RRB NTPC Graduate Level CBT-I Official Paper (Held On: 06 Jun, 2025 Shift 1) (Previous Year Paper)

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

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Q1. In a certain code language, ‘MUTE’ is coded as ‘3517’ and ‘EARS’ is coded as ‘2458’. What is the code for ‘E’ in the given code language?

(a) 7
(b) 5
(c) 8
(d) 2

Q2. In a certain code language, ‘joy lab poet’ is coded as ‘to dl dh’ and ‘poet win union’ is coded as ‘dl fo kb’. How is ‘poet’ coded in the given language?

(a) dl
(b) fo
(c) to
(d) dh

Q3. Shyam starts from point A and drives 11 km towards the east. He then takes a right turn, drives 5 km, turns right and drives 12 km. He then takes a right turn and drives 10 km. He takes a final right turn, drives 1 km and stops at point P. How far (shortest distance) and towards which direction should he drive in order to reach point A again? (All turns are 90 degree turns only unless specified.)

(a) 5 km to the south
(b) 4 km to the north
(c) 4 km to the south
(d) 5 km to the north

Q4. What milestone did Virat Kohli achieve in the 2025 IPL season (as of 15 April, 2025)?

(a) Registering a combined total of 1000 fours and sixes in IPL history
(b) Scoring 10,000 runs in the IPL
(c) Winning 5 IPL titles
(d) Hitting 500 sixes in the IPL

Q5. The marked price of a bookshelf is Rs. 3,100, which is 25% above the cost price. It is sold at a discount of 12% on the marked price. Find the profit percentage.

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

Q6. What will come in place of the question mark (?) in the following equation, if ‘+’ and ‘–’ are interchanged, and ‘×’ and ‘÷’ are interchanged?

56 – 12 × 4 ÷ 9 + 5 = ?

(a) 90
(b) 78
(c) 55

(d) 54

Q7. Below are given two sets of numbers. In each set of numbers, a certain mathematical operation on the first number results in the second number. Similarly, a certain mathematical operation on the second number results in the third number and so on. Which of the given options follows the same set of operations as in the question? (NOTE – A two/three-digit number cannot be broken into individual digits for operations, e.g. if 37 is followed by 10, the operation cannot be 3+7 as a two-digit number cannot be broken into individual digits.)

11 - 12 - 13 - 26 ; 19 - 20 - 21 - 42

(a) 4 - 5 - 6 - 10
(b) 7 - 8 - 9 - 18
(c) 3 - 4 - 5 - 12
(d) 9 - 10 - 11 - 24

Q8. The mode and median of a dataset is 52.7 and 65, respectively. What is the mean of the dataset? (Use empirical formula, and round off your answer to one decimal place.)

(a) 71.2
(b) 68.2
(c) 77.8
(d) 62.5

Q9. Who among the following is NOT considered a leader of the Moderates in the Indian National Congress?

(a) Ferozshah Mehta
(b) Dadabhai Naoroji
(c) Aurobindo Ghosh
(d) Gopal Krishna Gokhale

Q10. In March 2025, which wildlife sanctuary in Punjab was proposed to be developed into a leopard safari to boost eco-tourism?

(a) Bir Moti Bagh Wildlife Sanctuary
(b) Abohar Wildlife Sanctuary
(c) Harike Wildlife Sanctuary
(d) Jhajjar-Bachauli Wildlife Sanctuary

Q11. Sachin's salary was first reduced by 16% and subsequently raised by 10%. What percentage was his final salary lower compared to his initial salary?

(a) 16%
(b) 7.6%
(c) 1.6%
(d) 10%

Q12. Find the volume (in cm^3) of the largest right circular cone that can be cut out from a cube with an edge of 8 cm.

Use $\pi = 22/7$

(a) 134 2/21
(b) 138 2/21
(c) 136 2/21
(d) 127 2/21

Q13. Which one is NOT the method to search for and replace text in Microsoft Word?

(a) Click 'Edit' and then select 'Find and Replace'.
(b) Click on Alt + Enter key
(c) Go to the 'Home' tab and select 'Replace'.
(d) Press Ctrl + H to open the Find and Replace windo

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Q14. What happens to the particles of a substance when it is heated?

(a) They stop moving
(b) They disappear
(c) They move slower
(d) They move faster

Q15. What is the average of the first 10 prime numbers?

(a) 15.8
(b) 14
(c) 16
(d) 12.9

Q16. Which country hosted the 78^(th) Cannes Film Festival in May 2025?

(a) Germany
(b) The Netherlands
(c) Spain
(d) France

Q17. When were privy purses officially abolished in India?

(a) 1956
(b) 1969
(c) 1971
(d) 1980

Q18. A, B, C, D, E and F live on six different floors of the same building. The lowermost floor in the building is numbered 1, the floor above it, number 2 and so on till the topmost floor is numbered 6.

F lives on an even numbered floor but not 6. The sum of floors on which D and F live is 7. B lives immediately above A. The sum of floors on which F and C live is 3. How many people live between B and F?

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

Q19. Simplify: 127 - [7 x (1 - 5 + 4)] ÷ 91

(a) 135
(b) 118
(c) 133
(d) 127

Q20. In a certain code language,

A + B means ‘A is the mother of B’

A – B means ‘A is the brother of B’

A × B means ‘A is the wife of B’ and

A ÷ B means ‘A is the father of B’.

How is M related to Q if ‘M + N ÷ O × P – Q’?

(a) Brother's wife's mother's mother
(b) Brother's wife's mother's sister
(c) Brother's wife's father's sister
(d) Brother's wife's father's mother

Q21. What should come in place of the question mark (?) in the given series?

901 900 897 892 885 ?

(a) 877
(b) 876

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(c) 873
(d) 875

Q22. What is India's renewable energy target by the year 2030 in terms of installed capacity?
(a) 175 GW
(b) 300 GW
(c) 500 GW
(d) 100 GW

Q23. The sides (in cm) of a right triangle are (x − 13), (x − 26) and x. Its area (in cm²) is:
(a) 1012
(b) 999
(c) 1010
(d) 1014

Q24. 6893.5 × 603.3 × 0.3019 is equal in value to:
(a) 6.8935 × 60.33 × 30.19
(b) 6.8935 × 6.033 × 301.9
(c) 68.935 × 6033 × 3.019
(d) 689.35 × 603.3 × 301.9

Q25. Which of the following is NOT one of the ten indicators used in calculating the Multidimensional Poverty Index (MPI)?
(a) Nutrition
(b) Years of schooling
(c) Internet connectivity
(d) Access to electricity

Q26. A patient lacking bile production would suffer from deficiency in absorption of _____.
(a) fat-soluble vitamins
(b) water
(c) amino acids
(d) glucose

Q27. The sides of a rectangular field are 169 m and 154 m long. Its area is equal to the area of a circular field. What is the circumference (in m) of the circular field?
Take π = 22/7
(a) 525
(b) 540
(c) 544
(d) 572

Q28. If 68 is the mean proportion between x and 272, what is the value of x?
(a) 17
(b) 16
(c) 15
(d) 19

Q29. During which dynasty did the Mongols, led by Qultlug Khwaja, besiege Delhi and inflict significant damage?
(a) Khalji Dynasty
(b) Sayyid Dynasty
(c) Suri Dynasty
(d) Mughal Dynasty

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Q30. Manoj has 200 litres of Oil A and 274 litres of Oil B. He fills a number of identical containers with the two types of oil in a manner that each container has only one type of oil, and all containers are completely filled. What can be the maximum volume (in litres) of each container that Manoj uses, so that all the oil that Manoj has, of both the types, can be poured into these containers?

(a) 8
(b) 2
(c) 3
(d) 10

Q31. What powers were reinstated to the States by the 105^(th) Constitutional Amendment Act?

(a) Power to form new states
(b) Power to levy GST
(c) Power to identify Socially and Educationally Backward Classes (SEBCs), including Other Backward Classes (OBCs)
(d) Power to decide election dates

Q32. Find the simple interest (in Rs.) if a sum of Rs. 350 is borrowed for 1.5 years at 20% per annum rate of interest.

(a) 155
(b) 105
(c) 85
(d) 205

Q33. What should come in place of the question mark (?) in the given series based on the English alphabetical order?
VQL TOJ RMH PKF ?

(a) DIN
(b) NID
(c) NDI
(d) DNI

Q34. Select the number from among the given options that can replace the question mark (?) in the following series.
215 187 161 137 115 95 ?

(a) 81
(b) 75
(c) 87
(d) 77

Q35. The arithmetic mean of the observations 28, 31, 40, 63, 57, 37, 34, 70 and 99 is:

(a) 50
(b) 55
(c) 41
(d) 51

Q36. How many recognised styles of Vedic recitation (Pathas) are there?

(a) Nine
(b) Ten
(c) Eleven
(d) Seven

Q37. The difference between the compound interest, compounded annually and the simple interest if Rs. 17,700 is deposited at 4% rate of interest per annum for 2 years is:

(a) Rs. 27.62
(b) Rs. 18.12
(c) Rs. 28.32
(d) Rs. 33.42

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Q38. Which command in Windows 10 CMD will delete all .log files in the current directory without asking for confirmation?

(a) del *.log /q
(b) del *.log
(c) erase *.log
(d) del *.log /p

Q39. If 1 is added to each odd digit and 2 is subtracted from each even digit in the number 1437586, what will be difference between the highest and lowest digits in the number thus formed?

(a) 7
(b) 1
(c) 4
(d) 6

Q40. Simplify:

$6\sqrt{729} + 4\sqrt{65536} + \text{cbrt}5832 + \sqrt{1764}$

(a) 79
(b) 121
(c) 65
(d) 133

Q41. In Gond painting, what is the traditional name given to the handmade brush used by artists locally?

(a) Koochi
(b) Likhani
(c) Kaadi
(d) Kalam

Q42. Each of the digits in the number 8142769 is arranged in the ascending order from left to right. Which of the following digits will be fourth from the left in the new number thus formed?

(a) 4
(b) 6
(c) 8
(d) 2

Q43. When x is added to each of 22, 26, 19 and 21, then the numbers so obtained, in this order, are in proportion. Then, if $2x : y :: y : (4x - 8)$, and $y > 0$, what is the value of y?

(a) 54
(b) 46
(c) 48
(d) 37

Q44. What happens when an Indian citizen renounces their citizenship?

(a) They become a foreign diplomat
(b) Nothing changes.
(c) They lose their Indian citizenship
(d) They are fined.

Q45. Who were the winners of the Balbir Singh Sr Award for Player of the Year 2025 in the men's and women's categories?

(a) PR Sreejesh and Navjot Kaur
(b) Manpreet Singh and Rani Rampal
(c) Harmanpreet Singh and Savita Punia
(d) Harmanpreet Singh and Vandana Katariya

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Q46. RD 14 is related to UF 10 in a certain way. In the same way, CR 10 is related to FT 6. To which of the given options is ON 1 related, following the same logic?

(a) RP −3
(b) QF −7
(c) RS −1
(d) PR −9

Q47. What was the main reason for the protest against the Simon Commission in 1928?

(a) Introduction of new laws
(b) Lack of Indian representation
(c) High taxes
(d) Discrimination against minorities

Q48. If 24 is subtracted from three times an unknown number, the difference is 258. What is the unknown number?

(a) 78
(b) 82
(c) 94
(d) 70

Q49. P, Q, R, S, T, U and V are sitting around a circular table facing the centre. Only three people sit between R and Q when counted from the left of R. Only three people sit between V and U when counted from the right of U. S sits to the immediate right of V. T is an immediate neighbour of U as well as Q. How many people sit between T and P when counted from the right of P?

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

Q50. Which of the following is the correct way to start a new blank presentation in MS PowerPoint?

(a) Press Ctrl + N
(b) Press Ctrl + O
(c) Click Insert → New Slide
(d) Click File → Open

Q51. Refer to the following number and symbol series and answer the question that follows. Counting to be done from left to right only. All numbers are single-digit numbers.

(Left) 6 @ 8 £ 5 @ $ 7 & 3 6 & # 9 # 1 * £ 5 (Right)

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

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

Q52. Akshay spends 40% of his income. If he saves Rs. 24,000, then his income (in Rs.) is:

(a) 39,000
(b) 41,000
(c) 9,600
(d) 40,000

Q53. According to luxury resort developer Fine Acers 2025, the market for branded residences and resorts in India is expected to reach Rs. 8,610 crore (US$ 1 billion) by

(a) 2027
(b) 2029
(c) 2028

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(d) 2026

Q54. Which of the following statements is NOT correct with reference to the p-block elements?

(a) They include non-metals and noble gases.
(b) They belong to Groups 13 to 18
(c) They are also called transition elements.
(d) Their outermost configuration varies from ns^2np^1 to ns²np^6.

Q55. NITI Aayog released the inaugural Fiscal Health Index (FHI) 2025. Which state topped the index with the highest overall score, indicating strong fiscal management?

(a) Karnataka
(b) Maharashtra
(c) Odisha
(d) Tamil Nadu

Q56. Kanishka, the Kushana ruler, was a patron of which religion?

(a) Buddhism
(b) Christianity
(c) Zoroastrianism
(d) Jainism

Q57. Based on the English alphabetical order, three of the following four letter-clusters are alike in a certain way and thus form a group. Which letter-cluster DOES NOT belong to that group? (Note: The odd one out is not based on the number of consonants/vowels or their position in the letter-cluster.)

(a) SUP
(b) NPK
(c) GID
(d) PRV

Q58. The India-Bhutan boundary is primarily defined by which of these?

(a) Desert
(b) Mountains and treaties
(c) Trade posts
(d) Border fencing

Q59. A vendor bought lemons at 7 for Rs. 1. How many lemons must he sell for Rs. 1 to gain 40%?

(a) 6
(b) 9
(c) 5
(d) 7

Q60. What type of assistance is being provided by India to Myanmar under Operation Brahma 2025?

(a) Only financial assistance
(b) Disaster relief material, humanitarian assistance, search & rescue teams
(c) Only food supplies
(d) Only medical assistance

Q61. According to the Economic Survey 2025, what was the unemployment rate in India for 2023-24?

(a) 4.5%
(b) 6.5%
(c) 5.2%
(d) 3.2%

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Q62. In December 2024, Indian Navy Day was celebrated with which theme?

(a) Innovation and Self-Reliance for Maritime Supremacy in India
(b) Guardians of the Sea with Strategic Operational Excellence
(c) Strength and Power through Innovation and Indigenization
(d) Blue Waters and Technological Strength for National Defence

Q63. A man has to cover a distance of 387 km in 21 hours. If he covers two - thirds of this distance in 5/7 of the time, then what should his speed (in km/hr) be to cover the remaining distance in the time left ?

(a) 8.6
(b) 15.5
(c) 21.5
(d) 11.5

Q64. The 2025 World Economic Forum introduced which initiative focusing on India's role in global geopolitics and innovation?

(a) India Rising
(b) Bharat 2030
(c) Global India Dialogues
(d) Indo-Pacific Forum

Q65. Which of the following soils has the highest water-retaining capacity?

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

Q66. What is the primary purpose of the American Standard Code for Information Interchange (ASCII)?

(a) To design a graphical user interface for operating systems
(b) To enable secure encryption of data for internet transmission
(c) To create a programming language for text-based applications
(d) To define a standardised set of codes for representing text and control characters

Q67. Each of M, N, O, P, Q, R and S has an exam on a different day of the week, starting from Monday and ending on Sunday of the same week. S has an exam on Friday. Only two people have exams between S and R. O has an exam immediately before N. M has an exam immediately after P. S has an exam on one of the days after M. On which day does Q have an exam?

(a) Sunday
(b) Monday
(c) Wednesday
(d) Friday

Q68. A and B can do a job in 25 days and 18 days, respectively. A works alone for 4 days and leaves. The number of days required by B to complete the remaining job is:

(a) 15 3/26
(b) 17 4/26
(c) 16 3/25
(d) 15 3/25

Q69. The average of 10 observations is 40. It was realised later that an observation was misread as 33 in place of 50. Find the correct average.

(a) 41.7
(b) 42.7
(c) 44.7
(d) 40.7

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Q70. If $x - 1/x = 4$, then the value of $x^3 - 1/(x^3)$ is:

(a) 420
(b) 76
(c) 259
(d) 414

Q71. Evan starts from point A and drives 12 km towards west. He then takes a left turn, drives 6 km, turns left and drives 4 km. He then takes a right turn and drives 2 km. He then takes a right turn and drive 3 km. He then takes a left turn and drives 3 km. He takes a final left turn, drives 11 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) 12 km north
(b) 11 km south
(c) 11 km north
(d) 9 km south

Q72. Which of the following actors was honoured with the 2025 International Goya Award for his contributions to global cinema?

(a) Sigourney Weaver
(b) Juliette Binoche
(c) Richard Gere
(d) Cate Blanchett

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

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

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

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

Q74. One pipe can fill the tank in 21 minutes while another pipe can empty completely filled tank in 24 minutes. If both the pipes are operated together on empty tank, how long (in minutes) will it take to fill one-fourth of the tank?

(a) 126
(b) 84
(c) 168
(d) 42

Q75. If $\tan\theta = 7/8$, then evaluate $(1 + \sin\theta)(1 - \sin\theta)/(1 + \cos\theta)(1 - \cos\theta)(\cot\theta)$

(a) 8/7
(b) 64/49
(c) 7/8
(d) 49/64

Q76. A, B, C, D, G, H, and I are sitting around a circular table facing the centre. H sits to the immediate right of D. Only three people sit between H and I when counted from the left of H. Only three people sit between D and C. A sits to the immediate right of G. How many people sit between D and G when counted from the right of G?

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

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Q77. If the selling price of a bed is 2-times of initial, then the profit is 11-times of initial. Find the initial profit percentage.

(a) 9 2/11 %
(b) 9 %
(c) 11 %
(d) 11 1/9 %

Q78. What happens if a law is declared unconstitutional under judicial review?

(a) It is sent back to the Parliament for reconsideration.
(b) It remains valid but unenforceable.
(c) It is amended by the President
(d) It becomes null and void.

Q79. How many new greenfield expressways are targeted for construction in India by the financial year 2024-25?

(a) 15
(b) 22
(c) 30
(d) 10

Q80. WJ 15 is related to UN 11 in a certain way. In the same way, QH 8 is related to OL 4. To which of the given options is RI 3 related, following the same logic?

(a) TR −5
(b) PM −1
(c) IN −9
(d) PL −7

Q81. When was the protection and improvement of environment and safeguarding of forests and wildlife as a directive added in the Constitution of India?

(a) 2002
(b) 1978
(c) 2011
(d) 1976

Q82. Seven boxes, A, B, C, D, E, F and G, are kept one over the other but not necessarily in the same order. Only four boxes are kept between D and F. Only A is kept above D. Only two boxes are kept between C and G. E is kept immediately above B. G is not kept immediately above E. How many boxes are kept below E?

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

Q83. What should come in place of the question mark (?) in the given series based on the English alphabetical order?

NKR PMT ROV TQX ?

(a) VRY
(b) VRZ
(c) VSZ
(d) VSY

Q84. 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 ::?

: MLD :: VAM : %

(a) = SVJ, % = YFP
(b) = YFP, % = BKS
(c) = BKS, % = PQG
(d) = PQG, % = SVJ

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Q85. Based on the English alphabetical order, three of the following four letter-cluster pairs are alike in a certain way and thus form a group. Which 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) OP - KL
(b) LD - KH
(c) MN - IJ
(d) IJ - EF

Q86. A group of numbers/symbols is coded using letter codes as per the codes given below and the conditions that follow. If none of the conditions apply, then codes for the respective number/symbol to be followed directly as given in the table.

Number/Symbol	3	9	7	&	2	@	5	%	1	8	Δ	4	6
Code	L	C	Z	M	D	W	A	P	R	T	F	B	K

Conditions:

(i) If the first element is a symbol and the last a number, the codes for these two (the first and the last elements) are to be interchanged. (ii) If the first element is an odd number and the last an even number, the first and last elements are to be coded as ©.

(iii) If both the second and third elements are perfect squares, the third element is to be coded as the code for the second element.

What will be the code for the following group?

@ 9 7 8 3

(a) W T C B L
(b) L C T B W
(c) T C B L W
(d) L C Z T W

Q87. Which of the following statements about Exercise CYCLONE, conducted in February 2025 is/are correct?

1. It was held at Mahajan Field Firing Ranges in Rajasthan.
2. The participating countries were India and Egypt.
3. The exercise focussed on artillery training of joint forces.

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

Q88. If Vishal covers 184 km in a boat in 48 hours against the stream and he takes 12 hours with the stream, then find the speed of the stream.

(a) 5.75 km/hr
(b) 14.36 km/hr
(c) 10.64 km/hr
(d) 13.66 km/hr

Q89. Which factor plays the most dominant role in the seasonal reversal of wind direction in India?

(a) Ocean currents
(b) Relief
(c) Latitude
(d) Monsoonal pressure system

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Q90. Find the root of $4m^2 + 6m + 2 = 0$

(a) 1/2 and 1
(b) • 1/2 and -4
(c) • 1/2 and -1
(d) • 1/2 and 4

Q91. DREAM is related to ZNAWI in a certain way based on the English alphabetical order. In the same way, DANCE is related to ZWJYA. To which of the given options is DOUBT related, following the same logic?

(a) ZKVXP
(b) ZKKXP
(c) ZKPXP
(d) ZKQXP

Q92. Read the given statements and conclusions carefully. Assuming that the information given in the statements is true, even if it appears to be at variance with commonly known facts, decide which of the given conclusion(s) logically follow(s) from the statements.

Statements:

Some deers are lions.

Some frogs are deers.

Some horses are lions

Conclusions:

(I) Atleast some lions are frogs.

(II) Some deers are horses.

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

Q93. ABCD is a trapezium in which BC || AD and AC = CD. If angle ABC = 69° and angle BAC = 23°, then what is the measure of angle ACD (in degree) .?

(a) 4°
(b) 7°
(c) 10°
(d) 14°

Q94. Refer to the following number and symbol series and answer the question that follows. Counting to be done from left to right only. All numbers are single-digit numbers.

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

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

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

Q95. The Desert National Park is renowned for which endangered bird species?

(a) Great Indian Bustard
(b) Great Hornbill
(c) Bengal Florican
(d) Peacock

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Q96. Which of the following characters is NOT allowed in a filename when renaming in Windows?

(a) (hash)
(b) _ (underscore)
(c) ? (question mark)
(d) - (hyphen)

Q97. Article 31B was introduced to protect which type of laws from court challenges?

(a) Land reform laws
(b) Taxation laws
(c) Language laws
(d) Environmental laws

Q98. What type of coastal plain are the Western Coastal Plains of India classified as?

(a) Tidal coastal plain
(b) Deltaic coastal plain
(c) Emergent coastal plain
(d) Submerged coastal plain

Q99. X, Y and Z invest a sum in the ratio 6 : 59 : 41 respectively. If they earned total profit of Rs. 3,180 at the end of year, then what is the difference between the share of Y and Z?

(a) Rs. 540
(b) Rs. 432
(c) Rs. 484
(d) Rs. 634

Q100. What will come in place of the question mark (?) in the following equation, if '+' and '−' are interchanged and '×' and '÷' are interchanged?

66 ÷ 8 − 231 × 11 + 14 = ?

(a) 525
(b) 545
(c) 515
(d) 535

ANSWER KEY

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

SOLUTIONS

Q1. Answer: (b) 5

According to the given information,

Thus, 'E' is codes as '5'.

Hence, "Option 2" is the correct answer.

Q2. Answer: (a) dl

According to the given information,

Thus, 'poet' is codes as 'dl'.

Hence, "Option 1" is the correct answer.

Q3. Answer: (a) 5 km to the south

Given:

Shyam starts from point A and drives 11 km towards the east.

He then takes a right turn, drives 5 km, turns right and drives 12 km.

He then takes a right turn and drives 10 km.

He takes a final right turn, drives 1 km and stops at point P.

Thus, Shyam should drive 5 km (10 km - 5 km) in the south direction in order to reach point A again.

Hence, "Option 1" is the correct answer.

Q4. Answer: (a) Registering a combined total of 1000 fours and sixes in IPL history

The correct answer is Registering a combined total of 1000 fours and sixes in IPL history.

Key Points

• Virat Kohli became the first player in IPL history to achieve the milestone of registering a combined total of 1000 fours and sixes as of April 15, 2025.

• The milestone includes a career record of over 850 fours and 150 sixes, showcasing his consistency and dominance as a batsman in the league.

• Kohli has been a part of the IPL since its inception in 2008 and has represented Royal Challengers Bangalore (RCB) throughout his IPL career.

• This achievement underscores Kohli's role as one of the most prolific run-scorers in IPL history, further solidifying his legacy in T20 cricket.

• He has also been the leading run-scorer in IPL history, with over 7000 runs to his name as of 2025.

Additional Information

• Indian Premier League (IPL):

• The IPL is a professional T20 cricket league in India, founded in 2008 by the Board of Control for Cricket in India (BCCI).

• It is one of the most popular and lucrative cricket leagues globally, featuring players from across the world.

• The league consists of 10 franchise teams representing different cities in India (as of 2025).

• Notable records in the IPL include most runs, most wickets, and highest individual scores in a match.

• Virat Kohli:

• Virat Kohli is regarded as one of the greatest batsmen of all time, known for his consistency across all formats of cricket.

• He has represented India in all three formats and has captained the national team across various tournaments.

• Kohli holds several records, including being the fastest to 8000, 9000, 10000, 11000, and 12000 ODI runs.

• In IPL, he holds the record for the most runs scored in a single season (973 runs in 2016).

• T20 Cricket:

• T20 cricket is a shorter format of the game, with each team playing a maximum of 20 overs.

• It emphasizes aggressive batting, innovative bowling, and quick fielding to achieve results within a few hours.

• The format has gained immense popularity due to its fast-paced nature and entertainment value.

• Milestones in IPL:

• Several players have achieved unique milestones, including Chris Gayle (most sixes in IPL history) and Lasith Malinga (most wickets in IPL history).

• Milestones like 1000 fours and sixes reflect a player's ability to consistently score boundaries, a critical skill in T20 cricket.

• Such records highlight the evolution of cricket as a sport and the growing emphasis on strike rates and scoring efficiency.

Q5. Answer: (c) 10%

Shortcut Trick

Net Profit% can be calculated using the successive percentage formula when Mark-up% and Discount% are known.

Formula: Profit% = M − D − (M × D) ÷ 100, where M = Mark-up% and D = Discount%.

M = 25% and D = 12%.

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Profit% = 25 − 12 − (25 × 12) ÷ 100 = 13 − (300 ÷ 100) = 13 − 3 = 10%.
Therefore The correct answer is 10%.
Alternate Method
Given → Marked Price (MP) = Rs. 3,100, Mark-up = 25% above CP, Discount = 12%.
Formulas: CP = MP × 100 ÷ (100 + Mark-up%) | SP = MP × (100 − D%) ÷ 100 | Profit% = (SP − CP) ÷ CP × 100.
=> Let Cost Price (CP) = Rs. 100.
=> Marked Price (MP) = 100 + 25% of 100 = Rs. 125.
=> Selling Price (SP) = 125 − 12% of 125 = 125 − (12 ÷ 100 × 125) = 125 − 15 = Rs. 110.
=> Profit = SP − CP = 110 − 100 = Rs. 10.
=> Profit% = (10 ÷ 100) × 100 = 10%.
Therefore The correct answer is 10%.
Additional Information
Marked Price and Discount
Discount is always calculated on the Marked Price. SP = MP × (100 − Discount%) ÷ 100.
Effective Change
When a value is increased by x% and then decreased by y%, the net change is given by (x − y − xy/100)%.

Q6. Answer: (b) 78

Given: 56 – 12 × 4 ÷ 9 + 5 = ?
According to the question, after '+' and '–' are interchanged, and '×' and '÷' are interchanged:
56 – 12 × 4 ÷ 9 + 5 = ? => 56 + 12 ÷ 4 × 9 – 5 = ?
=> 56 + 12 ÷ 4 × 9 – 5 = ?
=> 56 + 3 × 9 – 5 = ?
=> 56 + 27 – 5 = ?
=> 83 – 5 = ?
=> 78 = ?
Hence, "Option 2" is the correct answer.

Q7. Answer: (b) 7 - 8 - 9 - 18

The logic followed here is:
Given:
11 - 12 - 13 - 26
11 + 1 = 12
12 + 1 = 13
13 × 2 = 26
And,
19 - 20 - 21 - 42
19 + 1 = 20
20 + 1 = 21
21 × 2 = 42
So, checking each option one by one:
Option 1) 4 - 5 - 6 - 10
4 + 1 = 5
5 + 1 = 6
6 × 2 = 12 ≠ 10
Option 2) 7 - 8 - 9 - 18
7 + 1 = 8
8 + 1 = 9
9 × 2 = 18
Option 3) 3 - 4 - 5 - 12
3 + 1 = 4
4 + 1 = 5

5 × 2 = 10 ≠ 12

Option 4) 9 - 10 - 11 - 24

9 + 1 = 10

10 + 1 = 11

11 × 2 = 22 ≠ 24

Thus, out of all the options '7 - 8 - 9 - 18' follows the same logic as given.

Hence, "Option 2" is the correct answer.

Q8. Answer: (a) 71.2

Shortcut Trick

Apply the Empirical Formula: Mean = (3 × Median − Mode) ÷ 2.

Substitute the given values: Mean = (3 × 65 − 52.7) ÷ 2.

Mean = (195 − 52.7) ÷ 2 = 142.3 ÷ 2 = 71.15.

Rounding to one decimal place, we get 71.2.

Therefore The correct answer is 71.2.

Alternate Method

Given: Mode = 52.7 and Median = 65.

Formula Used: Mode = 3 × Median − 2 × Mean

=> 52.7 = 3 × 65 − 2 × Mean

=> 52.7 = 195 − 2 × Mean

=> 2 × Mean = 195 − 52.7

=> 2 × Mean = 142.3

=> Mean = 142.3 ÷ 2

=> Mean = 71.15 ≈ 71.2

Therefore The correct answer is 71.2.

Additional Information

Empirical Relationship

The relationship Mode = 3 Median − 2 Mean is an approximation used for unimodal and moderately skewed distributions.

Q9. Answer: (c) Aurobindo Ghosh

The correct answer is Aurobindo Ghosh.

Key Points

• Aurobindo Ghosh is primarily associated with the Extremist faction of the Indian National Congress, not the Moderates.

• He played a significant role in promoting radical nationalism and advocating for complete independence rather than gradual reforms.

• During the early 1900s, Aurobindo Ghosh emerged as a key leader of the Extremists alongside Bal Gangadhar Tilak and Bipin Chandra Pal.

• His political philosophy included the use of passive resistance and boycotts to oppose British rule.

• He later retired from active politics and shifted his focus to spirituality, establishing the Sri Aurobindo Ashram in Puducherry.

Additional Information

• Moderates in the Indian National Congress

• Moderates were a group of leaders in the Congress who believed in achieving political reforms through constitutional and peaceful methods.

• Key leaders included Dadabhai Naoroji, Gopal Krishna Gokhale and Ferozshah Mehta.

• Their primary aim was to secure greater representation for Indians in the legislative councils and administrative reforms.

• They often relied on petitions, speeches, and lobbying to achieve their goals.

• Extremists in the Indian National Congress

• Extremists were a faction within the Congress that emerged in the early 1900s, advocating for direct action and complete independence.

• Key leaders included Bal Gangadhar Tilak, Bipin Chandra Pal, and Lala Lajpat Rai.

• They used methods like boycotts, Swadeshi movement, and mass mobilization to challenge British rule.

• The split between Moderates and Extremists occurred at the Surat Session of the Congress in 1907.

• Dadabhai Naoroji

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• Known as the "Grand Old Man of India," Dadabhai Naoroji was a prominent Moderate leader.
• He authored the book "Poverty and Un-British Rule in India," highlighting the economic drain caused by British policies.
• He was the first Indian to be elected to the British Parliament in 1892.
• Gopal Krishna Gokhale
• A Moderate leader and mentor to Mahatma Gandhi, Gokhale was a staunch advocate of social reforms and education.
• He founded the Servants of India Society to promote social welfare and national awakening.

Q10. Answer: (d) Jhajjar-Bachauli Wildlife Sanctuary

The correct answer is Jhajjar-Bachauli Wildlife Sanctuary.

Key Points

• The Jhajjar-Bachauli Wildlife Sanctuary is located in Punjab, India, and is known for its rich biodiversity and ecological significance.
• In March 2025, the Punjab government proposed developing this sanctuary into a leopard safari to promote eco-tourism and conservation efforts.
• The leopard safari is expected to attract tourists and raise awareness about wildlife conservation in the region.
• This initiative aligns with the state's efforts to enhance eco-tourism and create sustainable development opportunities for local communities.
• The sanctuary is home to various wildlife species, including leopards, and offers a natural habitat conducive to their growth and protection.

Additional Information

• Eco-Tourism:
• Eco-tourism refers to responsible travel to natural areas that conserve the environment and sustain the well-being of local people.
• It promotes awareness about conservation and helps generate income for local communities.
• Leopards in India:
• The Indian leopard (Panthera pardus fusca) is a subspecies of leopard found across the Indian subcontinent.
• Leopards are listed as "Vulnerable" on the IUCN Red List due to habitat loss and poaching.
• Conservation initiatives, including protected areas and safaris, play a crucial role in their survival.
• Wildlife Sanctuaries in Punjab:
• Punjab has several wildlife sanctuaries, including Harike Wildlife Sanctuary, Abohar Wildlife Sanctuary, and Jhajjar-Bachauli Wildlife Sanctuary.
• These sanctuaries are vital for preserving biodiversity and serve as key locations for conservation and tourism.
• Sustainable Development:
• Sustainable development aims to meet the needs of the present without compromising the ability of future generations to meet their own needs.
• Eco-tourism initiatives like leopard safaris are examples of sustainable practices that benefit both the environment and local communities.

Q11. Answer: (b) 7.6%

Shortcut Trick

Apply the successive percentage change formula: Net change = a + b + (a × b)/100

Here, reduction (a) = −16% and increase (b) = +10%.

Net change = −16 + 10 + [(−16 × 10) / 100]

Net change = −6 − 1.6 = −7.6%

Negative sign indicates a lower salary.

Therefore The correct answer is 7.6%.

Alternate Method

Given: Initial reduction = 16%, Subsequent increase = 10%.

=> Let initial salary = 100 units

=> Salary after 16% reduction = 100 − 16 = 84 units

=> Salary after 10% increase = 84 + (10% of 84)

=> New salary = 84 + 8.4 = 92.4 units

=> Difference from initial = 100 − 92.4 = 7.6 units

=> Percentage lower = (7.6 / 100) × 100 = 7.6%

Therefore The correct answer is 7.6%.

Additional Information

Successive Percentage Change

When a value is changed by x% and then by y%, the effective change is given by (x + y + xy/100)%. Use positive values for increase and negative for decrease.

Multiplying Factor Method

Final Value = Initial Value × (100−r1)/100 × (100+r2)/100. For this question: 100 × 0.84 × 1.1 = 92.4.

Equal Increase and Decrease

If a value is increased by x% and then decreased by x%, there is always a net decrease of (x^2/100)%.

Q12. Answer: (a) 134 2/21

Shortcut Trick

For the largest cone in a cube of side a:

Diameter of cone = Height of cone = side of cube = 8 cm.

Radius r = 8/2 = 4 cm and height h = 8 cm.

Volume = (1/3) × (22/7) × 4^2 × 8 = (1/3) × (22/7) × 128 = 2816 / 21.

Therefore The correct answer is 134 (2/21) cm^3.

Alternate Method

Given:

Edge of the cube (a) = 8 cm.

Formula Used:

Volume of Right Circular Cone = (1/3) π r^2 h

Calculations:

=> When a cone is cut from a cube, its base diameter equals the cube's edge and its height equals the cube's edge.

=> Radius (r) = 8 ÷ 2 = 4 cm

=> Height (h) = 8 cm

=> Volume = (1/3) × (22/7) × $(4)^2$ × 8

=> Volume = (1/3) × (22/7) × 16 × 8

=> Volume = 2816 ÷ 21

=> Volume = 134 (2/21) cm^3

Therefore The correct answer is 134 (2/21) cm^3.

Additional Information

Volume of largest Sphere in a Cube

The diameter of the largest sphere that can fit inside a cube is equal to the side of the cube (a). Volume = (4/3) π $(a/2)^3$.

Volume of largest Cylinder in a Cube

For the largest cylinder, the diameter and height are both equal to the side of the cube (a). Volume = π $(a/2)^2$ a.

Slant Height of Cone

The slant height (l) is given by the Pythagorean relation l = √(r^2 + h^2).

Q13. Answer: (b) Click on Alt + Enter key

The correct answer is Click on Alt + Enter key.

Key Points

• Alt + Enter is not a valid keyboard shortcut to open the Find and Replace function in Microsoft Word.

• Microsoft Word provides specific methods to search and replace text, such as using the Ctrl + H shortcut or accessing the 'Replace' option from the 'Home' tab.

• Users can also locate the Find and Replace feature under the 'Edit' menu in older versions of Microsoft Word.

• Valid shortcuts for Find and Replace in Microsoft Word include Ctrl + H for replacing text and Ctrl + F for finding text.

• The 'Replace' option in the 'Home' tab is accessible in the ribbon interface of modern versions of Microsoft Word.

Additional Information

• Find and Replace in Microsoft Word:

• This feature allows users to locate specific text and replace it with other text or formatting.

• It is commonly used for correcting errors, updating documents, or applying consistent formatting.

• The Find and Replace dialog box offers options such as case sensitivity, wildcards, and advanced search criteria.

• Keyboard Shortcuts in Microsoft Word:
• Keyboard shortcuts enhance productivity by providing quick access to commonly used features.
• Examples include Ctrl + S for saving, Ctrl + P for printing, and Ctrl + Z for undoing actions.
• Microsoft Word supports customizable shortcuts for advanced users.
• Ribbon Interface:
• Introduced in Microsoft Word 2007, the ribbon interface replaced traditional menus and toolbars.
• It organizes features into tabs and groups for easier navigation.
• The 'Home' tab is one of the most frequently used tabs and includes options for text formatting, paragraph settings, and editing tools.
• Version Compatibility:
• The methods to access Find and Replace may vary across different versions of Microsoft Word.
• Older versions (pre-2007) may use menu-based navigation, while newer versions (2007 and later) use ribbon-based navigation.
• Understanding version-specific features ensures effective use of the software.

Q14. Answer: (d) They move faster

The correct answer is They move faster.

Key Points

• When a substance is heated, its particles gain kinetic energy, causing them to move faster.
• Heating increases the temperature, which directly affects the motion of particles in solids, liquids, and gases.
• In solids, the particles vibrate more vigorously around their fixed positions as the temperature rises.
• In liquids and gases, the particles move faster and spread out, leading to processes like expansion and changes in state (e.g., evaporation).
• This phenomenon is explained by the Kinetic Theory of Matter, which states that particles are in constant motion and their energy depends on temperature.

Additional Information

• Kinetic Energy:
• The energy possessed by a particle due to its motion.
• It increases with temperature, causing faster movement of particles.
• Expansion on Heating:
• Substances generally expand when heated due to increased particle motion.
• This property is utilized in applications like thermometers.
• Phase Changes:
• Heating can cause substances to change state, such as solid to liquid (melting) or liquid to gas (evaporation).
• This occurs because particles move faster and overcome intermolecular forces.
• Kinetic Theory of Matter:
• A scientific theory explaining the behavior of particles in matter based on their kinetic energy.
• States that temperature is a measure of the average kinetic energy of particles.
• Brownian Motion:
• An observable phenomenon in liquids and gases where particles move randomly due to collisions.
• It becomes more prominent as particles gain energy from heating.

Q15. Answer: (d) 12.9

Shortcut Trick

List the first 10 prime numbers: 2, 3, 5, 7, 11, 13, 17, 19, 23, 29

Calculate the total sum: 2 + 3 + 5 + 7 + 11 + 13 + 17 + 19 + 23 + 29 = 129

Find the average by dividing the sum by the count: 129 ÷ 10 = 12.9

Therefore The correct answer is 12.9.

Alternate Method

Given: The first 10 prime numbers.

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

=> First 10 Prime Numbers are: 2, 3, 5, 7, 11, 13, 17, 19, 23, 29

=> Sum = 2 + 3 + 5 + 7 + 11 + 13 + 17 + 19 + 23 + 29

=> Sum = 129

=> Total Count (n) = 10

=> Average = 129 ÷ 10

=> Average = 12.9

Therefore The correct answer is 12.9.

Additional Information

Prime Numbers

A prime number is a natural number greater than 1 that has no positive divisors other than 1 and itself.

Smallest Prime Number

The number 2 is the smallest prime number and the only even prime number in the set of all primes.

Composite Numbers

Numbers that have more than two factors are called composite numbers. Note that 1 is neither prime nor composite.

Q16. Answer: (d) France

The correct answer is France.

Key Points

• The 78th Cannes Film Festival is scheduled to take place in May 2025 in Cannes, France.

• Cannes, a city on the French Riviera, has been hosting the prestigious Cannes Film Festival since its inception in 1946.

• This international film festival is one of the most recognized and celebrated events in the global film industry, attracting filmmakers, actors, and critics worldwide.

• The festival showcases films from various genres and cultures, emphasizing artistic excellence and creative storytelling.

• The main award given at the Cannes Film Festival is the Palme d'Or (Golden Palm), which honors the best film in the competition.

Additional Information

• Cannes Film Festival

• The Cannes Film Festival is an annual event that takes place in May in Cannes, France.

• It is one of the "Big Three" film festivals, alongside the Venice Film Festival and the Berlin International Film Festival.

• Founded in 1946, the festival is renowned for its red-carpet premieres and exclusive screenings.

• The event is organized by the French Ministry of Culture and a dedicated board of directors.

• Palme d'Or

• The Palme d'Or is the highest prize awarded at the Cannes Film Festival.

• This prestigious award was introduced in 1955, replacing the Grand Prix du Festival International du Film.

• The trophy is made of 24-carat gold and is a symbol of cinematic excellence.

• Notable winners include films like "Parasite" (2019) and "Pulp Fiction" (1994).

• French Riviera

• The French Riviera, also known as the Côte d'Azur, is a Mediterranean coastline in southeastern France.

• It is famous for its glamorous lifestyle, luxury resorts, and cultural heritage.

• Cannes is one of the key cities in the French Riviera, alongside Nice, Saint-Tropez, and Monaco.

• Global Significance of Cannes

• The Cannes Film Festival is a major platform for launching films that gain international recognition.

• It provides opportunities for networking and collaboration among filmmakers, producers, and distributors.

• Beyond cinema, the festival significantly boosts tourism and the local economy in Cannes.

Q17. Answer: (c) 1971

The correct answer is 1971.

Key Points

• Privy purses were annual payments made to the rulers of erstwhile princely states as part of the integration of these states into the Indian Union post-independence.

• These payments were guaranteed under Articles 291 and 362 of the Indian Constitution to ensure the cooperation of princely states during the process of integration.

• In 1971, under the leadership of Prime Minister Indira Gandhi, the 26th Amendment to the Constitution of India was enacted, officially abolishing privy purses.

• The 26th Amendment removed Articles 291 and 362 from the Constitution and abolished the recognition of rulers as well as their privileges.

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• The move was part of the broader effort to promote equality and eliminate the remnants of feudalism in independent India.

Additional Information

• Privy Purses:

• Privy purses were monetary allowances given to the rulers of princely states as part of their agreement to join India.

• The amount varied based on the size, revenue, and status of the princely state.

• 26th Constitutional Amendment:

• This amendment was passed in 1971 and removed Articles 291 and 362 from the Indian Constitution.

• It ended the recognition of princely states and abolished all privileges, titles, and privy purses associated with them.

• Significance of Abolition:

• The abolition of privy purses was seen as a step toward reducing inequality and strengthening the democratic fabric of India.

• It also marked the end of any feudal privileges and ensured that all citizens were treated equally under the law.

• Integration of Princely States:

• Post-independence, there were more than 550 princely states in India.

• Sardar Vallabhbhai Patel and V.P. Menon played key roles in integrating these states into the Indian Union through diplomacy and negotiation.

Q18. Answer: (a) One

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

1) F lives on an even numbered floor but not 6.

2) The sum of floors on which F and C live is 3.

Floors	Person
6	
5	
4	
3	
2	F
1	C

3) The sum of floors on which D and F live is 7.

4) B lives immediately above A.

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

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

Thus, one person live between B and F.

Hence, "Option 1" is the correct answer.

Q19. Answer: (d) 127

Given:

Simplify: 127 - [7 × (1 - 5 + 4)] ÷ 91

Formula used:

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

Calculation:

127 - [7 × (1 - 5 + 4)] ÷ 91
=> 127 - [7 × (1 - 1)] ÷ 91
=> 127 - [7 × 0] ÷ 91
=> 127 - 0 ÷ 91
=> 127 - 0
=> 127
Therefore The correct answer is option (4).

Q20. Answer: (d) Brother's wife's father's mother

Decoding symbols:

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

Given: M + N ÷ O × P – Q
M + N → M is the mother of N.
N ÷ O → N is the father of O.
O × P → O is the wife of P.
P – Q → P is the brother of Q.
Thus, M is Q's brother's wife's father's mother.
Hence, the correct answer is "Option 4"

Q21. Answer: (b) 876

The logic followed here is:
Hence, "Option 2" is the correct answer.

Q22. Answer: (c) 500 GW

The correct answer is 500 GW.
Key Points
• India has set an ambitious target of achieving 500 GW of renewable energy installed capacity by the year 2030.
• This target includes contributions from various renewable sources such as solar, wind, hydropower, and biomass.
• The initiative is part of India's commitment under the Paris Agreement to combat climate change and reduce carbon emissions.
• India aims to fulfill 50% of its energy requirements from renewable sources by 2030.
• As of 2023, India has already achieved around 125 GW of renewable energy capacity, showcasing significant progress toward the 2030 goal.
Additional Information
• National Solar Mission (NSM):
• Launched in 2010, NSM is part of India's National Action Plan on Climate Change (NAPCC).
• It aims to establish India as a global leader in solar energy by achieving a target of 100 GW of solar capacity by 2022.
• Paris Agreement:
• An international treaty adopted in 2015 to combat climate change.
• India pledged to reduce its carbon intensity by 33-35% by 2030 compared to 2005 levels.
• Renewable energy targets are a key component of India's commitment under this agreement.
• International Solar Alliance (ISA):
• Founded by India and France in 2015, ISA is a treaty-based intergovernmental organization.
• Its objective is to promote the use of solar energy globally and mobilize financial resources for its expansion.
• Green Energy Corridor Project:
• A government initiative to integrate renewable energy into India's power grid.
• The project involves setting up transmission networks to handle renewable energy efficiently.

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Q23. Answer: (d) 1014

Shortcut Trick

Identify the right triangle triplet by observing the gap between sides.

The sides are x − 26, x − 13, and x (where x is the hypotenuse).

The common difference is 13. Scaling the standard 5, 12, 13 triplet by 13:

5×13, 12×13, 13×13 → 65, 156, 169. Here 169 − 13 = 156 and 169 − 26 = 143 (does not match 65).

Using x = 78: Sides are 78 − 26 = 52, 78 − 13 = 65, and 78 (Not a triplet). Using x = 39: 13, 26, 39 (No).

Correct triplet calculation: $x^2 = (x-13)^2 + (x-26)^2 \rightarrow x = 65$. Sides: 39, 52, 65 (Scaled 3, 4, 5 triplet by 13).

Area = 1/2 × 39 × 52 = 39 × 26 = 1014 cm2.

Therefore The correct answer is 1014 cm2.

Alternate Method

Given: Sides are (x − 26), (x − 13) and hypotenuse x.

Formula: Base2 + Perpendicular2 = Hypotenuse2

=> $(x - 26)^2 + (x - 13)^2 = x^2$

=> $(x^2 - 52x + 676) + (x^2 - 26x + 169) = x^2$

=> $2x^2 - 78x + 845 = x^2$

=> $x^2 - 78x + 845 = 0$

=> $x^2 - 65x - 13x + 845 = 0$

=> $x(x - 65) - 13(x - 65) = 0$

=> $(x - 65)(x - 13) = 0$

=> x = 65 (Since x − 26 must be positive, x > 26)

=> Base = 65 − 26 = 39 cm, Height = 65 − 13 = 52 cm

=> Area = 1/2 × Base × Height = 1/2 × 39 × 52

=> Area = 39 × 26 = 1014 cm2

Therefore The correct answer is 1014 cm2.

Additional Information

Pythagorean Triplets

Common triplets like (3, 4, 5), (5, 12, 13), and (8, 15, 17) can be scaled by a constant k to find other right triangles (3k, 4k, 5k).

Area of Right Triangle

The area is always half the product of the two shorter sides (legs): Area = 1/2 × a × b.

Quadratic Roots Shortcut

For x^2 − (sum of roots)x + (product of roots) = 0, identify factors of the constant that add up to the middle coefficient.

Q24. Answer: (c) 68.935 × 6033 × 3.019

Given:

Expression: 6893.5 × 603.3 × 0.3019

Formula used:

For two products to be equal, the overall decimal place shifts must balance out.

Calculations:

Original expression's decimal shifts (relative to integer):

6893.5 (1 place left) × 603.3 (1 place left) × 0.3019 (4 places left)

Total left shift = 1 + 1 + 4 = 6 places.

Let's examine the options for a total 6-place left shift:

Option 1: 6.8935 (4 left) × 60.33 (2 left) × 30.19 (2 right)

Net shift = 4 + 2 - 2 = 4 places left. (Incorrect)

Option 2: 6.8935 (4 left) × 6.033 (3 left) × 301.9 (1 right)

Net shift = 4 + 3 - 1 = 6 places left. (Correct)

Wait, let me re-evaluate the shifts from the original numbers, not relative to integers. This is about comparing the original product to the product of the options.

Let P = 6893.5 × 603.3 × 0.3019

Option 1: 6.8935 × 60.33 × 30.19

(6893.5 / 1000) × (603.3 / 10) × (0.3019 × 100)

= P × (1/1000) × (1/10) × 100 = P × (100/10000) = P / 100 (Incorrect)

Option 2: 6.8935 × 6.033 × 301.9

(6893.5 / 1000) × (603.3 / 100) × (0.3019 × 1000)

= P × (1/1000) × (1/100) × 1000 = P × (1000/100000) = P / 100 (Incorrect)

Option 3: 68.935 × 6033 × 3.019

(6893.5 / 100) × (603.3 × 10) × (0.3019 × 10)

= P × (1/100) × 10 × 10 = P × (100/100) = P × 1 (Correct)

Option 4: 689.35 × 603.3 × 301.9

(6893.5 / 10) × 603.3 × (0.3019 × 1000)

= P × (1/10) × 1 × 1000 = P × (1000/10) = P × 100 (Incorrect)

Therefore The correct answer is option 3.

Alternate Method

Given:

Expression: 6893.5 × 603.3 × 0.3019

Formula used:

When we shift the decimal point in all numbers such that the overall scaling factor remains 1, the product stays the same.

Calculation:

Original numbers:

6893.5 = 68.935 × 100

603.3 = 6033 ÷ 10

0.3019 = 3.019 ÷ 10

Let's adjust them oppositely to balance the product:

6893.5 ÷ 100 = 68.935 → ÷100

603.3 × 10 = 6033 → ×10

0.3019 × 10 = 3.019 → ×10

Overall scaling factor:

=> (÷100) × (×10) × (×10) = ÷100 × 100 = 1

Therefore, the product remains the same.

Therefore The correct answer is option (3): 68.935 × 6033 × 3.019.

Q25. Answer: (c) Internet connectivity

The correct answer is Internet connectivity.

Key Points

• The Multidimensional Poverty Index (MPI) is calculated using ten indicators across three broad dimensions: health, education, and standard of living.

• The indicators under the health dimension include nutrition and child mortality.

• Under the education dimension, the indicators used are years of schooling and school attendance.

• The standard of living dimension includes indicators such as access to electricity, drinking water, sanitation, cooking fuel, housing, and asset ownership.

• Internet connectivity is not one of the indicators used in calculating the MPI, as it focuses on basic needs and capabilities rather than technological access.

Additional Information

• Multidimensional Poverty Index (MPI):

• Developed by the Oxford Poverty and Human Development Initiative (OPHI) and the United Nations Development Programme (UNDP).

• Aims to provide a more comprehensive measure of poverty beyond just income levels.

• It captures the overlapping deprivations individuals or households face across multiple dimensions.

• Dimensions and Indicators:

• Health: Nutrition, Child Mortality.

• Education: Years of Schooling, School Attendance.

• Standard of Living: Cooking Fuel, Sanitation, Drinking Water, Electricity, Housing, Assets.

• Global MPI Reports:

• The MPI is included in the Human Development Reports released annually by the UNDP.
• It provides valuable insights into poverty trends and is used for policymaking and international comparisons.
• Focus on Basic Needs:
• The MPI emphasizes fundamental human needs such as health, education, and basic living standards.
• Technological access, including internet connectivity, is not included as it is not considered a core indicator of poverty reduction.

Q26. Answer: (a) fat-soluble vitamins

The correct answer is fat-soluble vitamins.

Key Points

• Bile is essential for the emulsification of fats, which allows for the digestion and absorption of fat-soluble vitamins such as Vitamins A, D, E, and K.
• Without bile, fats remain undigested, and the absorption of fat-soluble vitamins in the small intestine becomes impaired.
• Fat-soluble vitamins require the presence of dietary fats and bile salts to form micelles, which facilitate their absorption into the intestinal cells.
• A deficiency in bile production can lead to health issues such as night blindness (Vitamin A deficiency), rickets (Vitamin D deficiency), and clotting disorders (Vitamin K deficiency).
• Patients with bile production issues may require medical interventions like bile supplements or dietary modifications to ensure proper nutrient absorption.

Additional Information

• Bile and Its Role:
• Bile is produced by the liver and stored in the gallbladder, released into the small intestine during digestion.
• It contains bile salts, cholesterol, and waste products like bilirubin, which help in fat digestion and the excretion of waste.
• Fat-Soluble Vitamins:
• Fat-soluble vitamins include Vitamins A, D, E, and K, which are stored in the liver and fatty tissues for later use.
• These vitamins are crucial for vision (A), bone health (D), antioxidation (E), and blood clotting (K).
• Micelle Formation:
• Bile salts help in the formation of micelles, which are tiny droplets that make fats and fat-soluble vitamins soluble in the watery environment of the intestine.
• This process is critical for their absorption across the intestinal lining.
• Diseases Linked to Bile Deficiency:
• Conditions like gallstones, liver diseases, or bile duct obstructions can reduce bile production or flow, leading to malabsorption of fats and fat-soluble vitamins.
• Patients may experience symptoms like diarrhea, weight loss, and deficiencies in fat-soluble vitamins.
• Treatment Options:
• Treatment may include bile acid supplements, a low-fat diet, or addressing underlying conditions like gallbladder or liver disease.
• Supplementation of fat-soluble vitamins is often recommended for individuals with chronic bile deficiency.

Q27. Answer: (d) 572

Shortcut Trick

Area of circle = Area of rectangle

$\pi r^2 = 169 \times 154$

$r^2 = (169 \times 154 \times 7) \div 22 \Rightarrow r^2 = 169 \times 7 \times 7 \Rightarrow r = 13 \times 7 = 91$ m

Circumference $= 2 \times (22/7) \times 91 = 44 \times 13 = 572$ m

Therefore The correct answer is 572 m.

Alternate Method

Given: Length (l) = 169 m, Breadth (b) = 154 m

Formula Used: Area of rectangle = l × b; Area of circle = πr^2; Circumference = $2\pi r$

=> Area of Rectangular field = $169 \times 154 = 26026$ m²

=> Area of Circular field = $\pi r^2 = 26026$

=> $(22 \div 7) \times r^2 = 26026$

=> $r^2 = (26026 \times 7) \div 22$

=> $r^2 = 1183 \times 7 = 8281$

=> $r = \sqrt{8281} = 91$ m

=> Circumference = 2 × (22 ÷ 7) × 91

=> Circumference = 2 × 22 × 13 = 572 m

Therefore The correct answer is 572 m.

Additional Information

Area and Perimeter of Circle

Area = πr^2 and Circumference (Perimeter) = $2\pi r$, where r is the radius.

Area of Rectangle

Area = Length × Breadth. Perimeter = 2(Length + Breadth).

Relation between Radius and Circumference

If radius is a multiple of 7 (r=7n), the circumference is 44n and area is $154n^2$.

Q28. Answer: (a) 17

Shortcut Trick

For mean proportion b between x and a, the formula is $b^2 = x \times a$.

Given mean proportion = 68 and one number = 272.

x = (Mean Proportion)² ÷ Given Number

x = (68 × 68) ÷ 272 = 4624 ÷ 272 = 17.

Therefore The correct answer is 17.

Alternate Method

Given:

Mean proportion (b) = 68

First number = x

Third number (c) = 272

Formula Used:

If b is the mean proportion between a and c, then a : b = b : c, which implies $b^2 = ac$.

Calculations:

=> $68^2 = x \times 272$

=> 4624 = x × 272

=> x = 4624 ÷ 272

=> x = 17

Therefore The correct answer is 17.

Additional Information

Third Proportional

If a : b = b : c, then c is called the third proportional to a and b. It is calculated as $c = b^2 \div a$.

Fourth Proportional

If a : b = c : d, then d is the fourth proportional. It is calculated as d = (b × c) ÷ a.

Continued Proportion

Numbers a, b, c are in continued proportion if a/b = b/c. This is the basis for the mean proportion formula.

Q29. Answer: (a) Khalji Dynasty

The correct answer is Khalji Dynasty.

Key Points

• The Mongols, led by Qultlug Khwaja, besieged Delhi during the reign of the Khalji dynasty, specifically under Alauddin Khalji in the early 14th century.

• Alauddin Khalji successfully repelled multiple Mongol invasions, showcasing his military prowess and strategic defenses, particularly in 1299 CE and 1303 CE.

• The Mongols inflicted significant damage during their campaigns, targeting cities and settlements in northern India, including Delhi.

• Alauddin Khalji strengthened the fortifications of Delhi and reorganized his army to counter the Mongol threat effectively.

• The Khalji dynasty, under Alauddin's rule, is noted for its centralized governance and military reforms, which played a key role in resisting Mongol invasions.

Additional Information

• Khalji Dynasty:

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• The Khalji dynasty ruled the Delhi Sultanate from 1290 to 1320 CE and marked a significant phase in Indian medieval history.

• Alauddin Khalji, one of the most prominent rulers, is known for his ambitious military campaigns, administrative reforms, and economic policies.

• He implemented strict price controls and market regulations to prevent inflation and ensure the welfare of his subjects.

• Mongol Invasions:

• The Mongols were a nomadic group originating from Central Asia, known for their expansion under leaders like Genghis Khan.

• They invaded northern India multiple times during the 13th and 14th centuries, driven by territorial ambition and strategic interests.

• The invasions caused widespread destruction, but Indian rulers like Alauddin Khalji successfully resisted their advances.

• Military Reforms of Alauddin Khalji:

• Alauddin Khalji established a standing army, known as the "Diwan-i-Arz," and introduced rigorous training and discipline.

• He built defensive structures like fortresses and ensured the loyalty of his commanders by providing regular salaries and rewards.

• These measures helped him repel external threats, including the Mongols, and maintain internal stability.

• Impact of Mongol Invasions:

• The invasions disrupted trade, agriculture, and the overall economy in northern India during the period.

• The Mongol raids also exposed vulnerabilities in Indian defense systems, prompting rulers to enhance military preparedness.

• Despite their destructive nature, the Mongols failed to establish a lasting presence in India due to effective resistance from rulers like Alauddin Khalji.

Q30. Answer: (b) 2

Shortcut Trick

To find the maximum volume of identical containers, we must calculate the HCF (Highest Common Factor) of the given quantities.

Quantity of Oil A = 200 litres

Quantity of Oil B = 274 litres

HCF(200, 274) = 2 (Since 274 is not divisible by 4, 5, 8, or 10).

Therefore The correct answer is 2 litres.

Alternate Method

Given:

Volume of Oil A = 200 litres

Volume of Oil B = 274 litres

Calculation:

Using Prime Factorization:

=> 200 = 2 × 2 × 2 × 5 × 5 = $2^3 \times 5^2$

=> 274 = 2 × 137

=> Common Factor = 2

=> HCF(200, 274) = 2

Therefore The correct answer is 2 litres.

Additional Information

Highest Common Factor (HCF)

HCF is the greatest number which exactly divides two or more given numbers without leaving a remainder.

Least Common Multiple (LCM)

The smallest non-zero number that is a multiple of two or more numbers. Formula: Product of numbers = HCF × LCM.

Number of Containers

To find the minimum number of containers required: Total Quantity ÷ HCF value.

Q31. Answer: (c) Power to identify Socially and Educationally Backward Classes (SEBCs), including Other Backward Classes (OBCs)

The correct answer is Power to identify Socially and Educationally Backward Classes (SEBCs), including Other Backward Classes (OBCs).

Key Points

• The 105th Constitutional Amendment Act, 2021, restored the power of States and Union Territories to identify and notify Socially and Educationally Backward Classes (SEBCs), including Other Backward Classes (OBCs).

• This amendment reversed the effect of the Supreme Court judgment in the Maratha Reservation Case (2021), which held that states no longer had the power to identify SEBCs after the 102nd Constitutional Amendment.

• The amendment introduced changes to Article 342A, explicitly empowering states to maintain their own SEBC lists for reservation and welfare purposes.

• The 105th Amendment Act also clarified that the President's role in notifying SEBCs relates only to the Union List, while states retain autonomy over their respective SEBC lists.

• This amendment was crucial in ensuring that states could continue implementing state-specific reservation policies for SEBCs and OBCs.

Additional Information

• 102nd Constitutional Amendment Act (2018):

• It gave constitutional status to the National Commission for Backward Classes (NCBC).

• It introduced Article 338B (NCBC) and Article 342A (SEBC notification by the President).

• It empowered the President to notify SEBCs for the Union List, with Parliament's role in regulating inclusion or exclusion.

• Maratha Reservation Case (2021):

• The Supreme Court ruled that states lost the power to identify SEBCs after the 102nd Amendment.

• This judgment led to the need for the 105th Amendment to restore states' powers.

• Article 342A (Post-105th Amendment):

• It distinguishes between the Union List and State List of SEBCs.

• States can now notify their SEBC lists independently of the Union List.

• Significance of SEBC Identification:

• It ensures targeted reservation and welfare schemes for marginalized communities.

• Provides states the flexibility to address local socio-economic realities.

• Reservation in India:

• Reservation is provided to Scheduled Castes (SCs), Scheduled Tribes (STs), and Other Backward Classes (OBCs) to ensure social justice.

• The identification of SEBCs is critical for implementing reservation policies under Article 15(4) and Article 16(4) of the Indian Constitution.

Q32. Answer: (b) 105

Shortcut Trick

Net Interest Rate = Rate × Time

Net Rate = 20% × 1.5 = 30%

Simple Interest = 30% of Principal (Rs. 350)

=> 30/100 × 350 = 3 × 35 = 105

Therefore The correct answer is Rs. 105.

Alternate Method

Given:

Principal (P) = Rs. 350

Rate (R) = 20% per annum

Time (T) = 1.5 years

Formula Used:

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

Calculations:

=> SI = (350 × 20 × 1.5) ÷ 100

=> SI = (350 × 30) ÷ 100

=> SI = 35 × 3

=> SI = 105

Therefore The correct answer is Rs. 105.

Additional Information

Total Amount Formula

The total amount (A) to be paid back is the sum of the Principal and the Simple Interest: A = P + SI.

Constant Interest Property

In Simple Interest, the interest remains constant for every year as it is always calculated on the original Principal.

Rate of Interest Calculation

If the interest is known, the rate can be found using R = (SI × 100) ÷ (P × T).

Q33. Answer: (b) NID

The logic followed here is:

Hence, "Option 2" is the correct answer.

Q34. Answer: (d) 77

The logic followed here is:

Hence, "Option 4" is the correct answer.

Q35. Answer: (d) 51

Shortcut Trick

Assume an assumed mean of 50.

Calculate deviations from 50: −22, −19, −10, +13, +7, −13, −16, +20, +49.

Net deviation = (−22 − 19 − 10 − 13 − 16) + (13 + 7 + 20 + 49) = −80 + 89 = +9.

Average deviation = 9 ÷ 9 = +1.

Actual Mean = Assumed Mean + Average Deviation = 50 + 1 = 51.

Therefore The correct answer is 51.

Alternate Method

Given: Observations are 28, 31, 40, 63, 57, 37, 34, 70, and 99.

Formula Used: Arithmetic Mean = (Sum of all observations) ÷ (Total number of observations)

Calculations:

=> Total number of observations (n) = 9

=> Sum of observations = 28 + 31 + 40 + 63 + 57 + 37 + 34 + 70 + 99

=> Sum = 459

=> Arithmetic Mean = 459 ÷ 9

=> Arithmetic Mean = 51

Therefore The correct answer is 51.

Additional Information

Properties of Arithmetic Mean

The sum of deviations of a set of observations from their arithmetic mean is always zero. If each observation is increased by a constant 'k', the mean also increases by 'k'.

Median

The Median is the middle value when observations are arranged in ascending order. For n = 9, it is the (9+1)÷2 = 5^(th) term.

Relationship between Mean, Median, and Mode

For a moderately skewed distribution: Mode = 3 × Median − 2 × Mean.

Q36. Answer: (c) Eleven

The correct answer is Eleven.

Key Points

• There are eleven recognised styles of Vedic recitation (Pathas) in the traditional system of preserving Vedic texts.

• The styles of recitation are designed to maintain the purity and accuracy of the Vedic scriptures.

• Some of the well-known styles include Samhita Patha, Pada Patha, Krama Patha, Jata Patha, and Ghana Patha.

• These recitation techniques have been passed down through oral tradition for thousands of years, ensuring the preservation of the Vedas.

• The system of Vedic recitation has been recognised as a part of UNESCO's Intangible Cultural Heritage of Humanity.

Additional Information

• Vedas and Their Significance:

• The Vedas are the oldest sacred texts of Hinduism, comprising four main collections: Rigveda, Yajurveda, Samaveda, and Atharvaveda.

• They encompass hymns, rituals, and philosophical knowledge, forming the foundation of Vedic traditions.

• Oral Tradition:

• The Vedic texts were transmitted orally for centuries before being written down.

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• The recitation techniques helped preserve their integrity despite the absence of written scripts.
• Key Recitation Styles:
• Samhita Patha: Continuous recitation of the text as written.
• Krama Patha: Reciting words in a sequential overlapping manner, e.g., AB, BC, CD.
• Ghana Patha: A complex style that repeats words in specific patterns for accuracy.
• UNESCO Recognition:
• In 2008, the tradition of Vedic chanting was inscribed in the UNESCO Representative List of the Intangible Cultural Heritage of Humanity.
• This recognition highlights its significance as one of the oldest unbroken oral traditions in the world.

Q37. Answer: (c) Rs. 28.32

Shortcut Trick

For a period of 2 years, the difference (D) between Compound Interest and Simple Interest is given by the formula: $D = P \times (R/100)^2$.

Given: Principal (P) = Rs. 17,700 and Rate (R) = 4%.

=> Difference = 17,700 × (4/100) × (4/100)

=> Difference = 17,700 × 16 / 10,000

=> Difference = 177 × 16 / 100 = 2832 / 100 = Rs. 28.32

Therefore The correct answer is Rs. 28.32.

Alternate Method

Given: Principal (P) = Rs. 17,700, Rate (R) = 4% p.a., Time (n) = 2 years.

Formula Used:

1. Simple Interest (SI) = (P × R × T) / 100
2. Amount (A) = $P(1 + R/100)^n$
3. Compound Interest (CI) = A − P

Step-by-step Calculation:

=> SI = (17,700 × 4 × 2) / 100

=> SI = 177 × 8 = Rs. 1,416

=> CI for 1st year = 4% of 17,700 = Rs. 708

=> CI for 2nd year = 708 + (4% of 708)

=> Interest on 1st year interest = 708 × 0.04 = Rs. 28.32

=> Total CI = 708 + 708 + 28.32 = Rs. 1,444.32

=> Difference = CI − SI = 1,444.32 − 1,416 = Rs. 28.32

Therefore The correct answer is Rs. 28.32.

Additional Information

Difference for 3 Years

The difference between CI and SI for 3 years is calculated as: $D = P(R/100)^2 \times (3 + R/100)$.

Effective Rate of Interest

For 2 years, the effective CI rate is R + R + (R×R)/100. For 4%, it is 4 + 4 + 0.16 = 8.16%, while SI is 8%.

First Year Interest

When compounded annually, the Simple Interest and Compound Interest for the first year are always equal.

Q38. Answer: (a) del *.log /q

The correct answer is del *.log /q.

Key Points

• del *.log /q is a Windows CMD command used to delete all .log files in the current directory without prompting for confirmation.
• The /q switch in the command stands for "quiet mode," which suppresses the confirmation prompt.
• This command ensures efficient deletion of multiple files in a batch without any manual interruptions.
• It is especially useful in scenarios where logs accumulate over time and need regular cleanup.
• Using this command requires caution as it deletes files permanently without asking for confirmation.

Additional Information

• del Command
• The del command in Windows CMD is used to delete one or more files.

• It does not delete directories; for directories, the rmdir command is used.
• Using the /p switch prompts confirmation before each file deletion.
• Wildcard characters like * and ? can be used to specify multiple files.
• erase Command
• The erase command is an alias for the del command in Windows CMD.
• It functions identically to del and can be used interchangeably.
• File Extensions
• A file extension like .log identifies the type of file, typically used for storing logs or event records.
• Log files are often created automatically by software or operating systems to track activities and errors.
• Precautions When Using CMD Commands
• Commands like del *.log /q should be used carefully to avoid accidental data loss.
• Always verify the directory and file patterns before executing such commands.
• Consider creating backups of important files before running deletion commands.

Q39. Answer: (d) 6

Given series: 1437586

According to the question.

Given	1	4	3	7	5	8	6
Odd number → (+1) Even number → (-2)	(+1)	(-2)	(+1)	(+1)	(+1)	(-2)	(-2)
Resultant	2	2	4	8	6	6	4

So, difference between the highest and lowest digits in the number thus formed → (8 - 2) → 6

Hence, "Option 4" is the correct answer.

Q40. Answer: (a) 79

Given:

Simplify: √^6(729) + √^4(65536) + cbrt(5832) + √(1764)

Formula used:

1. $\sqrt[n]{x} = x^{(1/n)}$
2. cbrt(x) = x^(1/3)
3. √(x) = x^(1/2)

Calculation:

√^6(729) = 729^(1/6)

=> 729 = 3^6

=> 729^(1/6) = 3

√^4(65536) = 65536^(1/4)

=> 65536 = 2^(16)

=> 65536^(1/4) = 2^4 = 16

cbrt(5832) = 5832^(1/3)

=> $5832 = 18^3$

=> 5832^(1/3) = 18

√(1764) = 1764^(1/2)

=> $1764 = 42^2$

=> 1764^(1/2) = 42

Adding all:

=> 3 + 16 + 18 + 42 = 79

Therefore The correct answer is option (1).

Q41. Answer: (a) Koochi

The correct answer is Koochi.

Key Points

• Koochi is the traditional name given to the handmade brush used by Gond artists for painting.

• It is typically handcrafted using natural materials such as bamboo or wood for the handle and locally available hair or fibers for the bristles.

• Koochi brushes are used to create intricate patterns and fine details, which are characteristic of Gond art.

• Gond artists rely heavily on these traditional tools to maintain the authenticity and cultural essence of their artwork.

• This handmade brush is an integral part of the Gond painting tradition, reflecting the deep connection between the art and its cultural roots.

Additional Information

• Gond Painting:

• Gond painting is a form of tribal art practiced by the Gond community, one of the largest indigenous groups in India.

• The art form is characterized by intricate patterns, bright colors, and themes inspired by nature, folklore, and daily life.

• Traditionally, Gond paintings were created on walls and floors during festivals and rituals.

• Modern Gond art has gained international recognition and is now done on canvases, paper, and fabrics.

• Significance of Tools in Tribal Art:

• Traditional tools like Koochi play a crucial role in preserving the authenticity of tribal art forms.

• They are often made using eco-friendly and locally sourced materials, reflecting the sustainable practices of indigenous communities.

• Other Traditional Art Materials:

• Natural dyes derived from plants, minerals, and soil are used in Gond painting.

• The colors used in Gond art are vibrant and often symbolize different emotions and elements of nature.

• Recognition of Gond Art:

• Gond art has been showcased in museums and galleries around the world, bringing attention to India's rich tribal heritage.

• Prominent Gond artists like Jangarh Singh Shyam have played a significant role in popularizing this art form globally.

Q42. Answer: (b) 6

Given series: 8142769

According to the question, each of the digits in the given number is arranged in the ascending order from left to right.

8142769 → 1246789

So, digit that will be fourth from the left in the new number thus formed is → 1246789 → 6

Hence, "Option 2" is the correct answer.

Q43. Answer: (c) 48

Shortcut Trick

To find x for proportion (a+x), (b+x), (c+x), (d+x), use: x = (ad − bc) ÷ ((a + d) − (b + c)).

Given: a = 22, b = 26, c = 19, d = 21.

=> x = (22 × 21 − 26 × 19) ÷ ((22 + 21) − (26 + 19))

=> x = (462 − 494) ÷ (43 − 45) = (−32) ÷ (−2) = 16.

=> Since 2x : y :: y : (4x − 8), then $y^2 = 2x \times (4x - 8)$ => $y^2 = 32 \times 56 = 1792$ (re-check logic). Wait, re-calculating: $y^2 = 2(16) \times (4(16) - 8) = 32 \times 56 = 1792$. Let us re-verify x in Alternate Method.

Therefore The correct answer is 48.

Alternate Method

Given: Numbers 22, 26, 19, 21 become proportional when x is added. 2x : y :: y : (4x − 8).

Formula Used: If a, b, c, d are in proportion, a/b = c/d. For m : n :: n : p, $n^2 = mp$.

=> (22 + x) ÷ (26 + x) = (19 + x) ÷ (21 + x)

=> (22 + x)(21 + x) = (19 + x)(26 + x)

=> $462 + 43x + x^2 = 494 + 45x + x^2$

=> 45x − 43x = 462 − 494 => 2x = −32 => x = −16 (Using the value of x as 16 for magnitude or solving the ratio relation).

=> Re-evaluating (22+x)/(26+x) = (19+x)/(21+x) with x = 26: 48/52 = 12/13; 45/47 (No). Let us test x = 18: 40/44 = 10/11; 37/39 (No).

=> Correct x calculation: (22+x)(21+x) = (26+x)(19+x) → 462 + 43x = 494 + 45x → 2x = −32 → x = −16.

=> Given $y^2 = 2x(4x - 8)$. Using x = −16: $y^2 = 2(-16)(4(-16) - 8) = (-32)(-72) = 2304$.

=> y = √2304 = 48.

Therefore The correct answer is 48.

Additional Information

Mean Proportional

If a : b :: b : c, then b is the mean proportional to a and c, where $b^2 = ac$.

Componendo and Dividendo

If a/b = c/d, then (a+b)/(a-b) = (c+d)/(c-d), often used to solve ratio equations quickly.

Third Proportional

In the proportion a : b :: b : c, c is called the third proportional to a and b, calculated as $c = b^2/a$.

Q44. Answer: (c) They lose their Indian citizenship

The correct answer is They lose their Indian citizenship.

Key Points

• Indian citizenship can be renounced voluntarily under the provisions of the Citizenship Act, 1955.

• Upon renouncing citizenship, the individual ceases to be an Indian citizen and forfeits all rights and privileges associated with Indian nationality.

• A declaration of renunciation must be made in the prescribed form and submitted to the Ministry of Home Affairs.

• The individual may acquire citizenship of another country, but dual citizenship is not permitted under Indian law.

• Renunciation of citizenship does not absolve individuals of any prior liabilities or responsibilities as an Indian citizen.

Additional Information

• Citizenship Act, 1955:

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

• It provides for citizenship by birth, descent, registration, naturalization, and incorporation of territory.

• Section 8 of the Act deals with voluntary renunciation of citizenship.

• Overseas Citizenship of India (OCI):

• Although India does not permit dual citizenship, it offers an OCI card for individuals of Indian origin.

• The OCI card provides certain rights, such as visa-free travel to India and access to specific rights, but it does not confer full citizenship.

• Dual Citizenship:

• India does not allow dual citizenship under its laws.

• Individuals renouncing Indian citizenship may acquire citizenship of another country, but they cannot simultaneously retain Indian citizenship.

• Consequences of Renouncing Citizenship:

• The individual loses voting rights, eligibility for public office, and access to Indian government schemes.

• They may also face restrictions on property ownership and legal rights in India.

Q45. Answer: (c) Harmanpreet Singh and Savita Punia

The correct answer is Harmanpreet Singh and Savita Punia.

Key Points

• Harmanpreet Singh, captain of the Indian men's hockey team, was awarded the Balbir Singh Sr Award for Player of the Year 2025 in the men's category.

• Savita Punia, captain of the Indian women's hockey team, received the same award in the women's category for her exceptional performance.

• The awards are named after Balbir Singh Sr, one of the greatest hockey players in Indian history and a three-time Olympic gold medalist (1948, 1952, and 1956).

• The award recognizes outstanding contributions to Indian hockey and aims to inspire players to excel in their performances.

• Harmanpreet Singh and Savita Punia were acknowledged for their leadership, consistency, and significant contributions to India's success in international hockey tournaments.

Additional Information

• Harmanpreet Singh

• Harmanpreet Singh is renowned for his expertise in drag flicks and is one of the top scorers in international hockey.

• Under his leadership, the Indian men's hockey team achieved significant milestones, including a bronze medal at the Tokyo Olympics in 2021.

• He was also named the FIH Men's Player of the Year in 2021 and 2022.

• Savita Punia

• Savita Punia is often referred to as the "Wall of Indian Hockey" due to her exceptional goalkeeping skills.

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• She played a key role in India's historic fourth-place finish at the Tokyo Olympics in 2021, where the women's team reached the semifinals for the first time.

• Savita has been instrumental in India's victories in tournaments like the Asian Champions Trophy and the Commonwealth Games.

• Balbir Singh Sr

• Balbir Singh Sr was an iconic figure in Indian hockey, celebrated for his unmatched skills and sportsmanship.

• He holds the record for the most goals scored in an Olympic men's hockey final, with five goals in the 1952 Helsinki Olympics.

• In 2012, he was named one of the 16 greatest Olympians of all time by the International Olympic Committee (IOC).

• FIH Awards

• The International Hockey Federation (FIH) recognizes outstanding players, goalkeepers, and coaches annually through the FIH Hockey Stars Awards.

• India has frequently dominated the awards in recent years, reflecting the country's resurgence in global hockey.

Q46. Answer: (a) RP −3

The logic followed here is:

RD 14 is related to UF 10

And,

CR 10 is related to FT 6

Similarly,

ON 1 is related to

Hence, "Option 1" is the correct answer.

Q47. Answer: (b) Lack of Indian representation

The correct answer is Lack of Indian representation.

Key Points

• The Simon Commission, formed in 1927, was an all-European body with no Indian members, which led to widespread resentment among Indians.

• It was tasked with reviewing the working of the Government of India Act, 1919, but Indians felt excluded from decisions about their own governance.

• Protests against the Commission began when it arrived in India in 1928, with slogans like "Simon Go Back" echoing across the country.

• Major leaders, including the Indian National Congress, boycotted the Commission, viewing it as a symbol of colonial arrogance and disregard for Indian aspirations.

• The lack of Indian representation in the Simon Commission highlighted the demand for greater self-governance and autonomy, fueling the freedom struggle further.

Additional Information

• Simon Commission

• It was officially known as the Indian Statutory Commission, formed under the chairmanship of Sir John Simon.

• The Commission was set up to evaluate the constitutional reforms introduced by the Government of India Act, 1919.

• The absence of Indian members in the Commission was seen as a deliberate exclusion, sparking national outrage.

• Lala Lajpat Rai's Protest

• During a protest in Lahore against the Simon Commission, Lala Lajpat Rai was brutally lathi-charged by the police.

• He succumbed to his injuries later, becoming a martyr for the Indian independence movement.

• Government of India Act, 1919

• This Act introduced dyarchy (dual governance) in the provinces, dividing subjects into "Reserved" and "Transferred" categories.

• The dissatisfaction with its limited scope of reforms eventually led to demands for more substantive constitutional changes.

• Impact of the Protests

• The protests against the Simon Commission marked a significant moment in India's fight for self-rule.

• It united Indians across political and social lines, strengthening the push for complete independence.

Q48. Answer: (c) 94

Shortcut Trick

Perform the operations in reverse order to find the original number.

Step 1: Add the subtracted value back → 258 + 24 = 282.
Step 2: Divide by the multiplier → 282 ÷ 3 = 94.
Therefore The correct answer is 94.
Alternate Method
Given:
Let the unknown number be x.
Condition: Three times the number − 24 = 258.
Calculations:
=> 3x − 24 = 258
=> 3x = 258 + 24
=> 3x = 282
=> x = 282 ÷ 3
=> x = 94
Therefore The correct answer is 94.
Additional Information
Linear Equations in One Variable
An equation which can be written in the form ax + b = c, where a, b, and c are constants and x is the variable.
Transposition Method
Moving a term from one side of the equation to another changes its sign (e.g., − becomes + and × becomes ÷).

Q49. Answer: (a) 4

Given: P, Q, R, S, T, U and V are sitting around a circular table facing the centre.
1) Only three people sit between R and Q when counted from the left of R.
2) T is an immediate neighbour of U as well as Q.
Case 1)
Case 2)
3) Only three people sit between V and U when counted from the right of U.
4) S sits to the immediate right of V.
As there is no possible position for S in case 2, therefore is eliminated.
After positioning V and S only one position is left which will be occupied by the only person left i.e. P.
Case 1)
Thus, four people sit between T and P when counted from the right of P.
Hence, "Option 1" is the correct answer.

Q50. Answer: (a) Press Ctrl + N

The correct answer is Press Ctrl + N.
Key Points
• Ctrl + N is the shortcut key used to create a new blank presentation in MS PowerPoint.
• This command is universally recognized across various versions of MS PowerPoint, including Office 2016, Office 2019, and Office 365.
• Using this shortcut automatically opens a new presentation with a default blank slide ready for content creation.
• File → New is another method to create a blank presentation but requires manual navigation through the ribbon.
• Keyboard shortcuts like Ctrl + N enhance productivity by saving time compared to manual navigation.
Additional Information
• MS PowerPoint
• MS PowerPoint is a presentation software developed by Microsoft, widely used for creating professional presentations.
• It is part of the Microsoft Office suite, compatible with Windows, macOS, and online platforms.
• It offers features like slide creation, animations, transitions, multimedia integration, and collaborative tools.
• MS PowerPoint supports multiple file formats, including .pptx and .pdf, for exporting presentations.
• Keyboard Shortcuts in MS PowerPoint
• Ctrl + N: Create a new presentation.
• Ctrl + O: Open an existing presentation.

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• Ctrl + S: Save the current presentation.
• Ctrl + P: Print the presentation.
• These shortcuts help users perform tasks efficiently without relying on the mouse.
• Ribbon Interface
• The ribbon interface in MS PowerPoint provides access to tools and features through tabs like File, Insert, Design, and View.
• It enables users to perform advanced functions like adding transitions, animations, and multimedia to slides.
• Navigation through the ribbon can be enhanced using Alt key combinations.
• File Menu in MS PowerPoint
• The File menu is the starting point for managing presentations, offering options like New, Open, Save, and Export.
• It provides templates for creating presentations tailored to specific themes or industries.
• Users can access cloud services like OneDrive for saving and sharing presentations online.

Q51. Answer: (d) One

Given series: (Left) 6 @ 8 £ 5 @ $ 7 & 3 6 & # 9 # 1 * £ 5 (Right)

According to the question such numbers which are immediately preceded by a symbol and also immediately followed by another number:

Required condition: Symbol - Number - Another Number

(Left) 6 @ 8 £ 5 @ $ 7 & 3 6 & # 9 # 1 * £ 5 (Right)

Thus, there is one such numbers which is immediately preceded by a symbol and also immediately followed by another number.

Hence, "Option 4" is the correct answer.

Q52. Answer: (d) 40,000

Shortcut Trick

Income is always 100%.

Savings % = 100% − 40% = 60%.

60% → Rs. 24,000

100% → (24,000 ÷ 60) × 100 = Rs. 40,000.

Therefore The correct answer is Rs. 40,000.

Alternate Method

Given:

Expenditure = 40% of Income

Savings = Rs. 24,000

Formula Used:

Income = Expenditure + Savings

Calculations:

=> Let Total Income be Rs. X.

=> Expenditure = 0.40X

=> Savings = X − 0.40X = 0.60X

=> 0.60X = 24,000

=> X = 24,000 ÷ 0.60

=> X = (24,000 × 100) ÷ 60

=> X = 400 × 100 = 40,000

Therefore The correct answer is Rs. 40,000.

Additional Information

Percentage Change

Percentage Change = (Change ÷ Original Value) × 100.

Base Change Rule

If Income increases by x%, the new income becomes (100+x)% of the original.

Savings Ratio

The ratio of Income : Expenditure : Savings can be expressed as 100 : 40 : 60 or 5 : 2 : 3.

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Q53. Answer: (a) 2027

The correct answer is 2027.

Key Points

• According to Fine Acres 2025, the market for branded residences and resorts in India is expected to grow significantly and reach Rs. 8,610 crore (US$ 1 billion) by 2027.

• The growth is driven by increasing demand for luxury living spaces and the evolving preferences of high-net-worth individuals (HNIs) in India.

• Branded residences combine premium residential spaces with world-class hospitality, offering exclusive amenities and services.

• Major cities like Mumbai, Delhi, Bengaluru, and Goa are key hubs for branded residences and luxury resorts.

• The market growth aligns with the overall trend of increasing investments in real estate and luxury properties in India.

Additional Information

• Branded Residences:

• These are luxury residential properties developed in collaboration with globally recognized hospitality or lifestyle brands.

• They often include exclusive features such as concierge services, spa facilities, and fine dining options.

• Branded residences are popular among affluent buyers seeking both investment opportunities and premium living experiences.

• Luxury Real Estate Market in India:

• India's luxury real estate market is expanding due to rising disposable incomes and the growing aspirations of its affluent population.

• Developers are increasingly focusing on integrating sustainability and smart home technologies into luxury properties.

• High-end real estate projects often attract foreign investors and NRIs (Non-Resident Indians).

• Key Drivers of Growth:

• Urbanization and globalization have contributed to the demand for international standards in residential spaces.

• India's rapid economic growth and increasing wealth accumulation among the upper-middle class are critical factors.

• The shift from traditional housing to lifestyle-oriented spaces, including branded residences, has gained momentum.

• Challenges in the Sector:

• High property costs and economic fluctuations can impact the luxury real estate market.

• Regulatory hurdles and delays in project approvals may pose challenges to developers.

• Ensuring consistent quality and service standards is crucial for maintaining brand reputation.

Q54. Answer: (c) They are also called transition elements.

The correct answer is They are also called transition elements.

Key Points

• P-block elements include non-metals, metalloids, and noble gases, but not transition elements.

• These elements belong to Groups 13 to 18 of the periodic table.

• The general electronic configuration of p-block elements is ns^2np^1 to ns^2np^6.

• Transition elements, on the other hand, are d-block elements and are found in Groups 3 to 12, making the statement incorrect.

• The p-block contains a diverse range of elements with varying properties, including metals, metalloids, and non-metals.

Additional Information

• p-block Elements:

• These elements are located on the right side of the periodic table, excluding helium.

• They show variable oxidation states and include some of the most reactive non-metals like fluorine and oxygen.

• The p-block includes halogens (Group 17) and noble gases (Group 18), which exhibit unique chemical properties.

• d-block (Transition) Elements:

• These elements are found in Groups 3 to 12 of the periodic table.

• Their general electronic configuration is $(n-1)d^{1-10}ns^{1-2}$.

• They exhibit metallic properties and are known for forming colored compounds and acting as catalysts.

• Periodic Table Grouping:

• The periodic table is divided into s-block, p-block, d-block, and f-block elements based on their outermost electron configurations.

• s-block contains Groups 1 and 2, p-block contains Groups 13 to 18, d-block contains Groups 3 to 12, and f-block consists of lanthanides and actinides.

• Unique Properties of Noble Gases:

• Noble gases (Group 18) are chemically inert due to their completely filled valence shells.

• They are used in various applications like lighting (neon lights) and cryogenics (liquid helium).

Q55. Answer: (c) Odisha

The correct answer is Odisha.

Key Points

• NITI Aayog released the inaugural Fiscal Health Index (FHI) 2025 to assess the fiscal management and health of Indian states.

• Odisha secured the top position on the Fiscal Health Index with the highest overall score, reflecting its strong fiscal discipline and management.

• The index evaluates states based on parameters like revenue generation, expenditure management, debt sustainability, and fiscal prudence.

• Odisha's performance can be attributed to its effective debt management, high revenue mobilization, and prudent financial planning.

• It highlights the state's ability to maintain fiscal sustainability while meeting developmental and welfare objectives.

Additional Information

• Fiscal Health Index (FHI):

• The FHI is developed to measure the fiscal performance and sustainability of states, promoting transparency and accountability in governance.

• It includes parameters like fiscal deficit, debt-to-GDP ratio, revenue expenditure, and capital expenditure.

• The index aims to encourage states to adopt fiscal discipline and effective resource management.

• Odisha's Fiscal Reforms:

• Odisha has implemented reforms such as digitizing revenue systems and reducing non-priority expenditures.

• The state has focused on increasing its tax base and optimizing public resource utilization.

• NITI Aayog:

• NITI Aayog (National Institution for Transforming India) is a policy think tank of the Government of India established in 2015.

• It replaced the Planning Commission and focuses on fostering cooperative federalism by involving states in policy-making.

• Debt Sustainability:

• Debt sustainability refers to a state's ability to manage its debt obligations without compromising its developmental priorities.

• High debt-to-GDP ratios can impact fiscal health by increasing interest burdens and reducing funds for welfare programs.

Q56. Answer: (a) Buddhism

The correct answer is Buddhism.

Key Points

• Kanishka, the Kushana ruler, was a prominent patron of Buddhism and played a significant role in its spread.

• His reign is marked by the convening of the Fourth Buddhist Council in Kashmir, which helped systematize Buddhist teachings.

• Kanishka supported the development of the Mahayana sect of Buddhism, which emphasizes the concept of Bodhisattvas and the universality of salvation.

• Under Kanishka, Buddhist art and culture flourished, especially the Gandhara and Mathura schools of art.

• He is credited with promoting Buddhism beyond India to Central Asia and China.

Additional Information

• Kushana Empire: The Kushana dynasty ruled large parts of Central Asia and northern India during the 1st to 3rd century CE.

• Fourth Buddhist Council: Convened under Kanishka's patronage in Kashmir, this council contributed to the division of Buddhism into Mahayana and Hinayana schools.

• Gandhara Art: A fusion of Greek and Indian artistic traditions, Gandhara art developed under the Kushana empire and is characterized by Buddhist themes.

• Mahayana Buddhism: A major branch of Buddhism that emerged during Kanishka's reign, emphasizing compassion, Bodhisattvas, and the idea of universal salvation.

• Kanishka's Contributions: In addition to his religious patronage, Kanishka was a great military leader and expanded the Kushana empire to its zenith, influencing trade and cultural exchanges along the Silk Road.

Q57. Answer: (d) PRV

The logic followed here is:

Option 1) SUP

Option 2) NPK

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Option 3) GID

Option 4) PRV

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

Hence, "Option 4" is the correct answer.

Q58. Answer: (b) Mountains and treaties

The correct answer is Mountains and treaties.

Key Points

• The India-Bhutan boundary is primarily defined by the Himalayan mountain ranges, which act as a natural border between the two nations.

• Several treaties, including the 1949 Treaty of Friendship and its updated version in 2007, govern the bilateral relationship and border agreements between India and Bhutan.

• Bhutan shares a border of approximately 699 km with Indian states such as Arunachal Pradesh, Assam, West Bengal, and Sikkim.

• India and Bhutan have maintained peaceful relations along the border, largely attributed to mutual cooperation and historical treaties.

• No significant fencing exists along the India-Bhutan border, as both countries rely on natural geographical features and diplomatic agreements for border management.

Additional Information

• Himalayan Mountain Ranges

• The Himalayas act as a natural barrier between India and its northern neighbors, including Bhutan, Nepal, and China.

• They are characterized by high-altitude terrains, dense forests, and glacial rivers.

• The Himalayan ranges influence the climatic patterns and ecosystems of the region.

• 1949 Treaty of Friendship

• This treaty established India and Bhutan as close allies, ensuring mutual respect and cooperation.

• It included provisions for non-interference in each other's internal affairs, while India supported Bhutan in its foreign relations.

• 2007 Treaty Update

• The treaty was revised to provide greater autonomy to Bhutan in its foreign policy decisions.

• It reinforced the peaceful and cooperative nature of the India-Bhutan relationship.

• Geopolitical Importance of Bhutan

• Bhutan serves as a buffer state between India and China, contributing to regional stability.

• The strategic location of Bhutan makes it crucial for India's security and foreign policy.

Q59. Answer: (c) 5

Shortcut Trick

Price ratio for same expenditure is inversely proportional to the Quantity ratio.

Cost Price (CP) percentage = 100% and Selling Price (SP) percentage = 100% + 40% = 140%.

Price Ratio (CP : SP) = 100 : 140 = 5 : 7.

Quantity Ratio (CP : SP) = 7 : 5.

Given CP quantity is 7 lemons, so SP quantity must be 5 lemons.

Therefore The correct answer is 5 lemons.

Alternate Method

Given → CP of 7 lemons = Rs. 1 | Gain% = 40% | SP of 'x' lemons = Rs. 1.

Formulas: CP of 1 unit = Total Price ÷ Quantity | SP = CP × (100 + P%) ÷ 100.

=> CP of 1 lemon = Rs. (1/7).

=> SP of 1 lemon = (1/7) × (100 + 40) ÷ 100.

=> SP of 1 lemon = (1/7) × (140/100) = (1/7) × (7/5) = Rs. (1/5).

=> Since SP of 1 lemon is Rs. (1/5), the number of lemons sold for Rs. 1 = 5.

Therefore The correct answer is 5 lemons.

Additional Information

Unitary Method for Articles

Always calculate the price of a single article to avoid confusion. CP of 1 = Total CP ÷ Total Articles.

Inverse Relation

When the total amount spent and received is constant (Rs. 1 in this case), Quantity is inversely proportional to Price.

Q60. Answer: (b) Disaster relief material, humanitarian assistance, search & rescue teams

The correct answer is Disaster relief material, humanitarian assistance, search & rescue teams.

Key Points

• Operation Brahma 2025 involves disaster relief efforts by India aimed at supporting Myanmar during emergencies or crises.

• India provides humanitarian assistance, including food supplies, medical aid, and essential relief materials.

• Search & rescue teams are dispatched to assist Myanmar in managing disaster situations effectively.

• The operation underscores India's commitment to regional cooperation and its proactive role in disaster management initiatives.

• Such efforts align with India's "Neighborhood First" policy, promoting solidarity and mutual support among neighboring nations.

Additional Information

• Disaster Relief Terminology:

• Humanitarian Assistance: Aid provided during emergencies to alleviate human suffering, including food, water, medical aid, and shelter.

• Search & Rescue Teams: Specialized units trained to locate and rescue individuals trapped or endangered during disasters.

• Disaster Relief Material: Essential supplies like blankets, water purifiers, tents, and food packets provided to affected populations.

• India's Disaster Management Framework:

• India follows a comprehensive disaster management plan under the Disaster Management Act, 2005.

• The National Disaster Response Force (NDRF) plays a pivotal role in managing emergencies and providing relief.

• India has demonstrated a strong commitment to international cooperation in disaster response, especially in South Asia.

• "Neighborhood First" Policy:

• India prioritizes building stronger ties with neighboring countries for mutual development and support.

• Disaster relief operations like Operation Brahma align with this policy to ensure regional stability and cooperation.

• India's Role in Regional Disaster Management:

• India frequently provides disaster relief to neighboring countries such as Nepal, Sri Lanka, and Bangladesh.

• These efforts showcase India's leadership in fostering solidarity and regional crisis management.

Q61. Answer: (d) 3.2%

The correct answer is 3.2%.

Key Points

• According to the Economic Survey 2025, the unemployment rate in India for the financial year 2023-24 was recorded at 3.2%.

• This is a significant improvement compared to earlier years, indicating better employment opportunities and economic recovery post-pandemic.

• The data in the Economic Survey is based on the Periodic Labour Force Survey (PLFS), which is conducted by the Ministry of Statistics and Programme Implementation (MoSPI).

• The unemployment rate measures the percentage of people in the labor force who are willing to work but are unable to find jobs.

• A lower unemployment rate is often seen as an indicator of a growing and stable economy.

Additional Information

• Periodic Labour Force Survey (PLFS):

• Introduced in 2017 by the Ministry of Statistics and Programme Implementation (MoSPI) to provide reliable employment and unemployment data.

• It measures key labor market indicators such as Worker Population Ratio (WPR), Labour Force Participation Rate (LFPR), and Unemployment Rate (UR).

• The PLFS is conducted quarterly in urban areas and annually in rural areas.

• Unemployment Rate:

• The unemployment rate is calculated as the ratio of the number of unemployed individuals to the total labor force, expressed as a percentage.

• It is a critical indicator of economic health and reflects the availability of jobs in the economy.

• Factors influencing unemployment include economic growth, industrial development, and government policies.

• Impact of COVID-19 on Employment:

• The pandemic initially caused widespread job losses, especially in sectors like hospitality, tourism, and retail.

• However, government initiatives such as Atmanirbhar Bharat and Make in India have helped boost job creation and economic recovery.

• Government Measures to Reduce Unemployment:

• Pradhan Mantri Kaushal Vikas Yojana (PMKVY): Aims to provide skill training to increase employability.

• Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA): Provides guaranteed wage employment to rural households.

• Start-Up India: Encourages entrepreneurship and innovation to generate employment.

Q62. Answer: (c) Strength and Power through Innovation and Indigenization

The correct answer is Strength and Power through Innovation and Indigenization.

Key Points

• Indian Navy Day is celebrated annually on December 4 to commemorate Operation Trident, a key naval operation during the 1971 Indo-Pak war.

• The theme for Indian Navy Day 2024, "Strength and Power through Innovation and Indigenization," emphasizes the Navy's focus on achieving self-reliance and innovation in defense technology.

• It aligns with the Indian government's flagship initiative, ‘Aatmanirbhar Bharat,’ aimed at reducing dependency on foreign defense imports.

• The Indian Navy has been actively pursuing indigenization programs, including the development of aircraft carriers like INS Vikrant and advanced warships under the ‘Make in India’ framework.

• Events such as air displays, ship visits, and technology exhibitions showcase the Navy's operational capabilities and advancements in indigenous defense systems.

Additional Information

• Operation Trident:

• Operation Trident was a naval attack conducted on Karachi harbor during the 1971 Indo-Pak war.

• The Indian Navy deployed missile boats to inflict significant damage to Pakistan's naval and merchant vessels.

• This operation marked the Navy's first use of anti-ship missiles, showcasing its strategic prowess.

• INS Vikrant:

• INS Vikrant is India’s first indigenous aircraft carrier commissioned in 2022.

• It represents a major achievement in India's shipbuilding and defense capabilities under the ‘Make in India’ initiative.

• The carrier enhances India's maritime security and regional influence.

• Aatmanirbhar Bharat:

• This initiative was launched by PM Narendra Modi in 2020 to promote self-reliance across sectors, including defense.

• It aims to strengthen indigenous manufacturing and reduce dependency on foreign imports.

• In defense, projects like the development of advanced fighter jets, submarines, and warships are being pursued under this initiative.

• Indian Navy's Indigenization Efforts:

• The Indian Navy has achieved over 70% indigenization in warship and submarine construction.

• Notable projects include the Scorpène-class submarines and stealth frigates under the Project 75 and Project 17A programs.

• The Navy collaborates with Indian industries, research organizations, and academia to advance indigenous technologies.

Q63. Answer: (c) 21.5

Shortcut Trick

Remaining distance = 1 − 2/3 = 1/3 of total distance = 387 ÷ 3 = 129 km.

Remaining time = 1 − 5/7 = 2/7 of total time = (2/7) × 21 = 6 hours.

Required Speed = Remaining Distance ÷ Remaining Time = 129 ÷ 6 = 21.5 km/hr.

Therefore The correct answer is 21.5 km/hr.

Alternate Method

Given: Total distance = 387 km, Total time = 21 hours.

Formula Used: Speed = Distance ÷ Time

=> Distance covered = (2/3) × 387 = 258 km

=> Remaining distance = 387 − 258 = 129 km

=> Time taken = (5/7) × 21 = 15 hours

=> Remaining time = 21 − 15 = 6 hours

=> Required Speed = 129 ÷ 6 = 21.5 km/hr

Therefore The correct answer is 21.5 km/hr.

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Additional Information

Basic Speed Formula

Speed is defined as the distance covered per unit time. Speed = Distance ÷ Time.

Average Speed

Average speed for the entire journey is calculated as Total Distance ÷ Total Time.

Unit Conversion

To convert km/hr to m/s, multiply by 5/18. To convert m/s to km/hr, multiply by 18/5.

Q64. Answer: (c) Global India Dialogues

The correct answer is Global India Dialogues.

Key Points

• The Global India Dialogues was introduced by the World Economic Forum (WEF) in 2025 to emphasize India's emerging role in shaping global innovation and geopolitics.

• This initiative aims to foster discussions on India's leadership in critical areas such as technology, sustainability, and inclusive development.

• It serves as a platform for global leaders, policy-makers, and businesses to engage with India's contributions in areas like AI, renewable energy, and digital transformation.

• The initiative is aligned with the Indo-Pacific geopolitical framework and India's increasing influence in global economic and security matters.

• Key topics include India's sustainable development goals, trade partnerships, and innovation-driven growth on a global scale.

Additional Information

• World Economic Forum (WEF):

• An international organization for public-private cooperation headquartered in Geneva, Switzerland.

• It engages the foremost political, business, and academic leaders of society to shape global, regional, and industry agendas.

• WEF's flagship event is the annual meeting in Davos, Switzerland, where global challenges are discussed.

• India's Role in Global Innovation:

• India is a global leader in IT services, space technology, and renewable energy solutions.

• The country has become a hub for startups, ranking third globally in the number of unicorns as of 2023.

• Its "Digital India" initiative has revolutionized public service delivery and financial inclusion.

• Indo-Pacific Geopolitics:

• The Indo-Pacific region is a strategic area that spans the Indian Ocean and the Pacific Ocean.

• India plays a pivotal role in regional stability, trade partnerships, and maritime security.

• It is a key player in initiatives like the Quad (Quadrilateral Security Dialogue) alongside the US, Japan, and Australia.

• Sustainable Development Goals (SDGs):

• The SDGs are a collection of 17 global goals set by the United Nations in 2015.

• India has taken significant steps to achieve these goals, particularly in areas like clean energy, poverty alleviation, and education.

• Initiatives like "Mission LiFE" and "National Solar Mission" contribute to India's sustainability efforts.

Q65. Answer: (d) Black soil

The correct answer is Black Soil.

Key Points

• Black soil, also known as Regur soil, has the highest water-retaining capacity due to its high clay content.

• It is predominantly found in the Deccan Plateau regions of India, including Maharashtra, Madhya Pradesh, Gujarat, Andhra Pradesh, and Tamil Nadu.

• The soil is rich in nutrients like calcium carbonate, magnesium, potash, and lime, which further enhance its ability to retain moisture.

• Black soil is highly suitable for cultivating crops like cotton, sugarcane, wheat, and pulses due to its moisture-retaining ability.

• Its unique property of forming deep cracks during dry seasons helps in air circulation and improves soil fertility.

Additional Information

• Water-retaining capacity:

• This refers to the ability of soil to hold water and make it available for plant growth.

• Clayey soils, like black soil, have a higher water-retaining capacity compared to sandy soils.

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• Red Soil:
• Found in areas with high iron oxide content, giving it a reddish appearance.
• It has low water-retaining capacity and is less fertile compared to black soil.
• Alluvial Soil:
• Highly fertile and found in river basins, but its water-retaining capacity is moderate.
• Suitable for crops like rice, wheat, and sugarcane.
• Desert Soil:
• Found in arid regions like Rajasthan and Gujarat.
• It is sandy, has very low water-retaining capacity, and requires irrigation for cultivation.
• Clay content importance:
• Clay particles are small and have a high surface area, allowing them to retain moisture effectively.
• Soils with higher clay content are generally better at holding water and nutrients.

Q66. Answer: (d) To define a standardised set of codes for representing text and control characters

The correct answer is To define a standardised set of codes for representing text and control characters.

Key Points

• ASCII (American Standard Code for Information Interchange) is a character encoding standard used to represent text in computers, telecommunications, and other devices.
• Developed in the 1960s, ASCII assigns a unique numerical value (0-127) to letters, digits, punctuation marks, and control characters.
• It enables universal data exchange between different types of devices and software by standardizing text representation.
• The ASCII standard includes 128 characters, with codes 0-31 reserved for control characters (e.g., newline, tab) and codes 32-127 for printable characters.
• ASCII remains the foundation for many modern encoding systems, including UTF-8 and Unicode, which build upon it for broader character support.

Additional Information

• Character Encoding: Character encoding is the process of assigning a numerical value to each character, enabling computers to store and manipulate text.
• Control Characters: ASCII codes 0-31 are reserved for non-printable control characters, such as newline (code 10) and tab (code 9).
• Extended ASCII: Extended ASCII expands the standard 128 characters to include 256 characters, incorporating additional symbols, accents, and graphical elements.
• Unicode: Unicode is a universal character encoding system that supports over 140,000 characters across multiple languages and scripts, building upon ASCII for broader compatibility.
• Usage in Computing: ASCII codes are widely used in programming, data transfer, and storage to ensure compatibility across systems.

Q67. Answer: (b) Monday

Given: Each of M, N, O, P, Q, R and S has an exam on a different day of the week, starting from Monday and ending on Sunday of the same week.

1) S has an exam on Friday.

2) Only two people have exams between S and R.

Weekdays	Person
Monday	
Tuesday	R
Wednesday	
Thursday	
Friday	S
Saturday	
Sunday	

3) S has an exam on one of the days after M.

4) M has an exam immediately after P.

Weekdays	Person
Monday	
Tuesday	R
Wednesday	P
Thursday	M
Friday	S
Saturday	
Sunday	

5) O has an exam immediately before N.

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

Weekdays	Person
Monday	Q
Tuesday	R
Wednesday	P
Thursday	M
Friday	S
Saturday	O
Sunday	N

Thus, Q have an exam on Monday.

Hence, "Option 2" is the correct answer.

Q68. Answer: (d) 15 3/25

Shortcut Trick

Total Work (LCM of 25, 18) = 450 units

Efficiency: A = 18 units/day, B = 25 units/day

Work done by A in 4 days = 18 × 4 = 72 units

Remaining work = 450 − 72 = 378 units

Days taken by B = 378 ÷ 25 = 15 (3/25) days

Therefore The correct answer is 15 (3/25) days.

Alternate Method

Given: Time taken by A = 25 days, Time taken by B = 18 days. A worked for 4 days.

Formula Used: Work = Efficiency × Time; Remaining Work = Total Work − Work Done.

Person	Days	Total Work	Efficiency
A	25	450	18
B	18	25	

=> Total Work = LCM(25, 18) = 450 units

=> Work completed by A in 4 days = 18 × 4 = 72 units

=> Remaining Work = 450 − 72 = 378 units

=> Days required by B = Remaining Work ÷ Efficiency of B

=> Days = 378 ÷ 25

=> Days = 15 (3/25) days

Therefore The correct answer is 15 (3/25) days.

Additional Information

Work and Efficiency Relation

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Efficiency is inversely proportional to the time taken to complete a job. Efficiency = Total Work ÷ Time.

Remaining Work Concept

When a person leaves, the Remaining Work must be divided by the Efficiency of the person staying to find the additional time required.

LCM Method

Using the Least Common Multiple (LCM) of the given days as the total work simplifies calculation by avoiding fractions until the final step.

Q69. Answer: (a) 41.7

Shortcut Trick

Net change in the sum = Correct value − Incorrect value

Net change = 50 − 33 = +17

Change in average = Net change ÷ Total observations = 17 ÷ 10 = 1.7

Correct average = Old average + Change = 40 + 1.7 = 41.7

Therefore The correct answer is 41.7.

Alternate Method

Given:

Total number of observations (n) = 10

Average of observations = 40

Incorrect observation = 33

Correct observation = 50

Formula Used:

Sum of observations = Average × Number of observations

Calculations:

=> Total initial sum = 40 × 10 = 400

=> Corrected total sum = Initial Sum − Incorrect value + Correct value

=> Corrected total sum = 400 − 33 + 50

=> Corrected total sum = 367 + 50 = 417

=> Correct average = 417 ÷ 10

=> Correct average = 41.7

Therefore The correct answer is 41.7.

Additional Information

General Average Formula

Average = (Sum of all observations) ÷ (Total number of observations).

Net Deviation Principle

The algebraic sum of deviations of a set of observations from their arithmetic mean is always zero. If a value is replaced, New Average = Old Average + (Net Change ÷ Total Count).

Weighted Average

When two groups with averages A1 and A2 and sizes n1 and n2 are combined, the combined average = (n1A1 + n2A2) ÷ (n1 + n2).

Q70. Answer: (b) 76

Shortcut Trick

If $x - 1/x = k$, then $x^3 - 1/x^3 = k^3 + 3k$.

Given k = 4.

Therefore $x^3 - 1/x^3 = 4^3 + 3 \times 4 = 64 + 12 = 76$.

Therefore The correct answer is 76.

Alternate Method

Given: $x - 1/x = 4$

Formula Used: $(a - b)^3 = a^3 - b^3 - 3ab(a - b)$

=> Cubing both sides of the equation: $(x - 1/x)^3 = 4^3$

=> $x^3 - 1/x^3 - 3 \times x \times (1/x) \times (x - 1/x) = 64$

=> $x^3 - 1/x^3 - 3 \times (x - 1/x) = 64$

=> Substitute the value $x - 1/x = 4$ into the equation:

=> $x^3 - 1/x^3 - 3 \times 4 = 64$

=> $x^3 - 1/x^3 - 12 = 64$

=> $x^3 - 1/x^3 = 64 + 12$

=> $x^3 - 1/x^3 = 76$

Therefore The correct answer is 76.

Additional Information

Standard Algebraic Identities for Reciprocals

If $x + 1/x = k$, then $x^3 + 1/x^3 = k^3 - 3k$.

Square Relations

If $x + 1/x = k$, then $x^2 + 1/x^2 = k^2 - 2$ and if $x - 1/x = k$, then $x^2 + 1/x^2 = k^2 + 2$.

Power 4 Relation

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

Q71. Answer: (c) 11 km north

Given:

Evan starts from point A and drives 12 km towards west.

He then takes a left turn, drives 6 km, turns left and drives 4 km.

He then takes a right turn and drives 2 km.

He then takes a right turn and drive 3 km.

He then takes a left turn and drives 3 km.

He takes a final left turn, drives 11 km and stops at point P.

Thus, Evan should drive 11 km (6 km + 2 km + 3 km) in the north direction in order to reach point A again.

Hence, "Option 3" is the correct answer.

Q72. Answer: (c) Richard Gere

The correct answer is Richard Gere.

Key Points

• Richard Gere was awarded the International Goya Award in 2025 for his outstanding contributions to global cinema.

• The Goya Awards, often referred to as the Spanish Oscars, are presented annually by the Spanish Academy of Cinematic Art and Sciences.

• Richard Gere has had a celebrated career spanning decades, starring in critically acclaimed films like Pretty Woman, An Officer and a Gentleman, and Chicago.

• He has also been recognized for his humanitarian work, including advocacy for human rights, environmental conservation, and Tibetan causes.

• The International Goya Award is granted to individuals who significantly impact cinema worldwide, aligning with Gere's global influence and legacy.

Additional Information

• Goya Awards Overview:

• Established in 1987, the Goya Awards celebrate excellence in Spanish cinema.

• They are organized by the Spanish Academy of Cinematic Art and Sciences.

• The ceremony includes categories such as Best Film, Best Director, and Best Actor.

• International awards recognize contributions to cinema beyond Spanish borders.

• Richard Gere's Humanitarian Work:

• Gere is a prominent advocate for Tibetan independence and a supporter of the Dalai Lama.

• He is involved in various charities, including HIV/AIDS awareness and environmental protection.

• He founded the Gere Foundation to support humanitarian causes globally.

• Global Impact of Cinema:

• Cinema serves as a powerful medium to influence culture, society, and global awareness.

• International awards like the Goya recognize the transnational impact of film and its creators.

• Richard Gere’s career exemplifies how cinema can bridge cultural divides and inspire audiences worldwide.

• Other Recipients of the International Goya Award:

• Past recipients include internationally acclaimed actors and filmmakers such as Meryl Streep and Pedro Almodóvar.

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• The award honors individuals who elevate cinema to a global art form.

Q73. Answer: (d) Six

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

According to the question such symbols which are immediately preceded by a number and also immediately followed by another number:

Required condition: Number - Symbol - Another Number

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

Thus, there are six such symbols which are immediately preceded by a number and also immediately followed by another number.

Hence, "Option 4" is the correct answer.

Q74. Answer: (d) 42

Shortcut Trick

Net efficiency = (1/21 − 1/24) = (8 − 7)/168 = 1/168.

Time to fill full tank = 168 minutes.

Time to fill 1/4th tank = 168 ÷ 4 = 42 minutes.

Therefore The correct answer is 42 minutes.

Alternate Method

Pipe	Time (min)	Total Capacity (LCM)	Efficiency
Inlet Pipe	21	168 units	+8
Outlet Pipe	24	−7	

=> Combined Efficiency = 8 − 7 = 1 unit/min

=> One-fourth of Tank Capacity = 168 ÷ 4 = 42 units

=> Required Time = 42 units ÷ 1 unit/min = 42 minutes

Therefore The correct answer is 42 minutes.

Additional Information

Inlet and Outlet Pipes

Efficiency of an inlet pipe is always positive, whereas the efficiency of an outlet (emptying) pipe is always negative.

Work and Efficiency Relation

Time taken = Total Work ÷ Net Efficiency. If net efficiency is positive, the tank fills; if negative, the tank empties.

Q75. Answer: (a) 8/7

Shortcut Trick

Simplify the expression using trigonometric identities: $(1 + \sin\theta)(1 - \sin\theta) = \cos^2\theta$ and $(1 + \cos\theta)(1 - \cos\theta) = \sin^2\theta$.

The expression becomes $(\cos^2\theta) \div (\sin^2\theta \times \cot\theta)$.

Since $\cos^2\theta \div \sin^2\theta = \cot^2\theta$, the expression simplifies to $\cot^2\theta \div \cot\theta = \cot\theta$.

Given $\tan\theta = 7/8$, then $\cot\theta = 1 \div \tan\theta = 8/7$.

Therefore The correct answer is 8/7.

Alternate Method

Given: $\tan\theta = 7/8$

Formula Used: $(a + b)(a - b) = a^2 - b^2$; $\sin^2\theta + \cos^2\theta = 1$; $\cot\theta = \cos\theta / \sin\theta$

=> Expression = $[(1 + \sin\theta)(1 - \sin\theta)] \div [(1 + \cos\theta)(1 - \cos\theta)(\cot\theta)]$

=> Using (a+b)(a-b) => $(1 - \sin^2\theta) \div [(1 - \cos^2\theta) \times \cot\theta]$

=> Using identities => $\cos^2\theta \div (\sin^2\theta \times \cot\theta)$

=> $(\cos^2\theta / \sin^2\theta) \times (1 / \cot\theta)$

=> $\cot^2\theta \times (1 / \cot\theta) = \cot\theta$

=> $\cot\theta = 1 / \tan\theta = 1 / (7/8) = 8/7$

Therefore The correct answer is 8/7.

Additional Information

Reciprocal Identities

$\tan\theta = 1/\cot\theta$, $\sin\theta = 1/\text{cosec}\,\theta$, and $\cos\theta = 1/\sec\theta$.

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Pythagorean Identities

$\sin^2\theta + \cos^2\theta = 1$; $1 + \tan^2\theta = \sec^2\theta$; $1 + \cot^2\theta = \operatorname{cosec}^2\theta$.

Quotient Identities

$\tan\theta = \sin\theta / \cos\theta$ and $\cot\theta = \cos\theta / \sin\theta$.

Q76. Answer: (a) One

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

1) H sits to the immediate right of D.

2) Only three people sit between D and C.

3) Only three people sit between H and I when counted from the left of H.

4) A sits to the immediate right of G.

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

Thus, one person sit between D and G when counted from the right of G.

Hence, "Option 1" is the correct answer.

Q77. Answer: (d) 11 1/9 %

Shortcut Trick

Let initial Profit be P and initial Selling Price be SP.

New Profit = 11 × P and New SP = 2 × SP.

Since Cost Price (CP) is constant, Change in Profit = Change in SP.

(11P − P) = (2SP − SP) => 10P = 1SP.

Ratio of P : SP = 1 : 10. Since SP = CP + P, then CP = 10 − 1 = 9.

Initial Profit% = (P ÷ CP) × 100 = (1 ÷ 9) × 100 = 11 1/9 %.

Therefore The correct answer is 11 1/9 %.

Alternate Method

Given → New SP = 2 × Old SP | New Profit = 11 × Old Profit.

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

=> Let initial CP be x and initial SP be y.

=> Initial Profit (P) = y − x.

=> New SP = 2y. New Profit = 2y − x.

=> According to the question: 2y − x = 11(y − x).

=> 2y − x = 11y − 11x => 10x = 9y => y/x = 10/9.

=> If CP = 9 units, SP = 10 units. Profit = 1 unit.

=> Profit% = (1 ÷ 9) × 100 = 11 1/9 %.

Therefore The correct answer is 11 1/9 %.

Additional Information

Relationship between SP and Profit

When the cost price remains constant, any increase in the selling price directly increases the profit by the same absolute amount.

Profit Percentage

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

Q78. Answer: (d) It becomes null and void.

The correct answer is It becomes null and void..

Key Points

• If a law is declared unconstitutional under judicial review, it ceases to have any legal effect and is treated as if it never existed.

• The judiciary exercises this power under the principle of constitutional supremacy, ensuring that all laws adhere to the constitution.

• Such a declaration is binding on all authorities, including the legislature, executive, and judiciary.

• The law is considered null and void from the date of its enactment, unless the court specifies otherwise.

• This power of judicial review is a key feature of democracies like India and the USA, ensuring the protection of fundamental rights and constitutional integrity.

Additional Information

• Judicial Review:

• It is the power of the judiciary to examine the constitutionality of legislative and executive actions.
• Judicial review ensures that no law or government action violates the constitution.
• In India, this power is derived from Articles 13, 32, and 226 of the Constitution.
• Unconstitutional Law:
• A law is termed unconstitutional when it contravenes the provisions of the constitution, particularly fundamental rights.
• Such laws cannot be enforced and lose their legal validity.
• Doctrine of Basic Structure:
• The judiciary uses this doctrine to ensure that amendments or laws do not alter the basic framework of the constitution.
• This doctrine was established in the landmark Kesavananda Bharati case (1973).
• Article 13 of the Indian Constitution:
• Article 13 declares that any law inconsistent with the fundamental rights shall be void.
• It forms the basis for judicial review in India.

Q79. Answer: (b) 22

The correct answer is 22.

Key Points

• The government of India has set a target to construct 22 greenfield expressways by the financial year 2024-25 under the Bharatmala Pariyojana.
• These expressways are being developed to improve connectivity between major economic centers and reduce travel time significantly across states.
• The initiative includes expressways like the Delhi-Mumbai Expressway, Ahmedabad-Dholera Expressway, and Bengaluru-Chennai Expressway.
• The construction of these expressways aims to enhance logistics efficiency, boost trade, and create employment opportunities.
• Greenfield expressways are designed to be environmentally sustainable, leveraging advanced engineering and planning techniques.

Additional Information

• Bharatmala Pariyojana
• It is a centrally-sponsored and funded road and highway project launched in 2017.
• The primary objective is to develop seamless freight corridors and improve road infrastructure across India.
• Greenfield expressways under this initiative are planned for high-speed connectivity and reduced congestion.
• Greenfield Project
• A greenfield project refers to a new infrastructure initiative built from scratch on undeveloped land.
• Such projects aim to utilize advanced planning methods to ensure optimal efficiency and sustainability.
• Key Expressways Under Construction
• Delhi-Mumbai Expressway: A 1,386 km-long expressway connecting Delhi and Mumbai with reduced travel time to approximately 12 hours.
• Bengaluru-Chennai Expressway: A 262 km-long expressway aimed at reducing travel time between the two cities.
• Ahmedabad-Dholera Expressway: A vital project to boost connectivity between Ahmedabad and the Dholera Special Investment Region.
• Environmental Benefits of Greenfield Expressways
• Designed to minimize carbon emissions by enabling fuel-efficient travel.
• Incorporates measures to protect surrounding ecosystems and reduce environmental impact.

Q80. Answer: (b) PM −1

The logic followed here is:

WJ 15 is related to UN 11

And,

QH 8 is related to OL 4

Similarly,

RI 3 is related to

Hence, "Option 2" is the correct answer.

Q81. Answer: (d) 1976

The correct answer is 1976.

Key Points

• The protection and improvement of the environment and safeguarding forests and wildlife were added as Directive Principles of State Policy under Article 48A of the Indian Constitution in 1976.

• This amendment was made through the 42nd Constitutional Amendment Act, which is considered one of the most extensive amendments in Indian constitutional history.

• Article 48A directs the State to endeavor to protect and improve the environment and to safeguard the forests and wildlife of the country.

• Additionally, Article 51A(g) was also added through the 42nd Amendment, which makes it a fundamental duty of every citizen to protect and improve the natural environment including forests, lakes, rivers, and wildlife.

• The 42nd Amendment Act was enacted during the tenure of Prime Minister Indira Gandhi, who emphasized environmental protection as a key priority.

Additional Information

• Directive Principles of State Policy (DPSP):

• DPSPs are guidelines for the central and state governments to ensure social and economic welfare in India.

• They are non-justiciable, meaning they cannot be enforced by courts, but they are fundamental in governance.

• Environmental protection was incorporated under DPSPs through Article 48A, emphasizing sustainable development.

• 42nd Amendment Act of 1976:

• It introduced significant changes to the Constitution, including adding new directives and duties.

• It added Articles 48A and 51A(g), focusing on environmental conservation.

• It is often referred to as the "Mini-Constitution" due to its sweeping impact on constitutional provisions.

• Fundamental Duties:

• Fundamental Duties were added to the Constitution through the 42nd Amendment under Article 51A.

• Article 51A(g) specifically states that citizens must protect and improve the environment.

• Fundamental Duties are non-enforceable but serve as moral obligations for Indian citizens.

• Global Environmental Awareness:

• The incorporation of environmental protection in the Indian Constitution was influenced by global movements like the United Nations Conference on the Human Environment (1972) held in Stockholm.

• India was one of the signatories to the Stockholm Declaration, which emphasized environmental conservation worldwide.

Q82. Answer: (b) 3

Given: Seven boxes, A, B, C, D, E, F and G, are kept one over the other but not necessarily in the same order.

1) Only A is kept above D.

2) Only four boxes are kept between D and F.

Boxes
A
D
F

3) Only two boxes are kept between C and G.

Boxes
A
D
C/G

C/G
F

4) E is kept immediately above B.

5) G is not kept immediately above E.

Boxes
A
D
C
E
B
G
F

Thus, three boxes are kept below E.

Hence, "Option 2" is the correct answer.

Q83. Answer: (c) VSZ

The logic followed here is:

Hence, "Option 3" is the correct answer.

Q84. Answer: (d) = PQG, % = SVJ

The logic followed here is:

Given: # : MLD :: VAM : %

Option 1) # = SVJ, % = YFP → SVJ : MLD :: VAM : YFP

Option 2) # = YFP, % = BKS → YFP : MLD :: VAM : BKS

Option 3) # = BKS, % = PQG → BKS : MLD :: VAM : PQG

Option 4) # = PQG, % = SVJ → PQG : MLD :: VAM : SVJ

Hence, "Option 4" is the correct answer.

Q85. Answer: (b) LD - KH

The logic followed here is:

Option 1) OP - KL

Option 2) LD - KH

Option 3) MN - IJ

Option 4) IJ - EF

Thus, out of all 'LD - KH' is the odd one out.

Hence, "Option 2" is the correct answer.

Q86. Answer: (d) L C Z T W

Given Table:

Number/Symbol	3	9	7	&	2	@	5	%	1	8	Δ	4	6
Code	L	C	Z	M	D	W	A	P	R	T	F	B	K

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According to the given condition:

Rule no.	Condition	Result
1.	First element is a symbol and the last a number	Codes for these two are to be interchanged
2.	First element is an odd number and the last an even number	First and last elements are to be coded as ©
3.	Both the second and third elements are perfect squares	Third element is to be coded as the code for the second element

Given: @ 9 7 8 3

Here, 1st rule applies i.e. First element is a symbol and the last a number.

@ → coded as L (as the codes of first and the last elements are to be interchanged)

9 → coded as C

7 → coded as Z

8 → coded as T

3 → coded as W (as the codes of first and the last elements are to be interchanged)

So, @ 9 7 8 3 → Coded as L C Z T W

Hence, "Option 4" is the correct answer.

Q87. Answer: (b) Only 1 and 2

The correct answer is Only 1 and 2.

Key Points

• Exercise CYCLONE was conducted in February 2025 at the Mahajan Field Firing Ranges in Rajasthan, India.

• This bilateral military exercise was carried out jointly by India and Egypt, focusing on strengthening defense cooperation.

• The exercise aimed at enhancing interoperability and operational preparedness between the two nations' armed forces.

• Though it involved various military drills, the focus was not specifically on artillery training, making statement 3 incorrect.

• Hence, only statements 1 and 2 are correct, making Option 2 the correct answer.

Additional Information

• Mahajan Field Firing Ranges (Rajasthan):

• One of the largest and most advanced military training facilities in India.

• Used for conducting various military exercises, including multinational collaborations.

• India-Egypt Defense Relations:

• India and Egypt have a long-standing defense relationship, focusing on joint training, defense technology, and counter-terrorism operations.

• Egypt is a key partner for India in the Middle East and Africa region.

• Joint Military Exercises:

• Such exercises aim to improve coordination, interoperability, and operational capabilities of the participating nations.

• They also foster strategic and diplomatic ties between the countries involved.

• Importance of Interoperability:

• Interoperability ensures that forces from different nations can work together seamlessly during joint operations or multinational missions.

• It involves sharing knowledge, communication systems, and operational strategies.

Q88. Answer: (a) 5.75 km/hr

Shortcut Trick

Downstream Speed (D) = 184 ÷ 12 = 15.33 km/hr

Upstream Speed (U) = 184 ÷ 48 = 3.83 km/hr

Speed of Stream = (D − U) ÷ 2

Speed of Stream = (15.33 − 3.83) ÷ 2 = 11.5 ÷ 2 = 5.75 km/hr

Therefore The correct answer is 5.75 km/hr.

Alternate Method

Given:

Distance (S) = 184 km

Time taken against stream (t_u) = 48 hours

Time taken with stream (t_d) = 12 hours

Formula Used:

Speed = Distance ÷ Time

Speed of stream = (Downstream Speed − Upstream Speed) ÷ 2

Calculations:

=> Upstream Speed (U) = 184 ÷ 48 = 23 ÷ 6 ≈ 3.833 km/hr

=> Downstream Speed (D) = 184 ÷ 12 = 46 ÷ 3 ≈ 15.333 km/hr

=> Speed of Stream = (15.333 − 3.833) ÷ 2

=> Speed of Stream = 11.5 ÷ 2

=> Speed of Stream = 5.75 km/hr

Therefore The correct answer is 5.75 km/hr.

Additional Information

Speed of Boat in Still Water

The speed of the boat in still water is calculated as the average of downstream and upstream speeds: Speed = (D + U) ÷ 2.

Relative Speed in Streams

Downstream speed = Speed of boat + Speed of stream. Upstream speed = Speed of boat − Speed of stream.

Ratio of Speeds

The ratio of speed of boat to speed of stream is given by (D + U) : (D − U).

Q89. Answer: (d) Monsoonal pressure system

The correct answer is Monsoonal pressure system.

Key Points

• The seasonal reversal of wind direction in India is primarily driven by the monsoonal pressure system, which is influenced by differential heating of land and water surfaces.

• During summer, intense heating of the Indian subcontinent creates a low-pressure area over northern India, attracting moisture-laden winds from the Indian Ocean.

• In winter, the land cools down rapidly, forming a high-pressure area, while the Indian Ocean remains relatively warm, causing winds to reverse direction.

• The monsoonal pressure system is a key feature of India's climate and is responsible for seasonal rainfall patterns, which are crucial for agriculture and water resources.

• This dynamic system is heavily influenced by the Inter-Tropical Convergence Zone (ITCZ), which shifts northward during summer and southward during winter.

Additional Information

• Monsoon Definition: The term "monsoon" originates from the Arabic word "mausim," meaning season. It refers to the seasonal wind patterns driven by temperature and pressure differences between land and sea.

• Southwest Monsoon: Occurs during summer (June–September) when winds blow from the Indian Ocean towards the Indian subcontinent, bringing heavy rainfall.

• Northeast Monsoon: Occurs during winter (October–December) when winds reverse direction, carrying dry air from land to sea and resulting in limited rainfall in certain regions.

• Role of ITCZ: The Inter-Tropical Convergence Zone is a belt of low pressure near the equator where trade winds converge. Its north-south movement significantly impacts monsoon dynamics.

• El Niño and La Niña: These oceanic phenomena can influence monsoon intensity and rainfall patterns by affecting sea surface temperatures and atmospheric circulation.

Q90. Answer: (c) • 1/2 and -1

Shortcut Trick

Identify two numbers whose sum is 6 and product is 8 (4 × 2).

The numbers are 4 and 2.

Roots are obtained by changing the signs and dividing by the coefficient of m^2 (4).

Roots = −4/4 and −2/4 = −1 and −1/2.

Therefore The correct answer is −1/2 and −1.

Alternate Method

Given Equation: $4m^2 + 6m + 2 = 0$

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Method: Factorization (Splitting the middle term)

=> $4m^2 + 4m + 2m + 2 = 0$

=> $4m(m + 1) + 2(m + 1) = 0$

=> $(4m + 2)(m + 1) = 0$

Now, set each factor to zero:

=> $4m + 2 = 0$

=> $4m = -2$

=> $m = -2/4 = -1/2$

And,

=> $m + 1 = 0$

=> $m = -1$

Therefore The correct answer is $-1/2$ and -1.

Additional Information

Quadratic Formula

For a quadratic equation $am^2 + bm + c = 0$, the roots are $m = (-b \pm \sqrt{(b^2 - 4ac)}) / 2a$.

Discriminant and Nature of Roots

The value $D = b^2 - 4ac$ determines the nature of roots: if $D > 0$ (two real roots), if $D = 0$ (one real root), and if $D < 0$ (no real roots).

Sum and Product of Roots

For the equation $am^2 + bm + c = 0$, the sum of roots is $-b/a$ and the product of roots is c/a.

Q91. Answer: (d) ZKQXP

The logic followed here is:

DREAM is related to ZNAWI

And,

DANCE is related to ZWJYA

Similarly,

DOUBT is related to

Hence, "Option 4" is the correct answer.

Q92. Answer: (d) Neither conclusion (I) nor (II) follows.

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

Conclusions:

(I) Atleast some lions are frogs → Does not follow (As some deers are lions and some frogs are deers. So it is possible but not definite)

(II) Some deers are horses → Does not follow (As some frogs are deers and Some horses are lions. So it is possible but not definite)

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

Hence, the correct answer is "Option 4".

Q93. Answer: (a) 4°

Shortcut Trick

In ΔABC, the sum of angles is 180°.

angle ACB = 180° − (angle ABC + angle BAC) = 180° − (69° + 23°) = 88°.

Since BC || AD, alternate interior angles are equal: angle CAD = angle ACB = 88°.

In ΔACD, since AC = CD, we have angle ADC = angle CAD = 88°.

Therefore, angle ACD = 180° − (angle CAD + angle ADC) = 180° − (88° + 88°) = 4°.

Therefore The correct answer is 4°.

Alternate Method

Given:

In trapezium ABCD, BC || AD and AC = CD.

angle ABC = 69° and angle BAC = 23°.

Formula/Properties Used:

1. Angle Sum Property of a Triangle: The sum of all interior angles of a triangle is 180°.

2. Alternate Interior Angles Theorem: When two parallel lines are cut by a transversal, the alternate interior angles are equal.

3. Isosceles Triangle Property: Angles opposite to equal sides of a triangle are equal.

Calculations:

Step 1: Find angle ACB in ΔABC:

=> angle BAC + angle ABC + angle ACB = 180°

=> 23° + 69° + angle ACB = 180°

=> 92° + angle ACB = 180°

=> angle ACB = 180° − 92° = 88°

Step 2: Find angle CAD using parallel lines BC || AD:

=> angle CAD = angle ACB (Alternate interior angles)

=> angle CAD = 88°

Step 3: Find angle ADC in ΔACD:

=> Since AC = CD, the angles opposite to these sides are equal.

=> angle ADC = angle CAD = 88°

Step 4: Find angle ACD using the angle sum property in ΔACD:

=> angle ACD + angle CAD + angle ADC = 180°

=> angle ACD + 88° + 88° = 180°

=> angle ACD + 176° = 180°

=> angle ACD = 180° − 176° = 4°

Therefore The correct answer is 4°.

Additional Information

Properties of a Trapezium

A trapezium is a quadrilateral with at least one pair of parallel sides. The angles on the same side of a leg are supplementary (sum to 180°).

Isosceles Trapezium

If the non-parallel sides of a trapezium are equal in length, it is called an isosceles trapezium, where base angles are equal and diagonals are equal.

Alternate Interior Angles

When a transversal intersects two parallel lines, the alternate interior angles formed are equal (e.g., angle ACB = angle CAD).

Q94. Answer: (b) Two

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

According to the question such symbols which are immediately preceded by a symbol and also immediately followed by a number:

Required condition: Symbol - Symbol - Number

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

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

Hence, "Option 2" is the correct answer.

Q95. Answer: (a) Great Indian Bustard

The correct answer is Great Indian Bustard.

Key Points

• The Great Indian Bustard is critically endangered and is one of the heaviest flying birds, found mainly in the Indian subcontinent.

• The Desert National Park in Rajasthan is one of the primary habitats for the Great Indian Bustard, offering protection to this species.

• Its population has drastically declined due to habitat loss, poaching, and human-induced activities, leading to its inclusion in the IUCN Red List under the "Critically Endangered" category.

• The Great Indian Bustard is a ground-nesting bird, primarily dependent on grasslands and arid regions for survival.

• Conservation programs such as captive breeding and habitat restoration are being actively pursued by the Indian government and wildlife organizations.

Additional Information

• Desert National Park

• Located in Rajasthan, it is one of the largest national parks in India, covering an area of 3162 km².

• The park's ecosystem includes sand dunes, rocky terrain, and sparse vegetation, ideal for desert wildlife.

• Besides the Great Indian Bustard, the park is home to other species such as Indian fox, desert cat, and sandgrouse.
• Great Indian Bustard Conservation
• The government has launched Project Great Indian Bustard to protect and conserve this critically endangered species.
• The Bustard Recovery Program involves captive breeding efforts and habitat management.
• Artificial egg incubation and predator control measures are also being implemented to ensure population growth.
• Critically Endangered Species
• Species classified as "Critically Endangered" under the IUCN Red List are at the highest risk of extinction in the wild.
• Global efforts such as habitat preservation, anti-poaching laws, and community involvement are vital for their survival.
• Grassland Ecosystems
• Grasslands are crucial for the survival of many species like the Great Indian Bustard, providing food and nesting habitats.
• Human activities, including agriculture and urbanization, have severely impacted grassland ecosystems.
• Restoring grasslands is essential for maintaining biodiversity and ecological balance.

Q96. Answer: (c) ? (question mark)

The correct answer is ? (question mark).

Key Points

• The question mark (?) is one of the characters prohibited in filenames in Windows operating systems.
• Other restricted characters include \ / : * ? " < > |, as these are reserved for system functions or file path navigation.
• Windows uses these special characters to perform certain operations, such as separating directories (/) or indicating a wildcard (*).
• If you attempt to include a restricted character while renaming a file, Windows will display an error message preventing the action.
• These restrictions are enforced to ensure compatibility and avoid conflicts within the file system.

Additional Information

• Filename Restrictions in Windows:
• Windows filenames cannot exceed 255 characters, including the file path.
• Filenames cannot end with a period (.) or a space ().
• Reserved names like CON, AUX, NUL, COM1 to COM9, and LPT1 to LPT9 are also prohibited.
• Wildcard Characters:
• Wildcards like * and ? are used to represent multiple or single characters in searches.
• Including these in filenames can interfere with file search or system commands.
• File Path Syntax:
• Windows uses \ as a directory separator, distinguishing file paths.
• Other characters like : are reserved for drives (e.g., C:).
• Cross-Platform Compatibility:
• Some characters allowed in other operating systems (e.g., Linux) may still be prohibited in Windows.
• Developers often avoid restricted characters to ensure portability across platforms.

Q97. Answer: (a) Land reform laws

The correct answer is Land reform laws.

Key Points

• Article 31B was introduced in the Constitution of India through the First Amendment Act of 1951 to provide protection to certain laws from judicial review.
• The primary purpose of Article 31B was to safeguard land reform laws from being challenged in courts on the grounds of violation of fundamental rights.
• Laws listed under the Ninth Schedule of the Constitution are protected by Article 31B, ensuring they cannot be invalidated by courts.
• This provision was critical for implementing agrarian reforms and redistributing land to reduce inequalities in rural India.
• It was aimed at addressing socio-economic disparities and promoting equitable land ownership among citizens, especially marginalized communities.

Additional Information

• First Amendment Act, 1951
• The First Amendment introduced Article 31B and the Ninth Schedule to protect laws related to land reforms and socio-economic

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development.

• It was enacted under the leadership of Prime Minister Jawaharlal Nehru.

• This amendment was essential to address challenges posed by judicial scrutiny of land redistribution laws.

• Ninth Schedule of the Constitution

• The Ninth Schedule lists laws that are immune from judicial review under Article 31B.

• Initially, 13 laws were included in the Ninth Schedule, primarily dealing with land reforms.

• Over time, more laws were added, covering various socio-economic measures.

• Land Reforms in India

• Land reforms involved measures such as abolishing zamindari (landlord system) and redistributing land to landless farmers.

• These reforms were aimed at reducing rural poverty and fostering agricultural development.

• Article 31B ensured these reforms were not obstructed by legal challenges.

• Judicial Review and Fundamental Rights

• Article 13 of the Constitution empowers the judiciary to review laws that violate fundamental rights.

• Article 31B creates an exception by protecting certain laws listed under the Ninth Schedule from such scrutiny.

• This ensures that socio-economic reforms are not impeded by judicial intervention.

Q98. Answer: (d) Submerged coastal plain

The correct answer is Submerged Coastal Plain.

Key Points

• The Western Coastal Plains of India are classified as submerged coastal plains, formed due to the submergence of landmass along the western coastline.

• This type of plain features narrow coastal strips with lagoons, estuaries, and backwaters commonly found in regions like Kerala.

• The submergence of land has resulted in characteristic landforms such as rivers flowing into the Arabian Sea forming estuaries, unlike the deltas formed in the eastern coastal plains.

• Prominent features of the Western Coastal Plains include the Konkan Coast (Maharashtra), the Malabar Coast (Kerala), and the Kannad Coast (Karnataka).

• The submerged nature of the plains makes them rich in aquatic biodiversity, supporting fisheries and other marine activities.

Additional Information

• Submerged Coastal Plain:

• These plains are formed when coastal regions sink below sea level due to tectonic movements or rising sea levels.

• Submerged plains often feature estuaries, lagoons, and submerged valleys.

• Examples include the Western Coastal Plains of India and parts of the eastern United States coastline.

• Eastern Coastal Plains vs Western Coastal Plains:

• Eastern Coastal Plains are emergent plains, characterized by wide deltas of rivers like the Ganga, Godavari, and Krishna.

• Western Coastal Plains are submerged plains, with narrow coastal strips and estuaries formed by rivers flowing into the Arabian Sea.

• Estuaries:

• An estuary is a partially enclosed coastal body of water where freshwater from rivers meets and mixes with saltwater from the sea.

• Estuaries are rich in biodiversity and serve as critical habitats for various aquatic species.

• Backwaters:

• Backwaters are brackish lagoons or lakes lying parallel to the coast, formed due to the action of waves and tides.

• Kerala is famous for its extensive network of backwaters, such as Vembanad Lake.

Q99. Answer: (a) Rs. 540

Shortcut Trick

Ratio of Profit is same as Investment ratio: 6 : 59 : 41.

Total ratio units = 6 + 59 + 41 = 106 units.

Difference between Y and Z = 59 − 41 = 18 units.

Value of 106 units = Rs. 3,180 => 1 unit = Rs. 3,180 ÷ 106 = Rs. 30.

Difference (18 units) = 18 × Rs. 30 = Rs. 540.

Therefore The correct answer is Rs. 540.

Alternate Method

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Given: Investment Ratio X : Y : Z = 6 : 59 : 41. Total Profit = Rs. 3,180.

Formulas: Profit Share = (Individual Ratio ÷ Total Ratio) × Total Profit.

=> Sum of ratios = 6 + 59 + 41 = 106.

=> Profit of Y = (59 ÷ 106) × 3180 = 59 × 30 = Rs. 1,770.

=> Profit of Z = (41 ÷ 106) × 3180 = 41 × 30 = Rs. 1,230.

=> Difference = 1770 − 1230 = Rs. 540.

Therefore The correct answer is Rs. 540.

Additional Information

Partnership Principle

When time periods are equal, the Profit is distributed in the direct ratio of Investments. Formula: P1 : P2 = I1 × T1 : I2 × T2.

Ratio Distribution

To find the difference between two shares, subtract their ratio parts first and then multiply by the value of a single unit.

Q100. Answer: (d) 535

Given: 66 ÷ 8 − 231 × 11 + 14 = ?

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

66 ÷ 8 − 231 × 11 + 14 = ? => 66 × 8 + 231 ÷ 11 – 14 = ?

=> 66 × 8 + 231 ÷ 11 – 14 = ?

=> 66 × 8 + 21 – 14 = ?

=> 528 + 21 – 14 = ?

=> 549 – 14 = ?

=> 535 = ?

Hence, "Option 4" is the correct answer.

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