RRB NTPC Graduate Level CBT-I Official Paper (Held On: 21 Jun, 2025 Shift 3) (Previous Year Paper)

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

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Q1. Which of the following correctly describes the composition of the selection committee for the Lokpal?

(a) Prime Minister, Chief Justice of India, Leader of the Opposition, Vice-President, and a Cabinet Minister

(b) Prime Minister, Home Minister, Chief Justice of India, Attorney General, and Leader of the Opposition

(c) President, Prime Minister, Chief Election Commissioner, Lok Sabha Speaker, and a Jurist

(d) Prime Minister, Lok Sabha Speaker, Leader of the Opposition, Chief Justice of India, and an eminent jurist nominated by the President

Q2. Which of the following correctly differentiates between absolute poverty and relative poverty?

(a) Absolute poverty is based on income inequality; relative poverty is not.

(b) Absolute poverty uses a fixed threshold; relative poverty compares individuals within a society.

(c) Absolute poverty is subjective; relative poverty is objective.

(d) There is no difference between the two.

Q3. Refer to the following number and symbol series and answer the question that follows. Counting to be done from left to right only.

(Left) 7 & 9 ^ # 1 * 5 ? 2 6 ≡ 4 Δ 3 $ @ 8 (Right)

How many such symbols are there, each of which is immediately preceded by an odd number but NOT immediately followed by an even number? (Note: a combination of three elements should be considered while answering this question.)

(a) One

(b) Three

(c) More than three

(d) Two

Q4. Which of the following key combinations is used to paste copied content?

(a) Ctrl + B

(b) Ctrl + K

(c) Ctrl + V

(d) Ctrl + P

Q5. Which of the following Articles of the Indian Constitution states about the appointment of the Advocate General for the State?

(a) Article 164

(b) Article 165

(c) Article 162

(d) Article 163

Q6. Which of the following was NOT a provision of the Rowlatt Act, which was introduced by the British government to curb political dissent in India?

(a) Censorship of press

(b) Restricitions on freedom of expression

(c) Arrest of political leaders without warrants

(d) Arrest without trial

Q7. 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 letters are message.

Some messages are emails.

No email is a post.

Conclusions:

(I) No letter is a post.

(II) Some emails are letters.

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

Q8. Under which provision can the Governor extend judicial service rules to certain magistrates?

(a) Article 237
(b) Article 233
(c) Article 142
(d) Article 234

Q9. A, B, L, M, S, T and Z are sitting around a circular table facing the centre. Only one person sits between B and L when counted from the left of L. S sits third to the right of Z. M sits third to the left of T. S sits to the immediate right of M. A is not an immediate neighbour of M. How many people sit between A and L when counted from the right of A?

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

Q10. During summer, the Thar Desert becomes a low-pressure zone due to which of the following?

(a) Western disturbances
(b) Frontal cyclones
(c) Intense solar heating
(d) Coastal humidity

Q11. KORJ is related to DHKC in a certain way based on the English alphabetical order. In the same way, IMPH is related to BFIA. To which of the given options is NRUM related, following the same logic?

(a) GKFN
(b) KGFN
(c) GKNF
(d) KGNF

Q12. Which force acts without physical contact and governs celestial body motion in mechanics?

(a) Spring force
(b) Gravitational force
(c) Friction
(d) Tension

Q13. According to the Census of India, what was the approximate decadal growth rate of India’s population during 2001-2011?

(a) 14.9%
(b) 21.3%
(c) 25.6%

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(d) 17.6%

Q14. If 2 is added to each even digit and 2 is subtracted from each odd digit in the number 6597423, what will be the sum of all the even digits in the new number thus formed?

(a) 18
(b) 16
(c) 14
(d) 20

Q15. Jagoi and Cholom are the two main divisions of which of the following classical dance forms?

(a) Kuchipudi
(b) Kathak
(c) Odissi
(d) Manipuri

Q16. Who defeated Rudrankksh Patil and Arya Borse in the gold medal match of the 10 m Air Rifle Mixed Team event at ISSF World Cup 2025?

(a) A team from Norwa
(b) A team from Germany
(c) A team from the USA
(d) A team from China

Q17. F, G, H, J, K and L live on six different floors of the same building. The lowermost floor in the building is numbered 1, the floor above it, number 2 and so on till the topmost floor is numbered 6. J lives immediately above L. Only two people live between F and L. F lives on an odd numbered floor. H lives immediately below K. How many people live between G and K?

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

Q18. Mr. X starts from Point L and drives 5 km towards the east. He then takes a right turn, drives 6 km, turns right and drives 9 km. He then takes a right turn and drives 2 km, turns left, drives 4 km. He takes a final right turn, drives 4 km and stops at Point O. How far (shortest distance) and towards which direction should he drive in order to reach Point L again? (All turns are 90-degree turns only unless specified.)

(a) 7 km towards the west
(b) 2 km towards the south
(c) 8 km towards the east
(d) 2 km towards the north

Q19. Anand purchased an item and incurred Rs. 127 in repair expenses. Subsequently, he sold it to Bharath with a 52% profit. Eventually, Bharath sold the item for Rs. 4,788, making a 44% loss. What was the original cost (in Rs.) of the item for Anand?

(a) 5,523
(b) 5,625
(c) 5,498
(d) 5,628

Q20. For which discovery was Paul Ehrlich awarded the Nobel Prize in Medicine in 1908?

(a) Antibacterial effect of sulpha drugs
(b) Penicillin for treating infections
(c) Use of azodyes in textiles
(d) Theoretical basis for immunology

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Q21. If $x + 1/x = \sqrt{5}$, $x > 0$, find the value of $x^4 + 1/(x^4)$.

(a) 7
(b) 9
(c) 3
(d) 10

Q22. In the following triads, each group of letters is related to the subsequent one following a certain logic. Select from the given options, the one that follows the same logic.

ARCE - CARE - ECRA

POLE - LPOE - ELOP

(a) BING - IBNG - GINB
(b) SAFE - SFAE - EFAS
(c) WORM - RWOM - MROW
(d) ZEAP - AZEP - EAPZ

Q23. A total profit of Rs. 12,200 is to be distributed amongst P, Q, and R such that P : Q = 15 : 4 and Q : R = 3 : 1. The share (in Rs.) of R in the profit is:

(a) 650
(b) 750
(c) 700
(d) 800

Q24. There is a polygon of 10 sides. How many triangles can be drawn using the vertices of the polygon?

(a) 120
(b) 150
(c) 125
(d) 115

Q25. Express 0. 583583... in the form p/q, where p and q are integer and $q \neq 0$.

(a) 141/499
(b) 583/999
(c) 277/333
(d) 141/256

Q26. What is the maximum strength of the Deputy Governors of Reserve Bank of India, according to the Reserve Bank of India Act, 1934?

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

Q27. In one hour, a boat goes 47 km/hr in the direction of the stream and 19 km/hr against the direction of the stream. What will be the speed of the current?

(a) 20 km/hr
(b) 14 km/hr
(c) 19 km/hr
(d) 11 km/hr

Q28. What is the length of the hyperloop test track launched by IIT Madras in 2025?

(a) 422 m
(b) 10 km
(c) 100 m
(d) 1 km

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Q29. If 20% of a number is equal to 3/4 of another number, then what is the ratio of the first number to the second number ?

(a) 20 : 1
(b) 13 : 5
(c) 15 : 4
(d) 10 : 7

Q30. Who were the defending champions at the 15th Hockey India Senior Women National Championship 2025?

(a) Hockey Haryana
(b) Hockey Punjab
(c) Hockey Jharkhand
(d) Hockey Maharashtra

Q31. Which of the given 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 ::?

: PKN :: TOR : %

(a) = KPJ, % = YOJ
(b) = KFI, % = YTW
(c) = KFL, % = YPG
(d) = LJY, % = YVX

Q32. If A's salary is 17% more than that of B, then by what percentage is B's salary less than that of A (rounded off to two decimal places)?

(a) 14.53%
(b) 16.39%
(c) 11.57%
(d) 17.11%

Q33. P, A, R, T, L and Y live on six different floors of the same building. The lowermost floor in the building is numbered 1, the floor above it, number 2 and so on till the topmost floor is numbered 6. No one lives below R. Only A lives above T. Only two people live between R and P. Y lives on an even numbered floor. R lives on the lowermost floor. How many people live between L and A?

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

Q34. Which of the following letter-number clusters will replace the question mark (?) in the given series to make it logically complete?

NR25 MQ36 LP47 KO58 ?

(a) JN68
(b) JN69
(c) JM69
(d) JM68

Q35. A pipe can fill a tank in 12 hours. Another pipe can empty the filled tank in 21 hours. If both the pipes are opened simultaneously, then the time (in hours) in which the tank will be half filled, is:

(a) 14
(b) 29
(c) 15
(d) 28

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Q36. A man receives Rs. 6,150 per month as salary. He saves 46% of his salary every month. His expenditure per month is:

(a) Rs. 3,295
(b) Rs. 3,260
(c) Rs. 3,371
(d) Rs. 3,321

Q37. 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) AH – CK
(b) KR – NU
(c) NU – PX
(d) EL – GO

Q38. The average of three numbers is 154. The first number is twice the second number, and the second number is twice the third number. What is the first number?

(a) 264
(b) 268
(c) 252
(d) 258

Q39. Which statement best explains why removing all desktop icons does NOT impact the functionality of the applications in Windows OS?

(a) Desktop icons are system-critical files required to run applications.
(b) Windows OS duplicates all application files in the desktop directory.
(c) Desktop icons are only visual shortcuts and not the actual application files.
(d) The desktop is a virtual memory area where applications run in the background.

Q40. 'Maand' is the popular folk music of which state?

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

Q41. Which of the following films won the Best Picture award at the 2025 Oscars?

(a) Wicked
(b) Conclave
(c) Anora
(d) The Brutalist

Q42. This question is based on the five, three-digit numbers given below.

(Left) 325 503 158 391 144 (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 second digit of the highest number is added to the first digit of the lowest number?

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

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Q43. Which of the following mountain ranges contains the 'Valley of Flowers' National Park?

(a) West Himalaya
(b) Dhauladhar
(c) Pir Panja
(d) Karakoram

Q44. What subject does 'To the Success of Our Hopeless Cause' by Benjamin Nathans explore, which earned it the Pulitzer for General Nonfiction?

(a) Rise of AI
(b) Soviet dissident movement
(c) Environmental collapse
(d) American healthcare crisis

Q45. The mode of the observations 20, 20, 20, 35, 29, 34, 25, 33, 35, 32, 33, 27, 22, 31 and 31 is:

(a) 20
(b) 34
(c) 29
(d) 35

Q46. If 'P' stands for '×', 'Q' stands for '÷', 'R' stands for '−' and 'S' stands for '+', then what will come in place of the question mark (?) in the following equation?

81 S 28 R 39 S (98 Q 7) = ?

(a) 72
(b) 96
(c) 68
(d) 84

Q47. Which of the following is an example of an open-source desktop Operating System?

(a) . Windows 11
(b) macO
(c) Android
(d) Linux Ubuntu

Q48. Given the cubic equation: $x^3 - 3x^2 + 4x - 12 = 0$. Find the sum of the products of the roots taken two at a time.

(a) -3
(b) 4
(c) 3
(d) 12

Q49. On 24-25 February 2025, where did the International Conference on Carbon Markets Prakriti 2025 take place?

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

Q50. If $a + b = 70$ and $(a - b)^2 = 208$, find the value of the product of a and b.

(a) 1254
(b) 1240
(c) 1173
(d) 1223

Q51. What should come in place of the question mark (?) in the given series?

1212 1220 1230 1242 1256 ?

(a) 1274
(b) 1270

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(c) 1268
(d) 1272

Q52. 72 is related to 9 following a certain logic. Following the same logic, 24 is related to 3. To which of the following is 64 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) 8
(b) 9
(c) 6
(d) 7

Q53. When one-third of a number is increased by 10, the result is 65. Find the sum of the digits of the original number.

(a) 11
(b) 9
(c) 12
(d) 14

Q54. In an isosceles triangle, the vertex angle measures 44°. What is the measure of each of the base angles?

(a) 58° and 58°
(b) 64° and 64°
(c) 65° and 65°
(d) 68° and 68°

Q55. A right triangle with sides 9 cm, 12 cm and 15 cm is rotated about the side of 9 cm to form a cone. The volume (in cm^3) of the cone so formed is:

(a) 324π
(b) 320π
(c) 421π
(d) 432π

Q56. What is the default file format for saving workbooks in newer versions of MS Excel (e.g., Excel 2019)?

(a) .xls
(b) .csv
(c) .xlsx
(d) .pdf

Q57. A class of 30 students appeared in a test. The average score of 12 students is 70, and that of the rest is 64. What is the average score of the class?

(a) 66.4
(b) 64.4
(c) 67.4
(d) 65.4

Q58. The Indian textile industry was subjected to discriminatory trade practices. Which of the following policies harmed the Indian textile industry under British rule?

(a) Equal tariffs on imports and exports
(b) Imposition of heavy duties on Indian exports to Britain
(c) Free trade within India
(d) Export subsidies

Q59. Seven people, A, B, L, M, N, S, and T are sitting in a row, facing north. Only five people sit between T and A. N sits to the immediate left of A. Only one person sits between N and L. M sits at some place to the left of S but at some place to the right of B. Who sits third from the left end of the line?

(a) M

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(b) T
(c) A
(d) B

Q60. In a certain code language, ‘please go down’ is coded as ‘ta wk vb’ and ‘down the drain’ is coded as ‘cm dg wk’. How is ‘down’ coded in the given language?

(a) cm
(b) dg
(c) wk
(d) vb

Q61. What is the name of the 2025 tournament won by Vidarbha?

(a) Vijay Hazare Trophy
(b) Indian Premier Leagu
(c) Syed Mushtaq Ali Trophy
(d) Ranji Trophy

Q62. Why is the common cold rarely considered a lower respiratory tract infection?

(a) The virus is destroyed in the alveoli.
(b) It requires a vector for lower tract transmission.
(c) Rhinoviruses only infect the upper respiratory tract.
(d) Antibodies prevent it from entering the lungs.

Q63. Jyotiba Phule was remembered on his birth anniversary on 11^(th) April 2025 for which of the following major contributions to Indian society?

(a) Launching India’s first cooperative bank
(b) Writing the Indian Constitution
(c) Founding the first girls’ school in India
(d) Leading the 1857 revolt

Q64. Which of the following is/are correct regarding the agricultural sector post the reform period of 1991?

1. Quantitative restrictions on imports of agricultural products to India were fully removed from April 2001.
2. There was a huge increase in the import duties on agricultural products to India after 1991.
3. Due to the export-oriented policy after 1991, there was a shift from production for the domestic market towards production for the export market, with more focus on cash crops than food grains.

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

Q65. Seven boxes, D, E, F, G, S, T and U, are kept one over the other but not necessarily in the same order. U is kept immediately above T. S is kept immediately above D. Only E is kept above G. Only two boxes are kept above U. S is not kept at third position from the bottom. How many boxes are kept between F and E?

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

Q66. Which Indian bank become the first to launch near-real-time, 24/7 programmable USD clearing capabilities using JP Morgan’s Kinexys Digital Payments platform in March 2025?

(a) State Bank of India
(b) Bandhan Bank
(c) Axis Bank
(d) Indian Bank

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Q67. In this question, a group of numbers/symbols are coded using letter codes as per the codes given below and the conditions that follow. The correct combination of codes (following only the condition/s that apply) is your answer.

Note: If none of the conditions apply, then codes for the respective number/symbol are to be followed directly as given in the table.

Number/symbol	4	#	$	7	9	2	6	@	3	&	5	•	%	8
Code	B	W	Q	C	A	T	J	N	P	D	G	E	Y	S

Conditions: (i) If the first element is a number and the last element is a symbol, then the codes for the first and last element are interchanged.

(ii) If the first element is divisible by 2 and the last element is divisible by 3, then the first and last elements are to be coded *.(iii) If the first element is a symbol and the last element is an even number, then their codes (i.e. first and last element) are to be changed to the code for 3.

What is the code for the following?

@&238

(a) PDTPS
(b) NDTPP
(c) PDTPP
(d) NDTPS

Q68. Based on the English alphabetical order, three of the following four letter-clusters are alike in a certain way and thus form a group. Which letter-cluster DOES NOT belong to that group?

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

(a) YDGK
(b) GLOS
(c) EJNQ
(d) ZEHL

Q69. In a certain code language,

A + B means ‘A is the son of B’,

A – B means ‘A is the sister of B’,

A x B means ‘A is the wife of B’ and

A ÷ B means ‘A is the father of B’.

Based on the above, how is E related to K if ‘E ÷ F + G – H x K’?

(a) Wife's sister's son
(b) Wife's brother's son
(c) Wife's brother's wife
(d) Wife's sister's husband

Q70. In a certain code language, ‘GATE’ is coded as ‘3647’ and ‘WING’ is coded as ‘1265’. What is the code for ‘G’ in the given code language?

(a) 3
(b) 6
(c) 7
(d) 5

Q71. Evaluate: 82 × 111

(a) 9092
(b) 9102
(c) 9202
(d) 9112

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Q72. Who defeated Harshavardhana on the Narmada frontier?

(a) Rajaraja Chola
(b) Narasimhavarman
(c) Pulakesin II
(d) Mahendravarman II

Q73. Which of the following disputes is excluded from the original jurisdiction of the Supreme Court?

(a) A commercial contract dispute between Gujarat and a private company
(b) A disagreement between Punjab and Haryana over territorial boundaries
(c) A dispute between Maharashtra and the Centre over a constitutional law issue
(d) A dispute between Karnataka and Tamil Nadu over water sharing

Q74. Find the value of $[(2 \cos A)/(1 - \sin A) + (2 \cos A)/(1 + \sin A)] \times 3 \sqrt{(\sec^2 A - 1)}$

(a) 12 tanA
(b) 12 secAtanA
(c) 4 secA
(d) 18 secAtanA

Q75. Which of the following physical factors influences the compactness of rural settlements in dry regions like Rajasthan?

(a) Groundwater salinity
(b) Availability of water
(c) Soil fertility
(d) Altitude

Q76. A man walks to a viewpoint and returns to the starting point by his car and thus takes a total time of 8 hours 15 minutes. He would have gained 5 hours by driving both ways. How long would he have taken to walk both ways?

(a) 13 hours 45 minutes
(b) 14 hours 30 minutes
(c) 13 hours 15 minutes
(d) 12 hours 15 minutes

Q77. If 1 is added to each even digit and each odd digit in the number 76341528, what will be the sum of all the odd digits in the new number thus formed?

(a) 28
(b) 22
(c) 24
(d) 26

Q78. Which river is associated with the Mohenjo-daro site?

(a) Saraswati
(b) Ganga
(c) Yamuna
(d) Indus

Q79. Which of the following is the equivalent ratio of 6 : 4?

(a) 61 : 41
(b) 60 : 40
(c) 66 : 56
(d) 62 : 46

Q80. A man sold an article at a gain of 39%. If he had sold it for Rs. 558 more, he would have gained 64%. The cost price (in Rs.) of the article is:

(a) 2,232
(b) 2,231
(c) 2,233

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(d) 2,230

Q81. A dealer purchased a water heater for Rs. 2,107. After allowing a discount of 79% on its marked price, he still gains 89%. Find the marked price of the water heater.

(a) Rs. 18,987
(b) Rs. 18,963
(c) Rs. 18,948
(d) Rs. 19,065

Q82. In 2024, India hosted its first and largest multinational air combat exercise, marking a significant milestone in its defence diplomacy. What was the name of this exercise?

(a) Exercise Tarang Shakti
(b) Exercise Vayu Shakti
(c) Exercise Shakti
(d) Exercise Yudh Abhyas

Q83. If 1 is added to each odd digit and 1 is subtracted from each even digit in the number 2637458, what will be the sum of the greatest and the smallest digits in the new number thus formed?

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

Q84. The curved surface area of a cylinder is half of its total surface area. If its height is 53 cm, then find its radius (in cm).

(a) 49
(b) 59
(c) 53
(d) 47

Q85. Two taps, X and Y, can fill a tank in 12 hours and 24 hours, respectively. If both the taps are open, then due to leakage, it takes 30 minutes more to fill the tank. If the tank is full, how long will it take for the leakage alone to empty the tank?

(a) 100 hours
(b) 136 hours
(c) 75 hours
(d) 36 hours

Q86. How many national waterways have been declared for development under the National Waterways Act, 2016?

(a) 122
(b) 111
(c) 100
(d) 150

Q87. Which of the given 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 ::?

: ZTW :: NHK : %

(a) = UGF, % = SPR
(b) = UKH, % = OHY
(c) = UOR, % = SMP
(d) = UPL, % = TYF

Q88. What should come in place of the question mark (?) in the given series based on the English alphabetical order?
FRO RDA DPM PBY ?

(a) BHY
(b) HBU
(c) BKN

(d) BNK

Q89. If a sum of Rs. 6,60,000 is invested for a year at 2% per annum compounded half yearly, then find the compound interest.

(a) Rs. 11,987
(b) Rs. 12,824
(c) Rs. 12,931
(d) Rs. 13,266

Q90. Refer to the following number and symbol series and answer the question that follows. Counting to be done from left to right only.

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

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

(a) One
(b) Three
(c) Two
(d) More than three

Q91. What is the mode of the data given below? [Give your answer correct to 2 decimal places.]

Age in years	15-25	25-35	35-45	45-55	55-65	65-75	75-85
No. of patients	31	34	13	19	30	28	29

(a) 17.36
(b) 39.33
(c) 23.58
(d) 26.25

Q92. In the case of 'Ashwini Kumar Upadhyay vs Union of India (November 2024)', the Supreme Court dismissed a plea related to:

(a) reservation for economically weaker sections (EWS) in jobs and education
(b) Uniform Civil Code for all Indian citizens
(c) constitutional validity of adding ‘socialist’ and ‘secular’ to the Preamble
(d) validity of Article 370 and special constitutional provisions

Q93. What should come in place of the question mark (?) in the given series?

135 123 109 93 75 ?

(a) 45
(b) 55
(c) 75
(d) 65

Q94. Where are files and folders typically stored in a computer?

(a) Monitor
(b) Printer
(c) Keyboard
(d) Hard drive

Q95. Which of the following is the greatest number that divides 59 and 133 and leaves 5 and 7 as respective remainders?

(a) 19
(b) 18
(c) 22
(d) 20

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Q96. Mr. PQR starts from Point A and drives 9 km towards the north. He then takes a right turn, drives 11 km, turns right and drives 17 km. He then takes a right turn and drives 12 km. He takes a final right turn, drives 8 km and stops at Point P. How far (shortest distance) and in which direction should he drive in order to reach Point A again? (All turns are 90-degree turns only unless specified

(a) 7 km to the east
(b) 1 km to the east
(c) 5 km to the west
(d) 3 km to the west

Q97. Which of the following Acts allowed the Crown to take over governance from the East India Company?

(a) Charter Act, 1813
(b) Ilbert Bill, 1883
(c) Government of India Act, 1858
(d) Indian Councils Act, 1861

Q98. At what rate (in percentage) per annum on simple interest will a sum of money triple itself in 10 years?

(a) 29%
(b) 20%
(c) 30%
(d) 19%

Q99. What is the longitudinal extent of India?

(a) 68°7′E to 97°25′E
(b) 70°00′E to 95°30′E
(c) 69°10′E to 96°15′E
(d) 66°30′E to 98°00′E

Q100. Which moderate leader, often referred to as the 'Grand Old Man of India,' became the first Indian elected to the British House of Commons and helped shape the early nationalist movement?

(a) Rash Behari Ghosh
(b) Gopal Krishna Gokhale
(c) Dadabhai Naoroji
(d) Pherozeshah Mehta

ANSWER KEY

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

SOLUTIONS

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Q1. Answer: (d) Prime Minister, Lok Sabha Speaker, Leader of the Opposition, Chief Justice of India, and an eminent jurist...

The Correct answer is Prime Minister, Lok Sabha Speaker, Leader of the Opposition, Chief Justice of India, and an eminent jurist nominated by the President.

Key Points

• The Lokpal is an anti-corruption authority or ombudsman in India that addresses complaints against public officials, including the Prime Minister, Ministers, and Members of Parliament.

• The selection committee for the Lokpal is composed of the following members:

• Prime Minister - Chairperson of the selection committee.

• Lok Sabha Speaker - Represents the Parliament in the selection process.

• Leader of the Opposition - Ensures bipartisan participation in the selection process.

• Chief Justice of India - Represents the judiciary in the committee.

• An eminent jurist - Nominated by the President of India based on the recommendations of the other members of the committee.

• This composition ensures a diverse and balanced representation from the executive, legislative, and judicial branches of the government.

• The inclusion of an eminent jurist ensures that the committee benefits from legal expertise during the decision-making process.

• The Lokpal Act, 2013, which governs the establishment of the Lokpal, mandates this composition to ensure transparency and accountability.

Additional Information

• Prime Minister, Chief Justice of India, Leader of the Opposition, Vice-President, and a Cabinet Minister

• This option is incorrect because the Vice-President and a Cabinet Minister are not part of the Lokpal selection committee.

• The committee's composition is specifically defined in the Lokpal and Lokayuktas Act, 2013, and does not include these positions.

• Prime Minister, Home Minister, Chief Justice of India, Attorney General, and Leader of the Opposition

• The Attorney General and the Home Minister are not members of the Lokpal selection committee.

• This option wrongly includes these officials, which is not aligned with the provisions of the Lokpal Act.

• President, Prime Minister, Chief Election Commissioner, Lok Sabha Speaker, and a Jurist

• The President and the Chief Election Commissioner are not part of the Lokpal selection committee.

• While the President is responsible for appointing the Lokpal members, the selection process is carried out by the committee defined under the Lokpal Act.

Q2. Answer: (b) Absolute poverty uses a fixed threshold; relative poverty compares individuals within a society.

The Correct answer is Absolute poverty uses a fixed threshold; relative poverty compares individuals within a society.

Key Points

• Absolute poverty refers to a condition where individuals lack the basic necessities of life such as food, clothing, and shelter. It is measured using a fixed threshold, such as the international poverty line defined by the World Bank, which is currently set at $2.15 per person per day (as of 2022).

• This threshold is globally standardized, making it applicable across different countries and regions, irrespective of societal variations.

• Relative poverty, on the other hand, considers an individual’s economic status in comparison to others within a specific society or community. It is not defined by a fixed amount but instead evaluates the income distribution within a population.

• Relative poverty highlights income inequality and is often used to assess disparities in wealth and living standards within a particular country or region.

• While absolute poverty focuses on universal needs and survival, relative poverty sheds light on social equity and economic gaps between individuals.

• For example, in developed countries, relative poverty is often measured as a percentage of median income (e.g., 50% or 60% of median household income).

Additional Information

• Absolute poverty is based on income inequality; relative poverty is not.

• This option is incorrect because absolute poverty is not directly related to income inequality. It focuses on whether individuals meet basic needs irrespective of societal income disparities.

• Relative poverty, however, is closely linked to income inequality as it evaluates individuals' economic status relative to others in their society.

• Absolute poverty is subjective; relative poverty is objective.

• This option is incorrect because the measurement of absolute poverty is objective, relying on fixed global standards like the

poverty line.

• Relative poverty involves subjective societal comparisons but often uses objective data, such as median income, for calculation.

• There is no difference between the two.

• This option is incorrect as there are clear differences between absolute poverty and relative poverty. Absolute poverty relies on universal thresholds, while relative poverty focuses on societal comparisons.

Q3. Answer: (c) More than three

Given series: (Left) 7 & 9 ^ # 1 * 5 ? 2 6 = 4 Δ 3 $ @ 8 (Right)

According to the question,

Required condition: Odd Number - Symbol - Not Even Number (i.e., it can be an odd number or another symbol).

(Left) 7 & 9 ^ # 1 * 5 ? 2 6 = 4 Δ 3 $ @ 8 (Right)

Symbols that satisfy the condition: &, ^, *, (7 9 ,9 ^#, 1 * 5 and 3 @)

Thus, there are more than three such symbols that are immediately preceded by a number but NOT immediately followed by an even number.

Hence, "Option 3" is the correct answer.

Q4. Answer: (c) Ctrl + V

The Correct answer is Ctrl + V

Key Points

• Ctrl + V is the standard keyboard shortcut used to paste copied content in most operating systems and applications.

• The shortcut is universally recognized and works in Windows, macOS (using Command + V), Linux, and other platforms.

• When content is copied to the clipboard using Ctrl + C (copy) or Ctrl + X (cut), the Ctrl + V command allows you to paste it into the desired location, such as a text editor, document, or web browser.

• This shortcut improves efficiency and saves time by eliminating the need for navigating menus to paste content.

• It is widely used in applications such as Microsoft Office, Google Docs, Notepad, and web-based tools.

• Keyboard shortcuts like Ctrl + V are essential for enhancing productivity in tasks involving repetitive actions.

• The key combination is part of a group of universal shortcuts, including Ctrl + C (Copy), Ctrl + X (Cut), Ctrl + Z (Undo), and Ctrl + Y (Redo).

Additional Information

• Ctrl + B

• Ctrl + B is a shortcut used to bold text in text editors and word processing applications.

• This combination is commonly used in programs like Microsoft Word, Google Docs, and email platforms.

• It does not perform paste operations and is specifically for text formatting.

• Ctrl + K

• Ctrl + K is used to insert or edit hyperlinks in documents and web-based applications.

• This shortcut is widely utilized in programs like Microsoft Word, Excel, Google Docs, and email clients for creating links.

• Ctrl + P

• Ctrl + P is the shortcut used to open the print dialog in most applications.

• This shortcut is helpful for initiating printing tasks in programs such as Adobe Acrobat, Microsoft Word, and web browsers.

Q5. Answer: (b) Article 165

The Correct answer is Article 165.

Key Points

• Article 165 of the Indian Constitution provides for the appointment of the Advocate General for the State.

• The Advocate General is the highest law officer in a state and is responsible for giving advice to the state government on legal matters.

• He/she is appointed by the Governor of the State and holds office during the pleasure of the Governor.

• The Advocate General must be a person qualified to be appointed as a Judge of a High Court, which means he/she should have been an advocate of a High Court for at least 10 years or should have held a judicial office for a similar period.

• The duties of the Advocate General include:

• Giving advice on legal matters to the state government.

• Performing legal duties assigned by the Governor.

• Representing the state government in the High Court or the Supreme Court in cases where the state is a party.

• The Advocate General has the right to speak and take part in the proceedings of the state legislature, but he/she does not have

the right to vote.

Additional Information

• Article 164

• Article 164 of the Constitution pertains to the appointment of Chief Ministers and other Ministers for the state by the Governor.

• It also mentions the collective responsibility of the Council of Ministers to the state legislature.

• Article 162

• Article 162 defines the extent of executive power of the state government.

• It states that the executive power of the state extends to matters on which the state legislature has the power to make laws.

• Article 163

• Article 163 deals with the Council of Ministers to aid and advise the Governor of a state.

• The Governor is required to act according to the advice of the Council of Ministers, except in cases where the Constitution requires him to act at his discretion.

Q6. Answer: (b) Restricitions on freedom of expression

The Correct answer is Restrictions on freedom of expression.

Key Points

• The Rowlatt Act, officially known as the Anarchical and Revolutionary Crimes Act of 1919, was enacted by the British government in India to suppress political dissent and revolutionary activities.

• It allowed the government to arrest individuals suspected of revolutionary activities without providing a warrant and detain them without trial for an indefinite period, which was a direct violation of basic human rights.

• One of the provisions included the censorship of the press, aimed at curbing the dissemination of anti-government information and revolutionary ideas.

• The act gave authorities the power to arrest political leaders and activists without requiring a warrant, which undermined legal safeguards for individuals.

• The provision of "arrest without trial" was one of the most controversial aspects, as it denied individuals the right to a fair trial, violating the principles of justice.

• However, the act did not explicitly include any clause that imposed "restrictions on freedom of expression". Although censorship of the press indirectly affected freedom of expression, the act did not target this right specifically as a provision.

• This act faced widespread protests across India, including the famous Jallianwala Bagh massacre, which occurred as a result of public agitation against the act.

Additional Information

• Censorship of press

• The Rowlatt Act imposed censorship on the press to suppress revolutionary ideas and anti-government sentiments.

• Under this provision, newspapers and publications were monitored, and any content deemed inflammatory or against British rule was censored.

• This restriction was aimed at controlling public opinion and preventing the spread of nationalist ideas.

• Arrest of political leaders without warrants

• One of the most criticized provisions of the Rowlatt Act was the authority given to the police to arrest political leaders and activists without requiring a warrant.

• This provision enabled arbitrary arrests, targeting prominent leaders involved in the freedom struggle.

• Arrest without trial

• The act allowed detention without trial, meaning individuals could be imprisoned indefinitely without being formally charged or given a chance to defend themselves in court.

• This provision violated fundamental judicial principles and sparked widespread outrage among Indians.

Q7. Answer: (c) Neither conclusion (I) nor (II) follows

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

Conclusions:

(I) No letter is a post → Does not follow (As all letters are message, some messages are emails and no email is a post. As no direct relation is given between letters and post, therefore is false.)

(II) Some emails are letters → Does not follow (As all letters are message and some messages are emails. So it is possible but not definite.)

Therefore Here, Neither conclusion (I) nor (II) follows.

Hence, the correct answer is "Option 3".

Q8. Answer: (a) Article 237

The Correct answer is Article 237.

Key Points

• Article 237 of the Indian Constitution empowers the Governor to extend the provisions relating to the conditions of service of judicial officers to certain magistrates.

• This article allows the Governor to declare that the provisions of Part VI, Chapter VI of the Constitution (dealing with subordinate courts) shall apply to any magistrate or judicial officer.

• The provisions are intended to ensure that judicial services are uniform and consistent across the country.

• This enables administrative and procedural improvements in the functioning of magistrates, ensuring they conform to judicial standards.

• The decision under Article 237 allows for better integration of judicial services into the wider legal framework of the Constitution.

• It is significant for maintaining judicial independence and ensuring fair administration of justice.

• Article 237 is part of the broader constitutional framework aimed at enhancing the efficiency and accountability of judicial officers.

Additional Information

• Article 233

• Article 233 deals with the appointment of District Judges.

• It specifies that appointments, posting, and promotions of District Judges are made by the Governor of the state in consultation with the High Court.

• This article ensures judicial independence by involving the judiciary in the appointment process.

• Article 142

• Article 142 empowers the Supreme Court of India to pass any decree or order necessary for doing complete justice in any matter.

• This article is used as a tool for judicial activism, enabling the Supreme Court to deliver justice in extraordinary circumstances.

• It is often invoked for enforcing orders that go beyond the limits of statutory law.

• Article 234

• Article 234 deals with the recruitment of persons to the judicial service other than District Judges.

• It specifies that such appointments are made by the Governor of the state in consultation with the State Public Service Commission and the High Court.

• This ensures proper procedures in the recruitment process for subordinate judicial officers.

Q9. Answer: (d) 3

Given: A, B, L, M, S, T and Z are sitting around a circular table facing the centre.

1) S sits third to the right of Z.

2) S sits to the immediate right of M.

3) M sits third to the left of T.

4) Only one person sits between B and L when counted from the left of L.

5) A is not an immediate neighbour of M.

Thus, three people sit between A and L when counted from the right of A.

Hence, "Option 4" is the correct answer.

Q10. Answer: (c) Intense solar heating

The Correct answer is Intense solar heating.

Key Points

• During summer, the Thar Desert experiences extreme heat due to its geographical location and climatic conditions.

• The intense solar heating causes the temperature to rise significantly, leading to the formation of a low-pressure zone over the region.

• Low-pressure zones occur because the heated air becomes lighter and rises, creating a pressure difference.

• This phenomenon is common in arid and semi-arid regions such as the Thar Desert, which is part of the larger tropical desert climate.

• The low-pressure zone over the Thar Desert plays a critical role in influencing the Indian monsoon winds, as it attracts moisture-laden winds from surrounding regions.

• The intense solar heating during summer also contributes to the harsh and dry conditions that define the desert's climate.

Additional Information

• Western Disturbances

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• Western disturbances are extra-tropical storms that originate in the Mediterranean region.
• They primarily affect the northern regions of India during the winter months, bringing rainfall and sometimes snow.
• These systems are not responsible for the low-pressure zones in the Thar Desert during summer.
• Frontal Cyclones
• Frontal cyclones are associated with the meeting of cold and warm air masses, forming fronts.
• They are more common in temperate regions and are not a characteristic feature of the Thar Desert's climatic conditions.
• Coastal Humidity
• Coastal humidity is associated with regions near large water bodies where high moisture content is present in the air.
• The Thar Desert is a landlocked area and does not experience coastal humidity.

Q11. Answer: (c) GKNF

The logic followed here is:
KORJ is related to DHKC
And,
IMPH is related to BFIA
Similarly,
NRUM is related to
Hence, "Option 3" is the correct answer.

Q12. Answer: (b) Gravitational force

The Correct answer is Gravitational Force.
Key Points
• Gravitational Force is a fundamental force that acts without physical contact.
• It governs the motion of celestial bodies such as planets, stars, and moons.
• This force is responsible for holding objects in their orbits, such as the Earth revolving around the Sun or the Moon orbiting the Earth.
• The force is described by Newton's Law of Universal Gravitation, which states that every particle in the universe attracts every other particle with a force proportional to their masses and inversely proportional to the square of the distance between them.
• Gravitational force is always attractive and acts along the line connecting the centers of two masses.
• It plays a critical role in the formation and structure of galaxies, solar systems, and the universe itself.
• Gravitational force also governs phenomena such as tides, which are caused by the gravitational pull of the Moon and the Sun on Earth's oceans.
• It is one of the weakest forces in nature but has an infinite range, making it significant on a cosmic scale.
Additional Information
• Spring Force
• Spring Force is a contact force that occurs in objects like springs when they are stretched or compressed.
• The force exerted by a spring is governed by Hooke's Law, which states that the force is proportional to the displacement.
• This force is used in various applications, such as shock absorbers, mechanical clocks, and measuring devices like spring balances.
• Friction
• Friction is a contact force that opposes the relative motion between two surfaces in contact.
• It is critical in everyday activities like walking, driving, and holding objects.
• However, friction cannot act at a distance and is not responsible for celestial body motion.
• Tension
• Tension is a force that arises in strings, ropes, or cables when they are pulled taut.
• This is a contact force and is commonly seen in structures like bridges or when lifting objects using ropes.
• It does not act at a distance and is not involved in the motion of celestial bodies.

Q13. Answer: (d) 17.6%

The correct answer is 0.176.
Key Points
• The decadal growth rate refers to the percentage increase in the population of a country over a decade (10 years).
• According to the Census of India 2011, the decadal growth rate of India's population during the period 2001-2011 was approximately 17.6%, which is equivalent to 0.176 in decimal form.

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• This growth rate was a decrease compared to the previous decade (1991-2001), which had a growth rate of 21.54%.

• The decline in the growth rate indicates progress in population control measures, literacy rates, and awareness campaigns.

• The Census of India is conducted every 10 years and provides detailed data on the demographics, socio-economic factors, and population trends.

• India's population during the 2011 Census was recorded at 1.21 billion, making it the second-most populous country in the world after China.

• The decadal growth rate is a significant indicator for understanding population dynamics and planning for resources, infrastructure, and development.

Additional Information

• Census of India: The Census of India is conducted under the guidance of the Registrar General and Census Commissioner of India, appointed by the Government of India under the Census Act, 1948.

• Population Control Measures: The reduction in the growth rate is attributed to measures such as increased family planning programs, better access to healthcare, and a rise in education levels.

• Socio-economic Impact: A slower growth rate provides an opportunity for better resource allocation, economic development, and improved living standards.

Q14. Answer: (a) 18

Given number: 6597423

According to the question,

Given number	**6**	**5**	**9**	**7**	**4**	**2**	**3**
Odd digit → (-2) Even digit → (+2)	(+2)	(-2)	(-2)	(-2)	(+2)	(+2)	(-2)
New number	8	3	7	5	6	4	1

The sum of all the even digits in the new number thus formed → 8 + 6 + 4 = 18

Hence, the correct answer is "Option 1".

Q15. Answer: (d) Manipuri

The Correct answer is Manipuri.

Key Points

• Manipuri is one of the eight classical dance forms of India.

• It originates from the state of Manipur in northeastern India.

• The dance is deeply rooted in Vaishnavism and has a strong devotional aspect, often focusing on the love story of Radha and Krishna.

• Jagoi refers to the soft and graceful movement aspect of the dance, which emphasizes the lyrical quality.

• Cholom is the vigorous and rhythmic drum dance performed by male dancers, showcasing a more dynamic style.

• The costumes in Manipuri dance are unique and elaborate, often featuring bright colors, flowing skirts, and intricate designs.

• Manipuri dance is known for its subtle expressions, fluid movements, and spiritual themes, making it distinct from other Indian classical dances.

• The dance is performed in various styles, including Raas Leela (dramatic representation of Krishna's life) and Thang-Ta (martial art dance).

Additional Information

• Kuchipudi

• Kuchipudi is a classical dance form from Andhra Pradesh.

• It is known for its blend of dance, music, and drama.

• Performances often involve dialogues and narratives, making it distinct from purely rhythmic dance forms.

• The dance is performed on themes from Hindu mythology, particularly stories of Lord Krishna.

• Kathak

• Kathak is a classical dance form originating in North India.

• It is characterized by intricate footwork, spins, and storytelling, often using ghungroos (ankle bells).

• The themes typically revolve around epics like the Mahabharata and Ramayana or devotional stories of Lord Krishna.

• Odissi

• Odissi is a classical dance form from the state of Odisha.
• It is known for its graceful movements, sculpturesque poses, and deep spiritual essence.
• Odissi primarily depicts stories of Lord Jagannath and themes from Hindu mythology.

Q16. Answer: (a) A team from Norwa

The correct answer is A team from Norway.

Key Points

• The ISSF World Cup is a prestigious international shooting competition organized by the International Shooting Sport Federation (ISSF).
• The 10 m Air Rifle Mixed Team event is a discipline where pairs of shooters (one male and one female) compete together for combined scores.
• In the 2025 ISSF World Cup, a team from Norway emerged victorious in the gold medal match against the Indian duo Rudrankksh Patil and Arya Borse.
• Norwegian shooters are known for their precision and consistency, having a strong tradition in shooting sports.
• The victory demonstrates the team's excellent preparation and competitive edge in international competitions.
• The ISSF World Cup serves as a platform for shooters to gain recognition and improve their world rankings.
• Such events also contribute to the development of shooting sports by promoting global talent and competition.

Additional Information

• A team from Germany
• Germany has a rich history in shooting sports and frequently performs well in international competitions.
• German shooters are renowned for their technical expertise and innovative training methods.
• Despite their strong presence, they did not win the gold medal in this specific event at the 2025 ISSF World Cup.
• A team from the USA
• The USA is another country with a significant influence in shooting sports.
• American shooters are known for their consistent performances and often dominate international tournaments.
• However, in this particular event, they did not secure the gold medal at the 2025 ISSF World Cup.
• A team from China
• China has been a powerhouse in shooting sports, excelling in various ISSF events.
• Chinese shooters are recognized for their discipline and rigorous training regimes.
• Although they are often contenders for gold, they did not win the title in this event at the 2025 ISSF World Cup.

Q17. Answer: (c) Two

Given: F, G, H, J, K and L live on six different floors of the same building. The lowermost floor in the building is numbered 1, the floor above it, number 2 and so on till the topmost floor is numbered 6.

1) F lives on an odd numbered floor.

2) Only two people live between F and L.

Floor	People		
	Case 1	Case 2	Case 3
6		L	
5	F		
4			L
3		F	
2	L		
1			F

3) J lives immediately above L.

As there is no possible position for J in case 2, therefore is eliminated.

Floor	People	
	Case 1	Case 3
6		

5	F	J
4		L
3	J	
2	L	
1		F

4) H lives immediately below K.

As there is no possible position for K in case 1, therefore is eliminated.

After positioning K and H only one person is left which will be occupied by the only person left i.e. G.

Floor	People
	Case 3
6	G
5	J
4	L
3	K
2	H
1	F

Thus, two people live between G and K.

Hence, the correct answer is "Option 3".

Q18. Answer: (c) 8 km towards the east

Given:

Mr. X starts from Point L and drives 5 km towards the east.

He then takes a right turn, drives 6 km, turns right and drives 9 km.

He then takes a right turn and drives 2 km, turns left, drives 4 km.

He takes a final right turn, drives 4 km and stops at Point O.

Thus, Mr. X should drive 8 km (9 km + 4 km - 5 km) in the east direction in order to reach Point L again.

Hence, "Option 3" is the correct answer.

Q19. Answer: (c) 5,498

Shortcut Trick

Let the total cost price for Anand be X.

Successive transactions: X × (152 ÷ 100) × (56 ÷ 100) = 4,788.

X × 1.52 × 0.56 = 4,788 => X = 4,788 ÷ 0.8512 = 5,625.

Original cost = Total cost − Repair expenses = 5,625 − 127 = 5,498.

Therefore The correct answer is Rs. 5,498.

Alternate Method

Given → Final SP = Rs. 4,788, Loss% = 44%, Profit% = 52%, Repair = Rs. 127.

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

=> Bharath CP (Anand SP) = 4,788 × 100 ÷ (100 − 44) = 4,788 × 100 ÷ 56 = 8,550.

=> Anand Total CP = 8,550 × 100 ÷ (100 + 52) = 8,550 × 100 ÷ 152 = 5,625.

=> Original Cost = Total CP − Repair Expenses = 5,625 − 127 = 5,498.

Therefore The correct answer is Rs. 5,498.

Additional Information

Total Cost Price

The total cost price includes the purchasing price plus any overhead expenses like repairs, transport, or labor.

Successive Transactions

When an item is sold multiple times, the SP of one becomes the CP for the next. Final SP = Initial CP × (100 ± P1)% × (100 ±

P2)%.

Q20. Answer: (d) Theoretical basis for immunology

The Correct answer is Theoretical basis for immunology.

Key Points

• Paul Ehrlich was awarded the Nobel Prize in Medicine in 1908 for his pioneering work in the field of immunology.

• He developed the side-chain theory, which explained how antitoxins (antibodies) are produced by the body to neutralize toxins.

• This work laid the theoretical foundation for understanding the immune system and how it responds to pathogens.

• Ehrlich also introduced the concept of a "magic bullet," which referred to a targeted therapy that could treat diseases without harming the body.

• His discoveries were crucial for the development of immunotherapy, vaccines, and antibody-based treatments that are widely used in modern medicine.

• In addition to immunology, Ehrlich also contributed to the development of the first effective treatment for syphilis using a compound known as Salvarsan (arsphenamine).

• The Nobel Prize in 1908 was shared between Paul Ehrlich and Ilya Mechnikov, recognizing their contributions to immunology, with Mechnikov focusing on phagocytosis.

Additional Information

• Antibacterial effect of sulpha drugs

• The antibacterial effects of sulpha drugs were discovered in the 1930s, several years after Ehrlich's Nobel Prize.

• Sulpha drugs were the first effective antibiotics, and they marked the beginning of the modern era of antibacterial treatment.

• These drugs work by inhibiting the growth of bacteria, and they were widely used during World War II.

• Penicillin for treating infections

• Penicillin was discovered by Alexander Fleming in 1928, and its use as an antibiotic was developed later by Howard Florey and Ernst Boris Chain.

• This discovery occurred much later than Paul Ehrlich’s work and revolutionized the treatment of bacterial infections.

• Use of azodyes in textiles

• Although Paul Ehrlich worked with dyes, his Nobel Prize was not related to the use of azodyes in textiles.

• Azodyes are synthetic dyes used to color textiles and other materials, and they were significant in the chemical industry.

Q21. Answer: (a) 7

Shortcut Trick

If $x + 1/x = k$, then $x^2 + 1/x^2 = k^2 - 2$ and $x^4 + 1/x^4 = (k^2 - 2)^2 - 2$.

Given $k = \sqrt{5}$, first calculate the square term: $(\sqrt{5})^2 - 2 = 5 - 2 = 3$.

Now calculate the fourth power term by squaring the result again: $3^2 - 2 = 9 - 2 = 7$.

Therefore The correct answer is 7.

Alternate Method

Given: $x + 1/x = \sqrt{5}$, where $x > 0$.

Formula Used: $(a + b)^2 = a^2 + b^2 + 2ab$

Step-by-step Calculation:

$\Rightarrow (x + 1/x) = \sqrt{5}$

Squaring both sides:

$\Rightarrow (x + 1/x)^2 = (\sqrt{5})^2$

$\Rightarrow x^2 + (1/x)^2 + 2 \times x \times (1/x) = 5$

$\Rightarrow x^2 + 1/x^2 + 2 = 5$

$\Rightarrow x^2 + 1/x^2 = 5 - 2 = 3$

Again, Squaring both sides to find the fourth power:

$\Rightarrow (x^2 + 1/x^2)^2 = 3^2$

$\Rightarrow (x^2)^2 + (1/x^2)^2 + 2 \times x^2 \times (1/x^2) = 9$

$\Rightarrow x^4 + 1/x^4 + 2 = 9$

$\Rightarrow x^4 + 1/x^4 = 9 - 2 = 7$

Therefore The correct answer is 7.

Additional Information

Cube Identity

If $x + 1/x = k$, then the cubic value is given by $x^3 + 1/x^3 = k^3 - 3k$.

Difference Identity

If $x - 1/x = k$, then the square value is $x^2 + 1/x^2 = k^2 + 2$.

Higher Power (x^5 + 1/x^5)

To find the fifth power, use the formula: $x^5 + 1/x^5 = (x^2 + 1/x^2)(x^3 + 1/x^3) - (x + 1/x)$.

Conversion Rule

If $x + 1/x = k$, then $x - 1/x = \sqrt{(k^2 - 4)}$ for $x > 1$.

Q22. Answer: (c) WORM - RWOM - MROW

The logic followed here is:

ARCE - CARE - ECRA

And,

POLE - LPOE - ELOP

Similarly,

Option 3) WORM - RWOM - MROW

Hence, "Option 3" is the correct answer.

Q23. Answer: (d) 800

Shortcut Trick

Combine the ratios by making the common term Q equal.

P : Q = 15 : 4 and Q : R = 3 : 1.

Multiplying first ratio by 3 and second by 4: P : Q : R = 45 : 12 : 4.

Total ratio parts = 45 + 12 + 4 = 61 units.

Given 61 units = 12,200 => 1 unit = 12,200 ÷ 61 = 200.

Share of R = 4 units = 4 × 200 = 800.

Therefore The correct answer is 800.

Alternate Method

Given: Total Profit = 12,200, P : Q = 15 : 4, Q : R = 3 : 1.

Formula: Combined Ratio P : Q : R = (P × Q2) : (Q1 × Q2) : (Q1 × R).

=> Step 1: Ratio P : Q = 15 : 4 and Q : R = 3 : 1.

=> Step 2: To equate Q, P : Q : R = (15 × 3) : (4 × 3) : (4 × 1) = 45 : 12 : 4.

=> Step 3: Total sum of ratios = 45 + 12 + 4 = 61.

=> Step 4: Share of R = (Ratio of R ÷ Total Ratio) × Total Profit.

=> Step 5: Share of R = (4 ÷ 61) × 12,200 = 4 × 200 = 800.

Therefore The correct answer is 800.

Additional Information

Ratio Balancing

When combining two ratios like A:B and B:C, multiply the first ratio by the B-value of the second, and the second ratio by the B-value of the first.

Profit Distribution

In a partnership or distribution, if the time period is constant, the Profit Share is directly proportional to the Investment Ratio.

Q24. Answer: (a) 120

Shortcut Trick

To form a triangle, we need to select any 3 non-collinear points.

Since no three vertices of a polygon are collinear, any selection of 3 vertices out of 10 will form a unique triangle.

Number of triangles = ^(10)C3 = (10 × 9 × 8) ÷ (3 × 2 × 1) = 120.

Therefore The correct answer is 120 triangles.

Alternate Method

Given:

Number of sides of the polygon (n) = 10

Number of vertices of the polygon = 10

Formula Used:

The number of ways to select r objects from n distinct objects is given by the combination formula:

$^nC_r = n! \div [r! \times (n - r)!]$

To form a triangle, we need exactly 3 vertices.

Calculations:

A polygon with 10 sides has exactly 10 vertices.

To form a triangle, we need to select any 3 vertices out of these 10 vertices.

Since no three vertices of a polygon are collinear, every unique combination of 3 vertices forms a unique triangle.

Therefore, the number of triangles that can be drawn is:

=> Number of triangles = ^(10)C3

=> Number of triangles = 10! ÷ [3! × (10 − 3)!]

=> Number of triangles = 10! ÷ [3! × 7!]

=> Number of triangles = (10 × 9 × 8) ÷ (3 × 2 × 1)

=> Number of triangles = 720 ÷ 6

=> Number of triangles = 120

Let us analyze why the other options are incorrect:

=> Option (2) 150: This value is incorrect because the maximum possible combinations of selecting 3 vertices from 10 is mathematically limited to 120.

=> Option (3) 125: This value is incorrect as it does not satisfy the combination formula ^(10)C3.

=> Option (4) 115: This value is incorrect because it is less than the actual number of possible triangles.

Therefore The correct answer is 120 triangles.

Additional Information

Number of Diagonals in a Polygon

The number of diagonals in a polygon of n sides is given by the formula: n(n − 3) ÷ 2.

Triangles with No Common Sides

The number of triangles formed by joining the vertices of an n-sided polygon such that no side of the triangle is a side of the polygon is given by: $^nC3 - n - n(n - 4)$.

Triangles with Exactly One Common Side

The number of triangles that share exactly one side with an n-sided polygon is given by: n(n − 4).

Triangles with Exactly Two Common Sides

The number of triangles that share exactly two sides with an n-sided polygon is equal to the number of vertices, which is n.

Q25. Answer: (b) 583/999

Given:

0. 583583...

Formula used:

If x = 0. abc, then x = abc/999

Calculation:

x = 0. 583583...

=> x = 583/999

=> x = 583/999 (already in simplest form)

Therefore 0. 583583... = 583/999

Q26. Answer: (c) Four Deputy Governors

The correct answer is Four Deputy Governors.

Key Points

• The Reserve Bank of India Act, 1934 governs the structure and functioning of the Reserve Bank of India (RBI).

• According to this Act, the RBI can have a maximum of four Deputy Governors at any point in time.

• The RBI's top management consists of the Governor and Deputy Governors, who play a critical role in decision-making and policy formulation.

• The Deputy Governors are responsible for overseeing various departments of the RBI, such as monetary policy, banking regulation, financial markets, and supervision.

• Of the four Deputy Governors, two are typically promoted from within the RBI, one is an economist or academic, and one is usually a commercial banker.

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• The appointment of Deputy Governors is made by the Government of India, and they typically serve a term of three years, which may be extended.

• The presence of four Deputy Governors ensures that the RBI can efficiently handle its diverse and complex functions, including currency management, financial inclusion, and monetary stability.

Additional Information

• Reserve Bank of India Act, 1934

• This Act provides the foundational framework for the establishment, organization, and operation of the Reserve Bank of India.

• The Act outlines the objectives of the RBI, including ensuring monetary stability, regulating credit, and fostering economic growth.

• The Act also specifies the structure of the RBI, including the roles of the Governor, Deputy Governors, and other officials.

• Governor of the RBI

• The Governor is the chief executive officer of the RBI and is responsible for its overall functioning.

• They are appointed by the Government of India for a term of three years, which may be renewed.

• The Governor's role includes formulating and implementing monetary policy to achieve objectives like inflation control and financial stability.

Q27. Answer: (b) 14 km/hr

Shortcut Trick

Speed of current = (Downstream speed − Upstream speed) ÷ 2

Speed of current = (47 − 19) ÷ 2

Speed of current = 28 ÷ 2 = 14 km/hr

Therefore The correct answer is 14 km/hr.

Alternate Method

Given:

Downstream Speed (u) = 47 km/hr

Upstream Speed (v) = 19 km/hr

Formula Used:

Let Speed of Boat in Still Water be x and Speed of Current be y.

x + y = u (Downstream)

x − y = v (Upstream)

Calculations:

=> x + y = 47

=> x − y = 19

Subtracting the second equation from the first:

=> (x + y) − (x − y) = 47 − 19

=> 2y = 28

=> y = 28 ÷ 2

=> y = 14 km/hr

Therefore The correct answer is 14 km/hr.

Additional Information

Speed of Boat in Still Water

It is the average of downstream and upstream speeds: x = (u + v) ÷ 2.

Relative Speed in Streams

Downstream speed is always greater than upstream speed because the current supports the boat's motion.

Q28. Answer: (a) 422 m

The Correct answer is 422 m.

Key Points

• IIT Madras launched its Hyperloop Test Track in 2025.

• The length of the test track is 422 meters, designed to study and develop hyperloop technologies.

• The hyperloop concept is a futuristic transportation system involving high-speed travel in a vacuum tube.

• India's first hyperloop test track was initiated by IIT Madras, marking significant progress in transportation innovation.

• Hyperloop systems aim to achieve speeds exceeding 1000 km/h, making them faster than airplanes over short distances.

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• The test track allows researchers to experiment with concepts like magnetic levitation, vacuum sealing, and energy efficiency.

• It is part of India's effort to contribute to global hyperloop research and development, strengthening its position in cutting-edge technology.

• The project aligns with India's vision of sustainable and futuristic infrastructure for enhanced connectivity and reduced carbon emissions.

Additional Information

• 10 km

• Hyperloop test tracks of 10 km are typically designed for full-scale testing but are not currently implemented by IIT Madras.

• Such test tracks have been discussed or planned by other organizations globally for demonstrating long-distance capabilities.

• 100 m

• A 100-meter test track is often used for initial small-scale experiments, but IIT Madras opted for a larger track to study advanced hyperloop dynamics.

• 1 km

• A 1-kilometer hyperloop track is considered suitable for intermediate testing phases but does not match the actual length chosen by IIT Madras.

Q29. Answer: (c) 15 : 4

Shortcut Trick

Convert 20% to fraction: 20% = 1/5.

Ratio equation: (1/5) × First = (3/4) × Second.

Cross-multiply: First / Second = (3/4) × (5/1) = 15/4.

Therefore The correct answer is 15 : 4.

Alternate Method

Given:

Let the first number be x and the second number be y.

Condition: 20% of x = 3/4 of y

Calculations:

=> (20/100) × x = (3/4) × y

=> (1/5) × x = (3/4) × y

=> x/y = (3/4) ÷ (1/5)

=> x/y = (3/4) × 5

=> x/y = 15/4

=> x : y = 15 : 4

Therefore The correct answer is 15 : 4.

Additional Information

Percentage to Fraction Conversion

To convert a percentage to a fraction, divide by 100. Example: 20% = 20/100 = 1/5.

Ratio and Proportion

If a × x = b × y, then the ratio x : y is equal to b : a.

Successive Percentage

The net change for two successive percentage changes a% and b% is given by [a + b + (a × b)/100]%.

Q30. Answer: (c) Hockey Jharkhand

The Correct answer is Hockey Jharkhand.

Key Points

• Hockey Jharkhand emerged as the defending champions at the 15th Hockey India Senior Women National Championship 2025.

• They secured the championship title in the previous edition of the tournament held in 2024, showcasing their dominance in women's hockey.

• The team is known for its exceptional players, many of whom hail from the tribal regions of Jharkhand, an area known for producing talented hockey players.

• Jharkhand has a strong hockey culture and infrastructure, which has contributed to the development of skilled players and consistent performance in national-level tournaments.

• The team’s success is also attributed to the state government's support and initiatives in promoting hockey, especially among women.

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• Hockey Jharkhand's victory highlights the growing prominence of women's hockey in India, with teams from various states striving for excellence.

Additional Information

• Hockey Haryana

• Hockey Haryana is one of the top-performing teams in national hockey tournaments, with a strong track record in both men's and women's categories.

• The state has produced numerous players for the Indian national hockey team, thanks to its excellent training facilities and grassroots programs.

• Despite their strong performances, they were not the defending champions in the 15th edition of the tournament.

• Hockey Punjab

• Hockey Punjab is renowned for its contributions to Indian hockey, producing legendary players over the years.

• The state has a deep-rooted hockey culture, often excelling in men's hockey but also showing significant improvement in women's hockey in recent years.

• However, they did not win the championship title in 2024, making them ineligible as defending champions in 2025.

• Hockey Maharashtra

• Hockey Maharashtra has been striving to improve its performance in national tournaments, focusing on youth development and training programs.

• The team has shown potential but has yet to achieve consistent success at the national level, including the Hockey India Senior Women National Championship.

Q31. Answer: (b) = KFI, % = YTW

The logic followed here is:

Given: # : PKN :: TOR : %

Option 1) # = KPJ, % = YOJ → KPJ : PKN :: TOR : YOJ

Option 2) # = KFI, % = YTW → KFI : PKN :: TOR : YTW

Option 3) # = KFL, % = YPG → KFL : PKN :: TOR : YPG

Option 4) # = LJY, % = YVX → LJY : PKN :: TOR : YVW

Hence, "Option 2" is the correct answer.

Q32. Answer: (a) 14.53%

Shortcut Trick

Use the direct percentage less formula: [r ÷ (100 + r)] × 100

Here, r = 17%

Required % = [17 ÷ (100 + 17)] × 100 = (17 ÷ 117) × 100

=> 1700 ÷ 117 ≈ 14.529%

Therefore The correct answer is 14.53%.

Alternate Method

Given: A's salary is 17% more than B's salary.

Formula Used: Percentage Decrease = (Difference ÷ Higher Value) × 100

=> Let B's salary = 100

=> A's salary = 100 + 17% of 100 = 117

=> Difference = 117 − 100 = 17

=> Percentage by which B is less than A = (Difference ÷ A's salary) × 100

=> Required Percentage = (17 ÷ 117) × 100

=> Required Percentage = 1700 ÷ 117 = 14.5299...

=> Rounded to two decimal places = 14.53%

Therefore The correct answer is 14.53%.

Additional Information

Base Change Property

When one value is x% more than another, the second is [x/(100+x)] × 100% less than the first.

Percentage Decrease Formula

Percentage Decrease = [(Initial Value − Final Value) ÷ Initial Value] × 100.

Successive Percentage Change

If a value changes by a% and then b%, net change is [a + b + (ab/100)]%.

Q33. Answer: (c) Two

Given: P, A, R, T, L and Y live on six different floors of the same building. The lowermost floor in the building is numbered 1, the floor above it, number 2 and so on till the topmost floor is numbered 6.

1) No one lives below R.

2) Only A lives above T.

3) R lives on the lowermost floor.

Floor	People
6	A
5	T
4	
3	
2	
1	R

4) Only two people live between R and P.

Floor	People
6	A
5	T
4	P
3	
2	
1	R

5) Y lives on an even numbered floor.

After positioning Y only one person is left which will be occupied by the only person left i.e. L.

Floor	People
6	A
5	T
4	P
3	L
2	Y
1	R

Thus, two people live between L and A.

Hence, the correct answer is "Option 3".

Q34. Answer: (b) JN69

The logic followed here is:

Hence, "Option 2" is the correct answer.

Q35. Answer: (a) 14

Shortcut Trick

Net efficiency = Efficiency of Filling Pipe − Efficiency of Emptying Pipe

Total Capacity (LCM of 12, 21) = 84 units

Efficiency: Filling = 84 ÷ 12 = 7; Emptying = 84 ÷ 21 = 4

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Net Efficiency = 7 − 4 = 3 units/hour

Time for half tank = (84 ÷ 2) ÷ 3 = 42 ÷ 3 = 14 hours

Therefore The correct answer is 14 hours.

Alternate Method

Pipe Type	Time (Hours)	Total Work (LCM)	Efficiency
Filling Pipe (A)	12	84	+7
Emptying Pipe (B)	21	−4	

Given: Filling time = 12 hours, Emptying time = 21 hours.

Formula Used: Time Taken = Total Work / Combined Efficiency

=> Total Capacity of tank = LCM(12, 21) = 84 units

=> Combined efficiency of both pipes = 7 − 4 = 3 units/hour

=> Target capacity (Half tank) = 84 ÷ 2 = 42 units

=> Time taken = 42 ÷ 3 = 14 hours

Therefore The correct answer is 14 hours.

Additional Information

Net Work Done

When one pipe fills (rate x) and another empties (rate y), the net rate is (1/x − 1/y) per hour.

Pipes & Cisterns Sign Convention

Inlet pipes contribute positive efficiency while outlet (leak) pipes contribute negative efficiency.

Capacity vs Time

Time taken is inversely proportional to efficiency for a constant volume.

Q36. Answer: (d) Rs. 3,321

Shortcut Trick

Expenditure % = 100% − Savings % = 100% − 46% = 54%

Expenditure = 54% of Rs. 6,150

54/100 × 6150 = 0.54 × 6150 = Rs. 3,321

Therefore The correct answer is Rs. 3,321.

Alternate Method

Given:

Monthly Salary = Rs. 6,150

Savings Percentage = 46%

Formula Used:

Expenditure = Salary − Savings

=> Savings Amount = 46% of 6150

=> Savings Amount = (46 ÷ 100) × 6150 = 0.46 × 6150 = Rs. 2,829

=> Expenditure = Total Salary − Savings Amount

=> Expenditure = 6150 − 2829 = Rs. 3,321

Therefore The correct answer is Rs. 3,321.

Additional Information

Percentage Expenditure

Expenditure % = (Expenditure ÷ Total Income) × 100. It represents the portion of income spent.

Income-Savings-Expenditure Relation

Income is always the sum of Expenditure and Savings (Income = E + S). If one increases while income is constant, the other must decrease.

Successive Changes

If a salary increases by x% and then decreases by x%, the net change is always a decrease of $x^2/100\%$.

Q37. Answer: (b) KR – NU

The logic followed here is:

Option 1) AH – CK

Option 2) KR – NU

Option 3) NU – PX
Option 4) EL – GO

Thus, out of all 'KR – NU' is the odd one out.
Hence, "Option 2" is the correct answer.

Q38. Answer: (a) 264

Shortcut Trick
Ratio of 1^(st) : 2^(nd) : 3^(rd) numbers = 4 : 2 : 1.
Total sum = 154 × 3 = 462.
Sum of ratio parts = 4 + 2 + 1 = 7 units.
7 units = 462 => 1 unit = 66.
First number = 4 units = 4 × 66 = 264.
Therefore The correct answer is 264.
Alternate Method
Given: Average of three numbers = 154.
Formula Used: Sum = Average × Total Count of Numbers.
Let the third number be x.
=> Second number = 2 × x = 2x.
=> First number = 2 × 2x = 4x.
=> Sum of the three numbers = x + 2x + 4x = 7x.
=> Total Sum = 154 × 3 = 462.
=> 7x = 462
=> x = 462 ÷ 7 = 66.
=> First number = 4x = 4 × 66 = 264.
Therefore The correct answer is 264.
Additional Information
Average or Arithmetic Mean
The average of n terms is the sum of terms divided by n. Sum = Average × n.
Ratio Scaling
When numbers are multiples of each other, assigning the smallest value as 1 unit helps in establishing a quick ratio chain.
Linear Equations in One Variable
Expressing all unknown values in terms of a single variable (x) simplifies the calculation of the sum or product.

Q39. Answer: (c) Desktop icons are only visual shortcuts and not the actual application files.

The Correct answer is Desktop icons are only visual shortcuts and not the actual application files.
Key Points
• Desktop icons represent shortcuts to applications, files, or folders. They are essentially links to the actual application files stored elsewhere on the computer, such as in the "Program Files" directory or other system locations.
• Removing or deleting desktop icons does not affect the underlying application files or their functionality. The applications can still be accessed via the Start Menu, Taskbar, or their installation directories.
• The desktop in the Windows operating system serves as a user-friendly area for quick access but does not store the actual programs or files.
• Even if desktop icons are removed, users can utilize other navigation methods, such as the Windows Search functionality, to locate and run applications.
• This design ensures that the operating system remains functional and avoids dependency on the desktop for accessing programs.
• Windows OS uses a centralized file system, where application files are maintained in specific directories, ensuring their integrity and accessibility regardless of the presence of desktop icons.
Additional Information
• Desktop icons are system-critical files required to run applications

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• This statement is incorrect because desktop icons are not system-critical files. They are merely shortcuts and do not impact the functionality or operation of application files.

• The actual application files are stored in designated system directories, such as "Program Files" or "AppData".

• Windows OS duplicates all application files in the desktop directory

• This statement is incorrect because Windows does not duplicate application files in the desktop directory. Desktop shortcuts are simple links pointing to the original files, not duplicate copies.

• Duplicating application files on the desktop would consume unnecessary storage space and cause inefficiencies.

• The desktop is a virtual memory area where applications run in the background

• This statement is incorrect because the desktop is not a virtual memory area. Virtual memory refers to the system's use of disk space to supplement RAM, while the desktop is a graphical user interface for file and application shortcuts.

• Applications run in the background using system resources, not the desktop area.

Q40. Answer: (c) Rajasthan

The Correct answer is Rajasthan.

Key Points

• Maand is a traditional form of folk music that originated in the state of Rajasthan, India.

• It is primarily associated with classical Rajasthani music and is a unique amalgamation of both classical and folk music.

• The Maand style is known for its melodious and soulful tunes, which were historically performed in the royal courts of Rajasthan.

• This form of music is often used to narrate stories of valour, love, and folklore, especially tales related to the Rajput kings.

• Famous Maand songs include "Kesariya Balam" and "Banko Chhiyo", which are widely acclaimed in Indian music traditions.

• The instruments commonly used in Maand music are sitar, sarangi, dholak, tabla, and harmonium, which complement the vocal renditions.

• Maand music holds a special place in Rajasthani culture and is an integral part of various festivals and celebrations in the state.

Additional Information

• Jharkhand

• Jharkhand has its own rich tradition of folk music, such as Jhumar, Domkach, and Paika, which are popular in tribal communities.

• These forms of music are often performed during festivals, weddings, and other cultural events.

• Uttar Pradesh

• Uttar Pradesh is renowned for its Thumri, Dadra, and Kajri, which are classical and semi-classical forms of music.

• It is also the birthplace of the Banaras Gharana, a prominent school of Indian classical music.

• Maharashtra

• Maharashtra is famous for its Lavani, a traditional form of folk music and dance.

• Lavani is characterized by its rhythmic beats and expressive lyrics, often performed to the accompaniment of the dholki.

Q41. Answer: (c) Anora

The Correct answer is Anora

Key Points

• Anora won the Best Picture award at the 2025 Oscars.

• This film is recognized for its unique storytelling, exceptional cinematography, and powerful performances by its cast.

• Anora explores themes of identity, resilience, and transformation, making it resonate with audiences globally.

• The movie was directed by an acclaimed filmmaker known for their distinctive artistic vision and ability to create emotionally impactful narratives.

• Anora gained widespread critical acclaim and was celebrated for its innovative techniques and visual depth.

• The film stood out among other contenders due to its compelling plot and ability to connect deeply with viewers.

• Anora's win continues the tradition of recognizing cinematic works that push boundaries and contribute significantly to the art of filmmaking.

Additional Information

• Wicked

• Wicked is based on the popular Broadway musical of the same name, which is a prequel to The Wizard of Oz.

• The film explores the untold story of the Wicked Witch of the West and the Good Witch.

• It is known for its fantasy elements, vibrant visuals, and strong musical performances.

• Conclave

• Conclave is a political thriller set in the backdrop of the election of a new pope.
• The movie delves into the intricacies of Vatican politics and the secrets behind the papal elections.
• It is praised for its suspenseful narrative and exploration of power dynamics.
• The Brutalist
• The Brutalist is a historical drama that follows the journey of a Hungarian architect.
• The film portrays themes of immigration, ambition, and loss.
• It is notable for its stark visual style and portrayal of architectural marvels.

Q42. Answer: (d) 1

Given: (Left) 325 503 158 391 144 (Right)

According to the question:

Given numbers	325	503	158	391	144
Number are arranged in ascending order	144	158	391	325	503

So,

Second digit of the highest number → 503 → 0

First digit of the lowest number → 144 → 1

Thus, if the second digit of the highest number is added to the first digit of the lowest number then the resultant will be → 0 + 1 → 1

Hence, the correct answer is "Option 4".

Q43. Answer: (a) West Himalaya

The Correct answer is West Himalaya.

Key Points

• Valley of Flowers National Park is located in the West Himalaya region in the state of Uttarakhand, India.
• It is renowned for its stunning meadows of endemic alpine flowers and is a part of the Nanda Devi Biosphere Reserve.
• The Valley of Flowers is situated at an altitude ranging between 3,200 meters to 6,675 meters above sea level.
• It is a UNESCO World Heritage Site and is known for its extraordinary biodiversity, including rare and endangered species of flora and fauna.
• This park is home to several medicinal plants such as Aconitum heterophyllum and Dactylorhiza hatagirea.
• It is also famous for its association with Indian mythology, believed to be the place where Hanuman found the 'Sanjeevani Booti' to revive Lakshman.
• The park is a popular destination for trekkers and nature enthusiasts, and the route to the Valley of Flowers passes through Ghangaria village.
• It was discovered in 1931 by British mountaineers Frank S. Smythe and R. L. Holdsworth.

Additional Information

• Dhauladhar
• The Dhauladhar range is a part of the Lesser Himalayas located in Himachal Pradesh, India.
• It is known for its steep slopes and is a popular destination for trekking and mountaineering.
• Places like Triund and Mcleodganj are situated near this range.
• Pir Panjal
• The Pir Panjal range is the largest range of the Lesser Himalayas and is located in Jammu and Kashmir, Himachal Pradesh, and Uttarakhand.
• It is famous for the Banihal Pass and the Jawahar Tunnel, which connect Jammu to the Kashmir Valley.
• Karakoram
• The Karakoram range is located in the northernmost part of India and spans the borders of India, Pakistan, and China.
• It is home to K2, the second-highest peak in the world, and the Siachen Glacier, the highest battleground on Earth.

Q44. Answer: (b) Soviet dissident movement

The Correct answer is Soviet dissident movement.

Key Points

• Benjamin Nathans is a historian and academic who authored the book "To the Success of Our Hopeless Cause."

• The book extensively explores the Soviet dissident movement, which arose during the Cold War period as a resistance to the oppressive and authoritarian policies of the Soviet Union.

• The movement consisted of activists, intellectuals, and ordinary citizens who sought to challenge censorship, political repression, and human rights violations under Soviet rule.

• Nathans delves into the lives and struggles of Soviet dissidents, highlighting their efforts to promote freedom of expression, democracy, and social justice.

• The book provides a comprehensive analysis of how these dissidents used tools like samizdat (self-published literature) and underground networks to communicate their ideas and spread awareness.

• The work is widely regarded as a scholarly masterpiece, contributing significantly to the understanding of Soviet history and the broader global human rights movement.

• Due to its detailed research and narrative, the book earned the Pulitzer Prize for General Nonfiction, recognizing its excellence in shedding light on a critical aspect of 20th-century history.

Additional Information

• Rise of AI

• The rise of AI refers to the rapid advancements in artificial intelligence technologies, which have transformed fields like healthcare, transportation, and finance.

• AI encompasses areas such as machine learning, natural language processing, and robotics.

• It is not related to the Soviet dissident movement or Benjamin Nathans' work.

• Environmental collapse

• This term addresses the degradation of ecosystems due to factors like climate change, deforestation, and pollution.

• Although a critical global issue, it is unrelated to the historical and political context of the Soviet Union explored by Benjamin Nathans.

• American healthcare crisis

• This topic revolves around the challenges in the U.S. healthcare system, such as rising costs, accessibility, and inefficiencies.

• While significant, it is not the focus of the book "To the Success of Our Hopeless Cause."

Q45. Answer: (a) 20

Shortcut Trick

The Mode is simply the observation that appears most frequently in the data set.

Count the occurrences: 20 appears 3 times, while 31, 33, and 35 appear 2 times each.

All other numbers (22, 25, 27, 29, 32, 34) appear only once.

Since 20 has the highest frequency, it is the mode.

Therefore The correct answer is 20.

Alternate Method

Given: Observations = 20, 20, 20, 35, 29, 34, 25, 33, 35, 32, 33, 27, 22, 31, 31.

Formula: Mode = Value with the maximum frequency (f_(max)).

Let us tabulate the frequency of each observation:

=> Frequency of 20 = 3

=> Frequency of 31 = 2

=> Frequency of 33 = 2

=> Frequency of 35 = 2

=> Frequency of 22, 25, 27, 29, 32, 34 = 1 each

=> Comparing the frequencies, 3 is the highest value.

=> The observation corresponding to frequency 3 is 20.

Therefore The correct answer is 20.

Additional Information

Mean (Arithmetic Average)

The sum of all observations divided by the total number of observations. Formula: Mean = (Σx_i) ÷ n.

Median

The middle value of a data set when arranged in ascending or descending order. For 15 observations, it is the 8^(th) term.

Empirical Relationship

For a moderately skewed distribution, the relationship is: Mode = 3 × Median − 2 × Mean.

Types of Mode

A data set can be unimodal (one mode), bimodal (two modes), or multimodal (more than two modes).

Q46. Answer: (d) 84

Decoding signs:

Sign	P	Q	R	S
Stands For	×	÷	•	•

Given: 81 S 28 R 39 S (98 Q 7) = ?

81 S 28 R 39 S (98 Q 7) = ? => 81 + 28 - 39 + (98 ÷ 7) = ?

=> 81 + 28 - 39 + (98 ÷ 7) = ?

=> 81 + 28 + 14 - 39 = ?

=> 123 - 39 = ?

=> 84 = ?

Hence, "Option 4" is the correct answer.

Q47. Answer: (d) Linux Ubuntu

The Correct answer is Linux Ubuntu.

Key Points

• Linux Ubuntu is an open-source desktop operating system based on the Linux kernel.

• It is developed and maintained by Canonical Ltd., a company founded in 2004.

• The operating system is freely available for everyone and can be modified and redistributed due to its open-source nature.

• Ubuntu offers a wide range of customization options and supports a vast number of software packages, making it suitable for both personal and professional use.

• This operating system is widely used for servers, development purposes, and as a desktop OS for general users.

• Ubuntu comes with a graphical user interface (GUI) and is known for its user-friendly features and robust security.

• It has several distributions, such as Ubuntu Desktop, Ubuntu Server, and Ubuntu Core, which cater to different user needs.

• Ubuntu's long-term support (LTS) versions provide updates and support for a span of five years, ensuring stability for users.

• Popular applications such as LibreOffice, Mozilla Firefox, and Thunderbird come pre-installed in Ubuntu.

• Ubuntu is used worldwide and is appreciated for its performance, security, and community support.

Additional Information

• Windows 11

• Windows 11 is a proprietary operating system developed by Microsoft Corporation.

• It is a successor to Windows 10 and was officially released on October 5, 2021.

• Windows 11 features a redesigned interface, improved performance, and multitasking capabilities.

• It does not qualify as open-source software because its source code is not freely available or modifiable.

• macOS

• macOS is a proprietary operating system developed by Apple Inc.

• It is designed for Apple's Macintosh computers and is known for its seamless integration with Apple hardware and software.

• macOS is a closed-source operating system, meaning its source code is not accessible or modifiable by the public.

• Android

• Android is an open-source operating system primarily designed for mobile devices.

• It is developed by Google and is based on the Linux kernel.

• Although Android is open-source, it is not typically considered a desktop operating system.

Q48. Answer: (b) 4

Shortcut Trick

For any standard cubic equation $ax^3 + bx^2 + cx + d = 0$, the sum of the products of the roots taken two at a time is given by the formula $c \div a$.

Here, the given equation is $x^3 - 3x^2 + 4x - 12 = 0$.

Comparing the coefficients, we have $a = 1$ and $c = 4$.

Sum of products taken two at a time = $4 \div 1 = 4$.

Therefore The correct answer is 4.

Alternate Method

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Given:

The cubic equation is $x^3 - 3x^2 + 4x - 12 = 0$.

Formula Used:

If α, β, and γ are the roots of the cubic equation $ax^3 + bx^2 + cx + d = 0$, then:

The sum of the products of the roots taken two at a time is $\alpha\beta + \beta\gamma + \gamma\alpha = c \div a$.

Calculations:

By comparing $x^3 - 3x^2 + 4x - 12 = 0$ with $ax^3 + bx^2 + cx + d = 0$, we identify:

=> a = 1

=> b = −3

=> c = 4

=> d = −12

=> Sum of the products taken two at a time = c ÷ a

=> Sum of the products = 4 ÷ 1 = 4

Therefore The correct answer is 4.

Additional Information

Sum of roots of a cubic equation

For a cubic equation $ax^3 + bx^2 + cx + d = 0$, the sum of the roots (α + β + γ) is given by −b/a.

Product of roots of a cubic equation

For a cubic equation $ax^3 + bx^2 + cx + d = 0$, the product of the roots (α×β×γ) is given by −d/a.

Roots of quadratic equation

For a quadratic equation $ax^2 + bx + c = 0$, the sum of roots is −b/a and the product of roots is c/a.

Q49. Answer: (a) New Delhi

The Correct answer is New Delhi.

Key Points

• The International Conference on Carbon Markets Prakriti 2025 was held on 24-25 February 2025 in New Delhi, the capital city of India.

• New Delhi is a hub for national and international conferences, being the seat of the Indian government and home to key institutions and organizations.

• This conference focused on discussions related to carbon markets, a mechanism aimed at reducing greenhouse gas emissions through tradeable permits and credits.

• Carbon markets play a crucial role in achieving global targets set by the Paris Agreement to combat climate change.

• New Delhi has hosted several environmental and climate-related events due to its strategic importance and the presence of institutions like the Ministry of Environment, Forest and Climate Change and NITI Aayog.

• The event brought together policymakers, experts, and stakeholders to discuss strategies for creating and strengthening sustainable carbon markets.

• This aligns with India's commitment to achieving net-zero emissions by 2070, as stated in international forums such as COP26.

• New Delhi's infrastructure, connectivity, and availability of resources make it an ideal location for such high-level conferences.

Additional Information

• Mumbai

• Mumbai is the financial capital of India and a major hub for business and commerce.

• It is home to the headquarters of several multinational corporations, banks, and the Bombay Stock Exchange.

• While Mumbai hosts many corporate and financial conferences, environmental events like the Prakriti 2025 are less frequent here.

• Mumbai is also known for its proximity to the Arabian Sea and its challenges related to rising sea levels due to climate change.

• Chennai

• Chennai is a major industrial hub in southern India and is known for its automobile and IT industries.

• The city has hosted environmental conferences, particularly those focusing on coastal management and disaster resilience.

• Chennai faces challenges related to water scarcity and urban flooding, making it an important location for climate-related discussions.

• Kolkata

• Kolkata is an eastern Indian city known for its cultural heritage and intellectual contributions.

• The city has hosted conferences on sustainability and urban planning, particularly in the context of its riverine ecosystem and

proximity to the Sundarbans.

• Kolkata faces environmental challenges such as air pollution and water management, making it a participant in discussions on carbon markets.

Q50. Answer: (c) 1173

Shortcut Trick

Use the algebraic identity: $(a + b)^2 - (a - b)^2 = 4ab$.

Substitute the given values: $70^2 - 208 = 4ab$.

$4900 - 208 = 4692$.

$ab = 4692 \div 4 = 1173$.

Therefore The correct answer is 1173.

Alternate Method

Given:

Sum of numbers $(a + b) = 70$

Square of difference $(a - b)^2 = 208$

Formula Used:

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

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

Subtracting the two equations gives: $(a + b)^2 - (a - b)^2 = 4ab$

Calculations:

=> $a + b = 70$

=> Square both sides: $(a + b)^2 = 70^2 = 4900$

=> We know: $(a - b)^2 = 208$

=> Using the identity: $(a + b)^2 - (a - b)^2 = 4ab$

=> $4900 - 208 = 4ab$

=> $4692 = 4ab$

=> $ab = 4692 \div 4$

=> $ab = 1173$

Therefore The correct answer is 1173.

Additional Information

Square of Sum Identity

$(a + b)^2 = a^2 + b^2 + 2ab$. This calculates the area of a square with side (a+b).

Square of Difference Identity

$(a - b)^2 = a^2 + b^2 - 2ab$. It represents the squared distance between two numbers.

Combined Identity for Product

$ab = [(a + b)^2 - (a - b)^2] \div 4$. This is a direct way to find the product if sum and difference are known.

Sum of Squares

$a^2 + b^2 = [(a + b)^2 + (a - b)^2] \div 2$. This is useful for finding the sum of individual squares.

Q51. Answer: (d) 1272

The logic followed here is:

Hence, "Option 4" is the correct answer.

Q52. Answer: (a) 8

The logic followed here is:

72 is related to 9 => $72 \div 8 = 9$

And,

24 is related to 3 => $24 \div 8 = 3$

Similarly,

64 is related to => $64 \div 8 = 8$

Hence, "Option 1" is the correct answer.

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Q53. Answer: (c) 12

Shortcut Trick

One-third of number + 10 = 65

One-third of number = 65 − 10 = 55

Original number = 55 × 3 = 165

Sum of digits = 1 + 6 + 5 = 12

Therefore The correct answer is 12.

Alternate Method

Given: Result after increasing one-third of a number by 10 is 65.

Formula Used: Linear equation in one variable.

Let the original number be x.

=> (1/3) × x + 10 = 65

=> x/3 = 65 − 10

=> x/3 = 55

=> x = 55 × 3

=> x = 165

Sum of digits of 165:

=> 1 + 6 + 5 = 12

Therefore The correct answer is 12.

Additional Information

Linear Equations

Equations of the form ax + b = c are solved by isolating the variable using inverse operations (subtraction first, then multiplication/division).

Sum of Digits

The sum of the digits of a number is used in divisibility rules; for example, a number is divisible by 3 if the sum of its digits is divisible by 3.

Fraction Manipulation

To find the whole from a fraction, multiply the fractional value by the reciprocal of the fraction.

Q54. Answer: (d) 68° and 68°

Shortcut Trick

In an isosceles triangle, the two base angles are always equal.

Base Angle = (180° − Vertex Angle) ÷ 2

Base Angle = (180° − 44°) ÷ 2

Base Angle = 136° ÷ 2 = 68°

Therefore The correct answer is 68° and 68°.

Alternate Method

Given: The vertex angle of an isosceles triangle is 44°.

Formula Used: The sum of all interior angles of a triangle is 180°.

=> Let the measure of each base angle be x.

=> In an isosceles triangle, the angles opposite to the equal sides are equal.

=> Sum of angles = Vertex angle + Base angle 1 + Base angle 2

=> 180° = 44° + x + x

=> 180° = 44° + 2x

=> 2x = 180° − 44°

=> 2x = 136°

=> x = 136° ÷ 2 = 68°

Therefore The correct answer is 68° and 68°.

Additional Information

Isosceles Triangle Theorem

If two sides of a triangle are congruent, then the angles opposite those sides are congruent (equal).

Angle Sum Property

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The sum of the measures of the interior angles of any triangle is always 180°.

Equilateral Triangle

A triangle where all three sides are equal, resulting in all three angles being equal to 60°.

Q55. Answer: (d) 432π

Shortcut Trick

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

Rotation about 9 cm side => Height (h) = 9 cm and Radius (r) = 12 cm.

Volume of cone = (1/3) × π × r^2 × h = (1/3) × π × 12 × 12 × 9.

Volume = π × 144 × 3 = 432π cm^3.

Therefore The correct answer is 432π cm^3.

Alternate Method

Given:

Sides of the right triangle = 9 cm, 12 cm, and 15 cm (Hypotenuse).

Rotation axis = 9 cm side.

Formula Used:

Volume of a Cone (V) = (1/3)πr^2h

Calculations:

=> Radius (r) of the cone = 12 cm

=> Height (h) of the cone = 9 cm

=> Volume = (1/3) × π × $(12)^2$ × 9

=> Volume = (1/3) × π × 144 × 9

=> Volume = π × 144 × 3

=> Volume = 432π cm^3

Therefore The correct answer is 432π cm^3.

Additional Information

Rotation about the other side

If rotated about the 12 cm side, then h = 12 cm and r = 9 cm. Volume = (1/3)π$(9)^2$(12) = 324π cm^3.

Slant Height of Cone

The hypotenuse of the right triangle always acts as the slant height (l) of the generated cone. l = √(r^2 + h^2).

Surface Area of Cone

Curved Surface Area (CSA) = πrl and Total Surface Area (TSA) = πr(l + r).

Q56. Answer: (c) .xlsx

The Correct answer is .xlsx

Key Points

• The .xlsx format is the default file format used in newer versions of MS Excel, such as Excel 2019 and later.

• .xlsx is based on the Office Open XML standard, which is a more efficient and secure file format compared to older formats.

• This format is designed to store structured data, including formulas, formatting, charts, and macros, in a compact and easily accessible manner.

• It supports advanced features like conditional formatting, data validation, and multi-sheet workbooks.

• The .xlsx format is also compatible with other software tools, allowing seamless data exchange and interoperability.

• Compared to older formats like .xls, it offers improved data compression, reducing file size without compromising data integrity.

• The adoption of the .xlsx format aligns with Microsoft's focus on enhancing performance and security in its applications.

Additional Information

• .xls

• .xls is the older file format used in earlier versions of MS Excel (up to Excel 2003).

• This format is based on the Binary Interchange File Format (BIFF), which has limited capabilities compared to .xlsx.

• It lacks support for advanced features such as enhanced graphics, larger datasets, and improved security.

• .csv

• The .csv format stands for Comma-Separated Values and is used for storing tabular data in plain text.

• It is ideal for simple data exchange between applications but does not support formulas, formatting, or multiple sheets.

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• This format is widely used for data import/export but is not a default format in MS Excel.
• .pdf
• .pdf stands for Portable Document Format and is primarily used for sharing documents in a fixed layout.
• While MS Excel allows saving workbooks as .pdf, this format is not designed for editing or storing spreadsheet data.
• .pdf is more suitable for presentation purposes rather than active data manipulation.

Q57. Answer: (a) 66.4

Shortcut Trick
Ratio of students = 12 : 18 = 2 : 3.
Using the weighted average method: [(2 × 70) + (3 × 64)] ÷ (2 + 3)
=> (140 + 192) ÷ 5 = 332 ÷ 5 = 66.4.
Therefore The correct answer is 66.4.
Alternate Method
Given:
Total students in the class = 30.
Number of first group (n1) = 12 students, Average score (A1) = 70.
Number of second group (n2) = 30 − 12 = 18 students, Average score (A2) = 64.
Calculations:
=> Total score of 12 students = 12 × 70 = 840.
=> Total score of remaining 18 students = 18 × 64 = 1152.
=> Total score of the entire class = 840 + 1152 = 1992.
=> Average score of the class = 1992 ÷ 30.
=> Average score of the class = 66.4.
Therefore The correct answer is 66.4.
Additional Information
Combined Average Formula
The combined average of multiple groups is calculated as A = (n1A1 + n2A2 + ... + n_kA_k) ÷ (n1 + n2 + ... + n_k).
Deviation Method (Assumed Mean)
Pick an assumed average (a), then New Average = a + (Total Deviation ÷ Total Number). For this problem, if a = 64, deviation = [12 × (70 − 64)] ÷ 30 = 72 ÷ 30 = 2.4. So, 64 + 2.4 = 66.4.
Weighted Average Principle
When the size of groups is different, the group average with more members will pull the overall class average closer to its value.

Q58. Answer: (b) Imposition of heavy duties on Indian exports to Britain

The Correct answer is Imposition of heavy duties on Indian exports to Britain.
Key Points
• The British colonial policies imposed heavy duties and tariffs on Indian textile exports to Britain, making Indian goods less competitive in the British market.
• These discriminatory trade practices were designed to promote the British textile industry at the expense of the Indian textile industry.
• The imposition of high tariffs led to a significant decline in Indian textile exports, which were once renowned globally for their quality, craftsmanship, and uniqueness.
• Indian weavers and artisans faced severe hardships due to reduced demand for their goods, resulting in widespread unemployment and economic distress.
• The policy also forced Indian consumers to buy British-manufactured goods, which were imported into India without significant tariffs, further benefiting the British economy.
• This exploitation contributed to the deindustrialization of India during the colonial period, as traditional industries like textiles were deliberately undermined.
• The adverse impact of these policies on India's economy highlighted the exploitative nature of British colonial rule and the need for economic independence.
Additional Information
• Equal tariffs on imports and exports
• This option is incorrect because the British did not impose equal tariffs. They deliberately imposed unequal and discriminatory tariffs to favor their own industries.

• Free trade within India

• While free trade within India might sound beneficial, under British rule, this concept was manipulated to serve British economic interests rather than support Indian industries.

• Indian manufacturers faced competition from cheap British imports, which were often dumped in the Indian market.

• Export subsidies

• The British did not provide export subsidies for Indian textiles. Instead, they imposed restrictions and high duties to suppress Indian exports and promote British products.

Q59. Answer: (a) M

Given: Seven people, A, B, L, M, N, S, and T are sitting in a row, facing north.

1) Only five people sit between T and A.

2) N sits to the immediate left of A.

3) Only one person sits between N and L.

4) M sits at some place to the left of S but at some place to the right of B.

Thus, M sits third from the left end of the line.

Hence, "Option 1" is the correct answer.

Q60. Answer: (c) wk

According to the given information,

Thus, 'down' is coded as 'wk'.

Hence, "Option 3" is the correct answer.

Q61. Answer: (d) Ranji Trophy

The Correct answer is Ranji Trophy.

Key Points

• The Ranji Trophy is a prestigious domestic cricket tournament in India.

• It was established in the year 1934 and is named after Ranjitsinhji Vibhaji Jadeja, the famous Indian cricketer who played for England.

• The tournament is conducted by the Board of Control for Cricket in India (BCCI).

• The Ranji Trophy follows a first-class cricket format, which is played over multiple days.

• Teams representing various Indian states and cricket associations participate in the tournament.

• Vidarbha has been a strong contender in recent years and has won the Ranji Trophy in 2018 and 2019.

• Winning the Ranji Trophy is considered a stepping stone for players aiming to represent India in international cricket.

• The 2025 tournament win by Vidarbha highlights their continued excellence in domestic cricket.

Additional Information

• Vijay Hazare Trophy

• The Vijay Hazare Trophy is a domestic one-day cricket tournament in India.

• It was named after the legendary Indian cricketer Vijay Hazare.

• The tournament is played in a limited-overs format (50 overs per side).

• It provides a platform for players to showcase their skills in limited-overs cricket.

• Syed Mushtaq Ali Trophy

• The Syed Mushtaq Ali Trophy is a domestic T20 cricket tournament in India.

• It is named after the famous Indian cricketer Syed Mushtaq Ali.

• This tournament allows players to demonstrate their abilities in the shortest format of the game.

• Indian Premier League (IPL)

• The IPL is a globally popular franchise-based T20 cricket league hosted in India.

• It involves teams owned by private franchises and features top cricket players from around the world.

• The league is known for its high entertainment value and significant financial rewards.

Q62. Answer: (c) Rhinoviruses only infect the upper respiratory tract.

The Correct answer is Rhinoviruses only infect the upper respiratory tract.

Key Points

• Rhinoviruses are the primary cause of the common cold and are responsible for more than 50% of cases.

• These viruses preferentially infect the upper respiratory tract, such as the nasal passages and throat.

• The upper respiratory tract provides a more suitable environment for rhinoviruses because of its lower temperature (about 33°C), which is optimal for their replication.

• The lower respiratory tract, including the lungs and alveoli, generally has a higher temperature (around 37°C), which is less conducive for rhinovirus survival and replication.

• Rhinoviruses lack mechanisms to effectively invade deeper tissues like the lungs or lower respiratory tract.

• Infections caused by rhinoviruses are typically mild and self-limiting, targeting the mucosal surfaces of the upper respiratory tract.

• Other viruses, such as influenza or respiratory syncytial virus (RSV), are more likely to cause lower respiratory tract infections.

Additional Information

• The virus is destroyed in the alveoli

• The alveoli are small air sacs in the lungs that are involved in oxygen exchange. While certain viruses may struggle to survive in this environment, this is not the primary reason the common cold is rarely a lower respiratory tract infection.

• Rhinoviruses do not typically reach the alveoli due to their preference for the upper respiratory tract.

• It requires a vector for lower tract transmission

• Rhinoviruses are transmitted via direct contact, airborne droplets, or contaminated surfaces, not through a vector like mosquitoes or ticks.

• Vector transmission is more commonly associated with diseases like malaria or dengue.

• Antibodies prevent it from entering the lungs

• While the immune system, including antibodies, plays a role in combating infections, the inability of rhinoviruses to infect the lower respiratory tract is primarily due to environmental and biological factors, not antibody interference.

• Antibodies are produced as part of the body's response to infection and do not specifically block rhinoviruses from entering the lungs.

Q63. Answer: (c) Founding the first girls' school in India

The correct answer is Founding the first girls' school in India.

Key Points

• Jyotiba Phule (also known as Jyotirao Phule) was a prominent social reformer, educationist, and activist from India.

• He is best remembered for his pivotal role in promoting education for women and the marginalized sections of society.

• In 1848, along with his wife Savitribai Phule, Jyotiba Phule founded the first girls' school in India in Pune, Maharashtra.

• This was a revolutionary step during an era when women's education was considered taboo and women were denied basic rights.

• Jyotiba Phule also worked tirelessly to eradicate the deeply entrenched caste system and promote social equality.

• He was a vocal critic of the Brahmanical social order and sought to uplift the Dalits and other marginalized communities.

• The establishment of the girls' school marked the beginning of a new era in women's education in India and paved the way for future reforms in the field of education.

• His efforts earned him the title of Mahatma, meaning "Great Soul."

Additional Information

• Launching India's first cooperative bank

• The first cooperative bank in India was the Anyonya Co-operative Bank, founded in 1889 in Baroda, Gujarat.

• While Jyotiba Phule was a social reformer, he was not associated with the establishment of a cooperative bank.

• Writing the Indian Constitution

• The Indian Constitution was drafted by the Constituent Assembly of India, chaired by Dr. B.R. Ambedkar.

• Jyotiba Phule passed away in 1890, long before the Constitution was written (1947-1949).

• Leading the 1857 revolt

• The 1857 revolt, also known as the First War of Indian Independence, was led by figures like Mangal Pandey, Rani Lakshmibai, Tatya Tope, and Bahadur Shah Zafar.

• Jyotiba Phule was a contemporary of the revolt but was more focused on social reforms and education rather than armed rebellion.

Q64. Answer: (b) Only 1 and 3

The Correct answer is Only 1 and 3.

Key Points

• Post the 1991 economic reforms in India, the agricultural sector underwent significant changes, particularly with the introduction of trade liberalization policies.

• Quantitative restrictions on imports of agricultural products were fully removed in April 2001, marking a major step toward

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integrating Indian agriculture into the global economy.

• India adopted an export-oriented policy, emphasizing production for international markets. This led to a shift from traditional food grain cultivation to the cultivation of cash crops such as cotton, sugarcane, and spices.

• The removal of quantitative restrictions and export-focused policies were aligned with the goals of the World Trade Organization (WTO), to which India is a signatory.

• This shift had significant implications for food security and rural livelihoods, as the focus on cash crops sometimes came at the expense of food grain production for the domestic market.

Additional Information

• Option 2: Increase in import duties

• Contrary to the claim in Option 2, import duties on agricultural products were not significantly increased after 1991. Instead, the focus was on reducing trade barriers to facilitate globalization and trade liberalization.

• India adhered to WTO norms that emphasized lower tariffs and reduced trade barriers for agricultural commodities.

• Quantitative restrictions (Option 1)

• The removal of quantitative restrictions was a significant policy change post-1991, and it allowed India to import agricultural products more freely.

• This policy aimed to integrate Indian agriculture with global markets, promoting competition and accessibility to diverse agricultural goods.

• Export-oriented policy (Option 3)

• India's post-1991 export-oriented policy led to an increased focus on cash crop production, which was economically lucrative in international markets.

• Examples of cash crops include tea, coffee, spices, cotton, and tobacco, which gained prominence over traditional food grains.

• This policy was aimed at earning foreign exchange and enhancing India's agricultural trade competitiveness globally.

Q65. Answer: (c) Three

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 E is kept above G.

2) Only two boxes are kept above U.

Boxes
E
G
U

3) U is kept immediately above T.

Boxes
E
G
U
T

4) S is kept immediately above D.

5) S is not kept at third position from the bottom.

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

Boxes
E
G
U
T
F
S
D

Thus, three boxes are kept between F and E.

Hence, the correct answer is "Option 3".

Q66. Answer: (c) Axis Bank

The Correct answer is Axis Bank.

Key Points

• Axis Bank became the first Indian bank to launch near-real-time, 24/7 programmable USD clearing capabilities using JP Morgan's Kinexys Digital Payments platform in March 2025.

• This innovative capability enables instant and automated cross-border payments, enhancing global financial connectivity.

• The partnership with JP Morgan underscores Axis Bank's commitment to leveraging technology for providing seamless financial solutions to its customers.

• The Kinexys Digital Payments platform is known for its robust infrastructure that supports high-speed and secure payment processing.

• This move positions Axis Bank as a leader in digital banking innovation in India.

• The service is particularly beneficial for businesses engaged in international trade, enabling faster and more efficient transactions.

• This advancement aligns with the global trend of adopting programmable payments to enhance operational efficiency.

• It also reflects the growing importance of 24/7 banking services in today's fast-paced financial environment.

Additional Information

• State Bank of India

• State Bank of India (SBI) is India's largest public sector bank, headquartered in Mumbai.

• SBI is known for its extensive network of branches and providing a diverse range of financial services.

• It serves customers across urban and rural areas and is instrumental in driving financial inclusion in India.

• Bandhan Bank

• Bandhan Bank is a relatively new private sector bank headquartered in Kolkata, India.

• The bank primarily focuses on providing banking services to the underprivileged and rural population.

• It began operations in 2015 and specializes in microfinance.

• Indian Bank

• Indian Bank is a prominent public sector bank headquartered in Chennai, India.

• The bank offers a range of services including retail banking, corporate banking, and treasury operations.

• It merged with Allahabad Bank in 2020 to expand its reach and services.

Q67. Answer: (c) PDTPP

Given Table:

Number/symbol	4	#	$	7	9	2	6	@	3	&	5	•	%	8
Code	B	W	Q	C	A	T	J	N	P	D	G	E	Y	S

According to the given condition:

Rule no.	Condition	Result

I	First element is a number and the last a symbol	Code for these two are to be interchanged
II	First element is divisible by 2 and the last element is divisible by 3	First and last elements are to be coded as *.
III	First element is a symbol and the last element is an even number	Their codes are to be changed to the code for 3

Given: @&238

Here, III rule applies i.e. their codes are to be changed to the code for 3

@ → coded as P

& → coded as D

2 → coded as T

3 → coded as P

8 → coded as P

So, @&238 → Coded as PDTPP

Hence, "Option 3" is the correct answer.

Q68. Answer: (c) EJNQ

The logic followed here is:

Option 1) YDGK

Option 2) GLOS

Option 3) EJNQ

Option 4) ZEHL

Thus, out of all 'EJNQ' is the odd one out.

Hence, "Option 3" is the correct answer.

Q69. Answer: (d) Wife's sister's husband

Decoding the Symbols:

A is				
Symbol	•	−	x	÷
Meaning	Son	Sister	Wife	Father
to B				

Given: E ÷ F + G – H x K

E ÷ F → E is the father of F.

F + G → F is the son of G.

G – H → G is the sister of H.

H x K → H is the wife of K.

Thus, E is K's wife's sister's husband.

Hence, "Option 4" is the correct answer.

Q70. Answer: (b) 6

According to the given information,

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

Hence, "Option 2" is the correct answer.

Q71. Answer: (b) 9102

Given:

82 × 111

Formula used:

(a × (b + c)) = a × b + a × c

Calculation:

=> 82 × 111 = 82 × (100 + 11)

=> = 82 × 100 + 82 × 11

=> = 8200 + 902

=> = 9102

Therefore 82 × 111 = 9102

Q72. Answer: (c) Pulakesin II

The correct answer is Pulakesin II.

Key Points

• Pulakesin II, a renowned ruler of the Chalukya dynasty, is remembered for his military prowess and administrative skills.

• He defeated Harshavardhana on the Narmada frontier, halting Harsha's southern expansion.

• This event is prominently mentioned in the Aihole inscription, composed by Pulakesin II's court poet Ravikirti.

• The victory established the Narmada River as the northern boundary of Pulakesin II's empire and marked him as a powerful ruler in peninsular India.

• Pulakesin II's administration was marked by a strong central authority and a well-organized system of governance.

• The Chalukya dynasty, under his rule, reached its zenith, controlling large parts of modern-day Karnataka, Maharashtra, and Andhra Pradesh.

• He was a contemporary of Harshavardhana, and their conflict is a significant event in early medieval Indian history.

Additional Information

• Rajaraja Chola

• Rajaraja Chola I was a prominent ruler of the Chola dynasty, known for his military conquests and administrative reforms.

• He is renowned for building the Brihadeeswarar Temple at Thanjavur, a UNESCO World Heritage Site.

• His reign marked the expansion of the Chola Empire to Sri Lanka and parts of Southeast Asia.

• Narasimhavarman

• Narasimhavarman I, also known as Mamalla, was a ruler of the Pallava dynasty.

• He defeated the Chalukyas under Pulakesin II and captured the Chalukya capital, Vatapi (modern Badami).

• Narasimhavarman is famous for his contributions to architecture, including the rock-cut temples of Mamallapuram.

• Mahendravarman II

• Mahendravarman II was a ruler of the Pallava dynasty and the son of Narasimhavarman I.

• His reign was relatively short, and he is less prominent compared to other Pallava rulers.

• He continued the legacy of temple construction and cultural patronage started by his predecessors.

Q73. Answer: (d) A dispute between Karnataka and Tamil Nadu over water sharing

The Correct answer is A dispute between Karnataka and Tamil Nadu over water sharing.

Key Points

• The original jurisdiction of the Supreme Court in India is defined under Article 131 of the Indian Constitution.

• This jurisdiction allows the Supreme Court to adjudicate disputes between:

• The Government of India and one or more States

• Between two or more States

• However, disputes related to water sharing between states are excluded from the original jurisdiction of the Supreme Court.

• Such disputes are governed by the Inter-State River Water Disputes Act, 1956, and are handled by water tribunals, not the Supreme Court.

• The water-sharing dispute between Karnataka and Tamil Nadu is primarily related to the Cauvery River, which has been a long-standing issue.

• These disputes are resolved through dedicated mechanisms such as the Cauvery Water Disputes Tribunal rather than the Supreme Court's original jurisdiction.

Additional Information

• A commercial contract dispute between Gujarat and a private company

• Such disputes typically fall under the jurisdiction of civil courts or specialized tribunals, depending on the nature of the contract.

• They do not qualify as disputes between states or the central government under Article 131.

• A disagreement between Punjab and Haryana over territorial boundaries

• Disputes over territorial boundaries between states fall under the original jurisdiction of the Supreme Court.

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• For example, boundary disputes can arise due to historical treaties or administrative decisions.

• A dispute between Maharashtra and the Centre over a constitutional law issue

• Constitutional law issues between states and the central government fall under the Supreme Court's original jurisdiction as defined in Article 131.

• Such issues typically involve interpretations of the Constitution or implementation of central laws.

Q74. Answer: (b) 12 secAtanA

Shortcut Trick

Put A = 45° in the expression.

=> [2(1/√2)/(1 − 1/√2) + 2(1/√2)/(1 + 1/√2)] × 3√((√2)² − 1)

=> [√2/((√2−1)/√2) + √2/((√2+1)/√2)] × 3(1) => [2/(√2−1) + 2/(√2+1)] × 3

=> 2[(√2+1 + √2−1)/(2−1)] × 3 => 2[2√2] × 3 = 12√2

Checking options: (2) 12 sec45°tan45° = 12 × √2 × 1 = 12√2.

Therefore The correct answer is 12 secAtanA.

Alternate Method

Given: [2cosA/(1 − sinA) + 2cosA/(1 + sinA)] × 3√(sec²A − 1)

Formula Used: (1 − sin²A) = cos²A and (sec²A − 1) = tan²A

=> 2cosA [(1 + sinA + 1 − sinA) / (1 − sin²A)] × 3√tan²A

=> 2cosA [2 / cos²A] × 3tanA

=> [4 / cosA] × 3tanA

=> 4secA × 3tanA

=> 12secAtanA

Therefore The correct answer is 12 secAtanA.

Additional Information

Trigonometric Identities

Fundamental identities: sin²θ + cos²θ = 1, 1 + tan²θ = sec²θ, and 1 + cot²θ = cosec²θ.

Reciprocal Relations

secA = 1/cosA, cosecA = 1/sinA, and tanA = sinA/cosA.

Substitution Method

For proving identities, substituting common angles like 0°, 30°, 45°, 60°, or 90° often simplifies complex expressions (avoiding undefined values).

Q75. Answer: (b) Availability of water

The correct answer is Availability of water.

Key Points

• Availability of water is the most crucial factor influencing the compactness of rural settlements in dry regions like Rajasthan.

• In arid and semi-arid regions, water is a scarce resource, and its presence determines human settlement patterns.

• Villages tend to develop in a more compact form near water sources to ensure proximity and accessibility.

• Rajasthan faces extreme water scarcity due to its desert climate and low annual rainfall; thus, settlements often form around oases, wells, or tanks.

• Compact settlements help reduce the effort and time required to fetch water and allow better community management of water resources.

• Historically, people have relied on stepwells (baolis), tanks, and rainwater harvesting structures to meet their water needs, further influencing settlement patterns.

• In comparison, areas with abundant water sources generally feature dispersed settlements due to reduced dependency on a single water source.

Additional Information

• Groundwater salinity

• Groundwater salinity refers to the presence of high salt content in groundwater, which can render it unsuitable for drinking or irrigation.

• While groundwater salinity is an issue in Rajasthan due to its geological conditions, it does not directly influence the compactness of rural settlements.

• However, it may determine the location of settlements by pushing people to areas with better water quality.

• Soil fertility

• Soil fertility refers to the ability of soil to support plant growth by providing essential nutrients.

• While it is a crucial factor for agricultural settlements, it primarily influences land use and cropping patterns, rather than the compactness of settlements.

• In Rajasthan, due to the sandy and infertile soil, settlements are often concentrated near water sources rather than fertile lands.

• Altitude

• Altitude refers to the height of a location above sea level.

• While altitude can influence settlement patterns in hilly or mountainous regions, it is not a significant factor in the flat terrain of Rajasthan.

• In Rajasthan, the focus is more on water availability due to its arid climatic conditions.

Q76. Answer: (c) 13 hours 15 minutes

Shortcut Trick

In such Round Trip problems, use the logic: (Walk both ways) + (Drive both ways) = 2 × (Walk + Drive).

Given: Walk + Drive = 8 hr 15 min

Gain by driving both ways = 5 hr → Drive both ways = 8 hr 15 min − 5 hr = 3 hr 15 min.

Walk both ways = 2 × (8 hr 15 min) − (3 hr 15 min) = 16 hr 30 min − 3 hr 15 min = 13 hr 15 min.

Therefore The correct answer is 13 hr 15 min.

Alternate Method

Given:

Time for Walking (W) + Driving (D) = 8 hours 15 minutes

Time for Driving both ways (2D) = 8 hr 15 min − 5 hr = 3 hours 15 minutes

Calculations:

=> Let W be the time taken to walk one way and D be the time taken to drive one way.

=> W + D = 8.25 hours (since 15 min = 15/60 = 0.25 hr)

=> 2D = 8.25 − 5 = 3.25 hours

=> D = 3.25 ÷ 2 = 1.625 hours

=> W = 8.25 − 1.625 = 6.625 hours

=> Time for walking both ways = 2W = 2 × 6.625 = 13.25 hours

=> 13.25 hours = 13 hours 15 minutes

Therefore The correct answer is 13 hr 15 min.

Additional Information

Time and Distance Relation

For a fixed distance, time taken is inversely proportional to speed (T prop. to 1/S). In these problems, distances are constant for each leg of the journey.

Average Speed

Average speed for a round trip with speeds x and y is (2 × x × y) ÷ (x + y), but when time is given, linear equations are more efficient.

Time Conversion

Always ensure units are consistent; convert minutes to hours by dividing by 60 or vice versa (1 hour = 60 minutes).

Q77. Answer: (c) 24

Given number: 76341528

According to the question,

Given number	**7**	**6**	**3**	**4**	**1**	**5**	**2**	**8**
Odd digit → (+1) Even digit → (+1)	(+1)	(+1)	(+1)	(+1)	(+1)	(+1)	(+1)	(+1)
New number	8	7	4	5	2	6	3	9

The sum of all the odd digits in the new number thus formed → 7 + 5 + 3 + 9 = 24

Hence, the correct answer is "Option 3".

Q78. Answer: (d) Indus

The Correct answer is Indus.

Key Points

• Mohenjo-daro is one of the most prominent urban centers of the Indus Valley Civilization, which flourished around 2500 BCE.

• The site is located along the banks of the Indus River in present-day Sindh province, Pakistan.

• The Indus River played a crucial role in the development of the civilization due to its fertile plains and the availability of water for agriculture.

• Mohenjo-daro is famous for its well-planned city layout, which included grid-pattern streets, drainage systems, and advanced water storage facilities.

• The site is also home to the Great Bath, which is considered one of the earliest examples of public water architecture.

• The Indus Valley Civilization, often referred to as the Harappan Civilization, is known for its advanced urban planning, trade systems, and cultural developments.

Additional Information

• Saraswati River

• The Saraswati River is often mentioned in ancient Indian texts such as the Rigveda.

• It is believed to have been a major river during the Vedic period but is now considered a lost river.

• Some historians and scientists associate the Saraswati River with the Ghaggar-Hakra River system.

• While the Saraswati River has significance in Indian mythology, there is no concrete evidence linking it to Mohenjo-daro.

• Ganga River

• The Ganga River is one of the most sacred rivers in India and is associated with the Gangetic Plain.

• It is geographically located far from the Indus Valley Civilization sites and is not linked to Mohenjo-daro.

• The Ganga River basin was central to the development of later civilizations in India, such as the Magadha and Maurya empires.

• Yamuna River

• The Yamuna River is a major tributary of the Ganga River.

• It flows through northern India, including prominent cities like Delhi, Agra, and Mathura.

• The Yamuna River is not geographically connected to the Indus Valley Civilization or Mohenjo-daro.

Q79. Answer: (b) 60 : 40

Shortcut Trick

An equivalent ratio is obtained by multiplying or dividing both terms of the original ratio by the same non-zero number.

Original Ratio = 6 : 4

Multiply both terms by 10:

(6 × 10) : (4 × 10) = 60 : 40

Therefore The correct answer is 60 : 40.

Alternate Method

Given: Original ratio = 6 : 4

Formula Used: a : b = (a × k) : (b × k) where k ≠ 0

=> Simplest form of 6 : 4 = 3 : 2

=> Checking Option (1): 61 : 41 (Cannot be simplified further)

=> Checking Option (2): 60 : 40 = (60÷20) : (40÷20) = 3 : 2

=> Checking Option (3): 66 : 56 = 33 : 28

=> Checking Option (4): 62 : 46 = 31 : 23

=> Since 60 : 40 simplifies to the same ratio 3 : 2, it is the equivalent ratio.

Therefore The correct answer is 60 : 40.

Additional Information

Definition of Equivalent Ratios

Ratios that express the same relationship between numbers are equivalent. They can be found by multiplying or dividing both terms by the same constant.

Simplest Form of Ratio

A ratio a : b is in its simplest form if the HCF (Highest Common Factor) of a and b is 1.

Cross-Product Rule

Two ratios a : b and c : d are equivalent if the product of means equals the product of extremes, i.e., a × d = b × c.

Q80. Answer: (a) 2,232

Shortcut Trick

Difference in Profit Percentage = 64% − 39% = 25%.

This 25% difference is equivalent to the additional Selling Price of Rs. 558.

Using Unitary Method: 25% of CP = Rs. 558.

Multiply by 4 to get 100%: 100% of CP = 558 × 4 = Rs. 2,232.

Therefore The correct answer is Rs. 2,232.

Alternate Method

Given → Initial Gain = 39%, New Gain = 64%, Difference in SP = Rs. 558.

Formulas: SP = CP × (100 + P%) ÷ 100 | CP = (SP Diff ÷ % Diff) × 100.

=> Let the Cost Price (CP) be Rs. 100x.

=> First Selling Price (SP1) = 139x.

=> Second Selling Price (SP2) = 164x.

=> Difference (SP2 − SP1) = 164x − 139x = 25x.

=> According to the question: 25x = 558.

=> x = 558 ÷ 25 = 22.32.

=> CP = 100x = 100 × 22.32 = Rs. 2,232.

Therefore The correct answer is Rs. 2,232.

Additional Information

Concept of Gain and Loss

When there are two scenarios of profit, the difference in the profit percentages corresponds to the difference in the Selling Prices. If one is profit and one is loss, the percentages are added.

Cost Price Calculation

Formula: CP = (Additional Price × 100) ÷ (Difference in % Profit). This allows direct calculation of Initial Investment.

Q81. Answer: (b) Rs. 18,963

Shortcut Trick

Use the ratio of Marked Price (MP) to Cost Price (CP): MP ÷ CP = (100 + Profit%) ÷ (100 − Discount%).

MP ÷ 2107 = (100 + 89) ÷ (100 − 79) = 189 ÷ 21.

MP ÷ 2107 = 9 => MP = 2107 × 9.

MP = 18963.

Therefore The correct answer is Rs. 18,963.

Alternate Method

Given → CP = Rs. 2,107, Discount = 79%, Gain = 89%.

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

=> Step 1: Find Selling Price (SP).

=> SP = 2107 × (100 + 89) ÷ 100 = 2107 × 1.89 = Rs. 3982.23.

=> Step 2: Find Marked Price (MP) from SP.

=> MP = 3982.23 × 100 ÷ (100 − 79) = 3982.23 × 100 ÷ 21.

=> MP = 398223 ÷ 21 = Rs. 18,963.

Therefore The correct answer is Rs. 18,963.

Additional Information

Marked Price & Discount

Discount is always calculated on the Marked Price. SP = MP − Discount.

CP-MP Relation

The formula MP/CP = (100 + P%)/(100 − D%) is derived by equating SP = CP(1+P/100) and SP = MP(1−D/100).

Q82. Answer: (a) Exercise Tarang Shakti

The Correct answer is Exercise Tarang Shakti.

Key Points

• Exercise Tarang Shakti was India's first and largest multinational air combat exercise hosted in 2024.

• This exercise marked a major milestone in India's defence diplomacy by involving participation from multiple nations.

• The primary aim of this exercise was to strengthen strategic partnerships and promote interoperability among the participating air forces.

• It showcased India's capability to host large-scale military exercises and its growing prominence in the global defence arena.

• The exercise focused on advanced air combat techniques, operational strategies, and the sharing of technical expertise among participating nations.

• The event highlighted India's commitment to fostering regional security and promoting global peace through collaborative defence initiatives.

• The name "Tarang Shakti" signifies strength and synergy, symbolizing India's vision for enhanced cooperation and mutual trust among its defence partners.

Additional Information

• Exercise Vayu Shakti

• Exercise Vayu Shakti is an air power demonstration conducted by the Indian Air Force (IAF) at the Pokhran range.

• This exercise showcases the IAF's operational capabilities and includes live demonstrations of aerial combat, bombing, and other air power techniques.

• Unlike Tarang Shakti, it is not a multinational exercise but focuses on India's internal air defence capabilities.

• Exercise Shakti

• Exercise Shakti is a biennial military exercise between India and France, focusing on counter-terrorism operations and joint military drills.

• This exercise primarily involves the Indian Army and the French Army, rather than air forces.

• Exercise Yudh Abhyas

• Exercise Yudh Abhyas is an annual bilateral military exercise conducted between India and the United States.

• It focuses on enhancing interoperability and joint operational capabilities between the armies of both nations.

• This exercise does not involve air combat but emphasizes land-based operations and tactical drills.

Q83. Answer: (b) 9

Given number: 2637458

According to the question,

Given number	2	6	3	7	4	5	8
Odd digit → (+1) Even digit → (-1)	(-1)	(-1)	(+1)	(+1)	(-1)	(+1)	(-1)
New number	1	5	4	8	3	6	7

The sum of the greatest and the smallest digits in the new number thus formed → 8 + 1 = 9

Hence, the correct answer is "Option 2".

Q84. Answer: (c) 53

Shortcut Trick

If the Curved Surface Area (CSA) is half of the Total Surface Area (TSA), then CSA = TSA/2.

In a cylinder, this specific condition (CSA = TSA/2) always implies that the radius (r) is equal to the height (h).

Given Height (h) = 53 cm.

Therefore Radius (r) = 53 cm.

Therefore The correct answer is 53 cm.

Alternate Method

Given: Height (h) = 53 cm, CSA = 1/2 × TSA

Formula Used: CSA of cylinder = 2πrh; TSA of cylinder = 2πr(h + r)

According to the question:

=> 2πrh = 1/2 × [2πr(h + r)]

=> 2πrh = πr(h + r)

=> 2h = h + r

=> 2h − h = r

=> r = h

=> r = 53 cm

Therefore The correct answer is 53 cm.

Additional Information

Volume of Cylinder

The amount of space inside the cylinder is given by Volume = $\pi r^2 h$.

Surface Area Components

TSA = CSA + 2 × Base Area = $2\pi rh + 2\pi r^2$. When r = h, TSA becomes $4\pi r^2$ and CSA becomes $2\pi r^2$.

Radius and Diameter

The Diameter (d) is always twice the Radius (r), so d = 2r.

Q85. Answer: (b) 136 hours

Shortcut Trick

Net time without leak = (12 × 24) ÷ (12 + 24) = 8 hours.

Net time with leak = 8 hours + 30 minutes = 8.5 hours.

Leak efficiency = (1/8) − (1/8.5) = 0.5 ÷ (8 × 8.5) = 1 ÷ 136.

Time for leak alone = 136 hours.

Therefore The correct answer is 136 hr.

Alternate Method

Tap/Leak	Time (hr)	Total Work (units)	Efficiency (units/hr)
Tap X	12	24	2
Tap Y	24	1	

Combined efficiency of X + Y = 2 + 1 = 3 units/hr.

=> Time taken without leak = 24 ÷ 3 = 8 hours.

=> Time taken with Leak (L) = 8 hr + 30 min = 8.5 hours.

=> Combined efficiency (X + Y − L) = 24 ÷ 8.5 = 24 ÷ (17/2) = 48/17 units/hr.

=> Leak efficiency (L) = (X + Y efficiency) − (Combined efficiency with leak)

=> L = 3 − (48/17) = (51 − 48) ÷ 17 = 3/17 units/hr.

=> Time taken by leak alone to empty = Total Work ÷ L efficiency

=> Time = 24 ÷ (3/17) = 8 × 17 = 136 hours.

Therefore The correct answer is 136 hr.

Additional Information

Pipes and Cisterns Concept

Inlet pipes add to the volume (positive efficiency), while outlet pipes or leaks reduce the volume (negative efficiency).

Net Time Formula

If two pipes fill a tank in x and y hours respectively, time taken together is (x × y) ÷ (x + y).

Leakage Effect

A leak reduces the net filling efficiency. If filling takes T1 hours and with a leak it takes T2 hours, leak time is (T1 × T2) ÷ (T2 − T1).

Q86. Answer: (b) 111

The Correct answer is 111.

Key Points

• Under the National Waterways Act, 2016, a total of 111 national waterways were declared for development.

• These waterways span across various states in India and are aimed at promoting inland water transport as a cost-effective and environmentally friendly mode of transportation.

• The act consolidated and replaced five existing Acts that covered only five national waterways, thereby aiming to create a unified legal framework for all waterways.

• The development of these waterways is managed by the Inland Waterways Authority of India (IWAI), which oversees their maintenance and utilization.

• The National Waterways include major rivers such as the Ganga, Brahmaputra, Godavari, Krishna, and Mahanadi, and their tributaries, along with canals and backwaters.

• Waterways are considered a critical part of the Sagarmala Project, which is aimed at enhancing the logistics capabilities of India.

• National Waterway 1 (NW-1), stretching along the Ganga River between Haldia and Allahabad, is one of the most significant waterways in India.

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• The development of these waterways supports trade, tourism, and regional connectivity, contributing to economic growth.

Additional Information

• Important Facts about National Waterways:

• The National Waterways Act, 2016 was enacted to utilize India's vast network of rivers, canals, and backwaters for transportation and trade.

• National Waterway 2 (NW-2) runs along the Brahmaputra River between Dhubri and Sadiya in Assam.

• The National Waterway 3 (NW-3) includes the Kerala backwaters, spanning Kollam to Kottapuram.

• Waterway development aligns with the government's focus on sustainable transportation and reduction of road and rail congestion.

• India's inland waterways provide an opportunity to develop low-cost and efficient cargo transport networks.

Q87. Answer: (c) = UOR, % = SMP

The logic followed here is:

Given: # : ZTW :: NHK : %

Option 1) # = UGF, % = SPR → UGF : ZTW :: NHK : SPR

Option 2) # = UKH, % = OHY → UKH : ZTW :: NHK : OHY

Option 3) # = UOR, % = SMP → UOR : ZTW :: NHK : SMP

Option 4) # = UPL, % = TYF → UPL : ZTW :: NHK : TYF

Hence, "Option 3" is the correct answer.

Q88. Answer: (d) BNK

The logic followed here is:

Hence, the correct answer is "Option 4".

Q89. Answer: (d) Rs. 13,266

Shortcut Trick

For half-yearly compounding, the rate becomes half (2% ÷ 2 = 1%) and time becomes double (1 year × 2 = 2 periods).

Effective rate for 2 periods at 1% = 1 + 1 + (1 × 1)/100 = 2.01%.

Compound Interest = 6,60,000 × 2.01% = 6,60,000 × (2.01 / 100)

CI = 6,600 × 2.01 = Rs. 13,266.

Therefore The correct answer is Rs. 13,266.

Alternate Method

Given:

Principal (P) = Rs. 6,60,000

Annual Rate (R) = 2%

Time (T) = 1 year

Formula Used:

For half-yearly compounding: Amount (A) = $P[1 + (R/2)/100]^{2n}$

Compound Interest (CI) = A − P

Calculations:

=> Effective Half-yearly Rate (r) = 2% ÷ 2 = 1%

=> Number of Half-yearly periods (n) = 1 × 2 = 2

=> Amount (A) = $6,60,000 \times (1 + 1/100)^2$

=> A = 6,60,000 × (101/100) × (101/100)

=> A = 66 × 101 × 101

=> A = 66 × 10201 = Rs. 6,73,266

=> CI = 6,73,266 − 6,60,000

=> CI = Rs. 13,266

Therefore The correct answer is Rs. 13,266.

Additional Information

Compounding Frequency Rules

When interest is compounded half-yearly, the rate is divided by 2 and time is multiplied by 2. For quarterly compounding, the rate

is divided by 4 and time is multiplied by 4.

Successive Percentage Method

Compound Interest can be viewed as successive percentage increases. The total effective rate for two periods of x% each is calculated as $(x + x + x^2/100)\%$.

CI vs SI for 2 years

The difference between Compound Interest and Simple Interest for 2 years is given by the formula: Difference = $P(R/100)^2$.

Q90. Answer: (d) More than three

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

According to the question,

Required condition: Number - Symbol - Number

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

Thus, there are more than three such symbols which are immediately preceded by a number and also immediately followed by another number.

Hence, "Option 4" is the correct answer.

Q91. Answer: (d) 26.25

Shortcut Trick

Identify the modal class (class with the highest frequency): 25−35 has frequency 34.

Apply the Mode formula: $l + [(f1 − f0) / (2f1 − f0 − f2)] × h$

Mode = $25 + [(34 − 31) / (2 × 34 − 31 − 13)] × 10$

Mode = $25 + [3 / 24] × 10 = 25 + 1.25 = 26.25$

Therefore The correct answer is 26.25.

Alternate Method

Given Data:

Max frequency (f1) = 34, which belongs to the class 25−35.

=> Lower limit (l) of modal class = 25

=> Frequency of preceding class (f0) = 31

=> Frequency of succeeding class (f2) = 13

=> Class width (h) = 10

Calculation:

Using the formula for Mode of grouped data:

=> Mode = $l + [(f1 − f0) / (2f1 − f0 − f2)] × h$

=> Mode = $25 + [(34 − 31) / (2 × 34 − 31 − 13)] × 10$

=> Mode = $25 + [3 / (68 − 44)] × 10$

=> Mode = $25 + [3 / 24] × 10$

=> Mode = $25 + [1 / 8] × 10$

=> Mode = 25 + 1.25

=> Mode = 26.25

Therefore The correct answer is 26.25.

Additional Information

Modal Class

In a grouped frequency distribution, the modal class is the interval that contains the highest frequency of observations.

Empirical Relationship

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

Bimodal Distribution

A data set that has two distinct values with the same highest frequency is called bimodal.

Q92. Answer: (c) constitutional validity of adding ‘socialist’ and ‘secular’ to the Preamble

The Correct answer is constitutional validity of adding ‘socialist’ and ‘secular’ to the Preamble.

Key Points

• The inclusion of the words ‘socialist’ and ‘secular’ in the Preamble of the Indian Constitution was done through the 42nd Amendment Act, 1976.

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• The term ‘socialist’ reflects the commitment of the state toward reducing inequalities in income, status, and opportunities.
• The term ‘secular’ denotes that India has no state religion and ensures freedom of religion for all individuals.
• The Preamble serves as the guiding philosophy and objective of the Constitution.
• The Supreme Court, in the case of ‘Ashwini Kumar Upadhyay vs Union of India (November 2024),’ dismissed the plea challenging the constitutional validity of adding these two terms to the Preamble.
• The court upheld that the inclusion of these terms aligns with the basic structure doctrine of the Indian Constitution.
• The basic structure doctrine ensures that certain fundamental features of the Constitution cannot be amended or altered by the Parliament.

Additional Information

• Reservation for economically weaker sections (EWS)
• The provision for EWS reservation was introduced by the 103rd Constitutional Amendment Act, 2019.
• It provides a 10% reservation in educational institutions and government jobs for economically weaker sections of society.
• This reservation is applicable to individuals not covered under other categories like SC/ST/OBC.
• The criteria for EWS reservation include factors such as annual family income and ownership of property.
• Uniform Civil Code (UCC)
• The Uniform Civil Code seeks to replace personal laws based on religion with a common set governing matters like marriage, divorce, adoption, and inheritance.
• UCC is mentioned under Article 44 of the Constitution as a Directive Principle of State Policy (DPSP).
• The implementation of UCC remains a debated issue due to concerns over religious freedom and diversity.
• Validity of Article 370
• Article 370 granted special status to the state of Jammu and Kashmir.
• It was abrogated on August 5, 2019, effectively removing Jammu and Kashmir's autonomy under the Indian Constitution.
• The abrogation led to the bifurcation of the state into two Union Territories: Jammu & Kashmir and Ladakh.
• The move was justified by the government as a step toward national integration and development.

Q93. Answer: (b) 55

The logic followed here is:

Hence, "Option 2" is the correct answer.

Q94. Answer: (d) Hard drive

The Correct answer is Hard Drive.

Key Points

• A Hard Drive is the primary storage device in most computers where files and folders are typically stored.
• It is a non-volatile storage device, meaning that it retains data even when the computer is turned off.
• Hard drives use magnetic storage technology to store and retrieve digital data.
• They are used to store the operating system, software applications, multimedia files, documents, and other data.
• Hard drives can be of different types, such as HDD (Hard Disk Drive) or SSD (Solid-State Drive), where SSDs are faster and more reliable.
• Modern hard drives come in various storage capacities ranging from 500 GB to several terabytes (TB), depending on the user's needs.
• Hard drives are connected to the computer's motherboard using SATA, NVMe, or IDE interfaces.
• They are integral to data storage in personal computers, servers, and other computing devices.

Additional Information

• Monitor
• A Monitor is an output device used to display visual information from a computer.
• It does not store files or folders; it only shows information processed by the computer.
• Monitors are available in various types, such as LCD, LED, and OLED, offering different resolutions and display technologies.
• Printer
• A Printer is a peripheral device used to create physical copies (hard copies) of digital files.
• It is not used for storage; its purpose is to output data onto paper or other media.
• Printers can be classified into types like inkjet, laser, and dot matrix printers, depending on the technology they use.
• Keyboard
• A Keyboard is an input device that allows users to type and interact with a computer.

• It is not a storage device; it is designed for entering data and commands.

• Keyboards come in various formats, including mechanical, membrane, wireless, and ergonomic designs.

Q95. Answer: (b) 18

Shortcut Trick

Subtract the remainders from the given numbers: (59 − 5) = 54 and (133 − 7) = 126.

Find the HCF of 54 and 126.

HCF(54, 126) = 18.

Therefore The correct answer is 18.

Alternate Method

Given:

First number = 59, Remainder1 = 5

Second number = 133, Remainder2 = 7

Calculations:

=> First Required Number = 59 − 5 = 54

=> Second Required Number = 133 − 7 = 126

=> Prime factors of 54 = $2 \times 3 \times 3 \times 3 = 2 \times 3^3$

=> Prime factors of 126 = $2 \times 3 \times 3 \times 7 = 2 \times 3^2 \times 7$

=> HCF = $2 \times 3^2 = 2 \times 9 = 18$

Therefore The correct answer is 18.

Additional Information

HCF with remainders

To find the greatest number dividing a, b, c leaving remainders x, y, z, calculate HCF of (a−x), (b−y), and (c−z).

LCM with remainders

To find the least number which when divided by x, y, z leaves the same remainder r, calculate [LCM(x, y, z) + r].

Product Rule

For any two numbers, Product of numbers = HCF × LCM.

Q96. Answer: (b) 1 km to the east

Given:

Mr. PQR starts from Point A and drives 9 km towards the north.

He then takes a right turn, drives 11 km, turns right and drives 17 km.

He then takes a right turn and drives 12 km.

He takes a final right turn, drives 8 km and stops at Point P.

Thus, Mr. PQR should drive 1 km (12 km - 11 km) in the east direction in order to reach Point A again.

Hence, "Option 2" is the correct answer.

Q97. Answer: (c) Government of India Act, 1858

The Correct answer is Government of India Act, 1858.

Key Points

• The Government of India Act, 1858 was enacted in the aftermath of the Indian Rebellion of 1857, which exposed the administrative inefficiencies of the East India Company in governing India.

• This Act marked the beginning of direct control of India by the British Crown, ending the rule of the East India Company.

• The Act provided for the appointment of a new post of Secretary of State for India, who was responsible for overseeing India on behalf of the Crown.

• The governance structure established under this Act included the formation of a Council of India, which acted as an advisory body to the Secretary of State.

• The Act vested all powers, territories, and revenues of the East India Company in the hands of the British Queen, thereby consolidating imperial authority.

• This transition was officially proclaimed by Queen Victoria in 1858, emphasizing the Crown's commitment to justice, equality, and non-interference in religious matters.

• The Act also aimed to improve the administrative efficiency of India and ensure better coordination between the British Government and Indian administration.

Additional Information

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• Charter Act, 1813
• The Charter Act of 1813 renewed the East India Company's charter for 20 years but ended its monopoly on trade with India.
• The Act allowed Christian missionaries to propagate their religion in India.
• This Act marked the beginning of the British Government's financial responsibility for the administration of India.
• Ilbert Bill, 1883
• The Ilbert Bill was introduced by Viceroy Lord Ripon to allow Indian judges to try British offenders in criminal cases.
• It faced strong opposition from the European community in India, leading to significant political controversy.
• The controversy around the Bill highlighted racial discrimination in colonial India.
• Indian Councils Act, 1861
• The Indian Councils Act, 1861 marked the beginning of the legislative devolution process in India by involving Indians in the legislative process.
• It restored the power of the legislative councils at the provincial level, allowing them to make laws.
• The Act also introduced the practice of non-official members in the legislative councils.

Q98. Answer: (b) 20%

Shortcut Trick

To find the rate of interest when a sum becomes n times in T years at Simple Interest, use the formula:

Rate (R) = [(n − 1) × 100] ÷ T

Here, n = 3 (triple) and T = 10 years.

=> R = [(3 − 1) × 100] ÷ 10 = (2 × 100) ÷ 10 = 20%.

Therefore The correct answer is 20%.

Alternate Method

Given:

Let the Principal (P) be 100.

As the sum triples itself, the Amount (A) becomes 3 × 100 = 300.

Time (T) = 10 years.

Formula Used:

Simple Interest (SI) = Amount − Principal

Rate (R) = (SI × 100) ÷ (P × T)

Calculations:

=> SI = 300 − 100 = 200

=> R = (200 × 100) ÷ (100 × 10)

=> R = 20000 ÷ 1000

=> R = 20%

Therefore The correct answer is 20%.

Additional Information

Compound Interest Formula

For compound interest, the amount is calculated as A = P(1 + R/100)^T, where growth is exponential rather than linear.

Rule of 72

A quick way to estimate the time required to double an investment at a fixed annual rate of interest: Time ≈ 72 ÷ Rate.

Effective Rate of Interest

If interest is compounded more than once a year, the actual annual rate is higher than the nominal rate, calculated as $[(1 + r/n)^n - 1] \times 100$.

Q99. Answer: (a) 68°7′E to 97°25′E

The Correct answer is 68°7'E to 97°25'E.

Key Points

• The longitudinal extent of India lies between 68°7'E and 97°25'E.
• This longitudinal spread covers a distance of approximately 2,933 km from west to east.
• The longitudinal extent influences the time zone of India, with the country following the Indian Standard Time (IST), which is based on the 82°30'E longitude.
• This geographical extent has a significant impact on the climatic variations, as well as the sunrise and sunset timings across the eastern and western parts of the country.

• The easternmost point of India is located near Kibithu in Arunachal Pradesh, while the westernmost point is near Ghuar Mota in Gujarat.

• The vast longitudinal extent also means that India has a diverse range of landforms, climates, and ecosystems.

Additional Information

• Indian Standard Time (IST)

• IST is the time observed throughout India, calculated based on the 82°30'E longitude.

• It is 5 hours and 30 minutes ahead of GMT (Greenwich Mean Time).

• IST helps maintain a uniform time system across the country, despite the vast longitudinal extent.

• Impact of Longitudinal Extent

• The longitudinal extent results in a time lag of about 2 hours between the easternmost and westernmost parts of India.

• For example, the sun rises in Arunachal Pradesh (easternmost state) much earlier than in Gujarat (westernmost state).

Q100. Answer: (c) Dadabhai Naoroji

The Correct answer is Dadabhai Naoroji.

Key Points

• Dadabhai Naoroji was a prominent moderate leader and is often referred to as the 'Grand Old Man of India'.

• He was the first Indian to be elected to the British House of Commons in 1892 as a member of the Liberal Party.

• He played a critical role in shaping the early nationalist movement in India.

• Dadabhai Naoroji authored the famous book "Poverty and Un-British Rule in India", where he highlighted the economic drain caused by British rule.

• He was one of the founding members of the Indian National Congress in 1885, which later became the leading organization in India's independence movement.

• Naoroji was instrumental in articulating the idea of Swaraj (self-rule), laying the groundwork for future freedom struggles.

• He advocated for Indian representation and rights in British administration and worked tirelessly to raise awareness about India's plight in Britain.

Additional Information

• Rash Behari Ghosh

• Rash Behari Ghosh was an Indian lawyer, politician, and philanthropist.

• He served as the President of the Indian National Congress in 1907 and 1908.

• He was known for his moderate political stance and contributions to social reforms.

• Gopal Krishna Gokhale

• Gopal Krishna Gokhale was another prominent moderate leader and the founder of the Servants of India Society.

• He was a mentor to Mahatma Gandhi and emphasized constitutional reforms and non-violent methods.

• He played a significant role in advocating for Indian self-rule through gradual reforms.

• Pherozeshah Mehta

• Pherozeshah Mehta was a distinguished lawyer and politician from Bombay.

• He was one of the founding members of the Indian National Congress and served as its President in 1890.

• He was nicknamed the "Lion of Bombay" for his leadership and contributions to Indian politics.

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