RRB NTPC (UG) CBT-I Official Paper (Held On: 19 Aug, 2025 Shift 3) (Previous Year Paper)

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

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GENERAL AWARENESS

Q1. Bangladesh is located in which direction of India?

(a) East
(b) North
(c) Northwest
(d) West

Q2. How many pairs of false ribs are located above the floating ribs that are connected to each other by costal cartilage?

(a) 2
(b) 5
(c) 6
(d) 3

Q3. In which city is India's first AI-focused Special Economic Zone (SEZ) being established in 2025?

(a) Nava Raipur
(b) Hyderabad
(c) Pune
(d) Bengaluru

Q4. Which test was successfully conducted by ISRO in the development of the semicryogenic engine in March 2025?

(a) Static fire test of the rocket booster
(b) Cold test of the fuel system
(c) Flight test of the complete launch vehicle
(d) Hot test of the engine power head test article

Q5. As per VarIndia (April 2025), India’s draft ‘6G THz Testbed’ specifically targets components operating in frequencies above:

(a) 60 GHz
(b) 300 GHz
(c) 100 GHz
(d) 6 GHz

Q6. Which architectural style characterises the Chhatrapati Shivaji Maharaj Terminus (CSMT) building in Mumbai, India, completed in 1887?

(a) Mughal
(b) Victorian Gothic
(c) Indo-Saracenic
(d) Rajput

Q7. Which architectural style characterises the Chhatrapati Shivaji Maharaj Terminus (CSMT) building in Mumbai, India, completed in 1887?

(a) Mughal
(b) Victorian Gothic
(c) Indo-Saracenic
(d) Rajput

Q8. Who was the first Portuguese explorer to reach India in 1498, arriving at Calicut on the Malabar Coast?

(a) Columbus
(b) Vasco da Gama
(c) Nino-da-Cunha
(d) Albuquerque

Q9. Mont Blanc is the highest peak of which mountain range?

(a) Alps
(b) Himalayas
(c) Western Ghats
(d) Andes

Q10. Why does the eastern coastal plain have fewer ports and harbours compared to the western coastal plain?

(a) It is closer to the Equator
(b) It has more tourist beaches
(c) It is an emergent coast
(d) It receives more rainfall

Q11. 'Diyaslai' is the autobiography of which social activist of India, on which the Indira Gandhi National Centre for the Arts (IGNCA), an autonomous institution under the Ministry of Culture held a dedicated discussion in February 2025 in an event graced by former President Ram Nath Kovind as the chief guest?

(a) Kailash Satyarthi
(b) Laxmi Agarwal
(c) Kiran Bedi
(d) Kamla Bhasin

Q12. Which Article of the Indian Constitution deals with the impeachment procedure of the President?

(a) Article 61
(b) Article 66
(c) Article 52
(d) Article 54

Q13. What has the Supreme Court of India ruled regarding the independence of tribunals?

(a) Tribunals must be headed by sitting High Court judges to ensure credibility.
(b) Tribunals are executive bodies and need not be independent of the executive.
(c) Tribunals, being quasi-judicial bodies, must be independent of the executive, just like regular courts.
(d) Tribunals can be managed by the subject-matter ministry to improve efficiency.

Q14. Which of the following organisations launched the Bharatpol platform to enhance coordination with Interpol in January 2025?

(a) National Crime Records Bureau (NCRB)
(b) Ministry of Home Affairs (MHA)
(c) Central Bureau of Investigation (CBI)
(d) National Investigation Agency (NIA)

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Q15. What was the effect of English education and western thought on Indian nationalism?

(a) Supported casteism
(b) Encouraged partition
(c) Ignited national awakening
(d) Suppressed nationalism

Q16. What has been the trend in India's per capita income since the 1991 reforms?

(a) No significant change
(b) Constant decline
(c) Fluctuating without a pattern
(d) Gradual increase

Q17. Who took over as the Deputy Governor of the Reserve Bank of India in May 2025?

(a) Ajit Ratnakar Joshi
(b) Swaminathan J
(c) Indranil Bhattacharyya
(d) Dr. Poonam Gupta

Q18. Which state is in the news for achieving full functional literacy in May 2025?

(a) Mizoram
(b) Tripura
(c) Nagaland
(d) Meghalaya

Q19. What is the specific heat of copper, which is often used for pots and pans because it heats up quickly?

(a) 604.2 J kg^(-1) K^(-1)
(b) 239.3 J kg^(-1) K^(-1)
(c) 712.1 J kg^(-1) K^(-1)
(d) 386.4 J kg^(-1) K^(-1)

Q20. In which of the following years was the first ever National Agriculture Policy announced?

(a) 2000
(b) 2010
(c) 2003
(d) 2005

Q21. The Tripartite Struggle was a prolonged conflict among the Gurjara-Pratiharas, Palas, and which southern Indian dynasty?

(a) Rashtrakutas
(b) Cholas
(c) Satavahanas
(d) Pallavas

Q22. In Windows 11, what does the Alt + D keyboard shortcut do in File Explorer or a web browser?

(a) Deletes the selected file or folder
(b) Duplicates the current tab
(c) Focuses the address bar
(d) Displays desktop

Q23. The World Government Summit 2025, focusing on shaping future governments, was convened in which city?

(a) Geneva, Switzerland
(b) Singapore
(c) Doha, Qatar
(d) Dubai, United Arab Emirates

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Q24. Which sector in India saw significant growth due to globalisation and outsourcing after the 1990s?

(a) Agriculture
(b) Mining
(c) Real Estate
(d) IT and Services

Q25. Which of the following is a socio-economic Directive Principle?

(a) Promotion of international peace
(b) Equal pay for equal work
(c) Separation of powers
(d) Independence of the judiciary

Q26. Which of the following Constitutional Amendments introduced the Goods and Services Tax (GST) in India?

(a) 101^(st) Amendment
(b) 106^(th) Amendment
(c) 103^(rd) Amendment
(d) 97^(th) Amendment

Q27. What is the primary objective of the e-Zero FIR initiative launched by the Union Ministry of Home Affairs in May 2025?

(a) Provide compensation for cyber fraud victims
(b) Launch an online cyber safety portal
(c) Create a national crime database
(d) Fast-track cyber fraud FIRs

Q28. In 2025, the Central Government granted a one-year extension to Dr. Samir V Kamat, extending his tenure as Chief of which organisation till May 2026?

(a) Defence Research and Development Organisation (DRDO)
(b) Indian Space Research Organisation (ISRO)
(c) National Security Council Secretariat (NSCS)
(d) Council of Scientific and Industrial Research (CSIR)

Q29. Which MS Windows feature allows users to personalize their desktop background, theme and screensaver settings?

(a) Device Manager
(b) Disk Management
(c) Task Scheduler
(d) Personalization Settings

Q30. What is the value of one carat when expressed in SI units?

(a) 500 milligrams
(b) 1 gram
(c) 100 milligrams
(d) 200 milligrams

Q31. Who first presided over the first Indian National Congress session at Mumbai?

(a) Dadabhai Naoroji
(b) Surendranath Bannerjee
(c) W.C. Bannerjee
(d) Anand Mohan Bose

Q32. Landslides due to mining and land subsidence are commonly seen in:

(a) Assam and West Bengal
(b) Himachal Pradesh and Uttarakhand
(c) Rajasthan and Haryana
(d) Jharkhand and Chhattisgarh

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Q33. Which initiative promotes rooftop solar installations for households?

(a) URJA Mission
(b) PM-KUSUM
(c) Surya Ghar Muft Bijli Yojana
(d) Solar India

Q34. Financial inclusion helps reduce income inequality in rural areas. Which platform provides a unified digital database for unorganised workers?

(a) Jan Dhan Yojana
(b) BHIM app
(c) E-Shram portal
(d) UPI dashboard

Q35. In March 2025, the Gujarat government launched which scheme to uplift 50,000 Antyodaya families through economic development and women empowerment programmes?

(a) G-SAMRIDHI
(b) G-SHAKTI
(c) G-SWARUPA
(d) G-SAFAL

Q36. Which of the following languages is most notably associated with the literary contributions of Girish Karnad, exemplified by his acclaimed play 'Tughlaq'?

(a) Tamil
(b) Kannada
(c) Marathi
(d) Telugu

Q37. Pykara was marked as the first water power station in which state of India?

(a) Tamil Nadu
(b) Kerala
(c) Madhya Pradesh
(d) Odisha

Q38. Who presides over the sessions of the Vidhan Sabha in a State?

(a) The Governor of the State
(b) The Chief Minister of the State
(c) The Speaker elected by members
(d) The Deputy Speaker by rotation

Q39. One of the major natural lakes in India, the Sambhar Lake of Rajasthan, is located in which of the following districts of the state?

(a) Jaipur
(b) Jhunjhunu
(c) Barmer
(d) Jaisalmer

Q40. Who became the first Indian space tourist in 2025, joining the crew for Amazon founder Jeff Bezos' Blue Origin's NS-25 mission?

(a) Shubham Banerjee
(b) Gopi Thotakura
(c) Zoya Agarwal
(d) Mohadessa Jafri

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MATHEMATICS

Q41. Six times the present age of P exceeds the present age of Q by 11 years. After 10 years, three times Q's age will be 27 years less than six times P's age at that time. What is the present age (in years) of Q?

(a) 6
(b) 12
(c) 7
(d) 16

Q42. The radius of a spherical balloon increases from 5 cm to 10 cm when more air is added to it. What is the ratio of the volume of the original balloon and the volume of the inflated balloon?

(a) 1 : 6
(b) 1 : 8
(c) 1 : 2
(d) 1 : 4

Q43. A can lay railway track between two given stations in 18 days and B can do the same job in 10 days. With the help of C, they did the job in 4 days only. Then, C alone can do the job in

(a) 1110/17 days
(b) 1410/17 days
(c) 1010/17 days
(d) 1910/17 days

Q44. Ritesh and Gauri have to travel from Delhi to Kanpur in their respective cars. Ritesh is driving at 66 km/hr while Gauri is driving at 99 km/hr. Find the time taken by Gauri to reach Kanpur if Ritesh takes 9 hours.

(a) 12 hours
(b) 13 hours
(c) 6 hours
(d) 2 hours

Q45. The product of two consecutive positive natural numbers is 182. The greater of the two numbers is:

(a) 27
(b) 14
(c) 7
(d) 26

Q46. The number 630605 is divisible by which of the following?

(a) 5
(b) 7
(c) 14
(d) 3

Q47. Find the surface area of a sphere whose diameter is equal to 22 cm.

(a) 484π cm²
(b) 502π cm²
(c) 153π cm²
(d) 1019π cm²

Q48. If the 6-digit number N46M37 is divisible by 11, then which of the options below can give a possible correct relation between M and N?

(a) M = N
(b) M + N = 2
(c) M - N = 1
(d) M - N = -2

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Q49. A train of length 490 m overtakes a man moving at a speed of 9 km/hr (in the same direction) in 12 seconds. How much time (in seconds) will it take this train to completely cross another train that has is 500 m long, moving in the opposite direction at a speed of 42 km/hr?

(a) 25
(b) 36
(c) 18
(d) 32

Q50. A computer is marked at Rs. 70,000 and a discount of 16% is offered on it. An additional discount is offered to students. If a student pays Rs. 57,036 for the computer, then how much additional discount percentage did the student receive?

(a) 7%
(b) 5%
(c) 2%
(d) 3%

Q51. An amount of Rs. 402 is divided among three persons in the ratio of 13 : 8 : 9. The difference between the largest and the smallest shares (in Rs.) in the distribution is:

(a) 56
(b) 100
(c) 67
(d) 136

Q52. A vendor claims to sell wheat at a loss of 65%, but he cheats by using weights that are 70% less than the stated weight. What is his actual profit percentage (round off to two decimal places)?

(a) 7.43%
(b) 16.67%
(c) 11.62%
(d) 15.18%

Q53. By how much is 65% of 65 greater than 1/5 of 35?

(a) 35.25
(b) 33.25
(c) 32.25
(d) 29.25

Q54. What is the mode of the following data? 87, 65, 70, 81, 68, 62, 82, 78, 81, 82, 74, 75, 90, 67, 86, 86, 81, 90, 69, 78, 65, 78, 76, 63, 70, 81

(a) 81
(b) 70
(c) 65
(d) 87

Q55. If the 6-digit number N23M40 is divisible by 11, then which of the options below can give a possible correct relation between M and N?

(a) M - N = 5
(b) M + N = -5
(c) M = N
(d) M - N = 1

Q56. Sapna invested Rs. 21,200 on simple interest, partly at the rate of 13% per annum and partly at the rate of 3% per annum. If she earns equal interests from the two investments after 8 years, then find the sum invested at the rate of 13% per annum (in Rs.).

(a) 3,975
(b) 3,972
(c) 3,973

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(d) 3,976

Q57. I bought two bicycles for Rs. 1,200. I sold the first one at a loss of 10% and the second at a gain of 20%. If, on the whole I made neither a loss nor a gain, find the cost price (in Rs.) of the first bicycle.

(a) 784
(b) 820
(c) 800
(d) 824

Q58. The current population of a town is 10,630. It increases by 25% and 50% in two successive years but decreases by 68% in the third year. What is the population of the town at the end of the third year?

(a) 6376
(b) 6374
(c) 6380
(d) 6378

Q59. If (sinA+cosA)/cosA=17/12, the find the value of sin A and cos A respectively.

(a) 13/5, 13/12
(b) 5/13, 12/13
(c) 5/17, 5/16
(d) 17/5, 16/5

Q60. A sum of money triples itself at a certain rate of compound interest in 8 years. In how many years will it amount to 9 times of itself?

(a) 10 years
(b) 17 years
(c) 9 years
(d) 16 years

Q61. Given that 50^(0.92) = x, 50^(0.26)= y and x^z = y^3, then the value of z is close to:

(a) 0.39
(b) 0.83
(c) 0.85
(d) 3.85

Q62. Which of the following numbers is divisible by 5?

(a) 7132956
(b) 6175753
(c) 7048030
(d) 6567359

Q63. Abdul and Mohsin together invested Rs. 76,800 in a business. At the end of the year, out of a total profit of Rs. 19,000, Mohsin's share was Rs. 3,800. What was the difference between their investments?

(a) Rs. 46,300
(b) Rs. 45,780
(c) Rs. 44,260
(d) Rs. 46,080

Q64. Which of the following ratios is the greatest?

(a) 28 : 74
(b) 45 : 85
(c) 33 : 72
(d) 40 : 53

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Q65. The average of first 153 even numbers is

(a) 153.5
(b) 154
(c) 155
(d) 154.5

Q66. Simplify the given expression.

$x(7x - 5) + 7(x^2 - 2) + 18$

(a) $14x^2 - 5x - 4$
(b) $-14x^2 - 5x - 4$
(c) $14x^2 - 5x + 4$
(d) $-14x^2 - 5x + 4$

Q67. 6 men can complete a piece of work in 8 days, while 3 women can do it in 18 days. In how many days can 9 women and 8 men complete this work?

(a) 8 days
(b) 1 day
(c) 3 days
(d) 6 days

Q68. The marked price of a watch is Rs. 3,480. It is sold for Rs. 2,958. The rate of discount is _____.

(a) 15%
(b) 17%
(c) 13%
(d) 10%

Q69. In triangle ABC, BD ? AC at D and angle DBC = 54°. E is a point on BC such that angle CAE = 72°. What is the measure of angle AEB?

(a) 100°
(b) 98°
(c) 95°
(d) 108°

Q70. Evaluate: $(-9) - (-60) \div (-6) + (-4) \times 9$

(a) −57
(b) −55
(c) −58
(d) −54

GENERAL INTELLIGENCE AND REASONING

Q71. What should come in place of ? in the given series based on the English alphabetical order?

UXX VSU WNR ? YDL

(a) XLV
(b) XIO
(c) WLZ
(d) PSL

Q72. Refer to the following number and symbol series and answer the question that follows. Counting to be done from left to right only.

(Left) + @ & ? % \ ? + < # 8 $ 1 % % 5 2 4 9 ^ 7 (Right)

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

(a) Three

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(b) Five
(c) One
(d) Two

Q73. In a certain code language, ‘LUMA’ is coded as ‘5796’ and ‘MALI’ is coded as ‘8569’. What is the code for ‘I’ in that language?
(a) 8
(b) 9
(c) 5
(d) 6

Q74. In the following triads, each group of letters is related to the subsequent one following a certain logic. Select from the given options, the one which follows the same logic.
GULF – FLGU – GLUF
ALTS – STAL – ATLS
(a) SICK – KCSI – SCIK
(b) LIMB – IMLB – IMBL
(c) CALF – FLCA – ALCF
(d) FINE – FNIE – ENIF

Q75. Read the given statement(s) and conclusions carefully. Assuming that the information given in the statements is true, even if it appears to be at variance with commonly known facts, decide which of the given conclusion(s) logically follow(s) from the statement(s).
Statements:
All Peaches are Pineapples.
All Pineapples are Lemons.
Conclusions:
I. No Lemons are Peaches.
II. Some Lemons are Peaches.
(a) Only conclusion (II) follows.
(b) Both conclusions (I) and (II) follow
(c) Neither conclusion (I) nor (II) follows.
(d) Only conclusion (I) follows.

Q76. If 1 is added to each even digit of the number 36719542, then how many digits are repeated more than once in the new number formed?
(a) One
(b) None
(c) Three
(d) Two

Q77. Based on the English alphabetical order, three of the following four letter-clusters are alike in a certain way and thus form a group. Which letter-cluster DOES NOT belong to that group?
(Note: The odd one out is not based on the number of consonants/vowels or their position in the letter-cluster.)
(a) TWA
(b) HLO
(c) JMQ
(d) CFJ

Q78. UFNE is related to YCRB in a certain way based on the English alphabetical order. In the same way, CZVY is related to GWZV. To which of the given options is KTDS related, following the same logic?
(a) OPGR
(b) NRGQ
(c) MPFO

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(d) OQHP

Q79. What should come in place of the question mark (?) in the given series?

1 2 4 7 28 33 ?

(a) 198
(b) 199
(c) 197
(d) 196

Q80. In a row of people all facing north, Puja is 13^(th) from the left end. Barun is 15^(th) from the left end. Barun is exactly between Puja and Risabh. If Risabh is 12^(th)from the right end of the row, how many people are there in the row?

(a) 30
(b) 25
(c) 28
(d) 27

Q81. If 2 is added to each odd digit and 2 is subtracted from each even digit in the number 75364812, then what will be the sum of the greatest and smallest digit in the new number thus formed?

(a) 8
(b) 9
(c) 10
(d) 12

Q82. Manoj ranked 26^(th) from the top and 55^(th) from the bottom in his class. How many students are there in his class?

(a) 81
(b) 79
(c) 80
(d) 82

Q83. Refer to the following number and symbol series and answer the question that follows. All numbers are single-digit. Counting to be done from left to right.

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

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

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

Q84. XTXY is related to CYCD in a certain way based on the English alphabetical order. In the same way, GCGH is related to LHLM. To which of the given options is LHLM related, following the same logic?

(a) QNPX
(b) QMQR
(c) QMPR
(d) QLPR

Q85. A is the father of R. R is the mother of C. C is the son of D. G is the father of D. How is A related to G?

(a) Son's wife's brother
(b) Son's wife's father
(c) Wife's father
(d) Wife's brother

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Q86. Based on the English alphabetical order, three of the following four letter-cluster pairs are alike in a certain way and thus form a group. Which is the one that does not belong to that group? (Note: The odd one out is not based on the number of consonants/vowels or their position in the letter-cluster.)

(a) IK – BD
(b) YA – RT
(c) LN – EG
(d) EH – XZ

Q87. What should come in place of the question mark (?) in the given series?

12 16 25 41 ? 102

(a) 62
(b) 50
(c) 66
(d) 56

Q88. In the following number-pairs, the second number is obtained by applying certain mathematical operations to the first number. Select the pair in which the numbers are related in the same way as are the numbers of the following pairs. (Note: Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. E.g., 13 – Operations on 13 such as adding/subtracting/multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed.)

8, 25

11, 34

(a) 6, 17
(b) 15, 46
(c) 13, 39
(d) 9, 37

Q89. Read the given statements and conclusions carefully. Assuming that the information given in the statements is true, even if it appears to be at variance with commonly known facts, decide which of the given conclusions logically follow(s) from the statements.

Statements:

All oranges are melons.

All melons are grapes.

Conclusions:

(I) Some melons are oranges.

(II) All grapes are oranges.

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

Q90. If ‘P’ stands for ‘×’, ‘Q’ stands for ‘÷’, ‘R’ stands for ‘−’ and ‘S’ stands for ‘+’, then what will come in place of the question mark (?) in the following equation?

(228 Q 12) S 69 P 3 S (216 Q 18) R 10 S 30 P 4 = ?

(a) 328
(b) 428
(c) 268
(d) 348

Q91. In a certain code language, ‘INKS’ is coded as ‘4628’ and ‘NEAR’ is coded as ‘1385’. What is the code for ‘N’ in the given code language?

(a) 5
(b) 8
(c) 6

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(d) 1

Q92. What should come in place of the question mark (?) in the given series?

26, 21, 11, −4, −24, ?

(a) −54
(b) 57
(c) −49
(d) 49

Q93. Ajay starts from Point A and drives 11 km towards North. He then takes a right turn, drives 3 km, turns right and drives 12 km. He then takes a right turn and drives 6 km. He takes a final right turn, drives 1 km and stops at Point P. How far (shortest distance) and towards which direction should he drive in order to reach Point A again? (All turns are 90° turns only unless specified.)

(a) 3 km to west
(b) 4 km to east
(c) 3 km to east
(d) 4 km to west

Q94. Seven people, A, B, C, D, P, Q and R, are sitting in a row, facing north. Only three people sit between A and C. Q sits to the immediate left of C. No one sits to the right of B. Only two people sit between B and Q. D sits to the immediate right of R. How many people sit between P and D?

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

Q95. Based on the English alphabetical order, three of the following four letter-clusters are alike in a certain way and thus form a group. Which letter-cluster DOES NOT belong to that group?

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

(a) PTR
(b) GKH
(c) WAY
(d) NRP

Q96. Which of the following letter-number clusters will replace the question mark (?) in the given series to make it logically complete?

BIP 104, ELS 97, HOV 90, KRY 83, NUB 76, ?

(a) QKE 69
(b) MXE 69
(c) QYE 69
(d) QXE 69

Q97. Seven people, I, J, K, L, U, V and W are sitting in a row, facing north. Only three people sit between V and J. U sits to the immediate left of J. No one sits to the right of I. Only two people sit between I and U. W sits to the immediate right of L. How many people sit between K and W?

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

Q98. If 2 is added to each odd digit and 1 is subtracted from each even digit in the number 7135682, then how many digits will appear more than once in the new number thus formed?

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

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(d) None

Q99. Mr. Tuff starts from Point A and drives 7 km towards the east. He then takes a left turn and drives 2 km, then turns left and drives 9 km. He then takes a left turn and drives 9 km. He takes a final left turn, drives 2 km and stops at Point P. How far (shortest distance) and in which direction should he drive in order to reach Point A again? (All turns are 90-degree turns only unless specified.)

(a) 8 km to the west
(b) 7 km to the north
(c) 7 km to the south
(d) 6 km to the south

Q100. Seven boxes A, B, C, D, E, F and G are kept one over the other but not necessarily in the same order. Only two boxes are kept below G. Only one box is kept above A. Only one box is kept between A and E. B is kept immediately above D. C is kept at some place below F. How many boxes are kept below A?

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

ANSWER KEY

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

SOLUTIONS

Q1. Answer: (a) East

The Correct answer is East.

Key Points

• Bangladesh is located to the east of India and shares a long international border with Indian states.

• It is bordered by the Indian states of West Bengal, Assam, Meghalaya, Tripura, and Mizoram.

• Bangladesh is geographically positioned in South Asia, lying between India and Myanmar.

• The border between India and Bangladesh is approximately 4096 kilometers long, making it one of the longest international borders India shares with any country.

• Historically, Bangladesh was a part of India until the country gained independence in 1947 and later became an independent nation in 1971.

• Major rivers such as the Ganges (Padma), Brahmaputra (Jamuna), and Meghna flow through Bangladesh, creating fertile plains.

• The Sundarbans, a UNESCO World Heritage Site, is located in the coastal region of Bangladesh and India, known for its Bengal Tiger population.

Additional Information

• North

• North of India is bordered by countries such as China, Nepal, and Bhutan.

• North India is dominated by the Himalayan mountain range, which acts as a natural border.

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• Bangladesh is not located in the northern direction of India.
• Northwest
• Northwest India shares its border with Pakistan.
• The region includes Indian states like Rajasthan, Punjab, and Jammu & Kashmir.
• Bangladesh is not situated in the northwest direction of India.
• West
• West India is bordered by the Arabian Sea and includes states such as Gujarat, Maharashtra, and Goa.
• Bangladesh is not located in the western direction of India.

Q2. Answer: (d) 3

The Correct answer is 3 pairs of false ribs.

Key Points

• Humans have a total of 12 pairs of ribs, which are divided into three categories: true ribs, false ribs, and floating ribs.
• The false ribs are the 8th, 9th, and 10th pairs of ribs, located above the floating ribs.
• These ribs are called "false ribs" because they are not directly attached to the sternum; instead, they are connected to each other by costal cartilage.
• The floating ribs (11th and 12th pairs) are not attached to the sternum or any other ribs and are located below the false ribs.
• This arrangement provides flexibility and protection to vital organs such as the lungs and heart.
• Thus, there are 3 pairs of false ribs located above the floating ribs.

Additional Information

• True Ribs
• The first seven pairs of ribs are called true ribs.
• They are directly attached to the sternum via costal cartilage.
• True ribs provide the primary support to the thoracic cage.
• Floating Ribs
• The 11th and 12th pairs of ribs are called floating ribs.
• These ribs are not attached to the sternum or other ribs, which makes them "floating."
• Floating ribs serve to protect the kidneys and other posterior organs.

Q3. Answer: (a) Nava Raipur

The correct answer is Nava Raipur.

Key Points

• Nava Raipur is set to host India's first AI-focused Special Economic Zone (SEZ), which is planned for establishment in 2025.
• The project is part of India's broader efforts to promote artificial intelligence (AI) research, innovation, and entrepreneurship.
• Nava Raipur is located in the state of Chhattisgarh and is also known as the newly developed capital city of the state.
• The SEZ aims to create a world-class ecosystem for AI, with dedicated infrastructure, facilities, and incentives for industries and startups.
• This initiative is expected to boost employment and position India as a global leader in artificial intelligence technologies.
• The choice of Nava Raipur reflects its modern infrastructure and strategic development as a smart city.
• The SEZ will likely focus on sectors like healthcare, agriculture, education, and manufacturing using AI-driven solutions.

Additional Information

• Hyderabad
• Hyderabad is known as the IT hub of India and is home to many leading companies in the technology and innovation sectors.
• It hosts institutions like the International Institute of Information Technology (IIIT), Hyderabad, which are significant contributors to AI research in India.
• However, it is not the location for India's first AI-focused SEZ.
• Pune
• Pune, located in Maharashtra, is a major center for education and information technology.
• The city is home to several IT parks and renowned universities, but it is not chosen for the AI-focused SEZ.
• Bengaluru
• Bengaluru is widely referred to as the Silicon Valley of India due to its prominence in the IT and startup ecosystem.
• It is a hub for AI research with many organizations and startups working in this domain.
• Despite its significance in the tech industry, Bengaluru is not the location of India's first AI-focused SEZ.

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Q4. Answer: (d) Hot test of the engine power head test article

The correct answer is Hot test of the engine power head test article.

Key Points

• The semicryogenic engine is a crucial element in the development of advanced rocket propulsion technology by ISRO (Indian Space Research Organisation).

• A hot test is an essential procedure where the engine is fired at full throttle under real conditions to evaluate its performance and reliability.

• The engine power head test article specifically refers to the upper section of the semicryogenic engine, comprising critical components like the turbopump, thrust chamber, and injectors.

• This test aims to verify the fuel mixing, combustion efficiency, and overall functionality of the engine at high temperatures and pressures.

• The successful hot test demonstrates ISRO's capability to develop next-generation rocket engines capable of carrying heavier payloads to space.

• The semicryogenic engine uses a combination of liquid oxygen (LOX) as an oxidizer and kerosene as fuel, offering higher efficiency compared to conventional engines.

• Such advancements are integral for ISRO's future projects, including interplanetary missions, human spaceflight programs, and satellite launches.

Additional Information

• Static fire test of the rocket booster

• A static fire test is conducted to assess the performance of the rocket booster on the ground without launching it.

• It evaluates the thrust, stability, and ignition systems of the booster but does not involve the engine's full power head.

• This test is often used for the initial stages of propulsion system development.

• Cold test of the fuel system

• A cold test involves testing the fuel system under controlled conditions without igniting the engine.

• It ensures that the fuel delivery system functions properly, checking for leaks, flow rates, and temperature regulation.

• This test is a preliminary step before hot tests are conducted.

• Flight test of the complete launch vehicle

• A flight test involves launching the entire rocket or launch vehicle to evaluate its performance under real flight conditions.

• This is a comprehensive test to verify the propulsion system, structural integrity, navigation systems, and payload delivery.

• It typically occurs after all ground-based tests, including hot tests, are successfully completed.

Q5. Answer: (c) 100 GHz

The Correct answer is 100 GHz.

Key Points

• The draft '6G THz Testbed' proposed by India is an initiative aimed at advancing next-generation communication technologies.

• India's testbed focuses on components operating in frequencies above 100 GHz, marking a significant step towards achieving 6G capabilities.

• 6G technology is expected to utilize higher frequency bands, including terahertz (THz) frequencies, to enable faster data transmission and enhanced connectivity.

• Frequencies above 100 GHz are crucial for enabling ultra-high-speed data transfer, low latency, and improved energy efficiency in communication systems.

• The development of technologies operating above 100 GHz facilitates applications such as autonomous driving, holographic communication, and advanced IoT systems.

• This initiative aligns with India's vision to become a global leader in telecommunication technology and contribute to the evolution of 6G networks.

Additional Information

• 60 GHz

• 60 GHz is typically associated with WiGig technology, which is used for high-speed wireless communications over short distances.

• This frequency band is utilized for applications such as wireless docking stations and high-definition video streaming.

• Though useful, it does not meet the requirements for the extreme data rates expected in 6G communication systems.

• 300 GHz

• 300 GHz falls within the terahertz (THz) spectrum, which is expected to play a crucial role in 6G networks.

• However, the focus of India's draft testbed is specifically on frequencies above 100 GHz, making this option incorrect in the given

context.

• 6 GHz

• 6 GHz is commonly used in Wi-Fi 6E, which provides enhanced wireless connectivity for devices.

• This frequency band is not suitable for the high-speed and low-latency requirements of 6G networks.

Q6. Answer: (b) Victorian Gothic

The correct answer is Victorian Gothic.

Key Points

• The Chhatrapati Shivaji Maharaj Terminus (CSMT), formerly known as Victoria Terminus, is an iconic railway station in Mumbai, India.

• It was completed in the year 1887 to commemorate the Golden Jubilee of Queen Victoria's reign.

• The architectural style of the building is a blend of Victorian Gothic Revival and traditional Indian architectural elements.

• Key features of the Victorian Gothic style include the use of pointed arches, turrets, spires, stained glass windows, and intricate carvings.

• The design of CSMT was conceptualized by Frederick William Stevens, a British architect.

• The building has been recognized as a UNESCO World Heritage Site due to its exceptional architectural design and historical significance.

• It is one of the finest examples of British colonial architecture in India and represents the fusion of Western and Indian design elements.

• The terminus serves as a major hub for both suburban and long-distance trains, making it a critical part of Mumbai's transportation infrastructure.

Additional Information

• Mughal Architecture

• This style is characterized by domes, minarets, intricate carvings, and large gardens. It was prominent during the reign of the Mughal emperors in India.

• Famous examples include the Taj Mahal, Red Fort, and Humayun's Tomb.

• Indo-Saracenic Architecture

• This style emerged during the British colonial period and combines Indian, Islamic, and European architectural elements.

• Examples include the Gateway of India in Mumbai and the Madras High Court.

• Rajput Architecture

• Characterized by opulent palaces, intricate carvings, domes, and jharokhas, Rajput architecture is indigenous to the Rajasthan region.

• Famous examples include the City Palace in Jaipur and Mehrangarh Fort.

Q7. Answer: (b) Victorian Gothic

The Correct answer is Victorian Gothic.

Key Points

• The Chhatrapati Shivaji Maharaj Terminus (CSMT) in Mumbai is an iconic railway station designed in the Victorian Gothic Revival architectural style.

• This style was popular in the 19th century, especially in the United Kingdom, and influenced buildings across the British colonies.

• The building was completed in 1887, commemorating the Golden Jubilee of Queen Victoria.

• It represents a fusion of Victorian Gothic elements with traditional Indian architectural features.

• The structure is characterized by pointed arches, ribbed vaults, stained glass windows, and intricate detailing.

• The building also incorporates ornate domes, turrets, and Indian carvings, symbolizing the blend of European and Indian styles.

• CSMT is recognized as a UNESCO World Heritage Site due to its historical and architectural significance.

• The terminus was designed by British architect Frederick William Stevens.

• It remains one of the most celebrated landmarks in Mumbai and serves as a major hub for the Indian Railways.

Additional Information

• Mughal Architectural Style

• This style flourished during the rule of the Mughal Empire in India, spanning the 16th to 18th centuries.

• It is characterized by large domes, minarets, arches, intricate carvings, and use of marble.

• Examples include the Taj Mahal, Red Fort, and Humayun's Tomb.

• Indo-Saracenic Style

• This architectural style emerged during the late 19th and early 20th centuries under British colonial rule in India.

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• It blended Indian, Islamic, and Gothic architectural elements to create a unique style.
• Examples include the Madras High Court and Gateway of India.
• Rajput Architectural Style
• This style is associated with the Rajput kingdoms in India, primarily during the medieval period.
• It is characterized by forts, palaces, intricate carvings, and decorative elements.
• Examples include the City Palace in Jaipur and Mehrangarh Fort in Jodhpur.

Q8. Answer: (b) Vasco da Gama

The Correct answer is Vasco da Gama.

Key Points

• Vasco da Gama was the first Portuguese explorer to reach India in 1498, landing at Calicut on the Malabar Coast.
• This expedition marked the beginning of the European Age of Exploration and established a direct sea route between Europe and India.
• His journey was a key event in the history of global trade, as it opened the way for the spice trade and other goods between Europe and Asia.
• The expedition of Vasco da Gama was sponsored by King Manuel I of Portugal.
• Vasco da Gama set sail from Lisbon in 1497, rounded the Cape of Good Hope, and reached the Indian Ocean.
• Upon his arrival in Calicut, he was welcomed by the ruler, the Samudri Raja (Zamorin), which paved the way for future Portuguese dominance in Indian trade.
• This voyage is considered one of the most significant achievements in the history of navigation and trade expansion.

Additional Information

• Columbus
• Christopher Columbus was an Italian explorer who set out to find a westward route to Asia but instead discovered the Americas in 1492.
• He made four voyages across the Atlantic Ocean under the sponsorship of the Spanish monarchs, King Ferdinand and Queen Isabella.
• Columbus never reached India; his voyages led to the discovery of the New World.
• Nino-da-Cunha
• Nuno da Cunha was a Portuguese governor of India from 1529 to 1538.
• He is known for transferring the Portuguese capital in India from Cochin to Goa.
• He played a significant role in expanding Portuguese influence in India but was not the first to reach India.
• Albuquerque
• Afonso de Albuquerque was a prominent Portuguese general and statesman in India, serving as the second Governor of Portuguese India from 1509 to 1515.
• He is known for capturing Goa in 1510 and laying the foundations of Portuguese colonial rule in India.
• Though a key figure in Portuguese expansion in India, he was not the first Portuguese to arrive in the country.

Q9. Answer: (a) Alps

The Correct answer is Alps.

Key Points

• Mont Blanc is the highest peak in the Alps mountain range, located in Europe.
• It stands at an elevation of approximately 4,809 meters (15,777 feet).
• Mont Blanc is situated along the border between France and Italy.
• The Alps are one of the most prominent and extensive mountain ranges in Europe, extending across eight countries: France, Italy, Switzerland, Austria, Germany, Slovenia, Monaco, and Liechtenstein.
• Mont Blanc is a popular destination for activities such as mountaineering, skiing, and hiking.
• The name "Mont Blanc" translates to "White Mountain" in French, referring to its snow-covered peaks.
• The Alps are renowned for their natural beauty, and Mont Blanc is a key feature of this range.
• Mont Blanc holds cultural and historical significance, being a symbol of European exploration and adventure.

Additional Information

• Himalayas
• The Himalayas are located primarily in South Asia and are home to some of the world's highest peaks, including Mount Everest.
• The Himalayas span across India, Nepal, Bhutan, China, and Pakistan.

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• They are known for their geological significance and are a crucial source of water resources for the surrounding regions.

• Western Ghats

• The Western Ghats are a mountain range located in India, along its western coast.

• They are known for their rich biodiversity, being classified as a UNESCO World Heritage Site.

• This range is significant for its influence on the Indian monsoon and its contribution to agriculture and ecology.

• Andes

• The Andes are the longest continental mountain range in the world, stretching across South America.

• They span through seven countries: Venezuela, Colombia, Ecuador, Peru, Bolivia, Chile, and Argentina.

• The Andes are home to some of the world's highest peaks, including Mount Aconcagua, which is the highest point outside Asia.

• The range is known for its rich cultural history, including the Inca civilization.

Q10. Answer: (c) It is an emergent coast

The correct answer is It is an emergent coast.

Key Points

• The eastern coastal plain of India is an example of an emergent coast, meaning the land area has risen relative to the sea level over time.

• Due to this emergence, the coastline is relatively straight, with fewer natural inlets and bays compared to the western coast.

• The lack of natural indentations and inlets along the eastern coastal plain makes it less suitable for the development of ports and harbours.

• In contrast, the western coastal plain is a submergent coast, which means it has sunken relative to the sea level, leading to the formation of deep natural harbours such as those in Mumbai and Kochi.

• The eastern coastal plain is also characterized by the presence of river deltas, such as those formed by the Ganga, Godavari, Krishna, and Mahanadi rivers. These deltas make the coastline less stable and unsuitable for harbour construction.

• The sediment deposition along the eastern coast further adds to its shallow and unstable nature, making it less ideal for establishing ports and harbours.

Additional Information

• It is closer to the Equator

• This factor does not directly impact the availability of ports and harbours. The proximity to the equator mainly influences the climate and temperature of a region, not its coastal features.

• It has more tourist beaches

• The presence of tourist beaches does not determine the availability of ports and harbours. Tourist beaches are developed based on scenic beauty, accessibility, and amenities, whereas harbours depend on natural coastal features.

• It receives more rainfall

• While the eastern coastal plain does receive significant rainfall, especially during the northeast monsoon, rainfall does not directly impact the suitability for port and harbour development.

Q11. Answer: (a) Kailash Satyarthi

The Correct answer is Kailash Satyarthi.

Key Points

• Kailash Satyarthi is a renowned Indian social reformer and children’s rights activist.

• He was awarded the Nobel Peace Prize in 2014 for his efforts in combating child labor and promoting children's education.

• He founded the Bachpan Bachao Andolan (Save the Childhood Movement), which has been instrumental in rescuing thousands of children from bonded labor, trafficking, and exploitation.

• ‘Diyaslai’, which translates to ‘matchstick,’ is his autobiography reflecting his journey and challenges as a social reformer.

• The autobiography showcases his efforts to ignite awareness and change, akin to lighting a matchstick, against exploitation and child labor.

• In February 2025, the Indira Gandhi National Centre for the Arts (IGNCA), under the Ministry of Culture, organized a dedicated discussion on his autobiography.

• The event was graced by former President Ram Nath Kovind, highlighting its significance and Kailash Satyarthi's contributions to Indian society.

Additional Information

• Laxmi Agarwal

• Laxmi Agarwal is an Indian activist known for advocating the rights of acid attack survivors.

• She is a recipient of the International Women of Courage Award, presented by the U.S. State Department.

• Laxmi Agarwal's story inspired the Bollywood film 'Chhapaak', which showcased her resilience and activism.
• Kiran Bedi
• Kiran Bedi is India's first female Indian Police Service (IPS) officer.
• She served as the Lieutenant Governor of Puducherry.
• Kiran Bedi is known for her police reforms and contributions to prison management, particularly the transformation of Tihar Jail.
• Kamla Bhasin
• Kamla Bhasin was a prominent Indian feminist, poet, and social activist.
• She worked extensively on issues related to gender equality, women's rights, and community development.
• Her writings and campaigns focused on empowering marginalized communities, particularly women.

Q12. Answer: (a) Article 61

The Correct answer is Article 61.

Key Points

• Article 61 of the Indian Constitution provides the detailed procedure for the impeachment of the President of India.
• The President can be impeached for violating the Constitution of India.
• The process of impeachment involves a two-thirds majority in both Houses of Parliament.
• The procedure begins with a notice signed by a minimum of one-fourth of the total number of members of the House proposing the impeachment.
• The charges are investigated thoroughly and, upon confirmation, the President can be removed from office.
• This article ensures that the removal process is carried out in a fair and systematic manner.
• It is an important constitutional safeguard to maintain the integrity of the office of the President.

Additional Information

• Article 66
• Article 66 deals with the election of the Vice President of India.
• The Vice President is elected by the members of both Houses of Parliament in accordance with the system of proportional representation by means of a single transferable vote.
• The Vice President serves as the Chairperson of the Rajya Sabha.
• Article 52
• Article 52 states that India shall have a President.
• The article establishes the office of the President as the head of the Union Executive.
• The President is the highest constitutional authority in India.
• Article 54
• Article 54 deals with the election process of the President of India.
• The President is elected by an electoral college consisting of the elected members of both Houses of Parliament and the elected members of the Legislative Assemblies of the States.
• The election is conducted in accordance with the system of proportional representation by means of a single transferable vote.

Q13. Answer: (c) Tribunals, being quasi-judicial bodies, must be independent of the executive, just like regular courts.

The Correct answer is Tribunals, being quasi-judicial bodies, must be independent of the executive, just like regular courts.

Key Points

• Tribunals in India are established under various statutory provisions and play a critical role in adjudicating disputes related to specific areas such as taxation, consumer protection, environment, and administrative law.
• The Supreme Court of India has emphasized that tribunals, being quasi-judicial bodies, must maintain their independence from the executive. This ensures fairness, impartiality, and credibility in decision-making.
• The independence of tribunals is essential for safeguarding constitutional rights and maintaining the doctrine of separation of powers, as outlined in the Constitution of India.
• The judiciary has repeatedly stressed the need for structural and functional independence in tribunals to avoid undue influence or interference from the executive branch of the government.
• Tribunals are expected to have members with strong legal expertise, often including retired or serving judges, to ensure their decisions align with established legal principles and constitutional mandates.
• Key rulings by the Supreme Court, such as in the R.K. Jain case and Madras Bar Association case, have underlined the importance of ensuring that tribunals function autonomously without executive control.
• The independence of tribunals also helps in enhancing public trust and confidence in the justice delivery system, especially in specialized domains.

Additional Information

• Option 1: Tribunals must be headed by sitting High Court judges to ensure credibility

• This statement is incorrect as tribunals are not required to be headed by sitting High Court judges. However, retired judges or legal experts with vast experience often preside over tribunals to ensure their functioning is credible and adheres to legal norms.

• The Supreme Court has mandated the appointment of qualified members, but not necessarily sitting High Court judges, to ensure independence and expertise.

• Option 2: Tribunals are executive bodies and need not be independent of the executive

• This statement contradicts the principle of judicial independence. Tribunals, though established under executive provisions, must function independently to avoid bias and uphold the principles of natural justice.

• The Supreme Court has ruled that tribunals must be free from executive control to ensure fair adjudication of disputes.

• Option 4: Tribunals can be managed by the subject-matter ministry to improve efficiency

• This option is incorrect as it undermines the independence of tribunals. Management by subject-matter ministries could lead to potential conflicts of interest and bias, which would compromise the tribunal's impartiality.

• Tribunals must operate autonomously and cannot be directly managed by the executive branch or ministries.

Q14. Answer: (c) Central Bureau of Investigation (CBI)

The Correct answer is Central Bureau of Investigation (CBI).

Key Points

• The Central Bureau of Investigation (CBI) is India's premier investigative agency responsible for handling complex cases related to corruption, financial crimes, and serious offenses.

• The CBI launched the Bharatpol platform to enhance coordination with Interpol, aiming to strengthen global crime-solving efforts.

• The platform facilitates seamless interaction between Indian law enforcement agencies and Interpol, improving international cooperation.

• It aligns with India's commitment to combating organized crime, terrorism, and cyber-related offenses globally.

• The CBI acts as the nodal agency for Interpol in India, handling matters related to international crime investigations.

• By launching Bharatpol, the agency aims to integrate advanced technologies and platforms for quicker response and better coordination in criminal investigations.

Additional Information

• National Crime Records Bureau (NCRB)

• The NCRB is responsible for collecting and analyzing crime data in India.

• It publishes the annual Crime in India report, which provides statistics and trends on crime across the country.

• The bureau also manages the Crime and Criminal Tracking Network Systems (CCTNS), aimed at modernizing police forces.

• Ministry of Home Affairs (MHA)

• The MHA oversees internal security, police administration, and disaster management in India.

• It is responsible for maintaining law and order within the country and coordinating with state governments on related matters.

• Although the MHA supervises the CBI, the bureau operates autonomously on legal matters.

• National Investigation Agency (NIA)

• The NIA is India's counter-terrorism agency, established in 2008 after the Mumbai attacks.

• It is responsible for investigating and prosecuting offenses related to terrorism and national security.

• Unlike the CBI, the NIA primarily deals with crimes impacting national integrity and security.

Q15. Answer: (c) Ignited national awakening

The Correct answer is Ignited National Awakening.

Key Points

• English education and exposure to Western thought introduced Indians to concepts like liberty, equality, fraternity, democracy, and human rights.

• These values inspired many Indian leaders and reformers to question the prevailing social and political inequalities in the country.

• English education helped Indians gain access to modern political ideologies and understand the importance of self-rule and independence.

• The emergence of a class of educated Indians, referred to as the Indian intelligentsia, played a significant role in fostering the spirit of nationalism.

• It provided Indians with tools to challenge the colonial exploitation and assert their national identity.

• Western ideas, combined with the rich cultural heritage of India, led to the formation of organizations like the Indian National

Congress, which became the vanguard of the Indian independence movement.

• Influential leaders such as Bal Gangadhar Tilak, Dadabhai Naoroji, Gopal Krishna Gokhale, and Mahatma Gandhi were deeply influenced by Western political theories and used them to shape India's nationalist agenda.

• English education also bridged regional divides, enabling Indians from various parts of the country to communicate and unite under a common cause.

• The press and literature, supported by English education, played a crucial role in spreading nationalist ideas and awakening the masses.

Additional Information

• Supported casteism

• Casteism refers to discrimination based on caste. While English education exposed Indians to progressive ideas, it also led to debates about social reform.

• Some conservative elements used Western education to justify caste hierarchies, but overall, it contributed to diminishing casteism by promoting equality and unity.

• Encouraged partition

• Partition of India in 1947 was a result of complex political and communal factors, not directly related to English education or Western thought.

• However, English education did inadvertently highlight divisions, but it also helped foster unity among educated Indians.

• Suppressed nationalism

• While British authorities tried to suppress nationalist movements using repressive measures, English education actually contributed to spreading nationalist ideas.

• Educated Indians used the knowledge gained from Western education to resist suppression and advocate for independence.

Q16. Answer: (d) Gradual increase

The Correct answer is Gradual increase.

Key Points

• India's economic reforms in 1991, also known as the Liberalisation, Privatisation, and Globalisation (LPG) reforms, marked a significant shift in its economic policies. These reforms opened up the economy to foreign investments, introduced market-driven mechanisms, and reduced government control in various sectors.

• Since 1991, India's per capita income has shown a gradual increase. This growth can be attributed to factors such as a rise in economic activity, growth in the services sector, and improved industrial performance.

• India's Gross Domestic Product (GDP) has witnessed substantial growth during this period, leading to an increase in the average income of individuals.

• Improved global trade relations and an influx of foreign direct investment (FDI) have contributed to the economic prosperity of the country.

• The service sector, including industries such as IT and telecommunications, played a pivotal role in driving economic growth and enhancing per capita income.

• The government introduced various policies to promote entrepreneurship, start-ups, and domestic industries, further boosting income levels.

• Social indicators such as better access to education, healthcare, and technology also contributed to the gradual improvement in per capita income.

Additional Information

• Constant decline

• India's economic trajectory has not shown a constant decline since 1991. The reforms brought about significant improvements in GDP growth, investment, and overall economic performance.

• Fluctuating without a pattern

• While there have been periods of economic fluctuations due to global and domestic factors, the overall trend has been positive and gradual growth, rather than random fluctuations.

Q17. Answer: (d) Dr. Poonam Gupta

The Correct answer is Dr. Poonam Gupta.

Key Points

• Dr. Poonam Gupta was appointed as the Deputy Governor of the Reserve Bank of India (RBI) in May 2025.

• The position of Deputy Governor is one of the most prestigious and influential roles within the central banking system of India.

• Dr. Poonam Gupta is a renowned economist, known for her expertise in macroeconomic policies and development economics.

• She has contributed significantly to the Indian economy through her research and policy recommendations.

• Prior to her appointment, Dr. Gupta held key positions in organizations such as the World Bank and the National Institute of Public Finance and Policy (NIPFP).

• The role of Deputy Governor entails overseeing critical functions such as monetary policy formulation, financial stability, and regulatory frameworks.

• Her appointment reflects the Indian government and RBI's focus on leveraging expertise from professionals with strong international experience.

Additional Information

• Ajit Ratnakar Joshi

• Ajit Ratnakar Joshi is not known for holding any significant position within the Reserve Bank of India.

• There is limited information about his contributions to the financial or economic sector in India.

• Swaminathan J

• Swaminathan J is associated with banking but has not held the role of Deputy Governor of the RBI as of May 2025.

• He is known for his contributions in the field of banking and finance, possibly at a private or public sector bank.

• Indranil Bhattacharyya

• Indranil Bhattacharyya is an economist but has not been appointed as the Deputy Governor of the RBI in May 2025.

• He is known for his academic contributions and expertise in the field of economics.

Q18. Answer: (a) Mizoram

The Correct answer is Mizoram.

Key Points

• Mizoram has achieved full functional literacy, setting an example for other states in India.

• Functional literacy is defined as the ability to use reading, writing, and mathematical skills for practical and meaningful purposes.

• The state achieved this milestone through various government-driven literacy programs and community participation.

• Mizoram has been known for its strong focus on education, with the literacy rate already being among the highest in the country.

• The state implemented innovative initiatives such as adult literacy campaigns, skill-based learning workshops, and collaboration with NGOs.

• According to the 2021 Census, Mizoram had a high literacy rate which has now transitioned into functional literacy for all its citizens.

• The achievement is a result of the state's commitment to Sustainable Development Goals (SDG), particularly Goal 4 which emphasizes quality education.

• Mizoram's success highlights the importance of integrating educational policies with local needs and leveraging community efforts to drive literacy.

Additional Information

• Tripura

• Tripura, located in the northeastern part of India, is known for its rich cultural heritage.

• The state has a high literacy rate and significant progress in education, but it has not yet achieved full functional literacy.

• Tripura is famous for its tribal communities and their contribution to the state's cultural diversity.

• Nagaland

• Nagaland is another northeastern state known for its unique traditions and festivals.

• The state has a good literacy rate but has not claimed to achieve functional literacy yet.

• Nagaland is recognized for its efforts in preserving its indigenous languages and culture.

• Meghalaya

• Meghalaya, also located in northeast India, is renowned for its natural beauty and biodiversity.

• While literacy programs have been implemented, the state has not yet reached full functional literacy.

• Meghalaya is known for its living root bridges and eco-friendly practices.

Q19. Answer: (d) 386.4 J kg^(-1) K^(-1)

The Correct answer is 386.4 J kg^(-1) K^(-1).

Key Points

• Specific heat is a property of a material that indicates the amount of heat required to raise the temperature of 1 kilogram of the substance by 1 Kelvin.

• Copper, with a specific heat of 386.4 J kg^(-1) K^(-1), is commonly used in cookware such as pots and pans because it heats up quickly.

• This low specific heat value means that copper can absorb heat efficiently and transfer it to the food being cooked, making it

ideal for culinary applications.

• The thermal conductivity of copper is also remarkably high, which complements its low specific heat, ensuring even heat distribution during cooking.

• Copper's durability and ability to resist corrosion further enhance its use in kitchen utensils.

• The specific heat of copper is significantly lower than materials like aluminum or iron, which explains why copper heats faster and is preferred for rapid cooking.

• Understanding the concept of specific heat is crucial in applications involving heat transfer, including engineering, metallurgy, and thermodynamics.

Additional Information

• Specific Heat of Aluminum (239.3 J kg^(-1) K^(-1))

• Aluminum is widely used in cookware due to its lightweight and relatively low specific heat, allowing it to heat up quickly.

• It is also highly conductive, ensuring efficient heat transfer.

• Aluminum pots and pans are often used for baking and roasting, where even heat distribution is critical.

• Specific Heat of Iron

• Iron has a higher specific heat compared to copper, making it slower to heat but ideal for applications requiring heat retention.

• Cast iron cookware is popular for grilling, frying, and slow-cooking due to its ability to hold heat for extended periods.

• Iron is less efficient in rapid cooking compared to copper but excels in maintaining uniform temperature.

• Importance of Specific Heat

• Materials with low specific heat are preferred in applications requiring quick heating, such as cookware and thermal systems.

• Conversely, high-specific-heat materials are used for heat storage and insulation, such as water heaters and thermal blankets.

• Understanding specific heat helps optimize energy use and improve the efficiency of thermal systems.

Q20. Answer: (a) 2000

The correct answer is 2000.

Key Points

• The first National Agriculture Policy of India was announced in the year 2000.

• This policy was introduced to address the issues related to growth, sustainability, and equity in agriculture.

• The primary focus of the policy was to achieve a growth rate of 4% per annum in agriculture and allied sectors.

• It aimed to ensure the efficient use of resources and promote technology-driven agriculture.

• The policy emphasized the importance of diversification in agriculture to meet the demand for food and non-food products.

• It highlighted the need for private sector participation in agricultural development, including investments in infrastructure, research, and marketing.

• The policy also stressed the importance of improving rural infrastructure, including irrigation systems, power, and transport.

• It supported the adoption of measures to ensure food security and promote agricultural exports.

• The National Agriculture Policy of 2000 laid the foundation for several reforms in the agricultural sector, including the promotion of research and development, credit facilities, and farmer welfare programs.

Additional Information

• 2010

• No specific agriculture policy was introduced in 2010. However, significant steps were taken during this period to implement plans under existing policies.

• During this time, India focused on initiatives like the National Food Security Mission (NFSM) and improving the agricultural supply chain.

• 2003

• No major agriculture policy was introduced in 2003. However, the government continued to focus on enhancing agricultural productivity through various schemes.

• The year saw efforts in expanding the reach of the National Agricultural Insurance Scheme.

• 2005

• No agriculture policy was introduced in 2005. However, several programs like Rashtriya Krishi Vikas Yojana (RKVY) were announced later as part of ongoing reforms.

• The focus was on improving productivity and addressing rural issues in the long term.

Q21. Answer: (a) Rashtrakutas

The Correct answer is Rashtrakutas.

Key Points

• The Tripartite Struggle was a prolonged conflict in early medieval India involving the Gurjara-Pratiharas, Palas, and Rashtrakutas over the control of the Kannauj region.

• Kannauj was an important and strategic city due to its location and economic significance.

• The Rashtrakutas, a southern Indian dynasty, played a crucial role in the struggle. They were known for their strong military and cultural achievements.

• The Rashtrakutas were renowned for their patronage of art and architecture, including the famous Ellora Caves in Maharashtra.

• The conflict continued for several centuries, with all three dynasties attempting to assert their dominance over Kannauj.

• The Rashtrakutas ruled over a vast empire in the Deccan region, with their capital at Manyakheta.

• Their reign marked a significant period of political stability and economic prosperity in southern India.

• The struggle eventually weakened all three dynasties, paving the way for the rise of other powers in northern and southern India.

Additional Information

• Cholas

• The Chola dynasty was one of the longest-ruling dynasties in southern India, flourishing from the 9th to 13th century CE.

• The Cholas were known for their naval power and trade connections across Southeast Asia.

• They made significant contributions to art, architecture, and temple construction, including the famous Brihadeshwara Temple in Tamil Nadu.

• Unlike the Rashtrakutas, the Cholas were not directly involved in the Tripartite Struggle for Kannauj.

• Satavahanas

• The Satavahanas were an ancient Indian dynasty that ruled parts of southern and central India during the 2nd century BCE to 2nd century CE.

• They were known for their contributions to trade, commerce, and Buddhism.

• The Satavahanas ruled before the time of the Tripartite Struggle and were not directly linked to the conflict.

• Pallavas

• The Pallavas were a prominent South Indian dynasty that flourished between the 3rd and 9th centuries CE.

• They were known for their contributions to Dravidian architecture, including the famous Mahabalipuram temples.

• Although contemporaneous with the Rashtrakutas, the Pallavas were primarily focused on their own territories and were not involved in the Tripartite Struggle.

Q22. Answer: (c) Focuses the address bar

The Correct answer is Focuses the address bar.

Key Points

• The Alt + D keyboard shortcut in Windows 11 is used to focus on the address bar in File Explorer or a web browser.

• This shortcut moves the cursor directly to the address bar, allowing users to quickly type in or edit the file path or web address.

• It is a convenient way to navigate between folders or websites without needing to click on the address bar with a mouse.

• This shortcut is compatible with popular web browsers like Google Chrome, Microsoft Edge, and Mozilla Firefox, as well as File Explorer in Windows.

• Using keyboard shortcuts like Alt + D enhances productivity and efficiency, especially for users who prefer keyboard navigation over a mouse.

• It is particularly useful in scenarios where users work with multiple tabs, folders, or websites and need to switch quickly between them.

Additional Information

• Deletes the selected file or folder

• This function is typically performed using the Delete key or Shift + Delete for permanent deletion.

• It is not related to the Alt + D shortcut, as that focuses on the address bar instead of performing a delete operation.

• Duplicates the current tab

• Duplicating tabs can usually be done with shortcuts like Ctrl + Shift + T in some web browsers.

• The Alt + D shortcut does not duplicate tabs but rather focuses on the address bar.

• Displays desktop

• The shortcut to display the desktop in Windows is typically Windows + D.

• The Alt + D shortcut does not perform this function, as its main purpose is to focus on the address bar.

Q23. Answer: (d) Dubai, United Arab Emirates

The Correct answer is Dubai, United Arab Emirates.

Key Points

• The World Government Summit is an annual event focused on shaping the future of governments around the globe.

• Dubai, United Arab Emirates, serves as the host city for this prestigious summit, reflecting its position as a global hub for innovation and governance.

• The summit aims to bring together leaders, policymakers, thinkers, and experts from around the world to discuss and develop solutions for global challenges.

• It provides a platform for exploring emerging trends, technologies, and ideas that could impact governance and public policy.

• The event is significant for its role in promoting global collaboration and fostering partnerships to address critical issues such as climate change, economic development, education, and health.

• Dubai's infrastructure, global accessibility, and reputation for innovation make it an ideal location for hosting such large-scale international events.

• Participants include representatives from international organizations, governments, private sectors, and academia.

Additional Information

• Geneva, Switzerland

• Geneva is known for hosting several international organizations, including the United Nations and the World Health Organization (WHO).

• While Geneva is a major hub for diplomacy and international cooperation, it is not the host city for the World Government Summit.

• Singapore

• Singapore is a global financial hub and is renowned for its efficient governance and urban planning.

• It is not traditionally associated with hosting the World Government Summit, though it participates actively in global governance discussions.

• Doha, Qatar

• Doha is a major city in the Middle East and hosts several international conferences, including events related to sports and diplomacy.

• Although Doha holds a prominent place in global affairs, it is not the venue for the World Government Summit.

Q24. Answer: (d) IT and Services

The correct answer is IT and Services.

Key Points

• India witnessed a significant transformation in the IT and Services sector post-globalisation in the 1990s.

• Globalisation and outsourcing enabled Indian companies to access international markets and cater to global clients.

• The liberalisation policies of the Indian Government in 1991 opened up the economy, allowing foreign investments and boosting this sector.

• The advancement in technology, especially in telecommunications and the internet, played a pivotal role in the growth of IT and Services.

• India became a hub for IT-enabled services (ITES), Business Process Outsourcing (BPO), and Knowledge Process Outsourcing (KPO), attracting clients from the US, UK, and other developed nations.

• Availability of a large pool of highly skilled and English-speaking professionals helped India establish itself as a global leader in IT and Services.

• Major cities like Bengaluru, Hyderabad, Pune, and Chennai emerged as IT hubs, hosting multinational companies such as Infosys, TCS, Wipro, and HCL.

• The sector contributed significantly to India's GDP and continues to be a major source of employment and foreign exchange earnings.

• India’s IT and Services industry is supported by organisations like NASSCOM which promote and facilitate growth in this field.

Additional Information

• Agriculture

• Agriculture is one of the primary sectors of the Indian economy and employs a significant portion of the population.

• Despite its importance, agriculture did not experience the same level of growth as the IT and Services sector due to globalisation and outsourcing.

• Challenges such as dependency on monsoons, lack of modernisation, and small land holdings hindered its rapid growth during the globalisation era.

• Mining

• Mining is crucial for extracting minerals and resources, contributing to industrial development.

• While mining saw some growth post-globalisation, the sector did not benefit as significantly as IT and Services due to limited technological advancements and environmental concerns.

• Real Estate

• The Real Estate sector expanded post-globalisation, driven by urbanisation and foreign direct investments.

• However, its growth was not as pronounced as the IT and Services sector due to dependency on domestic demand and regulatory challenges.

Q25. Answer: (b) Equal pay for equal work

The Correct answer is Equal pay for equal work.

Key Points

• Equal pay for equal work is a socio-economic Directive Principle enshrined in the Indian Constitution.

• It is provided under Article 39(d) of the Directive Principles of State Policy (DPSP).

• The principle aims to ensure that the state provides equal remuneration for men and women for equal work to promote gender equality in employment.

• This directive is intended to prevent discrimination in pay based on gender and to uplift the socio-economic status of workers.

• Though it is not enforceable in a court of law, it serves as a guideline for the government to formulate policies that promote equality.

• The principle is aligned with the broader goal of achieving social justice and ensuring a fair and equitable society.

• It complements other provisions in the Constitution, such as Article 14 (equality before the law) and Article 15 (prohibition of discrimination).

• Various laws and schemes have been implemented by the Indian government to put this principle into action, such as the Equal Remuneration Act, 1976.

Additional Information

• Promotion of international peace

• This is covered under Article 51 of the Indian Constitution.

• It directs the state to promote international peace and security, maintain just and honorable relations between nations, and encourage settlement of international disputes through peaceful means.

• This principle falls under the category of International Directive Principles rather than socio-economic ones.

• Separation of powers

• Separation of powers refers to the division of government responsibilities into distinct branches—legislative, executive, and judiciary—to prevent concentration of power.

• This concept is a cornerstone of constitutional governance but is not a Directive Principle. It is more of a structural principle of governance.

• Independence of the judiciary

• Judicial independence ensures that the judiciary functions free from external pressures, enabling it to make impartial decisions.

• This concept is an essential feature of the Indian Constitution and is mentioned in various articles but is not directly a socio-economic Directive Principle.

Q26. Answer: (a) 101^(st) Amendment

The Correct answer is 101st Amendment.

Key Points

• The 101st Constitutional Amendment Act introduced the Goods and Services Tax (GST) in India.

• The Amendment was passed by the Parliament of India in 2016 and came into effect on 1st July 2017.

• It added a new Article, Article 246A, in the Constitution, which provides the power to the Union and State legislatures to make laws on GST.

• The Amendment also introduced the Goods and Services Tax Council (GSTC) under Article 279A to decide the rates, exemptions, and thresholds for GST.

• GST is a comprehensive, multi-stage, destination-based tax that is levied on every value addition.

• The GST subsumed multiple indirect taxes such as VAT, excise duty, service tax, and sales tax, simplifying the tax structure in India.

• The key objective of GST is to create a unified national market by removing cascading effects of taxation.

• India adopted a dual GST model, with both the Centre and States levying GST on the same supply of goods and services.

Additional Information

• 106th Amendment

• The 106th Amendment Bill is also known as the Women's Reservation Bill.

• It proposed a 33% reservation for women in the Lok Sabha and State Legislative Assemblies.

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• This Bill is yet to be passed and enacted into law by Parliament.

• 103rd Amendment

• The 103rd Constitutional Amendment Act introduced provisions for 10% reservation for Economically Weaker Sections (EWS) in government jobs and educational institutions.

• This amendment added Articles 15(6) and 16(6) to the Constitution.

• 97th Amendment

• The 97th Amendment Act dealt with the promotion of cooperative societies in India.

• It added a new Part IXB to the Constitution, titled "The Cooperative Societies".

• The Amendment also inserted the word "cooperatives" in Article 19(1)(c) and Article 43B.

Q27. Answer: (d) Fast-track cyber fraud FIRs

The correct answer is Fast-track cyber fraud FIRs.

Key Points

• The e-Zero FIR initiative was launched by the Union Ministry of Home Affairs in May 2025.

• The primary aim of this initiative is to fast-track the filing of First Information Reports (FIRs) related to cyber fraud cases.

• It seeks to address the growing concerns of cybercrime victims by providing a streamlined and efficient process for registering FIRs.

• This initiative integrates with the National Cyber Crime Reporting Portal, allowing victims to file complaints online without needing to visit a police station physically.

• The system aims to reduce delays in registering FIRs and ensure that victims receive timely assistance.

• The e-Zero FIR system leverages digital platforms and technology to address the increasing incidents of cyber fraud in India.

• It also facilitates coordination between law enforcement agencies across states, ensuring quicker investigation and resolution of cybercrime cases.

Additional Information

• Provide compensation for cyber fraud victims

• This option refers to the provision of monetary compensation to victims who have suffered losses due to cyber fraud.

• While compensation is an important aspect of addressing cybercrime, the e-Zero FIR initiative primarily focuses on fast-tracking FIR registration rather than directly compensating victims.

• Launch an online cyber safety portal

• This option refers to creating a platform to promote cyber safety awareness and provide guidelines to prevent cybercrime.

• Although similar initiatives exist, the e-Zero FIR system specifically targets the process of registering cyber fraud FIRs.

• Create a national crime database

• This option refers to the establishment of a centralized repository of criminal records and crime statistics.

• While such a database could aid in tracking and investigating crimes, the e-Zero FIR initiative is focused on the registration of cyber fraud cases.

Q28. Answer: (a) Defence Research and Development Organisation (DRDO)

The Correct answer is Defence Research and Development Organisation (DRDO).

Key Points

• Defence Research and Development Organisation (DRDO) is an agency under the Ministry of Defence of the Government of India.

• It was established in 1958 with its headquarters in New Delhi.

• DRDO is tasked with developing defense technologies, including military hardware, systems, and solutions to enhance the nation's security.

• It is involved in designing and producing a wide range of equipment, including missiles, radars, electronic warfare systems, aircrafts, and combat vehicles.

• Dr. Samir V Kamat is a prominent scientist in the field of materials engineering and was appointed as the Chairman of DRDO.

• His tenure extension till May 2026 reflects the government's trust in his leadership and contributions to enhancing India's defense capabilities.

• DRDO collaborates with several national and international organizations and industries to integrate cutting-edge technologies.

• Its notable projects include BrahMos missile, Agni series, and Light Combat Aircraft (Tejas).

Additional Information

• Indian Space Research Organisation (ISRO)

• ISRO is India's national space agency headquartered in Bangalore.

• Founded in 1969, ISRO is responsible for developing and launching satellites and space exploration missions.
• It has successfully launched missions such as Chandrayaan (Moon Mission) and Mangalyaan (Mars Orbiter Mission).
• ISRO focuses on research in space science, satellite communication, remote sensing, and navigation.
• National Security Council Secretariat (NSCS)
• NSCS is an organization under the National Security Council of India.
• It primarily focuses on strategic coordination and national security policies.
• The NSCS provides inputs on defense, internal security, and economic security.
• It plays a vital role in advising the government on national security matters.
• Council of Scientific and Industrial Research (CSIR)
• CSIR is one of the world's largest research and development organizations, headquartered in New Delhi.
• It was established in 1942 and operates under the Ministry of Science and Technology.
• CSIR focuses on research in areas like biotechnology, chemicals, environment, energy, and aerospace.
• It has contributed to innovations such as drug development, industrial processes, and environmental solutions.

Q29. Answer: (d) Personalization Settings

The Correct answer is Personalization Settings

Key Points

• Personalization Settings in MS Windows allow users to customize their desktop experience.
• This feature enables users to change the desktop background, select or modify themes, and configure the screensaver settings.
• Users can access Personalization Settings by navigating to Settings or by right-clicking on the desktop and selecting Personalize.
• It provides options to choose from a variety of pre-installed themes or create a customized theme.
• Users can also change the font size, window color, and other elements to improve accessibility and user experience.
• Personalization Settings are available across different versions of Windows, including Windows 7, 8, 10, and 11.
• It contributes to enhancing user satisfaction by allowing them to tailor their system appearance according to their preferences.

Additional Information

• Device Manager
• Device Manager is a feature in Windows that allows users to manage hardware devices installed on their system.
• It provides a list of all connected devices, drivers, and their current status.
• Users can update, disable, or uninstall drivers using this utility.
• It is primarily used for troubleshooting hardware issues, not for desktop customization.
• Disk Management
• Disk Management is a tool in Windows used for managing disk drives and partitions.
• Users can create, delete, format, or resize partitions using this feature.
• It is not related to personalization settings as it focuses on storage management.
• Task Scheduler
• Task Scheduler is a Windows feature that allows users to automate tasks on their system.
• It is used to schedule programs, scripts, or processes at specific times or events.
• This tool is designed for system and task automation, not for customizing desktop appearance.

Q30. Answer: (d) 200 milligrams

The Correct answer is 200 milligrams.

Key Points

• A carat is a unit of mass primarily used for measuring gemstones and pearls.
• In the International System of Units (SI), one carat is defined as 200 milligrams, or 0.2 grams.
• The term "carat" comes from the carob seed, which was historically used as a standard for weighing precious stones.
• The adoption of the SI unit of carat as 200 milligrams was made for uniformity and precision in the gemstone trade.
• Carat weight is critical in determining the value of gemstones, along with other factors like color, clarity, and cut.
• In the jewelry industry, carats are often used to denote the size and mass of diamonds and other precious stones.

Additional Information

• 500 milligrams
• 500 milligrams equals 0.5 grams and is larger than the actual carat measurement.

• This value is not used in gemstone measurement and does not conform to the SI definition of a carat.
• 1 gram
• 1 gram is equivalent to 1000 milligrams and is significantly larger than a carat.
• While grams are used for weighing heavier objects, carats are specifically used for gemstones and pearls.
• 100 milligrams
• 100 milligrams equals 0.1 grams, which is half the correct carat value.
• This is not an accepted standard for measuring gemstones.

Q31. Answer: (c) W.C. Bannerjee

The correct answer is W C Bannerjee.

Key Points

• Womesh Chunder Bannerjee (W C Bannerjee) was the first president of the Indian National Congress (INC).
• The first session of the Indian National Congress was held at Bombay (Mumbai) in December 1885.
• W C Bannerjee was a prominent Indian lawyer, nationalist, and political leader.
• He presided over the session where 72 delegates from various parts of India participated.
• The formation of the Indian National Congress marked the beginning of a formal political movement against British colonial rule in India.
• W C Bannerjee played a significant role in shaping the objectives of the INC, which included greater representation of Indians in government and administrative reforms.
• The INC aimed to create a platform for the educated elite to discuss and articulate their grievances under British rule.
• W C Bannerjee's leadership in the first session symbolized the emerging unity among Indians and their desire for political self-determination.

Additional Information

• Dadabhai Naoroji
• Dadabhai Naoroji was a noted Indian nationalist and the first Indian to be elected to the British Parliament.
• He is famously known as the "Grand Old Man of India".
• Naoroji formulated the concept of the "Drain of Wealth", which described how British colonial policies drained Indian resources.
• He presided over the INC sessions multiple times but not the first session.
• Surendranath Bannerjee
• Surendranath Bannerjee was an Indian nationalist leader and founder of the Indian National Association, which later merged into the INC.
• He was one of the early leaders to advocate for political reforms and civil rights under British rule.
• Bannerjee was known for his strong oratory skills and efforts to unite Indians for the freedom struggle.
• Anand Mohan Bose
• Anand Mohan Bose was a prominent lawyer, educationist, and nationalist leader of Bengal.
• He actively supported the formation of the Indian National Congress and was involved in earlier discussions regarding its establishment.
• Although an important figure, he did not preside over the first INC session.

Q32. Answer: (d) Jharkhand and Chhattisgarh

The Correct answer is Jharkhand and Chhattisgarh.

Key Points

• Mining activities in Jharkhand and Chhattisgarh are extensive due to the presence of abundant mineral resources such as coal, iron ore, bauxite, and other minerals.
• These activities often lead to land subsidence, where the ground surface sinks due to the removal of underground resources.
• Landslides in these regions are commonly triggered by mining and excavation activities, weakening the soil structure and causing instability.
• Coal mining in Jharkhand, particularly in regions like Jharia, has led to severe cases of land subsidence and underground fires.
• Chhattisgarh is known for its opencast mining operations, which disrupt the natural landscape and can lead to erosion and landslide-prone areas.
• The exploitation of natural resources in these states also impacts the local environment and communities, making it a significant concern.
• Proper monitoring and implementation of environmental safeguards are essential to mitigate these risks.

Additional Information

• Assam and West Bengal

• Assam is prone to landslides, particularly in hilly areas, but mining is not the primary cause. Instead, landslides are often triggered by heavy rainfall and deforestation.

• West Bengal experiences floods and soil erosion in certain areas, but it is not a significant hotspot for mining-related landslides.

• Himachal Pradesh and Uttarakhand

• Himalayan regions like Himachal Pradesh and Uttarakhand frequently experience landslides due to their steep terrain, seismic activity, and heavy rainfall.

• However, mining-related landslides are not prominent in these states as the mining activities are limited compared to Jharkhand and Chhattisgarh.

• Rajasthan and Haryana

• Rajasthan is known for mining activities, especially for minerals like marble, sandstone, and gypsum, but it does not commonly face landslides due to its desert terrain.

• Haryana has limited mining activities, and landslides are not a common occurrence in this state.

Q33. Answer: (c) Surya Ghar Muft Bijli Yojana

The Correct answer is Surya Ghar Muft Bijli Yojana.

Key Points

• Surya Ghar Muft Bijli Yojana is an initiative launched to promote rooftop solar installations for households.

• This scheme aims to encourage the adoption of solar energy at the household level, thereby contributing to sustainable energy solutions.

• Under this initiative, households can install solar panels on their rooftops to generate electricity for their own use.

• The scheme is designed to reduce the dependency on conventional electricity and promote the use of renewable energy sources.

• It provides various incentives, such as subsidies, to make solar panel installations more affordable for households.

• By adopting this scheme, households can significantly reduce their electricity bills and contribute to environmental conservation.

• This initiative aligns with India's commitment to achieving its renewable energy targets and combating climate change.

Additional Information

• URJA Mission

• URJA Mission is a program that focuses on improving the energy efficiency and distribution infrastructure across India.

• This initiative aims to ensure efficient power supply to urban and rural areas by addressing issues in the energy distribution network.

• PM-KUSUM

• The PM-KUSUM scheme (Pradhan Mantri Kisan Urja Suraksha evam Utthaan Mahabhiyan) primarily focuses on solar energy solutions for farmers.

• It promotes solar-powered irrigation pumps and aims to reduce farmers' dependence on diesel and electricity for irrigation.

• The scheme also encourages farmers to install solar power plants to sell surplus electricity to the grid.

• Solar India

• Solar India refers to India's broader mission to become a global leader in solar energy production.

• India has launched ambitious programs under this umbrella, such as the National Solar Mission, which aims to achieve 100 GW of solar capacity by 2022.

• This initiative involves promoting large-scale solar power projects and installations across the country.

Q34. Answer: (c) E-Shram portal

The correct answer is E-Shram portal.

Key Points

• The E-Shram portal is a unified digital platform developed by the Ministry of Labour and Employment, Government of India.

• Its primary objective is to create a comprehensive database of unorganised workers, including construction workers, migrant labourers, street vendors, domestic workers, and agricultural labourers.

• The portal helps provide workers with access to various social security benefits offered by the government.

• Unorganised workers can register themselves on the portal using their Aadhaar number and get a unique E-Shram card with a 12-digit Universal Account Number.

• Registration on the portal is free of cost, and workers can register through Common Service Centres (CSCs) or by themselves online.

• This initiative aims to improve financial inclusion and reduce income inequality in rural and urban areas.

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• The database assists in the implementation of welfare schemes, ensuring targeted delivery of benefits to vulnerable and marginalised workers.

Additional Information

• Jan Dhan Yojana

• The Pradhan Mantri Jan Dhan Yojana (PMJDY) was launched by the Government of India in 2014 to provide universal access to banking facilities.

• It focuses on providing zero-balance bank accounts to unbanked individuals, especially in rural areas.

• The scheme includes features like a RuPay Debit Card, accidental insurance cover, and access to overdraft facilities.

• While PMJDY is a significant step towards financial inclusion, it does not provide a unified database for unorganised workers.

• BHIM App

• BHIM (Bharat Interface for Money) is a mobile application developed by the National Payments Corporation of India (NPCI).

• It facilitates instant digital payments through the Unified Payments Interface (UPI).

• While it is a vital tool for promoting cashless transactions, the BHIM app does not have the functionality of maintaining a database for unorganised workers.

• UPI Dashboard

• The UPI Dashboard provides statistical data and insights into UPI transactions, such as the number of transactions, transaction value, and growth trends.

• It is maintained by the National Payments Corporation of India (NPCI).

• The dashboard is primarily for monitoring and analysis of digital payments, not for worker registration or database management.

Q35. Answer: (d) G-SAFAL

The Correct answer is G-SAFAL.

Key Points

• In March 2025, the Gujarat government launched the G-SAFAL scheme.

• The scheme aims to uplift 50,000 Antyodaya families through targeted economic development and women empowerment programmes.

• The focus of the scheme is to ensure that the most underprivileged families, referred to as Antyodaya families, get access to opportunities for sustainable growth.

• It includes initiatives like skill development, micro-enterprise promotion, and access to financial resources to enhance their livelihoods.

• Women empowerment forms a key component of the scheme, encouraging self-reliance and active participation in economic activities.

• The Gujarat government has been proactive in implementing such programmes to foster inclusive growth and reduce socio-economic disparities.

Additional Information

• G-SAMRIDHI

• The term Samridhi translates to prosperity in Hindi.

• This term is often used in programmes or schemes aimed at fostering economic growth and improving the standard of living.

• While not the correct scheme for this question, it could be relevant for other initiatives focusing on prosperity.

• G-SHAKTI

• Shakti means power or strength, often associated with women's empowerment or energy-related programmes.

• It could symbolize schemes focusing on strengthening communities or empowering women.

• G-SWARUPA

• Swarupa refers to form or essence, which may imply a scheme focused on transforming or enhancing the essence of lives or communities.

• It could relate to initiatives aimed at cultural or social development.

Q36. Answer: (b) Kannada

The correct answer is Kannada.

Key Points

• Girish Karnad was a renowned Indian playwright, actor, and film director, primarily known for his works in the Kannada language.

• His acclaimed play 'Tughlaq', written in Kannada, is a historical drama that portrays the reign of the 14th-century Sultan of Delhi, Mohammed bin Tughlaq.

• 'Tughlaq' is widely appreciated for its political themes and depiction of power, ambition, and failures of leadership.

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• Girish Karnad's contributions to Kannada literature earned him several prestigious awards, including the Jnanpith Award, which is the highest literary honor in India.

• His works have been translated into various languages, but Kannada remains the language most associated with his literary prowess.

• In addition to 'Tughlaq', his other famous Kannada plays include 'Hayavadana', 'Nagamandala', and 'Yayati'.

Additional Information

• Tamil

• Tamil is one of the oldest classical languages in the world and has a rich literary tradition.

• It is widely spoken in the Indian state of Tamil Nadu and in parts of Sri Lanka.

• Renowned Tamil literary works include 'Thirukkural' by Thiruvalluvar and 'Silappatikaram'.

• Marathi

• Marathi is an Indo-Aryan language primarily spoken in the Indian state of Maharashtra.

• It has a significant literary history, including works by poets like Jnaneshwar and Saint Tukaram.

• Notable modern Marathi writers include Pu La Deshpande and Vishnu Khandekar.

• Telugu

• Telugu is a Dravidian language widely spoken in the Indian states of Andhra Pradesh and Telangana.

• It is often referred to as the 'Italian of the East' due to its musical quality.

• Prominent Telugu literary figures include Allasani Peddana and Gurajada Apparao.

Q37. Answer: (a) Tamil Nadu

The Correct answer is Tamil Nadu.

Key Points

• Pykara is a well-known river located in the Nilgiris district of Tamil Nadu.

• The Pykara Hydro Electric Plant was commissioned in 1932 and marked as the first water power station in Tamil Nadu.

• This hydroelectric project was developed to harness energy from the Pykara River, which originates from the Mukurthi peak in the Nilgiris.

• The Pykara Hydro Electric Plant has a total installed capacity of 65 MW.

• The hydroelectric plant is considered a landmark in the development of renewable energy in Tamil Nadu.

• The Pykara River flows through hilly terrain before cascading down into waterfalls, making it suitable for generating hydroelectric power.

• The station is operated by the Tamil Nadu Generation and Distribution Corporation Limited (TANGEDCO).

Additional Information

• Kerala

• Kerala is known for its abundant water resources and hydroelectric projects, with the Idukki Dam being a prominent example.

• The state has a high potential for hydropower generation due to its hilly terrain and numerous rivers.

• Some famous rivers in Kerala include the Periyar, Bharathapuzha, and Pamba.

• Madhya Pradesh

• Madhya Pradesh has several hydroelectric projects, such as the Gandhi Sagar Dam on the Chambal River.

• It is rich in natural resources and is known as the heart of India due to its central location.

• The state also has major rivers like the Narmada, Tapti, Betwa, and Chambal.

• Odisha

• Odisha houses the Hirakud Dam, one of the longest earthen dams in the world, built on the Mahanadi River.

• The state is rich in water resources and has multiple hydroelectric power stations.

• Odisha is known for rivers like the Mahanadi, Brahmani, and Baitarani.

Q38. Answer: (c) The Speaker elected by members

The Correct answer is The Speaker elected by members.

Key Points

• The Speaker is the presiding officer of the Vidhan Sabha, also known as the Legislative Assembly, in Indian states.

• The Speaker is elected by the members of the Vidhan Sabha from among themselves, typically after the constitution of a new assembly following general elections.

• The Speaker is responsible for maintaining order and decorum during the proceedings of the assembly and ensures that the rules and guidelines are followed during debates and discussions.

• • The Speaker has the authority to make decisions on procedural matters and acts as the neutral authority to facilitate the smooth functioning of the legislative assembly.

• In the absence of the Speaker, the Deputy Speaker presides over the sessions.

• The Speaker plays a pivotal role in ensuring the democratic functioning of the legislature and safeguarding its independence.

• The Speaker does not vote in regular proceedings, except in case of a tie, where they cast the deciding vote.

Additional Information

• The Governor of the State

• The Governor is the constitutional head of the state and acts as the representative of the President of India.

• The Governor's primary role is to oversee the functioning of the state government and ensure compliance with the Constitution.

• The Governor does not preside over the Vidhan Sabha sessions but may address the assembly at the commencement of the first session of each year and after a general election.

• The Chief Minister of the State

• The Chief Minister is the elected head of the state government and leads the Council of Ministers.

• The Chief Minister is responsible for policy-making, administration, and governance but does not preside over the Vidhan Sabha sessions.

• The Deputy Speaker by rotation

• The Deputy Speaker is elected by the members of the Vidhan Sabha and serves as the substitute presiding officer in the absence of the Speaker.

• However, the Deputy Speaker does not preside over sessions by rotation; they only perform the Speaker's duties when required.

Q39. Answer: (a) Jaipur

The Correct answer is Jaipur.

Key Points

• Sambhar Lake is India's largest inland saltwater lake, located in the state of Rajasthan.

• It spans across the districts of Jaipur and Ajmer, although it is primarily associated with Jaipur.

• The lake is renowned for its salt production, contributing significantly to India's salt industry.

• Flamingos and other migratory birds frequent the lake, making it a hub for bird-watching and eco-tourism.

• The lake has a rich history and is mentioned in ancient texts like the Mahabharata, where it is referred to as "Shakambhari."

• It serves as an important ecosystem for numerous flora and fauna species.

• The lake basin is surrounded by the Aravalli Hills, which add to its scenic beauty.

• Rajasthan Tourism organizes tours and events around Sambhar Lake to promote its heritage and biodiversity.

Additional Information

• Jhunjhunu

• Jhunjhunu is a district in Rajasthan known for its Shekhawati region, which is famous for its painted havelis and frescoes.

• It is not associated with Sambhar Lake but is an important tourist destination for its cultural heritage.

• Barmer

• Barmer is located in the Thar Desert of Rajasthan and is known for its oil fields and desert landscapes.

• It is not connected to Sambhar Lake and is famous for its handicrafts and folk music.

• Jaisalmer

• Jaisalmer is another district in Rajasthan, famous for its Golden Fort and desert tourism.

• It is not related to Sambhar Lake but is a popular tourist destination due to its sand dunes and cultural significance.

Q40. Answer: (b) Gopi Thotakura

The Correct answer is Gopi Thotakura.

Key Points

• Gopi Thotakura became the first Indian space tourist in 2025 by joining the crew on Amazon founder Jeff Bezos' Blue Origin's NS-25 mission.

• This achievement marks a significant milestone for India in the field of space exploration and private space tourism.

• Blue Origin is a private aerospace company founded by Jeff Bezos that specializes in suborbital space tourism and other space activities.

• The NS-25 mission is part of Blue Origin's New Shepard program, which focuses on providing commercial suborbital flights for space tourism.

• As a space tourist, Gopi Thotakura experienced the thrill of traveling to the edge of space, witnessing zero gravity, and viewing Earth from space.

• This event highlights the growing involvement of Indians in the global space tourism industry.

• The mission underscores the advancements made by private companies like Blue Origin in making space travel accessible to civilians.

Additional Information

• Shubham Banerjee

• Shubham Banerjee is known for his innovative contributions to technology, particularly in developing a low-cost Braille printer.

• His achievements have earned him recognition as a young inventor, but he is not involved in space tourism.

• Zoya Agarwal

• Zoya Agarwal is an Indian pilot who gained fame as the first woman pilot to command an all-female crew on a flight over the North Pole.

• She is celebrated for her contributions to aviation but is not related to space tourism.

• Mohadessa Jafri

• Mohadessa Jafri is a name associated with various fields, including education and entrepreneurship, but there is no record of her involvement in space tourism.

Q41. Answer: (c) 7

Shortcut Trick

Let P and Q be the present ages.

From the first given condition, we have: 6P − Q = 11

From the second condition: 6(P + 10) − 3(Q + 10) = 27 => 6P − 3Q = −3

Since the term '6P' is common, simply subtract the second equation from the first to eliminate P.

=> (6P − Q) − (6P − 3Q) = 11 − (−3) => 2Q = 14 => Q = 7

Therefore The correct answer is 7 years.

Alternate Method

Given:

Condition 1: Six times the present age of P exceeds the present age of Q by 11 years.

Condition 2: After 10 years, 3 times Q's age is 27 less than 6 times P's age.

Present

P's Age = P

Q's Age = Q

• 10 Years

After 10 Years

P's Age = P + 10

Q's Age = Q + 10

Eq 1: 6P - Q = 11

Eq 2: 6(P+10) - 3(Q+10) = 27

Calculations:

=> Let the present ages of P and Q be P and Q respectively.

=> 6P − Q = 11 --- (Equation i)

=> 3 × (Q + 10) = 6 × (P + 10) − 27

=> 3Q + 30 = 6P + 60 − 27

=> 3Q + 30 = 6P + 33

=> 6P − 3Q = −3 --- (Equation ii)

=> From (Equation i), we get 6P = Q + 11. Substituting this into (Equation ii):

=> (Q + 11) − 3Q = −3

=> −2Q + 11 = −3

=> 2Q = 14

=> Q = 7

Therefore The correct answer is 7 years.

Additional Information

Linear Equations in Ages

Standard age problems are solved by translating given statements into linear equations with two variables, mapping current ages

to the described timelines.

Time Shift Concept

If a person's current age is x, their age 'n' years ago was (x − n) and 'n' years later will be (x + n). The time shift applies equally to all individuals in the question.

Age Differences

The age difference between two individuals always remains constant regardless of the timeline (past, present, or future).

Q42. Answer: (b) 1 : 8

Shortcut Trick

The volume of a sphere is directly proportional to the cube of its radius (V prop. to r^3).

Ratio of radii = r1 : r2 = 5 : 10 = 1 : 2

Ratio of volumes = $(r1)^3 : (r2)^3 = (1)^3 : (2)^3$

Ratio of volumes = 1 : 8

Therefore The correct answer is 1 : 8.

Alternate Method

Given:

Initial radius of the spherical balloon (r1) = 5 cm

Final radius of the inflated balloon (r2) = 10 cm

5 cm

Original

10 cm

Inflated

Formula Used:

Volume of a sphere (V) = (4 ÷ 3) × π × r^3

Calculations:

=> Volume of original balloon (V1) = (4 ÷ 3) × π × $(5)^3$

=> V1 = (4 ÷ 3) × π × 125

=> Volume of inflated balloon (V2) = (4 ÷ 3) × π × $(10)^3$

=> V2 = (4 ÷ 3) × π × 1000

=> Ratio of volumes = V1 : V2

=> Ratio = [(4 ÷ 3) × π × 125] : [(4 ÷ 3) × π × 1000]

=> Ratio = 125 : 1000

=> Ratio = 1 : 8

Therefore The correct answer is 1 : 8.

Additional Information

Surface Area of a Sphere

The total surface area of a sphere is directly proportional to the square of its radius. Formula: TSA = 4 × π × r^2.

Hemisphere Properties

A hemisphere is exactly half of a sphere. Its volume is V = (2 ÷ 3) × π × r^3, curved surface area is CSA = 2 × π × r^2, and total surface area is TSA = 3 × π × r^2.

Scaling Ratio Rule

If the radius (or any 1D measure) of a three-dimensional object increases by a factor of n, its surface area increases by a factor of n^2 and its volume increases by a factor of n^3.

Q43. Answer: (c) 1010/17 days

Shortcut Trick

Total Work = LCM(18, 10, 4) = 180 units.

Efficiency of A = 180 ÷ 18 = 10, B = 180 ÷ 10 = 18.

Efficiency of A + B + C = 180 ÷ 4 = 45.

Efficiency of C = 45 − (10 + 18) = 17.

Time for C alone = 180 ÷ 17 = 10^(10)/17 days.

Therefore The correct answer is 10^(10)/17 days.

Alternate Method

Given:

Time taken by A = 18 days

Time taken by B = 10 days

Time taken by A, B, and C together = 4 days

Formula Used:

Total Work = Efficiency × Time Taken

Person	Days	Total Work	Efficiency
A	18	180	10
B	10	18	
A + B + C	4	45	

=> Total efficiency of A, B, and C = 45 units/day

=> Efficiency of A = 10 units/day

=> Efficiency of B = 18 units/day

=> Efficiency of C = Total efficiency − (Efficiency of A + Efficiency of B)

=> Efficiency of C = 45 − (10 + 18)

=> Efficiency of C = 45 − 28 = 17 units/day

=> Time taken by C alone = Total Work ÷ Efficiency of C

=> Time taken by C alone = 180 ÷ 17 = 10^(10)/17 days

Therefore The correct answer is 10^(10)/17 days.

Additional Information

Work and Wages

Wages are distributed in the ratio of the total work done by each person. If people work for the exact same number of days, their wages are distributed directly in the ratio of their efficiencies.

Pipes and Cisterns

The underlying concept is identical to Time & Work. However, a pipe that empties the tank (outlet pipe) is considered to be doing negative work, subtracting from the total efficiency.

Alternate Days Work

When individuals work on alternate days, calculate the combined work done in one complete cycle of days, then multiply the cycles until the total work is nearly completed before finding remaining days.

Q44. Answer: (c) 6 hours

Shortcut Trick

When distance is constant, speed is inversely proportional to time.

Ratio of speeds (Ritesh : Gauri) = 66 : 99 = 2 : 3

Ratio of time (Ritesh : Gauri) = 3 : 2

Time taken by Ritesh = 3 units = 9 hours => 1 unit = 3 hours

Time taken by Gauri = 2 units = 2 × 3 = 6 hours

Therefore The correct answer is 6 hours.

Alternate Method

Given:

Speed of Ritesh = 66 km/hr

Time taken by Ritesh = 9 hours

Speed of Gauri = 99 km/hr

Ritesh: 66 km/hr, 9 hrs

Delhi

Kanpur

Distance = D

Gauri: 99 km/hr, ? hrs

Formula Used:

Distance = Speed × Time

Calculations:

=> Total Distance = Speed of Ritesh × Time taken by Ritesh

=> Total Distance = 66 × 9 = 594 km

=> Time taken by Gauri = Total Distance ÷ Speed of Gauri

=> Time taken by Gauri = 594 ÷ 99

=> Time taken by Gauri = 6 hours

Therefore The correct answer is 6 hours.

Additional Information

Inverse Proportionality of Speed and Time

When covering a constant distance, speed and time are inversely proportional. S1 × T1 = S2 × T2

Average Speed

If two parts of a journey of equal distance are covered at speeds x and y, the average speed over the entire journey is given by (2 × x × y) ÷ (x + y).

Relative Speed

If two bodies are moving in the same direction, their Relative Speed = |S1 − S2|. If they are moving in opposite directions, their Relative Speed = S1 + S2.

Q45. Answer: (b) 14

Shortcut Trick

The product of two consecutive numbers is very close to the square of the smaller number.

=> √182 ≈ 13.49

Thus, the two consecutive integers must be 13 and 14.

Check: 13 × 14 = 182. Both are positive natural numbers.

The greater of the two numbers is 14.

Therefore The correct answer is 14.

Alternate Method

Given:

The product of two consecutive positive natural numbers = 182

Calculations:

Let the smaller number be x and the greater number be (x + 1).

=> x(x + 1) = 182

=> x2 + x = 182

=> x2 + x − 182 = 0

=> x2 + 14x − 13x − 182 = 0

=> x(x + 14) − 13(x + 14) = 0

=> (x − 13)(x + 14) = 0

=> x = 13 or x = −14

Since the problem states they are positive natural numbers, x cannot be −14.

=> x = 13

The greater number = x + 1

=> 13 + 1 = 14

Therefore The correct answer is 14.

Additional Information

Nature of Roots of a Quadratic Equation

For an equation ax2 + bx + c = 0, the discriminant D = b2 − 4ac. If D > 0, the roots are real and distinct; if D = 0, roots are real and equal; if D < 0, roots are complex/imaginary.

Sum and Product of Roots

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

Consecutive Numbers

Consecutive natural numbers are taken as n, n+1, n+2. For consecutive even or odd integers, the difference between consecutive terms is always 2, taken as n, n+2, n+4.

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Q46. Answer: (a) 5

Shortcut Trick

By observing the given number 630605, the unit digit is 5.

According to the divisibility rule of 5, any number ending in 0 or 5 is exactly divisible by 5.

Hence, 630605 is completely divisible by 5.

Therefore The correct answer is 5.

Alternate Method

Given:

Number = 630605

Method Used:

Check the given options against standard divisibility rules one by one.

Calculations:

=> Option 1 (Divisibility by 5): The last digit of 630605 is 5. Numbers ending in 0 or 5 are evenly divisible by 5. Thus, it is divisible by 5.

=> Option 2 (Divisibility by 7): 630605 ÷ 7 = 90086 with a remainder of 3. So, it is not divisible by 7.

=> Option 3 (Divisibility by 14): For a number to be divisible by 14, it must be an even number. Since 630605 is an odd number, it cannot be divisible by 14.

=> Option 4 (Divisibility by 3): Sum of the digits = 6 + 3 + 0 + 6 + 0 + 5 = 20. Since 20 is not divisible by 3, the number is not divisible by 3.

Therefore The correct answer is 5.

Additional Information

Divisibility Rule of 3 and 9

A number is divisible by 3 or 9 if the sum of all its digits is a multiple of 3 or 9, respectively.

Divisibility Rule of 4 and 8

A number is divisible by 4 if its last two digits form a multiple of 4. It is divisible by 8 if its last three digits form a multiple of 8.

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 0 or a multiple of 11.

Q47. Answer: (a) 484π cm²

Shortcut Trick

The surface area of a sphere can be calculated directly using its diameter (d).

Surface Area = $\pi \times d^2$

Given d = 22 cm

Surface Area = $\pi \times 22^2 = 484\pi$ cm²

Therefore The correct answer is 484π cm².

Alternate Method

r = 11 cm

Diameter (d) = 22 cm

Sphere

Given:

Diameter of the sphere (d) = 22 cm

Radius of the sphere (r) = 22 ÷ 2 = 11 cm

Formula Used:

Surface area of a sphere = $4 \times \pi \times r^2$

Calculations:

=> Surface Area = $4 \times \pi \times (11)^2$

=> Surface Area = $4 \times \pi \times 121$

=> Surface Area = 484π cm²

Therefore The correct answer is 484π cm².

Additional Information

Volume of a Sphere

The volume represents the total space occupied inside the sphere. Formula: $V = (4 \div 3) \times \pi \times r^3$.

Hemisphere Surface Areas

The Curved Surface Area (CSA) of a hemisphere is exactly half of a full sphere: $2 \times \pi \times r^2$. The Total Surface Area (TSA) includes the flat circular base, making it $3 \times \pi \times r^2$.

Volume of a Hemisphere

A hemisphere is exactly half of a full sphere. Its volume is exactly half: $V = (2 \div 3) \times \pi \times r^3$.

Q48. Answer: (d) M - N = -2

Shortcut Trick

For divisibility by 11, the difference between the sums of alternate digits is 0 or a multiple of 11.

Sum of alternate digits (even places): 4 + M + 7 = M + 11

Sum of alternate digits (odd places): N + 6 + 3 = N + 9

Equating the sums for a difference of 0: M + 11 − N − 9 = 0

M − N + 2 = 0 => M − N = −2

Therefore The correct answer is M − N = −2.

Alternate Method

Given:

A 6-digit number N46M37 divisible by 11.

Formula Used:

Divisibility by 11: The difference between the sum of digits at odd places and the sum of digits at even places must be 0 or a multiple of 11.

Calculations:

=> Sum of digits at odd positions (from left: 1st, 3rd, 5th) = N + 6 + 3 = N + 9

=> Sum of digits at even positions (from left: 2nd, 4th, 6th) = 4 + M + 7 = M + 11

=> Difference between the two sums = (M + 11) − (N + 9) = M − N + 2

=> For divisibility by 11, equating the difference to 0:

=> M − N + 2 = 0 => M − N = −2

=> For divisibility by 11, equating the difference to 11:

=> M − N + 2 = 11 => M − N = 9

=> The relation M − N = 9 is only possible if M = 9 and N = 0. However, N cannot be 0 because N46M37 is a 6-digit number. Thus, we discard this case.

=> Therefore, the only valid relation is M − N = −2.

Therefore The correct answer is M − N = −2.

Additional Information

Divisibility Rule of 3 and 9

A number is divisible by 3 or 9 if the sum of all its digits is a multiple of 3 or 9 respectively.

Divisibility Rule of 4 and 8

A number is divisible by 4 if its last two digits form a number divisible by 4. It is divisible by 8 if its last three digits form a number divisible by 8.

Divisibility Rule of 7, 11, and 13

A large number is divisible by 7, 11, or 13 if the alternating difference of blocks of three digits from right to left is a multiple of 7, 11, or 13.

Q49. Answer: (c) 18

Shortcut Trick

Relative speed (Train 1 & Man) = 490 / 12 m/s = (490 / 12) × (18 / 5) = 147 km/hr.

Speed of Train 1 = 147 + 9 = 156 km/hr.

Relative speed (Train 1 & Train 2) = 156 + 42 = 198 km/hr = 198 × (5 / 18) = 55 m/s.

Time to cross = Total Length ÷ Relative speed = (490 + 500) / 55 = 18 seconds.

Therefore The correct answer is 18 seconds.

Alternate Method

Given:

Length of Train 1 (L1) = 490 m

Speed of Man = 9 km/hr
Time to overtake man = 12 s
Length of Train 2 (L2) = 500 m
Speed of Train 2 = 42 km/hr
Train 1 (490m)
v1
Train 2 (500m)
42 km/hr
Total Crossing Distance = 490 + 500 = 990 m
Formula Used:
Speed = Distance ÷ Time
When moving in the same direction, Relative Speed = v1 − v2
When moving in opposite directions, Relative Speed = v1 + v2
To convert m/s to km/hr, multiply by 18/5.
Calculations:
=> Relative speed of Train 1 and Man = Distance ÷ Time
=> v1 − 9 = (490 / 12) m/s
=> v1 − 9 = (490 / 12) × (18 / 5) km/hr
=> v1 − 9 = 490 × 18 / 60 = 147 km/hr
=> v1 = 147 + 9 = 156 km/hr
=> Relative speed with Train 2 (opposite direction) = v1 + v2
=> Relative speed = 156 + 42 = 198 km/hr
=> Speed in m/s = 198 × (5 / 18) = 55 m/s
=> Total distance to cross = L1 + L2 = 490 + 500 = 990 m
=> Time taken = Total distance ÷ Relative speed in m/s
=> Time = 990 / 55 = 18 seconds
Therefore The correct answer is 18 seconds.
Additional Information
Relative Speed (Opposite Direction)
When two bodies move towards each other, their relative speed is the sum of their individual speeds (v1 + v2).
Relative Speed (Same Direction)
When two bodies move in the same direction, their relative speed is the difference of their individual speeds (v1 − v2).
Train Crossing an Object
Time taken to cross a stationary point object like a pole = Length of train ÷ Speed of train.
Unit Conversion
To convert km/hr to m/s, multiply the speed by 5/18. To convert m/s to km/hr, multiply by 18/5.

Q50. Answer: (d) 3%

Shortcut Trick
Price of the computer after the first discount = 84% of Rs. 70,000 = Rs. 58,800
Additional discount offered to the student = Rs. 58,800 − Rs. 57,036 = Rs. 1,764
Additional discount % = (1764 ÷ 58800) × 100 = 3%
Therefore The correct answer is 3%.
Alternate Method
Given:
Marked Price (MP) = Rs. 70,000
First Discount (d1) = 16%
Final Selling Price (SP) = Rs. 57,036
Rs. 70,000Marked PriceRs. 58,800After 16% OffRs. 57,036Final Price-16%- ? %Discount = Rs. 1,764
Formula Used:
Selling Price = MP × (100 − d1)/100 × (100 − d2)/100
Calculations:

=> Price after first discount = 70000 × (100 − 16) ÷ 100

=> Price after first discount = 70000 × (84 ÷ 100) = Rs. 58,800

=> Let the additional discount percentage be x%.

=> Final SP = 58800 × (100 − x) ÷ 100

=> 57036 = 58800 × (100 − x) ÷ 100

=> 57036 = 588 × (100 − x)

=> 100 − x = 57036 ÷ 588

=> 100 − x = 97

=> x = 100 − 97 = 3%

Therefore The correct answer is 3%.

Additional Information

Successive Discounts

When two successive discounts of a% and b% are given, the equivalent single discount is given by: Equivalent Discount = a + b − (a × b) ÷ 100.

Marked Price & Selling Price Relation

The selling price after a discount d% on the marked price is calculated as: SP = MP × (100 − d) ÷ 100. Discounts are always calculated on the Marked Price, not on the Cost Price.

Effective Price Formula

If an article is sold after multiple successive discounts, the final price can be directly calculated by successively applying the multiplier factors: Final SP = MP × (100 − d1)/100 × (100 − d2)/100.

Q51. Answer: (c) 67

Shortcut Trick

Sum of ratio parts = 13 + 8 + 9 = 30 parts.

Value of 30 parts = Rs. 402 => 1 part = 402 ÷ 30 = Rs. 13.4

Difference between largest and smallest parts = 13 − 8 = 5 parts.

Required difference = 5 × 13.4 = Rs. 67.

Therefore The correct answer is Rs. 67.

Alternate Method

Given:

Total amount to be divided = Rs. 402

Ratio among the three persons = 13 : 8 : 9

13 parts

8 parts

9 parts

Total = 13 + 8 + 9 = 30 parts = Rs. 402

Difference (Largest − Smallest) = 13 − 8 = 5 parts

Required Value = (402 ÷ 30) × 5 = Rs. 67

Calculations:

=> Let the individual shares be 13x, 8x, and 9x respectively.

=> Total sum = 13x + 8x + 9x = 30x

=> 30x = 402

=> x = 402 ÷ 30 = 13.4

=> The largest share ratio is 13 and the smallest share ratio is 8.

=> Required difference = 13x − 8x = 5x

=> Difference = 5 × 13.4 = 67

Therefore The correct answer is Rs. 67.

Additional Information

Distributing a Sum in a Ratio

If an amount S is divided in the ratio a : b : c, the respective shares are calculated as (a / Total) × S, (b / Total) × S, and (c / Total) × S, where Total = a + b + c.

Proportion Rule

If four quantities a, b, c, d are in proportion (a : b = c : d), then the product of the extremes equals the product of the means (a × d = b × c).

Duplicate and Sub-duplicate Ratio

The duplicate ratio of a : b is $a^2 : b^2$. The sub-duplicate ratio is $\sqrt{a} : \sqrt{b}$.

Compound Ratio

The compound ratio of two individual ratios a : b and c : d is calculated by multiplying the antecedents together and the consequents together, resulting in ac : bd.

Q52. Answer: (b) 16.67%

Shortcut Trick

Let the cost price of 100 g of wheat be 100 units.

Selling price (65% loss) = 100 − 65 = 35 units.

Actual weight given (70% less) = 100 − 70 = 30 g.

Cost price of actual weight given = 30 units.

Profit % = [(35 − 30) ÷ 30] × 100 = (5 ÷ 30) × 100 = 16.67%.

Therefore The correct answer is 16.67%.

Alternate Method

Given:

Claimed loss percentage = 65%

Weight used is less than the stated weight by = 70%

Formula Used:

Profit % = (Profit ÷ Actual CP) × 100

Profit = Selling Price − Actual Cost Price

Actual CP

30 units

(30g given)

Selling Price

35 units

(65% loss on 100g)

Profit = +5 units

Dishonest Dealer Weight vs Price

Calculation:

Let the cost price of 100 g of wheat be Rs. 100.

=> Stated weight = 100 g

=> Selling Price at 65% loss = Rs. 100 − (65 ÷ 100) × 100 = Rs. 35

=> The vendor uses weights 70% less than the stated weight.

=> Actual weight given = 100 g − (70 ÷ 100) × 100 g = 30 g

=> Actual Cost Price of 30 g of wheat given = Rs. 30

=> Profit = Selling Price − Actual Cost Price

=> Profit = 35 − 30 = Rs. 5

=> Profit % = (5 ÷ 30) × 100

=> Profit % = 100 ÷ 6 = 16.666...% ≈ 16.67%

Therefore The correct answer is 16.67%.

Additional Information

Dishonest Dealer Formula

When a dealer sells goods at the cost price but uses a false weight, his profit percentage is given directly by [(True Weight − False Weight) ÷ False Weight] × 100.

Loss Percentage

When the selling price is less than the cost price, the transaction results in a loss. Loss % = [(CP − SP) ÷ CP] × 100.

Successive Changes in Weight and Price

When a dealer alters both the price and the weight, calculate the actual cost price for the quantity given and compare it with the total selling price received to find the true profit or loss percentage.

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Q53. Answer: (a) 35.25

Shortcut Trick

First value = 65% of 65 = (65 × 65) ÷ 100 = 42.25

Second value = 1/5 of 35 = 35 ÷ 5 = 7

Required difference = 42.25 − 7 = 35.25

Therefore The correct answer is 35.25.

Alternate Method

Given:

First term = 65% of 65

Second term = 1/5 of 35

Calculations:

=> First term = (65 ÷ 100) × 65

=> First term = 4225 ÷ 100 = 42.25

=> Second term = (1 ÷ 5) × 35

=> Second term = 35 ÷ 5 = 7

=> Required difference = First term − Second term

=> Required difference = 42.25 − 7 = 35.25

Therefore The correct answer is 35.25.

Additional Information

Percentage

Percentage means 'for every 100' or 'out of 100'. The expression x% is mathematically equivalent to x ÷ 100.

BODMAS Rule

It specifies the order of mathematical operations: Brackets, Order (Powers/Roots and 'Of'), Division, Multiplication, Addition, and Subtraction. The word 'Of' signifies multiplication but takes precedence over standard division.

Squares Ending in 5

To quickly find the square of a two-digit number ending in 5 (like 65), multiply the first digit by its next consecutive integer (6 × 7 = 42) and append 25 to the end. So, $65^2 = 4225$.

Q54. Answer: (a) 81

Shortcut Trick

In any given dataset, the mode is simply the number that appears the maximum number of times.

By visually scanning the data, we can count the frequency of the most repeating numbers.

Number 81 appears 4 times, 78 appears 3 times, and 65, 70, 82, 86, and 90 appear 2 times.

Since 81 has the highest frequency, it is the mode.

Therefore The correct answer is 81.

Alternate Method

Given:

Data: 87, 65, 70, 81, 68, 62, 82, 78, 81, 82, 74, 75, 90, 67, 86, 86, 81, 90, 69, 78, 65, 78, 76, 63, 70, 81

Formula Used:

Mode = The observation with the highest frequency in a given set of data.

Calculations:

=> Let us note the distinct elements and count their occurrences (frequencies) in the dataset:

=> Frequency of 81 = 4

=> Frequency of 78 = 3

=> Frequency of 65, 70, 82, 86, and 90 = 2 (each)

=> Frequency of 62, 63, 67, 68, 69, 74, 75, 76, and 87 = 1 (each)

=> The highest frequency is 4, which corresponds to the observation 81.

Therefore The correct answer is 81.

Additional Information

Mean

The mean is the average of all observations, calculated by dividing the sum of all values by the total number of values.

Median

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The median is the middlemost value of a dataset when arranged in ascending or descending order. For an even number of observations, it is the average of the two middle values.

Mode Types

A dataset can be unimodal (one mode), bimodal (two modes), or multimodal (more than two modes) depending on how many distinct values share the highest frequency.

Empirical Relationship

For a moderately skewed distribution, the statistical relationship between mean, median, and mode is given by: Mode = 3 × Median − 2 × Mean.

Q55. Answer: (a) M - N = 5

Shortcut Trick

For divisibility by 11, the difference between the sums of alternate digits is 0 or a multiple of 11.

Sum of odd places = N + 3 + 4 = N + 7

Sum of even places = 2 + M + 0 = M + 2

Difference = (N + 7) − (M + 2) = N − M + 5

Setting difference to 0 => N − M + 5 = 0 => M − N = 5

Therefore The correct answer is M − N = 5.

Alternate Method

Given:

6-digit number: N23M40

Formula Used:

Divisibility rule of 11: A number is divisible by 11 if the difference between the sum of its digits at odd positions and the sum of its digits at even positions is either 0 or a multiple of 11.

Calculations:

=> Sum of digits at odd places (1st, 3rd, 5th) = N + 3 + 4 = N + 7

=> Sum of digits at even places (2nd, 4th, 6th) = 2 + M + 0 = M + 2

=> Difference = (N + 7) − (M + 2) = N − M + 5

=> For the given number to be divisible by 11, this difference must be equal to 0, 11, or −11.

=> Case 1: N − M + 5 = 0 => M − N = 5 (Matches the given option)

=> Case 2: N − M + 5 = 11 => N − M = 6 (Not present in the options)

=> Case 3: N − M + 5 = −11 => M − N = 16 (Not possible, as N and M are single digits)

=> Since only the first case satisfies the available options, the relation between M and N is M − N = 5.

Therefore The correct answer is M − N = 5.

Additional Information

Divisibility Rule of 3 and 9

A number is divisible by 3 or 9 if the sum of all its digits is completely divisible by 3 or 9, respectively.

Divisibility Rule of 4 and 8

A number is divisible by 4 if its last two digits form a number divisible by 4. It is divisible by 8 if its last three digits are divisible by 8.

Divisibility Rule of 7

Double the last digit of the number and subtract it from the remaining part of the number. If the final result is 0 or a multiple of 7, then the original number is divisible by 7.

Q56. Answer: (a) 3,975

Shortcut Trick

When Simple Interests from two investments are equal for the same duration, the ratio of the principals is inversely proportional to their respective interest rates.

Ratio of investments = P1 : P2 = R2 : R1 = 3 : 13

Total units of investment = 3 + 13 = 16 units

Sum invested at 13% (P1) = (3 ÷ 16) × 21200

P1 = 3 × 1325 = Rs. 3,975

Therefore The correct answer is Rs. 3,975.

Alternate Method

Total Sum: Rs. 21,200

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Part 1 (P1)

13% p.a. for 8 years

Part 2 (P2)

3% p.a. for 8 years

SI1 = SI2

Given:

Total sum invested = Rs. 21,200

Rate for the first part (R1) = 13% per annum

Rate for the second part (R2) = 3% per annum

Time (T) = 8 years

Simple Interest from both parts is equal (SI1 = SI2).

Formula Used:

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

Calculation:

=> Let the sum invested at 13% be P1 and at 3% be P2.

=> (P1 × 13 × 8) ÷ 100 = (P2 × 3 × 8) ÷ 100

=> 104 × P1 = 24 × P2

=> 13 × P1 = 3 × P2

=> P1 / P2 = 3 / 13

=> Total sum = P1 + P2 = 3 units + 13 units = 16 units

=> 16 units = 21,200

=> 1 unit = 21,200 ÷ 16 = 1,325

=> Sum invested at 13% (P1) = 3 units = 3 × 1,325 = 3,975

Therefore The correct answer is Rs. 3,975.

Additional Information

When Simple Interests are Equal

If a sum is divided into parts P1, P2, and P3 invested at rates R1, R2, and R3 for times T1, T2, and T3 respectively such that their simple interests are equal, then their ratio is:

P1 : P2 : P3 = (1 ÷ R1T1) : (1 ÷ R2T2) : (1 ÷ R3T3)

When Amounts are Equal

If the final amounts (Principal + Simple Interest) obtained from the respective parts are equal, then the ratio of their investments is:

P1 : P2 : P3 = 1 ÷ (100 + R1T1) : 1 ÷ (100 + R2T2) : 1 ÷ (100 + R3T3)

Simple Interest vs Compound Interest

Simple Interest is calculated uniformly on the base principal amount every year. In contrast, Compound Interest is calculated on the principal and the accumulated interest of previous periods, leading to exponential growth over time.

Q57. Answer: (c) 800

Shortcut Trick

By using the mixture and alligation method for the profit and loss percentages:

Ratio of CP of 1^(st) to 2^(nd) bicycle = (Gain% − Net%) : (Net% − Loss%) = (20 − 0) : (0 − (−10)) = 20 : 10 = 2 : 1

Total ratio parts = 2 + 1 = 3 parts = Rs. 1200 => 1 part = Rs. 1200 ÷ 3 = Rs. 400

Cost price of the 1^(st) bicycle (2 parts) = 2 × Rs. 400 = Rs. 800

Therefore The correct answer is Rs. 800.

Alternate Method

Given:

Total cost price of two bicycles = Rs. 1200

Loss on the 1^(st) bicycle = 10%

Gain on the 2^(nd) bicycle = 20%

Net profit or loss = 0%

−10%

First Bicycle

+20%

Second Bicycle

0%

Net %

20

10

CP Ratio = 20 : 10 = 2 : 1

Calculations:

Let the cost price of the 1^(st) bicycle be Rs. x.

=> Cost price of the 2^(nd) bicycle = Rs. (1200 − x)

Since there is neither profit nor loss on the whole transaction:

=> Total Loss = Total Gain

=> 10% of x = 20% of (1200 − x)

=> 0.10x = 0.20(1200 − x)

=> x = 2 × (1200 − x)

=> x = 2400 − 2x

=> 3x = 2400

=> x = 2400 ÷ 3

=> x = 800

Therefore The correct answer is Rs. 800.

Additional Information

No Profit No Loss Condition

When a transaction results in neither profit nor loss, the absolute monetary profit gained from one item exactly offsets the absolute monetary loss incurred from the other item.

Alligation Method

Alligation is an effective shortcut to determine the ratio in which two quantities with varying rates or percentages are combined to produce a mixture. For profit and loss percentages, this method directly yields the ratio of their respective Cost Prices.

Cost Price Base Rule

In standard scenarios, profit and loss percentages are continually evaluated using the Cost Price (CP) as the base value. Formula used: Profit % = (Profit ÷ CP) × 100.

Q58. Answer: (d) 6378

Shortcut Trick

Use the successive multiplying factor method for consecutive percentage changes.

Multiplying factors: +25% → 5/4, +50% → 3/2, −68% → 8/25

Net multiplying factor = 5/4 × 3/2 × 8/25 = 120/200 = 3/5

Final Population = Initial Population × Net factor

Final Population = 10630 × 3/5 = 6378

Therefore The correct answer is 6378.

Alternate Method

Given:

Initial population = 10,630

First year change = +25%

Second year change = +50%

Third year change = −68%

10,630

Year 1

Year 2

6,378

+25%

+50%

−68%

× 5/4

× 3/2

× 8/25

Successive Percentage Change

Formula Used:

Final Value = Initial Value × (1 ± R1/100) × (1 ± R2/100) × (1 ± R3/100)

Calculations:

=> Final Population = 10630 × (1 + 25/100) × (1 + 50/100) × (1 − 68/100)

=> Final Population = 10630 × (125/100) × (150/100) × (32/100)

=> Final Population = 10630 × (5/4) × (3/2) × (8/25)

=> Final Population = 10630 × (120/200)

=> Final Population = 10630 × (3/5)

=> Final Population = 2126 × 3 = 6378

Therefore The correct answer is 6378.

Additional Information

Successive Percentage Change

When a value is changed by multiple percentages successively, the overall change is not the sum of percentages, but their compounded effect. Formula for two successive changes is Net Change = (A + B + AB/100)%.

Multiplying Factor Method

To calculate successive changes quickly, convert each percentage into a multiplying fraction: (1 ± R/100). The final value is the product of the initial value and all multiplying factors.

Base Reference Principle

In successive percentage calculations, the base for each subsequent change is the new updated value from the previous step, not the original starting value.

Q59. Answer: (b) 5/13, 12/13

Shortcut Trick

Given, (sin A + cos A) ÷ cos A = 17/12

=> tan A + 1 = 17/12 => tan A = 5/12

Since tan A = Perpendicular ÷ Base, Perpendicular = 5 and Base = 12.

Using the 5-12-13 Pythagorean triplet, Hypotenuse = 13.

=> sin A = 5/13 and cos A = 12/13

Therefore The correct answer is 5/13, 12/13.

Alternate Method

Given:

(sin A + cos A) ÷ cos A = 17/12

Formula Used:

tan A = sin A ÷ cos A

Hypotenuse² = Perpendicular² + Base²

A

Base = 12

Perp = 5

Hyp = 13

A

B

C

Calculations:

=> (sin A ÷ cos A) + (cos A ÷ cos A) = 17/12

=> tan A + 1 = 17/12

=> tan A = 17/12 − 1 = 5/12

=> Perpendicular = 5x, Base = 12x

Applying Pythagoras theorem:

=> Hypotenuse = √((5x)² + (12x)²)

=> Hypotenuse = √(25x² + 144x²) = √169x² = 13x
=> sin A = Perpendicular ÷ Hypotenuse = 5x ÷ 13x = 5/13
=> cos A = Base ÷ Hypotenuse = 12x ÷ 13x = 12/13
Therefore The correct answer is 5/13, 12/13.
Additional Information
Common Pythagorean Triplets
Sets of integers that satisfy a² + b² = c², such as 3-4-5, 5-12-13, 7-24-25, and 8-15-17.
Trigonometric Identities
The foundational identity for sine and cosine is sin² A + cos² A = 1.
Tangent and Cotangent Ratios
tan A = sin A ÷ cos A and cot A = cos A ÷ sin A.

Q60. Answer: (d) 16 years

Shortcut Trick
In Compound Interest, if a sum becomes n times in t years, it will become n^m times in m × t years.
Given, the sum becomes 3 times (n = 3) in 8 years (t = 8).
We need to find the time for the sum to become 9 times.
Since 9 = 3², the power is m = 2.
Required time = 2 × 8 = 16 years.
Therefore The correct answer is 16 years.
Alternate Method
Given:
A sum triples itself in 8 years at compound interest.
Formula Used:
Amount A = P(1 + R/100)^T
0 years
8 years
16 years
P
3P
9P
× 3
× 3
Calculations:
=> Let the principal be P and rate of interest be R%.
=> In 8 years, the amount becomes 3P.
=> 3P = P(1 + R/100)^8
=> 3 = (1 + R/100)^8
=> We need the time T when the amount becomes 9P.
=> 9P = P(1 + R/100)^T
=> 9 = (1 + R/100)^T
=> (3)² = (1 + R/100)^T
=> Substituting the value of 3 from the earlier step:
=> [(1 + R/100)^8]² = (1 + R/100)^T
=> (1 + R/100)^(16) = (1 + R/100)^T
=> On comparing the powers on both sides, T = 16 years.
Therefore The correct answer is 16 years.
Additional Information
Compound Interest Multiple Rule
If a sum of money becomes n times itself in t years at CI, it becomes n^m times itself in m × t years.
Simple Interest Multiple Rule
If a sum of money becomes n times itself in t years at SI, it becomes m times itself in [(m − 1) ÷ (n − 1)] × t years.

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Difference Between CI and SI

For 2 years, the difference is D = P(R ÷ 100)². For 3 years, D = P(R ÷ 100)²(3 + R ÷ 100).

Q61. Answer: (c) 0.85

Shortcut Trick

Given the relation: xz = y3

Directly substitute x = 500.92 and y = 500.26 into the equation:

=> (500.92)z = (500.26)3

=> 500.92z = 500.78

=> 0.92z = 0.78 => z = 78 ÷ 92 ≈ 0.85

Therefore The correct answer is 0.85.

Alternate Method

Given:

x = 500.92

y = 500.26

xz = y3

Formula Used:

(am)n = amn

If am = an, then m = n (for a > 0, a ≠ 1)

Calculations:

=> xz = y3

Substituting the values of x and y in the given equation:

=> (500.92)z = (500.26)3

=> 500.92 × z = 500.26 × 3

=> 500.92z = 500.78

Since the bases are equal, we can equate their exponents:

=> 0.92z = 0.78

=> z = 0.78 ÷ 0.92

=> z = 78 ÷ 92

=> z = 39 ÷ 46

=> z ≈ 0.8478

=> z ≈ 0.85

Therefore The correct answer is 0.85.

Additional Information

Law of Exponents for Power of a Power

When raising a power to another power, you multiply the exponents: (am)n = amn.

Law of Exponents for Equality

If two exponential expressions with the same positive base (other than 1) are equal, then their exponents are equal: If am = an, then m = n.

Law of Exponents for Multiplication

When multiplying exponential expressions with the same base, you add the exponents: am × an = am+n.

Q62. Answer: (c) 7048030

Shortcut Trick

A number is exactly divisible by 5 if its unit digit is either 0 or 5.

By simply observing the last digits of the given options: 6, 3, 0, and 9.

Only the number 7048030 has a unit digit of 0.

Therefore The correct answer is 7048030.

Alternate Method

Given:

The numbers: 7132956, 6175753, 7048030, and 6567359.

Concept Used:

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Divisibility Rule of 5: For a number to be divisible by 5, its last digit (unit digit) must be exactly 0 or 5.
Calculations:
=> Option 1: 7132956 → The unit digit is 6, so it is not divisible by 5.
=> Option 2: 6175753 → The unit digit is 3, so it is not divisible by 5.
=> Option 3: 7048030 → The unit digit is 0, so it is exactly divisible by 5.
=> Option 4: 6567359 → The unit digit is 9, so it is not divisible by 5.
=> Thus, 7048030 is the only number divisible by 5.
Therefore The correct answer is 7048030.
Additional Information
Divisibility Rule of 2
A number is divisible by 2 if its last digit is an even number (0, 2, 4, 6, or 8).
Divisibility Rule of 3
A number is divisible by 3 if the sum of its individual digits is a multiple of 3.
Divisibility Rule of 4
A number is divisible by 4 if the number formed by its last two digits is exactly divisible by 4.
Divisibility Rule of 10
A number is divisible by 10 if its unit digit is exactly 0.

Q63. Answer: (d) Rs. 46,080

Shortcut Trick
Mohsin's profit share fraction = 3800 ÷ 19000 = 1/5
Since the time period is constant, the investment ratio is equal to the profit ratio.
Abdul's investment fraction = 1 − 1/5 = 4/5
Difference in their investments = (4/5 − 1/5) = 3/5 of the total investment
Difference = 3/5 × 76800 = 3 × 15360 = Rs. 46,080
Therefore The correct answer is Rs. 46,080.
Alternate Method
Given:
Total investment = Rs. 76,800
Total profit = Rs. 19,000
Mohsin's profit = Rs. 3,800
Formula Used:
Profit Ratio = Investment Ratio (when the time period is constant)
4 Parts
Abdul
Profit: Rs. 15,200
1 Part
Mohsin
Profit: Rs. 3,800
Investment Ratio
Total = 5 parts = Rs. 76,800
1 part = Rs. 15,360
Difference = 3 parts
= Rs. 46,080
Calculations:
=> Abdul's profit = Total profit − Mohsin's profit
=> Abdul's profit = 19000 − 3800 = Rs. 15,200
=> Profit ratio (Abdul : Mohsin) = 15200 : 3800 = 4 : 1
=> Let Abdul's investment be 4x and Mohsin's investment be x.
=> Total investment = 4x + x = 5x
=> 5x = 76800
=> x = 76800 ÷ 5 = 15360

=> Difference in investments = 4x − x = 3x

=> Difference = 3 × 15360 = Rs. 46,080

Therefore The correct answer is Rs. 46,080.

Additional Information

Partnership Profit Ratio

The profit shared among partners is always proportional to the product of their invested capital and the time period of investment. (Profit Ratio = Capital × Time)

Constant Time Period

If partners invest their capital for the exact same duration, the profit is distributed entirely in the ratio of their investment amounts.

Active vs Sleeping Partner

A sleeping partner only invests money but does not actively manage the business, hence their share is based solely on capital. Active partners may additionally receive a fixed salary or a certain percentage of total profits for management before the remaining profit is divided.

Q64. Answer: (d) 40 : 53

Shortcut Trick

Convert the given ratios into approximate decimals to directly compare them in one go:

28 : 74 ≈ 0.37

45 : 85 ≈ 0.52

33 : 72 ≈ 0.45

40 : 53 ≈ 0.75

Since 0.75 is by far the highest value, 40 : 53 is the greatest ratio.

Therefore The correct answer is 40 : 53.

Alternate Method

37.8%

28:74

52.9%

45:85

45.8%

33:72

75.4%

40:53

Ratio Percentage Value Comparison

Given:

Four ratios: 28 : 74, 45 : 85, 33 : 72, and 40 : 53

Calculation:

=> Convert ratio 1 to proper fraction division: 28 ÷ 74 ≈ 0.378

=> Convert ratio 2 to proper fraction division: 45 ÷ 85 = 9 ÷ 17 ≈ 0.529

=> Convert ratio 3 to proper fraction division: 33 ÷ 72 = 11 ÷ 24 ≈ 0.458

=> Convert ratio 4 to proper fraction division: 40 ÷ 53 ≈ 0.754

=> Comparing the calculated decimal values: 0.754 > 0.529 > 0.458 > 0.378

=> The greatest decimal value is 0.754 which corresponds to the ratio 40 : 53.

Therefore The correct answer is 40 : 53.

Additional Information

Comparison of Fractions

Fractions and ratios can be compared quickly by cross-multiplication, equalizing denominators using LCM, or by converting them to percentages or decimal forms.

Compound Ratio

When two or more ratios are multiplied term-wise, the resulting ratio is called a compound ratio (e.g., a : b and c : d → ac : bd).

Duplicate Ratio

The ratio of the squares of two numbers is known as their duplicate ratio (e.g., a : b → a2 : b2).

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Q65. Answer: (b) 154

Shortcut Trick

The average of the first n even natural numbers is directly given by (n + 1).

Here, the total number of even numbers (n) = 153.

=> Average = 153 + 1 = 154.

Therefore The correct answer is 154.

Alternate Method

Given:

We need to find the average of the first 153 even numbers.

Formula Used:

For an Arithmetic Progression (AP), Average = (First term + Last term) ÷ 2

2

1st term

4

2nd term

6

3rd term

...

306

153rd term

Average = (First + Last) ÷ 2

Average = 154

Calculations:

=> The series of the first 153 even numbers is: 2, 4, 6, 8, ..., 306

=> First term (a) = 2

=> Number of terms (n) = 153

=> Last term (l) = 153 × 2 = 306

=> Average = (a + l) ÷ 2

=> Average = (2 + 306) ÷ 2

=> Average = 308 ÷ 2 = 154

Therefore The correct answer is 154.

Additional Information

Average of first n natural numbers

The average of the first n natural numbers is given by the formula: (n + 1) ÷ 2.

Average of first n odd numbers

The average of the first n odd natural numbers is exactly equal to n.

Sum of first n even numbers

The sum of the first n even numbers is calculated using the formula: n × (n + 1).

Average of an Arithmetic Progression

For any sequence with a constant difference between consecutive terms, the average is always (First Term + Last Term) ÷ 2.

Q66. Answer: (c) $14x^2 - 5x + 4$

Shortcut Trick

Directly expand the given expression mentally by opening the brackets.

=> $7x^2 - 5x + 7x^2 - 14 + 18$

Combine the like terms (the x^2 terms and the constants).

=> $14x^2 - 5x + 4$

Therefore The correct answer is $14x^2 - 5x + 4$.

Alternate Method

Given:

$x(7x - 5) + 7(x^2 - 2) + 18$

Formula Used:

Distributive property: a(b − c) = ab − ac

Calculation:

=> Multiply the terms outside the brackets with the terms inside.

=> $(x \times 7x) - (x \times 5) + (7 \times x^2) - (7 \times 2) + 18$

=> $7x^2 - 5x + 7x^2 - 14 + 18$

=> Group the like terms together for addition and subtraction.

=> $(7x^2 + 7x^2) - 5x + (-14 + 18)$

=> $14x^2 - 5x + 4$

Therefore The correct answer is $14x^2 - 5x + 4$.

Additional Information

BODMAS Rule

It specifies the order of operations: Brackets, Orders (powers/roots), Division, Multiplication, Addition, Subtraction. Always multiply out the brackets first before performing addition or subtraction.

Distributive Property

Multiplication distributes over addition and subtraction: A × (B ± C) = A × B ± A × C. This fundamental rule is used to expand algebraic brackets.

Like Terms in Algebra

Only terms containing the exact same variables raised to the exact same powers can be added or subtracted together (e.g., $7x^2 + 7x^2 = 14x^2$).

Q67. Answer: (c) 3 days

Shortcut Trick

Equate the total work done by men and women to find the efficiency ratio:

6M × 8 = 3W × 18 => 48M = 54W => 8M = 9W

Efficiency ratio (M : W) = 9 : 8

Total Work = 6 × 9 × 8 = 432 units

Time taken by (8M + 9W) = 432 ÷ (8 × 9 + 9 × 8) = 432 ÷ 144 = 3 days

Therefore The correct answer is 3 days.

Alternate Method

Given:

6 Men can complete the work in 8 days.

3 Women can complete the work in 18 days.

Method Used: LCM Method

Person	Days	Total Work	Efficiency
6 Men	8	72	72 ÷ 8 = 9
3 Women	18	72 ÷ 18 = 4	

Calculations:

From the table, the efficiency of 6 Men is 9 units/day.

=> Efficiency of 1 Man = 9 ÷ 6 = 1.5 units/day

=> Total efficiency of 8 Men = 8 × 1.5 = 12 units/day

Similarly, the efficiency of 3 Women is 4 units/day.

=> Efficiency of 1 Woman = 4 ÷ 3 units/day

=> Total efficiency of 9 Women = 9 × (4 ÷ 3) = 12 units/day

=> Combined efficiency of 8 Men and 9 Women = 12 + 12 = 24 units/day

Time taken = Total Work ÷ Combined Efficiency

=> Time taken = 72 ÷ 24 = 3 days

Therefore The correct answer is 3 days.

Additional Information

Chain Rule / MDH Formula

When multiple groups are working together, total work can be equated using M1 × D1 × H1 ÷ W1 = M2 × D2 × H2 ÷ W2.

Work and Wages

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Wages are always distributed in the ratio of the total work done by each person. If people work for the same number of days, the wages are divided in the ratio of their efficiencies.

Efficiency vs Time

Efficiency is inversely proportional to time. If A is twice as efficient as B, then A takes half the time B takes to finish the same work.

Q68. Answer: (a) 15%

Shortcut Trick

Discount = Marked Price − Selling Price

=> Discount = 3480 − 2958 = Rs. 522

Discount % = (Discount ÷ MP) × 100

=> Discount % = (522 ÷ 3480) × 100 = 15%

Therefore The correct answer is 15%.

Alternate Method

Given:

Marked Price (MP) = Rs. 3,480

Selling Price (SP) = Rs. 2,958

Formula Used:

Discount = MP − SP

Discount % = (Discount ÷ MP) × 100

MP = Rs. 3480

− Rs. 522 (Discount)

Rate = ? %

SP = Rs. 2958

Calculation:

=> Discount = 3480 − 2958

=> Discount = Rs. 522

=> Discount % = (522 ÷ 3480) × 100

=> Discount % = (5220 ÷ 348)

=> Discount % = 15%

Therefore The correct answer is 15%.

Additional Information

Successive Discount

When two successive discounts of d1% and d2% are given, the equivalent net discount is calculated as: (d1 + d2 − d1×d2÷100)%.

Relation between CP and MP

When profit % and discount % are both given, the ratio is: MP ÷ CP = (100 + Profit%) ÷ (100 − Discount%).

Selling Price after Discount

The selling price can directly be calculated from the marked price as: SP = MP × (100 − Discount%) ÷ 100.

Q69. Answer: (d) 108°

Shortcut Trick

In right-angled triangle BDC, angle C = 180° − (90° + 54°) = 36°.

In triangle AEC, the exterior angle at vertex E is angle AEB.

According to the exterior angle theorem, an exterior angle of a triangle equals the sum of the two opposite interior angles.

=> angle AEB = angle C + angle CAE

=> angle AEB = 36° + 72° = 108°.

Therefore The correct answer is 108°.

Alternate Method

Given:

• BD perpendicular to AC at D

• angle DBC = 54°

• E is a point on BC such that angle CAE = 72°

Formula Used:

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• Sum of angles in a triangle = 180°

• Angles on a straight line (linear pair) add up to 180°

A

B

C

D

E

36°

54°

72°

?

Calculations:

=> In right-angled triangle BDC, angle BDC = 90° because BD is perpendicular to AC.

=> angle C = 180° − (90° + 54°) = 36°.

=> Now, consider triangle AEC. The sum of all its internal angles must be 180°.

=> angle CAE + angle C + angle AEC = 180°

=> 72° + 36° + angle AEC = 180°

=> 108° + angle AEC = 180°

=> angle AEC = 180° − 108° = 72°

=> Since points B, E, and C lie on a straight line, angle AEB and angle AEC form a linear pair.

=> angle AEB + angle AEC = 180°

=> angle AEB + 72° = 180°

=> angle AEB = 180° − 72° = 108°

Therefore The correct answer is 108°.

Additional Information

Exterior Angle Theorem

The exterior angle of a triangle is always equal to the sum of the two opposite interior angles. Here, angle AEB is an exterior angle to triangle AEC, allowing direct calculation: angle AEB = angle CAE + angle C.

Isosceles Triangle Property

In any triangle, if two angles are equal, the sides opposite those angles are also equal in length. In triangle AEC, angle CAE = angle AEC = 72°, making it an isosceles triangle with AC = CE.

Linear Pair of Angles

When two adjacent angles are formed by intersecting lines and their non-common sides form a straight line, they are known as a linear pair. Their sum is always 180°.

Q70. Answer: (b) −55

Shortcut Trick

Apply the BODMAS rule directly to the given expression to solve in one flow:

=> (−9) − [(−60) ÷ (−6)] + [(−4) × 9]

=> (−9) − 10 + (−36)

=> −9 − 10 − 36 = −55

Therefore The correct answer is −55.

Alternate Method

Given:

Expression: (−9) − (−60) ÷ (−6) + (−4) × 9

Formula Used:

BODMAS Rule (Brackets, Orders, Division, Multiplication, Addition, Subtraction)

Calculations:

According to BODMAS, we must perform division first:

=> (−60) ÷ (−6) = 10

Substitute this value back into the expression:

=> (−9) − 10 + (−4) × 9

Next, perform the multiplication:

=> (−4) × 9 = −36

Substitute this value back into the expression:

=> (−9) − 10 + (−36)

Now, perform addition and subtraction from left to right:

=> −9 − 10 − 36

=> −19 − 36

=> −55

Therefore The correct answer is −55.

Additional Information

BODMAS Rule

It defines the correct sequence to solve a mathematical expression: Brackets → Orders (powers/roots) → Division/Multiplication (left to right) → Addition/Subtraction (left to right).

Sign Conventions for Multiplication and Division

Multiplying or dividing two numbers with the same sign gives a positive result (− × − = +). Having different signs gives a negative result (− × + = −).

Sign Conventions for Addition and Subtraction

Adding a negative number is equivalent to subtracting a positive number. For example: a + (−b) = a − b. Likewise, subtracting a negative number implies adding a positive number: a − (−b) = a + b.

Q71. Answer: (b) XIO

The logic followed here is:

So, XIO will replace the question mark in the given series.

Hence, the correct answer is "Option 2".

Q72. Answer: (d) Two

Given: (Left) + @ & ? % \ ? + < # 8 $ 1 % % 5 2 4 9 ^ 7 (Right)

Now,

Numbers which is immediately preceded by a symbol and also immediately followed by a symbol.

So, Needed pattern is: Symbol - Number - Symbol.

There are 2 Numbers which is immediately preceded by a symbol and also immediately followed by a symbol.

Hence, the correct answer is 'Option 4'.

Q73. Answer: (a) 8

Logic: Place value of Opposite letter + 2 = Code of that letter.

Now,

‘LUMA’ is coded as ‘5796’

‘MALI’ is coded as ‘8569’

So, 8 is the code for ‘I’ in that language.

Hence, the correct answer is "Option 1".

Q74. Answer: (a) SICK – KCSI – SCIK

Now,

GULF – FLGU – GLUF

ALTS – STAL – ATLS

Let's check each Option One by One.

Option 1) SICK – KCSI – SCIK

S	I	C	K
1	2	3	4
K	C	S	I
4	3	1	2
S	C	I	K

1	3	2	4

Option 2) LIMB – IMLB – IMBL

L	I	M	B
1	2	3	4
I	M	L	B
2	3	1	4
I	M	B	L
2	3	4	1

Option 3) CALF – FLCA – ALCF

C	A	L	F
1	2	3	4
F	L	C	A
4	3	1	2
A	L	C	F
2	3	1	4

Option 4) FINE – FNIE – ENIF

F	I	N	E
1	2	3	4
F	N	I	E
1	3	2	4
E	N	I	F
4	3	2	1

So, Only SICK – KCSI – SCIK follows the pattern of given letter cluster.

Hence, the correct answer is 'Option 1'.

Q75. Answer: (a) Only conclusion (II) follows.

Given Statements:

All Peaches are Pineapples.

All Pineapples are Lemons.

The least possible Venn diagram for the given statement is:

Conclusions:

I. No Lemons are Peaches:

This means the two sets (Peaches and Lemons) must overlap, as the entire set of Peaches is part of the set of Lemons.

Therefore, the conclusion "No Lemons are Peaches" is definitely false.

II. Some Lemons are Peaches:

If All Peaches are Lemons, it automatically means that Some Lemons are Peaches (specifically, the portion of Lemons that are also Peaches). The statement "All A are B" always implies "Some B are A."

Therefore, the conclusion "Some Lemons are Peaches" logically follows.

So, Only conclusion (II) follows.

Hence, the correct answer is "Option 1".

Q76. Answer: (c) Three

Given numbers: 36719542

New number: 3 7 7 1 9 5 5 3

The Logic followed here is:

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3 appears 2 times
7 appears 2 times
5 appears 2 times
1 and 9 appear once
So, three digits (3, 7 and 5) are repeated more than once.
Hence, the correct answer is 'Option 3'

Q77. Answer: (b) HLO

The logic followed here is:
Option 1)TWA
Option 2) HLO
Option 3) JMQ
Option 4) CFJ
Here, 'HLO' is odd among the given options.
Hence, the correct answer is "Option 2".

Q78. Answer: (d) OQHP

The logic followed here is:
The pattern established is: (First Word) + 5 → (Second Word).
For, UFNE is related to YCRB
For, CZVY is related to GWZV.
Similarly, for KTDS
So, KTDS will be written as OQHP.
Hence, the correct answer is "Option 4".

Q79. Answer: (a) 198

The logic followed here is:
Thus, "198" will replace the question mark in the given series.
Hence, the correct option is "Option 1".

Q80. Answer: (c) 28

The logic followed here is:
Barun is exactly midway between Puja and Risabh.
Puja = 13th from left, Barun = 15th from left.
So, Risabh's position from left = 2×(Barun) − (Puja) = 2×15 − 13 = 17th from left.
Given
Risabh = 12th from right.
Total people = 17 (from left) + 12 (from right) − 1 = 28.
So, there are '28' students in the class.
Hence, the correct answer is "Option 3".

Q81. Answer: (b) 9

Given numbers: 75364812
New number: 97542630
The Logic followed here is:
Greatest = 9
Smallest = 0
Sum = 9 + 0 = 9
Hence, the correct answer is 'Option 2'

Q82. Answer: (c) 80

Given:
Hriday's rank from the top = 26th
Hriday's rank from the bottom = 38th

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Total number of students = (Rank from top) + (Rank from bottom) − 1
= 26 + 38 − 1
= 63
So, there are '80' students in the class.
Hence, the correct answer is "Option 3".

Q83. Answer: (b) Three

Given: (Left) 2 Ω % 1 4 9 & 5 7 * 6 @ ? 3 # 8 £ $ (Right)
Now,
Symbols which is immediately preceded by a number and also immediately followed by another number.
So, Needed pattern is: Number - Symbol - Number.
There are 3 Symbols which is immediately preceded by a number and also immediately followed by another number.
Hence, the correct answer is 'Option 2'.

Q84. Answer: (b) QMQR

The logic followed here is:
The pattern established is: (First Word) + 5 → (Second Word).
For, XTXY is related to CYCD
For, GCGH is related to LHLM
Similarly, for LHLM
So, LHLM will be written as QMQR
Hence, the correct answer is "Option 2".

Q85. Answer: (b) Son's wife's father

Family Chart:
Given: A is the father of R. R is the mother of C. C is the son of D. G is the father of D.
So, A is the Son's wife's father of G.
Hence, the correct answer is "Option 2".

Q86. Answer: (d) EH – XZ

The logic followed here is:
Option 1) IK – BD
Option 2) YA – RT
Option 3) LN – EG
Option 4) EH – XZ
Here, 'EH – XZ' is odd among the given options.
Hence, the correct answer is "Option 4".

Q87. Answer: (c) 66

The logic followed here is:
thus, "66" will replace the question mark in the given series.
Hence, the correct option is "Option 3".

Q88. Answer: (b) 15, 46

The logic followed here is:
Logic: Second number = (First number × 3) + 1
8, 25
=> (8 × 3) + 1 = 25
11, 34
=> (11 × 3) + 1 = 34
Now, checking the options:
Option 1) 6, 17
=> (6 × 3) + 1 ≠ 17
Option 2) 15, 46

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=> (15 × 3) + 1 = 46

Option 3) 13, 39

=> (113× 3) + 1 ≠ 39

Option 4) 9, 37

=> (9 × 3) + 1 ≠ 37

Hence, the correct option is "Option 2"

Q89. Answer: (d) Only conclusion (I) follows.

Given Statements:

All oranges are melons.

All melons are grapes.

The least possible Venn diagram for the given statement is:

Conclusions:

I. All WhatsApp are messenger - False (Because, All messenger are WhatsApp implies that some WhatsApp are messenger, but All WhatsApp are messenger can be possible only).

II. Some facebook are messenger - False (Because, No definite relation given between facebook and messenger, so it can be possible only).

So, Neither conclusion I nor II follow.

Hence, the correct answer is "Option 3".

Q90. Answer: (d) 348

BODMAS Table:

Given equation: (228 Q 12) S 69 P 3 S (216 Q 18) R 10 S 30 P 4 = ?

Logic: Decode symbols: Q = ÷, S = +, P = ×, R = −.

Now,

(228 ÷ 12) + 69 × 3 + (216 ÷ 18) − 10 + 30 × 4

=> (228 ÷ 12)+ 69 × 3 + (216 ÷ 18)−10 + 30 × 4 = ?

=> 19 + 207 + 12 − 10 + 120

= 348

Hence, the correct answer is "Option 4".

Q91. Answer: (b) 8

The logic followed here is:

For, ‘INKS’ is coded as ‘4628’

For, ‘NEAR’ is coded as ‘1385’

So, 8 is the code for ‘N’ in the given code language.

Hence, the correct answer is "Option 2".

Q92. Answer: (c) −49

The logic followed here is:

thus, "-49" will replace the question mark in the given series.

Hence, the correct option is "Option 3".

Q93. Answer: (c) 3 km to east

Given:

Ajay starts from Point A and drives 11 km towards North.

He then takes a right turn, drives 3 km, turns right and drives 12 km.

He then takes a right turn and drives 6 km.

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

So, He should drive 3 km to east in order to reach Point A again.

Hence, the correct answer is "Option 3".

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Q94. Answer: (d) Two

Given: Seven people, A, B, C, D, P, Q and R, are sitting in a row, facing north.

1) Only three people sit between A and C.

2) Q sits to the immediate left of C.

3) No one sits to the right of B.

4) Only two people sit between B and Q.

5) D sits to the immediate right of R.

So, Two people sit between P and D.

Hence, the correct answer is "Option 4".

Q95. Answer: (b) GKH

The logic followed here is:

Option 1) PTR

Option 2) GKH

Option 3) WAY

Option 4) NRP

Here, 'GKH' is odd among the given options.

Hence, the correct answer is "Option 2".

Q96. Answer: (d) QXE 69

The logic followed here is:

So, 'QXE 69' will replace the question mark in the given series.

Hence, the correct answer is "Option 4".

Q97. Answer: (a) Two

Given: Seven people, I, J, K, L, U, V and W are sitting in a row, facing north.

1) Only three people sit between V and J.

2) U sits to the immediate left of J.

3) No one sits to the right of I.

4) L sits at some place to the left of J but at some place to the right of I.

5) Only two people sit between I and U.

6) W sits to the immediate right of L.

So, Two people sit between K and W.

Hence, the correct answer is "Option 1".

Q98. Answer: (b) Two

Given numbers: 7135682

New number: 9357571

The Logic followed here is:

Add 2 to each odd digit.

Subtract 1 from each even digit.

So,

5 appears twice

7 appears twice

→ Two digits (5 and 7) appear more than once.

Hence, the correct answer is 'Option 2'

Q99. Answer: (b) 7 km to the north

Given:

Mr. Tuff starts from Point A and drives 7 km towards the east.

He then takes a left turn and drives 2 km, then turns left and drives 9 km.

He then takes a left turn and drives 9 km.

He takes a final left turn, drives 2 km and stops at Point P.

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So, He should drive 7 km to the north in order to reach Point A again

Hence, the correct answer is "Option 4".

Q100. Answer: (a) 5

Given: Seven boxes A, B, C, D, E, F and G are kept one over the other but not necessarily in the same order.

1) Only two boxes are kept below G.

2) Only one box is kept above A.

3) Only one box is kept between A and E.

4) B is kept immediately above D.

5) C is kept at some place below F.

F
A
C
E
G
B
D

So, there are '5' boxes are kept below A

Hence, the correct answer is "Option 1".

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