RRB NTPC Graduate Level CBT-I Official Paper (Held On: 12 Jun, 2025 Shift 3) (Previous Year Paper)

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

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Q1. If $a^2 + b^2 = 168$, $a \times b = 27$, and $a > b$, find $(a - b)/(a + b)$.

(a) √57/√111
(b) √53/√121
(c) 55/121
(d) 57/111

Q2. Who are the members of India's recurve men's archery team that won a silver medal in the World Cup Stage 1, 2025?

(a) Dhiraj Bommadevara, Atanu Das and Tarundeep Rai
(b) Tarundeep Rai, Jayanta Talukdar and Rahul Banerjee
(c) Dhiraj Bommadevara, Abhishek Verma and Atanu Das
(d) Atanu Das, Abhishek Verma and Tarundeep Rai

Q3. 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) 1
(d) 0

Q4. Which was the new scheme announced during Budget 2025-26 that targets 100 low productivity districts and focuses on enhancing agricultural productivity, crop diversification, sustainable practices, irrigation and post-harvest storage?

(a) Pradhan Mantri Kisan Sampada Yojana
(b) Pradhan Mantri Kisan Samman Nidhi
(c) Pradhan Mantri Fasal Bima Yojana
(d) Prime Minister Dhan-Dhaanya Krishi Yojana

Q5. Which of the following is not one of the Ettuttokai (Eight Anthologies) of the Sangam literature?

(a) Purananuru
(b) Tolkappiyam
(c) Kuruntokai
(d) Narrinai

Q6. What is the primary purpose of the .ppsx file format in MS PowerPoint 365?

(a) To save the presentation in a format that opens directly in Slide Show mode
(b) To save the presentation in a read-only format
(c) To save the presentation as a template for future use
(d) To compress the presentation file size

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Q7. If 5.1 : 96.9 :: 96.9 : x, then find the value of x.

(a) 1837.9
(b) 1844.3
(c) 1841.1
(d) 1845.8

Q8. Which Mauryan ruler sent Buddhist missionaries to foreign countries?

(a) Chandragupta II
(b) Bindusara
(c) Ashoka
(d) Samprati

Q9. The marked price of a bookshelf is Rs. 397, which is 28% above the cost price. If the profit percentage is 3%. Find the discount percentage (rounded off to two decimal places).

(a) 19.53%
(b) 18.13%
(c) 21.31%
(d) 16.89%

Q10. Which of the following statements best describes the role of RAM and ROM in a computer system?

(a) RAM is used to store the operating system and permanent files, while ROM is used to store temporary data.
(b) ROM is used for storing data that can be modified and written to, while RAM stores fixed data.
(c) ROM is used to store system firmware, while RAM stores temporary data for active processes.
(d) RAM is non-volatile, while ROM is volatile

Q11. 'Aus', 'Aman' and 'Boro' are important crops of which of the following in states like Assam, West Bengal and Odisha?

(a) Cotton
(b) Paddy
(c) Wheat
(d) Mustard

Q12. In which Indian state are the Kachchh and Kathiawar coasts located?

(a) Goa
(b) Gujarat
(c) Rajasthan
(d) Maharashtra

Q13. Pipes A and B can fill an empty cistern in 21 minutes and 42 minutes, respectively. Both Pipe A and Pipe B are opened together. After how much time should Pipe B be turned off so that the empty cistern is completely filled in a total of 16 minutes?

(a) 15 minutes
(b) 12 minutes
(c) 5 minutes
(d) 10 minutes

Q14. Which vitamin deficiency is most likely in a person with a blocked bile duct?

(a) Vitamin A
(b) Vitamin C
(c) Vitamin B1
(d) Vitamin B12

Q15. What should come in place of the question mark (?) in the given series?

982 980 976 970 962 ?

(a) 952
(b) 948

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(c) 954
(d) 950

Q16. The surface area of a sphere is 4π cm². The volume of the sphere is:
(a) $4\pi/3$ cm³
(b) $2\pi/3$ cm³
(c) $5\pi/3$ cm³
(d) $13\pi/3$ cm³

Q17. Which component is commonly used in a circuit to vary the resistance?
(a) Voltmeter
(b) Rheostat
(c) Transformer
(d) Diode

Q18. 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) WS-BH
(b) RN-WC
(c) FA-KQ
(d) XT-CI

Q19. Which bank launched the 'Global Women NRE & NRO Savings Account' in March 2025?
(a) Punjab National Bank
(b) Bank of Baroda
(c) State Bank of India
(d) Axis Bank

Q20. What should come in place of the question mark (?) in the given series based on the English alphabetical order?
KNP ILN GJL EHJ ?
(a) CEG
(b) CFH
(c) CEH
(d) CFG

Q21. 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) WC – AV
(b) DJ – HC
(c) MS – PL
(d) FL – JE

Q22. Refer to the following number and symbol series and answer the question that follows. Counting to be done from left to right only.
(Left) 1 @ 2 2 7 © & 8 6 * # 9 3 6 & 6 # & * © @ 8 (Right)
How many such numbers are there each of which is immediately preceded by a number and also immediately followed by a number?
(a) 1
(b) 4
(c) 3
(d) 2

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Q23. In a certain code language, ‘FARE’ is coded as ‘8432’ and ‘FEAT’ is coded as ‘3287’. What is the code for ‘R’ in the given code language?

(a) 8
(b) 2
(c) 3
(d) 4

Q24. Disinvestment proceeds contribute to non-tax revenue of the government. Which body manages disinvestment in India?

(a) NABARD
(b) DIPAM
(c) RBI
(d) SEBI

Q25. A boat takes 75 minutes to go 62.3 km upstream. The ratio of the speed of the boat in still water to that of the stream is 3 : 2. How much total time (in hours) will the boat take to go 67.6 km upstream and 35.8 km downstream?

(a) 0.6
(b) 4.1
(c) 2.4
(d) 1.5

Q26. Which animal/bird was commonly depicted on Harappan seals?

(a) Horse
(b) Peacock
(c) Unicorn
(d) Sparrow

Q27. What is the average of all the natural numbers from 1 to 17?

(a) 8.5
(b) 9
(c) 9.5
(d) 10

Q28. During which phase and year was a steady population growth rate observed in India?

(a) Phase III: 1951-1981
(b) Phase IV: 1981-2011
(c) Phase I: 1891-1921
(d) Phase II: 1921-1951

Q29. Who among the following appoints the Chairman of the National Human Rights Commission of India?

(a) The Prime Minister
(b) The Chief Justice of India
(c) The President of India
(d) The Speaker of the Lok Sabha

Q30. Simplify:

$(\sec\theta - 1/\sec\theta) \times (\operatorname{cosec}\theta - 1/\operatorname{cosec}\theta) \times (\sin\theta - 1/\sin\theta)$.

(a) $\cos^3\theta$
(b) $\sin^3\theta$
(c) $-\cos^3\theta$
(d) $-\sin^3\theta$

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Q31. Which of the following is NOT a category of judicial review, as classified by Justice Syed Shah Mohammed Quadri?

(a) Judicial review of administrative action of the Union and State and authorities under the state
(b) Judicial review of constitutional amendments
(c) Judicial review of judicial appointments to the Supreme Court and High Courts
(d) Judicial review of legislation of the Parliament and State Legislatures and subordinate legislations

Q32. Simplify: 50 ÷ (3 × (8/6 of 6/6)

(a) 23/2
(b) 27/2
(c) 31/2
(d) 25/2

Q33. RN 15 is related to TM 7 in a certain way. In the same way, LL 11 is related to NK 3. To which of the given options is MM 3 related, following the same logic?

(a) KN −5
(b) JG −7
(c) OL −5
(d) LP −9

Q34. Which dance form represents a mock fight between Durga and Mahishasura?

(a) Dandiya Raas
(b) Tarangmel
(c) Kalbelia
(d) Ghoomar

Q35. Which of the following rivers rises in the western slopes of the Aravalli Range near Ajmer, where it is known as the Sagarmati?

(a) Luni
(b) Chambal
(c) Drishadvati
(d) Saraswati

Q36. Mr. I starts from Point J and drives 5 km towards the west. He then takes a right turn, drives 7 km, turns right and drives 11 km. He then takes a left turn and drives 2 km. He then takes a right turn and drives 4 km. He then takes a final right turn, drives 9 km and stops at Point K. How far (shortest distance) and towards which direction should he drive in order to reach Point J again? (All turns are 90 degree turns only unless specified.)

(a) 10 km towards the west
(b) 13 km towards the south
(c) 10 km towards the east
(d) 11 km towards the north

Q37. H, O, L, D, E, and R 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 above L. Only three people live between L and R. H lives on a floor below R. E lives on an even numbered floor. O lives on an odd numbered floor but not on floor number 5. How many people live between D and R?

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

Q38. What is the third proportional of $10x^2$ and $30xy$?

(a) $87y^2$
(b) $92y^2$
(c) $90y^2$
(d) $93y^2$

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Q39. In 2024, India introduced a fast-track procurement clause in which defence procurement policy to reduce acquisition delays?

(a) Defence Offset Policy
(b) Defence Procurement Manual
(c) Make in India Defence Protocol
(d) Defence Acquisition Procedure

Q40. Which of the following companies founded in 1602 is also known as the 'Verenigde Oostindische Compagnie (VOC)'?

(a) Dutch East India Company
(b) Austrian East India Company
(c) Portuguese East India Company
(d) German East India Company

Q41. Who among the following wrote the book 'Parvat Shiromani Bhagat Singh Koshyari'?

(a) Madan Mohan Sat
(b) Arun Shourie
(c) Gopichand P Hinduja
(d) PS Raman

Q42. Which Act empowered Her Majesty to issue Letters Patent for setting up High Courts?

(a) Charter Act, 1833
(b) Indian High Courts Act, 1861
(c) Regulating Act, 1773
(d) Government of India Act, 1935

Q43. Who among the following was the leader of the 1857 rebellion of Sambalpur?

(a) Veer Surendra Sai
(b) Budhu Bhagat
(c) Alluri Seetharama Raju
(d) Govind Guru

Q44. M, N, O, S, T and U 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. S lives on floor numbered 5. O lives on a floor above S. Only T lives below N. U lives on an even numbered floor. How many people live below M?

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

Q45. Which of the following letter-clusters should replace # and % so that the pattern and relationship followed between the letter-cluster pair on the left side of :: is the same as that on the right side of ::?

: TRV :: SQU : %

(a) # = IOY, % = PWR
(b) = WUO, % = ZNR
(c) # = WUY, % = PNR
(d) # = WZY, % = UQR

Q46. Who inaugurated the National Conference on ‘Environment – 2025’ in New Delhi on 29 March 2025?

(a) Amit Shah
(b) Narendra Modi
(c) Sonia Gandhi
(d) Droupadi Murmu

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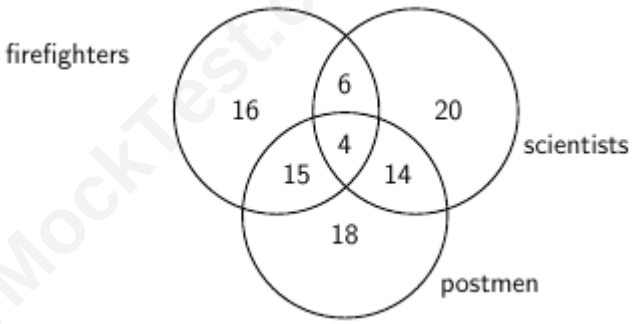
Q47. Which novel by Ocean Vuong follows a 19-year-old named Hai who becomes the caretaker of an elderly woman with dementia?

(a) On Earth We're Briefly Gorgeous
(b) Time is a Mother
(c) The Night Sky with Exit Wounds
(d) The Emperor of Gladness

Q48. In March 2025, Indian PM Narendra Modi attended the National Day celebrations of which country as the Chief Guest?

(a) Sri Lanka
(b) Mauritius
(c) Maldives
(d) Bhutan

Q49. Study the given diagram and answer the question that follows. (The numbers in different sections indicate the number of persons.)



How many such scientists are there who are also firefighters but not postmen?

(a) 6
(b) 20
(c) 16
(d) 15

Q50. Simplify : $(2^2 \times 9^3)/(\sqrt{4} \times \sqrt{6561})$

(a) 23
(b) 21
(c) 27
(d) 18

Q51. The sum of 2 times Priya's present age and Jaya's present age is 48 years. Sanjay's is presently 2 times as old as Jaya. Mohit's present age is 4 years more than Priya's present age. The sum of the present ages of Sanjay and Mohit is 46 years. What is the sum of the present ages (in years) of Priya and Jaya?

(a) 30
(b) 38
(c) 40
(d) 15

Q52. In a certain code language,

'A+ B' means 'A is the sister of B'

'A – B' means 'A is the brother of B'

'A × B' means 'A is the wife of B'

'A ÷ B' means 'A is the father of B'.

Based on the above, how is M related to Q if 'M × N ÷ O + P − Q'?

(a) Daughter
(b) Sister
(c) Mother

(d) Wife

Q53. What should come in place of the question mark (?) in the given series based on the English alphabetical order?

AEU GLA MSG SZM ?

(a) SGY
(b) YGS
(c) SYG
(d) YSG

Q54. Which of the following statements with respect to Dividend Distribution Tax (DDT) in India is/are correct?

1. DDT was a tax on dividends paid to the shareholders of a company.
2. Budget 2025-26 has proposed to remove the DDT paid by the companies to investors.
3. DDT was removed to avoid double taxation of dividends and make the Indian Equity Market more attractive.

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

Q55. In this question, a group of numbers is coded by using letters and symbols as per the table given below and the conditions which follow

Number	7	8	2	3	4	5	6	1
Code	Z	Q	•	@	#	$	T	J

Conditions:

1. If the 1^(st) and 2^(nd) digits are even, both are to be coded as ‘A’.
2. If the 1^(st)and last digits are odd, both are to be coded as the code for the 1st digit.
3. If the 3^(rd) and 4^(th) digits are even, their codes are to be interchanged.

What is the correct combination of codes (by following only the applicable condition(s))

for the following digits?

38159

(a) S Q J $ S
(b) S Q J $ @
(c) @ Q J $ @
(d) @ Q J $ S

Q56. If the selling price of a bed is 3-times of initial, then the profit is 4-times of initial. Find the initial profit percentage (in %).

(a) 33.33
(b) 200
(c) 133.33
(d) 75

Q57. Three numbers are in the ratio 1 : 5 : 6, and their LCM is 5250. Their HCF is:

(a) 193
(b) 175
(c) 171
(d) 183

Q58. The marks obtained by the students of a class are given. Find the standard deviation of the marks (rounded off to 2 decimal places).

65, 47, 59, 75, 82, 91, 55 and 78

(a) 15.05
(b) 13.99

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(c) 14.25
(d) 12.53

Q59. Shaan starts from Point A and drives 6 km towards North. He then takes a right turn, drives 7 km, turns right and drives 12 km. He then takes a right turn and drives 8 km. He takes a final right turn, drives 6 km and stops at Point P. How far (shortest distance) and towards which direction should he drive in order to reach Point A again? (All turns are 90° turns only unless specified)

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

Q60. A, B, C, D, R, S and T are sitting around a circular table facing the centre of the table. Only two people sit between A and R when counted from the right of A. Only two people sit between R and D. Only three people sit between A and B. C sits to the immediate left of T. Who sits third to the left of S?

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

Q61. In MS PowerPoint 2019, when you press the Enter key while typing in a text box, what happens?

(a) The text is entered into a new slide.
(b) The cursor moves to the next line within the same text box.
(c) The text is deleted.
(d) The text box is automatically resized.

Q62. What should come in place of the question mark (?) in the given series?

163 131 99 67 35 ?

(a) 12
(b) 3
(c) 4
(d) 2

Q63. If 2 is added to each even digit and 3 is subtracted from each odd digit in the number 596432, what will be the sum of the greatest and smallest digits in the new number thus formed?

(a) 10
(b) 12
(c) 8
(d) 6

Q64. Which of the following elements had NOT been discovered during Mendeleev's time?

(a) Hydrogen and Nitrogen
(b) Gallium and Germanium
(c) Radon and Polonium
(d) Chlorine and Fluorine

Q65. What will come in the place of the question mark (?) in the following equation, if '+' and '−' are interchanged and '×' and '÷' are interchanged?

69 ÷ 11 + 408 × 6 − 14 = ?

(a) 710
(b) 720
(c) 705
(d) 715

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Q66. What was the unemployment rate in India as per the Periodic Labour Force Survey during January to December 2024?

(a) 2.1%
(b) 3.2%
(c) 16.5%
(d) 5.6%

Q67. If 'A' stands for '÷', 'B' stands for '×', 'C' stands for '+' and 'D' stands for '−', then what will come in place of question mark (?) in the following equation?

43 D 15 C 7 B 9 D (28 A 2) = ?

(a) 64
(b) 77
(c) 83
(d) 92

Q68. Two sets of numbers are given below. In each set of numbers, certain mathematical operation(s) on the first number result(s) in the second number. Similarly, certain mathematical operation(s) on the second number result(s) in the third number and so on. Which of the given options follows the same set of operations as in the given sets? (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.) 12 - 13 - 17 - 20 ; 22 - 23 - 27 - 30

(a) 44 - 45 - 49 - 52
(b) 4 - 8 - 12 - 16
(c) 56 - 57 - 60 - 65
(d) 32 - 33 - 37 - 41

Q69. A and B can complete a work in 11 days and 33 days, respectively. They started doing the work together, but after 3 days, B had to leave, and A completed the remaining work alone. The remaining work was completed in _____ days.

(a) 12
(b) 10
(c) 7
(d) 11

Q70. The average price of three items of furniture is Rs. 15,015. If their prices are in the ratio 3 : 5 : 7, the price of the costliest item (in Rs.) is:

(a) 21,021
(b) 5,005
(c) 7,007
(d) 9,009

Q71. A vendor buys 44 laptop bags for Rs. 48,884 and sells them at 28 for Rs. 35,252. How many laptop bags should be bought and sold to earn a profit of Rs. 6,956?

(a) 47
(b) 20
(c) 37
(d) 17

Q72. If the eight-digit number 51883p47 is divisible by 9, then the maximum value of p is:

(a) 8
(b) 9
(c) 5
(d) 7

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Q73. In January 2025, which theme was used to promote voting on National Voters' Day?

(a) Vote Now, Shape Future
(b) Your Vote, Your Voice
(c) Nothing Like Voting, I Vote for Sure
(d) Making Elections Inclusive and Accessible

Q74. Two transversal lines S and T cut a set of distinct parallel lines. S cuts the parallel lines in points A, B, C and D and T cuts the parallel lines in points E, F, G and H. If AB = 5 cm, CD = 3 cm and EF = 15 cm, then the length (in cm) of GH is:

(a) 8
(b) 9
(c) 4
(d) 6

Q75. If 25% of k is 10 less than 1200% of 25, then k is:

(a) 1140
(b) 1160
(c) 1200
(d) 1120

Q76. A user wants to have a bulleted list in MS PowerPoint. After typing a list item and pressing Enter, they want to create a sub-bullet point (a lower-level bullet). Which of the following actions will reliably achieve this?

(a) Pressing Ctrl + Tab
(b) Clicking the 'Decrease List Level' button in the Paragraph group
(c) Pressing Alt + Enter
(d) Clicking the 'Increase List Level' button in the Paragraph group

Q77. What is the tenure of the Central Board of Directors in Reserve Bank of India?

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

Q78. If 2 is added to each even digit and 1 is subtracted from each odd digit in the number 3651724, what will be the sum of the second digit from the left and the first digit from the right in the new number thus formed?

(a) 8
(b) 10
(c) 12
(d) 14

Q79. What power does the President of India hold regarding the Contingency Fund of India?

(a) The President approves the annual disbursement of the fund.
(b) The President controls the fund to advance money for unforeseen expenses.
(c) The President can only advise on the use of the fund.
(d) The President delegates the control of the fund to the Finance Commission.

Q80. Which of the following technologies was used to fabricate the Vikram 3201 microprocessor launched in 2025?

(a) 350nm CMOS technology
(b) 250nm CMOS technology
(c) 180nm CMOS technology
(d) 90nm CMOS technology

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Q81. The subtropical jet stream plays a critical role in the withdrawal of the monsoon by which of the following?

(a) Intensifying the ITCZ
(b) Replacing tropical easterlies
(c) Inducing subsidence over land
(d) Triggering cold air advection

Q82. Find the discriminant of the quadratic equation $3x^2 - 4x + 2 = 0$, and hence determine the nature of its roots.

(a) Discriminant = −8, roots are real and distinct
(b) Discriminant = −8, roots are imaginary
(c) Discriminant = 8, roots are real and distinct
(d) Discriminant = 8, roots are real and equal

Q83. In an isosceles triangle, the vertex angle measures 14°. What is the measure of each of the base angles?

(a) 103° and 103°
(b) 86° and 86°
(c) 79° and 79°
(d) 83° and 83°

Q84. If 2% of x = 360, then x is equal to:

(a) 18000
(b) 18100
(c) 36000
(d) 36100

Q85. Seven people, I, J, K, L, O, P and Q are sitting in a row, facing north. No one sits to the left of J. Only four people sit between J and K. Only three people sit to the right of O. I sits to the immediate left of L. P is not an immediate neighbour of O. Who sits at the rightmost end of the line?

(a) L
(b) P
(c) J
(d) I

Q86. KUQC is related to MYSG in a certain way based on the English alphabetical order. In the same way, OCUK is related to QGWO. To which of the following is SKYS related, following the same logic?

(a) TNBV
(b) UOAW
(c) VPZX
(d) TPAX

Q87. Which of the following cities is set to host the COP30 climate summit in 2025?

(a) Belem, Brazil
(b) Tokyo, Japan
(c) Nairobi, Kenya
(d) Paris, France

Q88. A 120 m long train overtakes a man moving at a speed of 9 km/hr (in same direction) in 18 seconds. How much time (in seconds) will this train take to completely cross another 230 m long train, moving in the opposite direction at a speed of 27 km/hr?

(a) 17
(b) 33
(c) 35
(d) 21

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Q89. Consider the following statements regarding the 'Dare Square' Motorcycle Expedition flagged off in January 2025.

1. The expedition was launched by the Eastern Naval Command as part of INS Ranvijay's 37^(th)anniversary celebrations.

2. The rally aims to promote mental health awareness, road safety and maritime heritage among youth through outreach activities.

3. It was conducted in collaboration with the Indian Air Force and covered northeastern states of India.

4. The rally culminates at the Dogra Regimental Centre in Ayodhya, highlighting the naval affiliation with the Dogra Regiment.

Which of the above statements are correct?

(a) Only 2 and 4
(b) Only 1 and 3
(c) Only 1, 2 and 4
(d) Only 1, 2 and 3

Q90. Select the triad that follows the same pattern as that followed by the two triads given below. Both triads follow the same pattern.

JF-LH-NP

HD-JF-LN

(a) LH-NJ-PR
(b) KH-NJ-PS
(c) KH-NI-PS
(d) LH-NJ-PS

Q91. Tushar has borrowed an amount of Rs. 2,00,000 from a bank to start a business. How much simple interest (in Rs.) will he pay at a rate of 8% per annum after 4 years?

(a) 64,000
(b) 65,000
(c) 2,64,000
(d) 63,000

Q92. What must State legislators do under Article 188 of the Constitution of India before taking their seats for the first time in state assembly?

(a) Declare assets
(b) Get CM's approval
(c) Background check
(d) Take oath or affirmation

Q93. Shan has Rs. 1,617 with him. He divided it amongst his sons Piyush and Manoj and asked them to invest it at 10% rate of interest per annum, compounded annually. It was seen that Piyush and Manoj got the same amount after 11 and 12 years, respectively. How much (in Rs.) did Shan give to Piyush?

(a) Rs. 697
(b) Rs. 847
(c) Rs. 870
(d) Rs. 770

Q94. Seven boxes, A, B, C, D, E, F and G are kept one over the other but not necessarily in the same order. Only two boxes are kept below D. Only one box is kept above A. Only one box is kept between A and E. G is kept immediately above B. C is kept in some place below F. How many boxes are kept above G?

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

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Q95. Refer to the following number and symbol series and answer the question that follows. Counting to be done from left to right only.

(Left) & 5 @ 9 7 £ $ 5 $ 9 8 8 8 * $ $ # * 1 7 1 4 (Right)

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

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

Q96. Factorise the given expression.

$100a^2 + 300ab + 225b^2$

(a) $(15a + 10b)^2$
(b) $(15a - 10b)^2$
(c) $(10a - 15b)^2$
(d) $(10a + 15b)^2$

Q97. A hollow spherical shell is made of a metal of density 11 g/cm³. Its internal and external radii are 3 cm and 6 cm, respectively. What is the weight (in kg) of the shell?

(Use π = 22/7, Density = Mass/Volume)

(a) 5.712
(b) 8.712
(c) 9.82
(d) 9.87

Q98. In this question, a group of letters is coded by using numbers and symbols as per the table given below and the conditions which follow.

Letter	U	M	S	J	P	T	F
Code	7	4	@	$	%	•	6

Conditions:

1. If the 1^(st) letter is a vowel and the 3^(rd) letter is a consonant, both are to be coded as the code for that 3rd letter consonant.

2. If the 1^(st)and last letters are vowels, both are to be coded as ‘N’.

3. If the 2^(nd) and last letters are vowels, their codes are to be interchanged.

What is the correct combination of codes (by following only the applicable condition(s)) for the following letters?

AJSPT

(a) 3 $ @ % *
(b) 3 $ 3 % *
(c) @ $ @ % *
(d) 3 $ % @ *

Q99. When utilising the 'Paste Special' function in MS Word to insert content copied from a spreadsheet, which of the following paste options would preserve the original formula calculations while displaying the calculated values in the Word document?

(a) Picture (Enhanced Metafile)
(b) HTML Format
(c) Unformatted Text
(d) MS Excel Worksheet Object

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Q100. What is the median of the following data?

34, 78, 58, 65, 64, 73, 21, 88, 13, 11, 70

(a) 64
(b) 63.5
(c) 64.5
(d) 65

ANSWER KEY

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

SOLUTIONS

Q1. Answer: (a) √57/√111

Shortcut Trick
Direct ratio formula: (a − b)/(a + b) = √[(a2 + b2 − 2ab) / (a2 + b2 + 2ab)]
Numerator part: 168 − 2 × 27 = 168 − 54 = 114
Denominator part: 168 + 2 × 27 = 168 + 54 = 222
Ratio = √(114 / 222) = √(57 / 111) = √57 / √111
Therefore The correct answer is √57 / √111.
Alternate Method
Given:
a2 + b2 = 168
a × b = 27
a > b
Formula Used:
(a + b)2 = a2 + b2 + 2ab
(a − b)2 = a2 + b2 − 2ab
Calculations:
=> (a − b)2 = 168 − 2(27) = 114
=> a − b = √114
=> (a + b)2 = 168 + 2(27) = 222
=> a + b = √222
=> (a − b) / (a + b) = √114 / √222
=> (a − b) / (a + b) = √(114 / 222)
=> Dividing numerator and denominator by 2:
=> Required Value = √57 / √111
Therefore The correct answer is √57 / √111.
Additional Information
Algebraic Identity (a + b)2

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The square of the sum of two numbers is a2 + b2 + 2ab.

Algebraic Identity (a − b)2

The square of the difference of two numbers is a2 + b2 − 2ab.

Relationship between Identities

(a + b)2 − (a − b)2 = 4ab and (a + b)2 + (a − b)2 = 2(a2 + b2).

Q2. Answer: (a) Dhiraj Bommadevara, Atanu Das and Tarundeep Rai

The correct answer is Dhiraj Bommadevara, Atanu Das and Tarundeep Rai.

Key Points

• The Indian recurve men's archery team, consisting of Dhiraj Bommadevara, Atanu Das, and Tarundeep Rai, secured a silver medal in the World Cup Stage 1 held in 2025.

• The event saw the Indian team perform exceptionally well against strong competitors, showcasing their skill and precision in archery.

• The World Cup Stage 1 is one of the premier archery tournaments organized by the World Archery Federation.

• India's men's recurve team competed in various rounds, defeating several high-ranking teams before reaching the finals.

• The achievement reflects India's growing prominence in the global archery scene, supported by initiatives to enhance sports infrastructure and training.

Additional Information

• Recurve Archery: It is a discipline of archery where athletes use bows with limbs that curve away from the archer when unstrung, allowing greater energy storage and efficiency.

• World Archery Federation: The governing body for archery globally, responsible for organizing world-class events like the Archery World Cup and World Championships.

• Training Programs: India has been investing in training programs and facilities to nurture talent in archery, including academies like the Tata Archery Academy.

• Notable Achievements in Indian Archery: India has earned several medals in international archery events, including golds in compound archery and consistent performances in recurve archery.

• Olympic Participation: Indian archers regularly participate in the Olympics, contributing to the nation's sports legacy and inspiring young athletes.

Q3. Answer: (c) 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	325	391	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, "Option 3" is the correct answer.

Q4. Answer: (d) Prime Minister Dhan-Dhaanya Krishi Yojana

The correct answer is Prime Minister Dhan-Dhaanya Krishi Yojana.

Key Points

• The Prime Minister Dhan-Dhaanya Krishi Yojana was announced during the Union Budget 2025-26 to address agricultural productivity challenges in 100 low-productivity districts.

• The scheme aims to enhance agricultural productivity through crop diversification, sustainable practices, and modern agricultural techniques.

• A special focus is placed on improving irrigation infrastructure and ensuring post-harvest storage facilities to minimize crop losses.

• The scheme also promotes the adoption of climate-resilient farming practices to ensure long-term sustainability in agricultural activities.

• It is designed to uplift farming communities, especially in underdeveloped areas, and contribute to rural economic growth.

Additional Information

• Crop Diversification: This refers to the practice of growing a variety of crops to improve soil health, reduce dependency on a single crop, and increase agricultural income.

• Sustainable Agriculture: It involves farming practices that meet current food needs without compromising the ability of future generations to meet their own needs, focusing on eco-friendly techniques.

• Irrigation Infrastructure: Proper irrigation systems help in water management for farming, ensuring that crops receive adequate water during critical growth periods.

• Post-Harvest Management: This includes activities such as storage, processing, and transportation of crops to prevent spoilage and improve marketability.

• Climate-Resilient Farming: These are agricultural methods designed to withstand the adverse effects of climate change, such as drought-tolerant crops and water-conservation techniques.

Q5. Answer: (b) Tolkappiyam

The correct answer is Tolkappiyam.

Key Points

• Ettuttokai, or the Eight Anthologies, is a collection of classical Tamil Sangam literature consisting of eight works of poetry.

• The Eight Anthologies are: Purananuru, Kuruntokai, Narrinai, Aingurunuru, Kalittokai, Paripadal, Padirruppattu, and Akananuru.

• Tolkappiyam is not part of the Ettuttokai; it is a separate work considered the earliest Tamil grammar text and one of the oldest surviving works in Tamil literature.

• The Ettuttokai primarily focuses on themes of love (akam) and war (puram), reflecting the socio-cultural aspects of Tamil life during the Sangam era.

• The Sangam literature is an invaluable resource for understanding the early history, culture, and language of Tamil Nadu.

Additional Information

• Sangam Literature: Sangam literature refers to the ancient Tamil literature created during the Sangam period, spanning approximately 300 BCE to 300 CE.

• Tolkappiyam: This is a comprehensive work on Tamil grammar, phonetics, morphology, and syntax, written by the scholar Tolkappiyar.

• Akam and Puram: Akam refers to inner (love and personal) themes, while Puram pertains to outer (war and public life) themes in Sangam poetry.

• Other Sangam Works: Apart from Ettuttokai, the Sangam corpus includes Pattuppāttu (Ten Idylls) and other standalone works.

• Historical Significance: Sangam texts provide insights into the societal structure, governance, trade, and cultural practices of ancient Tamil Nadu.

Q6. Answer: (a) To save the presentation in a format that opens directly in Slide Show mode

The correct answer is To save the presentation in a format that opens directly in Slide Show mode.

Key Points

• The .ppsx file format in MS PowerPoint is specifically designed to open presentations directly in Slide Show mode.

• It bypasses the editing interface, ensuring that viewers see the presentation in its intended display form.

• This format is commonly used for final presentations, where edits are no longer required, and the focus is on presenting.

• .ppsx files are part of the Office Open XML standard introduced with Microsoft Office 2007.

• It is a non-editable format unless explicitly opened in PowerPoint for editing.

Additional Information

• PowerPoint File Formats:

• .pptx: Default editable format for PowerPoint presentations.

• .potx: Template file format used for creating new presentations with pre-defined designs.

• .ppsx: Slide Show format that opens directly for presentation purposes.

• .ppt: Legacy file format used in older versions of PowerPoint.

• Slide Show Mode: A mode in PowerPoint where the presentation is displayed as a sequence of slides for an audience.

• Office Open XML Standard: A set of file formats introduced in Microsoft Office 2007 that ensures cross-platform compatibility.

• Benefits of .ppsx Format:

• Ensures presentations are viewed as intended without accidental edits.

• Ideal for distributing final versions of presentations.

• Compatible with most modern versions of MS PowerPoint.

• How to Create a .ppsx File: Save your presentation in MS PowerPoint by selecting "Save As" and choosing the .ppsx format.

Q7. Answer: (c) 1841.1

Shortcut Trick

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

Given a = 5.1 and b = 96.9.

=> x = (96.9 × 96.9) ÷ 5.1

=> x = 96.9 × (96.9 ÷ 5.1) = 96.9 × 19 = 1841.1

Therefore The correct answer is 1841.1.

Alternate Method

Given: 5.1 : 96.9 :: 96.9 : x

Formula Used: Product of Extremes = Product of Means (a × d = b × c)

=> 5.1 × x = 96.9 × 96.9

=> x = (96.9 × 96.9) / 5.1

=> x = (969 × 96.9) / 51

=> x = 19 × 96.9

=> x = 1841.1

Therefore The correct answer is 1841.1.

Additional Information

Mean Proportional

If a, b, c are in continued proportion, then b is the mean proportional and $b^2 = ac$ or $b = \sqrt{(ac)}$.

Fourth Proportional

In the proportion a : b :: c : d, d is the fourth proportional given by d = (b × c) ÷ a.

Product Rule

In any proportion, the product of the extremes (first and last terms) always equals the product of the means (middle terms).

Q8. Answer: (c) Ashoka

The correct answer is Ashoka.

Key Points

• Ashoka the Great (reigned c. 268–232 BCE) was one of the most prominent rulers of the Maurya Dynasty and is considered a key figure in the promotion of Buddhism worldwide.

• After the Kalinga War, Ashoka embraced Buddhism and adopted the policy of "Dhamma" (righteousness).

• He sent Buddhist missionaries to several countries, including Sri Lanka, Southeast Asia, Central Asia, and the Mediterranean regions, to spread the teachings of Buddha.

• One of the most notable missions was led by his son Mahendra and daughter Sanghamitra to Sri Lanka, which played a pivotal role in the spread of Theravāda Buddhism.

• Ashoka's efforts are documented in his rock and pillar edicts, which outline his dedication to Buddhism and non-violence.

Additional Information

• Buddhist Missionaries: Ashoka's emissaries included monks, scholars, and members of the royal family, who traveled far and wide to propagate Buddhist teachings.

• Kalinga War: This war was a turning point in Ashoka's life; the immense bloodshed led him to renounce violence and adopt Buddhism as a guiding principle of governance.

• Rock and Pillar Edicts: Ashoka's inscriptions, written in Brahmi and other scripts, are some of the earliest examples of written records in India. They provide insights into his policies and commitment to Buddhism.

• Dhamma Policy: Ashoka's Dhamma was not limited to Buddhism but emphasized moral and ethical behavior, religious tolerance, and the welfare of all living beings.

• Legacy: Ashoka's efforts made Buddhism a major world religion, and he is remembered as one of history's most benevolent rulers.

Q9. Answer: (a) 19.53%

Shortcut Trick

Let Cost Price (CP) be 100.

Marked Price (MP) = 100 + 28 = 128.

Selling Price (SP) = 100 + 3 = 103.

Discount = MP − SP = 128 − 103 = 25.

Discount% = (25 ÷ 128) × 100 ≈ 19.53%.

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Therefore The correct answer is 19.53%.

Alternate Method

Given → Marked Price (MP) = Rs. 397, Markup% = 28%, Profit% = 3%.

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

=> Cost Price (CP) = 397 × 100 ÷ 128 = Rs. 310.15625.

=> Selling Price (SP) = 310.15625 × (100 + 3) ÷ 100 = Rs. 319.4609375.

=> Discount Amount = 397 − 319.4609375 = Rs. 77.5390625.

=> Discount% = (77.5390625 ÷ 397) × 100 = 19.53125%.

=> Rounded Discount% = 19.53%.

Therefore The correct answer is 19.53%.

Additional Information

Relation between CP and MP

The ratio of CP to MP can be expressed using Profit% and Discount%: CP/MP = (100 − D%) / (100 + P%).

Marked Price

It is the price displayed on the product. Discount is always calculated on this value to arrive at the Selling Price.

Q10. Answer: (c) ROM is used to store system firmware, while RAM stores temporary data for active processes.

The correct answer is ROM is used to store system firmware, while RAM stores temporary data for active processes.

Key Points

• ROM (Read-Only Memory) is a non-volatile memory that stores firmware, which includes the BIOS or UEFI needed for starting the computer system.

• RAM (Random Access Memory) is a volatile memory used to store temporary data required by active processes and running applications.

• Data in RAM is lost when the computer is powered off, whereas data in ROM remains intact irrespective of power status.

• ROM provides essential instructions for booting up the computer, while RAM enables multitasking and smooth execution of programs.

• Examples of ROM include EEPROM, PROM, and flash memory, while RAM is often categorized as DRAM or SRAM.

Additional Information

• ROM (Read-Only Memory):

• It is non-volatile, meaning it retains data even when the power is turned off.

• ROM is mainly used for storing system firmware and permanent instructions required during the startup process.

• Examples include the BIOS/UEFI in computers and firmware in embedded systems.

• RAM (Random Access Memory):

• It is volatile, meaning data is lost when the power is turned off.

• RAM allows quick read/write operations and is used for temporary data storage during the execution of tasks.

• Types of RAM include DRAM (Dynamic RAM) and SRAM (Static RAM).

• Firmware:

• Firmware is a type of software embedded in hardware devices, stored in ROM.

• It provides low-level control and functionality to hardware components.

• Volatile vs Non-Volatile Memory:

• Volatile memory (e.g., RAM) requires power to maintain stored data.

• Non-volatile memory (e.g., ROM) retains data even after the power is turned off.

Q11. Answer: (b) Paddy

The correct answer is Paddy.

Key Points

• Aus, Aman, and Boro are three major varieties of paddy grown in India, particularly in the eastern states like Assam, West Bengal, and Odisha.

• The cultivation of these varieties depends heavily on the monsoon and water availability for irrigation.

• Aman paddy is sown during the monsoon season (June-July) and harvested in winter (November-December).

• Aus paddy is cultivated during the pre-monsoon season and harvested before the onset of the monsoon.

• Boro paddy is grown during the dry season (November to May) using irrigation facilities, making it a winter crop.

Additional Information

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• Terminology: Paddy refers to rice in its raw, unprocessed form, which is grown as a staple food crop in many parts of India.

• Climatic Requirements: Paddy requires a hot and humid climate, with temperatures ranging between 20°C to 35°C and a minimum of 100 cm of annual rainfall.

• Geographical Importance: Assam, West Bengal, and Odisha are among the largest producers of paddy in India due to their fertile soil and favorable climatic conditions.

• Economic Significance: Paddy farming plays a crucial role in the agrarian economy of India, providing livelihood to millions of farmers and contributing significantly to food security.

• Green Revolution Impact: The introduction of high-yielding rice varieties during the Green Revolution significantly boosted paddy production in India.

Q12. Answer: (b) Gujarat

The correct answer is Gujarat.

Key Points

• The Kachchh (Kutch) and Kathiawar coasts are located in the state of Gujarat, India.

• Kachchh is known for its unique geographical features, including the Rann of Kutch, which is a salt marsh.

• The Kathiawar Peninsula, located in Gujarat, is bordered by the Arabian Sea and is home to the Gir National Park, the last refuge of the Asiatic lions.

• These coasts are significant for their marine biodiversity, salt production, and mangrove ecosystems.

• Both regions are key contributors to Gujarat's economy through industries like salt manufacturing, agriculture, and tourism.

Additional Information

• Kachchh Region:

• The Rann of Kutch is divided into two parts—Great Rann and Little Rann.

• The area experiences extreme climate conditions, with hot summers and cold winters.

• The region is famous for its annual festival, the Rann Utsav, which showcases local art, culture, and heritage.

• Kathiawar Peninsula:

• It is bounded by the Arabian Sea to the west and south, the Gulf of Kutch to the northwest, and the Gulf of Khambhat to the southeast.

• It is rich in historical sites, including the ancient city of Dwarka, a significant pilgrimage site in Hindu mythology.

• The region is home to the Gir Forest, which is the only natural habitat of the Asiatic lion.

• Economic Importance:

• Gujarat is one of the largest producers of salt in India, with the Kutch region being a major contributor.

• The coastal areas support industries such as fishing, shipbuilding, and petrochemicals.

• Environmental Significance:

• The coastal areas are home to extensive mangrove forests, which act as natural barriers against coastal erosion.

• These regions are part of the Global Biodiversity Hotspots and are crucial for migratory birds and marine species.

Q13. Answer: (d) 10 minutes

Shortcut Trick

Total Capacity (LCM of 21, 42) = 42 units.

Efficiency: A = 42/21 = 2 units/min; B = 42/42 = 1 unit/min.

Pipe A works for the full 16 minutes → 16 × 2 = 32 units.

Remaining work (to be done by B) = 42 − 32 = 10 units.

Time for Pipe B = 10 units ÷ 1 unit/min = 10 minutes.

Therefore The correct answer is 10 min.

Alternate Method

Given: Filling time for Pipe A = 21 minutes, Pipe B = 42 minutes. Total time for filling = 16 minutes.

Formula Used: Total Work = Efficiency × Time; Efficiency = 1 / Time taken to fill.

Person	Days	Total Work	Efficiency
Pipe A	21 min	42 units	2 units/min
Pipe B	42 min	1 unit/min	

=> Let Pipe B be turned off after x minutes.

=> Work done by Pipe A in 16 minutes + Work done by Pipe B in x minutes = 42

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=> (Efficiency of A × 16) + (Efficiency of B × x) = 42

=> (2 × 16) + (1 × x) = 42

=> 32 + x = 42

=> x = 42 − 32 = 10 minutes.

Therefore The correct answer is 10 min.

Additional Information

Pipes & Cisterns Efficiency

Efficiency is inversely proportional to the time taken. If a pipe fills a tank in 't' hours, its work done in 1 hour is 1/t.

Inlet and Outlet Pipes

Inlet pipes do positive work while outlet (leakage) pipes do negative work. Combined efficiency = Σ(Inlet Efficiency) − Σ(Outlet Efficiency).

LCM Method

Total capacity of the tank is assumed as the LCM of the individual times to simplify calculations into integers.

Q14. Answer: (a) Vitamin A

The correct answer is Vitamin A.

Key Points

• A blocked bile duct impairs the absorption of fat-soluble vitamins, which include Vitamins A, D, E, and K.

• Vitamin A deficiency is more likely as it is a fat-soluble vitamin requiring bile for proper absorption.

• Vitamin A plays a crucial role in maintaining healthy vision, immune function, and skin integrity.

• A lack of bile prevents the emulsification of dietary fats, thereby reducing the bioavailability of fat-soluble vitamins like Vitamin A.

• Symptoms of Vitamin A deficiency include night blindness, dry eyes (xerophthalmia), and increased susceptibility to infections.

Additional Information

• Bile Duct Function: The bile duct transports bile, which is essential for the digestion and absorption of dietary fats and fat-soluble vitamins.

• Fat-Soluble Vitamins: These include Vitamins A, D, E, and K, which are stored in the liver and fatty tissues and are absorbed along with dietary fats.

• Vitamin A Sources: Dietary sources include liver, fish oils, dairy products, and colorful fruits and vegetables (e.g., carrots, spinach, and sweet potatoes).

• Other Fat-Soluble Vitamin Deficiencies: A blocked bile duct can also lead to deficiencies in Vitamins D (affecting bone health), E (antioxidant function), and K (blood clotting).

• Clinical Management: Patients with bile duct obstruction may require supplementation of fat-soluble vitamins in water-soluble forms to prevent deficiencies.

Q15. Answer: (a) 952

The logic followed here is:

Hence, "Option 1" is the correct answer.

Q16. Answer: (a) 4π/3 cm³

Shortcut Trick

Surface Area = $4\pi r^2 = 4\pi \Rightarrow r^2 = 1 \Rightarrow r = 1$ cm.

Volume = $(4/3)\pi r^3 = (4/3)\pi(1)^3 = 4\pi/3$ cm³.

Therefore The correct answer is $4\pi/3$ cm³.

Alternate Method

Given: Surface area of the sphere = 4π cm².

Formula used: Surface area = $4\pi r^2$; Volume = $(4/3)\pi r^3$.

=> $4\pi r^2 = 4\pi$

=> $r^2 = 1$

=> Radius (r) = 1 cm

=> Volume = $(4/3) \times \pi \times (1)^3$

=> Volume = $4\pi/3$ cm³

Therefore The correct answer is $4\pi/3$ cm³.

Additional Information

Hemisphere formulas

For a hemisphere of radius r, Curved Surface Area = $2\pi r^2$ and Total Surface Area = $3\pi r^2$.

Volume of Hemisphere

The volume of a hemisphere is exactly half of a sphere: $V = (2/3)\pi r^3$.

Ratio of SA to Volume

For any sphere, the ratio of its Surface Area to its Volume is 3/r.

Q17. Answer: (b) Rheostat

The correct answer is Rheostat.

Key Points

• A rheostat is a variable resistor used in electrical circuits to adjust the resistance.

• It is commonly used to control the flow of current in a circuit and thus regulate voltage or power.

• Rheostats are constructed with a resistive wire wound around an insulating core, allowing for resistance adjustment by moving a slider or wiper.

• They are widely utilized in applications such as dimming lights, controlling motor speed, and tuning radios.

• Unlike fixed resistors, rheostats offer the flexibility of altering resistance dynamically during operation.

Additional Information

• Resistor: A passive electrical component that provides resistance to control current in a circuit. Fixed resistors have a set resistance value, unlike variable resistors like rheostats.

• Potentiometer: Another variable resistor, similar to a rheostat but typically used for measuring or dividing voltage rather than controlling current directly.

• Ohm's Law: The fundamental principle governing the relationship between voltage (V), current (I), and resistance (R) in an electrical circuit, represented by the equation V = IR.

• Applications of Rheostats: Besides light dimming and motor control, rheostats are used in experimental setups to test circuits and components under varying resistance conditions.

• Difference Between Rheostat and Transformer: While a rheostat alters resistance to control current, a transformer is an electrical device that changes voltage levels through electromagnetic induction.

Q18. Answer: (c) FA-KQ

The logic followed here is:

Option 1) WS-BH

Option 2) RN-WC

Option 3) FA-KQ

Option 4) XT-CI

Thus, out of all the options, 'FA-KQ' is the odd one out.

Hence, "Option 3" is the correct answer.

Q19. Answer: (b) Bank of Baroda

The correct answer is Bank of Baroda.

Key Points

• Bank of Baroda launched the 'Global Women NRE & NRO Savings Account' in March 2025 to cater specifically to the banking needs of non-resident Indian (NRI) women.

• The account offers exclusive benefits such as preferential interest rates on deposits and loans.

• It is designed to provide financial support and empowerment to women living abroad, ensuring hassle-free banking services.

• Features include personalized services, free remittance facilities, and easy account management for NRE (Non-Resident External) and NRO (Non-Resident Ordinary) account holders.

• This initiative aligns with Bank of Baroda's focus on promoting gender-inclusive financial solutions.

Additional Information

• NRE Account: An account that allows NRIs to deposit foreign earnings in India, which are fully repatriable and tax-free.

• NRO Account: Designed for NRIs to manage income earned in India, such as rent or dividends, with limited repatriability and subject to taxation.

• Bank of Baroda: One of India's leading public sector banks, known for offering innovative and customer-focused financial solutions globally.

• Women-Centric Banking: Banks increasingly focus on customized products and services for women to address unique financial needs and promote inclusivity.

• Financial Empowerment: Such accounts aim to empower women by providing them with tools for better financial management

and access to resources.

Q20. Answer: (b) CFH

The logic followed here is:

Hence, "Option 2" is the correct answer.

Q21. Answer: (c) MS – PL

The logic followed here is:

Option 1) WC – AV

Option 2) DJ – HC

Option 3) MS – PL

Option 4) FL – JE

Thus, out of all the options, 'MS – PL' is the odd one out.

Hence, "Option 3" is the correct answer.

Q22. Answer: (d) 2

Given series: (Left) 1 @ 2 2 7 © & 8 6 * # 9 3 6 & 6 # & * © @ 8 (Right)

According to the question,

Required condition: Number - Number - Number

(Left) 1 @ 2 2 7 © & 8 6 * # 9 3 6 & 6 # & * © @ 8 (Right)

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

Hence, "Option 4" is the correct answer.

Q23. Answer: (d) 4

According to the given information,

Thus, 'R' is codes as '4'.

Hence, "Option 4" is the correct answer.

Q24. Answer: (b) DIPAM

The correct answer is DIPAM.

Key Points

• Department of Investment and Public Asset Management (DIPAM) is the nodal agency in India for managing disinvestment and strategic sale of public sector enterprises (PSEs).

• DIPAM operates under the Ministry of Finance and is responsible for generating revenue through the sale of government stakes in public sector companies.

• The department was earlier known as the Department of Disinvestment before being renamed as DIPAM in 2016.

• DIPAM's objective is to ensure optimal realization from the sale of government equity in central public sector enterprises (CPSEs).

• It also oversees the management of assets of public sector enterprises, including those earmarked for disinvestment.

Additional Information

• Disinvestment:

• It refers to the process of selling or liquidating the government’s stake in public sector undertakings (PSUs).

• The primary objective of disinvestment is to raise resources for the government and improve the operational efficiency of PSUs.

• Disinvestment proceeds are part of the non-tax revenue of the government.

• Strategic Disinvestment:

• It involves the sale of substantial portions of government equity in a PSU, often to private entities, along with the transfer of management control.

• Strategic disinvestment aims to bring in private sector expertise and investment for better management and growth of PSUs.

• DIPAM’s Key Functions:

• Formulating policies related to disinvestment and asset monetization.

• Advising the government on the timing and mode of disinvestment.

• Overseeing the listing of CPSEs on stock exchanges to unlock their value.

• Examples of Recent Disinvestments:

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• Major disinvestment cases include the strategic sale of Air India, LIC IPO, and BPCL disinvestment.
• These initiatives aim to bridge the fiscal deficit and promote a self-reliant India.

Q25. Answer: (d) 1.5

Shortcut Trick
Upstream Speed (u) = 62.3 ÷ (75/60) = 49.84 kmph.
Ratio of Boat Speed (v) to Stream Speed (s) = 3 : 2 => Upstream ratio (v − s) = 1 unit.
1 unit = 49.84 kmph => Downstream Speed (v + s) = 5 units = 249.2 kmph.
Total Time = (67.6 ÷ 49.84) + (35.8 ÷ 249.2) ≈ 1.356 + 0.144 = 1.5 hours.
Therefore The correct answer is 1.5 hours.
Alternate Method
Given: Upstream distance = 62.3 km, Time = 75 mins = 1.25 hours. Ratio of Boat to Stream speed = 3x : 2x.
Formula: Speed = Distance ÷ Time; Upstream speed (u) = v − s; Downstream speed (d) = v + s.
=> Upstream speed (u) = 62.3 ÷ 1.25 = 49.84 kmph.
=> Let Still water speed (v) = 3x and Stream speed (s) = 2x.
=> Upstream speed (u) = 3x − 2x = x => x = 49.84 kmph.
=> Downstream speed (d) = 3x + 2x = 5x = 5 × 49.84 = 249.2 kmph.
=> Time for 67.6 km upstream = 67.6 ÷ 49.84 ≈ 1.3563 hours.
=> Time for 35.8 km downstream = 35.8 ÷ 249.2 ≈ 0.1437 hours.
=> Total Time = 1.3563 + 0.1437 = 1.5 hours.
Therefore The correct answer is 1.5 hours.
Additional Information
Relative Speed in Water
Upstream Speed (u) = v − s and Downstream Speed (d) = v + s, where v is boat speed in still water and s is stream speed.
Still Water and Stream Speed Formulas
Boat speed (v) = (d + u) ÷ 2 and Stream speed (s) = (d − u) ÷ 2.
Average Speed of Boat
If the boat covers the same distance upstream and downstream, Average Speed = (u × d) ÷ v = ($v^2 - s^2$) ÷ v.

Q26. Answer: (c) Unicorn

The correct answer is Unicorn.
Key Points
• The Unicorn is one of the most commonly depicted motifs on Harappan seals, symbolizing a distinct cultural representation.
• Harappan seals were primarily made of steatite, a soft stone, and often featured intricate carvings of animals and other symbols.
• The Unicorn motif is unique to the Indus Valley Civilization and has not been found in other contemporary civilizations, showcasing its cultural exclusivity.
• Seals featuring the Unicorn were likely used for trade and administrative purposes, as they often included inscriptions in the undeciphered Harappan script.
• While the exact significance of the Unicorn remains unclear, it is hypothesized to represent a mythical or symbolic creature important to the Harappan people.
Additional Information
• Harappan Seals:
• Seals were primarily used for identification, trade, and authentication.
• They often featured animals like bulls, elephants, tigers, and mythical creatures like the Unicorn.
• Many seals included inscriptions in the Harappan script, which remains undeciphered to date.
• Steatite Material:
• Steatite was commonly used to make seals due to its softness and ease of carving.
• After carving, the seals were often fired to harden the material.
• Trade Importance:
• Harappan seals were integral to trade networks within the civilization and with Mesopotamia.
• They served as markers of ownership and authenticity for goods.
• Unicorn Symbolism:
• The Unicorn could represent a mythical or divine creature, central to Harappan beliefs.

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• Its frequent appearance on seals suggests it held significant cultural or religious importance.

Q27. Answer: (b) 9

Shortcut Trick

The average of the first n natural numbers is always the middle term of the series.

Shortcut formula for Average = (n + 1) ÷ 2

Substitute n = 17:

Average = (17 + 1) ÷ 2 = 18 ÷ 2 = 9

Therefore The correct answer is 9.

Alternate Method

Given: A sequence of Natural Numbers from 1 to 17.

Formula Used: Average of an Arithmetic Progression (AP) = (First Term + Last Term) ÷ 2

=> First Term (a) = 1

=> Last Term (l) = 17

=> Average = (1 + 17) ÷ 2

=> Average = 18 ÷ 2

=> Average = 9

Therefore The correct answer is 9.

Additional Information

Sum of First n Natural Numbers

The total sum of the first n natural numbers is given by the formula: $S_n = n(n + 1) \div 2$.

Average of First n Even Numbers

The average of the first n even natural numbers (2, 4, 6...) is simply (n + 1).

Average of First n Odd Numbers

The average of the first n odd natural numbers (1, 3, 5...) is exactly equal to n.

Middle Term Property

In any sequence with an odd number of terms in AP, the average is always the absolute middle term.

Q28. Answer: (d) Phase II: 1921-1951

The correct answer is Phase II: 1921-1951.

Key Points

• The period from 1921 to 1951 is classified as Phase II in India's demographic history.

• During this phase, India saw a steady growth in its population due to improvements in healthcare and sanitation.

• This phase marked the beginning of a decline in mortality rates, although birth rates remained high.

• The steady population growth can be attributed to better control of epidemics, availability of vaccines, and improved public health measures.

• Phase II is often referred to as the "early expanding stage" in the demographic transition model.

Additional Information

• Demographic Transition Model (DTM): It explains the transition of countries from high birth and death rates to low birth and death rates through economic and social development.

• Phase I (1891-1921): Known as the "stagnant stage," India experienced very low population growth due to high mortality rates caused by famines, epidemics, and poor healthcare.

• Phase III (1951-1981): Characterized by rapid population growth due to a significant decline in death rates while birth rates remained high.

• Phase IV (1981-2011): Marked by a slowing population growth rate as birth rates began to decline due to family planning and increased literacy.

• Factors Leading to Population Growth: Economic development, improved medical facilities, access to education, and better hygiene practices are key contributors to population changes over time.

Q29. Answer: (c) The President of India

The correct answer is The President of India.

Key Points

• The Chairman of the National Human Rights Commission (NHRC) of India is appointed by the President of India.

• The appointment is made based on the recommendations of a high-level committee constituted for this purpose.

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• The high-level committee includes the Prime Minister, the Speaker of the Lok Sabha, the Deputy Chairman of the Rajya Sabha, the Leaders of the Opposition in both Houses, and the Union Home Minister.

• As per the Protection of Human Rights Act, 1993, the Chairman of NHRC is a retired Chief Justice of India or a judge of the Supreme Court.

• The NHRC is an independent statutory body, and the President's appointment ensures its functional autonomy.

Additional Information

• National Human Rights Commission (NHRC):

• The NHRC was established on October 12, 1993, under the Protection of Human Rights Act, 1993.

• It is tasked with the protection and promotion of human rights in India, including the right to life, equality, and dignity.

• It investigates complaints of human rights violations and makes recommendations to the government for remedial action.

• Composition of NHRC:

• It consists of a Chairman, four full-time members, and four deemed members.

• The full-time members include one former Supreme Court judge, one former Chief Justice of a High Court, and two experts in human rights.

• The deemed members are the Chairpersons of the National Commissions for SCs, STs, Minorities, and Women.

• Protection of Human Rights Act, 1993:

• This Act provides the legal framework for the establishment of the NHRC and State Human Rights Commissions.

• It defines "human rights" as rights relating to life, liberty, equality, and dignity guaranteed under the Constitution or international covenants.

• Tenure of the NHRC Chairman:

• The Chairman holds office for a term of 3 years or until the age of 70 years, whichever is earlier.

• He/she is eligible for reappointment.

Q30. Answer: (c) -cos³ θ

Shortcut Trick

Put θ = 45° to check options quickly.

Expression = (√2 − 1/√2) × (√2 − 1/√2) × (1/√2 − √2)

Expression = (1/√2) × (1/√2) × (−1/√2) = −1/(2√2)

Check Option (3): −cos³(45°) = −(1/√2)³ = −1/(2√2). Matches!

Therefore The correct answer is −cos³ θ.

Alternate Method

Given: (secθ − 1/secθ) × (cosecθ − 1/cosecθ) × (sinθ − 1/sinθ)

Formula Used: secθ = 1/cosθ, cosecθ = 1/sinθ, sin²θ + cos²θ = 1

=> (secθ − cosθ) × (cosecθ − sinθ) × (sinθ − 1/sinθ)

=> [(1 − cos²θ)/cosθ] × [(1 − sin²θ)/sinθ] × [(sin²θ − 1)/sinθ]

=> [sin²θ / cosθ] × [cos²θ / sinθ] × [−cos²θ / sinθ]

=> [sin²θ × cos²θ × (−cos²θ)] / [cosθ × sinθ × sinθ]

=> − (sin²θ × cos^4θ) / (sin²θ × cosθ)

=> −cos³θ

Therefore The correct answer is −cos³ θ.

Additional Information

Trigonometric Identities

Fundamental identities include sin²θ + cos²θ = 1, 1 + tan²θ = sec²θ, and 1 + cot²θ = cosec²θ.

Reciprocal Relations

secθ = 1/cosθ, cosecθ = 1/sinθ, and cotθ = 1/tanθ are essential for simplifying complex expressions.

Value Substitution Method

For algebraic trigonometric expressions, substituting standard angles like 30°, 45°, or 60° helps in identifying the correct option quickly.

Q31. Answer: (c) Judicial review of judicial appointments to the Supreme Court and High Courts

The correct answer is Judicial review of judicial appointments to the Supreme Court and High Courts.

Key Points

• Judicial review refers to the power of the judiciary to examine the constitutionality of legislative acts, executive orders, and other

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governmental actions.

• Justice Syed Shah Mohammed Quadri classified judicial review into three categories: review of legislative action, executive/administrative action, and constitutional amendments.

• The judicial review of judicial appointments to the Supreme Court and High Courts is not considered a separate category of judicial review under this classification.

• The appointments of judges to the higher judiciary are primarily governed by the "Collegium System" and Articles 124 and 217 of the Indian Constitution, and their review is not a distinct judicial review category.

• Judicial review primarily focuses on safeguarding the Constitution and ensuring that no law or action violates fundamental rights.

Additional Information

• Judicial Review of Legislative Action: It involves examining laws passed by Parliament or State Legislatures to ensure their compliance with the Constitution.

• Judicial Review of Administrative Action: It ensures that administrative decisions by the executive or other authorities are not arbitrary, capricious, or unconstitutional.

• Judicial Review of Constitutional Amendments: The judiciary reviews amendments to ensure they do not violate the "basic structure" of the Constitution, as established in the landmark Kesavananda Bharati case (1973).

• Collegium System: It is a mechanism for appointing judges to the higher judiciary in India, involving the Chief Justice of India and senior judges of the Supreme Court.

• Basic Structure Doctrine: This doctrine ensures that certain fundamental principles of the Constitution cannot be altered, even by constitutional amendments.

Q32. Answer: (d) 25/2

Given:

Simplify: 50 ÷ (3 × ((8)/(6) of (6)/(6)))

Calculation:

50 ÷ (3 × (8/6 of 6/6)

=> 50 ÷ (3 × (8/6 × 6/6)

=> 50 ÷ (3 × (48/36))

=> 50 ÷ (3 × (4/3))

=> 50 ÷ (4)

=> 25/2

Therefore The correct answer is option (4).

Q33. Answer: (c) OL −5

The logic followed here is:

RN 15 is related to TM 7

And,

LL 11 is related to NK 3

Similarly,

MM 3 is related to

Hence, "Option 3" is the correct answer.

Q34. Answer: (a) Dandiya Raas

The correct answer is Dandiya Raas.

Key Points

• Dandiya Raas is a traditional folk dance form originating from Gujarat, India, and is associated with the festival of Navratri.

• It represents a mock fight between the Goddess Durga and the demon Mahishasura, symbolizing the victory of good over evil.

• Dancers use colorful sticks called 'dandiyas' as props, representing the swords of Durga during her battle with Mahishasura.

• The dance is performed in a group, with participants forming circles and rhythmically clashing their dandiyas in synchronization with the music.

• Dandiya Raas is a vibrant and energetic dance, characterized by its intricate movements and coordination among the dancers.

Additional Information

• Navratri: Navratri is a nine-night Hindu festival dedicated to the worship of Goddess Durga in her nine forms. Dandiya Raas is prominently performed during this festival.

• Garba vs. Dandiya: While Dandiya Raas involves the use of sticks, Garba is a similar dance performed without props, where participants clap hands or perform circular movements.

• Mahishasura: In Hindu mythology, Mahishasura was a powerful demon who could transform into a buffalo. He was ultimately defeated by Goddess Durga, which is celebrated through Dandiya Raas.

• Cultural Significance: Dandiya Raas showcases the rich cultural heritage of Gujarat and symbolizes themes of joy, unity, and devotion during festive celebrations.

• Modern Adaptations: While traditionally performed during Navratri, Dandiya Raas has gained popularity globally and is now performed at cultural events and celebrations across various communities.

Q35. Answer: (a) Luni

The correct answer is Luni.

Key Points

• The Luni River originates in the western slopes of the Aravalli Range, near Ajmer, Rajasthan.

• In its initial stages, the river is locally known as the Sagarmati.

• It is a significant river of the arid region of Rajasthan, often referred to as the lifeline of the desert.

• The Luni flows through Rajasthan and Gujarat before ending in the marshy lands of the Rann of Kutch.

• Unlike most rivers, the Luni is a saline river, which makes it unique among Indian rivers.

Additional Information

• Aravalli Range:

• The Aravalli Range is one of the oldest mountain ranges in the world, located in western India.

• It stretches across Rajasthan, Haryana, and Gujarat.

• Ajmer, where the Luni originates, is situated in the central part of this range.

• Rivers in Rajasthan:

• Rajasthan is known for its arid climate and has several seasonal rivers.

• Other prominent rivers in Rajasthan include Chambal, Banas, and Saraswati.

• Saline Rivers:

• The Luni becomes saline as it passes through the desert, due to the high salt content in the soil.

• This salinity limits its usability for drinking and irrigation purposes in its lower stretches.

• Rann of Kutch:

• The Rann of Kutch is a large salt marsh located in Gujarat, where the Luni ends.

• It is part of the Thar Desert and serves as a unique ecosystem for flora and fauna.

Q36. Answer: (a) 10 km towards the west

Given:

Mr. I starts from Point J and drives 5 km towards the west.

He then takes a right turn, drives 7 km, turns right and drives 11 km.

He then takes a left turn and drives 2 km.

He then takes a right turn and drives 4 km.

He then takes a final right turn, drives 9 km and stops at Point K.

Thus, Mr. I should drive 10 km in the west direction in order to reach Point J again.

Hence, "Option 1" is the correct answer.

Q37. Answer: (c) Two

Given: H, O, L, D, E, and R 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 above L.

2) Only three people live between L and R.

3) H lives on a floor below R.

Floor	Person
6	L
5	
4	
3	

2	R
1	H

4) E lives on an even numbered floor.

5) O lives on an odd numbered floor but not on floor number 5.

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

Floor	Person
6	L
5	D
4	E
3	O
2	R
1	H

Thus, two people live between D and R.

Hence, "Option 3" is the correct answer.

Q38. Answer: (c) $90y^2$

Shortcut Trick

Third proportional (c) of two numbers a and b is calculated as $c = b^2 \div a$.

Given $a = 10x^2$ and $b = 30xy$.

Third Proportional = $(30xy)^2 \div 10x^2$

=> $900x^2y^2 \div 10x^2 = 90y^2$.

Therefore The correct answer is $90y^2$.

Alternate Method

Given: First term (a) = $10x^2$, Second term (b) = $30xy$.

Formula Used: If a, b, c are in continued proportion, then a : b = b : c, where c is the third proportional.

Calculations:

=> $10x^2 / 30xy = 30xy / c$

=> $c \times 10x^2 = (30xy) \times (30xy)$

=> $c \times 10x^2 = 900x^2y^2$

=> $c = 900x^2y^2 \div 10x^2$

=> $c = 90y^2$

Therefore The correct answer is $90y^2$.

Additional Information

Mean Proportional

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

Fourth Proportional

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

Continued Proportion

Three numbers a, b, c are said to be in continued proportion if $a/b = b/c$, which implies $b^2 = ac$.

Q39. Answer: (d) Defence Acquisition Procedure

The correct answer is Defence Acquisition Procedure.

Key Points

• The Defence Acquisition Procedure (DAP) 2020 introduced various reforms, including a fast-track procurement clause to address delays in acquiring critical defence equipment.

• In 2024, India emphasized this clause to expedite the procurement process for enhancing operational readiness of the armed forces.

• Fast-track procurement is aimed at addressing urgent operational requirements during critical situations or emergencies.

• The Defence Acquisition Procedure replaced the earlier Defence Procurement Procedure (DPP) and focuses on indigenization

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under the "Atmanirbhar Bharat" initiative.

• The DAP 2020 incorporates numerous measures to promote transparency, efficiency, and accountability in defence acquisitions.

Additional Information

• Defence Acquisition Procedure (DAP):

• It is a comprehensive document that governs the acquisition of defence equipment, systems, and platforms in India.

• DAP 2020 emphasizes "Make in India" and self-reliance in the defence sector by encouraging domestic manufacturing.

• It classifies procurement into categories such as Buy (Indian-IDDM), Buy (Indian), Buy and Make (Indian), and others to prioritize indigenous production.

• Fast-Track Procurement:

• This mechanism was introduced to meet critical operational needs of the armed forces within a compressed timeline.

• It is used in situations of urgency, bypassing lengthy procurement procedures.

• Indigenization in Defence:

• The government aims to achieve self-reliance in defence manufacturing through initiatives like "Atmanirbhar Bharat" and the Strategic Partnership Model.

• Efforts are being made to reduce India's reliance on defence imports and promote exports of indigenous defence products.

• Defence Offset Policy:

• This policy mandates foreign vendors to invest a percentage of the contract value in India to develop the domestic defence industry.

• It supports technology transfer and collaboration between Indian and foreign defence companies.

Q40. Answer: (a) Dutch East India Company

The correct answer is Dutch East India Company.

Key Points

• The Dutch East India Company, also known as Verenigde Oostindische Compagnie (VOC), was established in the year 1602.

• The VOC was the first multinational corporation in the world and the first company to issue stock publicly.

• It was created to manage Dutch trade in the Indian Ocean region and played a significant role in establishing Dutch colonial presence in Asia.

• The company held a monopoly on Dutch trade in Asia, dealing primarily in spices, silk, tea, and other valuable commodities.

• The VOC's headquarters were located in Amsterdam, and it had a powerful fleet and military presence to protect its interests.

Additional Information

• Verenigde Oostindische Compagnie (VOC):

• The VOC is often considered as the precursor to modern corporations due to its innovative financial and organizational systems.

• It had the authority to wage wars, negotiate treaties, mint coins, and establish colonies.

• It was instrumental in the Dutch Golden Age, contributing significantly to the prosperity of the Netherlands during the 17th century.

• Decline of the VOC:

• The company began to decline in the 18th century due to corruption, mismanagement, and increased competition from other European nations.

• It was officially dissolved in 1799, and its territories were taken over by the Dutch government.

• Spice Trade:

• The VOC was heavily involved in the lucrative spice trade, particularly nutmeg, cloves, and pepper, which were highly sought after in Europe.

• The company controlled several key ports and islands in Southeast Asia, such as the Moluccas and Batavia (modern-day Jakarta).

• Legacy:

• The VOC's model of joint-stock ownership and its global trade networks laid the foundation for modern capitalism and multinational corporations.

• Its influence shaped economic and political dynamics in Asia and Europe for centuries.

Q41. Answer: (a) Madan Mohan Sat

The correct answer is Madan Mohan Sat.

Key Points

• Madan Mohan Sat is the author of the book 'Parvat Shiromani Bhagat Singh Koshyari', which is a tribute to the contributions of Bhagat Singh Koshyari.

• The book highlights the life, ideologies, and achievements of Bhagat Singh Koshyari, who is known for his significant contributions in Indian politics and public service.

• Bhagat Singh Koshyari has served as the Governor of Maharashtra and has held various key political positions in India.

• The book delves into his journey as a leader and his commitment to the upliftment of society, especially in the state of Uttarakhand.

• 'Parvat Shiromani Bhagat Singh Koshyari' is recognized as a work that sheds light on the personal and professional life of one of India's notable political figures.

Additional Information

• Bhagat Singh Koshyari:

• He is an Indian politician who has held various positions, including Chief Minister of Uttarakhand and Governor of Maharashtra.

• Koshyari has been associated with the Bharatiya Janata Party (BJP) and is considered a prominent leader from the state of Uttarakhand.

• He has contributed to the development of Uttarakhand and is known for his grassroots-level initiatives.

• Uttarakhand's Political Landscape:

• Uttarakhand, also referred to as the 'Land of the Gods', has seen leaders like Bhagat Singh Koshyari play pivotal roles in its development post its formation in 2000.

• The state is known for its cultural and geographical diversity, which has influenced its political and social policies.

• Books on Political Leaders:

• Books like 'Parvat Shiromani Bhagat Singh Koshyari' serve as important resources for understanding the lives and ideologies of political figures.

• Such works often provide insights into the challenges and milestones faced by leaders during their tenure.

• Significance of Documenting Political Contributions:

• Documenting the lives of leaders like Bhagat Singh Koshyari helps preserve history and offers guidance for future generations.

• It also brings to light the socio-political impact of their work on regional and national levels.

Q42. Answer: (b) Indian High Courts Act, 1861

The correct answer is Indian High Courts Act, 1861.

Key Points

• The Indian High Courts Act, 1861, empowered the British Crown to establish High Courts in India by issuing Letters Patent.

• The Act replaced the Supreme Courts and Sadar Adalats in the presidency towns with High Courts, combining their powers and jurisdiction.

• The first High Courts under this Act were established in Calcutta, Bombay, and Madras in 1862.

• These High Courts were granted both civil and criminal jurisdiction, marking a significant reform in India’s judicial system.

• The Act served as a foundational step in the creation of a unified legal system in British India.

Additional Information

• Letters Patent: A legal instrument issued by the British Crown, granting authority to establish High Courts in India.

• Presidency Towns: Major administrative centers under British rule, including Calcutta, Bombay, and Madras.

• Supreme Courts and Sadar Adalats: These were the highest courts in the presidency towns before the establishment of High Courts. The Indian High Courts Act, 1861, consolidated their functions.

• Judicial Reforms: The Act was part of broader legal reforms aimed at streamlining the judicial system in British India, ensuring uniformity and efficiency.

• Significance: The High Courts established under this Act continue to function as the highest courts at the state level in India after independence, playing a pivotal role in the Indian judiciary.

Q43. Answer: (a) Veer Surendra Sai

The correct answer is Veer Surendra Sai.

Key Points

• Veer Surendra Sai was a prominent freedom fighter and tribal leader from Sambalpur (present-day Odisha).

• He led the rebellion against British colonial rule in the Sambalpur region during the 1857 uprising, also known as the First War of Indian Independence.

• Surendra Sai fought to protect the rights of the tribal people and opposed British exploitation of resources and their oppressive policies.

• He was imprisoned multiple times by the British but continued to inspire resistance against colonial rule until his death in 1884.

• His leadership was instrumental in mobilizing the tribal communities of western Odisha for freedom, making him a revered figure in Indian history.

Additional Information

• Sambalpur Rebellion:

• The rebellion in Sambalpur was part of the larger 1857 revolt against British rule in India.

• It was marked by resistance from tribal leaders like Veer Surendra Sai, who fought for the restoration of local self-governance.

• Veer Surendra Sai's Early Life:

• He was born on January 23, 1809, in the Khinda village of Sambalpur.

• As a member of the Chauhan dynasty, he claimed the throne of Sambalpur after the death of Maharaja Sai in 1827.

• Tribal Resistance:

• Surendra Sai united several tribal communities, including the Binjhal, Gond, and Kol tribes, to oppose British authority.

• The tribal resistance was fueled by British attempts to impose taxes and exploit natural resources in the region.

• Legacy:

• Surendra Sai's resistance to British rule is celebrated in Odisha, and he is regarded as a hero of Indian independence.

• Several institutions, roads, and public spaces in Odisha are named after him to honor his contributions.

Q44. Answer: (a) Two

Given: M, N, O, S, T and U 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) S lives on floor numbered 5.

2) O lives on a floor above S.

Floor	Person
6	O
5	S
4	
3	
2	
1	

3) Only T lives below N.

4) U lives on an even numbered floor

After positioning U, N and T only one position is left which will be occupied by the only person left i.e. M.

Floor	Person
6	O
5	S
4	U
3	M
2	N
1	T

Thus, two people live below M.

Hence, "Option 1" is the correct answer.

Q45. Answer: (c) # = WUY, % = PNR

The logic followed here is:

Given: # : TRV :: SQU : %

Option 1) # = IOY, % = PWR → IOY : TRV :: SQU : PWR

Option 2) # = WUO, % = ZNR → WUO : TRV :: SQU : ZNR

Option 3) # = WUY, % = PNR → WUY : TRV :: SQU : PNR

Option 4) # = WZY, % = UQR → WZY : TRV :: SQU : UQR

Thus, out of all the options, 'MS – PL' is the odd one out.

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Hence, "Option 3" is the correct answer.

Q46. Answer: (d) Droupadi Murmu

The correct answer is Droupadi Murmu.

Key Points

• Droupadi Murmu, the President of India, inaugurated the National Conference on ‘Environment – 2025’ in New Delhi on 29 March 2025.

• The conference aimed to address critical environmental challenges and outline strategies for sustainable development in India by 2025.

• As the head of state, Droupadi Murmu has been actively involved in promoting environmental sustainability and climate change awareness.

• The event brought together policymakers, environmentalists, scientists, and industry experts to discuss issues such as climate change mitigation, renewable energy adoption, and biodiversity conservation.

• The conference is considered a significant step towards fulfilling India’s commitment to the United Nations Sustainable Development Goals (SDGs).

Additional Information

• United Nations Sustainable Development Goals (SDGs):

• A set of 17 global goals adopted by UN member nations in 2015 to address pressing global challenges by 2030.

• Key goals include eradicating poverty, ensuring clean water and sanitation, promoting renewable energy, and combating climate change.

• Biodiversity Conservation:

• Refers to the protection and management of biodiversity to ensure its sustainability for future generations.

• India is a signatory to the Convention on Biological Diversity (CBD) and has implemented initiatives like the National Biodiversity Action Plan.

• Climate Change Mitigation:

• Involves reducing greenhouse gas emissions to minimize global warming and its effects.

• India has committed to achieving net-zero carbon emissions by 2070 as part of its COP26 pledge.

• Renewable Energy in India:

• India is among the top countries in the world for renewable energy installation, with a focus on solar, wind, and hydroelectric power.

• The government has set a target of achieving 500 GW of non-fossil fuel energy capacity by 2030.

Q47. Answer: (d) The Emperor of Gladness

The correct answer is The Emperor of Gladness.

Key Points

• The Emperor of Gladness is a novel by Ocean Vuong that follows the story of Hai, a 19-year-old who becomes a caretaker for an elderly woman with dementia.

• The novel intricately explores themes of caregiving, generational trauma, and the immigrant experience.

• Ocean Vuong is a critically acclaimed Vietnamese-American poet and novelist known for his lyrical and poignant writing style.

• The Emperor of Gladness is one of Vuong's works that delves deeply into the complexity of human relationships and memory.

• This novel showcases Vuong's unique ability to blend prose with poetic sensitivity, making it a standout work in contemporary literature.

Additional Information

• Ocean Vuong: A Vietnamese-American writer, Vuong is celebrated for his works that explore identity, family, and the immigrant experience. His acclaimed debut novel, "On Earth We're Briefly Gorgeous," received widespread recognition.

• Dementia: A medical condition characterized by a decline in cognitive function, affecting memory, communication, and daily activities. It is a central theme in "The Emperor of Gladness."

• Caregiving: The act of providing care for someone unable to care for themselves, such as those with chronic illnesses, disabilities, or the elderly. This forms the emotional core of the novel.

• Immigrant Experience: Vuong's works often explore the challenges and resilience of immigrant families, particularly the Vietnamese-American community.

• Literary Style: Ocean Vuong is known for blending prose and poetry, creating a deeply evocative and emotionally resonant narrative style that distinguishes his works.

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Q48. Answer: (b) Mauritius

The correct answer is Mauritius.

Key Points

• Indian Prime Minister Narendra Modi attended the National Day celebrations of Mauritius as the Chief Guest in March 2025.

• Mauritius celebrates its National Day on March 12 every year, marking its independence from British rule in 1968 and its transformation into a Republic in 1992.

• PM Modi's visit highlights the deep-rooted ties between India and Mauritius, which share cultural, historical, and strategic connections.

• India has been a key development partner of Mauritius, providing financial and technological assistance in areas like infrastructure, defense, and capacity building.

• The visit underscores India's commitment to its "neighborhood first" and "SAGAR" (Security and Growth for All in the Region) initiatives.

Additional Information

• India-Mauritius Relations:

• Mauritius hosts a significant population of Indian origin, strengthening cultural and people-to-people ties.

• India has supported Mauritius in various sectors, including education, healthcare, and technology.

• Key projects like the Metro Express and Supreme Court building in Mauritius were funded by India.

• SAGAR Initiative:

• SAGAR stands for "Security and Growth for All in the Region," an Indian maritime initiative aimed at enhancing security and economic cooperation in the Indian Ocean.

• Mauritius is a critical partner under this initiative due to its strategic location in the Indian Ocean.

• National Day of Mauritius:

• The National Day celebrations include parades, cultural events, and speeches commemorating the nation's achievements.

• March 12 is significant as it marks the day of independence and the adoption of the Republican constitution.

• Historical Context:

• Indo-Mauritian ties date back to the migration of Indian laborers during colonial times, establishing a strong historical bond.

• The two countries share a common history of colonial struggles and post-independence development.

Q49. Answer: (a) 6

According to the given Venn diagram:

The shaded region represents scientists who are also firefighters but not postmen → 6

Hence, the correct answer is "Option 1".

Q50. Answer: (d) 18

Given:

Simplify: $(2^2 \times 9^3)/(\sqrt{4} \times \sqrt{6561})$

Formula used:

√(x) = x^(1/2)

Calculation:

$(2^2 \times 9^3) / (\sqrt{(4)} \times \sqrt{(6561)})$

=> $(4 \times 729) / (\sqrt{(4)} \times \sqrt{(6561)})$

=> $(4 \times 729) / (2 \times 81)$

=> 2×9

=> 18

Therefore The correct answer is option (4).

Q51. Answer: (a) 30

Shortcut Trick

Let Priya = P, Jaya = J, Sanjay = S, Mohit = M.

Given: 2P + J = 48 and S + M = 46.

From conditions: S = 2J and M = P + 4.

Substitute in second equation: 2J + P + 4 = 46 => P + 2J = 42.

Solving 2P + J = 48 and P + 2J = 42 simultaneously => (2P + J) + (P + 2J) = 48 + 42 => 3(P + J) = 90 => P + J = 30.

Therefore The correct answer is 30 years.

Alternate Method

Given:

1) 2 × Priya (P) + Jaya (J) = 48

2) Sanjay (S) = 2 × Jaya (J)

3) Mohit (M) = Priya (P) + 4

4) Sanjay (S) + Mohit (M) = 46

Calculations:

=> Substitute (2) and (3) in (4): 2J + (P + 4) = 46

=> P + 2J = 42 −−− (Eq. A)

=> From (1): 2P + J = 48 −−− (Eq. B)

=> Adding (Eq. A) and (Eq. B): (P + 2J) + (2P + J) = 42 + 48

=> 3P + 3J = 90

=> 3(P + J) = 90

=> P + J = 90 ÷ 3 = 30

Therefore The correct answer is 30 years.

Additional Information

Linear Equations in Two Variables

Problems involving ages of multiple people are solved by forming simultaneous equations and using substitution or elimination methods.

Age Relation Constants

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

Sum and Difference Logic

If the sum (S) and difference (D) of two ages are known, the individual ages are (S+D)/2 and (S−D)/2.

Q52. Answer: (c) Mother

Decoding symbols:

	A is			
Symbol	•	–	×	÷
Meaning	Sister	Brother	Wife	Father
	to B			

Given: M × N ÷ O + P − Q

M × N → M is the wife of N.

N ÷ O → N is the father of O.

O + P → O is the sister of P.

P − Q → P is the brother of Q.

Thus, M is Q's mother.

Hence, the correct answer is "Option 3"

Q53. Answer: (b) YGS

The logic followed here is:

Hence, "Option 2" is the correct answer.

Q54. Answer: (a) Only 1 and 3

The correct answer is Only 1 and 3.

Key Points

• Dividend Distribution Tax (DDT) was a tax levied on companies, requiring them to pay a tax on the dividends distributed to shareholders.

• The Finance Act 2020, not Budget 2025-26, abolished DDT, shifting the tax burden to shareholders who now pay tax on dividends according to their applicable income tax slab.

• The removal of DDT was aimed at avoiding double taxation of dividends, as earlier companies paid DDT and shareholders also paid taxes on dividends.

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• This reform was introduced to make the Indian equity market more investor-friendly and attract foreign and domestic investments.

• DDT was earlier charged at an effective rate of 20.56% (including surcharge and cess).

Additional Information

• What is Double Taxation?

• Double taxation occurs when the same income is taxed twice. Under the old DDT regime, companies paid tax on their profits, and shareholders paid tax on the dividends received.

• Current Taxation on Dividends:

• Post-2020, dividends are taxed in the hands of shareholders based on their applicable income tax slab rates.

• Impact on Foreign Portfolio Investors (FPIs):

• The removal of DDT has benefitted FPIs as they can now avail of benefits under tax treaties, reducing their tax burden.

• Finance Act 2020:

• This act introduced key reforms, including the abolition of DDT, to simplify tax structures and boost economic growth.

• Attractiveness of Equity Markets:

• Removing DDT aligns India's taxation policies with global practices, making Indian equity markets more competitive and attractive to investors.

Q55. Answer: (c) @ Q J $ @

Given Table:

Number	7	8	2	3	4	5	6	1
Code	Z	Q	•	@	#	$	T	J

According to the given condition:

Rule no.	Condition	Result
I	1st and 2nd digits are even	Both are to be coded as 'A'
II	1st and last digits are odd	Both are to be coded as the code for the 1st digit
III	3rd and 4th digits are even	Codes are to be interchanged

Given: 38159

Here, II rule applies i.e. 1st and last digits are odd.

3 → coded as @

8 → coded as Q

1 → coded as J

5 → coded as S

9 → coded as @

So, 38159 → Coded as @ Q J $ @.

Hence, "Option 3" is the correct answer.

Q56. Answer: (b) 200

Shortcut Trick

Let Initial Selling Price (SP1) be x and Cost Price (CP) be y.

Initial Profit (P1) = x − y.

New Selling Price (SP2) = 3x, New Profit (P2) = 3x − y.

Given: P2 = 4 × P1 => 3x − y = 4(x − y) => 3x − y = 4x − 4y => x = 3y.

Initial Profit % = [(x − y) ÷ y] × 100 = [(3y − y) ÷ y] × 100 = 200%.

Therefore The correct answer is 200%.

Alternate Method

Given → SP_(new) = 3 × SP_(old) and Profit_(new) = 4 × Profit_(old).

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

=> Let Initial Profit be P and Initial Cost Price be CP.

=> SP1 = CP + P.

=> SP2 = 3 × SP1 = 3(CP + P) = 3CP + 3P.

=> New Profit = SP2 − CP = (3CP + 3P) − CP = 2CP + 3P.

=> According to question: 2CP + 3P = 4P => 2CP = P.

=> Profit% = (P ÷ CP) × 100 = (2CP ÷ CP) × 100 = 200%.

Therefore The correct answer is 200%.

Additional Information

Profit and Selling Price Relationship

When the Selling Price changes, the change in Profit is exactly equal to the change in Selling Price, because the Cost Price remains constant.

Profit Percentage Formula

Profit% is always calculated on the Cost Price (CP) unless stated otherwise: Profit% = [(SP − CP) ÷ CP] × 100.

Q57. Answer: (b) 175

Shortcut Trick

Let the HCF be x.

The numbers are 1x, 5x, and 6x.

LCM of (1, 5, 6) × HCF = Given LCM

30 × x = 5250

x = 5250 ÷ 30 = 175

Therefore The correct answer is 175.

Alternate Method

Given: Ratio of numbers = 1 : 5 : 6, LCM = 5250.

Formula Used: LCM of (ax, bx, cx) = x × LCM(a, b, c), where x is the HCF.

=> Let the numbers be 1x, 5x, and 6x, where x is the HCF.

=> LCM of 1x, 5x, and 6x = x × (LCM of 1, 5, 6)

=> Since 1, 5, and 6 are coprime or have no common factor among all three, their LCM is 1 × 5 × 6 = 30.

=> 30x = 5250

=> x = 5250 ÷ 30

=> x = 175

Therefore The correct answer is 175.

Additional Information

HCF and LCM Relation

For two numbers a and b, Product of numbers = HCF × LCM. Note: This rule only applies strictly to two numbers.

LCM of Fractions

LCM of fractions = (LCM of Numerators) ÷ (HCF of Denominators).

HCF of Fractions

HCF of fractions = (HCF of Numerators) ÷ (LCM of Denominators).

Q58. Answer: (b) 13.99

Shortcut Trick

Find the Mean (μ) of the marks: (65 + 47 + 59 + 75 + 82 + 91 + 55 + 78) ÷ 8 = 552 ÷ 8 = 69.

Calculate the sum of squared deviations from the mean: 16 + 484 + 100 + 36 + 169 + 484 + 196 + 81 = 1566.

Find the Variance (σ^2): 1566 ÷ 8 = 195.75.

Calculate the Standard Deviation (σ): √195.75 ≈ 13.99.

Therefore The correct answer is 13.99.

Alternate Method

Given:

Marks obtained by students: 65, 47, 59, 75, 82, 91, 55, 78

Total number of students (N) = 8

Formula Used:

Mean (μ) = Σx ÷ N

Variance (σ^2) = $\Sigma(x - \mu)^2$ ÷ N

Standard Deviation (σ) = √Variance

Calculations:

=> Mean (μ) = (65 + 47 + 59 + 75 + 82 + 91 + 55 + 78) ÷ 8

=> Mean (μ) = 552 ÷ 8 = 69

=> Now, calculate the squared deviations $(x - \mu)^2$ for each student:

=> $(65 - 69)^2 = (-4)^2 = 16$

=> $(47 - 69)^2 = (-22)^2 = 484$

=> $(59 - 69)^2 = (-10)^2 = 100$

=> $(75 - 69)^2 = 6^2 = 36$

=> $(82 - 69)^2 = 13^2 = 169$

=> $(91 - 69)^2 = 22^2 = 484$

=> $(55 - 69)^2 = (-14)^2 = 196$

=> $(78 - 69)^2 = 9^2 = 81$

=> Sum of squared deviations $\Sigma(x - \mu)^2 = 16 + 484 + 100 + 36 + 169 + 484 + 196 + 81 = 1566$

=> Variance $(\sigma^2) = 1566 \div 8 = 195.75$

=> Standard Deviation $(\sigma) = \sqrt{195.75} \approx 13.99$

Option Analysis:

=> Option (1) 15.05 is incorrect because $15.05^2 \approx 226.5$, which is much higher than the calculated variance of 195.75.

=> Option (2) 13.99 is correct because $13.99^2 \approx 195.72$, which matches our calculated variance of 195.75.

=> Option (3) 14.25 is incorrect because $14.25^2 \approx 203.06$, which does not match the variance.

=> Option (4) 12.53 is incorrect because $12.53^2 \approx 157.00$, which is much lower than the calculated variance.

Therefore The correct answer is 13.99.

Additional Information

Standard Deviation (σ)

It is a measure of the amount of variation or dispersion of a set of values. A low standard deviation indicates that the values tend to be close to the mean of the set, while a high standard deviation indicates that the values are spread out over a wider range.

Variance (σ^2)

Variance is the expectation of the squared deviation of a random variable from its mean. It is calculated as the average of the squared differences from the Mean.

Population vs Sample Standard Deviation

For population data, the denominator is N. For sample data, Bessel's correction is applied, and the denominator becomes (N − 1) to correct bias in the estimation of the population variance.

Q59. Answer: (b) 1 km to the east

Given:

Shaan starts from Point A and drives 6 km towards North.

He then takes a right turn, drives 7 km, turns right and drives 12 km.

He then takes a right turn and drives 8 km.

He takes a final right turn, drives 6 km and stops at Point P.

Thus, Shaan should drive 1 km in the east direction in order to reach Point A again.

Hence, "Option 2" is the correct answer.

Q60. Answer: (b) T

Given: A, B, C, D, R, S and T are sitting around a circular table facing the centre of the table.

1) Only two people sit between A and R when counted from the right of A.

2) Only two people sit between R and D.

3) Only three people sit between A and B.

4) C sits to the immediate left of T.

After positioning T, C and B only one position is left which will be occupied by the only person left i.e. S.

Thus, T sits third to the left of S.

Hence, "Option 2" is the correct answer.

Q61. Answer: (b) The cursor moves to the next line within the same text box.

The correct answer is The cursor moves to the next line within the same text box.

Key Points

• In MS PowerPoint 2019, pressing the Enter key within a text box moves the cursor to the next line, enabling multi-line text entry within the same box.

• It does not create a new slide or delete text; the text box continues to accommodate additional lines as needed.

• This functionality allows users to structure text into paragraphs, bullet points, or lists within the same text box.

• Text boxes are pre-configured to automatically adjust their size based on the amount of content, but pressing Enter does not trigger resizing; resizing occurs only when text exceeds the box dimensions.

Additional Information

• Text Boxes in PowerPoint:

• Text boxes are containers used to input text in PowerPoint slides.

• They can be resized, repositioned, or formatted to match the desired slide layout.

• Text alignment, font size, and color can be customized within each text box.

• Enter Key Behavior:

• Pressing the Enter key creates a line break and moves the cursor to the next line within the text box.

• Shift+Enter can be used to insert a soft line break without creating a new paragraph.

• Auto-Resizing Feature:

• Text boxes in PowerPoint can automatically adjust their size if the content exceeds the box dimensions.

• This feature ensures that all content is visible without manual resizing.

• Keyboard Shortcuts:

• Ctrl+A selects all text within a text box.

• Ctrl+X cuts selected text, while Ctrl+C copies it.

• Ctrl+V pastes copied or cut text into the text box.

Q62. Answer: (b) 3

The logic followed here is:

Hence, "Option 2" is the correct answer.

Q63. Answer: (c) 8

Given number: 596432

According to the question,

Number given	5	9	6	4	3	2
Odd digit → (-3) Even digit → (+2)	(-3)	(-3)	(+2)	(+2)	(-3)	(+2)
Resultant number	2	6	8	6	0	4

So, the sum of the greatest and smallest digits in the new number thus formed thus formed → 8 + 0 = 8

Hence, "Option 3" is the correct answer.

Q64. Answer: (c) Radon and Polonium

The correct answer is Radon and Polonium.

Key Points

• During Mendeleev's time (late 19th century), the periodic table was incomplete, and many elements were yet to be discovered.

• Radon (Rn) is a noble gas discovered much later in 1900 by Friedrich Ernst Dorn. It was absent from Mendeleev's periodic table.

• Polonium (Po) was discovered in 1898 by Marie and Pierre Curie, a few decades after Mendeleev's initial work on the periodic table.

• Mendeleev left gaps in his periodic table for elements he predicted but had not yet been discovered. Radon and Polonium were not among the elements he predicted.

• In contrast, elements like Hydrogen, Nitrogen, Chlorine, and Fluorine were well-known during Mendeleev's time and incorporated into his periodic table.

Additional Information

• Mendeleev's Periodic Table:

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• Proposed in 1869 by Dmitri Mendeleev, it was based on atomic mass and properties of elements.
• He left gaps for elements that were not discovered yet, predicting their properties with remarkable accuracy.
• Gallium (discovered in 1875) and Germanium (discovered in 1886) were among the elements predicted by Mendeleev.
• Noble Gases:
• Noble gases like Radon were not part of Mendeleev's table because they were discovered later and required the addition of a new group in the periodic table.
• The group of noble gases was added after the discovery of Helium and Argon in the late 19th century.
• Polonium:
• A radioactive element discovered by Marie and Pierre Curie in 1898 while studying pitchblende.
• It was named after Poland, Marie Curie's homeland.
• Radon:
• Radon is a radioactive noble gas, discovered as a decay product of radium.
• It is colorless, odorless, and chemically inert, making its detection challenging initially.
• Modern Periodic Table:
• Organized by atomic number rather than atomic mass, as proposed by Henry Moseley in 1913.
• This resolved inconsistencies in Mendeleev's table, especially for elements like Argon and Potassium.

Q65. Answer: (c) 705

Given: 69 ÷ 11 + 408 × 6 − 14 = ?

According to the question, after '+' and '−' are interchanged and '×' and '÷' are interchanged:

69 ÷ 11 + 408 × 6 − 14 = ? => 69 × 11 - 408 ÷ 6 + 14 = ?

=> 69 × 11 - 408 ÷ 6 + 14 = ?

=> 69 × 11 - 68 + 14 = ?

=> 759 + 14 - 68 = ?

=> 773 - 68 = ?

=> 705 = ?

Hence, "Option 3" is the correct answer.

Q66. Answer: (b) 3.2%

The correct answer is 3.2%.

Key Points

• The unemployment rate in India during January to December 2024 was recorded at 3.2% according to the Periodic Labour Force Survey (PLFS).
• This figure represents a decrease in unemployment rates compared to previous years, indicating an improvement in the labor market.
• The PLFS, conducted by the National Statistical Office (NSO), is the key survey for tracking unemployment and labor force participation in India.
• Rural unemployment stood at a lower level compared to urban areas, reflecting the differences in employment opportunities in these regions.
• The survey highlights a rise in self-employment and informal sector jobs, contributing to the decline in the unemployment rate.

Additional Information

• Periodic Labour Force Survey (PLFS):
• Launched by the NSO in 2017, PLFS is India's official household-based employment survey.
• It provides data on key labor market indicators like unemployment, workforce participation, and labor force participation rates.
• Unemployment Rate:
• Defined as the percentage of people in the labor force who are unemployed and actively seeking employment.
• This is a key indicator of economic health and labor market conditions.
• Urban vs Rural Employment:
• Urban areas typically see higher unemployment rates due to reliance on formal sector jobs.
• Rural areas often have lower rates due to the prevalence of agricultural and informal work.
• Labor Force Participation Rate (LFPR):
• The proportion of the population aged 15 years and above that is either working or actively seeking work.
• India's LFPR has historically been lower than global averages, especially for women.

• Self-Employment in India:

• A significant portion of India's workforce is engaged in self-employment, particularly in agriculture, trade, and small-scale industries.

• Self-employment contributes to reducing unemployment but often involves low-income and unstructured work.

Q67. Answer: (b) 77

Decoding signs:

Sign	A	B	C	D
Stands For	÷	×	•	•

Given: 43 D 15 C 7 B 9 D (28 A 2) = ?

43 D 15 C 7 B 9 D (28 A 2) = ? => 43 - 15 + 7 × 9 - (28 ÷ 2) = ?

=> 43 - 15 + 7 × 9 - (28 ÷ 2) = ?

=> 43 - 15 + 7 × 9 - 14 = ?

=> 43 + 63 - 15 - 14 = ?

=> 106 - 15 - 14 = ?

=> 77 = ?

Hence, "Option 2" is the correct answer.

Q68. Answer: (a) 44 - 45 - 49 - 52

The logic followed here is:

12 - 13 - 17 - 20

12 + 1 = 13

13 + 4 = 17

17 + 3 = 20

And,

22 - 23 - 27 - 30

22 + 1 = 23

23 + 4 = 27

27 + 3 = 30

So, checking each option one by one:

Option 1) 44 - 45 - 49 - 52

44 + 1 = 45

45 + 4 = 49

49 + 3 = 52

Option 2) 4 - 8 - 12 - 16

4 + 1 = 5 ≠ 8

8 + 4 = 12

12 + 3 = 15 ≠ 16

Option 3) 56 - 57 - 60 - 65

56 + 1 = 57

57 + 4 = 61 ≠ 60

60 + 3 = 63 ≠ 65

Option 4) 32 - 33 - 37 - 41

32 + 1 = 33

33 + 4 = 37

37 + 3 = 40 ≠ 41

Thus, out of all '44 - 45 - 49 - 52' follows the same logic as given.

Hence, "Option 1" is the correct answer.

Q69. Answer: (c) 7

Shortcut Trick

Total Work (LCM of 11, 33) = 33 units.

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Efficiency: A = 3, B = 1. Combined efficiency = 4.
Work done in 3 days = 4 × 3 = 12 units.
Remaining work = 33 − 12 = 21 units.
Days taken by A alone = 21 ÷ 3 = 7 days.
Therefore The correct answer is 7 days.
Alternate Method
Given: Time taken by A = 11 days, Time taken by B = 33 days. Together they work for 3 days.
Formula Used: Total Work = Time × Efficiency; Efficiency = Work / Time.

Person	Days	Total Work	Efficiency
A	11	33	3
B	33	1	

=> Combined Efficiency (A + B) = 3 + 1 = 4 units/day.
=> Work completed by both in 3 days = 4 × 3 = 12 units.
=> Remaining Work = Total Work − Completed Work = 33 − 12 = 21 units.
=> Time taken by A to finish 21 units = 21 ÷ 3 = 7 days.
Therefore The correct answer is 7 days.
Additional Information
Pipes & Cisterns
Similar to time and work, but use negative efficiency for outlet pipes that drain the tank.
Work & Wages
Wages are always distributed in the ratio of the actual work done or the ratio of efficiencies if they work for the same duration.
Chain Rule
Use the M1D1H1/W1 = M2D2H2/W2 formula for problems involving different groups of workers.

Q70. Answer: (a) 21,021

Shortcut Trick
Average of ratio parts = (3 + 5 + 7) ÷ 3 = 5 units.
Given average price = Rs. 15,015 => 5 units = Rs. 15,015.
Value of 1 unit = 15,015 ÷ 5 = Rs. 3,003.
Price of the costliest item (7 units) = 7 × 3,003 = Rs. 21,021.
Therefore The correct answer is Rs. 21,021.
Alternate Method
Given: Average of three items = Rs. 15,015 and their price ratio = 3 : 5 : 7.
Formula Used: Total Sum = Average × Number of items.
=> Total price of items = 15,015 × 3 = Rs. 45,045
=> Sum of ratio parts = 3 + 5 + 7 = 15 units
=> 15 units = Rs. 45,045
=> 1 unit = 45,045 ÷ 15 = Rs. 3,003
=> Price of costliest item (7 units) = 7 × 3,003
=> Price = Rs. 21,021
Therefore The correct answer is Rs. 21,021.
Additional Information
Relationship between Average and Total
The sum of observations is always equal to the Average × Number of observations.
Ratio to Value Conversion
To find the value of a specific part in a ratio a : b : c, use the formula: Value = (Total Sum ÷ (a + b + c)) × required ratio part.
Average of a Ratio
If items are in ratio a : b : c, their average unit is (a + b + c) ÷ 3. This can be directly equated to the numerical average to find the value of one unit.

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Q71. Answer: (a) 47

Shortcut Trick

CP of 1 bag = 48,884 ÷ 44 = Rs. 1,111

SP of 1 bag = 35,252 ÷ 28 = Rs. 1,259

Profit on 1 bag = SP − CP = 1,259 − 1,111 = Rs. 148

Number of bags required = Total Profit ÷ Profit per bag

Number of bags = 6,956 ÷ 148 = 47

Therefore The correct answer is 47.

Alternate Method

Given: Total bags bought = 44, Total Cost = Rs. 48,884 | Bags sold = 28, Total SP = Rs. 35,252 | Target Profit = Rs. 6,956

Formulas: CP of 1 unit = Total Cost ÷ Quantity | SP of 1 unit = Total SP ÷ Quantity | Profit per unit = SP − CP | Total units = Target Profit ÷ Profit per unit

=> Cost Price (CP) of 1 laptop bag = 48,884 ÷ 44 = Rs. 1,111

=> Selling Price (SP) of 1 laptop bag = 35,252 ÷ 28 = Rs. 1,259

=> Profit per bag = SP − CP = 1,259 − 1,111 = Rs. 148

=> Let n be the number of bags. Profit × n = 6,956

=> 148 × n = 6,956

=> n = 6,956 ÷ 148 = 47

Therefore The correct answer is 47.

Additional Information

Unitary Method in Profit and Loss

Calculating the price of a single unit (CP or SP) simplifies the comparison when different quantities are bought and sold. Formula: Unit Price = Total Price ÷ Total Quantity.

Profit Calculation

When Total Profit and Profit per unit are known, the total quantity is found by: Quantity = Total Profit ÷ (SP per unit − CP per unit).

Q72. Answer: (b) 9

Shortcut Trick

For a number to be divisible by 9, the sum of its digits must be divisible by 9.

Sum of digits of 51883p47 = 5 + 1 + 8 + 8 + 3 + p + 4 + 7 = 36 + p.

For (36 + p) to be divisible by 9, p can be 0 or 9 (since p is a single digit).

The maximum value of p is 9.

Therefore The correct answer is 9.

Alternate Method

Given: Eight-digit number = 51883p47, Divisor = 9.

Formula Used: Divisibility rule of 9 => Sum of digits ÷ 9 should leave remainder 0.

=> Sum of digits = 5 + 1 + 8 + 8 + 3 + p + 4 + 7

=> Sum = 36 + p

=> Since 36 is already divisible by 9 (36 = 9 × 4), the value of p must also make the total sum a multiple of 9.

=> Multiples of 9 near 36 are 36, 45, 54...

=> If 36 + p = 36, then p = 0.

=> If 36 + p = 45, then p = 9.

=> Since p is a single digit (0 ≤ p ≤ 9), the maximum value is 9.

Therefore The correct answer is 9.

Additional Information

Divisibility by 3

A number is divisible by 3 if the sum of its digits is a multiple of 3.

Divisibility by 11

The difference between the sum of digits at odd positions and even positions must be 0 or a multiple of 11.

Single Digit Constraint

In place-value problems, any variable representing a digit must be an integer from 0 to 9 inclusive.

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Q73. Answer: (c) Nothing Like Voting, I Vote for Sure

The correct answer is Nothing Like Voting, I Vote for Sure.

Key Points

• The theme for National Voters' Day 2025 was "Nothing Like Voting, I Vote for Sure." It aimed to create awareness about the importance of voting among citizens.

• The Election Commission of India (ECI) has been celebrating National Voters' Day every year on January 25 since 2011 to mark its foundation day.

• The theme emphasized promoting informed and ethical participation in the electoral process, particularly encouraging young and first-time voters to actively engage in democracy.

• The initiative is part of the ECI's efforts to ensure inclusivity and accessibility in the voting process, encouraging participation across all sections of society.

• National Voters' Day 2025 continued the tradition of honoring voters, particularly focusing on the importance of strengthening democratic values in India.

Additional Information

• Election Commission of India (ECI):

• The ECI is an autonomous constitutional authority responsible for administering election processes in India at the national, state, and local levels.

• It was established on 25 January 1950, making National Voters' Day coincide with its foundation day.

• The ECI ensures free, fair, and transparent elections in the world's largest democracy.

• National Voters' Day:

• The day is observed to spread awareness among voters and encourage their participation in elections.

• It aims to highlight the importance of voting as a fundamental duty of citizens in a democratic setup.

• Young and First-Time Voters:

• Special focus is given to enrolling new voters and ensuring their participation in the electoral process.

• National Voters' Day often includes initiatives to make registration easier and more accessible for first-time voters.

• Inclusivity in Elections:

• The ECI has been working towards making the voting process inclusive, especially for marginalized communities, persons with disabilities, and senior citizens.

• Technological advancements and voter education programs are integral to achieving this goal.

• Democratic Values:

• Promoting the essence of democracy through active voter participation is a cornerstone of National Voters' Day celebrations.

• It reflects the commitment to strengthening the democratic framework of the country.

Q74. Answer: (b) 9

Shortcut Trick

The Intercept Theorem states that parallel lines cut any two transversals in the same ratio.

Ratio of segments on transversal S = Ratio of segments on transversal T

AB ÷ CD = EF ÷ GH

5 ÷ 3 = 15 ÷ GH

GH = (3 × 15) ÷ 5 = 9 cm

Therefore The correct answer is 9 cm.

Alternate Method

Given:

Length of segment AB = 5 cm

Length of segment CD = 3 cm

Length of segment EF = 15 cm

Formula Used:

According to the Intercept Theorem (or Thales Theorem for parallel lines), if three or more parallel lines intersect two transversals, then they cut off the transversals proportionally.

AB ÷ EF = BC ÷ FG = CD ÷ GH

Calculations:

=> AB ÷ EF = CD ÷ GH

=> 5 ÷ 15 = 3 ÷ GH

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=> 1 ÷ 3 = 3 ÷ GH

=> GH = 3 × 3

=> GH = 9 cm

Therefore The correct answer is 9 cm.

Additional Information

Intercept Theorem

If three or more parallel lines are intersected by two transversals, the segments cut off on one transversal are proportional to the corresponding segments on the other.

Basic Proportionality Theorem (BPT)

Also known as Thales Theorem, it states that a line parallel to one side of a triangle divides the other two sides in the same ratio.

Parallel Lines and Transversals

The distance between parallel lines remains constant, but the length of the transversal segment increases as the angle of the transversal with the parallel lines decreases.

Q75. Answer: (b) 1160

Shortcut Trick

1200% of 25 → 12 × 25 = 300

25% of k = 300 − 10 = 290

1/4 × k = 290 => k = 290 × 4 = 1160

Therefore The correct answer is 1160.

Alternate Method

Given:

25% of k = (1200% of 25) − 10

Calculations:

=> 1200% of 25 = (1200/100) × 25

=> 1200% of 25 = 12 × 25 = 300

=> 25% of k = 300 − 10

=> (25/100) × k = 290

=> (1/4) × k = 290

=> k = 290 × 4

=> k = 1160

Therefore The correct answer is 1160.

Additional Information

Interchangeability of Percentages

x% of y is always equal to y% of x. For example, 1200% of 25 = 25% of 1200 = 300.

Percentage to Fraction Conversion

To convert a percentage to a fraction, divide by 100. Common conversions: 25% = 1/4, 50% = 1/2, 75% = 3/4.

Base Change Rule

If the value is given as a percentage of a variable, multiplying the value by the reciprocal of the fraction gives the variable.

Q76. Answer: (d) Clicking the 'Increase List Level' button in the Paragraph group

The correct answer is Clicking the 'Increase List Level' button in the Paragraph group.

Key Points

• In MS PowerPoint, to create a sub-bullet point (lower-level bullet), the 'Increase List Level' button is used, located in the Paragraph group of the Home tab.

• This action indents the selected bullet point, making it a sub-bullet under the previous higher-level bullet.

• The 'Increase List Level' button serves as a reliable and user-friendly method for managing hierarchical bullet points.

• Alternatively, you can also use the Tab key on your keyboard to achieve the same effect while working with bullet lists.

• The functionality of the 'Increase List Level' button helps in structuring content logically and improving presentation clarity.

Additional Information

• Paragraph Group:

• Located on the Home tab in MS PowerPoint, the Paragraph group includes tools for managing text alignment, bullets, numbering, and indentation.

• The 'Increase List Level' and 'Decrease List Level' buttons are part of this group.
• Keyboard Shortcuts:
• For creating sub-bullets, you can use the Tab key.
• To move a sub-bullet back to a higher level, press Shift + Tab.
• Bullet Points:
• Bullet points are used to organize content into a list format for better readability and understanding.
• They can be hierarchical, with main bullets and sub-bullets indicating different levels of importance.
• Sub-Bullets:
• Sub-bullets are used to provide additional details or examples related to a main point.
• The indentation visually distinguishes sub-bullets from main bullets.
• Indentation in Presentations:
• Indentation plays a crucial role in structuring content in presentations, ensuring a logical flow of information.
• Proper use of indentation and bullet hierarchy can make presentations more engaging and easier to follow.

Q77. Answer: (c) Four years

The correct answer is Four years.

Key Points

• The tenure of the Central Board of Directors of the Reserve Bank of India (RBI) is four years.
• The Central Board of Directors is the highest decision-making body of the RBI, responsible for the bank's overall supervision and direction.
• It is constituted as per the provisions of the Reserve Bank of India Act, 1934.
• The Central Board of Directors consists of the Governor, Deputy Governors, and other members appointed by the Government of India.
• The tenure of these members ensures continuity in decision-making and stability in the functioning of the RBI.

Additional Information

• Reserve Bank of India (RBI): The RBI is India's central banking institution, established on 1 April 1935, under the Reserve Bank of India Act, 1934.
• Composition of the Central Board: It includes the Governor, four Deputy Governors, and 10 non-official directors nominated by the government, along with other members as per the Act.
• Functions of the Board: The Central Board formulates policies for the regulation of the issuance of currency, management of foreign exchange, and ensuring monetary stability in the country.
• Legal Framework: The RBI operates under the Reserve Bank of India Act, 1934, and the Banking Regulation Act, 1949.
• Importance of Tenure: A four-year tenure provides the board members sufficient time to implement policies effectively, ensuring long-term economic and financial stability.

Q78. Answer: (d) 14

Given number: 3651724

According to the question,

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

So, the sum of the second digit from the left and the first digit from the right in the new number thus formed → 8 + 6 = 14

Hence, "Option 4" is the correct answer.

Q79. Answer: (b) The President controls the fund to advance money for unforeseen expenses.

The correct answer is The President controls the fund to advance money for unforeseen expenses.

Key Points

• The Contingency Fund of India is established under Article 267 of the Indian Constitution.
• The President of India has the authority to control the Contingency Fund and advance money for unforeseen or urgent expenditure.

• The fund is operated by the Secretary to the Government of India in the Ministry of Finance, under the President's authority.

• This fund is utilized for expenditures that cannot wait for parliamentary approval due to the urgent nature of the situation.

• Once the expenditure is incurred, it is subsequently regularized by obtaining parliamentary approval through the presentation of a Supplementary Budget.

Additional Information

• Contingency Fund: It is a fund set aside to meet emergencies or unforeseen expenses that require immediate action.

• Amount Allocated: The Contingency Fund of India currently has a corpus of Rs. 500 crore, which can be increased if necessary.

• Regularization Process: Expenditure from the fund must be approved by Parliament retrospectively to ensure accountability.

• State-Level Contingency Funds: Similar funds exist at the state level, where the Governor exercises control over the fund.

• Ministry of Finance's Role: The fund is managed by the Ministry of Finance, ensuring efficient and transparent utilization of resources.

Q80. Answer: (c) 180nm CMOS technology

The correct answer is 180nm CMOS technology.

Key Points

• The Vikram 3201 microprocessor, launched in 2025, was fabricated using 180nm CMOS technology, which is widely regarded as a robust and cost-effective process for microprocessor manufacturing.

• 180nm CMOS technology provides a balanced trade-off between performance, power efficiency, and manufacturing costs, making it ideal for embedded systems and mid-range applications.

• This technology has been extensively used in the development of processors, microcontrollers, and SoCs (System on Chips) for consumer electronics and industrial applications.

• The Vikram 3201 is expected to play a critical role in advancing India's semiconductor capabilities and reducing dependency on imports.

• The development of processors like Vikram 3201 aligns with India’s vision for self-reliance under the "Make in India" initiative, emphasizing indigenous semiconductor manufacturing.

Additional Information

• CMOS Technology: Complementary Metal-Oxide-Semiconductor (CMOS) technology is a widely used semiconductor fabrication process known for its low power consumption and high density of integration.

• Semiconductor Nodes: Semiconductor nodes like 180nm, 90nm, and 7nm define the size of transistors in the chip. Smaller nodes generally offer better performance and efficiency but require advanced manufacturing processes.

• Fabrication Process: The fabrication process involves designing, layering, and etching silicon wafers to create integrated circuits. 180nm technology represents a mature and reliable node for cost-sensitive applications.

• Indian Semiconductor Mission: India’s semiconductor mission aims to build a vibrant semiconductor ecosystem and promote R&D, design, and manufacturing within the country.

• Embedded Systems: Processors like Vikram 3201 are widely used in embedded systems for applications such as IoT devices, automotive control systems, and industrial automation.

Q81. Answer: (c) Inducing subsidence over land

The correct answer is Inducing subsidence over land.

Key Points

• The subtropical jet stream shifts southward during the monsoon withdrawal phase, causing a high-pressure system to develop over land.

• This high-pressure system leads to subsidence (downward movement of air), which suppresses convection and reduces rainfall.

• Subsidence over land promotes the replacement of moist monsoonal winds with dry winds, marking the retreat of the monsoon.

• The subtropical jet stream plays a pivotal role by inducing large-scale atmospheric stability, halting further moisture advection from the oceans.

• As a result, the Intertropical Convergence Zone (ITCZ) shifts southward, coinciding with the monsoon withdrawal process.

Additional Information

• Subtropical Jet Stream:

• A high-altitude, fast-moving air current located around 30° latitude in both hemispheres.

• It plays a critical role in influencing weather patterns, including the onset and withdrawal of monsoons.

• Intertropical Convergence Zone (ITCZ):

• A low-pressure zone near the equator where trade winds converge, leading to upward motion and cloud formation.

• The ITCZ shifts seasonally, influencing monsoon dynamics.

• Subsidence:

• The downward movement of air in the atmosphere, which suppresses cloud formation and precipitation.
• Often associated with the presence of high-pressure systems.
• Monsoon Withdrawal:
• The retreat of monsoonal winds marked by decreasing rainfall and the establishment of dry continental air over the region.
• Typically begins in northwest India and progresses southeastward.
• Cold Air Advection:
• The horizontal movement of cooler air into a region, often associated with the strengthening of high-pressure systems.
• While cold air advection plays a role in weather changes, it is not directly responsible for monsoon withdrawal.

Q82. Answer: (b) Discriminant = −8, roots are imaginary

Shortcut Trick
For the equation $3x^2 - 4x + 2 = 0$, coefficients are a = 3, b = −4, c = 2.
Directly calculate Discriminant (D) = $b^2 - 4ac$.
$D = (-4)^2 - 4 \times 3 \times 2 = 16 - 24 = -8$.
Since D < 0, the roots are always imaginary.
Therefore The correct answer is Discriminant = −8, roots are imaginary.
Alternate Method
Given:
The quadratic equation is $3x^2 - 4x + 2 = 0$.
Formula Used:
The discriminant of a quadratic equation $ax^2 + bx + c = 0$ is given by:
$D = b^2 - 4ac$
The nature of roots depends on D:
1. If D > 0, roots are real and distinct.
2. If D = 0, roots are real and equal.
3. If D < 0, roots are imaginary.
Calculations:
=> Comparing the given equation with $ax^2 + bx + c = 0$:
=> a = 3, b = −4, c = 2
=> $D = (-4)^2 - 4 \times 3 \times 2$
=> D = 16 − 24
=> D = −8
=> Since the value of the discriminant is −8 (which is less than 0), the nature of roots is imaginary.
Therefore The correct answer is Discriminant = −8, roots are imaginary.
Additional Information
Discriminant and Perfect Squares
If a, b, and c are rational and D is a perfect square, the roots are rational and distinct; otherwise, they are irrational.
Sum and Product of Roots
For $ax^2 + bx + c = 0$, the sum of roots is −b/a and the product of roots is c/a.
Quadratic Formula
The roots are calculated as $x = (-b \pm \sqrt{D}) \div 2a$. If D < 0, roots involve the unit $i = \sqrt{-1}$.

Q83. Answer: (d) 83° and 83°

Shortcut Trick
In an isosceles triangle, the two base angles are always equal.
Base Angle = (180° − Vertex Angle) ÷ 2
Base Angle = (180° − 14°) ÷ 2
Base Angle = 166° ÷ 2 = 83°
Therefore The correct answer is 83° and 83°.
Alternate Method
Given:
Vertex angle of the isosceles triangle = 14°

Formula Used:

Sum of all interior angles of a triangle = 180°

Calculations:

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

=> Since it is an isosceles triangle, the two base angles are equal.

=> 14° + x + x = 180°

=> 14° + 2x = 180°

=> 2x = 180° − 14°

=> 2x = 166°

=> x = 166° ÷ 2

=> x = 83°

Therefore The correct answer is 83° and 83°.

Additional Information

Isosceles Triangle Theorem

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

Q84. Answer: (a) 18000

Given:

2% of x = 360

Calculations:

2% of x = 360

(2 / 100) × x = 360

x = (360 × 100) / 2

x = 36000 / 2

x = 18000

Therefore, x is equal to 18000.

Q85. Answer: (b) P

Given: Seven people, I, J, K, L, O, P and Q are sitting in a row, facing north.

1) No one sits to the left of J.

2) Only four people sit between J and K.

3) Only three people sit to the right of O.

4) I sits to the immediate left of L.

5) P is not an immediate neighbour of O.

After positioning P only one position is left which will be occupied by the only person left i.e. Q.

Thus, P sits at the rightmost end of the line.

Hence, "Option 2" is the correct answer.

Q86. Answer: (b) UOAW

The logic followed here is:

KUQC is related to MYSG

And,

OCUK is related to QGWO

Similarly,

SKYS is related to

Hence, "Option 2" is the correct answer.

Q87. Answer: (a) Belem, Brazil

The correct answer is Belem, Brazil.

Key Points

• Belem, Brazil, has been chosen to host the COP30 climate summit in 2025.

• The announcement was made by Brazil's President Luis Inácio Lula da Silva in 2023.

• Belem is located in the Amazon region, highlighting the significance of addressing climate change in one of the world's most

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critical ecosystems.

• The decision aligns with global efforts to focus on preservation of the Amazon rainforest, which plays a pivotal role in combating climate change.

• COP (Conference of the Parties) is an annual United Nations climate change conference where nations negotiate strategies to address global warming.

Additional Information

• Amazon Rainforest: Known as the "lungs of the Earth," it produces 20% of the world's oxygen and is a critical carbon sink, absorbing large amounts of CO2.

• COP Conferences: These events are part of the United Nations Framework Convention on Climate Change (UNFCCC), established in 1992 to combat climate change globally.

• Brazil's Environmental Role: Brazil is home to approximately 60% of the Amazon rainforest, making it a key player in global climate discussions.

• Previous COP Locations: Recent COP summits include COP26 in Glasgow, UK (2021), and COP27 in Sharm El-Sheikh, Egypt (2022). COP28 is scheduled for Dubai, UAE, in 2023.

• Deforestation Concerns: The Amazon faces significant threats from deforestation and illegal mining, which contribute to biodiversity loss and increased greenhouse gas emissions.

Q88. Answer: (d) 21

Shortcut Trick

Relative Speed (Train − Man) = 120 ÷ 18 × 18/5 = 24 km/hr

Speed of Train (V1) = 24 + 9 = 33 km/hr

Relative Speed (Opposite Direction) = 33 + 27 = 60 km/hr

Total Distance = 120 + 230 = 350 m

Time Required = 350 ÷ (60 × 5/18) = 350 × 3 ÷ 50 = 21 seconds

Therefore The correct answer is 21 seconds.

Alternate Method

Given: Length of Train 1 = 120 m, Speed of Man = 9 km/hr, Time to cross man = 18 s, Length of Train 2 = 230 m, Speed of Train 2 = 27 km/hr.

Formula: Speed = Distance ÷ Time; Relative Speed (Same) = V1 − V2; Relative Speed (Opposite) = V1 + V2

=> Let Speed of Train 1 be V1 km/hr.

=> (V1 − 9) × 5/18 = 120/18

=> (V1 − 9) × 5 = 120

=> V1 − 9 = 24

=> V1 = 33 km/hr

=> Total Distance for crossing Train 2 = 120 + 230 = 350 m

=> Relative Speed in opposite direction = 33 + 27 = 60 km/hr

=> Relative Speed in m/s = 60 × 5/18 = 50/3 m/s

=> Time = 350 ÷ (50/3) = (350 × 3) ÷ 50 = 7 × 3 = 21 seconds

Therefore The correct answer is 21 seconds.

Additional Information

Unit Conversion

To convert km/hr to m/s, multiply by 5/18. To convert m/s to km/hr, multiply by 18/5.

Relative Speed Rules

When two objects move in the same direction, relative speed is the difference (u − v). When they move in opposite directions, it is the sum (u + v).

Crossing Objects

When a train crosses a man or pole, distance = Length of train. When it crosses another train or platform, distance = Sum of both lengths.

Q89. Answer: (c) Only 1, 2 and 4

The correct answer is Only 1, 2 and 4.

Key Points

• The 'Dare Square' Motorcycle Expedition was launched by the Eastern Naval Command as part of the celebrations for INS Ranvijay’s 37th anniversary.

• The primary objectives of the rally included promoting mental health awareness, road safety, and maritime heritage among the youth through outreach activities.
• The expedition was conducted in collaboration with the Indian Air Force, enhancing inter-service cooperation and synergy.
• The rally culminated at the Dogra Regimental Centre in Ayodhya, reflecting the naval affiliation with the Dogra Regiment and paying tribute to this association.
• Statement 3 is incorrect since the expedition did not specifically cover the northeastern states of India.
Additional Information
• Eastern Naval Command (ENC):
• Headquartered in Visakhapatnam, the ENC is one of the three operational commands of the Indian Navy.
• It plays a critical role in safeguarding India's eastern seaboard and maritime interests in the Bay of Bengal.
• INS Ranvijay:
• INS Ranvijay is a Rajput-class destroyer commissioned into the Indian Navy in 1987.
• It is equipped with advanced weaponry and systems, making it a key asset in naval operations.
• Dogra Regiment:
• The Dogra Regiment is one of the oldest infantry regiments of the Indian Army, known for its valor and distinguished service.
• The affiliation of naval units with army regiments fosters inter-service camaraderie and mutual respect.
• Mental Health Awareness in India:
• Mental health is a significant concern in India, with initiatives like campaigns and outreach programs aimed at reducing stigma and promoting awareness.
• Organizations such as the National Mental Health Programme (NMHP) work to improve mental health services in the country.
• Road Safety Initiatives:
• India has launched programs like the National Road Safety Policy to reduce road accidents and enhance safety awareness.
• Public campaigns and enforcement of traffic laws are critical in addressing the high rate of road-related fatalities.

Q90. Answer: (a) LH-NJ-PR

The logic followed here is:
JF-LH-NP
And,
HD-JF-LN
Similarly,
Option 1) LH-NJ-PR
Hence, "Option 1" is the correct answer.

Q91. Answer: (a) 64,000

Shortcut Trick
In Simple Interest, the interest percentage is cumulative over the years.
Total interest percentage for 4 years = 8% × 4 = 32%
Total Simple Interest = 32% of Rs. 2,00,000
=> (32 ÷ 100) × 2,00,000 = 32 × 2,000 = Rs. 64,000
Therefore The correct answer is Rs. 64,000.
Alternate Method
Given:
Principal (P) = Rs. 2,00,000
Rate of Interest (R) = 8% p.a.
Time period (T) = 4 years
Formula Used:
Simple Interest (SI) = (P × R × T) ÷ 100
Calculations:
=> SI = (2,00,000 × 8 × 4) ÷ 100
=> SI = 2,000 × 8 × 4
=> SI = 2,000 × 32
=> SI = Rs. 64,000
Therefore The correct answer is Rs. 64,000.

Additional Information

Amount Formula

The total sum payable after interest is called the Amount (A), calculated as A = P + SI, which can be rewritten as A = P(1 + RT/100).

SI vs CI for First Year

If the interest is compounded annually, the Simple Interest and Compound Interest for the first year on the same principal and rate are always equal.

Rate and Time Calculation

If SI, Principal, and Time are known, the annual Rate (R) is found by R = (SI × 100) ÷ (P × T).

Q92. Answer: (d) Take oath or affirmation

The correct answer is Take oath or affirmation.

Key Points

• Under Article 188 of the Indian Constitution, every member of the State Legislature is required to take an oath or make an affirmation before taking their seat in the State Assembly or Council.

• The oath or affirmation is administered by the Governor of the state or a person appointed by the Governor.

• The purpose of the oath is to ensure that legislators uphold the integrity of the Constitution and discharge their duties faithfully.

• A member cannot participate in the proceedings of the legislature or vote until they have taken the prescribed oath or affirmation.

• The format of the oath or affirmation is provided in the Third Schedule of the Indian Constitution.

Additional Information

• Article 188: This article falls under Part VI of the Constitution, which deals with the states and specifies the rules for oaths or affirmations of State Legislators.

• Third Schedule: It contains the prescribed forms of oaths or affirmations for various constitutional posts, including State Legislators.

• Governor's Role: The Governor, as the constitutional head of the state, is responsible for administering the oath or appointing someone to do so.

• Consequences of Not Taking Oath: A legislator who does not take the oath cannot participate in legislative proceedings, vote, or receive any privileges associated with their role.

• Similar Provision for Parliament: Article 99 of the Constitution provides a similar requirement for members of the Parliament to take an oath or affirmation before assuming their duties.

Q93. Answer: (b) Rs. 847

Shortcut Trick

Rate 10% = 1/10. Since Piyush gets the same amount in 11 years as Manoj gets in 12 years, Piyush's share must be more.

Ratio of shares (Piyush : Manoj) = (10 + 1)^((12−11)) : 10^((12−11)) = 11 : 10.

Total units = 11 + 10 = 21 units => Rs. 1,617.

1 unit = 1617 ÷ 21 = Rs. 77.

Piyush's share = 11 × 77 = Rs. 847.

Therefore The correct answer is Rs. 847.

Alternate Method

Given:

Total Sum = Rs. 1,617

Rate (r) = 10% p.a.

Time for Piyush (t1) = 11 years | Time for Manoj (t2) = 12 years

Formula Used:

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

Calculations:

=> Let Piyush's share be P and Manoj's share be M.

=> $P(1 + 10/100)^{11} = M(1 + 10/100)^{12}$

=> $P \times (1.1)^{11} = M \times (1.1)^{12}$

=> $P / M = (1.1)^{12} / (1.1)^{11}$

=> P / M = 1.1 = 11 / 10

=> P : M = 11 : 10

=> Piyush's share = [11 / (11 + 10)] × 1617

=> Piyush's share = (11 / 21) × 1617

=> Piyush's share = 11 × 77 = 847

Therefore The correct answer is Rs. 847.

Additional Information

Compound Interest Amount Formula

The total amount after compounding is $A = P(1 + r/100)^n$, where P is the principal, r is the rate, and n is the time.

Ratio Method for Different Time Periods

If amounts are equal after t1 and t2 years, the ratio of shares is P1 : P2 = (1 + r/100)^(t2−t1) : 1.

Effective Interest Rate

For a two-year period, the effective rate is x + y + (xy/100), where x and y are interest rates for each year.

Q94. Answer: (b) 5

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

1) Only two boxes are kept below D.

2) Only one box is kept above A.

3) Only one box is kept between A and E.

Sr.no	Boxes
Top	
1	
2	A
3	
4	E
5	D
6	
7	
Bottom	

4) G is kept immediately above B.

5) C is kept in some place below F.

Sr.no	Boxes
Top	
1	F
2	A
3	C
4	E
5	D
6	G
7	B
Bottom	

Thus, five boxes are kept above G.

Hence, "Option 2" is the correct answer.

Q95. Answer: (d) 2

Given series: (Left) & 5 @ 9 7 £ $ 5 $ 9 8 8 8 * $ $ # * 1 7 1 4 (Right)

According to the question,

Required condition: Number - Symbol - Symbol

(Left) & 5 @ 9 7 £ $ 5 $ 9 8 8 8 * $ $ # * 1 7 1 4 (Right)

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

Hence, "Option 4" is the correct answer.

Q96. Answer: (d) $(10a + 15b)^2$

Shortcut Trick

Identify the first and last terms as perfect squares: $100a^2 = (10a)^2$ and $225b^2 = (15b)^2$.

Check if the middle term 300ab equals 2 × (first root) × (second root): $2 \times 10a \times 15b = 300ab$.

Since it matches, use the identity $(x + y)^2 = x^2 + 2xy + y^2$.

The factorised form is simply $(10a + 15b)^2$.

Therefore The correct answer is $(10a + 15b)^2$.

Alternate Method

Given Expression: $100a^2 + 300ab + 225b^2$

Formula Used: Algebraic identity $(x + y)^2 = x^2 + 2xy + y^2$

=> $100a^2 = (10a)^2$

=> $225b^2 = (15b)^2$

=> $300ab = 2 \times (10a) \times (15b)$

=> $100a^2 + 300ab + 225b^2 = (10a)^2 + 2 \times (10a) \times (15b) + (15b)^2$

=> $(10a + 15b)^2$

Therefore The correct answer is $(10a + 15b)^2$.

Additional Information

Perfect Square Trinomial (Subtraction)

The identity for the square of a difference is $(x - y)^2 = x^2 - 2xy + y^2$.

Difference of Two Squares

The identity $x^2 - y^2 = (x - y)(x + y)$ is used when factorising the difference between two perfect squares.

General Quadratic Factorisation

For expressions like $ax^2 + bx + c$, we look for two numbers that multiply to ac and add up to b (splitting the middle term).

Q97. Answer: (b) 8.712

Shortcut Trick

Volume of hollow shell = $4/3 \times \pi \times (R^3 - r^3)$

$V = 4/3 \times 22/7 \times (6^3 - 3^3) = 4/3 \times 22/7 \times (216 - 27) = 4/3 \times 22/7 \times 189$

$V = 4 \times 22 \times 9 = 792\ cm^3$

Mass = Volume × Density = 792 × 11 = 8712 g = 8.712 kg

Therefore The correct answer is 8.712 kg.

Alternate Method

Given: Internal radius (r) = 3 cm, External radius (R) = 6 cm, Density = 11 g/cm³

Formula Used: Volume (V) = $4/3\ \pi(R^3 - r^3)$; Mass = Density × Volume

=> Volume of metal = $4/3 \times 22/7 \times (6^3 - 3^3)$

=> Volume = $4/3 \times 22/7 \times (216 - 27)$

=> Volume = $4/3 \times 22/7 \times 189$

=> Volume = $4 \times 22 \times 9 = 792\ cm^3$

=> Weight in grams = 792 × 11 = 8712 g

=> Weight in kg = 8712 ÷ 1000 = 8.712 kg

Therefore The correct answer is 8.712 kg.

Additional Information

Volume of Sphere

The volume of a solid sphere is given by $V = 4/3\ \pi r^3$, where r is the radius.

Surface Area of Sphere

The total surface area of a sphere is $4\pi r^2$. For a hollow shell, the total surface area is $4\pi R^2 + 4\pi r^2$.

Density Conversion

To convert weight from grams to kilograms, divide the value by 1000 (1 kg = 1000 g).

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Q98. Answer: (c) @ $ @ % *

Given Table:

Letter	U	M	S	J	P	T	F
Code	7	4	@	$	%	•	6

According to the given condition:

Rule no.	Condition	Result
I	1st letter is a vowel and the 3rd letter is a consonant	Both are to be coded as the code for that 3rd letter consonant
II	1st and last letters are vowels	Both are to be coded as 'N'
III	2nd and last letters are vowels	Codes are to be interchanged

Given: AJSPT

Here, I rule applies i.e. 1st letter is a vowel and the 3rd letter is a consonant.

A → coded as @

J → coded as $

S → coded as @

P → coded as %

T → coded as *

So, AJSPT → Coded as @ $ @ % *

Hence, "Option 3" is the correct answer.

Q99. Answer: (d) MS Excel Worksheet Object

The correct answer is MS Excel Worksheet Object.

Key Points

• The 'MS Excel Worksheet Object' option allows content copied from a spreadsheet to be pasted into MS Word while retaining the original formula calculations.

• When pasted as an MS Excel Worksheet Object, the data remains editable within MS Word, and users can view or modify the formulas through Excel functionalities.

• This option ensures accurate representation of calculated values derived from formulas, making it ideal for financial, statistical, or computational data.

• Unlike other options such as 'Unformatted Text' or 'HTML Format,' this method maintains the dynamic link between Word and Excel, allowing updates to the content.

• It is particularly useful for integrating spreadsheet data into Word documents without losing the integrity of calculations.

Additional Information

• Paste Special Functionality:

• Paste Special allows users to control how content is inserted into a document, offering options like formatting, linking, or embedding.

• It is accessible through the 'Home' tab or by right-clicking in MS Word or Excel.

• Embedding vs Linking:

• Embedding creates a static copy of the Excel content within Word, while linking dynamically updates the Word document when changes are made in Excel.

• The 'MS Excel Worksheet Object' option supports both embedding and linking, depending on user preferences.

• Alternative Paste Options:

• 'Picture (Enhanced Metafile)' converts the data into a non-editable image format.

• 'HTML Format' preserves basic web-style formatting but does not retain formulas.

• 'Unformatted Text' strips all formatting and formulas, leaving plain text.

• Use Cases:

• Ideal for reports, presentations, or documentation that requires the integration of calculated data from spreadsheets.

• Frequently used in professional fields like finance, data analysis, and academic research.

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Q100. Answer: (a) 64

Shortcut Trick

Arrange the data in ascending order: 11, 13, 21, 34, 58, 64, 65, 70, 73, 78, 88.

Count the total number of observations, n = 11 (which is odd).

The Median is the middle term: ((n + 1) / 2) = 6^(th) term.

The 6^(th) term in the sorted list is 64.

Therefore The correct answer is 64.

Alternate Method

Given: Data set = {34, 78, 58, 65, 64, 73, 21, 88, 13, 11, 70}

Formula Used: Median = ((n + 1) / 2)^(th) term (when n is odd)

11

13

21

34

58

64

Median

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