries to determine prices based on market demand and supply rather than government mandates.

Q93. Answer: (b) Reuse Slides (under the Home tab)

The correct answer is Reuse Slides (under the Home tab).

Key Points

• The Reuse Slides feature in MS-PowerPoint 2019 allows users to import slides from existing presentations without manually copying or recreating content.

• It is located under the Home tab in the ribbon menu and can be accessed via the New Slide dropdown menu.

• This feature enables users to maintain formatting and styles from the original presentation or adapt them to match the current presentation's theme.

• Users can browse presentations stored on their local device or connected network to select specific slides for reuse.

• The Reuse Slides feature is particularly useful for saving time and ensuring consistency in presentations.

Additional Information

• Slide Master:

• Slide Master is a tool in PowerPoint used to create and maintain consistent formatting across all slides in a presentation.

• It allows users to edit fonts, colors, and layouts globally without modifying each slide individually.

• This feature is helpful for creating templates and ensuring professional design.

• Format Painter:

• Format Painter allows users to copy formatting (e.g., text style, color, and size) from one object and apply it to another.

• It is located under the Home tab and simplifies repetitive formatting tasks.

• Animation Painter:

• Animation Painter helps replicate animation effects from one object to another within the presentation.

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• It is located under the Animations tab in PowerPoint.

• Presentation Templates:

• PowerPoint provides pre-designed templates that help users create visually appealing presentations quickly.

• Templates include preset layouts, color schemes, and font styles.

Q94. Answer: (a) Export-Import Bank of India (EXIM Bank)

The correct answer is Export-Import Bank of India (EXIM Bank).

Key Points

• The Export-Import Bank of India (EXIM Bank) is a specialized financial institution established in 1982 under the Export-Import Bank of India Act, to promote and facilitate India's international trade and investment.

• EXIM Bank plays a pivotal role in extending concessional credit lines and loans to partner countries, particularly in strategic sectors like defense exports.

• In April 2025, India launched a strategic initiative to boost defense exports by offering low-cost loans to nations traditionally reliant on Russian arms, facilitated primarily by EXIM Bank.

• EXIM Bank's efforts align with the Indian government's "Aatmanirbhar Bharat (Self-Reliant India)" initiative, aiming to reduce dependency on foreign imports and strengthen domestic defense manufacturing.

• The institution also promotes India's exports by providing financial support, including buyer's credit, supplier's credit, and export project finance.

Additional Information

• Aatmanirbhar Bharat in Defense

• The Indian government has been actively promoting self-reliance in defense manufacturing by encouraging indigenous production of arms, ammunition, and equipment.

• India aims to become a major exporter of defense equipment, reducing its reliance on imports from countries like Russia and the US.

• In 2020, the government introduced a list of items banned for import to boost domestic defense production.

• Role of EXIM Bank in International Trade

• EXIM Bank provides financial assistance for exports and imports of goods and services, as well as investments in foreign countries.

• It supports Indian exporters by offering credit at competitive rates, making Indian products more attractive in international markets.

• The bank also facilitates India's soft power diplomacy by providing concessional credit to developing countries for infrastructure and other projects.

• Defense Exports from India

• India's defense exports have been growing steadily, with a focus on exporting items like missiles, radar systems, and patrol vessels.

• Key markets for Indian defense exports include Southeast Asia, Africa, and the Middle East.

• The Indian government aims to achieve defense export targets of Rs. 35,000 crore by 2025 under the "Make in India" initiative.

• Other Institutions Involved in Defense Financing

• While EXIM Bank is the primary institution for facilitating defense export loans, other institutions like the State Bank of India (SBI) may also play a supporting role by offering additional financial services.

• The Reserve Bank of India (RBI) provides regulatory oversight for such financial initiatives to ensure compliance with monetary policies.

Q95. Answer: (c) Rs. 1,03,443

Shortcut Trick

Quarterly Rate = 20% ÷ 4 = 5% (fractional value = 1/20)

For 1 year (4 quarters), the Ratio of Principal to Amount = 20^4 : 21^4

=> 1,60,000 : 1,94,481 | Interest units = 1,94,481 − 1,60,000 = 34,481

=> Given 1,60,000 units = Rs. 4,80,000 → 1 unit = Rs. 3

=> Compound Interest = 34,481 × 3 = Rs. 1,03,443

Therefore The correct answer is Rs. 1,03,443.

Alternate Method

Given: Principal (P) = Rs. 4,80,000 | Rate (R) = 20% p.a. | Time (T) = 1 Year

Formula Used: $A = P(1 + r/100)^n$ and CI = A − P

=> Quarterly Rate (r) = 20% ÷ 4 = 5%

=> Number of Quarters (n) = 1 × 4 = 4

=> Amount (A) = 4,80,000 × (1 + 5/100)^4

=> A = 4,80,000 × (21/20)^4

=> A = 4,80,000 × (194481/160000)

=> A = 3 × 1,94,481 = Rs. 5,83,443

=> Compound Interest = 5,83,443 − 4,80,000 = Rs. 1,03,443

Therefore The correct answer is Rs. 1,03,443.

Additional Information

Quarterly Compounding Rule

When interest is compounded quarterly, the annual rate is divided by 4 (R/4) and the time in years is multiplied by 4 (4T).

Effective Rate of Interest

For 4 periods of 5% each, the effective rate is roughly 21.55% (calculated as [(1.05)^4 − 1] × 100).

Successive Percentage Shortcut

For two periods, effective rate = x + y + (xy/100). For 5% and 5%, it is 10.25%. For four periods, apply this twice to 10.25%.

Q96. Answer: (a) e-NAM

The correct answer is e-NAM.

Key Points

• e-NAM (National Agriculture Market) is a pan-India electronic trading platform launched by the Government of India on April 14, 2016, under the Ministry of Agriculture.

• The platform aims to integrate agricultural markets across the country, providing farmers with better price discovery and reducing the need for middlemen.

• e-NAM facilitates online trading of agricultural commodities, enabling farmers to sell their produce directly to buyers in a transparent manner.

• It connects existing Agricultural Produce Market Committees (APMCs) and other market yards into a unified network, ensuring a seamless national market for agricultural commodities.

• As of 2023, e-NAM has onboarded more than 1,000 mandis (markets) across India, significantly improving market access for farmers.

Additional Information

• Agricultural Produce Market Committee (APMC) Act

• The APMC Act governs the sale of agricultural produce in regulated markets (mandis).

• It aims to prevent exploitation of farmers by intermediaries but has been criticized for creating inefficiencies and limiting farmers' ability to sell freely.

• Many states have amended the APMC Act to allow direct marketing, contract farming, and private market establishment.

• PM-KISAN (Pradhan Mantri Kisan Samman Nidhi)

• Launched in February 2019, PM-KISAN provides direct income support of Rs. 6,000 per year to small and marginal farmers.

• The amount is paid in three equal installments of Rs. 2,000 each.

• This scheme aims to ensure financial stability for farmers and improve agricultural productivity.

• Kisan Credit Card (KCC)

• Introduced in 1998 by NABARD, the Kisan Credit Card scheme provides farmers with timely access to credit for agricultural and allied activities.

• It offers flexible repayment options and ensures liquidity for farmers during crucial farming periods.

• e-NAM Features

• Allows farmers to check real-time commodity prices and sell their produce at the best available rates.

• Facilitates payment directly to farmers' bank accounts, reducing delays and corruption.

• Promotes transparency and efficiency in agricultural trade by reducing market inefficiencies.

Q97. Answer: (c) 62

Given:

The value of 43 + [2 + { 55 - (28 ÷ 7)} ÷ 3]

Calculation:

43 + [2 + { 55 - (28 ÷ 7)} ÷ 3]

=> 43 + [2 + { 55 - 4 } ÷ 3]

=> 43 + [2 + { 51 } ÷ 3]

=> 43 + [2 + 17]

=> 43 + 19

=> 62

Therefore The correct answer is option (3).

Q98. Answer: (a) Great Nicobar Island

The correct answer is Great Nicobar Island.

Key Points

• INS Baaz is located on the Great Nicobar Island, which is the southernmost island of the Andaman and Nicobar archipelago.

• It was commissioned on 31st July 2012 as a naval air station to enhance surveillance and operational capabilities in the Indian Ocean Region (IOR).

• The station is strategically located near the Six Degree Channel, a vital sea lane through which significant global trade passes.

• INS Baaz is pivotal for India's maritime security and helps monitor the movement of ships and submarines in the region.

• The air station supports operations of aircraft such as the Dornier and helicopters, and it is capable of enabling future expansion for larger aircraft.

Additional Information

• Andaman and Nicobar Islands

• The Andaman and Nicobar Islands are a group of 572 islands located in the Bay of Bengal.

• They serve as India's easternmost boundary and are of strategic importance for maritime trade and security.

• The islands act as a natural outpost for monitoring the Malacca Strait, one of the world's busiest shipping lanes.

• Six Degree Channel

• It is also known as the Great Channel and lies between the Great Nicobar Island and the Indonesian island of Sumatra.

• This channel is approximately 10 degrees north of the equator and is a crucial shipping route connecting the Indian Ocean to the Pacific Ocean.

• Indian Naval Air Stations

• Indian Naval Air Stations provide logistical and operational support for the Indian Navy's air assets.

• Other key air stations include INS Hansa in Goa and INS Rajali in Tamil Nadu.

• Strategic Importance of INS Baaz

• The station enhances India's ability to secure its Exclusive Economic Zone (EEZ) and monitor the Indo-Pacific region.

• It plays a key role in disaster relief operations, search and rescue missions, and maritime domain awareness.

Q99. Answer: (b) Two

Given: A, B, C, D, E, F and G are sitting around a circular table facing the centre.

1) A sits third to the right of G.

2) C sits second to the right of D.

3) G is not an immediate neighbour of C.

4) E sits to the immediate left of B.

After positioning E and B only one position is left which will be occupied by the only person left i.e. F.

Thus, two people sit between D and B when counted from the left of D.

Hence, "Option 2" is the correct answer.

Q100. Answer: (c) 3025

Shortcut Trick

Ratio sum => 16 + 10 + 9 + 17 = 52 units

Total value => 52 units = 6292

Value of 1 unit => 6292 ÷ 52 = 121

Sum of 1^(st) and 3^(rd) (16 + 9) => 25 units = 25 × 121 = 3025

Therefore The correct answer is 3025.

Alternate Method

Given: Ratio = 16 : 10 : 9 : 17, Total Sum = 6292

Let the numbers be 16x, 10x, 9x, and 17x.

=> 16x + 10x + 9x + 17x = 6292

=> 52x = 6292

=> x = 6292 ÷ 52

=> x = 121

=> Sum of 1^(st) and 3^(rd) = 16x + 9x = 25x

=> 25 × 121 = 3025

Therefore The correct answer is 3025.

Additional Information

Ratio and Proportion

A ratio compares two quantities. If a : b = c : d, then a × d = b × d (Product of extremes = Product of means).

Dividing a Quantity

To divide a quantity N in ratio a : b, the parts are [a/(a+b)] × N and [b/(a+b)] × N.

Compound Ratio

The compound ratio of (a : b) and (c : d) is (ac : bd).

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