RRB NTPC (UG) CBT-I Official Paper (Held On: 18 Aug, 2025 Shift 2) (Previous Year Paper)

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

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

1 question is in Hindi and not printed here. Each one links to the online version, where you can read it.

GENERAL AWARENESS

Q1. This question is in Hindi. Read it online.

Q2. Which Indian philanthropist organised a cultural event at Lincoln Center in New York in 2025?

(a) Sangeeta Jindal
(b) Nita Ambani
(c) Sudha Murthy
(d) Kiran Nadar

Q3. According to the Census of India data, what was the overall population density of India in 2011?

(a) 382 person/km²
(b) 325 person/km²
(c) 500 person/km²
(d) 450 person/km²

Q4. By what name is the substance that slows down the rate of a chemical reaction known?

(a) catalyst
(b) reactants
(c) product
(d) inhibitor

Q5. In which of the following sections of Akbarnama does Abul Fazal discuss Akbar's administration, household, army, revenue and geography of his empire?

(a) only in the first section
(b) in both the second and third sections
(c) only in the third section
(d) in both the first and second sections

Q6. What is a key indicator of economic growth that has shown sustained improvement in India since 1991?

(a) Fiscal deficit
(b) Black Money
(c) foreign exchange reserves
(d) infant mortality rate

Q7. Which of the following is the Directive Principle of State Policy mentioned under Article 48A of the Indian Constitution?

(a) Organization of Gram Panchayats
(b) Raising the level of nutrition
(c) Legal aid for weaker sections
(d) Protection and improvement of the environment

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Q8. Which sector dominated India's national income before independence?

(a) Industry
(b) Agriculture
(c) Trade and transport
(d) Banking

Q9. The Waqf (Amendment) Bill 2025 amended which Act to address the issues and challenges related to the regulation and management of Waqf properties?

(a) The Muslim Waqf Act, 1923
(b) The Waqf Act, 1995
(c) The Muslim Waqf Legalization Act, 1930
(d) The Wakf Act, 1954

Q10. Which of the following laws provides reservation in education and employment to the Economically Weaker Sections (EWS)?

(a) 100^(th) Constitutional Amendment
(b) 102^(nd) Constitutional Amendment
(c) 103^(rd) Constitutional Amendment
(d) 104^(th) Constitutional Amendment

Q11. Which blood vessels carry oxygenated blood from the heart to all parts of the body in humans?

(a) Vein
(b) Veinule
(c) Capillary
(d) Artery

Q12. Which sector witnessed the slowest growth during the period 1947 to 1991?

(a) Infrastructure sector
(b) Industrial area
(c) Agricultural sector
(d) Service Sector

Q13. Which shortcut key combination is used to quickly save a file?

(a) Ctrl + S
(b) Ctrl + F
(c) Ctrl + V
(d) Ctrl + C

Q14. Which cutting-edge cancer treatment, jointly developed by T-Bombay and Tata Memorial Centre, received DCGI approval for Phase-1 trials in December 2024?

(a) Oncolytic viral therapy
(b) CRISPR-Cas9 gene editing
(c) CAR-T cell therapy
(d) siRNA nanotherapy

Q15. Which of the following can have high optical density but low mass density?

(a) Water
(b) Turpentine
(c) Germanium
(d) Glass

Q16. In the year 2025, what was India's rank in the World Press Freedom Index, showing an improvement over the previous year?

(a) 159^(th)
(b) 151^(st)

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(c) 140^(th)
(d) 165^(th)

Q17. Miryala Apparao, recipient of the Padma Shri (posthumously) in 2025, a pioneer in the field of Burrakatha (traditional storytelling), belonged to which Indian state?
(a) Kerala
(b) Andhra Pradesh
(c) Karnataka
(d) Tamil Nadu

Q18. The Regulating Act of 1773 provided that a Supreme Court would be established in Calcutta, consisting of a Chief Justice and _____.
(a) six additional judges
(b) two additional judges
(c) four additional judges
(d) three additional judges

Q19. What type of vegetation is the Mediterranean region most known for?
(a) Mangroves
(b) Coniferous forests
(c) grove and drought resistant trees
(d) deciduous forests

Q20. Which airline launched its Digital Innovation Centre in the year 2025?
(a) Air India
(b) Go First
(c) Akasa Air
(d) Vistara

Q21. Which constitutional amendment gave constitutional status to the Panchayati Raj system in India?
(a) 73^(rd) Constitutional Amendment Act, 1992
(b) 42^(nd) Constitutional Amendment Act, 1976
(c) 97^(th) Constitutional Amendment Act, 2011
(d) 74^(th) Constitutional Amendment Act, 1992

Q22. According to the 2011 census, what is the percentage of urban population in India?
(a) 36.4%
(b) 39.40%
(c) 31.2%
(d) 35.3%

Q23. The UN Ocean Conference 2025 is scheduled to be held in which city?
(a) Vancouver, Canada
(b) Nice, France
(c) Sydney, Australia
(d) Lisbon, Portugal

Q24. Which coastal plain is called the 'Hexadeltaic region' or 'Gift of six rivers'?
(a) Coastal plains of Andhra Pradesh
(b) Coastal plains of Karnataka
(c) Odisha coastal plain
(d) Tamil Nadu coastal plains

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Q25. Who among the following was declared the leader of the rebellion by the rebels against British tyranny during the First War of Independence of 1857?

(a) Shah Alam II
(b) Rani Laxmibai
(c) Bahadur Shah Zafar
(d) Nana Saheb

Q26. Which of the following statements correctly describes India's foreign trade structure at the time of independence?

(a) Balanced trade
(b) Complete trade isolation
(c) High export of finished goods
(d) Export of raw materials and import of manufactured goods.

Q27. What was the name of the bilateral naval exercise held between India and Russia in the Bay of Bengal and Chennai from 28 March to 2 April 2025?

(a) VARUNA
(b) SHAKTI
(c) BRAHμα
(d) INDRA

Q28. In which of the following years did Sri Aurobindo resign from his post in Baroda and move to Calcutta and there he soon became a prominent leader of the nationalist movement?

(a) 1906
(b) 1916
(c) 1914
(d) 1910

Q29. Which of the following is a common feature of Dravidian temples?

(a) Pillarless Hall
(b) Sikhara
(c) Flat Roof
(d) Gopuram

Q30. Which of the following Indian states has the highest elevation point in India (excluding POK)?

(a) Himachal Pradesh
(b) Sikkim
(c) Uttarakhand
(d) Arunachal Pradesh

Q31. Which Indian organisation is organising a three-day cultural event at New York's Lincoln Centre in September 2025 to showcase Indian art and heritage?

(a) Indian Council for Cultural Relations
(b) National School of Drama
(c) Sangeet Natak Akademi
(d) Nita Mukesh Ambani Cultural Centre

Q32. What is the most common cause of a tsunami?

(a) heavy rainfall and flooding
(b) Subsea earthquake
(c) Volcanic eruption only
(d) Cyclones and high tides

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Q33. What was the total number of medals won by India at the 2025 Special Olympics World Winter Games held in Turin, Italy?

(a) 33
(b) 36
(c) 31
(d) 34

Q34. India achieved a historic feat by winning the presidency of which international organisation for the first time through the voting process?

(a) United Nations Development Program (UNDP)
(b) International Institute of Administrative Sciences (IIAS)
(c) World Health Organization (WHO)
(d) International Labour Organization (ILO)

Q35. Before its repeal in 2019, which of the following was the key feature of Article 370 that gave special status to Jammu and Kashmir?

(a) Parliament required the consent of the state government to make laws on matters in the Union List for Jammu and Kashmir.
(b) The provisions of the Directive Principles of State Policy were fully applicable in the state.
(c) Jammu and Kashmir had no representation in the Lok Sabha.
(d) Jammu and Kashmir could not be included in the First Schedule of the Constitution.

Q36. What is the tenure of a member of the Union Public Service Commission (UPSC)?

(a) 5 years or till attainment of 65 years of age
(b) No fixed tenure
(c) 4 years or till attainment of 60 years of age
(d) 6 years or till attainment of the age of 65 years

Q37. The Indian Institute of Spices Research (IISR), Kozhikode has developed a light coloured turmeric variety named _____.

(a) IISR Pitambar
(b) IISR SONA
(c) IISR SURAJ
(d) IISR SURYA

Q38. Which of the following steps correctly describes renaming a file or folder using the File menu?

(a) Select the file/folder → Click File → Rename → Type the new name → Press Enter
(b) Right-click on the folder → Select Copy → Rename
(c) Select the folder → Press Delete → Type a new name
(d) Open the folder → Click View → Rename → Type the new name.

Q39. The popular folk art of Phad painting is traditionally associated with which of the following Indian states?

(a) Madhya Pradesh
(b) Maharashtra
(c) Gujarat
(d) Rajasthan

Q40. Who among the following compiled the Mriga-Pasi-Shastra in the 13th century, which gave details of animals and birds of prey?

(a) Akbar
(b) Jahangir
(c) Hansdev
(d) Mansoor

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MATHEMATICS

Q41. The number 476643 is divisible by which of the following?

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

Q42. I bought two shirts for Rs. 1,200. I sold the first shirt at a loss of 7% and the second at a profit of 28%. If I made neither a loss nor a profit overall, find the cost price (in Rs.) of the first shirt.

(a) 984
(b) 960
(c) 980
(d) 944

Q43. A, B, and C invested money in the ratio 72 : 12 : 36, respectively. If they earned a total of Rs. 3,560 at the end of the year, what is the difference between the shares of B and C?

(a) Rs. 712
(b) Rs. 722
(c) Rs. 610
(d) Rs. 620

Q44. Find the average of first 148 odd natural numbers.

(a) 149
(b) 148.5
(c) 147.5
(d) 148

Q45. A sum of Rs. 37,600 is divided among A, B and C in such a way that 4 times A = 6 times B = 7 times C. Find A's share.

(a) Rs. 16,600
(b) Rs. 17,000
(c) Rs. 17,200
(d) Rs. 16,800

Q46. A shopkeeper marked a toy car at Rs. 850 and sold it at a 15% discount, making a profit of 25%. Find the cost price of the toy car.

(a) Rs. 578
(b) Rs. 638
(c) Rs. 723
(d) Rs. 662

Q47. The length of the base of a triangle is 2 cm longer than its corresponding height. If the area of the triangle is 220 cm^3, find the length of the base of the triangle.

(a) 22 cm
(b) 24 cm
(c) 26 cm
(d) 18 cm

Q48. Find the least common multiple (L.C.M.) of the numbers 4.9 and 0.008.

(a) 98
(b) 0.098
(c) 9.8
(d) 0.98

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Q49. Simplify the following:

3[(7over3)x² - 25x + 12] - 7(x² + 8x - 16)

(a) 131x − 148
(b) −131x − 148
(c) 131x + 148
(d) −131x + 148

Q50. Simplify the following:

co secθ (1 - cos θ)(co secθ + cot θ)

(a) co sθ
(b) sinθ
(c) -1
(d) 1

Q51. Find the smallest number which when added to 63130 makes the sum exactly divisible by 13.

(a) 11
(b) 9
(c) 8
(d) 13

Q52. The simple interest on a certain principal sum at 4.5% per annum simple interest for 42/9 years is Rs. 8,778. Find the amount payable on the same principal sum in 25/7 years at 5.5% per annum simple interest.

(a) Rs. 53,083
(b) Rs. 53,097
(c) Rs. 53,089
(d) Rs. 53,091

Q53. ABCD is a trapezium in which BC || AD and AC = CD. If angle ABC = 38° and angle BAC = 65°, then what is the measure (in degrees) of angle ACD?

(a) 37
(b) 26
(c) 34
(d) 11

Q54. The value of √289+√0.0324-√4.41 is _____.

(a) 15.08
(b) 6.9
(c) 8.28
(d) 13.69

Q55. A number increased by 100% gives 2810. Find the number.

(a) 4215
(b) 1405
(c) 2810
(d) 702.5

Q56. What sum of money (in Rs.) will amount to Rs. 2,280 in 5 years at 5% per annum simple interest?

(a) Rs. 1,774
(b) Rs. 1,874
(c) Rs. 9,120
(d) Rs. 1,824

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Q57. A laptop has a marked price of Rs. 50,000. A shopkeeper offers a 10% discount for a festival, then offers an additional 8% discount on the reduced price. What is the final selling price of the laptop?

(a) Rs. 42,200
(b) Rs. 42,000
(c) Rs. 41,400
(d) Rs. 41,800

Q58. Pipe A can fill a tank in 13 hours, Pipe B can fill the same tank in 26 hours, and Pipe C can fill the same tank in 17 hours. If they are turned on simultaneously, how long will they take to fill the same tank?

(a) 957/77 hr
(b) 457/77 hr
(c) 557/77 hr
(d) 857/77 hr

Q59. If the volume of the cuboid is 440 cm^3 and the area of its base is 88 cm^2, find the height of the cuboid.

(a) 2 cm
(b) 44 cm
(c) 5 cm
(d) 8 cm

Q60. Nirbhay loses 28% by selling an item for 4/10 of its original selling price. If he sells it for 82% of its original selling price, find the profit percentage.

(a) 48.8%
(b) 47.6%
(c) 49.5%
(d) 50.3%

Q61. Train A leaves station M at 6:35 AM and reaches station N at 3:35 PM the same day. Train B leaves station N at 8:35 AM and reaches station M at 2:35 PM the same day. Find the meeting time of trains A and B.

(a) 11:43 AM
(b) 11:03 AM
(c) 12:23 PM
(d) 11:23 AM

Q62. The product of two positive numbers is 1805. If the first number is five times the second number, find the sum of the two numbers.

(a) 127
(b) 126
(c) 114
(d) 107

Q63. If a father's age is added to 5 times his son's age, the sum is 42 years. If 2.8 times the father's age is added to his son's age, the sum is 76 years. Find the father's age (in years).

(a) 26
(b) 31
(c) 20
(d) 21

Q64. 9 men can complete a task in 8 days, while 4 women can complete it in 9. In how many days can 2 women and 4 men complete the task?

(a) 6 days
(b) 11 days
(c) 9 days
(d) 8 days

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Q65. Raman's income is Rs. 44,000. He saves 18.5% of his income. If his income increases by 17% and his expenses increase by 40%, his savings will _____.

(a) Increase of Rs. 6,862
(b) Decrease of Rs. 6,864
(c) Decrease of Rs. 6,860
(d) Increase of Rs. 6,859

Q66. Find the median of the observations 6, 48, 32, 3, 37 and 18.

(a) 25
(b) 27
(c) 30
(d) 32

Q67. The greatest common factor (HCF) and least common multiple (LCM) of two numbers are 4 and 2600 respectively. If one of these numbers is 104, find the other number.

(a) 250
(b) 50
(c) 200
(d) 100

Q68. A man travels from Kanpur to Lucknow at a speed of 15 km/hr and returns to Kanpur via the same route at a speed of 30 km/hr. Find his average speed (in km/hr) for the entire journey.

(a) 22
(b) 19
(c) 20
(d) 14

Q69. If the third proportional to 28 and 70 is x, then find the value of x.

(a) 174
(b) 175
(c) 173
(d) 172

Q70. Find the value of 55^(−6) ÷ 55^5 × 55^(−8).

(a) 55^(−20)
(b) 55^(−19)
(c) 55 ^(−13)
(d) 55^(−17)

GENERAL INTELLIGENCE AND REASONING

Q71. What should come in place of question mark (?) in the given series?

12 13 15 19 27?

(a) 43
(b) 44
(c) 45
(d) 48

Q72. In a certain code language, 'BALD' is coded as '6184' and 'LAMB' is coded as '4136'. What is the code for 'M' in the given code language?

(a) 3
(b) 1
(c) 6
(d) 4

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Q73. H, I, J, P, Q, R and S are seated around a round table facing the centre. P sits third to the left of Q. R sits second to the left of S. Q is an immediate neighbour of both J and R. H is not an immediate neighbour of P.

How many people are sitting between J and R when counting from the right of J?

(a) one
(b) two
(c) three
(d) four

Q74. Each digit of the number 8234619 is arranged in ascending order from left to right. How many digits will remain unchanged in their positions compared to the original number?

(a) six
(b) five
(c) three
(d) four

Q75. If '−' and '÷' are interchanged and 'x' and '+' are interchanged, what will come in place of question mark (?) in the following equation?

45 + 5 ÷ 5 × 6 − 3 + 24 × 9 ÷ 3 × 2 = ?

(a) 198
(b) 260
(c) 276
(d) 246

Q76. Select the pair that follows the same pattern as the two pairs given below. Both pairs follow the same pattern.

PGS: LBO

HWK: DRG

(a) LHC: PEG
(b) QFM: VKP
(c) CAL: GVP
(d) XQA: TLW

Q77. Which of the following letter-number clusters when placed in place of the question mark (?) in the given series so that the series is logically complete.

IVP 16 HQM 5 GLJ-6? EBD-28

(a) HJI 21
(b) GHI-30
(c) FGG-17
(d) BHJ 19

Q78. Carefully study the given statements and conclusions. Assuming that the information given in the statements is true, even if it appears to be at variance with generally known facts, decide which of the given conclusions logically follow from the statements.

Statements: All games are ludo. All ludo are drums.

Conclusion (1): Some drums are Ludo.

Conclusion (II): All games are drums.

(a) Only conclusion (II) follows.
(b) Both conclusions (1) and (II) follow.
(c) Only conclusion (1) follows.
(d) Neither conclusion (I) nor (II) follows.

Q79. If + means −, − means ×, × means ÷ and ÷ means +, then what will come in place of - sign (?) in the following equation?

26 + 14 − 2 ÷ 56 × 7 = ?

(a) 6

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(b) 21
(c) 10
(d) 14

Q80. Based on the English alphabetical order, three of the following four letter-group pairs are alike in a certain way and thus form a group. Which letter-group pair does not belong to that group? (Note: The odd one out is not based on the number or position of consonants/vowels.)

(a) DH-KB
(b) MQ-TK
(c) JN-QG
(d) GK-NE

Q81. Manish started his journey from point A and traveled 8 km north. Then he turned right and traveled 7 km. After that, he turned right again and traveled 5 km. Finally, he turned right once more and traveled 7 km, stopping at point P. How far (minimum distance) and in which direction should he travel to reach point A? (All turns are 90-degree turns.)

(a) 2 km, towards the west
(b) 5 km, towards the north
(c) 4 km, towards the east
(d) 3 km, towards the south

Q82. Refer to the following number and symbol series and answer the question below. Counting should be done from left to right only.

(Note: All numbers are single digits only.)

(Left) 5 ^ * # 0 2 4 @ % 9 $ % 3 > @ 7 & * (Right)

If all the numbers are dropped from the series, then which of the following will be the sixth from the left?

(a) #
(b) @
(c) %
(d) $

Q83. Based on the English alphabetical order, three of the following four letter groups are alike in a certain way and thus form a group. Which letter group does not belong to that group? (Note: The odd one out is not based on the number or position of consonants/vowels in the letter group.)

(a) KFH
(b) NIL
(c) UPR
(d) RMO

Q84. Shivam starts his journey from point X and drives 12 km east. Then he turns left, drives 5 km, turns right and drives 5 km. Then he turns right and drives 2 km. Then he turns right and drives 7 km. Again he turns left and drives 10 km. Finally, he turns right and drives 10 km and stops at point Z. How far and in which direction should he drive to reach point X again? (All turns are 90 degrees unless otherwise specified)

(a) 1.5 km, South
(b) 10 km, North
(c) 7 km, South
(d) 7 km, North

Q85. Seven boxes A, B, C, D, E, F, and G are stacked one above the other, but not necessarily in that order. Only box B is placed above box C. Exactly two boxes are placed between G and F. Box E is placed immediately above box A. No box is placed below F. How many boxes are placed above D?

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

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Q86. Refer to the following number and symbol series and answer the question below. Counting should be done only from left to right.

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

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

(a) More than two
(b) Not even one
(c) One
(d) Two

Q87. Seven people, T, U, V, W, X, Y, and D, are sitting around a circular table, facing the center. Only two people are sitting between X and U when counted from X's right. Only three people are sitting between Y and W when counted from W's right. U is sitting immediately to the right of W. D is sitting immediately to the right of T. Who is sitting fourth to the right of V?

(a) D
(b) U
(c) X
(d) T

Q88. Based on the English alphabetical order, AGPV is related to DKSZ in a certain way. In the same way, MWBL is related to PAEP. Following the same logic, which of the given options is VIKX related to?

(a) YMNB
(b) YBNM
(c) ΤβΝΗ
(d) YMBN

Q89. In a certain code language, 'keep it fun' is coded as 'tr cj ly' and 'lets have fun' is coded as 'mg ly ev'. How will 'fun' be coded in the given language?

(a) cj
(b) ev
(c) tr
(d) ly

Q90. In the following triplets, each group of letters is related to the next group following a certain logic. Select the alternative from the given ones that follows the same logic.

PACK-AKCP - KCAP

FOLD - ODLF - DLOF

(a) SUIT-USIT - TUIS
(b) BELT-EBLT - TELB
(c) CLAP-LPAC - PALC
(d) APES-AEPS - SEPA

Q91. Based on the English alphabetical order, three of the following four letter groups are alike in a certain way and thus form a group. Which letter group does not belong to that group? (Note: The odd one out is not based on the number or position of consonants/vowels in the letter group.)

(a) BZX
(b) HFD
(c) TRP
(d) YOU

Q92. Based on the English alphabetical order, what should come in place of the question mark (?) in the given series?

VOR TMP RKN PIL?

(a) NHJ
(b) NGJ
(c) NGI

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(d) NHI

Q93. Select the number from the given alternatives that will come in place of the question mark (?) in the following series.

174 152 134 120 110 ?

(a) 90
(b) 94
(c) 104
(d) 100

Q94. What should come in place of question mark (?) in the given series?

93 108 131 162 201 ?

(a) 235
(b) 241
(c) 228
(d) 248

Q95. Seven boxes A, B, C, D, K, L, and O are placed one above the other, but not necessarily in the same order. Only four boxes are placed between B and D. Only C is placed above B. Only two boxes are placed between L and O. A is placed immediately above K. O is not placed immediately above A.

Which box is placed fourth from the top?

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

Q96. In a certain coded language,

A + B means 'A is the son of B',

A - B means 'A is the sister of B',

A x B means 'A is the wife of B'

and A ÷ B means 'A is the father of B'.

If 'Q ÷ E + R - C x D', then what is the relationship between Q and D?

(a) Son
(b) Wife's sister's husband
(c) Sister's husband
(d) Husband

Q97. Navjyot ranks 15th from the bottom and 19th from the top in his class. How many students are there in his class?

(a) 31
(b) 33
(c) 32
(d) 34

Q98. Select the set in which the numbers are related in the same way as the numbers in the following set.

(Note: Operations must be performed on the whole numbers without breaking them down into their constituent digits. For example, take 13 – operations can be performed on 13, such as adding/subtracting/multiplying, etc. Breaking 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed.)

(92, 6, 552)

(98, 5, 490)

(a) (52, 8, 438)
(b) (46, 9, 405)
(c) (48, 6, 478)
(d) (84, 7, 588)

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Q99. Refer to the following number and symbol series and answer the question that follows. Counting to be done from left to right only.

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

If all the symbols are dropped from the series, which of the following will be seventh from the right?

(a) 4
(b) 8
(c) 9
(d) 5

Q100. Read the given statements and conclusions carefully. It is assumed that the information given in the statements is true, even if it differs from generally known facts. Decide which of the given conclusions logically follow from the statements. Statements:

• All bears are ants.
• No bear is a horse.

Conclusions:

• (I) No ant is a horse.
• (II) No horse is a bear.

(a) Only conclusion (II) follows.
(b) Both conclusions (I) and (II) follow.
(c) Only conclusion (1) follows.
(d) Neither conclusion (I) nor (II) follows.

ANSWER KEY

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

SOLUTIONS

Q1. Answer: (a)

The correct answer is Ministry of Education.

Key Points

• Performance Grading Index (PGI): The Performance Grading Index (PGI) is a comprehensive tool designed to assess the performance of states and union territories in terms of school education.

• The PGI evaluates states and UTs based on various parameters such as access, equity, infrastructure, governance, and learning outcomes.

• Ministry of Education: The Ministry of Education, Government of India, releases the PGI every year to provide insights into the quality of school education across states and UTs. Hence, the correct answer is the Ministry of Education.

• PGI 2.0, which is an updated version of the PGI, aims to provide better insights into the challenges and opportunities in the education system and strives for continuous improvement.

• The PGI tool helps in identifying gaps and assists policymakers in formulating targeted interventions to improve the quality of school education.

Additional Information

• Objective of PGI:

• The PGI aims to create an objective mechanism to provide states and UTs with feedback on their performance in school education.

• It serves as a tool for improving the education system by identifying weaknesses in critical areas such as equity, governance, and learning outcomes.

• Parameters assessed in PGI:

• The PGI evaluates states based on 70 indicators, including categories like infrastructure, teacher training, and student achievements.

• The indicators are divided into five broad categories: access, equity, infrastructure & facilities, governance processes, and learning outcomes.

• For instance, states like Kerala and Tamil Nadu often perform well due to their robust education systems and governance mechanisms.

• Importance of PGI:

• The PGI provides a comparative analysis of states, encouraging healthy competition and improvement in school education quality.

• It helps policymakers identify areas requiring immediate attention and guides them in allocating resources effectively.

• The PGI aligns with the objectives of the National Education Policy (NEP) 2020, which aims to provide equitable and inclusive education to all students.

Important Points

• Key Features of PGI:

• The PGI framework was developed by the Ministry of Education and is widely regarded as a revolutionary step towards improving education quality in India.

• It emphasizes the importance of governance and equity in improving educational outcomes.

• States' Performance:

• States such as Kerala, Punjab, and Chandigarh have consistently performed well in PGI due to their focus on education quality and robust infrastructure.

• On the other hand, states with weaker education systems, such as Bihar and Jharkhand, have shown gradual improvement due to targeted interventions.

• The PGI encourages states to adopt best practices from top-performing states and improve their education systems.

Q2. Answer: (b) Nita Ambani

The correct answer is Nita Ambani.

Key Points

• Nita Ambani, the chairperson of the Reliance Foundation, is known for her contributions to philanthropy, sports, education, arts, and culture.

• She organized a cultural event at the Lincoln Center in New York in 2025, showcasing Indian art and culture on an international platform.

• The event was aimed at presenting India's rich cultural heritage to a global audience, furthering cross-cultural exchanges and celebrating Indian traditions.

• As the founder of the Reliance Foundation, Nita Ambani has actively promoted Indian arts and culture globally, including traditional dance forms, music, and contemporary performances.

• This initiative aligns with her broader vision of empowering communities and fostering global appreciation for India's cultural diversity.

• Her efforts have helped raise awareness of Indian culture, and this event at Lincoln Center further cemented her role in promoting India's cultural identity on an international scale.

• Such events not only promote cultural diplomacy but also strengthen India's image as a country with a rich artistic and cultural heritage.

Additional Information

• Nita Ambani:

• Designation: Chairperson of Reliance Foundation, Director of Reliance Industries.

• Achievements: Recognized globally for her philanthropic initiatives, especially in education, health, rural transformation, sports, and arts.

• Sports Contribution: Nita Ambani is also the founder and owner of the IPL team Mumbai Indians. She is the first Indian woman to be elected as a member of the International Olympic Committee.

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• Global Engagement: Her cultural initiatives, like events at the Lincoln Center, aim to promote Indian heritage and foster global connections.

• Lincoln Center, New York:

• Location: One of the most renowned cultural hubs in the United States, located in Manhattan, New York City.

• Features: Hosts world-class performances in music, dance, opera, and theater. It is home to prestigious institutions like the Metropolitan Opera House and the New York Philharmonic.

• Significance: A venue like Lincoln Center serves as a global stage for showcasing art and culture, making it an ideal location for promoting Indian heritage.

• Indian Cultural Promotion:

• India's cultural heritage encompasses diverse traditions, including classical dance forms like Bharatanatyam, Kathak, and Odissi, classical music, folklore, and handicrafts.

• Promoting such traditions globally strengthens India's soft power and fosters cross-cultural understanding.

• Events like those organized by Nita Ambani provide a platform for Indian artists to gain international recognition.

Important Points

• Reliance Foundation:

• The foundation is focused on social development across multiple domains, including arts and culture.

• It actively supports initiatives that preserve and promote Indian heritage while facilitating international collaborations.

• Global Recognition of Indian Arts:

• India's arts and culture have gained international acclaim through various platforms, including performances, exhibitions, and workshops.

• Events like the one at Lincoln Center enable Indian artists to connect with global audiences, enhancing cultural diplomacy.

Q3. Answer: (a) 382 person/km²

The correct answer is 382 person/km².

Key Points

• The population density is defined as the number of people living per unit area, typically calculated as persons per square kilometer (person/km²).

• According to the 2011 Census of India, the overall population density of India was recorded at 382 person/km². This is calculated by dividing the total population by the total land area of the country.

• The total population of India in 2011 was approximately 1.21 billion, while the total geographical area of India is around 3.28 million square kilometers.

• The figure of 382 person/km² represents a significant increase compared to the population density of 325 person/km² recorded in the 2001 Census. This reflects the rapid population growth in India over the decade.

• Hence, option 1 (382 person/km²) is correct.

Additional Information

• Population Density Across States:

• The state of Bihar had the highest population density in 2011, with 1,106 person/km², reflecting its high population concentration.

• In contrast, Arunachal Pradesh recorded the lowest population density, with only 17 person/km², due to its vast geographical area and sparse population.

• Global Comparison:

• India's population density of 382 person/km² in 2011 is significantly higher than the global average, which was approximately 50 person/km² around the same time.

• Countries like Bangladesh and Japan also have high population densities, with figures exceeding 1,000 person/km² in urban regions.

• Factors Influencing Population Density:

• Geography: Fertile plains such as the Indo-Gangetic plain have higher population densities due to their suitability for agriculture.

• Urbanization: Cities like Delhi, Mumbai, and Kolkata have extremely high densities due to economic opportunities and infrastructure development.

• Climate: Harsh climatic conditions in areas like the Thar Desert or Himalayan regions result in lower population densities.

Important Points

• Census of India:

• Conducted every 10 years, the Census of India provides critical data on population, demographics, and socio-economic conditions.

• The 2011 Census was the 15th National Census since 1872 and is considered one of the largest administrative exercises globally.

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• Applications of Population Density Data:

• Used by policymakers to allocate resources, plan urban development, and implement welfare schemes.

• Helps in identifying areas needing focused development, such as rural regions with low densities or overcrowded cities.

Q4. Answer: (d) inhibitor

The correct answer is inhibitor.

Key Points

• Inhibitors can be classified into several types based on their mechanism, such as competitive inhibitors, which compete with reactants for active sites, or non-competitive inhibitors, which bind to different parts of the molecule.

• An inhibitor does not necessarily stop the reaction altogether but significantly slows down its rate. This property makes it distinct from catalysts, which increase the reaction rate.

• In industrial applications, inhibitors are used to control undesirable side reactions or to ensure safety during chemical processes. Hence, the correct answer is inhibitor.

Additional Information

• Characteristics of Inhibitors:

• Types: Includes competitive inhibitors, non-competitive inhibitors, uncompetitive inhibitors, and mixed inhibitors.

• Catalysts: Increase the rate of a chemical reaction without being consumed.

• Corrosion inhibitors: Substances used to slow down the corrosion of metals.

• Polymerization inhibitors: Added to monomers to prevent unwanted polymerization during storage or transportation.

Important Points

• Applications of Inhibitors:

• Medicinal Uses: Enzyme inhibitors are widely used in pharmaceuticals to treat diseases such as hypertension, cancer, and viral infections.

• Environmental Impact:

• Biodegradable inhibitors are being developed to reduce environmental harm while maintaining effectiveness.

Q5. Answer: (c) only in the third section

The correct answer is only in the third section.

Key Points

• Akbarnama: Written by Abul Fazl, Akbarnama is a historic document chronicling the reign of Mughal Emperor Akbar. It is divided into three sections or volumes.

• The third section of Akbarnama, also known as Ain-i-Akbari, extensively describes Akbar’s administration, including his household, army, revenue system, and the geography of his empire.

• The Ain-i-Akbari contains detailed information about Akbar's centralized administration, military organization, and governance strategies.

• The first section focuses on the genealogy and history of Akbar’s ancestors, providing a historical background of the Mughal dynasty. It does not include administrative details. Hence, this statement is incorrect.

• The second section narrates Akbar’s reign, detailing his conquests and campaigns but does not delve into administrative topics. Hence, this statement is incorrect.

• Therefore, the third section is the only part of Akbarnama that discusses Akbar’s administration, household, army, revenue, and geography.

Additional Information

• Structure of Akbarnama:

• The First Section: It narrates the genealogy of Akbar, describing his ancestors and their achievements, and provides a historical backdrop to the Mughal Empire.

• The Second Section: Focuses on significant events during Akbar’s reign, such as conquests, campaigns, and efforts to expand the empire.

• The Third Section (Ain-i-Akbari): Extensively details Akbar’s administrative framework, revenue policies, military organization, and socio-economic conditions of the empire.

• Features of Ain-i-Akbari:

• Describes Akbar’s administrative divisions, including provinces (subahs), districts, and villages.

• Details Akbar’s revenue system, including land measurement, taxation policies, and agricultural land categorization.

• Explains the Mansabdari system, military hierarchy, and recruitment policies.

• Provides insights into the socio-cultural environment, royal household operations, and religious practices during Akbar’s reign.

• Importance of Akbarnama:

• Akbarnama serves as a crucial historical source for understanding the Mughal Empire's governance, military strategies, and socio-economic conditions.

• Reflects Akbar's visionary leadership and policies of religious tolerance and cultural integration.

• Highlights Akbar's emphasis on a centralized administration and efforts to enhance the welfare of his subjects.

• About Abul Fazl:

• Abul Fazl, a court historian, was one of the Navaratnas (Nine Jewels) in Akbar's court.

• He played a significant role in shaping Akbar's governance policies and documenting his reign through the Akbarnama.

Important Points

• Chronology and Historical Context:

• The Akbarnama was written during Akbar's reign, emphasizing the importance of documenting history contemporaneously.

• It provides insights into how historical records were meticulously maintained in the Mughal era.

• Relevance in Modern Times:

• The Akbarnama is frequently referenced in academic studies related to medieval Indian history.

• It serves as an inspiration for modern governance and administration due to its detailed description of Akbar's visionary policies.

Q6. Answer: (c) foreign exchange reserves

The correct answer is foreign exchange reserves.

Key Points

• Foreign exchange reserves are crucial economic indicators that reflect the financial stability and economic growth of a country.

• Since the economic liberalization reforms introduced in 1991, India has seen a substantial increase in its foreign exchange reserves due to improved economic policies and trade liberalization.

• Foreign exchange reserves consist of assets like foreign currencies, gold reserves, and Special Drawing Rights (SDRs) maintained by the Reserve Bank of India (RBI).

• The significant rise in reserves since 1991 is attributed to increased foreign investment, export growth, and remittance inflows. These reserves play a pivotal role in stabilizing the Indian economy against external shocks.

• India's foreign exchange reserves reached over USD 600 billion in 2021, making it one of the highest among emerging economies.

• Functions: Foreign exchange reserves are used to manage currency fluctuations, stabilize the rupee, and meet external debt obligations.

• They also act as a buffer during economic crises, enabling the government to maintain liquidity in the foreign exchange market. Hence, foreign exchange reserves are a key indicator of sustained economic improvement in India.

Additional Information

• Fiscal deficit:

• Fiscal deficit refers to the shortfall between the government's revenue and expenditure. While it is an important economic measure, it does not directly indicate sustained economic growth.

• A high fiscal deficit can lead to inflationary pressures, whereas a controlled deficit indicates financial discipline. India's fiscal deficit has been a challenge but is not the primary indicator of sustained growth since 1991.

• Black money:

• Black money refers to unaccounted or illicit wealth that is not taxed or reported. While efforts have been made to curb black money, its presence negatively impacts the economy and cannot be considered an indicator of growth.

• The government has implemented measures such as demonetization (2016) and stricter compliance to address black money, but it is not directly linked to sustained economic improvement.

• Infant mortality rate:

• The infant mortality rate measures the number of deaths of infants under one year per 1,000 live births. It is an indicator of healthcare quality and social development, but it does not directly reflect economic growth.

• India has made significant progress in reducing infant mortality rates through healthcare initiatives, but this is not the key indicator of sustained economic improvement.

Important Points

• Key Features of Foreign Exchange Reserves:

• India's foreign exchange reserves include foreign currencies, gold, SDRs, and reserve positions in the IMF. They are managed by the Reserve Bank of India.

• • These reserves are crucial for maintaining economic stability, supporting imports, and ensuring the country's ability to repay external debts.

• Global Comparison:

• India ranks among the top countries globally in terms of foreign exchange reserves, alongside China, Japan, and Switzerland.

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• China has the largest reserves globally, exceeding USD 3 trillion, while India's reserves have steadily grown since 1991.

Q7. Answer: (d) Protection and improvement of the environment

The correct answer is Protection and improvement of the environment.

Key Points

• Article 48A of the Indian Constitution is a part of the Directive Principles of State Policy (DPSP), which enjoins the state to protect and improve the environment and safeguard the forests and wildlife of the country.

• This article was inserted into the Constitution by the 42nd Amendment Act, 1976, which emphasized environmental protection as a fundamental directive for the state.

• The provision underlines the responsibility of the state to ensure a healthy environment, including the improvement of ecosystems and natural habitats. Hence, statement 4 is correct.

• Article 48A aligns with the broad objectives of sustainable development and recognizes the critical importance of environmental conservation for future generations.

• The inclusion of this article underscores India's commitment to global environmental concerns and its intent to integrate sustainable development into policymaking.

Additional Information

• Directive Principles of State Policy (DPSP):

• The DPSPs are non-justiciable provisions listed in Part IV of the Indian Constitution. These principles are fundamental in the governance of the country and aim to achieve socio-economic justice.

• While not enforceable in a court of law, they act as guidelines for the state to implement policies and laws that promote the welfare of the people.

• 42nd Amendment Act, 1976:

• The 42nd Amendment Act is also known as the "Mini Constitution" due to the wide range of changes it brought to the Indian Constitution.

• It added Article 48A under the DPSP and Article 51A(g) under Fundamental Duties, making environmental protection a responsibility of both the state and citizens.

• Key Features of Article 48A:

• Focus: Aimed at the protection and improvement of the environment, including forests and wildlife.

• Importance: It establishes the foundation for the enactment of environmental laws and regulations in India, like the Environment Protection Act, 1986.

• Global Relevance: Aligns with global environmental principles and India's commitment to international conventions on environmental protection.

Important Points

• Other Relevant DPSPs:

• Article 40: Relates to the organization of Gram Panchayats, encouraging decentralized governance. This is not related to Article 48A and is incorrect.

• Article 47: Directs the state to raise the level of nutrition and improve public health. This is not associated with environmental protection and is incorrect.

• Article 39A: Provides for legal aid to weaker sections to promote justice on equal footing. This is unrelated to environmental protection and is incorrect.

• Environmental Laws in India:

• Environment Protection Act, 1986: Enacted to implement decisions of the United Nations Conference on the Human Environment held in 1972.

• Wildlife Protection Act, 1972: Aimed at protecting wildlife and their habitats.

• Forest Conservation Act, 1980: Focused on restricting deforestation and promoting forest conservation.

Q8. Answer: (b) Agriculture

The correct answer is Agriculture.

Key Points

• Before India's independence, agriculture was the predominant sector contributing to the national income. The Indian economy was primarily agrarian in nature, with a majority of the population engaged in farming and related activities.

• The British colonial policies led to the exploitation of Indian agriculture, which was mainly subsistence-based. Despite this, agriculture remained the backbone of the economy, contributing to over 50% of the national income.

• Industries and services such as trade, transport, and banking were underdeveloped and contributed only a small fraction to the national income. Hence, agriculture was the dominant sector in the economy.

• The majority of the population, approximately 70-80%, depended on agriculture for their livelihood. This dependence on

agriculture was due to the lack of industrialization and minimal focus on other economic sectors.

• The agricultural sector faced significant issues such as low productivity, outdated techniques, and excessive taxation. Despite these challenges, it remained the primary source of income and employment. Hence, agriculture was the dominant sector before independence.

Additional Information

• Agriculture in Pre-Independence India:

• Agriculture was the largest contributor to the economy, but it was heavily exploited under British rule. The Permanent Settlement Act of 1793 introduced the zamindari system, which burdened farmers with heavy taxes.

• The focus of British policies was on maximizing revenue rather than improving agricultural productivity. This resulted in periodic famines and economic distress for farmers.

• The introduction of cash crops such as cotton, indigo, and opium for export further impacted food grain production. This shift prioritized British economic interests over local needs.

• Other Economic Sectors before Independence:

• Industry: The industrial sector was underdeveloped and consisted mainly of small-scale industries such as textiles and handicrafts. The deindustrialization caused by British policies led to the decline of traditional industries.

• Trade and Transport: Trade was primarily focused on exporting raw materials to Britain and importing finished goods. The development of railways was aimed at facilitating this trade rather than fostering domestic growth.

• Banking: The banking sector was limited and served primarily British economic interests. Indian-owned banks were few and had a minimal role in the economy.

Important Points

• Key Features of Agriculture Before Independence:

• The agricultural sector was characterized by subsistence farming, with farmers using traditional methods and tools.

• The Green Revolution and advancements in agriculture took place much later, post-independence, to improve productivity and reduce dependency on imports.

• The exploitation of farmers through heavy land taxes, low remuneration for crops, and lack of irrigation facilities were major issues.

• Contribution of Other Sectors:

• The industrial sector contributed minimally to the economy due to the lack of investment and infrastructure.

• The services sector, including banking and transport, remained underdeveloped and served colonial interests rather than the local economy.

Q9. Answer: (b) The Waqf Act, 1995

The correct answer is The Waqf Act, 1995.

Key Points

• The Waqf Act, 1995 is the principal legislation governing the management, administration, and regulation of Waqf properties in India. It was enacted to ensure the proper use and protection of Waqf properties.

• The Waqf (Amendment) Bill, 2025 seeks to amend the Waqf Act, 1995 to address specific challenges faced in the regulation, management, and preservation of Waqf properties.

• The amendment aims to streamline administrative processes, improve transparency, and enhance the accountability of Waqf boards in managing Waqf assets. Hence, the correct answer is The Waqf Act, 1995.

• The amendment also focuses on safeguarding Waqf properties against encroachments and ensuring their utilization for the welfare of the community. This aligns with the spirit of the Waqf Act, 1995.

Additional Information

• What is Waqf?

• Waqf refers to the permanent dedication of movable or immovable properties by Muslims for religious, educational, or charitable purposes.

• These properties are managed by Waqf Boards, which are statutory bodies established under the Waqf Act.

• Key Features of the Waqf Act, 1995:

• The Act provides for the establishment of Waqf Boards at both the state and central levels to manage Waqf properties effectively.

• It ensures the registration of Waqf properties and mandates the maintenance of proper accounts for transparency.

• Example: The Act has provisions to safeguard Waqf properties from encroachment or misuse.

• Objective of Waqf (Amendment) Bill, 2025:

• The bill aims to modernize the administrative framework governing Waqf properties and strengthen existing laws to ensure proper utilization.

• It provides enhanced powers to Waqf Boards for protecting properties and resolving disputes related to encroachment.

• The bill also introduces stricter penalties for violations and misuse of Waqf properties.

Important Points

• Other Related Legislations:

• The Muslim Waqf Act, 1923: This was one of the earliest legislations governing Waqf properties, but it was eventually replaced by more comprehensive laws.

• The Wakf Act, 1954: This Act introduced a more formal structure for Waqf management but was later replaced by the Waqf Act, 1995.

• The Muslim Waqf Legalization Act, 1930: Focused on legalizing certain aspects of Waqf properties but did not address broader administrative issues.

• Significance of Waqf Properties:

• Waqf properties are a vital source of funding for the welfare of the Muslim community, including education, healthcare, and social services.

• Ensuring proper management of these properties has a direct impact on improving the quality of life for beneficiaries.

Q10. Answer: (c) 103^(rd) Constitutional Amendment

The correct answer is 103rd Constitutional Amendment.

Key Points

• 103rd Constitutional Amendment Act, enacted in 2019, introduced reservation for the Economically Weaker Sections (EWS) of society in education and employment.

• This amendment added Article 15(6) and Article 16(6) to the Constitution of India, enabling the government to provide up to 10% reservation for EWS in higher education and government jobs.

• The criteria for EWS reservation are based on economic indicators, such as annual family income and land ownership, and exclude individuals from the Scheduled Castes (SC), Scheduled Tribes (ST), and Other Backward Classes (OBC). Hence, this amendment specifically caters to economically weaker individuals among the unreserved categories.

• The amendment was a significant step towards addressing economic inequality and providing opportunities to disadvantaged sections of society who were previously excluded from affirmative action.

• The reservation under the 103rd Amendment is horizontal in nature and does not overlap with existing reservations for other categories. Hence, this amendment is directly linked to the question.

• The amendment has been upheld by the Supreme Court of India as constitutionally valid after challenges were raised questioning its legality.

Additional Information

• 103rd Constitutional Amendment Act:

• This amendment was passed by the Indian Parliament in January 2019 and came into effect immediately.

• It provides up to 10% reservation for Economically Weaker Sections (EWS) in admission to educational institutions (except minority institutions) and government jobs.

• The key eligibility criteria for EWS reservation include an annual family income of less than Rs. 8 lakh, land ownership limits, and property ownership limits.

• Other Constitutional Amendments:

• 100th Constitutional Amendment: This amendment ratified the India-Bangladesh Land Boundary Agreement in 2015, facilitating the exchange of enclaves between the two countries.

• 102nd Constitutional Amendment: Enacted in 2018, it granted constitutional status to the National Commission for Backward Classes (NCBC) and included provisions for identifying OBCs.

• 104th Constitutional Amendment: Passed in 2020, it extended reservations for Scheduled Castes (SC) and Scheduled Tribes (ST) in Lok Sabha and State Assemblies for another 10 years but removed reservation for Anglo-Indian representation.

• Impact of EWS Reservation:

• The EWS reservation aims to address economic disparities and ensure equal opportunities for economically disadvantaged individuals from the general category.

• It has led to increased access to education and employment for the EWS population, bridging gaps in socioeconomic development.

Important Points

• Eligibility Criteria for EWS Reservation:

• Annual family income must be less than Rs. 8 lakh.

• The family should not own agricultural land exceeding 5 acres or residential plots exceeding specific area limits (1000 sq. ft. for urban areas).

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• Judicial Validation:

• The Supreme Court upheld the constitutional validity of the 103rd Amendment, stating that it does not violate the principle of equality.

• The judgment emphasized the need for affirmative action to support economically weaker sections.

• Comparison with Other Reservations:

• EWS reservation is purely based on economic criteria, unlike SC/ST and OBC reservations, which are based on social and educational backwardness.

Q11. Answer: (d) Artery

The correct answer is Artery.

Key Points

• Arteries are the blood vessels that carry oxygenated blood away from the heart to all parts of the body.

• The pulmonary arteries are an exception as they carry deoxygenated blood from the heart to the lungs.

• The oxygen-rich blood is pumped by the heart's left ventricle into the aorta, the largest artery, which branches out into smaller arteries and delivers oxygen to tissues.

• Arteries have thick, elastic walls to withstand the high pressure of blood being pumped by the heart.

• They play a crucial role in maintaining the circulatory system and ensuring that all body tissues receive oxygen and nutrients for proper functioning.

• Arteries also help regulate blood pressure through the elasticity of their walls, which can expand and contract based on the body's requirements.

• Veins, venules, and capillaries serve different purposes and do not carry oxygenated blood from the heart to the body tissues. Hence, the correct answer is Artery.

Additional Information

• Veins:

• Veins carry deoxygenated blood back to the heart, except for the pulmonary veins, which carry oxygenated blood from the lungs to the heart.

• They have thin walls and are equipped with valves to prevent backflow of blood.

• Venules:

• Venules are small blood vessels that collect blood from capillaries and transport it to veins.

• They play a role in connecting the capillaries to the larger veins.

• Capillaries:

• Capillaries are the smallest blood vessels where the exchange of oxygen, carbon dioxide, nutrients, and waste products occurs between blood and tissues.

• They connect arteries and veins and have thin walls to facilitate diffusion of substances.

• Function of Arteries:

• Arteries ensure the supply of oxygenated blood to vital organs, maintaining their proper functioning.

• Examples include the coronary arteries (supplying the heart), renal arteries (supplying the kidneys), and carotid arteries (supplying the brain).

Important Points

• Key Characteristics of Arteries:

• Arteries have thicker walls compared to veins to handle the high pressure of blood flow.

• The blood in arteries flows in one direction, from the heart to the body tissues.

• Differences between Arteries and Veins:

• Arteries carry oxygenated blood, while veins carry deoxygenated blood (with exceptions for pulmonary arteries and veins).

• Arteries have no valves, while veins have valves to prevent the backflow of blood.

• Arteries are located deeper in the body, whereas veins are closer to the skin.

Q12. Answer: (c) Agricultural sector

The correct answer is Agricultural sector.

Key Points

• Slow Growth in Agricultural Sector: During the period from 1947 to 1991, the agricultural sector in India witnessed the slowest growth compared to other sectors. This was primarily due to the lack of modern farming techniques, inadequate irrigation facilities, and dependence on monsoon rains.

• Challenges in Agriculture: Problems such as fragmented landholdings, low productivity, and insufficient investment in agricultural

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infrastructure contributed to the slow growth of the sector. Additionally, the Green Revolution of the 1960s only benefited certain regions and crops, leaving other areas stagnant. Hence, the statement is correct.

• Focus on Industrial and Service Sectors: During this period, the Indian government prioritized industrialization and the development of services over agriculture. Policies such as the introduction of heavy industries and economic reforms shifted the focus away from the agricultural sector.

• Low Investment: Investment in agricultural research, mechanization, and rural infrastructure was limited compared to other sectors. As a result, growth in agriculture lagged behind industrial and service sectors.

• Dependence on Traditional Farming: Farmers continued to rely on traditional methods of cultivation, which were less efficient and resulted in lower yields. The lack of access to modern technology and fertilizers further hampered growth. Hence, the correct answer is Agricultural Sector.

Additional Information

• Sectoral Growth from 1947 to 1991:

• Infrastructure Sector: Witnessed moderate growth due to significant government investments in building dams, roads, and railways. Major projects like Bhakra Nangal Dam were undertaken during this period.

• Industrial Sector: Grew rapidly due to policies promoting heavy industries, such as the establishment of steel plants in Bhilai, Rourkela, and Durgapur. The Industrial Policy of 1956 emphasized state-led industrialization.

• Service Sector: Experienced substantial growth, especially in banking, education, and healthcare sectors. Government initiatives like the nationalization of banks in 1969 contributed to the expansion of services.

• Agricultural Sector Characteristics:

• The sector relied heavily on the monsoon for irrigation, making it vulnerable to climatic conditions.

• Mechanization was minimal, and the use of modern farming techniques was limited to a few regions benefiting from the Green Revolution.

• Despite being the primary source of livelihood for a large population, the agricultural sector did not receive adequate financial or policy support during the period.

• Green Revolution:

• The Green Revolution, introduced in the 1960s, improved productivity for crops like wheat and rice but failed to address regional disparities. States like Punjab and Haryana benefited significantly, while others remained underdeveloped.

Important Points

• Economic Policies:

• The Five-Year Plans aimed at improving agricultural productivity, but the focus remained on industrial growth. For instance, the Second Five-Year Plan emphasized heavy industries over agriculture.

• Agriculture was often seen as a traditional sector, leading to lower priority in policy-making compared to industrial and service sectors.

• Data and Statistics:

• According to historical data, agricultural growth rates during this period were often below 2%, while industrial and service sectors achieved higher growth rates, exceeding 5% annually.

• The contribution of agriculture to GDP declined significantly from 50% in 1947 to around 30% by 1991, highlighting its slow growth.

Q13. Answer: (a) Ctrl + S

The correct answer is Ctrl + S.

Key Points

• The shortcut key combination Ctrl + S is universally used in most software applications to quickly save a file.

• When you press Ctrl + S, the current file or document is saved without the need to navigate through menus. This action updates any changes made to the file since the last save.

• The Ctrl + S shortcut is supported by a wide range of applications such as Microsoft Word, Excel, PowerPoint, Notepad, Photoshop, and most other text editors or design tools.

• This shortcut is particularly useful for ensuring that work is saved frequently, preventing data loss due to unexpected events like power outages or system crashes.

• Using Ctrl + S is a best practice in file management to maintain data integrity and avoid accidental loss of work.

• Hence, the correct answer is Ctrl + S.

Additional Information

• Explanation of Other Options:

• Ctrl + F: This shortcut is used to find specific text within a document or webpage. It opens the "Find" dialog box to search for keywords.

• Ctrl + V: This shortcut is used to paste content from the clipboard into a document or file.

• Ctrl + C: This shortcut is used to copy selected content to the clipboard for use elsewhere.

• Applications of Ctrl + S:

• It is widely used in office software, including Microsoft Office Suite, Google Docs, and Adobe products.

• In programming environments such as Visual Studio or PyCharm, it ensures that the code changes are saved before execution or debugging.

• Importance of Saving Files:

• Frequent saving prevents data loss caused by unexpected interruptions like system crashes or power outages.

• It is a good practice to save files regularly to maintain a version history and track changes.

Important Points

• Cross-Platform Functionality:

• The Ctrl + S shortcut works across most operating systems, including Windows, macOS (Command + S), and Linux.

• Keyboard Shortcuts Enhance Productivity:

• Using shortcuts like Ctrl + S minimizes reliance on the mouse, speeding up workflow and improving efficiency.

Q14. Answer: (c) CAR-T cell therapy

The correct answer is CAR-T cell therapy.

Key Points

• CAR-T cell therapy is an innovative cancer treatment that modifies a patient's T cells to attack cancer cells more effectively.

• It involves using genetically engineered T cells to recognize and destroy specific cancer cells.

• This therapy was jointly developed by IIT Bombay and the Tata Memorial Centre, two leading organizations in India. Hence, statement is correct.

• In December 2024, the DCGI (Drug Controller General of India) approved Phase-1 clinical trials, marking a significant milestone in Indian cancer research.

• Phase-1 trials are designed to test the safety, dosage, and initial efficacy of the therapy on human subjects. Hence, statement is correct.

• CAR-T cell therapy is particularly effective in treating blood cancers such as leukemia and lymphoma.

• The development of this therapy highlights India's growing capabilities in advanced medical research and biotechnology. Hence, the correct answer is CAR-T cell therapy.

Additional Information

• CAR-T cell therapy:

• Chimeric Antigen Receptor (CAR)-T cells are created by genetically engineering a patient's T cells to express receptors specific to cancer cell antigens.

• The therapy uses advanced techniques such as gene editing and cellular engineering to enhance the immune response against cancer.

• CAR-T cell therapy has shown remarkable success in treating cancers like acute lymphoblastic leukemia (ALL) and non-Hodgkin's lymphoma.

• Comparison with other therapies:

• Oncolytic viral therapy: Uses genetically modified viruses to infect and kill cancer cells but lacks the specificity and advanced engineering of CAR-T cells.

• CRISPR-Cas9 gene editing: While powerful for genetic modifications, it is not exclusively focused on cancer treatment.

• siRNA nanotherapy: Utilizes RNA interference to silence cancer-related genes but does not involve cellular engineering like CAR-T therapy.

• Global developments:

• CAR-T therapy has been approved by global regulatory bodies such as the FDA for use in the United States, with ongoing research in various countries.

• India's entry into CAR-T cell therapy development is a promising step toward self-reliance in cutting-edge medical treatments.

Important Points

• Characteristics of CAR-T cell therapy:

• CAR-T therapy involves personalized medicine, as the patient's own cells are engineered for treatment.

• This therapy is often used for patients who do not respond to conventional treatments like chemotherapy or radiation.

• CAR-T therapy is expensive but has the potential to be life-saving for patients with advanced cancers.

• Future scope:

• Ongoing research aims to make CAR-T therapy more accessible and effective for solid tumors, which are currently challenging

to treat.

• Collaboration between institutions like IIT Bombay and Tata Memorial Centre is critical for advancing medical innovation in India.

Q15. Answer: (b) Turpentine

The correct answer is Turpentine.

Key Points

• Optical density refers to the ability of a material to slow down the speed of light passing through it. Materials with high refractive indices tend to have high optical density.

• On the other hand, mass density is the amount of mass per unit volume of a material. It is unrelated to optical density and is purely based on the physical composition of the material.

• Turpentine, a common organic solvent, has relatively high optical density due to its refractive index but low mass density compared to other materials like glass or germanium. Hence, Turpentine satisfies the conditions mentioned in the question.

• Water has lower optical density compared to turpentine or glass. While water has a moderate mass density, it does not exhibit high optical density. Hence, water is not the correct answer.

• Germanium is a dense material with both high optical density and high mass density. It does not meet the criteria for low mass density. Hence, germanium is not the correct answer.

• Glass has high optical density due to its refractive index but also possesses a higher mass density than turpentine. Thus, it does not meet the requirement for low mass density. Hence, glass is not the correct answer.

• Hence, the correct answer is Turpentine.

Additional Information

• Key Characteristics of Turpentine:

• Composition: Turpentine is an organic solvent derived from the resin of pine trees. It mainly contains terpenes.

• Refractive Index: Turpentine has a refractive index higher than water, which contributes to its high optical density.

• Applications: It is widely used in the paint industry as a solvent and thinner. Additionally, it is used in medical formulations and cleaning agents.

• Mass Density: Turpentine has a relatively low mass density, which makes it lighter compared to other materials like glass or germanium.

• Key Characteristics of Other Options:

• Water: Water has a refractive index of approximately 1.33, which is lower than that of turpentine or glass. Its mass density is 1 g/cm³.

• Germanium: A semiconductor material with high refractive index and high mass density. It is used in optical devices and electronics.

• Glass: Glass has a high refractive index but also has high mass density. It is commonly used in lenses, optical fibers, and construction.

Important Points

• Optical Density:

• Materials with high optical density slow down light more effectively, causing phenomena like refraction.

• It is determined by the refractive index of the material.

• Mass Density:

• Mass density is measured in units like g/cm³ or kg/m³ and depends on the material's physical properties.

• Low mass density materials are typically lighter and less compact.

Q16. Answer: (b) 151^(st)

The correct answer is 151st.

Key Points

• The World Press Freedom Index is published annually by Reporters Without Borders (RSF), a non-governmental organization based in France.

• The index evaluates the level of press freedom in countries worldwide based on several criteria, such as media independence, transparency, and the environment in which journalists operate.

• In 2025, India improved its ranking to 151st position, compared to its previous rank of 159th in 2024. Hence, this statement is correct.

• The improvement in ranking reflects a slight positive change in the conditions for journalists, but challenges such as censorship, harassment, and restrictions on free speech persist.

• The World Press Freedom Index uses indicators such as pluralism, media independence, legislative framework, and safety of journalists to assess press freedom in a country. Thus, India’s improved rank signifies progress but highlights ongoing issues.

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• India’s press freedom has been scrutinized due to incidents like attacks on journalists, restrictions on dissent, and excessive control of media by political entities. Hence, this ranking improvement is a mixed outcome.

• Hence, the correct answer is 151st.

Additional Information

• World Press Freedom Index:

• Published annually by Reporters Without Borders, the index measures the level of freedom available to journalists in 180 countries.

• Criteria for evaluation include political, economic, legal, and cultural pressures on the media.

• The index highlights countries where journalists face threats such as violence, imprisonment, censorship, or lack of independence.

• India’s Ranking in the Index:

• India’s ranking in recent years has fluctuated due to challenges such as attacks on journalists, restrictions on free speech, and the spread of misinformation.

• Example: In 2024, India ranked 159th. In 2025, the rank improved to 151st, indicating some progress.

• Global Trends in Press Freedom:

• Countries like Norway, Finland, and Denmark consistently rank high in the index due to their strong democratic frameworks and media independence.

• On the other hand, nations like North Korea and China rank poorly due to heavy media censorship and suppression of dissent.

• Challenges in India:

• Issues like political interference, lack of safety for journalists, and online harassment contribute to India’s lower ranking.

• Efforts are required to enhance media independence and ensure a safer environment for journalists.

Important Points

• India’s Progress:

• The improvement from 159th to 151st indicates marginal progress. However, structural reforms are needed to further improve press freedom.

• India’s media landscape is diverse, but challenges like attacks on journalists and political interference persist.

• Global Context:

• Countries leading the index promote media transparency, safety for journalists, and freedom from political control.

• Nations with poor rankings often face challenges like state censorship, violence, and suppression of dissent.

Q17. Answer: (b) Andhra Pradesh

The correct answer is Andhra Pradesh.

Key Points

• Miryala Apparao, honored posthumously with the Padma Shri in 2025, was a significant figure in the traditional art form of Burrakatha. This storytelling art has deep roots in the state of Andhra Pradesh.

• Burrakatha is a form of traditional storytelling in which a single performer or a group narrates stories from mythology, history, or social themes, accompanied by music and rhythmic beats. This art form is most prominently associated with Andhra Pradesh.

• Miryala Apparao played a pioneering role in preserving and promoting this art form and is considered one of its most celebrated practitioners in Andhra Pradesh.

• Recognition: The Padma Shri, one of India's highest civilian awards, is a recognition of his contribution to the cultural and artistic heritage of India. His award posthumously in 2025 highlights his lasting impact on the art form.

• Andhra Pradesh has a rich cultural heritage, and art forms like Burrakatha are integral to the state’s identity. This makes Miryala Apparao’s association with the state even more significant.

Additional Information

• Burrakatha:

• Burrakatha is a traditional storytelling technique native to Andhra Pradesh. It combines narration, dialogue, and music to engage audiences effectively.

• The term Burrakatha is derived from the Telugu word “Burra,” referring to the tambura-like instrument used during performances. The instrument is essential for setting the rhythm of the narrative.

• The stories often focus on mythological themes, historical events, and social issues, making it a medium of both entertainment and education.

• Miryala Apparao’s Contributions:

• Miryala Apparao was a pioneer in adapting Burrakatha to address contemporary social issues, making it relevant for modern audiences.

• He is credited with innovations in the art form, including introducing new themes and refining storytelling techniques.

• His efforts helped preserve Burrakatha during a time when traditional art forms were facing challenges due to modernization and changing entertainment preferences.

• Padma Shri Award:

• The Padma Shri is India's fourth-highest civilian award. It is awarded for distinguished contributions in various fields, including arts, literature, sports, medicine, and social work.

• The award is a recognition of individuals who have made exceptional contributions to their respective fields, often bringing attention to India's cultural heritage.

Important Points

• Other Options:

• Kerala: Known for its art forms like Kathakali and Mohiniyattam, Kerala is culturally rich but not associated with Burrakatha.

• Karnataka: This state has a unique cultural identity with art forms like Yakshagana, but Burrakatha is not a traditional art form here.

• Tamil Nadu: Famous for Bharatanatyam and other classical art forms, Tamil Nadu does not have a historical connection with Burrakatha.

Q18. Answer: (d) three additional judges

The correct answer is three additional judges.

Key Points

• The Regulating Act of 1773 was an important piece of legislation passed by the British Parliament to address administrative and governance issues in British India.

• It was the first step towards centralizing the administration of British territories in India under the control of the British Parliament.

• One of the provisions of the Act included the establishment of a Supreme Court in Calcutta to administer justice. This was to ensure a structured judicial system in British India.

• The Supreme Court was to consist of a Chief Justice and three additional judges. This provision aimed to create a fair and transparent judiciary in Calcutta.

• This court had jurisdiction over British subjects in Bengal, Bihar, and Orissa and was established in 1774.

• The appointment of these judges was made by the British Crown, ensuring that the judiciary was under direct British control.

• The Supreme Court was empowered to handle civil, criminal, admiralty, and ecclesiastical cases. Hence, the correct answer is three additional judges.

Additional Information

• The Regulating Act of 1773:

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

• It aimed to address issues of corruption, mismanagement, and exploitation by the company officials.

• It established the position of Governor-General of Bengal, with Warren Hastings being the first to hold this office.

• Supreme Court of Calcutta:

• The Supreme Court was established in 1774 under the provisions of the Regulating Act of 1773.

• The court's jurisdiction covered Bengal, Bihar, and Orissa, primarily over British subjects but also extended to others in specific cases.

• It consisted of one Chief Justice and three other judges appointed by the British Crown.

• Challenges and Issues:

• The dual system of governance introduced by the Regulating Act led to conflicts between the Governor-General and the Supreme Court, especially regarding their respective jurisdictions.

• The Act did not resolve the issue of the separation of powers, leading to overlaps and disputes in the functioning of the judiciary and executive.

Important Points

• Significance of the Regulating Act of 1773:

• This Act marked the beginning of British Parliamentary control over the East India Company's administration in India.

• It introduced accountability by requiring the company to report its revenue and governance to the British government.

• Legacy of the Supreme Court of Calcutta:

• The establishment of the Supreme Court laid the foundation for the judicial system in India, which was later expanded and reorganized under subsequent Acts.

• The court also played a key role in setting legal precedents and administering justice in British India.

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Q19. Answer: (c) grove and drought resistant trees

The correct answer is grove and drought-resistant trees.

Key Points

• The Mediterranean region is globally known for its unique vegetation, which primarily comprises groves and drought-resistant trees.

• Grove vegetation, such as olive trees, cork oaks, and carob trees, is highly adapted to the dry summers and wet winters characteristic of Mediterranean climates.

• Drought-resistant trees include species like Aleppo pine and cypress, which are well-suited to survive in arid conditions with minimal water availability.

• This type of vegetation often features small, thick leaves (e.g., sclerophyllous leaves) to minimize water loss and maximize efficiency in photosynthesis during dry periods.

• The Mediterranean vegetation exhibits a significant level of adaptation to its environment, with plants often displaying deep root systems to access water from deeper soil layers.

• The region's vegetation is not only ecologically significant but also economically important, with crops like olives, grapes, and citrus fruits being integral to agriculture and trade.

• Unlike mangroves, which grow in coastal saline water, or coniferous and deciduous forests, which thrive in colder or temperate climates, Mediterranean vegetation is uniquely suited to its hot, dry summers and mild, wet winters.

Additional Information

• Geographical Features:

• The Mediterranean region spans parts of Southern Europe, Northern Africa, and Western Asia.

• Countries like Italy, Spain, Greece, Turkey, and Tunisia are known for their Mediterranean vegetation.

• Characteristics of Grove and Drought-Resistant Trees:

• Olive trees: Native to the Mediterranean, they are drought-tolerant and produce olives, a key agricultural product.

• Cork oaks: Known for their thick bark, which is harvested for cork production. These trees thrive in dry conditions.

• Aleppo pine: A hardy species often found in hilly areas of the Mediterranean, adapted to arid climates.

• Cypress trees: Tall, evergreen trees commonly used in landscaping and timber production.

• Economic Importance:

• The Mediterranean region is famous for producing crops like grapes (used in wine production), olives (for olive oil), and citrus fruits.

• These agricultural products contribute significantly to the economies of Mediterranean countries.

• Climate Adaptations:

• Plants in the Mediterranean region have adapted to survive long periods of drought through features like deep roots, small leaves, and waxy coatings.

• This vegetation thrives under the region's hot, dry summers and cool, wet winters.

Important Points

• Mediterranean Vegetation:

• Age: Many Mediterranean plants are ancient species, cultivated for centuries due to their economic and ecological value.

• Location: Found in coastal areas, hillsides, and plains within the Mediterranean basin.

• Uses: These plants provide food, timber, cork, and ornamental value, along with ecological benefits like preventing soil erosion.

• Example: The olive tree is not only a symbol of peace but also a staple crop for Mediterranean agriculture.

• Climate and Vegetation:

• The Mediterranean climate is classified as Csa in the Köppen climate classification, characterized by mild wet winters and hot dry summers.

• Vegetation in this region plays a crucial role in adapting to these climatic conditions, ensuring biodiversity and ecological balance.

Q20. Answer: (a) Air India

The correct answer is Air India.

Key Points

• Air India launched its Digital Innovation Centre in 2025, showcasing its commitment to leveraging advanced technologies to enhance passenger experience, operational efficiency, and overall airline performance.

• The Digital Innovation Centre focuses on integrating cutting-edge digital technologies such as artificial intelligence, machine learning, cloud computing, and data analytics into Air India's operations.

• It aims to improve customer service by offering personalized travel experiences, faster check-ins, and smoother in-flight services

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through the use of digital tools.

• This move is part of Air India's broader strategy to modernize its operations and position itself as a global leader in the aviation industry.

• Air India’s Digital Transformation initiative includes innovations such as smart ticketing, real-time flight updates, and enhanced safety measures, which align with global trends in the aviation sector.

• The Digital Innovation Centre also focuses on sustainability by introducing green technologies, optimizing fuel consumption, and reducing the airline's overall carbon footprint.

• This initiative aligns with India's vision for technological advancement and positions Air India as a pioneer in aviation digitization.

Additional Information

• Air India:

• Founded in 1932 by J.R.D. Tata, Air India is India's flagship carrier.

• It was nationalized in 1953 and has played a significant role in connecting India with the global market.

• In 2022, Air India returned to the Tata Group, which initiated a series of modernization measures, including the launch of the Digital Innovation Centre.

• Other Airlines:

• Go First: Formerly known as GoAir, it is a low-cost carrier based in Mumbai. It primarily focuses on domestic routes and has not announced a similar digital innovation initiative as of now.

• Akasa Air: A new entrant in the Indian aviation sector, launched in 2022. While it aims to introduce modern technologies, it has not been associated with a Digital Innovation Centre.

• Vistara: A joint venture between Tata Sons and Singapore Airlines, Vistara is a premium airline known for its customer service and in-flight experience. It has adopted several technological advancements but has not launched a dedicated Digital Innovation Centre.

• Importance of Digital Transformation in Aviation:

• Digital transformation is crucial for enhancing operational efficiency, reducing costs, and improving customer satisfaction in the aviation sector.

• Technologies like AI, IoT, and blockchain help in predictive maintenance, baggage tracking, and ensuring safety compliance.

• Globally, airlines like Emirates and Delta are leading in digital innovation, making Air India's step towards this initiative a significant move for Indian aviation.

Important Points

• Global Trends in Digital Aviation:

• Airlines worldwide are adopting AI-based customer service tools, such as chatbots, to enhance passenger experiences.

• Real-time data analytics is being used for flight optimization, reducing delays, and improving fuel efficiency.

• Blockchain technology is being explored for secure passenger data management and ticketing systems.

• Sustainability in Aviation:

• Digital innovations help in reducing paper usage, optimizing flight paths, and enabling fuel-efficient operations.

• Airlines are increasingly adopting green technologies to reduce their carbon emissions, aligning with global climate goals.

Q21. Answer: (a) 73^(rd) Constitutional Amendment Act, 1992

The correct answer is 73rd Constitutional Amendment Act, 1992.

Key Points

• The 73rd Constitutional Amendment Act, 1992 provided constitutional status to the Panchayati Raj system in India, ensuring its establishment as a decentralized self-government in rural areas.

• This amendment added Part IX to the Indian Constitution, titled "The Panchayats," and incorporated Articles 243 to 243-O, laying down the framework for the Panchayati Raj system.

• The 73rd Amendment also introduced the 11th Schedule, which contains a list of 29 functional items that the Panchayats are responsible for, such as agriculture, rural housing, drinking water, roads, and education.

• This amendment made it mandatory for states to establish Panchayati Raj institutions in rural areas and conduct regular elections every 5 years.

• The act provided for the establishment of a three-tier structure of Panchayati Raj, consisting of: Gram Panchayat (at the village level), Panchayat Samiti (at the block level), and Zilla Parishad (at the district level).

• It also introduced the concept of reservation of seats for Scheduled Castes (SCs), Scheduled Tribes (STs), and women in Panchayati Raj institutions to ensure inclusive participation in local governance.

• The State Election Commission was constituted to oversee the free and fair elections of Panchayati Raj institutions.

• The amendment empowered the state legislatures to endow Panchayats with functional responsibilities and authority for the preparation of plans for economic development and social justice.

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• Hence, the 73rd Amendment Act of 1992 is the correct answer.

Additional Information

• 42nd Constitutional Amendment Act, 1976:

• This amendment is known as the "Mini-Constitution" as it brought about the most comprehensive changes to the Constitution.

• It introduced the Fundamental Duties under Part IVA (Article 51A).

• The amendment transferred several subjects from the State List to the Concurrent List, such as education, forests, and wildlife protection.

• 97th Constitutional Amendment Act, 2011:

• This amendment was related to cooperative societies. It gave constitutional status to cooperatives by adding Part IXB to the Constitution.

• It also included the right to form cooperative societies as a part of the Fundamental Rights under Article 19(1)(c).

• 74th Constitutional Amendment Act, 1992:

• This amendment provided a constitutional status to urban local bodies, such as Municipal Corporations, Municipal Councils, and Nagar Panchayats.

• It added Part IXA to the Constitution and introduced the 12th Schedule, listing 18 functional items for urban local bodies.

Important Points

• Key Features of Panchayati Raj System:

• The system ensures grassroots democracy by empowering rural citizens to participate in governance.

• Panchayats are responsible for addressing local issues, such as water supply, sanitation, and rural development.

• The reservation system in Panchayati Raj promotes social inclusion and equitable representation in decision-making.

• Impact of the 73rd Amendment:

• The amendment strengthened decentralized planning and governance in rural areas, allowing local bodies to function as effective units of self-government.

• It enhanced the role of women and marginalized communities in governance by providing them with reserved seats in Panchayati Raj institutions.

Q22. Answer: (c) 31.2%

The correct answer is Option 3 (0.312).

Key Points

• Urban population percentage: According to the 2011 Census of India, the percentage of the population living in urban areas was 31.2%, which is equivalent to 0.312 in decimal format. This data reflects the growing urbanization in India.

• Urbanization trends: India has witnessed rapid urbanization due to factors like industrialization, economic growth, and migration from rural to urban areas in search of better job opportunities and living standards.

• Significance of the Census: The Census of India is conducted every ten years and provides comprehensive data on demographic, social, and economic aspects, including urban and rural population distribution. The 2011 Census is the latest available full census data.

• Urban population growth: Compared to previous censuses, the urban population percentage has shown a steady increase, highlighting the importance of urban centers in India’s development.

• Urbanization leads to challenges such as housing shortages, increased demand for infrastructure, and environmental concerns. Proper planning and policies are needed to manage these issues effectively.

Additional Information

• 2011 Census Overview:

• The 2011 Census is the 15th National Census conducted in India since 1872. It provides detailed insights into population distribution, literacy rates, gender ratios, and urbanization.

• The total population of India in 2011 was approximately 1.21 billion, with around 377 million people living in urban areas.

• Urbanization in India:

• Urbanization refers to the increasing proportion of people living in cities and towns compared to rural areas. It is influenced by factors such as migration, industrial development, and better access to services in urban areas.

• Major urban centers in India include cities like Mumbai, Delhi, Bengaluru, Chennai, Kolkata, and Hyderabad, which serve as hubs for economic and cultural activities.

• Challenges of Urbanization:

• Urbanization poses challenges such as overcrowding, inadequate housing, water scarcity, pollution, and strain on infrastructure.

• Government initiatives like Smart Cities Mission and AMRUT (Atal Mission for Rejuvenation and Urban Transformation) aim to address these issues and promote sustainable urban development.

Important Points

• Comparison with rural population:

• In 2011, around 68.8% of India's population lived in rural areas, showing the dominance of rural living but highlighting the gradual shift towards urbanization.

• Government programs:

• Programs like Pradhan Mantri Awas Yojana (Urban) aim to provide affordable housing and improve living conditions in urban areas.

• Efforts are being made to bridge the gap between urban and rural infrastructure through initiatives like Rural-Urban Connectivity Projects.

Q23. Answer: (b) Nice, France

The correct answer is Vancouver, Canada.

Key Points

• The United Nations Ocean Conference is a global event aimed at addressing issues related to the conservation and sustainable use of oceans, seas, and marine resources. The 2025 edition of the conference is scheduled to be held in Vancouver, Canada.

• This conference plays a crucial role in promoting international cooperation to achieve the goals outlined in SDG 14 (Sustainable Development Goal 14), which focuses on life below water.

• The event will bring together global leaders, policymakers, scientists, and environmentalists to discuss and implement strategies for ocean conservation. Hence, the correct answer is Vancouver, Canada.

• The city of Vancouver is recognized as a sustainable and environmentally conscious hub, making it an ideal location to host the UN Ocean Conference.

• The conference is expected to highlight themes such as marine pollution, climate change impacts, ocean acidification, and sustainable fishing practices. Hence, this selection aligns with the objectives of the conference.

Additional Information

• About the UN Ocean Conference:

• The UN Ocean Conference focuses on achieving Sustainable Development Goal 14 (SDG 14), which aims to conserve and sustainably use oceans, seas, and marine resources.

• The conference emphasizes collaboration between countries, organizations, and stakeholders to tackle issues such as marine pollution, overfishing, and climate change.

• Why Vancouver is an ideal host:

• Vancouver is a coastal city in Canada, known for its commitment to sustainability and environmental preservation.

• The city is equipped with modern infrastructure and has hosted several global environmental conferences, showcasing its ability to manage large-scale events.

• Canada has been actively involved in initiatives to protect marine environments and promote the sustainable use of ocean resources.

• Topics to be addressed at the conference:

• The conference will likely focus on combating plastic pollution, developing sustainable aquaculture, and mitigating the adverse effects of climate change on oceans.

• It will also explore ways to protect biodiversity in marine ecosystems and ensure sustainable livelihoods for communities dependent on ocean resources.

Important Points

• Significance of SDG 14:

• SDG 14 is one of the 17 Sustainable Development Goals adopted by the United Nations in 2015, focusing specifically on the conservation and sustainable use of oceans.

• It includes targets such as reducing marine pollution, protecting marine ecosystems, and ensuring sustainable fishing practices.

• Global Efforts for Ocean Conservation:

• Several international agreements, including the Paris Agreement and the Convention on Biological Diversity, support the goals of ocean conservation.

• Countries around the world are working on initiatives such as creating marine protected areas and reducing carbon emissions that contribute to ocean acidification.

• The UN Ocean Conference provides a platform for countries to share best practices, innovations, and solutions for sustainable ocean management.

Q24. Answer: (c) Odisha coastal plain

The correct answer is Coastal plains of Odisha.

Key Points

• The coastal plain of Odisha is called the "Hexadeltaic Region" or "The Gift of Six Rivers" It is called.

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• This region is formed by six major rivers – Mahanadi, Brahmani, Baitarani, Subarnarekha, Rushikulya and Daya.
• This plain is located in the Gulf region, which is formed by sediments brought by rivers. This is known as the river delta.
• The coastal plain of Odisha provides fertile land and is suitable for agriculture. Rice, sugarcane, and other crops are produced here on a large scale.
• This region has rich biodiversity and is home to a wide variety of aquatic and terrestrial fauna.
• The coastal plain of Odisha is also an important hub for maritime trade and transportation.
• This region is home to important water bodies like Chilka Lake, which are important for tourism and ecology.
• Hence, the correct answer is Odisha's coastal plain.

Additional Information

• Coastal Plain of Odisha:
• This plain is located in Eastern India and extends along the Bay of Bengal. Its average width is approximately 75-100 km.
• The region is primarily composed of deltaic areas, formed by sediments carried by rivers.
• This plain is located near sea level, making it vulnerable to waterlogging and floods.
• Six major rivers:
• Mahanadi: It is the largest river in Odisha. It majorly influences the delta region of the plain.
• Brahmani and Baitarani: These rivers flow parallel and play an important role in the delta region.
• Suvarnarekha: It flows between West Bengal and Odisha.
• Rushikulya and Daya: These are smaller rivers but contribute to the formation of the delta.
• Chilka Lake:
• It is the largest brackish water lake in India and is located in the coastal plain of Odisha.
• This lake is an important habitat for aquatic life and birds.

Important Points

• Features of the Coastal Plain of Odisha:
• This region provides fertile land and is important for agriculture.
• Floods and waterlogging are common here, affecting the ecology.
• It is important for biodiversity and environmental conservation.

Q25. Answer: (c) Bahadur Shah Zafar

The correct answer is Bahadur Shah Zafar.

Key Points

• Bahadur Shah Zafar, the last Mughal emperor, was declared the symbolic leader of the rebellion during the First War of Independence of 1857. His leadership was more symbolic as the rebels sought to unite under his name.
• The rebellion, also known as the Sepoy Mutiny, was a large-scale uprising against British colonial rule, triggered by various socio-economic, political, and religious grievances.
• Although Bahadur Shah Zafar was old and lacked the power to actively lead the rebellion, his position as the last Mughal emperor made him a unifying figure for the rebels. Hence, he was declared the leader of the uprising.
• The proclamation of Zafar as the leader symbolized the revolt against British imperialism and aimed to restore the Mughal Empire's glory. This was an attempt to rally Indian forces under a common identity.
• The British eventually captured Bahadur Shah Zafar, exiled him to Rangoon (present-day Yangon, Myanmar), and suppressed the rebellion, marking the end of the Mughal dynasty in India. This marked a significant turning point in Indian history.

Additional Information

• Other prominent leaders of the 1857 rebellion:
• Rani Laxmibai: The Queen of Jhansi fought valiantly against the British forces and became a symbol of resistance during the rebellion.
• Nana Saheb: The adopted son of Peshwa Bajirao II led the rebellion in Kanpur and played a significant role in the revolt.
• Shah Alam II: Although not directly involved in the rebellion, he was a Mughal emperor whose rule preceded Zafar’s. He had no active role in 1857.
• Key causes of the revolt:
• Social and religious grievances: The imposition of British laws and policies like the abolition of Sati and introduction of Western education created discontent among Indians.
• Economic exploitation: Heavy taxation, land revenue policies, and the destruction of traditional industries led to widespread poverty.
• Political reasons: The Doctrine of Lapse and disrespect towards Indian rulers fueled dissatisfaction among the princely states.
• Consequences of the rebellion:

• The rebellion led to the dissolution of the East India Company, and the administration of India was transferred to the British Crown.

• The British government introduced reforms to appease Indians, including religious tolerance and protection of traditional practices.

• The revolt laid the foundation for the Indian freedom movement by fostering a sense of nationalism and unity among Indians.

Important Points

• 1857 rebellion significance:

• The First War of Independence marked the first large-scale resistance against British colonial rule.

• It was both a military revolt and an expression of widespread discontent among civilians.

• The suppression of the rebellion led to reforms in British governance, including the end of Company rule and the establishment of direct Crown control.

• Bahadur Shah Zafar's legacy:

• Despite his limited political role, Zafar is remembered for his symbolic significance in uniting Indians against British oppression.

• His exile marked the end of the Mughal Empire and remains a poignant reminder of colonial exploitation.

Q26. Answer: (d) Export of raw materials and import of manufactured goods.

The solution is in Hindi. Read it online.

Q27. Answer: (d) INDRA

The correct answer is INDRA.

Key Points

• INDRA is a bilateral naval exercise conducted between India and Russia. It is aimed at improving operational interoperability and enhancing maritime cooperation between the two nations.

• The 2025 edition of INDRA was held in the Bay of Bengal and Chennai from 28 March to 2 April, demonstrating joint efforts in maritime security.

• The exercise included various activities such as anti-piracy operations, search and rescue missions, and advanced naval drills to strengthen the maritime partnership between India and Russia.

• INDRA serves as a platform for both nations to exchange military expertise, conduct tactical exercises, and foster mutual trust and understanding.

• The exercise also highlights the shared commitment of India and Russia towards ensuring regional and global maritime security.

• The participation of advanced naval assets and personnel from both sides reflects the strategic importance of the exercise in strengthening defense ties.

Additional Information

• India-Russia Defense Cooperation:

• India and Russia share a long-standing strategic partnership in defense, with multiple agreements focusing on technology transfer, joint production, and military exercises.

• INDRA exercises are part of this collaboration, showcasing the growing defense ties between the two nations.

• Previous Exercises:

• INDRA was first conducted in 2003 and has evolved over the years to include tri-service engagements, covering land, air, and sea domains.

• The exercise is held alternately in Indian and Russian territories, emphasizing the importance of shared responsibilities in maritime security.

• Other Naval Exercises of India:

• VARUNA: A bilateral exercise between India and France, focusing on enhancing interoperability and conducting advanced naval drills.

• SHAKTI: A military exercise between India and France, primarily focusing on ground forces.

• BRAHMOS: Although not a naval exercise, it refers to the joint development of the BrahMos missile between India and Russia.

Important Points

• Significance of INDRA:

• INDRA strengthens the maritime partnership between India and Russia and reflects their shared commitment to security in the Indian Ocean region.

• It helps both nations to develop strategies to counter common challenges such as piracy, terrorism, and maritime threats.

• Regional Importance:

• The Bay of Bengal is a strategically important region, serving as a major trade route and a hub for maritime activities.

• The presence of naval forces from India and Russia in this region helps ensure the safety and security of international shipping

lanes.

Q28. Answer: (a) 1906

The correct answer is 1906.

Key Points

• Sri Aurobindo, a prominent freedom fighter, philosopher, and spiritual leader, resigned from his post in Baroda in the year 1906.

• After resigning, he moved to Calcutta (now Kolkata), where he became actively involved in India's nationalist movement.

• Sri Aurobindo joined the Indian National Congress and emerged as one of the leading voices advocating for complete independence, rather than incremental reforms. Hence, the statement about him moving to Calcutta in 1906 is correct.

• His political writings and speeches inspired many Indians to join the struggle for freedom. He contributed significantly to revolutionary movements such as the Swadeshi Movement and the promotion of boycotts against British goods.

• Sri Aurobindo was instrumental in organizing secret groups for revolutionary activities. He also published articles in newspapers such as Bande Mataram, which became a platform for nationalist ideologies.

• Although he moved away from active politics in 1910 to settle in Pondicherry, his contributions during the early 20th century laid the foundation for India's independence movement. Hence, the statement about his role in the nationalist movement in Calcutta is correct.

Additional Information

• Sri Aurobindo's Early Life:

• Sri Aurobindo was born on 15th August 1872 in Kolkata, India. He received education in England and later returned to India in 1893.

• He joined the Baroda State Service in various administrative roles, including being a professor of English, and actively pursued literary and philosophical interests.

• His Role in the Freedom Movement:

• Sri Aurobindo played a significant role in the Swadeshi Movement, which encouraged Indians to boycott British goods and promote indigenous industries.

• He supported revolutionary activities and was linked to various secret societies like the Anushilan Samiti, which aimed to overthrow British rule.

• His writings in publications like Bande Mataram were instrumental in spreading nationalist ideas and inspiring the youth of India.

• Transition to Spiritual Life:

• In 1910, Sri Aurobindo withdrew from active politics and moved to Pondicherry, where he focused on spiritual pursuits.

• He developed the philosophy of Integral Yoga, aiming to harmonize the spiritual and material aspects of life.

• His teachings and writings, including works like The Life Divine and Savitri, continue to inspire individuals worldwide.

Important Points

• Swadeshi Movement:

• The Swadeshi Movement began in the early 20th century as a response to British colonial policies, particularly the partition of Bengal in 1905.

• This movement encouraged Indians to boycott British goods and promote indigenous industries, including handloom weaving and crafts.

• Bande Mataram Newspaper:

• Bande Mataram was a nationalist publication started in 1905 to promote the Swadeshi Movement and revolutionary ideas.

• Sri Aurobindo was one of its primary contributors, using it as a platform to criticize British policies and inspire the masses.

• Influence of Sri Aurobindo:

• While Sri Aurobindo's active political career was brief, his contributions had a lasting impact on India's freedom struggle.

• His transition to spiritual life also influenced many leaders and thinkers, such as Mahatma Gandhi, who shared a vision of India's cultural and spiritual revival.

Q29. Answer: (d) Gopuram

The correct answer is Gopuram.

Key Points

• Gopuram is a monumental entrance tower that is a distinctive architectural feature of Dravidian temples. It acts as the gateway to the temple complex.

• The Gopuram is typically adorned with intricate sculptures depicting Hindu deities, mythological stories, and decorative motifs.

• It is located at the entrance of the temple and serves as an identifying landmark of Dravidian temple architecture. Hence, this feature is correct.

• Dravidian temples are known for their pyramidal structure, and the Gopuram dominates the skyline, acting as the visual focal

point of the temple complex.

• The construction of Gopurams gained prominence during the Chola, Pandya, and Vijayanagara dynasties, showcasing elaborate designs. Hence, this is a defining feature of Dravidian temples.

• Other options like Pillarless Hall, Sikhara, and Flat Roof do not align with the architectural characteristics of Dravidian temples.

• Hence, the correct answer is Gopuram.

Additional Information

• Dravidian Temple Architecture:

• Dravidian architecture emerged in South India and is characterized by its towering Gopurams, enclosed courtyards, and intricate carvings.

• These temples were constructed using granite and sandstone, showcasing engineering brilliance during the Chola and Vijayanagara periods.

• Gopuram Features:

• Gopurams are constructed in a pyramidal shape with multiple tiers and are often decorated with sculptures representing Hindu mythology.

• The Vijayanagara dynasty contributed significantly to the development of massive Gopurams, such as the Gopuram of the Meenakshi Temple in Madurai.

• Historical Examples:

• Brihadeeswarar Temple (Tamil Nadu): Built during the Chola Dynasty, the temple features a prominent Gopuram.

• Meenakshi Amman Temple (Madurai): Famous for its towering Gopurams and detailed sculptures.

Important Points

• Pillarless Hall:

• Dravidian temples generally have halls supported by intricately carved pillars, not pillarless halls. This feature is not common in South Indian temples.

• Sikhara:

• The Sikhara, or spire, is more commonly associated with Nagara-style temples of North India, not Dravidian temples.

• Flat Roof:

• Dravidian temples have pyramidal roofs rather than flat roofs, which is a defining feature of their architecture.

Q30. Answer: (b) Sikkim

The correct answer is Sikkim.

Key Points

• Kanchenjunga, located in the state of Sikkim, is the highest elevation point in India (excluding Pakistan-occupied Kashmir). It stands at a towering height of 8,586 meters, making it the third-highest mountain in the world.

• This peak is part of the Himalayan mountain range and lies on the border of India and Nepal. The majority of Kanchenjunga's massif lies within Sikkim, India.

• Sikkim's unique geographical location, surrounded by the Eastern Himalayas, contributes to the presence of such high-altitude peaks. Hence, Sikkim is the correct answer.

• Other states like Himachal Pradesh, Uttarakhand, and Arunachal Pradesh also host high-altitude peaks, but none of them surpass Kanchenjunga in terms of elevation.

• In Himachal Pradesh, the highest peak is Reo Purgyil at an elevation of 6,816 meters, while in Uttarakhand, Nanda Devi stands at 7,816 meters, and Arunachal Pradesh features Kangto at 7,042 meters.

• Despite these impressive peaks, Sikkim's Kanchenjunga remains the highest elevation point in India (excluding POK) and is internationally recognized as a key landmark of the country. Hence, the other options are incorrect.

Additional Information

• Kanchenjunga:

• Kanchenjunga is sacred to the people of Sikkim and is considered the guardian deity of the state. Climbing the peak is restricted due to its cultural and spiritual significance.

• It is a part of the Greater Himalayas and is renowned for its biodiversity, hosting rare species like the red panda and snow leopard.

• Kanchenjunga’s name means “The Five Treasures of Snows,” referring to its five distinct peaks, which symbolize the treasures of gold, silver, gems, grain, and sacred texts.

• Other High Peaks in India:

• Himachal Pradesh: Reo Purgyil, at an elevation of 6,816 meters, is the highest peak in the state and lies in the Zanskar Range.

• Uttarakhand: Nanda Devi, at 7,816 meters, is the second-highest peak in India after Kanchenjunga. It is part of the Nanda Devi Biosphere Reserve, which is a UNESCO World Heritage Site.

• Arunachal Pradesh: Kangto, at 7,042 meters, is the highest peak in Arunachal Pradesh and lies along the Indo-China border.

• Importance of Sikkim's Geography:

• Sikkim is the smallest Indian state by population and the second smallest by area. It is bordered by Nepal, Bhutan, Tibet, and West Bengal, making it strategically significant.

• The state is known for its rich biodiversity, with over 5,000 species of flowering plants, 500 species of orchids, and rare fauna.

Important Points

• Facts about Kanchenjunga:

• Kanchenjunga was first climbed in 1955 by a British expedition led by George Band and Joe Brown. However, climbers stopped short of the summit out of respect for local beliefs.

• It is a major attraction for trekkers and environmental enthusiasts due to its stunning landscapes and ecological significance.

• Himalayan Range:

• The Himalayas extend across five countries: India, Nepal, Bhutan, China, and Pakistan. They are home to some of the highest peaks, including Mount Everest.

• The Indian Himalayan region is divided into three sectors: Western Himalayas, Central Himalayas, and Eastern Himalayas. Sikkim lies in the Eastern Himalayas.

Q31. Answer: (d) Nita Mukesh Ambani Cultural Centre

The correct answer is Nita Mukesh Ambani Cultural Centre.

Key Points

• Nita Mukesh Ambani Cultural Centre (NMACC) is a state-of-the-art cultural institution located in Mumbai, India, established by the Reliance Foundation, led by Nita Ambani.

• The centre is dedicated to promoting and preserving Indian art, culture, and heritage on the global stage through exhibitions, performances, and collaborations.

• The NMACC is known for hosting world-class events showcasing the rich tapestry of Indian traditions, including visual arts, performing arts, and literature.

• In September 2025, NMACC is organizing a three-day cultural event at the prestigious Lincoln Centre in New York. The event aims to highlight the vibrancy and diversity of Indian culture.

• The Lincoln Centre, a globally recognized venue for arts and culture, will serve as the stage to showcase Indian heritage and artistry to a worldwide audience.

• Reliance Foundation has consistently worked to bridge cultural gaps by bringing Indian traditions to international platforms. This event is a continuation of their efforts to promote cultural diplomacy and connect India with the world.

Additional Information

• Nita Mukesh Ambani Cultural Centre (NMACC):

• Location: The centre is located in Mumbai, Maharashtra, India, within the Jio World Centre in Bandra Kurla Complex.

• Features: NMACC boasts a Grand Theatre, The Cube, and The Art House, which are equipped with cutting-edge technology for performances and exhibitions.

• Objective: The centre aims to preserve and promote Indian culture while fostering cross-cultural exchanges and showcasing Indian talent globally.

• Lincoln Centre:

• Location: Situated in New York City, USA, the Lincoln Centre is one of the world's leading performing arts institutions.

• Significance: The venue is renowned for hosting prestigious events, including concerts, operas, and cultural festivals, attracting audiences from around the globe.

• Indian Council for Cultural Relations (ICCR):

• Established: ICCR was founded in 1950 by Maulana Abul Kalam Azad to promote cultural ties between India and other nations.

• Functions: The organization focuses on cultural exchange programs, scholarships for foreign students, and showcasing Indian art and culture worldwide.

• National School of Drama (NSD):

• Established: NSD was founded in 1959 in New Delhi to provide training in various aspects of theatre and drama.

• Functions: The institution is known for producing talented theatre artists and organizing national and international theatre festivals.

• Sangeet Natak Akademi:

• Established: Founded in 1952, the Akademi serves as India's apex institution for performing arts, including music, dance, and drama.

• Functions: It provides awards, fellowships, and organizes festivals to promote traditional and contemporary performing arts.

Important Points

• Global Cultural Diplomacy:

• India's efforts to promote its cultural heritage globally are significant for enhancing its soft power and fostering international goodwill.

• Cultural events like the one at Lincoln Centre help establish India as a hub of art and heritage, creating opportunities for collaboration and exchange.

• Reliance Foundation's Role:

• The foundation's initiatives, such as the NMACC, reflect its commitment to preserving cultural heritage and supporting artists.

• By organizing events internationally, Reliance Foundation strengthens India's position in the global cultural landscape.

Q32. Answer: (b) Subsea earthquake

The correct answer is Subsea earthquake.

Key Points

• Tsunamis are primarily caused by Subsea Earthquakes: A subsea earthquake occurs when tectonic plates beneath the ocean move abruptly, displacing large volumes of water. This sudden displacement generates powerful waves, leading to tsunamis.

• The energy released during the earthquake transfers to the water above, creating high-energy waves that can travel thousands of kilometers across the ocean.

• The most common type of earthquake causing a tsunami is a megathrust earthquake. These occur at convergent plate boundaries where one tectonic plate is forced beneath another. Hence, subsea earthquakes are the primary cause of tsunamis.

• Other causes: While subsea earthquakes are the most common cause, tsunamis can also be triggered by volcanic eruptions, underwater landslides, or asteroid impacts. However, these are relatively rare compared to earthquakes.

• Heavy rainfall, flooding, cyclones, and high tides do not cause tsunamis directly. These are unrelated phenomena. Hence, options 1, 3, and 4 are incorrect.

• Impact of tsunamis: Tsunamis often result in massive destruction along coastlines, including loss of life, property damage, and environmental degradation. Coastal areas are especially vulnerable.

• The 2004 Indian Ocean tsunami, triggered by a megathrust earthquake off the coast of Sumatra, is one of the deadliest examples. It caused significant damage in several countries, including India, Sri Lanka, and Indonesia. Hence, subsea earthquakes are correctly identified as the primary cause.

Additional Information

• Characteristics of Subsea Earthquakes:

• Location: These occur at tectonic plate boundaries, particularly at subduction zones where plates collide.

• Energy release: Subsea earthquakes release massive energy, displacing water and triggering waves. The stronger the earthquake, the higher the energy released.

• Magnitude: Earthquakes with a magnitude of 7.0 or higher are more likely to generate tsunamis.

• Examples of tsunamis caused by subsea earthquakes:

• 2004 Indian Ocean Tsunami: A megathrust earthquake of magnitude 9.1 off the coast of Sumatra triggered this tsunami, which caused over 230,000 deaths.

• 2011 Japan Tsunami: A magnitude 9.0 earthquake off the coast of Tohoku led to massive destruction, including the Fukushima nuclear disaster.

• Other causes of tsunamis:

• Volcanic eruptions: Explosive underwater eruptions can displace water and create tsunamis. Example: Krakatoa eruption in 1883.

• Underwater landslides: Landslides triggered by earthquakes can displace water, generating waves.

• Asteroid impacts: Although rare, large asteroids striking oceans can produce tsunamis. Example: Chicxulub impact that contributed to dinosaur extinction.

Important Points

• Key facts about tsunamis:

• Speed: Tsunami waves can travel at speeds of up to 800 km/h in deep water.

• Wave height: While tsunamis are barely noticeable in deep oceans, their height increases dramatically as they approach shallow coastal areas.

• Warning systems: Advanced tsunami warning systems, like those established in the Pacific Ocean, help reduce casualties by providing early alerts.

• Global efforts to mitigate tsunami impacts:

• UNESCO: The Intergovernmental Oceanographic Commission (IOC) coordinates global tsunami warning systems.

• Preparedness: Coastal areas prone to tsunamis conduct drills and awareness programs to educate residents.

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Q33. Answer: (a) 33

The correct answer is 33.

Key Points

• India won a total of 33 medals at the 2025 Special Olympics World Winter Games held in Turin, Italy. This includes medals across various sports categories such as skiing, figure skating, snowboarding, and ice hockey.

• The Special Olympics World Winter Games are held to provide athletes with intellectual disabilities an opportunity to compete at an international level. It showcases their skills and promotes inclusivity in sports.

• India's performance was exceptional, as the team showcased remarkable talent and determination across multiple events. Hence, the statement regarding the total medals being 33 is correct.

• Athletes from India excelled in sports like alpine skiing and snowboarding, securing top positions in various categories, contributing significantly to the medal count.

• The medals won by India not only highlight the athletic abilities of the participants but also emphasize the growth of winter sports in the country. Hence, the correct answer is 33.

Additional Information

• Special Olympics World Winter Games:

• The Special Olympics is an international organization that conducts sports events for people with intellectual disabilities. The Winter Games include various sports like skiing, snowboarding, ice skating, and ice hockey.

• The 2025 edition was hosted in Turin, Italy, a city with a rich history in winter sports, having previously hosted the Winter Olympics in 2006.

• India's Participation:

• Indian athletes trained extensively under the guidance of coaches and support staff to compete at the Winter Games.

• The delegation represented India in multiple events, showcasing their skills and earning recognition on the global stage.

• Example: Indian athletes performed exceptionally well in alpine skiing, earning multiple medals in this category.

• Medal Distribution:

• The medal tally of 33 includes gold, silver, and bronze medals across different sports.

• This achievement is a testament to the growing support for athletes with intellectual disabilities and the promotion of winter sports in India.

• The efforts of the Indian team were widely appreciated, contributing to the country's reputation in international sports.

Important Points

• Key Achievements:

• Indian athletes won medals across various categories, highlighting their diverse skills and determination to excel.

• The success of the Indian delegation emphasizes the importance of inclusivity in sports and the need to provide opportunities for athletes with intellectual disabilities.

• Significance of the Games:

• Special Olympics events promote awareness and acceptance for people with intellectual disabilities globally.

• The participation of Indian athletes in such events fosters national pride and encourages the development of winter sports infrastructure in the country.

• The 2025 Special Olympics World Winter Games served as a platform for athletes to demonstrate their abilities and inspire others.

Q34. Answer: (b) International Institute of Administrative Sciences (IIAS)

The correct answer is International Institute of Administrative Sciences (IIAS).

Key Points

• India achieved a historic milestone by becoming the President of the International Institute of Administrative Sciences (IIAS) for the first time. This achievement was secured through a voting process.

• The International Institute of Administrative Sciences (IIAS) is a global organization dedicated to advancing the field of administrative sciences and governance.

• The Indian delegation played a key role in securing the presidency, which showcases India’s growing influence in the domain of international administrative and governance practices. Hence, this statement is correct.

• This achievement highlights India’s commitment to fostering international cooperation in administrative sciences and its role in shaping global governance policies.

Additional Information

• About the International Institute of Administrative Sciences (IIAS):

• The IIAS is headquartered in Brussels, Belgium, and focuses on promoting the study and development of administrative sciences.

• The organization works to enhance administrative efficiency, governance, and public management at the international level.

• It serves as a platform for governments, academics, and practitioners to exchange ideas and best practices related to public administration.

• India's Role in International Organizations:

• India has increasingly taken leadership roles in various global organizations, showcasing its growing influence and expertise in governance and administration.

• This presidency marks a significant achievement, highlighting India's ability to contribute to global policy and administrative reforms.

• Other International Organizations in the Options:

• United Nations Development Program (UNDP): Works globally to eradicate poverty and reduce inequality. India is a key partner but has not held the presidency.

• World Health Organization (WHO): Focuses on global health issues. India has been a member and contributor but has not held the presidency.

• International Labour Organization (ILO): Promotes labor rights and social justice. India is a member but has not held the presidency.

Important Points

• India's Achievement:

• India's presidency of IIAS signifies its growing prominence in contributing to global administrative and governance systems.

• This achievement is a testament to India's commitment to excellence in public administration and its ability to lead on the global stage.

• IIAS Functionality:

• The institute organizes conferences, seminars, and research projects to address contemporary challenges in governance and administration.

• It also publishes scientific studies and reports to guide policy-making and administrative practices worldwide.

Q35. Answer: (a) Parliament required the consent of the state government to make laws on matters in the Union List for Jammu...

The correct answer is Parliament required the consent of the state government to make laws on matters in the Union List for Jammu and Kashmir.

Key Points

• Article 370 of the Indian Constitution provided special autonomy to Jammu and Kashmir. It allowed the state to have its own Constitution and limited the Indian Parliament's legislative powers over the state.

• Under Article 370, Parliament required the consent of the state government to legislate on matters specified in the Union List and Concurrent List. This was a significant departure from the powers Parliament has over other states in India. Hence, this statement is correct.

• The provisions of the Directive Principles of State Policy (DPSP) were not fully applicable to Jammu and Kashmir due to its special status. Hence, this statement is incorrect.

• Jammu and Kashmir had representation in the Lok Sabha, just like other states. It sent representatives to the Indian Parliament, disproving the claim that it lacked representation. Hence, this statement is incorrect.

• Jammu and Kashmir was included in the First Schedule of the Constitution, which lists the states and union territories of India. It was never excluded from this schedule. Hence, this statement is incorrect.

• Hence, the correct answer is Parliament required the consent of the state government to make laws on matters in the Union List for Jammu and Kashmir.

Additional Information

• Article 370: Special Status of Jammu and Kashmir:

• Article 370 was part of the Constitution that granted special autonomy to Jammu and Kashmir. This provision was introduced because the state had its own Constitution, adopted in 1956.

• Under Article 370, the Indian Parliament could legislate for Jammu and Kashmir only on defense, foreign affairs, and communication, unless the state government consented to extend other Union laws.

• Key Features of Article 370:

• Jammu and Kashmir had its own Constitution, separate from the Indian Constitution.

• Indian laws were not automatically applicable in Jammu and Kashmir, unlike other states.

• The citizens of Jammu and Kashmir were governed by state-specific laws, including laws related to property ownership and citizenship.

• Repeal of Article 370:

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• On August 5, 2019, the Indian government abrogated Article 370, revoking Jammu and Kashmir's special status.

• This decision led to the bifurcation of the state into two Union Territories: Jammu and Kashmir and Ladakh.

Important Points

• Impact of Article 370:

• It created a unique relationship between Jammu and Kashmir and the Indian Union, where the state enjoyed greater autonomy than other states.

• The abrogation of Article 370 sparked debates on its constitutional and political implications, with supporters arguing it would lead to better integration of the state with India and critics expressing concerns over federalism and regional sentiments.

• Historical Context:

• Article 370 was introduced following the Instrument of Accession signed by Maharaja Hari Singh in 1947, when Jammu and Kashmir joined India.

• Over the years, several provisions of the Indian Constitution were extended to Jammu and Kashmir, gradually eroding its special status before the final repeal in 2019.

Q36. Answer: (d) 6 years or till attainment of the age of 65 years

The correct answer is 6 years or till attainment of the age of 65 years.

Key Points

• The tenure of a member of the Union Public Service Commission (UPSC) is set at 6 years or till the attainment of the age of 65 years, whichever is earlier, as per the provisions in the Constitution of India.

• This ensures that the members of the UPSC have a defined tenure and cannot hold office indefinitely, maintaining accountability and efficiency in their functioning.

• The age limit of 65 years ensures that only active and capable individuals serve in this prestigious position. Hence, the correct answer is 6 years or till the attainment of the age of 65 years.

• As per the Constitution, members of the UPSC cannot hold any other office of profit or employment under the government of India or state governments during their tenure.

• The UPSC is a constitutional body established under Article 315 of the Constitution, and its members are appointed by the President of India.

Additional Information

• Union Public Service Commission (UPSC):

• The UPSC is India's premier central recruiting agency. It is responsible for conducting examinations for recruitment to various services of the Union, including the Civil Services Examination, Indian Forest Service Examination, and others.

• It functions independently under the provisions of the Constitution and ensures fair recruitment processes for the government of India.

• Appointment of Members:

• The members of the UPSC are appointed by the President of India.

• The composition of UPSC includes a Chairman and other members, the number of which is determined by the President.

• Functions of UPSC:

• The main function is to conduct examinations for appointments to the All India Services, Central Services, and other allied services.

• It advises the government on matters related to recruitment, transfer, promotion, and disciplinary actions.

• Conditions of Service:

• The conditions of service of the Chairman and members of the UPSC are governed by the Constitution and cannot be altered to their disadvantage after their appointment.

• The members are not eligible for reappointment to the same office after completing their tenure.

Important Points

• Article 315 to 323:

• These articles in the Constitution deal with the composition, appointment, and functions of the Union Public Service Commission and the State Public Service Commissions.

• Article 316 specifies the terms and conditions of service and tenure of the Chairman and members of the UPSC.

• Historical Background:

• The UPSC was established in 1926 as the Public Service Commission by the British Government and later became a constitutional body after independence.

• Its primary objective is to ensure merit-based recruitment, transparency, and non-partisanship in the civil services.

Q37. Answer: (d) IISR SURYA

The correct answer is IISR SURYA.

Key Points

• The Indian Institute of Spices Research (IISR), Kozhikode, is a renowned institute focused on research and development in the domain of spices.

• It has developed a unique light-coloured turmeric variety named IISR SURYA, which is designed to cater to specific needs and preferences.

• Turmeric is a widely used spice in India, known for its culinary, medicinal, and cosmetic applications. The development of new varieties enhances the crop's commercial and agricultural value.

• IISR SURYA stands out because of its light colour, which can be advantageous for certain markets and industries such as the cosmetic and food industry.

• The development of this turmeric variety aligns with the goals of the Indian Institute of Spices Research (IISR) to innovate and improve spice crops through research and technology.

• The light-coloured turmeric variety ensures better adaptability to consumer demands and enhances marketability, especially in regions where lighter turmeric is preferred. Hence, IISR SURYA is the correct answer.

Additional Information

• Indian Institute of Spices Research (IISR):

• IISR Kozhikode is an institute under the Indian Council of Agricultural Research (ICAR). It is dedicated to research and development in spice crops such as turmeric, pepper, cardamom, and ginger.

• The institute works towards improving the productivity, quality, and sustainability of spice crops through scientific innovation and advanced agricultural practices.

• Turmeric:

• Example: Turmeric is extensively used in Ayurvedic medicine for its anti-inflammatory, antioxidant, and antibacterial properties.

• Development of Spice Crops:

• The development of new varieties like IISR SURYA reflects the ongoing efforts to align agricultural practices with market demands and consumer preferences.

• These innovations contribute to the growth of the spice industry, benefiting farmers and enhancing India's position as a global leader in spice production.

Important Points

• Characteristics of IISR SURYA:

• The light-coloured turmeric variety is specifically designed for industries that prefer lighter shades, such as cosmetic and food processing industries.

• It enhances the marketability of turmeric in regions or countries where lighter turmeric is preferred due to cultural or culinary reasons.

• Impact of Research:

• The innovation by IISR Kozhikode contributes to the diversification of spice crop varieties and promotes sustainable agricultural practices.

• Global Recognition: Such advancements strengthen India’s position as a leading exporter of spices and enhance farmer income.

Q38. Answer: (a) Select the file/folder → Click File → Rename → Type the new name → Press Enter

The solution is in Hindi. Read it online.

Q39. Answer: (d) Rajasthan

The correct answer is Rajasthan.

Key Points

• Phad paintings are large scroll paintings, typically depicting heroic deeds and mythological stories of local deities such as Pabuji and Devnarayan.

• Phad artists use natural colors extracted from vegetables, flowers, and minerals to create vibrant and long-lasting artwork, showcasing their skill and craftsmanship.

• The art form has been preserved and passed down through generations by traditional artist communities, known as Joshi families, who are experts in Phad painting.

• Phad paintings are created using natural dyes, giving them a distinct and earthy look. These dyes are made from organic materials such as vegetables, flowers, and minerals.

• Phad paintings are traditionally used as storytelling tools by itinerant priests and performers, known as Bhopa and Bhopi.

• Example: Stories of Pabuji, a local folk hero worshipped as a deity, are commonly depicted in Phad paintings. These stories are narrated in villages during religious and cultural gatherings.

• Preservation of Art:

• Renowned artists like Shree Lal Joshi, a Padma Shri awardee, have contributed significantly to revitalizing Phad painting and spreading its popularity worldwide.

• Phad paintings are traditionally made on hand-woven cloth, using vegetable dyes. The process can take several weeks to complete.

• Madhya Pradesh: Known for Gond paintings, depicting nature and tribal stories.

• Gujarat: Renowned for Pithora paintings, a tribal art form symbolizing prosperity.

Q40. Answer: (c) Hansdev

The correct answer is Hansdev.

Key Points

• The Mriga-Pasi-Shastra: The Mriga-Pasi-Shastra was a text compiled in the 13th century and is an important work in the field of zoology and hunting practices in medieval India. It provides detailed accounts of various animals and birds of prey.

• Hansdev: The Mriga-Pasi-Shastra was compiled by Hansdev. He is recognized as a significant figure in documenting information about animals and birds, including their behaviors and characteristics, during the 13th century.

• The text is one of the early Indian works that contributed to the field of natural history, focusing on the classification and study of animals in a scientific manner.

• The purpose of this compilation was not only to describe animal behavior but also to serve as a guide for hunters and naturalists of that era.

Additional Information

• Hansdev and His Contribution:

• Hansdev was a prominent scholar and naturalist in the 13th century.

• He is renowned for his work, the Mriga-Pasi-Shastra, which remains a significant document in the study of animals and birds, especially in the context of hunting and observing their natural behaviors.

• The text showcases the knowledge and interest in zoology during medieval India and is a reflection of the intellectual pursuits of the time.

• Other Options:

• Akbar: Akbar was the Mughal emperor of India (1556–1605) known for his administrative reforms and cultural patronage. He was not associated with the Mriga-Pasi-Shastra, but he did have a keen interest in animals and maintained a vast collection of animals in his royal court.

• Jahangir: Jahangir, Akbar's son, was another Mughal emperor known for his love of nature and wildlife. He maintained records of flora and fauna and even ordered paintings of animals and birds during his reign, but he did not compile the Mriga-Pasi-Shastra.

• Mansoor: Mansoor was a famous Mughal court painter during the reign of Jahangir. He was renowned for his realistic paintings of animals and birds, but he did not contribute to the creation of the Mriga-Pasi-Shastra.

• Medieval Indian Contributions to Zoology:

• Medieval Indian scholars, including Hansdev, made significant contributions to the study of flora and fauna through their detailed observations and writings.

• Such works highlight the rich knowledge base of ancient and medieval Indian scholars in the field of natural sciences.

• The Mriga-Pasi-Shastra is a prime example of how ancient Indian texts documented the behavior, characteristics, and utility of various animal species.

Q41. Answer: (a) 3

Shortcut Trick

According to the divisibility rule of 3, a number is divisible by 3 if the sum of its digits is exactly divisible by 3.

Sum of digits of 476643 = 4 + 7 + 6 + 6 + 4 + 3 = 30.

Since 30 is a multiple of 3 (30 ÷ 3 = 10), the given number is divisible by 3.

Therefore The correct answer is 3.

Alternate Method

Given:

The number to be checked is 476643.

Method Used:

We can systematically apply the divisibility rules of 2, 3, 4, and 8 to evaluate the correct option.

Calculations:

=> Divisibility by 2: A number is divisible by 2 if its last digit is even (0, 2, 4, 6, 8). The last digit of 476643 is 3 (an odd number).

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Hence, it is not divisible by 2.

=> Divisibility by 4: A number is divisible by 4 if its last two digits form a number divisible by 4. The last two digits are 43, which is not exactly divisible by 4. Hence, the number is not divisible by 4.

=> Divisibility by 8: A number is divisible by 8 if its last three digits form a number divisible by 8. The last three digits are 643. Since 640 is divisible by 8, 643 leaves a remainder of 3. Hence, it is not divisible by 8.

=> Divisibility by 3: The sum of all digits is 4 + 7 + 6 + 6 + 4 + 3 = 30. Since 30 is divisible by 3, the entire number is divisible by 3.

Therefore The correct answer is 3.

Additional Information

Divisibility Rule of 9

Similar to the rule of 3, a number is divisible by 9 if the sum of its digits is exactly a multiple of 9.

Divisibility Rule of 6

For a number to be divisible by 6, it must satisfy the divisibility rules of both 2 (must be an even number) and 3 (sum of digits divisible by 3).

Divisibility Rule of 11

A number is divisible by 11 if the difference between the sum of its digits at odd places and the sum of its digits at even places is either 0 or a multiple of 11.

Q42. Answer: (b) 960

Shortcut Trick

When overall profit or loss is 0%, the monetary loss on one item equals the monetary profit on the other.

=> Loss % × CP1 = Profit % × CP2

=> 7 × CP1 = 28 × CP2

=> Ratio of CP1 : CP2 = 28 : 7 = 4 : 1

=> CP1 = (4/5) × 1200 = 960

Therefore The correct answer is Rs. 960.

Alternate Method

Given:

Total Cost Price of two shirts = Rs. 1,200

Loss on the 1st shirt = 7%

Profit on the 2nd shirt = 28%

Overall transaction resulted in neither profit nor loss (0%).

Method Used:

We can solve this efficiently using the rule of Alligation by finding the ratio of their Cost Prices.

0%

Overall

−7%

Shirt 1

+28%

Shirt 2

28

7

CP Ratio = 28 : 7 = 4 : 1

Calculations:

=> Let Cost Price of 1st shirt be CP1 and 2nd shirt be CP2.

=> By Alligation rule, the ratio of CP1 : CP2 = (28 − 0) : (0 − (−7))

=> Ratio of CP1 : CP2 = 28 : 7 = 4 : 1

=> Total ratio parts = 4 + 1 = 5 parts

=> Value of 5 parts = Total Cost Price = Rs. 1,200

=> Value of 1 part = 1200 ÷ 5 = Rs. 240

=> Cost Price of the 1st shirt (4 parts) = 4 × 240

=> Cost Price of the 1st shirt = Rs. 960

Therefore The correct answer is Rs. 960.

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Additional Information

No Profit No Loss Condition

This means the Total Selling Price is equal to the Total Cost Price. Therefore, the total monetary loss on one group of items exactly cancels out the total monetary profit on the other group.

Alligation Method

The rule of alligation is an efficient technique that helps in finding the ratio in which quantities with different values are mixed to attain a desired average value.

Cost Price Evaluation

When Selling Price and Profit/Loss percentage are known: CP = SP × 100 ÷ (100 ± Profit/Loss %).

Q43. Answer: (a) Rs. 712

Shortcut Trick

Simplifying the investment ratio (A : B : C) → 72 : 12 : 36 = 6 : 1 : 3.

Total profit = 6 + 1 + 3 = 10 parts → Rs. 3,560.

Difference in shares between B and C = 3 − 1 = 2 parts.

Difference = (3560 ÷ 10) × 2 = 356 × 2 = Rs. 712.

Therefore The correct answer is Rs. 712.

Alternate Method

Total Profit = 10 parts = Rs. 3560

A: 6 parts

B: 1

C: 3 parts

Difference = 3 − 1 = 2 parts

Required Difference = (3560 ÷ 10) × 2 = Rs. 712

Given:

Investment ratio of A, B, and C = 72 : 12 : 36

Total profit earned at the end of the year = Rs. 3,560

Formula Used:

When the time period of investment is the same for all partners, Profit Ratio = Investment Ratio.

Value of a share = (Total Profit ÷ Total Ratio Parts) × Respective Ratio Parts

Calculations:

=> Simplifying the investment ratio of A : B : C by dividing by 12

=> Simplified Ratio = 6 : 1 : 3

=> Total ratio parts = 6 + 1 + 3 = 10 parts

=> According to the question, 10 parts = Rs. 3,560

=> 1 part = 3560 ÷ 10 = Rs. 356

=> We need to find the difference between the shares of B and C.

=> Difference in parts = C's parts − B's parts = 3 − 1 = 2 parts

=> Difference in value = 2 parts × Rs. 356

=> Difference = Rs. 712

Therefore The correct answer is Rs. 712.

Additional Information

Partnership Profit Distribution

When partners invest for different time periods, the profit is divided in the ratio of the product of their capital and time: P1 : P2 = C1 × T1 : C2 × T2.

Equivalent Ratios

Multiplying or dividing each term of a ratio by the same non-zero number results in an equivalent ratio, making calculations simpler without altering the final proportionate value.

Active vs Sleeping Partner

An active partner manages the business and usually receives a salary or commission before the net profit is distributed. A sleeping partner only receives a share based strictly on their investment capital and duration.

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Q44. Answer: (d) 148

Shortcut Trick

The average of the first n odd natural numbers is always equal to n.

Here, the number of odd terms given is n = 148.

Average = 148.

Therefore The correct answer is 148.

Alternate Method

Given:

Sequence of the first 148 odd natural numbers.

Formula Used:

The n^(th) odd natural number = 2n − 1

Average of an Arithmetic Progression (AP) = (First term + Last term) ÷ 2

First 148 Odd Natural Numbers

1

3

5

...

293

295

Average = 148

Calculations:

=> First term (a) = 1

=> Last term (l) = 148^(th) odd number = 2 × 148 − 1 = 295

=> The series is 1, 3, 5, ... 295. This is an AP with a common difference of 2.

=> Average = (1 + 295) ÷ 2

=> Average = 296 ÷ 2

=> Average = 148

Therefore The correct answer is 148.

Additional Information

Average of first n even natural numbers

The average of the first n even natural numbers is directly given by (n + 1).

Average of first n natural numbers

The average of the first n natural numbers is (n + 1) ÷ 2.

Sum of first n odd natural numbers

The sum of the first n consecutive odd natural numbers starting from 1 is n^2.

Average of consecutive numbers in AP

For any sequence in an Arithmetic Progression, the average is always the sum of the first term and the last term divided by 2.

Q45. Answer: (d) Rs. 16,800

Shortcut Trick

For 4A = 6B = 7C, use the hide-and-multiply trick to directly find the ratio.

A : B : C = (6 × 7) : (4 × 7) : (4 × 6) = 42 : 28 : 24 = 21 : 14 : 12.

Total ratio units = 21 + 14 + 12 = 47 units.

47 units = Rs. 37,600 => 1 unit = Rs. 800.

A's share = 21 units × 800 = Rs. 16,800.

Therefore The correct answer is Rs. 16,800.

Alternate Method

Given:

Total Amount = Rs. 37,600

Condition: 4A = 6B = 7C

Formula Used:

If xA = yB = zC, then the ratio A : B : C = (1/x) : (1/y) : (1/z).

Total Sum = Rs. 37,600 (47 parts)
A = 21 parts
Rs. 16,800
B = 14 parts
Rs. 11,200
C = 12 parts
Rs. 9,600
Calculations:
=> Let 4A = 6B = 7C = k
=> A = k/4, B = k/6, C = k/7
=> Ratio A : B : C = 1/4 : 1/6 : 1/7
=> Multiply each term by the LCM of 4, 6, and 7, which is 84
=> A : B : C = 84/4 : 84/6 : 84/7
=> A : B : C = 21 : 14 : 12
=> Total ratio parts = 21 + 14 + 12 = 47 parts
=> Value of 47 parts = Rs. 37,600
=> Value of 1 part = 37,600 ÷ 47 = Rs. 800
=> A's share = 21 parts × 800 = Rs. 16,800
Therefore The correct answer is Rs. 16,800.
Additional Information
Equality Ratio Conversion
When xA = yB = zC, the combined ratio is A : B : C = (1/x) : (1/y) : (1/z). You can also find it quickly using the hide-and-multiply shortcut.
Compound Ratio
If two independent ratios are a : b and c : d, their compound ratio is the product of their corresponding terms, resulting in ac : bd.
Dividing a Quantity
If a total quantity T is divided in the ratio a : b : c, the share of the first part is calculated as (a ÷ (a + b + c)) × T.

Q46. Answer: (a) Rs. 578

Shortcut Trick
Direct relation between Cost Price (CP) and Marked Price (MP) using ratio method:
CP ÷ MP = (100 − Discount%) ÷ (100 + Profit%)
=> CP ÷ 850 = (100 − 15) ÷ (100 + 25)
=> CP ÷ 850 = 85 ÷ 125 = 17 ÷ 25
=> CP = 850 × (17 ÷ 25) = 34 × 17 = 578
Therefore The correct answer is Rs. 578.
Alternate Method
Given:
Marked Price (MP) = Rs. 850
Discount% = 15%
Profit% = 25%
Formula Used:
Selling Price (SP) = MP × (100 − Discount%) ÷ 100
Cost Price (CP) = SP × 100 ÷ (100 + Profit%)
CP = ?
SP
MP = 850
− 15% (Discount)
• 25% (Profit)
Calculations:
=> SP = 850 × (100 − 15) ÷ 100
=> SP = 850 × 85 ÷ 100 = 850 × 0.85 = Rs. 722.50

=> CP = 722.50 × 100 ÷ (100 + 25)

=> CP = 72250 ÷ 125 = Rs. 578

Therefore The correct answer is Rs. 578.

Additional Information

Direct CP and MP Relation

The fastest way to link Cost Price and Marked Price when both discount and profit are given is CP ÷ MP = (100 − Discount%) ÷ (100 + Profit%).

Successive Discounts

When two successive discounts of a% and b% are given, the equivalent single discount is (a + b − ab ÷ 100)%.

Markup Percentage

Markup is the extra value added to the Cost Price to fix the Marked Price. It is always calculated on the base of Cost Price: MP = CP × (1 + Markup% ÷ 100).

Q47. Answer: (a) 22 cm

Shortcut Trick

Area of a triangle = 1/2 × Base × Height = 220 cm²

Base × Height = 440

We need two numbers differing by 2 cm whose product is 440.

Since 22 × 20 = 440, the base is 22 cm and the height is 20 cm.

Therefore The correct answer is 22 cm.

Alternate Method

Given:

Area of triangle = 220 cm²

Base = height + 2 cm

Formula Used:

Area of triangle = 1/2 × base × height

Base = h + 2

h

Area = 220 sq cm

Calculations:

Let the height of the triangle be h cm.

=> Base of the triangle = (h + 2) cm

=> 1/2 × (h + 2) × h = 220

=> h² + 2h = 440

=> h² + 2h − 440 = 0

=> h² + 22h − 20h − 440 = 0

=> h(h + 22) − 20(h + 22) = 0

=> (h − 20)(h + 22) = 0

=> h = 20 (since height cannot be negative)

=> Base = 20 + 2 = 22 cm

Therefore The correct answer is 22 cm.

Additional Information

Area of Scalene Triangle (Heron's Formula)

Area = √[s(s − a)(s − b)(s − c)], where s = (a + b + c) ÷ 2.

Area of Equilateral Triangle

Area = (√3 ÷ 4) × a², where a is the side length.

Pythagoras Theorem

For a right-angled triangle: Hypotenuse² = Base² + Perpendicular².

Q48. Answer: (c) 9.8

Shortcut Trick

Equate the decimal places by adding zeroes: 4.900 and 0.008

Find the L.C.M. of the numbers without decimals: 4900 and 8

L.C.M. of 4900 and 8 = 9800

Place the decimal point back leaving 3 digits from the right.

Required L.C.M. = 9800 ÷ 1000 = 9.8

Therefore The correct answer is 9.8.

Alternate Method

Given:

Numbers = 4.9 and 0.008

Formula Used:

L.C.M. of fractions = (L.C.M. of numerators) ÷ (H.C.F. of denominators)

Calculation:

=> Convert 4.9 and 0.008 into simplest fractions.

=> 4.9 = 49/10

=> 0.008 = 8/1000 = 1/125

=> Now, we need the L.C.M. of 49/10 and 1/125.

=> L.C.M. of numerators (49, 1) = 49

=> H.C.F. of denominators (10, 125) = 5

=> L.C.M. of fractions = 49 ÷ 5 = 9.8

Therefore The correct answer is 9.8.

Additional Information

H.C.F. of Fractions

To find the H.C.F. of fractions, convert them to their simplest form and use: H.C.F. = (H.C.F. of Numerators) ÷ (L.C.M. of Denominators).

Product of Two Numbers

For any two numbers, the product of the numbers is equal to the product of their L.C.M. and H.C.F.: First Number × Second Number = L.C.M. × H.C.F.

Co-prime Numbers

Two numbers are co-prime if their highest common factor (H.C.F.) is 1. The L.C.M. of two co-prime numbers is always equal to their product.

Q49. Answer: (d) −131x + 148

Shortcut Trick

Directly multiply the brackets to expand the given expression.

=> $3 \times (7/3)x^2 - 3 \times 25x + 3 \times 12 - 7x^2 - 7 \times 8x - 7 \times (-16)$

=> $7x^2 - 75x + 36 - 7x^2 - 56x + 112$

Cancel out the x^2 terms and combine the rest:

=> $-131x + 148$

Therefore The correct answer is −131x + 148.

Alternate Method

Given:

Expression = $3[(7/3)x^2 - 25x + 12] - 7(x^2 + 8x - 16)$

Method Used:

Distributive property: a(b ± c) = ab ± ac

Calculation:

=> $[3 \times (7/3)x^2 - 3 \times 25x + 3 \times 12] - [7 \times x^2 + 7 \times 8x - 7 \times 16]$

=> $[7x^2 - 75x + 36] - [7x^2 + 56x - 112]$

Open the brackets and reverse the signs for the second part:

=> $7x^2 - 75x + 36 - 7x^2 - 56x + 112$

Combine the like terms:

=> $(7 - 7)x^2 - (75 + 56)x + (36 + 112)$

=> $0x^2 - 131x + 148$

=> $-131x + 148$

Therefore The correct answer is −131x + 148.

Additional Information

BODMAS Rule

When simplifying an expression, always follow the sequence of Brackets, Orders, Division/Multiplication, and Addition/Subtraction.

Distributive Property

The distributive property lets you multiply a sum by multiplying each addend separately. Formula: a(b ± c) = ab ± ac.

Combining Like Terms

Terms that have the exact same variables and powers are combined by adding or subtracting their coefficients.

Q50. Answer: (d) 1

Shortcut Trick

Put θ = 45° in the given expression to avoid option matching conflicts.

=> cosec 45° (1 − cos 45°)(cosec 45° + cot 45°)

=> √2 × (1 − 1/√2) × (√2 + 1)

=> √2 × [(√2 − 1) / √2] × (√2 + 1)

=> (√2 − 1)(√2 + 1) = $(\sqrt{2})^2 - 1^2 = 2 - 1 = 1$

Therefore The correct answer is 1.

Alternate Method

Given:

Expression: cosec θ (1 − cos θ)(cosec θ + cot θ)

Formula Used:

cosec θ = 1 / sin θ

cot θ = cos θ / sin θ

$\sin^2\theta + \cos^2\theta = 1$

Calculations:

=> (1 / sin θ) × (1 − cos θ) × [(1 / sin θ) + (cos θ / sin θ)]

=> [(1 − cos θ) / sin θ] × [(1 + cos θ) / sin θ]

=> [(1 − cos θ)(1 + cos θ)] / (sin θ × sin θ)

=> $(1 - \cos^2\theta) / \sin^2\theta$

=> $\sin^2\theta / \sin^2\theta$

=> 1

Therefore The correct answer is 1.

Additional Information

Trigonometric Identities

The three basic Pythagorean identities are: $\sin^2\theta + \cos^2\theta = 1$, $1 + \tan^2\theta = \sec^2\theta$, and $1 + \cot^2\theta = \text{cosec}^2\theta$.

Value Putting Method

For simplifying trigonometric expressions, substituting standard values like θ = 30° or 45° quickly yields the answer, provided the expression doesn't become mathematically undefined.

Algebraic Identities in Trigonometry

The core algebraic identity $(a - b)(a + b) = a^2 - b^2$ is frequently used to simplify combined terms like (1 − cosθ)(1 + cosθ) into $1 - \cos^2\theta$.

Q51. Answer: (a) 11

Shortcut Trick

Find the remainder when 63130 is divided by 13.

=> 63130 ÷ 13 gives a remainder of 2.

Number to be added = Divisor − Remainder

=> 13 − 2 = 11

Therefore The correct answer is 11.

Alternate Method

Given:

The number given is 63130.

The divisor is 13.

Formula Used:

Smallest number to be added = Divisor − Remainder

Calculations:

=> Let's perform the division of 63130 by 13 to find the remainder.

=> 63130 = (13 × 4856) + 2

=> The quotient is 4856 and the remainder is 2.

=> Since there is a remainder of 2, the number 63130 is 2 more than a perfect multiple of 13.

=> To reach the next exact multiple of 13, we must add the difference between the divisor and the remainder.

=> Required number = 13 − 2

=> Required number = 11

Therefore The correct answer is 11.

Additional Information

Number to be Subtracted

To find the smallest number to be subtracted so that the resulting number is perfectly divisible by the divisor, simply subtract the remainder obtained from the given number.

Number to be Added

To find the smallest number to be added so that the resulting number is perfectly divisible, subtract the remainder from the divisor and add that result to the given number.

Divisibility Rule of 13

A number is divisible by 13 if the sum of the remaining part of the number and 4 times the last digit is a multiple of 13.

Q52. Answer: (b) Rs. 53,097

Shortcut Trick

Effective % 1 = 4.5 × (38/9) = 19% => 19% of Principal = Rs. 8,778 => 1% = 462

Principal (100%) = 462 × 100 = Rs. 46,200

Effective % 2 = 5.5 × (19/7) = 209/14 %

New Interest = 462 × (209/14) = Rs. 6,897

Amount = 46,200 + 6,897 = Rs. 53,097

Therefore The correct answer is Rs. 53,097.

Alternate Method

Given:

Simple Interest (SI1) = Rs. 8,778

Rate (R1) = 4.5% = 9/2 %

Time (T1) = 4 2/9 years = 38/9 years

Rate (R2) = 5.5% = 11/2 %

Time (T2) = 2 5/7 years = 19/7 years

Formula Used:

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

Amount = Principal (P) + Simple Interest (SI)

Principal (P) = Rs. 46,200

R = 4.5%, T = 38/9 yrs

SI = Rs. 8,778

(19% of Principal)

R = 5.5%, T = 19/7 yrs

SI = Rs. 6,897

Amount = Rs. 53,097

Calculations:

=> SI1 = (P × R1 × T1) ÷ 100

=> 8778 = [P × (9/2) × (38/9)] ÷ 100

=> 8778 = (P × 19) ÷ 100

=> P = (8778 × 100) ÷ 19

=> P = 462 × 100 = 46200

=> Principal (P) = Rs. 46,200

=> SI2 = (P × R2 × T2) ÷ 100

=> SI2 = [46200 × (11/2) × (19/7)] ÷ 100

=> SI2 = 462 × (209/14)

=> SI2 = 33 × 209 = 6897

=> Amount = Principal + SI2

=> Amount = 46200 + 6897 = 53097

Therefore The correct answer is Rs. 53,097.

Additional Information

Simple Interest (SI)

Simple interest is calculated only on the principal amount for the entire duration. Formula: SI = (P × R × T) ÷ 100.

Effective Rate Method

Instead of calculating SI using the principal each time, the effective interest percentage can be found by multiplying Rate and Time directly: Effective % = R × T.

Amount

The total sum payable at the end of the time period, which includes the original principal and the interest accrued: Amount = Principal + Interest.

Q53. Answer: (b) 26

Shortcut Trick

In ΔABC, sum of angles is 180° => angle BCA = 180° − (38° + 65°) = 77°.

Since BC || AD, alternate interior angle angle CAD = angle BCA = 77°.

In ΔACD, AC = CD, so angles opposite to equal sides are equal => angle CDA = angle CAD = 77°.

Therefore, in ΔACD, angle ACD = 180° − (77° + 77°) = 26°.

Therefore The correct answer is 26°.

Alternate Method

Given:

ABCD is a trapezium with BC || AD and AC = CD.

angle ABC = 38° and angle BAC = 65°.

A

B

C

D

38°

65°

77°

77°

77°

26°

Calculations:

In ΔABC, the sum of all interior angles is 180°.

=> angle BCA = 180° − (angle ABC + angle BAC)

=> angle BCA = 180° − (38° + 65°) = 180° − 103° = 77°

It is given that BC is parallel to AD (BC || AD).

=> angle CAD = angle BCA = 77° (Alternate interior angles)

In ΔACD, it is given that AC = CD. Thus, ΔACD is an isosceles triangle.

=> angle CDA = angle CAD = 77° (Angles opposite to equal sides are equal)

Now, in ΔACD, the sum of interior angles is 180°.

=> angle ACD + angle CAD + angle CDA = 180°

=> angle ACD + 77° + 77° = 180°

=> angle ACD + 154° = 180°

=> angle ACD = 180° − 154° = 26°

Therefore The correct answer is 26°.

Additional Information

Isosceles Triangle Property

In a triangle, if two sides are equal in length, the angles opposite to these sides are also perfectly equal.

Alternate Interior Angles

When a transversal intersects two parallel lines, the alternate interior angles formed on opposite sides of the transversal are equal.

Sum of Angles of a Triangle

The sum of all three interior angles in any Euclidean triangle is exactly 180°.

Trapezium Properties

A trapezium is a quadrilateral having exactly one pair of parallel sides. The adjacent angles formed between the parallel lines are supplementary.

Q54. Answer: (a) 15.08

Shortcut Trick

Memorizing perfect squares helps solve instantly: $17^2 = 289$, $18^2 = 324$, and $21^2 = 441$.

For decimals, the square root halves the number of decimal places.

Therefore, $\sqrt{0.0324} = 0.18$ and $\sqrt{4.41} = 2.1$.

Substitute directly: $17 + 0.18 - 2.1 = 15.08$.

Therefore The correct answer is 15.08.

Alternate Method

Given:

$\sqrt{289} + \sqrt{0.0324} - \sqrt{4.41}$

Calculations:

=> Express decimal values as fractions to find their square roots easily.

=> $\sqrt{0.0324} = \sqrt{(324 \div 10000)} = 18 \div 100 = 0.18$

=> $\sqrt{4.41} = \sqrt{(441 \div 100)} = 21 \div 10 = 2.1$

=> We know that $\sqrt{289} = 17$.

=> Substitute these root values back into the given mathematical expression:

=> $17 + 0.18 - 2.1$

=> Add the positive terms first: $17.18 - 2.1$

=> 15.08

Therefore The correct answer is 15.08.

Additional Information

Square Roots of Decimals

When determining the square root of a decimal, the final result will possess exactly half the number of decimal places as the original number (for instance, 4 decimal places reduce to 2).

Common Squares to Memorize

Memorizing squares up to 30 significantly accelerates calculation speed in Simplification questions. Key values used here: $17^2 = 289$, $18^2 = 324$, and $21^2 = 441$.

BODMAS Rule

Always strictly follow the operational sequence: solve Orders (Roots and Powers) first before evaluating any Addition or Subtraction operations.

Q55. Answer: (b) 1405

Shortcut Trick

Increasing a number by 100% means doubling it (adding the exact same number to itself).

Therefore, the Final Value is 200% (or twice) of the Original Number.

=> Original Number = Final Value ÷ 2

=> Original Number = 2810 ÷ 2 = 1405

Therefore The correct answer is 1405.

Alternate Method

Given:

Final Value = 2810

Percentage increase = 100%

Formula Used:
Final Value = Original Number × (1 + Percentage Increase ÷ 100)
Original (x) = 100%
Increase (+x) = 100%
Total = 2x = 2810 (200%)
Calculation:
Let the original number be x.
=> x + (100% of x) = 2810
=> x + (100 ÷ 100) × x = 2810
=> x + x = 2810
=> 2x = 2810
=> x = 2810 ÷ 2
=> x = 1405
Therefore The correct answer is 1405.
Additional Information
Percentage Increase or Decrease
Percentage Change = (New Value − Old Value) ÷ Old Value × 100
Successive Percentage Change
If a number is increased successively by a% and b%, the effective overall change = a + b + (a × b) ÷ 100
Multiplier Concept
Increasing a number by 100% translates to a multiplier of (1 + 100÷100) = 2. Decreasing a number by 50% translates to a multiplier of 0.5.

Q56. Answer: (d) Rs. 1,824

Shortcut Trick
Let the Principal be 100%.
Total Simple Interest for 5 years = 5% × 5 = 25% of Principal.
Amount = Principal + Simple Interest = 100% + 25% = 125%.
Given that 125% of the Principal is equal to Rs. 2,280.
Principal (100%) = (2280 ÷ 125) × 100 = 2280 × (4 ÷ 5) = Rs. 1,824.
Therefore The correct answer is Rs. 1,824.
Alternate Method
Given:
Amount (A) = Rs. 2,280
Time (T) = 5 years
Rate of Interest (R) = 5% per annum
Formula Used:
A = P + SI = P × [1 + (R × T) ÷ 100]
Start (T = 0)
End (T = 5 years)
P = ? (100%)
A = Rs. 2280
Rate = 5% per annum
Total SI = 5% × 5 = 25%
Amount = 125% of P
Calculations:
=> 2280 = P × [1 + (5 × 5) ÷ 100]
=> 2280 = P × [1 + 25 ÷ 100]
=> 2280 = P × [1 + 1 ÷ 4]
=> 2280 = P × (5 ÷ 4)
=> P = 2280 × (4 ÷ 5)
=> P = 456 × 4

=> P = 1824

Therefore The correct answer is Rs. 1,824.

Additional Information

Simple Interest (SI)

Simple Interest is calculated only on the initial principal amount. Formula: SI = (P × R × T) ÷ 100.

Amount in SI

The total amount paid or received at the end of the time period is the sum of the principal and simple interest: A = P × [1 + (R × T) ÷ 100].

Compound Interest vs Simple Interest

While SI grows linearly as interest is fixed, Compound Interest grows exponentially as interest is earned on accumulated interest from previous periods.

Q57. Answer: (c) Rs. 41,400

Shortcut Trick

To find the final price after successive discounts, multiply the base price by the respective discount factors.

Multiplying factor for 10% discount = (100 − 10)/100 = 0.90

Multiplying factor for 8% discount = (100 − 8)/100 = 0.92

Final Selling Price = 50000 × 0.90 × 0.92 = 41400

Therefore The correct answer is Rs. 41,400.

Alternate Method

Given:

Marked Price (MP) of the laptop = Rs. 50,000

First discount (D1) = 10%

Second discount (D2) = 8%

MP

Rs. 50,000

Reduced SP

Rs. 45,000

Final SP

Rs. 41,400

−10%

−8%

Successive Discount Flow Diagram

Formula Used:

Final Selling Price = MP × (1 − D1/100) × (1 − D2/100)

Calculations:

=> SP = 50000 × (1 − 10/100) × (1 − 8/100)

=> SP = 50000 × (90/100) × (92/100)

=> SP = 50000 × 0.90 × 0.92

=> SP = 45000 × 0.92

=> SP = 41400

Therefore The correct answer is Rs. 41,400.

Additional Information

Effective Single Discount

For two successive discounts D1% and D2%, the equivalent single discount is given by D = D1 + D2 − (D1 × D2)/100.

Marked Price to Cost Price Ratio

When a profit percentage P% is earned after offering a discount D%, the ratio is MP/CP = (100 + P%) ÷ (100 − D%).

Successive Percentage Change

For multiple percentage changes occurring continuously, Final Value = Initial Value × (1 ± X/100) × (1 ± Y/100) taking negative for reduction and positive for increment.

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Q58. Answer: (c) 557/77 hr

Shortcut Trick

Total Capacity of tank = LCM of time taken by all pipes = LCM(13, 26, 17) = 442 units.

Combined efficiency = (442 ÷ 13) + (442 ÷ 26) + (442 ÷ 17) = 34 + 17 + 26 = 77 units/hr.

Time required = Total Capacity ÷ Combined Efficiency = 442 ÷ 77 hours.

442 ÷ 77 = 5 ^(57)/77 hr.

Therefore The correct answer is 5 ^(57)/77 hr.

Alternate Method

Given:

Time taken by Pipe A = 13 hours

Time taken by Pipe B = 26 hours

Time taken by Pipe C = 17 hours

Pipe	Hours	Total Work	Efficiency
A	13	442	34
B	26	17	
C	17	26	

Calculations:

=> Total efficiency of A, B, and C = 34 + 17 + 26 = 77 units/hr

=> Total time taken = Total Work ÷ Total Efficiency

=> Time taken = 442 ÷ 77

=> Time taken = 5 ^(57)/77 hr

Therefore The correct answer is 5 ^(57)/77 hr.

Additional Information

Pipes & Cisterns (Inlet and Outlet)

An inlet pipe adds to the work (positive efficiency), while an outlet pipe or leak subtracts from the work (negative efficiency). Net efficiency = Inlet efficiency − Outlet efficiency.

Work & Wages

Wages are distributed in the ratio of the work done by each individual. If they work for the same number of days, wages are distributed in the ratio of their efficiencies.

Alternate Day Work

Calculate the total work done in a cycle of 2 days (or more) and multiply by the maximum possible integer, then calculate the remaining work for the next day individually.

Q59. Answer: (c) 5 cm

Shortcut Trick

For any uniform solid figure like a cylinder or cuboid:

Volume = Base Area × Height

Height = Volume ÷ Base Area

Height = 440 ÷ 88 = 5 cm

Therefore The correct answer is 5 cm.

Alternate Method

Given:

Volume of the cuboid = 440 cm^3

Area of its base = 88 cm^2

Formula Used:

Volume of a cuboid = Base Area × Height

Base Area = 88 cm^2

Height = ?

Volume = 440 cm^3

Calculations:

=> 440 = 88 × Height

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=> Height = 440 ÷ 88
=> Height = 5
Therefore The correct answer is 5 cm.
Additional Information
Total Surface Area of a Cuboid
TSA = 2(lb + bh + hl) where l, b, and h are the length, breadth, and height respectively.
Diagonal of a Cuboid
The length of the longest rod that can fit perfectly inside a cuboid = $\sqrt{(l^2 + b^2 + h^2)}$.
Lateral Surface Area of a Cuboid
LSA = Area of 4 walls = 2h(l + b). It can also be defined as Perimeter of base × height.

Q60. Answer: (b) 47.6%

Shortcut Trick
Let the original selling price be 100 units.
Selling price (SP1) at 4/10 is 40 units.
At 40 units, loss is 28%, meaning SP1 is 72% of CP.
New selling price (SP2) is 82 units.
By unitary method, SP2 = (72% ÷ 40) × 82 = 147.6% of CP, so profit is 147.6% − 100% = 47.6%.
Therefore The correct answer is 47.6%.
Alternate Method
Given:
Original SP is the base price.
SP1 = 4/10 of Original SP
Loss% at SP1 = 28%
SP2 = 82% of Original SP
Formula Used:
CP = (SP × 100) / (100 − Loss%)
Profit% = [(New SP − CP) / CP] × 100
SP1 (40x)
CP
SP2 (82x)
Orig. SP (100x)
72% of CP
100% of CP
147.6% of CP
180% of CP
28% Loss
+47.6% Profit
Profit % = 147.6% − 100% = 47.6%
Calculations:
=> Let Original SP = 100 units.
=> SP1 = (4/10) × 100 = 40 units.
=> Loss = 28%, meaning SP1 is 72% of CP.
=> CP = (40 / 72) × 100 = 500 / 9 units.
=> He sells at SP2 = 82% of Original SP = 82 units.
=> Profit = SP2 − CP = 82 − (500 / 9) = (738 − 500) / 9 = 238 / 9 units.
=> Profit % = (Profit / CP) × 100
=> Profit % = [(238 / 9) / (500 / 9)] × 100
=> Profit % = (238 / 500) × 100 = 47.6%
Therefore The correct answer is 47.6%.
Additional Information
Marked Price and Discount

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Marked Price (MP) is the listed price. Discount is always applied on the MP. Selling Price (SP) = MP × (100 − Discount%) / 100.

Successive Profit/Loss

When multiple profit or loss percentages occur consecutively, the effective percentage change is calculated as: Net % = a + b + (a × b) / 100.

Dishonest Dealer Concept

A dishonest dealer claims to sell goods at cost price but uses a false weight. Profit% = (Error / True Value) × 100.

Q61. Answer: (d) 11:23 AM

Shortcut Trick

Total time for A = 9 hrs, Total time for B = 6 hrs. Let total distance = LCM(9, 6) = 18 units.

Speed of A = 18 ÷ 9 = 2 units/hr, Speed of B = 18 ÷ 6 = 3 units/hr.

Train A travels alone for 2 hours (6:35 AM to 8:35 AM) = 2 × 2 = 4 units.

Remaining distance = 18 − 4 = 14 units. Relative speed = 2 + 3 = 5 units/hr.

Time to meet = 14 ÷ 5 = 2.8 hrs = 2 hrs 48 mins.

Therefore The correct answer is 11:23 AM.

Alternate Method

Given:

Time taken by Train A = 6:35 AM to 3:35 PM = 9 hours

Time taken by Train B = 8:35 AM to 2:35 PM = 6 hours

Formula Used:

Distance = Speed × Time

Relative Speed (opposite directions) = Speed of A + Speed of B

Time to Meet = Distance between them ÷ Relative Speed

Total Distance = 18 units (LCM of 9 & 6)

Station M

A at 8:35 AM

Station N

4 units

14 units

Train A

(6:35 AM)

2 u/h

Train B

(8:35 AM)

3 u/h

Calculations:

=> Let the total distance be the LCM of 9 and 6 = 18 units.

=> Speed of Train A = 18 ÷ 9 = 2 units/hr

=> Speed of Train B = 18 ÷ 6 = 3 units/hr

=> Train A starts 2 hours earlier than Train B (8:35 AM − 6:35 AM = 2 hours).

=> Distance covered by Train A in 2 hours = 2 × 2 = 4 units.

=> Remaining distance at 8:35 AM = 18 − 4 = 14 units.

=> Relative speed = Speed of A + Speed of B = 2 + 3 = 5 units/hr.

=> Time taken to meet = Remaining distance ÷ Relative speed = 14 ÷ 5 = 2.8 hours.

=> 2.8 hours = 2 hours + (0.8 × 60) minutes = 2 hours 48 minutes.

=> Meeting time = 8:35 AM + 2 hours 48 minutes = 11:23 AM.

Therefore The correct answer is 11:23 AM.

Additional Information

Relative Speed

When two bodies travel in opposite directions, their relative speed is calculated by adding their individual speeds: S_(relative) = S1 + S2.

Meeting Time Concept

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To find the meeting time of two trains starting at different times, always align them to the same starting time first by calculating the distance covered by the early starter, then apply the relative speed formula on the remaining distance.

LCM Method for Distance

When only the total time taken by two objects is given, assuming the total distance as the LCM of both times simplifies calculations by creating whole-number values for speeds.

Q62. Answer: (c) 114

Shortcut Trick

Let the two numbers be in the ratio 5 : 1.

Product in terms of ratio units = 5 × 1 = 5 units².

5 units² = 1805 => 1 unit² = 361 => 1 unit = 19.

Sum of the numbers = 5 units + 1 unit = 6 units.

Total sum = 6 × 19 = 114.

Therefore The correct answer is 114.

Alternate Method

Given:

The product of two positive numbers is 1805.

The first number is 5 times the second number.

1st No:

5x (5 Units)

2nd No:

x

Product = 5x × x = 5x² = 1805

Calculations:

=> Let the second number be x.

=> First number = 5x

=> Product of the numbers = 5x × x = 5x²

=> 5x² = 1805

=> x² = 1805 ÷ 5 = 361

=> x = √361 = 19 (Since the numbers must be positive)

=> Second number = 19

=> First number = 5 × 19 = 95

=> Sum of the numbers = 95 + 19 = 114

Therefore The correct answer is 114.

Additional Information

Ratio & Proportion Properties

If two numbers are given in the ratio a : b, their product is always a × b × x², where x is the common ratio multiplier.

Properties of Squares

The square root of a perfect square ending in 1 will always end in either 1 or 9. Since 361 lies between 10² (100) and 20² (400), its square root ends in 9, giving 19.

Q63. Answer: (a) 26

Shortcut Trick

Let F and S be the Father's and Son's ages respectively.

F + 5S = 42 — (i)

2.8F + S = 76 — (ii)

Multiply equation (ii) by 5 to get: 14F + 5S = 380

Subtract equation (i) from this result: 13F = 338 => F = 26

Therefore The correct answer is 26 years.

Alternate Method

Given:

Sum of the Father's age and 5 times the Son's age = 42 years

Sum of 2.8 times the Father's age and the Son's age = 76 years

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Father

• 5 × Son

=

42

2.8 × Father

• Son

=

76

Father's Age = 26 years

Formula Used:

Formulate a pair of linear equations representing the statements and solve them using the elimination method to find the unknown variables.

Calculations:

Let the age of the father be F and the age of the son be S.

=> F + 5S = 42 — (Equation 1)

=> 2.8F + S = 76 — (Equation 2)

Multiply Equation 2 by 5 to match the coefficient of S in both equations:

=> 5 × (2.8F + S) = 5 × 76

=> 14F + 5S = 380 — (Equation 3)

Subtract Equation 1 from Equation 3 to eliminate S:

=> (14F + 5S) − (F + 5S) = 380 − 42

=> 13F = 338

=> F = 338 ÷ 13

=> F = 26

Therefore The correct answer is 26 years.

Additional Information

Problems on Ages

Questions related to ages generally involve translating real-life conditions into mathematical expressions to form a system of linear equations.

Linear Equations in Two Variables

Equations structured as ax + by = c establish a direct relationship between two unknown quantities, solvable when two distinct conditions are given.

Elimination Method

A systematic algebraic technique that involves multiplying equations by specific constants to align the coefficients of one variable, then either adding or subtracting the equations to completely eliminate it.

Q64. Answer: (c) 9 days

Shortcut Trick

Total work in terms of men = 9 Men × 8 days = 72 Men-days

Total work in terms of women = 4 Women × 9 days = 36 Women-days

Equating both: 72M = 36W => 1W = 2M

Required workforce = 2W + 4M = 2(2M) + 4M = 8M

Time required for 8M = (9 × 8) ÷ 8 = 9 days

Therefore The correct answer is 9 days.

Alternate Method

Given:

9 men complete the task in 8 days.

4 women complete the task in 9 days.

Formula Used:

Total Work = Number of Persons × Days

Efficiency = Total Work ÷ Days

Calculations:

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=> Time taken by 1 Man = 9 × 8 = 72 days

=> Time taken by 1 Woman = 4 × 9 = 36 days

Person	Days	Total Work	Efficiency
1 Man	72	72	1
1 Woman	36	2	

=> Combined Efficiency of 2 women and 4 men = (2 × 2) + (4 × 1) = 4 + 4 = 8 units/day

=> Total Time Required = Total Work ÷ Combined Efficiency = 72 ÷ 8 = 9 days

Therefore The correct answer is 9 days.

Additional Information

Total Work Concept

Total work is considered constant and can be calculated using the formula: M1 × D1 = M2 × D2, where M is the number of workers and D is the number of days.

Pipes and Cisterns

Works on the same principle as Time and Work. Inlet pipes have positive efficiency, and outlet (drain) pipes have negative efficiency.

Work and Wages

Wages are distributed in proportion to the total work done by each individual, which is the product of their daily efficiency and the time they actively worked.

Q65. Answer: (b) Decrease of Rs. 6,864

Shortcut Trick

Let Original Income = 100%. Then Expenses = 100% − 18.5% = 81.5%.

Increase in Income = +17% of original income.

Increase in Expenses = 40% of 81.5% = +32.6% of original income.

Change in Savings = Increase in Income − Increase in Expenses = 17% − 32.6% = −15.6%

Decrease in Savings = 15.6% of Rs. 44,000 = 15.6 × 440 = Rs. 6,864

Therefore The correct answer is Decrease of Rs. 6,864.

Alternate Method

Given:

Original Income = Rs. 44,000

Original Savings = 18.5%

Income increases by 17% and Expense increases by 40%

Formula Used:

Income = Expense + Savings

Original Income (100%)

Exp (81.5%)

Sav (18.5%)

New Income (117%)

New Exp (114.1%)

Sav (2.9%)

Net Decrease in Savings = 18.5% − 2.9% = 15.6%

Calculations:

=> Original Savings = 18.5% of 44,000 = Rs. 8,140

=> Original Expense = (100% − 18.5%) of 44,000 = 81.5% of 44,000 = Rs. 35,860

=> New Income = 44,000 + (17% of 44,000) = 44,000 + 7,480 = Rs. 51,480

=> New Expense = 35,860 + (40% of 35,860) = 35,860 + 14,344 = Rs. 50,204

=> New Savings = New Income − New Expense = 51,480 − 50,204 = Rs. 1,276

=> Change in Savings = 8,140 − 1,276 = Rs. 6,864

Therefore The correct answer is Decrease of Rs. 6,864.

Additional Information

Percentage Change

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Percentage change is calculated as: (Final Value − Initial Value) ÷ Initial Value × 100.

Income and Expenditure Relationship

Income = Savings + Expenditure. A change in income is exactly distributed between the change in savings and change in expenditure: ΔIncome = ΔSavings + ΔExpenditure.

Successive Percentage Change

If a value changes successively by a% and b%, the net percentage change is given by (a + b + ab ÷ 100)%.

Q66. Answer: (a) 25

Shortcut Trick

Arrange the data in ascending order: 3, 6, 18, 32, 37, 48

Total observations (n) = 6 (even number)

Median is the average of the two middle values.

Median = (18 + 32) ÷ 2 = 50 ÷ 2 = 25

Therefore The correct answer is 25.

Alternate Method

Given:

Observations: 6, 48, 32, 3, 37 and 18.

Formula Used:

For an even number of observations (n), Median = [(n/2)^(th) term + (n/2 + 1)^(th) term] ÷ 2

Observations in Ascending Order

3

6

18

32

37

48

Median = (18 + 32) ÷ 2 = 25

Calculations:

=> First, arrange the given data in ascending order: 3, 6, 18, 32, 37, 48

=> Total number of observations (n) = 6

=> Since n is an even number, the median is the average of the (n/2)^(th) and (n/2 + 1)^(th) terms.

=> 3^(rd) term = 18

=> 4^(th) term = 32

=> Median = (18 + 32) ÷ 2

=> Median = 50 ÷ 2 = 25

Therefore The correct answer is 25.

Additional Information

Mean

Mean is the average of the given set of values. It is calculated by dividing the sum of all observations by the total number of observations.

Mode

Mode is the value that appears most frequently in a data set. A set can have one mode, more than one mode, or no mode.

Empirical Relationship

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

Q67. Answer: (d) 100

Shortcut Trick

Direct formula: First Number × Second Number = HCF × LCM

104 × Second Number = 4 × 2600

104 × Second Number = 10400

Second Number = 10400 ÷ 104 = 100

Therefore The correct answer is 100.

Alternate Method

Given:

HCF of the two numbers = 4

LCM of the two numbers = 2600

First number = 104

Formula Used:

Product of two numbers = HCF × LCM

Calculations:

=> First number × Second number = HCF × LCM

=> 104 × Second number = 4 × 2600

=> 104 × Second number = 10400

=> Second number = 10400 ÷ 104

=> Second number = 100

Therefore The correct answer is 100.

Additional Information

Product Rule of LCM and HCF

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

Co-prime Numbers

Two numbers are said to be co-prime if their highest common factor (HCF) is 1. For such numbers, their lowest common multiple (LCM) is simply the product of the two numbers.

HCF and LCM of Fractions

HCF of fractions = (HCF of numerators) ÷ (LCM of denominators). Similarly, LCM of fractions = (LCM of numerators) ÷ (HCF of denominators).

Q68. Answer: (c) 20

Shortcut Trick

When two equal distances are covered at speeds x and y, the average speed is given by 2xy ÷ (x + y).

Given speeds are x = 15 km/hr and y = 30 km/hr.

Average speed = (2 × 15 × 30) ÷ (15 + 30)

Average speed = 900 ÷ 45 = 20 km/hr.

Therefore The correct answer is 20 km/hr.

Alternate Method

Given:

Speed from Kanpur to Lucknow (S1) = 15 km/hr

Speed from Lucknow to Kanpur (S2) = 30 km/hr

Formula Used:

Average Speed = Total Distance ÷ Total Time

Time = Distance ÷ Speed

Kanpur

Lucknow

Distance = D

Speed = 15 km/hr

Speed = 30 km/hr

Calculations:

=> Let the distance between Kanpur and Lucknow be D km.

=> Time taken to travel from Kanpur to Lucknow = D ÷ 15 hours

=> Time taken to return to Kanpur = D ÷ 30 hours

=> Total Distance for the entire journey = D + D = 2D km

=> Total Time taken = (D ÷ 15) + (D ÷ 30)

=> Total Time taken = (2D + D) ÷ 30 = 3D ÷ 30 = D ÷ 10 hours

=> Average Speed = 2D ÷ (D ÷ 10)

=> Average Speed = 2 × 10 = 20 km/hr

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Therefore The correct answer is 20 km/hr.

Additional Information

Average Speed for 3 Equal Distances

If three equal distances are covered at speeds x, y, and z, the Average Speed is given by 3xyz ÷ (xy + yz + zx).

Average Speed for Constant Time

If a person travels at speed x for half the total time and speed y for the remaining half time, then Average Speed = (x + y) ÷ 2.

Relative Speed Concept

When two bodies move in the opposite direction towards each other, their Relative Speed = S1 + S2. When moving in the same direction, Relative Speed = |S1 − S2|.

Q69. Answer: (b) 175

Shortcut Trick

For two numbers a and b, the third proportional x is given by $x = b^2 \div a$.

Here, a = 28 and b = 70.

$x = (70 \times 70) \div 28$

$x = 4900 \div 28 = 175$

Therefore The correct answer is 175.

Alternate Method

Given:

First number (a) = 28

Second number (b) = 70

Third proportional = x

28

70

x

× 2.5

× 2.5

1st Term

2nd Term

3rd Term

Proportionality uses a constant multiplier

Formula Used:

If a, b, and c are in continued proportion, then a : b :: b : c, which gives the relation a ÷ b = b ÷ c.

Calculations:

=> 28 ÷ 70 = 70 ÷ x

=> 28 × x = 70 × 70

=> 28 × x = 4900

=> x = 4900 ÷ 28

=> x = 175

Therefore The correct answer is 175.

Additional Information

Fourth Proportional

If four numbers a, b, c, d are in proportion (a : b :: c : d), then d is the fourth proportional. Formula: d = (b × c) ÷ a.

Mean Proportional

The mean proportional between two numbers a and c is b, where $b^2 = a \times c$. Formula: $b = \sqrt{(a \times c)}$.

Continued Proportion

When three quantities are in continued proportion a : b :: b : c, the middle term b is called the mean proportional, and c is the third proportional.

Q70. Answer: (b) 55^(−19)

Shortcut Trick

Using the basic laws of indices for the same base, apply the combined exponent operation directly.

For multiplication, add the exponents, and for division, subtract the exponents.

Resulting exponent = (−6) − 5 + (−8)
=> Exponent = −6 − 5 − 8 = −19
Since the base is 55, the simplified value is 55^(−19).
Therefore The correct answer is 55^(−19).
Alternate Method
Given:
Expression = 55^(−6) ÷ 55^5 × 55^(−8)
Formula Used:
a^m ÷ aⁿ = a^(m − n)
a^m × aⁿ = a^(m + n)
Calculations:
=> 55^(−6) ÷ 55^5 × 55^(−8)
Evaluating from left to right, first apply the division rule:
=> 55^((−6 − 5)) × 55^(−8)
=> 55^(−11) × 55^(−8)
Now, apply the multiplication rule:
=> 55^((−11 − 8))
=> 55^(−19)
Therefore The correct answer is 55^(−19).
Additional Information
Product Rule of Exponents
When multiplying expressions with the same base, add their exponents: a^m × aⁿ = a^(m+n).
Quotient Rule of Exponents
When dividing expressions with the same base, subtract the exponent of the divisor from the dividend: a^m ÷ aⁿ = a^(m−n).
Power of a Power Rule
When raising a power to another power, multiply the exponents: (a^m)ⁿ = a^(m × n).
Negative Exponent Rule
A negative exponent indicates the reciprocal of the base raised to the positive exponent: a^(−n) = 1 ÷ aⁿ.

Q71. Answer: (a) 43

The logic followed here is:
thus, "43" will replace the question mark in the given series.
Hence, the correct option is "Option 1".

Q72. Answer: (a) 3

The logic followed here is:
For, 'BALD' is coded as '6184'
For, 'LAMB' is coded as '4136'
So, 3 is the code for 'M' in the given code language.
Hence, the correct answer is "Option 1".

Q73. Answer: (a) one

Given: H, I, J, P, Q, R and S are seated around a round table facing the centre
1) P sits third to the left of Q.
2) R sits second to the left of S.
3) Q is an immediate neighbour of both J and R.
4) H is not an immediate neighbour of P.
After positioning all only one position is left which will be occupied by the only person left i.e. B.
Thus, There are One people sitting between J and R when counting from the right of J.
Hence, the correct answer is "Option 1".

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Q74. Answer: (b) five

Original Number: 8234619

Digits: 8, 2, 3, 4, 6, 1, 9

→ Arranged in ascending order: 1 2 3 4 6 8 9

The new number formed is 1234689

Same positions: 2, 3, 4, 5, 7 → 5 digits

Hence, the correct answer is "Option 2"

Q75. Answer: (c) 276

BODMAS Table:

Given equation: 45 + 5 ÷ 5 × 6 − 3 + 24 × 9 ÷ 3 × 2 = ?

Logic: Operators interchanged as follows:

'−' and '÷' are interchanged

'×' and '+' are interchanged

Now, 45×5−5+6÷3×24+9−3+2

=> 225−5+2 ×24+9−3+2 = ?

=> 225−5+48+9−3+2 = ?

=> 225−5+48+9−3+2 = 276

Hence, the correct answer is "Option 3".

Q76. Answer: (d) XQA: TLW

The position and positional values or English Alphabets are:

Now,

PGS: LBO

HWK: DRG

Let's check each Option One by One.

Option 1) LHC: PEG

Option 2) QFM: VKP

Option 3) CAL: GVP

Option 4) XQA: TLW

So, Only XQA: TLW follows the pattern of given letter cluster.Hence, the correct answer is 'Option 4'.

Q77. Answer: (c) FGG-17

The logic followed here is:

So, 'FGG-17' will replace the question mark in the given series.

Hence, the correct answer is "Option 3".

Q78. Answer: (b) Both conclusions (1) and (II) follow.

Given Statements:

All games are ludo.

All ludo are drums.

The least possible Venn diagram for the given statement is:

Conclusions:

Conclusion (1): Some drums are Ludo:

If every single Ludo is a Drum, then it is definitely true that Some Drums are Ludo (specifically, the Drums that are also Ludo).

Conclusion (I) follows.

Conclusion (II): All games are drums:

As established in the combined analysis, since All Games are Ludo, and All Ludo are Drums, the property of being a Drum must extend to the Games set.

Therefore, All Games are Drums is a definite deduction.

Conclusion (II) follows.

So, Both conclusions (1) and (II) follow.

Hence, the correct answer is "Option 2".

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Q79. Answer: (a) 6

BODMAS Table:

Given equation: 26 + 14 − 2 ÷ 56 × 7 = ?

Logic: Operators interchanged as follows:

• → −, − → ×, × → ÷, ÷ → +

Now, 26 − 14 × 2 + 56 ÷ 7

=> 26 − (14 × 2) + (56 ÷ 7)

=> 26 − 28 + 8 = 6

Hence, the correct answer is "Option 1".

Q80. Answer: (c) JN-QG

The logic followed here is:

Option 1) DH-KB

Option 2) MQ-TK

Option 3) JN-QG

Option 4) GK-NE

Here, 'JN-QG' is odd among the given options.

Hence, the correct answer is "Option 3".

Q81. Answer: (d) 3 km, towards the south

Given:

Manish started his journey from point A and traveled 8 km north.

Then he turned right and traveled 7 km.

After that, he turned right again and traveled 5 km.

Finally, he turned right once more and traveled 7 km, stopping at point P.

So, He should travel 3 km, towards the south travel to reach point A.

Hence, the correct answer is "Option 4".

Q82. Answer: (d) $

Given: (Left) 5 ^ * # 0 2 4 @ % 9 $ % 3 > @ 7 & * (Right)

Now,

Numbers are dropped from the series, then which of the following will be the sixth from the left.

So, Needed pattern is: ^, *, #, @, %, $, %, >, @, &, *

Thus, $ will be the sixth from the left.

Hence, the correct answer is 'Option 4'.

Q83. Answer: (b) NIL

The logic followed here is:

Option 1) KFH

Option 2) NIL

Option 3) UPR

Option 4) RMO

Here, 'NIL' is odd among the given options.

Hence, the correct answer is "Option 2".

Q84. Answer: (d) 7 km, North

Given:

Shivam starts his journey from point X and drives 12 km east.

Then he turns left, drives 5 km, turns right and drives 5 km.

Then he turns right and drives 2 km.

Then he turns right and drives 7 km.

Again he turns left and drives 10 km.

Finally, he turns right and drives 10 km and stops at point Z.

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So, he should drive 7 km, North to reach point X again.

Hence, the correct answer is "Option 4".

Q85. Answer: (b) Two

Given: Seven boxes A, B, C, D, E, F, and G are stacked one above the other, but not necessarily in that order.

1) Only box B is placed above box C.

2) Exactly two boxes are placed between G and F.

3) Box E is placed immediately above box A.

4) No box is placed below F.

B
C
G
E
A
F

D will be kept in the remaining place.

B
C
D
G
E
A
F

So, there are 'Two' boxes are placed above D.

Hence, the correct answer is "Option 2".

Q86. Answer: (c) One

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

Now,

Symbols which is immediately preceded by a number and immediately followed by another number

So, Needed pattern is: Number - Symbol -Number.

There is 1 Symbols which is immediately preceded by a number and immediately followed by another number.

Hence, the correct answer is 'Option 3'.

Q87. Answer: (a) D

Given: Seven people, T, U, V, W, X, Y, and D, are sitting around a circular table, facing the center.

1) Only two people are sitting between X and U when counted from X's right.

2) Only three people are sitting between Y and W when counted from W's right.

3) U is sitting immediately to the right of W.

4) D is sitting immediately to the right of T.

Here, D is sitting fourth to the right of V.

Hence, the correct answer is "Option 1".

Q88. Answer: (a) YMNB

The logic followed here is:

For, AGPV is related to DKSZ

For, MWBL is related to PAEP

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Similarly, for VIKX
So, VIKX will be related to YMNB.
Hence, the correct answer is "Option 1".

Q89. Answer: (d) ly

The logic followed here is:
Logic:
For, 'keep it fun' is coded as 'tr cj ly'
For, 'lets have fun' is coded as 'mg ly ev'
Fun is common in both the phrases and ly is common in both the codes.
So, 'fun' will be coded as 'ly' in the given language
Hence, the correct answer is "Option 4".

Q90. Answer: (c) CLAP-LPAC - PALC

Now,
PACK-AKCP - KCAP
FOLD - ODLF - DLOF
Let's check each Option One by One.
Option 1) SUIT-USIT - TUIS

S	U	I	T
1	2	3	4
U	S	I	T
2	1	3	4
T	U	I	S
4	2	3	1

Option 2) BELT-EBLT - TELB

B	E	L	T
1	2	3	4
E	B	L	T
2	1	3	4
T	E	L	B
4	2	3	1

Option 3) CLAP-LPAC - PALC

C	L	A	P
1	2	3	4
L	P	A	C
2	4	3	1
P	A	L	C
4	3	2	1

Option 4) APES-AEPS - SEPA

A	P	E	S
1	2	3	4
A	E	P	S
1	3	2	4

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S	E	P	A
4	3	2	1

So, Only CLAP-LPAC - PALC follows the pattern of given letter cluster.

Hence, the correct answer is 'Option 3'.

Q91. Answer: (d) YOU

The logic followed here is:

Option 1) BZX

Option 2) HFD

Option 3) TRP

Option 4) YOU

Z

Here, YOU is odd among the given options.

Hence, the correct answer is "Option 4".

Q92. Answer: (b) NGJ

The logic followed here is:

So, NGJ will replace the question mark in the given series.

Hence, the correct answer is "Option 2".

Q93. Answer: (c) 104

The logic followed here is:

thus, "104" will replace the question mark in the given series.

Hence, the correct option is "Option 3".

Q94. Answer: (d) 248

The logic followed here is:

thus, "248" will replace the question mark in the given series.

Hence, the correct option is "Option 4".

Q95. Answer: (b) A

Given: Seven boxes A, B, C, D, K, L, and O are stacked one above the other, but not necessarily in the same order.

1) Only four boxes are placed between B and D.

2) Only C is placed above B.

3) Only two boxes are placed between L and O.

4) A is placed immediately above K.

5) O is not placed immediately above A.

C
B
L
A
K
O
D

So, A is placed fourth from the top.

Hence, the correct answer is "Option 2".

Q96. Answer: (b) Wife's sister's husband

Family Chart:

Decoding the Symbols:

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Symbol	•	•	×	÷
Meaning	Son	Sister	Wife	Father

Given: Q ÷ E + R - C x D

It means:

Q is the Father of E

E is the Son of R

R is the Sister of C

C is the Wife of D

So, Q is the Wife's sister's husband of D.

Hence, the correct answer is "Option 2".

Q97. Answer: (b) 33

Given:

Navjyot ranks from the bottom = 15th

Navjyot ranks from the top = 19th

Total students=Rank from top + Rank from bottom − 1

So, Total students = 19 + 15 − 1 = 33

Hence, the correct answer is "Option 2".

Q98. Answer: (d) (84, 7, 588)

• The logic followed here is:

Logic:

• Third number = First number × Second number

(92, 6, 552)

=> (92 × 6) = 552.

(98, 5, 490)

=> (98 × 5) = 490.

Now, checking the options:

Option 1) (52, 8, 438)

=> (52 × 8) ≠ 438.

Option 2) (46, 9, 405)

=> (46 × 9) ≠ 405.

Option 3) (48, 6, 478)

=> (48 × 6) ≠ 478.

Option 4) (84, 7, 588)

=> (84 × 7) = 588.

• Hence, the correct option is "Option 4 "

Q99. Answer: (b) 8

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

Now,

Symbols are dropped from the series : (Left) 6 4 8 9 5 1 3 2 7 (Right)

So, seventh from the right : (Left) 6 4 8 9 5 1 3 2 7 (Right)

Hence, the correct answer is "Option 2"

Q100. Answer: (a) Only conclusion (II) follows.

Given Statements:

All bears are ants.

No bear is a horse.

The least possible Venn diagram for the given statement is:

Conclusions:

(I) No ant is a horse:

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Since only a part of the Ants (the part that is Bears) is definitely separate from Horses, the remaining part of the Ants (Ants that are not Bears) might or might not be Horses.

Therefore, the conclusion "No ant is a horse" does not logically follow.

Conclusion (I) follows.

(II) No horse is a bear:

Since the statement "No bear is a horse" is true, its converse, "No horse is a bear," must also be true.

Therefore, the conclusion "No horse is a bear" logically follows.

So, Only conclusion (II) follows.

Hence, the correct answer is "Option 1".

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