RRB NTPC Graduate Level CBT-I Official Paper (Held On: 11 Jun, 2025 Shift 1) (Previous Year Paper)

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

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Q1. How long (in years) will it take for Rs. 1,440 to become Rs. 2,700 at a rate of 10% per annum simple interest?

(a) 8.75
(b) 9.75
(c) 7.75
(d) 10.75

Q2. The intense rainfall on the western side of the Western Ghats is due to which type of rainfall mechanism?

(a) Orographic
(b) Cyclonic
(c) Frontal
(d) Convectional

Q3. Which country assumed the presidency of BRICS in January 2025?

(a) China
(b) India
(c) Brazil
(d) Russia

Q4. What should come in place of the question mark (?) in the given series?

51 87 121 153 183 211 ?

(a) 249
(b) 241
(c) 237
(d) 253

Q5. In the 2024 Global Innovation Index, which organisation ranked India 39^(th) among 133 global economies, highlighting its leadership in the Central and Southern Asian region?

(a) World Bank
(b) World Intellectual Property Organization
(c) World Economic Forum
(d) International Monetary Fund

Q6. Daksh travels 445 km at 89 km/hr, the next 495 km at 55 km/hr and the next 250 km at 50 km/hr. What is his average speed (in km/hr) for the whole journey? (Corrected to two decimal places)

(a) 61.14
(b) 62.63
(c) 66.77
(d) 57.21

Q7. If 1 is added to each odd digit and 2 is subtracted from each even digit in the number 8574162, what will be the sum of the digits which are second from the left and second from the right in the new number thus formed?

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

Q8. Which of the following statements accurately describes the behavior of continuing numbering from a previous list when inserting a new numbered list within the same document in MS Word?

(a) Continuing numbering is only possible if both lists use the exact same numbering style and level.
(b) MS Word automatically restarts the numbering from 1 for the new list, and there is no direct way to continue the previous sequence.
(c) MS Word automatically continues the numbering sequence from the previous list by default.
(d) MS Word provides an option upon creating the new list to 'Continue from previous list', which needs to be explicitly selected.

Q9. Find the value of $(K^2 - 5)$, if the quadratic equation $2x^2 - 8x + K = 0$ has real and equal roots.

(a) 59
(b) 65
(c) 48
(d) 51

Q10. One pipe can fill the tank in 18 minutes while another pipe can empty the completely filled tank in 19 minutes. If both the pipes are operated together on empty tank, how long (in minutes) will it take to fill one-third of the tank?

(a) 228
(b) 456
(c) 114
(d) 342

Q11. The average of 9 numbers is 17. The average of 7 of these numbers is 16. The average of the remaining two numbers is:

(a) 20.5
(b) 22.5
(c) 19.5
(d) 21.5

Q12. In a certain code language, ‘FAST’ is coded as ‘2468’ and ‘SLOW’ is coded as ‘1327’. What is the code for ‘S’ in the given code language?

(a) 1
(b) 6
(c) 2
(d) 7

Q13. MBKF is related to OGMK in a certain way based on the English alphabetical order. In the same way, QLOP is related to SQQU. To which of the given options is UVSZ related, following the same logic?

(a) WBTD
(b) XZVF
(c) VBUD
(d) WAUE

Q14. What should come in place of the question mark (?) in the given series?

992 990 986 980 972 ?

(a) 962
(b) 958
(c) 959

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(d) 961

Q15. Which Harappan site shows evidence of ploughed fields?

(a) Dholavira
(b) Kalibangan
(c) Lothal
(d) Mohenjo-daro

Q16. Which of the following is NOT the use of baking soda in the kitchen?

(a) As an ingredient in antacids
(b) As a leavening agent
(c) In fire extinguishers
(d) For food colouring

Q17. If 'W' stands for '÷', 'X' stands for '×', 'Y' stands for '+' and 'Z' stands for '−', then the resultant of which of the following would be 94?

(a) 48 X 8 Y 56 Z 24 W 6
(b) 48 Y 8 X 56 W 24 Z 6
(c) 48 Z 8 W 56 X 24 Y 6
(d) 48 W 8 Z 56 Y 24 X 6

Q18. In most Unix-based operating systems, which command is used to create an empty file if the file does not already exist?

(a) mkdir
(b) mkfile
(c) cp
(d) touch

Q19. Which of the following is NOT one of the components of the Panchayati Raj institutions in India at the village level?

(a) Gram Sabha
(b) Gram Panchayat
(c) Nyaya Panchayat
(d) Panchayat Samiti

Q20. Which leader collaborated with Mahatma Gandhi during the Kheda Satyagraha in 1918?

(a) Raj Kumar Shukla
(b) Sardar Vallabhbhai Patel
(c) Subhas Chandra Bose
(d) Lala Lajpat Rai

Q21. A person who spends 80% of his monthly income is able to save Rs. 6,738 per month. His monthly expenses (in Rs.) are:

(a) 26,925
(b) 26,921
(c) 26,876
(d) 26,952

Q22. The simplified value of (31^(10) × 2^(15) × 84^6)/(31^9 × 2^(14) × 84^5) is :

(a) 5209
(b) 5213
(c) 5208
(d) 5217

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Q23. The value of $(\sec\theta - \tan\theta)^2 (1 + \sin\theta)^2 \div \cos^2\theta$ is

(a) -2
(b) 1
(c) 0
(d) 2

Q24. Which of the following agricultural practices is called Ponam in Kerala and Podu in Odisha?

(a) Plantation farming
(b) Shifting cultivation
(c) Commercial farming
(d) Subsistence farming

Q25. The curved surface area of a cylinder is half of its total surface area. If its height is 102 cm, then find its radius (in cm).

(a) 108
(b) 103
(c) 100
(d) 102

Q26. A group of numbers and symbols is coded using letter codes as per the codes given below and the conditions that follow. Study the given codes and conditions and answer the question that follows

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

Letter	Z	T	E	P	A	U	X
Code	8	$	@	9	2	%	6

Conditions:

1. If the 1^(st)letter is a vowel and the last letter is a consonant, their codes are to be interchanged.
2. If the 2^(nd) letter is a vowel and the last letter is a consonant, both are to be coded as ‘W’.
3. If the 3^(rd)and 4^(th) letters are consonants, both are to be coded as the code for the 3rd letter.
4. If the 1^(st) and 2^(nd) letters are vowels, then both are to be coded as ‘Q’.

What will be the code for the following group?

AUTEA

(a) 2 W $ @ 2
(b) 2 Q $ @ 2
(c) 2 % $ @ 2
(d) Q Q $ @ 2

Q27. A trader lost 5% by selling a shirt for Rs. 950. He will gain x% by selling it for Rs. 1,350. The value of x is:

(a) 35
(b) 45
(c) 25
(d) 50

Q28. Train A running at a speed of 72 km/hr takes 24 seconds to completely cross train B running at 63 km/hr in the opposite direction. The length of train B is 1.5 times the length of train A. Train B crosses a bridge completely in 62 seconds. The length of the bridge (in m) is:

(a) 626
(b) 545
(c) 445
(d) 433

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Q29. Independent dance numbers such as Chali, Ramdani and Jhumura are associated with which of the following dance forms?

(a) Sattriya
(b) Bharatanatyam
(c) Chhau
(d) Manipuri

Q30. Why does the parliamentary system prevent executive despotism?

(a) Because the Prime Minister has unlimited power
(b) Because the judiciary can override executive decisions without checks
(c) Because executive authority is dispersed among a group of ministers accountable to the Parliament
(d) Because the military can intervene in governance

Q31. In glycolysis, which enzyme catalyses the rate-limiting phosphorylation of fructose-6 phosphate?

(a) Phosphofructokinase-1 (PFK-1)
(b) Pyruvate kinase
(c) Hexokinase
(d) Glyceraldehyde-3-phosphate dehydrogenase

Q32. Which keyboard shortcut opens File Explorer in Windows 11 OS to navigate and create files/folders?

(a) Ctrl + Shift + N
(b) Windows Key + E
(c) Ctrl + E
(d) Alt + Tab

Q33. Find the area of a sector with a central angle of 150° in a circle with a radius of 12 cm.

(a) 55 π cm^2
(b) 72 π cm2
(c) 60 π cm2
(d) 45 π cm2

Q34. A shopkeeper marks the price of an article at Rs. 3,930. Find the cost price if after allowing a discount of 40% he still gains 20% on the cost price.

(a) Rs. 1,899
(b) Rs. 1,989
(c) Rs. 1,965
(d) Rs. 1,981

Q35. In February 2025, which day was celebrated to honour the Nightingale of India, Sarojini Naidu?

(a) National Women's Freedom Day
(b) National Women Writers Day
(c) National Women's Day
(d) National Women Leaders Day

Q36. This question is based on the five, three-digit numbers given below.

(Left) 205 712 237 862 578 (Right)

(Example- 697 – First digit = 6, second digit = 9 and third digit = 7) (NOTE: All operations to be done from left to right.) What will be the resultant if the third digit of the highest number is added to the first digit of the lowest number?

(a) 4
(b) 7
(c) 5
(d) 3

Q37. What is the maximum score possible for project design evaluation in the application form process of the Deen Dayal Upadhyaya Grameen Kaushalya Yojana (DDU-GKY)?

(a) 1300
(b) 1000
(c) 1200
(d) 1400

Q38. In which of the following cases did the court restrict the Parliament from curtailing any Fundamental Right?

(a) Kesavananda Bharati vs State of Kerala
(b) Golaknath vs State of Punjab
(c) A K Gopalan vs State of Madras
(d) Indira Gandhi vs Raj Narayan

Q39. Find the volume (in cm^3, rounded off to two decimal places) of a hemispherical cap having a radius of 33.6 cm.

(a) 25,297.58π
(b) 25,288.70π
(c) 25,287.05π
(d) 25,293.28π

Q40. Select the triad that follows the same pattern as that followed by the two triads given below. Both triads follow the same pattern.

NJ-QM-TV
QM-TP-WY

(a) MH-OK-RU
(b) MH-PK-RU
(c) LH-OK-RT
(d) LH-OK-RU

Q41. Two numbers are respectively 46% and 54% more than a third number. The ratio of the two numbers is:

(a) 67 : 86
(b) 73 : 77
(c) 69 : 68
(d) 83 : 75

Q42. M, N, O, P, Y and Z live on six different floors of the same building. The lowermost floor in the building is numbered 1, the floor above it, number 2 and so on till the topmost floor is numbered 6. Only two people live between O and Z. Only two people live between N and M. Only one person lives between P and M. P lives on floor numbered 1. O lives above M. How many people live below Y?

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

Q43. What will come in the place of the question mark (?) in the following equation, if '+' and '−' are interchanged and '×' and '÷' are interchanged?

$43 \div 13 - 648 \times 8 + 52 = ?$

(a) 586
(b) 583
(c) 588
(d) 581

Q44. Town C is to the west of Town D. Town E is to the east of Town C. Town F is to the north of Town D. Town G is to the north of Town E. Town G is to the north-west of Town D. What is the position of Town E with respect to Town D?

(a) West
(b) North

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(c) South
(d) East

Q45. Who among the following was awarded with the MS Swaminathan Environment Protection Award 2024?
(a) Alok Shukla
(b) Anant Darshan Shankar
(c) Vinod Ganatra
(d) Arun Bansal

Q46. In a certain code language,
'A + B' means 'A is the sister of B'
'A − B' means 'A is the brother of B'
'A × B' means 'A is the wife of B' '
A ÷ B' means 'A is the father of B'
Based on the above, how is M related to Q if 'M × N − O ÷ P + Q'?
(a) Mother's Brother's Daughter
(b) Father's Brother's Wife
(c) Mother's Brother's Wife
(d) Father's Brother's Daughter

Q47. This question is based on the five, three-digit numbers given below.
(Left) 194 932 446 225 493 (Right)
(Example- 697 – First digit = 6, second digit = 9 and third digit = 7) (NOTE: All operations to be done from left to right.) What will be the resultant if the first digit of the highest number is added to the second digit of the lowest number?
(a) 15
(b) 16
(c) 18
(d) 17

Q48. Two sets of numbers are given below. In each set of numbers, certain mathematical operation(s) on the first number result(s) in the second number. Similarly, certain mathematical operation(s) on the second number result(s) in the third number and so on. Which of the given options follows the same set of operations as in the given sets? (NOTE: Operations should be performed on the whole numbers, without breaking down the numbers into their constituent digits. E.g. 13 – Operations on 13 such as adding / subtracting /multiplying to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed.)
13 - 15 - 30 - 60 ;
3 - 5 - 10 - 20
(a) 10 - 12 - 24 - 42
(b) 8 - 10 - 20 - 40
(c) 15 - 17 - 34 - 44
(d) 5 - 7 - 14 - 24

Q49. Arjun marks the price of his article 50% more than its cost price. If he sells the article for Rs. 86,580 after allowing a discount of 26%, then what will be the cost price (in Rs.) of the article?
(a) 78,003
(b) 77,999
(c) 78,000
(d) 78,002

Q50. PH 14 is related to SD 30 in a certain way. In the same way, JI 18 is related to ME 34. To which of the given options is MU 6 related, following the same logic?
(a) HL 31
(b) PQ 22

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(c) IV 20
(d) NH 33

Q51. What significant achievement did Mohun Bagan Super Giant accomplish by winning the ISL 2024-25 title?
(a) They won the title with a 100% win rate at home.
(b) They became the second team to win both the ISL League Shield and ISL Cup in the same season.
(c) They won the title without losing a single match.
(d) They became the first team to win the ISL title twice.

Q52. As per the Union Budget 2025-26, what is the total number of Gram Panchayats in India?
(a) 2.00 lakh
(b) 1.65 lakh
(c) 2.68 lakh
(d) 3.97 lakh

Q53. Which of the following is not a 'Sushira Vadya'?
(a) Bansuri
(b) Pungi
(c) Shehnai
(d) Sitar

Q54. What is the mode of the following data?
41, 55, 45, 48, 40, 47, 41, 47, 54, 44, 49, 48, 53, 54, 50, 53, 41, 46
(a) 45
(b) 55
(c) 48
(d) 41

Q55. A man spends 12% of his monthly salary on house rent. If every month, he also spends Rs. 407 on conveyance and Rs. 8,657 on grocery and saves the remaining Rs. 924, his monthly salary is:
(a) Rs. 11,413
(b) Rs. 11,350
(c) Rs. 11,449
(d) Rs. 11,377

Q56. Which of the following letter-number clusters will replace the question mark (?) in the given series to make it logically complete?
MR25, NS33, OT41, PU49, ?
(a) QV57
(b) QV58
(c) QU57
(d) QU58

Q57. What was the percentage distribution of persons in the age group 15-59 years (both rural and urban) who did NOT receive vocational/technical training, as per PLFS 2021 22?
(a) 70%
(b) 60%
(c) 75%
(d) 80.5%

Q58. In the reaction: $2H_2 + O_2 \rightarrow 2H_2O$, if 5 moles of H_2 and 2 moles of O_2 are mixed, the limiting reagent is:
(a) H_2
(b) CO_2
(c) H_2O
(d) O_2

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Q59. This question is based on the five, three-digit numbers given below.

(Left) 740 636 787 884 316 (Right) (Example- 697 – First digit = 6, second digit = 9 and third digit = 7)

(NOTE: All operations to be done from left to right.)

What will be the resultant if the second digit of the highest number is added to the third digit of the lowest number?

(a) 13
(b) 15
(c) 17
(d) 14

Q60. In March 2025, India successfully tested a high-energy laser-directed weapon system, becoming the fourth nation globally to achieve this feat. Which countries had previously developed such systems?

(a) China, Japan and South Korea
(b) Russia, Israel and Germany
(c) The US, The UK and France
(d) The US, Russia and China

Q61. Each of C, D, E, F, S, T and U has an exam on a different day of a week starting from Monday and ending on Sunday of the same week. S has the exam on Thursday and T has the exam on Saturday. F has the exam immediately before U. C has the exam on one of the days after E. D has the exam immediately after U. Who has the exam on the last day of the week?

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

Q62. If 1 is added to each even digit and 1 is subtracted from each odd digit in the number 8629475, what will be the sum of the highest and lowest digits in the new number thus formed?

(a) 6
(b) 12
(c) 16
(d) 14

Q63. Q starts from Point P and drives 2 km towards the south. He then takes a right turn, drives 3 km, turns right and drives 11 km. He then takes a right turn and drives 4 km, turns left and drives 3 km. He then takes a right turn and drives 2 km. He takes a final right turn, drives 12 km and stops at Point O. How far (shortest distance) and towards which direction should he drive in order to reach Point P again? (All turns are 90 degree turns only unless specified.)

(a) 7 km towards the north
(b) 5 km towards the south
(c) 3 km towards the west
(d) 3 km towards the east

Q64. In a certain code language, ‘GSTA’ is coded as ‘51’ and ‘XMBJ’ is coded as ‘53’. What is the code for ‘YDOM’ in the given language?

(a) 58
(b) 55
(c) 60
(d) 61

Q65. Each of P, Q, R, S, T, U and V has an exam on a different day of a week starting from Monday and ending on Sunday of the same week. P has an exam on Friday. Only 2 people have an exam between P and S. U has an exam immediately before V, and Q has an exam immediately after T. Only 2 people have an exam between R and V. How many people have an exam before V?

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

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(d) 3

Q66. A bank offers 7.8% compound interest per annum calculated on a half-yearly basis. A customer deposits Rs. 9,920 each on 1 January and 1 July of a year. At the end of the year, the amount he would have gained by way of interest is _____ (give your answer correct to 2 decimal places).

(a) Rs. 1,174.16
(b) Rs. 1,175.73
(c) Rs. 1,183.37
(d) Rs. 1,185.69

Q67. In May 2025, Jenu Kuruba families reoccupied their ancestral land in which of the following tiger reserves of India?

(a) Hemis National Park
(b) Manas National Park
(c) Nagarahole Tiger Reserve
(d) Sariska National Park

Q68. The Reserve Bank of India has its offices in how many locations in India, as of April 2025?

(a) 34 locations
(b) 33 locations
(c) 30 locations
(d) 28 locations

Q69. Which of the following letter-clusters should replace # and % so that the pattern and relationship followed between the letter-cluster pair on the left side of :: is the same as that on the right side of ::?

: ONJ :: VUQ : %

(a) = RIO, % = ASN
(b) = UIM, % = STN
(c) = RYM, % = PRN
(d) # = RQM, % = SRN

Q70. Which of the following national parks is recognised as the world's only floating national park?

(a) Sundarbans National Park
(b) Keibul Lamjao National Park
(c) Bhitarkanika National Park
(d) Gulf of Mannar Marine National Park

Q71. If 14 : A :: A : 56, find the positive value of A.

(a) 28
(b) 31
(c) 29
(d) 26

Q72. Which of the following companies assisted the Raja of Cochin in expelling the Portuguese from his kingdom in 1663?

(a) French East India Company
(b) Dutch East India Company
(c) British East India Company
(d) Spanish East India Company

Q73. Who succeeded Ashoka to the throne?

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

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Q74. The least number which, when diminished by 9, is divisible by 13, 20, 10 and 23 is:

(a) 6015
(b) 6010
(c) 5989
(d) 6035

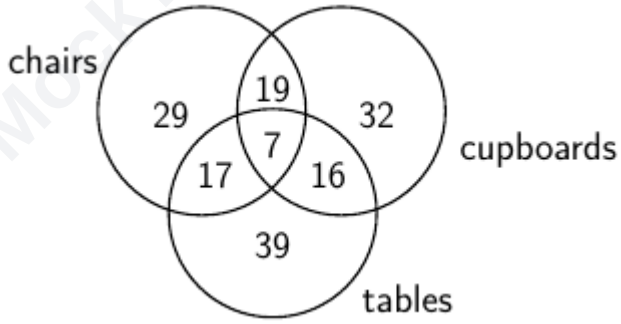
Q75. Saline and Alkaline soils are most commonly found in:

(a) the Deccan Plateau
(b) drought-prone areas
(c) the Western Himalayas
(d) the Deltas of Ganga and Godavari

Q76. Which of the following best describes the underlying data structure that forms the basis of an electronic spreadsheet like MS Excel?

(a) Relational database model with interconnected tables and fields
(b) A hierarchical tree structure organizing data into nodes and branches
(c) A two-dimensional grid composed of rows and columns intersecting to form cells
(d) A linear sequence of data entries, similar to a text document

Q77. Study the given Venn diagram carefully and answer the question that follows.



The numbers in different sections indicate the number of pieces of furniture. How many chairs are there which are also cupboards but not tables?

(a) 17
(b) 19
(c) 7
(d) 29

Q78. A, B, C, D, R, S and T are sitting around a circular table facing the centre of the table. Only four people sit between B and D when counted from the right of B. B sits third to the left of C. T sits third to the left of R. S is an immediate neighbour of both D and C. How many people sit between A and S when counted from the right of A?

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

Q79. A can complete a piece of work in 18 days and B can complete it in 22 days. If they work on alternate days, starting with B on the first day, then in how many days will the work be finished?

(a) 18 2/9
(b) 18 9/11
(c) 19 2/9
(d) 19 9/11

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Q80. Seven people, I, J, K, L, O, P and Q are sitting in a row, facing north. Only two people sit to the left of P. Only three people sit between P and I. Only one person sits between I and O. Q sits to the immediate left of K. J is not an immediate neighbour of I. How many people sit to the right of L?

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

Q81. Who holds the position of President of the International Criminal Court (as of April 2025)?

(a) Judge Piotr Hofmański
(b) Judge Silvia Fernández de Gurmendi
(c) Judge Tomoko Akane
(d) Judge Karim AA Khan

Q82. The sum of 6 numbers is 300. Find their average.

(a) 48
(b) 51
(c) 50
(d) 49

Q83. If the mode of a data exceeds its mean by 12.6, then the mode exceeds the median by _____. (Use empirical formula.)

(a) 17.6
(b) 15.9
(c) 8.4
(d) 18.2

Q84. Simplify : 10 × (5 − 9) + (123/41)

(a) -31
(b) -35
(c) -37
(d) -34

Q85. What should come in place of the question mark (?) in the given series based on the English alphabetical order?

WOM CVS ICY OJE ?

(a) UKQ
(b) KQU
(c) KUQ
(d) UQK

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 letter-cluster pair DOES NOT belong to that group? (Note: The odd one out is not based on the number of consonants/vowels or their position in the letter-cluster.)

(a) PS−TW
(b) UX−YB
(c) GJ−JP
(d) YB−CF

Q87. Samantha Bansil's novel, set in precolonial Philippines, is titled:

(a) Island of the Lost
(b) Black Salt Queen
(c) The Pearl Diver
(d) The Bamboo Sword

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Q88. One important outcome of British social reforms was _____.

(a) emergence of women in public life
(b) increase in caste rigidity
(c) spread of religious fundamentalism
(d) decline in education

Q89. Which of the options below is equivalent to $216x^3 + 27y^3 + 324x^2y + 162xy^2$?

(a) $(6x + 6y)^3$
(b) $(3x + 6y)^3$
(c) $(6x + 3y)^3$
(d) $(8x + 3y)^3$

Q90. POR is the diameter of a circle. PQ and RQ are its two chords. The length of arc PQ is half of the length of arc RQ. Find the measure of angle POQ.

(a) 30°
(b) 90°
(c) 120°
(d) 60°

Q91. Simplify the following :

88/9 x (74 + 30) + 37

(a) 9485/9
(b) 2230/9
(c) 4205/9
(d) 3872/9

Q92. Which navigation satellite did India launch in January 2025 to enhance its NavIC system?

(a) IRNSS-1G
(b) GSAT-10
(c) NVS-02
(d) NVS-01

Q93. Priya bought 45 kg of apples and mangoes for Rs. 1,240. The prices of apples and mangoes were Rs. 25/kg and Rs. 30/kg, respectively. How much money did she spend on mangoes separately?

(a) Rs. 690
(b) Rs. 676
(c) Rs. 650
(d) Rs. 700

Q94. The Capital Adequacy Ratio, sometimes seen in news, is related to which of the following?

(a) External borrowing of states
(b) Government budgeting
(c) Banking operations
(d) Trade operations

Q95. The salaries of X, Y, and Z are in the ratio 10 : 20 : 20. If the increments of 82%, 50%, and 19% are allowed respectively in their salaries, what will be the new ratio of their salaries?

(a) 92 : 154 : 120
(b) 91 : 150 : 119
(c) 90 : 153 : 126
(d) 88 : 151 : 123

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Q96. What is the primary objective of the 'Trinetra' project, developed by IIT Tirupati?

(a) To implement AI-driven surveillance systems in schools
(b) To create a cybersecurity curriculum for university students
(c) To establish a national cybersecurity task force
(d) To develop a mobile game promoting cybersecurity awareness

Q97. How can a foreigner who has lived in India for 12 years acquire Indian citizenship?

(a) By registration
(b) By naturalisation
(c) By birth
(d) By descent

Q98. Based on the English alphabetical order, three of the following four letter-cluster pairs are alike in a certain way and thus form a group. Which letter-cluster pair DOES NOT belong to that group? (Note: The odd one out is not based on the number of consonants/vowels or their position in the letter-cluster.)

(a) YR-EK
(b) AT-FM
(c) MF-RY
(d) GZ-LS

Q99. The Palk Strait is an inlet of which of the following?

(a) Gulf of Khambhat
(b) Persian Gulf
(c) Bay of Bengal
(d) Arabian Sea

Q100. What does setting a Page Break in MS Excel 365 allow you to control?

(a) Whether formulas are recalculated before printing
(b) Where headers appear on each page
(c) The maximum size of printable margins
(d) Where the worksheet splits across printed pages

ANSWER KEY

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

SOLUTIONS

Q1. Answer: (a) 8.75

Shortcut Trick

Total Simple Interest generated = Amount − Principal = 2700 − 1440 = Rs. 1260.

Interest for 1 year = 10% of 1440 = Rs. 144.

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Time taken = Total Interest ÷ Interest per year = 1260 ÷ 144.

Time = 35 ÷ 4 = 8.75 years.

Therefore The correct answer is 8.75 years.

Alternate Method

Given:

Principal (P) = Rs. 1,440

Amount (A) = Rs. 2,700

Rate of Interest (R) = 10% per annum

Formula Used:

Simple Interest (SI) = Amount − Principal

SI = (P × R × T) ÷ 100

Principal

Rs. 1440

Amount

Rs. 2700

• Rs. 1260 (SI)

Rate = 10% p.a.

Time (T) = ?

Calculations:

=> SI = 2,700 − 1,440 = Rs. 1,260

=> 1,260 = (1,440 × 10 × T) ÷ 100

=> 1,260 = 144 × T

=> T = 1,260 ÷ 144

=> T = 105 ÷ 12

=> T = 35 ÷ 4

=> T = 8.75

Therefore The correct answer is 8.75 years.

Additional Information

Simple Interest (SI)

It is the interest calculated only on the initial principal amount. Formula: SI = (P × R × T) ÷ 100.

Amount in Simple Interest

The total amount paid or received at the end of the time period. Formula: A = P + SI = P × [1 + (R × T) ÷ 100].

Compound Interest (CI)

Interest calculated on both the principal and the accumulated interest of previous periods. Formula: A = P × (1 + R ÷ 100)^T.

Q2. Answer: (a) Orographic

The correct answer is Orographic.

Key Points

• The intense rainfall on the western side of the Western Ghats is caused by the orographic rainfall mechanism.

• Orographic rainfall occurs when moist air is forced to rise over a mountain range, leading to cooling, condensation, and precipitation.

• The Western Ghats act as a natural barrier, causing the moisture-laden southwest monsoon winds to rise and result in heavy rainfall on the windward side.

• The windward side of the Western Ghats receives significantly higher rainfall, while the leeward side remains relatively dry, creating a rain shadow region.

• This phenomenon is common in regions with prominent mountain ranges, particularly in tropical and subtropical climates.

Additional Information

• Orographic Rainfall:

• This type of rainfall is also known as relief rainfall.

• It occurs when air masses are forced to rise due to the presence of a mountain or elevated terrain.

• As the air rises, it cools and its capacity to hold moisture decreases, leading to condensation and precipitation.

• Windward vs. Leeward Side:

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• The windward side faces the incoming moist winds and receives heavy rainfall.
• The leeward side, sheltered from the winds, remains dry and is termed as the rain shadow region.
• Importance of Western Ghats:
• The Western Ghats are recognized as a biodiversity hotspot and are crucial for India's monsoon dynamics.
• The region supports agriculture, hydropower generation, and water supply for surrounding areas.
• Other Types of Rainfall:
• Convectional Rainfall: Caused by the heating of the Earth's surface, common in equatorial regions.
• Cyclonic Rainfall: Associated with cyclones and low-pressure systems.
• Frontal Rainfall: Occurs when warm and cold air masses meet, leading to precipitation along the front.

Q3. Answer: (c) Brazil

The correct answer is Brazil.

Key Points

• Brazil assumed the presidency of BRICS in January 2025, continuing the annual rotation of leadership among member countries.
• BRICS is an acronym for five major emerging economies: Brazil, Russia, India, China, and South Africa.
• The presidency of BRICS rotates annually in alphabetical order among its members.
• As the BRICS president, Brazil will oversee hosting summits, coordinating initiatives, and aligning efforts for economic cooperation among member countries in 2025.
• The BRICS presidency allows member countries to shape agendas focusing on global economic challenges and sustainable development.

Additional Information

• BRICS Overview
• BRICS was established in 2006, initially consisting of Brazil, Russia, India, and China, with South Africa joining in 2010.
• The organization focuses on fostering cooperation in areas such as trade, finance, infrastructure, and sustainable development.
• The BRICS nations collectively represent approximately 40% of the global population and over 20% of the world’s GDP.
• BRICS Presidency
• The presidency rotates alphabetically among member countries every year.
• Responsibilities include hosting the annual BRICS summit, coordinating agendas, and spearheading collaborative efforts.
• South Africa held the presidency in 2023, followed by Russia in 2024, and Brazil in 2025.
• Key Initiatives by BRICS
• New Development Bank (NDB): Established in 2014 to fund infrastructure and sustainable development projects.
• Contingent Reserve Arrangement (CRA): A framework to provide financial support during global economic crises.
• BRICS Business Council: Promotes business collaboration among member nations.
• Impact of BRICS
• BRICS plays a significant role in advocating for reforms in global financial institutions like the IMF and World Bank.
• It emphasizes addressing global challenges such as climate change, poverty, and inequality.
• The group seeks to create a multipolar world order, reducing reliance on Western-dominated institutions.

Q4. Answer: (c) 237

The logic followed here is:

Hence, the correct answer is "Option 3".

Q5. Answer: (b) World Intellectual Property Organization

The correct answer is World Intellectual Property Organization.

Key Points

• The World Intellectual Property Organization (WIPO) is a specialized agency of the United Nations responsible for promoting intellectual property rights worldwide.
• India ranked 39th among 133 global economies in the 2024 Global Innovation Index (GII), showcasing its leadership in the Central and Southern Asian region.
• The Global Innovation Index is published annually by WIPO in collaboration with other institutions such as Cornell University and INSEAD.
• The GII evaluates economies based on innovation capabilities and results using indicators like research, infrastructure, and business sophistication.

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• India's consistent improvement in ranking reflects its focus on enhancing education, research, and technology-driven sectors.

Additional Information

• World Intellectual Property Organization (WIPO):

• Founded in 1967, WIPO is headquartered in Geneva, Switzerland.

• Its mission is to lead the development of a balanced and effective international intellectual property (IP) system.

• WIPO provides services for international IP protection such as patents, trademarks, and copyrights.

• The organization currently has 193 member states.

• Global Innovation Index (GII):

• The GII ranks countries based on their innovation performance using over 80 indicators.

• It is recognized globally as a benchmark for assessing innovation policies and outcomes.

• The index covers areas like human capital, research, market sophistication, and knowledge creation.

• India has been consistently improving its rank, demonstrating advancements in digital infrastructure, startup ecosystem, and R&D activities.

• India's Innovation Ecosystem:

• India has achieved global recognition for its startup-friendly policies and technological advancements.

• Initiatives like Digital India, Make in India, and Atal Innovation Mission have contributed to enhancing the innovation landscape.

• India is a hub for sectors like, ITpharmaceuticals, and space technology, driving international collaborations.

• Emphasis on higher education and research institutions has strengthened India's position on the GII.

Q6. Answer: (b) 62.63

Shortcut Trick

Average Speed = Total Distance ÷ Total Time

Time 1 = 445 ÷ 89 = 5 hours

Time 2 = 495 ÷ 55 = 9 hours

Time 3 = 250 ÷ 50 = 5 hours

Average Speed = (445 + 495 + 250) ÷ (5 + 9 + 5) = 1190 ÷ 19 = 62.63 km/hr

Therefore The correct answer is 62.63 km/hr.

Alternate Method

Given:

Distances: d1 = 445 km, d2 = 495 km, d3 = 250 km

Speeds: s1 = 89 km/hr, s2 = 55 km/hr, s3 = 50 km/hr

Formula Used:

Time (t) = Distance (d) ÷ Speed (s)

Average Speed = (d1 + d2 + d3) ÷ (t1 + t2 + t3)

Calculations:

=> Total Distance = 445 + 495 + 250 = 1190 km

=> t1 = 445 ÷ 89 = 5 hours

=> t2 = 495 ÷ 55 = 9 hours

=> t3 = 250 ÷ 50 = 5 hours

=> Total Time = 5 + 9 + 5 = 19 hours

=> Average Speed = 1190 ÷ 19

=> Average Speed ≈ 62.6315...

Therefore The correct answer is 62.63 km/hr.

Additional Information

Average Speed for Equal Distances

If two equal distances are covered at speeds u and v, Average Speed = (2 × u × v) ÷ (u + v).

Relative Speed

In the same direction, speed = S1 − S2. In opposite directions, speed = S1 + S2.

Unit Conversion

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

Q7. Answer: (c) 10

Given:

1 is added to each odd digit and 2 is subtracted from each even digit in the number 8574162.

Given	8	5	7	4	1	6	2
Operation	-2	+1	+1	-2	+1	-2	-2
New number	6	6	8	2	2	4	0

The new number formed is 6682240.

The second digit from the left is 6.

The second digit from the right is 4.

The sum of these two digits is 6 + 4 = 10.

Hence, the correct answer is "Option 3".

Q8. Answer: (d) MS Word provides an option upon creating the new list to 'Continue from previous list', which needs to be e...

The correct answer is MS Word provides an option upon creating the new list to 'Continue from previous list', which needs to be explicitly selected..

Key Points

• When creating a new numbered list in MS Word, it does not automatically continue from the previous list. Users need to explicitly select the option to "Continue from previous list".

• This option is available in the context menu when right-clicking on the numbered list or in the "Numbering" section of the Home tab under "Paragraph".

• If the numbering style or level of the new list matches the previous list, the continuation option can be applied seamlessly.

• Restarting numbering is the default behavior unless the "Continue from previous list" option is selected.

• This feature is particularly useful when working with multi-level lists or documents requiring consistent numbering across sections.

Additional Information

• Numbering in MS Word:

• MS Word allows users to create numbered lists using different styles such as numbers, letters, or Roman numerals.

• Numbered lists can be applied to single-level or multi-level structures for better organization.

• Multi-Level Lists:

• Multi-level lists allow users to create hierarchical structures with different levels of numbering or bullet styles.

• Each level can have its own unique style, making it suitable for outlines or complex documents.

• Restarting vs. Continuing Numbering:

• Restarting numbering starts the list from 1 (or the chosen starting point).

• Continuing numbering links the new list to the previous one, maintaining a consistent numbering sequence.

• Context Menu Options:

• Right-clicking on a list provides additional options like 'Increase Indent', 'Decrease Indent', 'Restart at 1', and 'Continue Numbering'.

• These options provide flexibility for managing lists in structured documents.

• Customizing Numbering:

• Users can define custom numbering formats in MS Word, such as "Step 1", "Part A", or any unique style.

• This customization is accessible under the "Define New Number Format" option in the numbering menu.

Q9. Answer: (a) 59

Shortcut Trick

For a quadratic equation to have equal roots, the constant term K must satisfy $K = b^2 / 4a$.

Here, a = 2 and b = −8.

$K = (-8)^2 / (4 \times 2) = 64 / 8 = 8$.

The required value is $K^2 - 5 = 8^2 - 5 = 64 - 5 = 59$.

Therefore The correct answer is 59.

Alternate Method

Given: The quadratic equation is $2x^2 - 8x + K = 0$.

Formula Used: A quadratic equation $ax^2 + bx + c = 0$ has real and equal roots if its Discriminant (D) is zero, i.e., $D = b^2 - 4ac = 0$.

Comparing $2x^2 - 8x + K = 0$ with $ax^2 + bx + c = 0$:

=> $a = 2, b = -8, c = K$

=> $D = (-8)^2 - 4 \times 2 \times K = 0$

=> $64 - 8K = 0$

=> $8K = 64$

=> $K = 64 \div 8 = 8$

Now, we need to find the value of $(K^2 - 5)$:

=> $K^2 - 5 = 8^2 - 5$

=> $64 - 5 = 59$

Therefore The correct answer is 59.

Additional Information

Nature of Roots

The nature of roots depends on $D = b^2 - 4ac$. If $D > 0$, roots are real and distinct; if $D = 0$, roots are real and equal; if $D < 0$, roots are imaginary.

Sum and Product of Roots

For $ax^2 + bx + c = 0$, the sum of roots $(\alpha + \beta) = -b/a$ and the product of roots $(\alpha\beta) = c/a$.

Quadratic Formula

The roots of a quadratic equation are given by $x = (-b \pm \sqrt{D}) / 2a$.

Q10. Answer: (c) 114

Shortcut Trick

Net rate of filling = $1/18 - 1/19 = 1/(18 \times 19) = 1/342$ tank per minute.

Time to fill full tank = 342 minutes.

Time to fill 1/3 of the tank = $342 \div 3 = 114$ minutes.

Therefore The correct answer is 114 minutes.

Alternate Method

Pipe	Time (min)	Total Capacity (LCM)	Efficiency
Filling Pipe	18	342 units	+19
Emptying Pipe	19	−18	

=> Combined Efficiency = 19 − 18 = 1 unit/min

=> Target Volume (1/3 of tank) = $342 \div 3 = 114$ units

=> Time Required = Target Volume ÷ Combined Efficiency

=> Time Required = $114 \div 1 = 114$ minutes

Therefore The correct answer is 114 minutes.

Additional Information

Pipes and Cisterns Logic

Filling pipes have positive efficiency while emptying pipes (leaks) have negative efficiency.

Net Work Formula

If pipe A fills in x and pipe B empties in y, net time $T = (x \times y) \div (y - x)$ for one full tank.

Fractional Work

To find time for a fraction k of the tank, $Time_k = k \times$ Total Time.

Q11. Answer: (a) 20.5

Shortcut Trick

Base Average of 9 numbers = 17.

Deviation of 7 numbers from the average = 16 − 17 = −1.

Total deviation to be balanced by the remaining two numbers = $-(7 \times (-1)) = +7$.

Average of remaining two numbers = $17 + (7 \div 2) = 17 + 3.5 = 20.5$.

Therefore The correct answer is 20.5.

Alternate Method

Given:

Average of 9 numbers = 17

Average of 7 numbers = 16

Formula Used:

Sum = Average × Number of items

Average of remaining items = (Total Sum − Sum of known items) ÷ Remaining items count

Calculations:

=> Sum of 9 numbers = 9 × 17 = 153

=> Sum of 7 numbers = 7 × 16 = 112

=> Sum of remaining two numbers = 153 − 112 = 41

=> Average of remaining two numbers = 41 ÷ 2 = 20.5

Therefore The correct answer is 20.5.

Additional Information

Net Deviation Rule

The algebraic sum of the deviations of all observations from their arithmetic mean is always zero. This is used to find missing values or averages quickly.

Weighted Average

When two groups with averages A1 and A2 and sizes n1 and n2 are combined, the new average is (n1A1 + n2A2) ÷ (n1 + n2).

Arithmetic Mean Formula

Average = Total Sum of Observations ÷ Total Number of Observations.

Q12. Answer: (c) 2

The given code language is:

Thus, 'S' is coded as '2'.

Hence, the correct answer is "Option 3".

Q13. Answer: (d) WAUE

The logic followed in this pattern involves an alternating alphabetical shift for each letter position:

For 'MBKF' related to 'OGMK':

For 'QLOP' related to 'SQQU':

Applying the same logic to 'UVSZ':

Thus, 'UVSZ' will be coded as WAUE.

Hence, the correct answer is "Option 4".

Q14. Answer: (a) 962

The logic followed here is:

Hence, the correct answer is "Option 1".

Q15. Answer: (b) Kalibangan

The correct answer is Kalibangan.

Key Points

• Kalibangan is a prominent Harappan site located in present-day Rajasthan, India.

• It is unique among Harappan sites for providing evidence of ploughed agricultural fields.

• The ploughed field marks at Kalibangan are indicative of early agricultural practices in the Indus Valley Civilization.

• These field impressions were discovered near the southern part of the site, showing furrows aligned in two directions, suggesting advanced farming techniques.

• The discovery highlights the significance of agriculture in the economy of the Harappan civilization.

Additional Information

• Indus Valley Civilization:

• It is one of the world's earliest urban civilizations, dating back to 2500 BCE.

• Major sites include Mohenjo-daro, Harappa, Dholavira, Lothal, and Kalibangan.

• Known for advanced town planning, drainage systems, and standardized weights and measures.

• Kalibangan’s Historical Significance:

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• Kalibangan is divided into two parts: the citadel (western mound) and the lower town (eastern mound).
• The site shows evidence of fire altars, indicating ritualistic practices.
• It also provides evidence of mud-brick structures typical of Harappan architecture.
• Ploughed Fields in Archaeology:
• Ploughed field impressions are rare in archaeology and provide insights into ancient agricultural practices.
• Such discoveries help reconstruct the methods of crop cultivation used by early civilizations.
• Agriculture in the Harappan Civilization:
• Major crops included wheat, barley, sesame, mustard, and cotton.
• Advanced irrigation techniques and seasonal cultivation were practiced.
• Kalibangan's evidence of ploughed fields complements the broader understanding of Harappan agriculture.

Q16. Answer: (d) For food colouring

The correct answer is For food colouring.

Key Points

• Baking soda is primarily used in cooking as a leavening agent, helping baked goods rise by releasing carbon dioxide gas when combined with acidic ingredients.
• It is a common ingredient in antacids, which help neutralize stomach acid and relieve heartburn or indigestion.
• Baking soda is utilized in fire extinguishers, especially for kitchen fires, as it releases carbon dioxide to smother flames.
• Baking soda does not serve as a food coloring agent; its chemical properties are not designed for altering the color of food.
• Its versatility makes it useful for cooking, cleaning, and even personal care, but food coloring is not one of its applications.

Additional Information

• Leavening Agent: Baking soda (sodium bicarbonate) reacts with acidic substances like vinegar or lemon juice to produce carbon dioxide, which causes dough or batter to expand and rise.
• Antacid Properties: As a mild alkaline substance, baking soda neutralizes excess stomach acid, providing relief for conditions like heartburn and acid reflux.
• Fire Extinguishing Use: Baking soda releases carbon dioxide when heated, which helps extinguish small grease fires by cutting off the oxygen supply.
• Other Household Uses: Baking soda is widely used for cleaning, deodorizing, and personal care, such as teeth whitening and skin exfoliation.
• Food Coloring Agents: Food coloring involves dyes or pigments specifically designed to alter the color of food, unlike baking soda, which has no such chemical properties.

Q17. Answer: (d) 48 W 8 Z 56 Y 24 X 6

BODMAS Rule:

According to the question, the letters are interchanged as follows:

Original Letter	W	X	Y	Z
New Symbol	÷	×	•	–

We need to find which option results in 94 after interchanging the symbols.

1) 48 X 8 Y 56 Z 24 W 6

After interchanging the signs: 48 × 8 + 56 − 24 ÷ 6

Perform operations according to BODMAS:

=> 48 × 8 + 56 − 24 ÷ 6

=> 48 × 8 + 56 − 4

=> 384 + 56 − 4

=> 440 − 4

=> 436 ≠ 94

2) 48 Y 8 X 56 W 24 Z 6

After interchanging the signs: 48 + 8 × 56 ÷ 24 − 6

Perform operations according to BODMAS:

=> 48 + 8 × 56 ÷ 24 − 6

=> 48 + 8 × (7/3) − 6

=> 48 + (56/3) − 6

=> (144 + 56)/3 − 6
=> 200/3 − 6
=> (200 − 18)/3
=> 60.66 ≠ 94
3) 48 Z 8 W 56 X 24 Y 6
After interchanging the signs: 48 − 8 ÷ 56 × 24 + 6
Perform operations according to BODMAS:
=> 48 − 8 ÷ 56 × 24 + 6
=> 48 − (1/7) × 24 + 6
=> 48 − 24/7 + 6
=> (336 − 24)/7 + 6
=> 312/7 + 6
=> (312 + 42)/7
=> 50.5 ≠ 94
4) 48 W 8 Z 56 Y 24 X 6
After interchanging the signs: 48 ÷ 8 − 56 + 24 × 6
Perform operations according to BODMAS:
=> 48 ÷ 8 − 56 + 24 × 6
=> 6 − 56 + 24 × 6
=> 6 − 56 + 144
=> −50 + 144
=> 94
Hence, the correct answer is "Option 4".

Q18. Answer: (d) touch

The correct answer is touch.
Key Points
• The touch command in Unix-based operating systems is used to create an empty file if the file does not already exist.
• If the file exists, the touch command updates the file's timestamp, which includes access and modification times.
• Syntax for the command: touch filename. Replace filename with the desired name of the file.
• Touch does not modify the content of the file; it only creates or updates metadata such as timestamps.
• This command is particularly useful for scripting and testing purposes where files need to be generated without content.
Additional Information
• mkdir:
• Used to create directories, not files.
• Syntax: mkdir directory_name.
• mkfile:
• A Unix command available on some systems (e.g., Solaris).
• It is used to create files with a specific size.
• cp:
• Used to copy files or directories from one location to another.
• Syntax: cp source destination.
• File Creation and Modification:
• Unix-based systems rely heavily on shell commands for file management.
• File attributes such as permissions, ownership, and timestamps can be modified using other commands like chmod and chown.
• File Testing:
• The test or [] command can be used to check the existence of a file.
• Example: [-e filename] returns true if the file exists.

Q19. Answer: (d) Panchayat Samiti

The correct answer is Panchayat Samiti.
Key Points

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• The Panchayati Raj system in India is a three-tier structure consisting of the Gram Panchayat at the village level, the Panchayat Samiti at the block level, and the Zila Parishad at the district level.

• The Panchayat Samiti does not operate at the village level. It functions at the block level, acting as an intermediary body between the Gram Panchayat and the Zila Parishad.

• The components of the Panchayati Raj system at the village level include the Gram Sabha, Gram Panchayat, and Nyaya Panchayat.

• The Gram Sabha is the general assembly of all the registered voters in a village, while the Gram Panchayat is the executive body responsible for governance and development activities.

• The Nyaya Panchayat, where established, handles minor disputes and judicial matters at the village level.

Additional Information

• Gram Sabha:

• The Gram Sabha is the foundational body of the Panchayati Raj system, consisting of all the registered voters in a village.

• It plays a key role in decision-making, approving budgets, and monitoring the functioning of the Gram Panchayat.

• Gram Panchayat:

• The Gram Panchayat is the executive body of the village-level Panchayati Raj system.

• It is responsible for implementing development programs, maintaining public infrastructure, and ensuring welfare schemes reach the beneficiaries.

• Nyaya Panchayat:

• Nyaya Panchayats are quasi-judicial bodies established at the village level in some states to handle minor civil and criminal disputes.

• They aim to provide accessible and speedy justice to rural citizens without the need for formal legal proceedings.

• Panchayat Samiti:

• The Panchayat Samiti operates at the block level, coordinating and supervising the activities of the Gram Panchayats under its jurisdiction.

• It is responsible for planning and implementing development programs at the block level.

• Zila Parishad:

• The Zila Parishad is the apex body of the Panchayati Raj system, functioning at the district level.

• It coordinates development activities and provides administrative support to the Panchayat Samitis and Gram Panchayats.

Q20. Answer: (b) Sardar Vallabhbhai Patel

The correct answer is Sardar Vallabhbhai Patel.

Key Points

• Sardar Vallabhbhai Patel was one of the key leaders who collaborated with Mahatma Gandhi during the Kheda Satyagraha of 1918.

• The Kheda Satyagraha was organized against the British government's decision to levy taxes despite crop failure and famine conditions in Gujarat.

• Sardar Patel played a pivotal role in mobilizing peasants and organizing them for the non-violent protest under Gandhi's leadership.

• The movement achieved success as the British government agreed to suspend tax collection for the affected areas and provide relief to the farmers.

• The Kheda Satyagraha marked one of the first major movements led by Gandhi in India, with strong support from Sardar Patel and other leaders.

Additional Information

• Kheda Satyagraha:

• It was a non-violent civil disobedience movement led by Mahatma Gandhi in Gujarat.

• The movement focused on addressing the unjust tax policies imposed on farmers during a period of severe drought and famine.

• It involved mass participation of farmers, emphasizing the principles of Satyagraha (truth and non-violence).

• Sardar Vallabhbhai Patel:

• Popularly known as the "Iron Man of India," Patel is celebrated for his leadership and dedication to India's independence and unity.

• He played a significant role in organizing farmers and leading several agrarian movements, including the Kheda and Bardoli Satyagrahas.

• Patel later became India's first Deputy Prime Minister and Home Minister, contributing to the integration of princely states into the Indian Union.

• Connection to Gandhi:

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• Sardar Patel was deeply influenced by Mahatma Gandhi's philosophy of non-violence and truth.
• He worked closely with Gandhi in various movements, including the Kheda Satyagraha and the Salt March.
• Impact of Kheda Satyagraha:
• It highlighted the plight of peasants under colonial rule and demonstrated the effectiveness of organized, non-violent resistance.
• The success of the movement boosted Gandhi's leadership stature and introduced Sardar Patel as a prominent national leader.

Q21. Answer: (d) 26,952

Shortcut Trick
Savings % = 100% − 80% = 20%
Given 20% → Rs. 6,738
Expenses (80%) = 4 × Savings (20%)
Expenses = 4 × 6,738 = Rs. 26,952
Therefore The correct answer is Rs. 26,952.
Alternate Method
Income = Expenses + Savings
=> Let Total Monthly Income be Rs. I.
=> Savings % = 100% − 80% = 20%
=> 20% of I = 6,738
=> (20/100) × I = 6,738
=> I = 6,738 × 5 = Rs. 33,690
=> Monthly Expenses = 80% of 33,690
=> Monthly Expenses = 0.8 × 33,690 = Rs. 26,952
Therefore The correct answer is Rs. 26,952.
Additional Information
Income-Expenditure Formula
Total Income is always the sum of total Expenditure and total Savings. Income = Expenditure + Savings.
Percentage Base Change
If savings are S and savings percentage is s%, then Total Income = (S ÷ s) × 100.
Ratio Method
If expense is 80%, the ratio of Expense : Savings : Income is 4 : 1 : 5. Knowing any one value allows calculating others via unitary method.

Q22. Answer: (c) 5208

Given:
(31^(10) × 2^(15) × 84^6)/(31^9 × 2^(14) × 84^5)
Formula used:
(a^m)/(aⁿ) = a^(m-n)
Calculation:
(31^(10) × 2^(15) × 84^6)/(31^9 × 2^(14) × 84^5)
=> (31^(10))/(31^9) × (2^(15))/(2^(14)) × (84^6)/(84^5)
=> (31^(10-9)) × (2^(15-14)) × (84^(6-5))
=> (31¹) × (2¹) × (84¹)
=> 31 × 2 × 84
=> 31 × 168 = 5208
Therefore The correct answer is option (3).

Q23. Answer: (b) 1

Shortcut Trick
Put {} = 0° to solve the expression quickly.
Since sec 0° = 1, tan 0° = 0, sin 0° = 0, and cos 0° = 1:
=> (1 − 0)² × (1 + 0)² ÷ 1²
=> 1 × 1 ÷ 1 = 1
Therefore The correct answer is 1.

Alternate Method

Given:

The trigonometric expression is $(\sec\theta - \tan\theta)^2 (1 + \sin\theta)^2 \div \cos^2\theta$

Formula Used:

=> $\sec\theta = 1 \div \cos\theta$

=> $\tan\theta = \sin\theta \div \cos\theta$

=> $\cos^2\theta = 1 - \sin^2\theta = (1 - \sin\theta)(1 + \sin\theta)$

Calculations:

Expressing sec{} and tan{} in terms of sin{} and cos{}:

=> $(\sec\theta - \tan\theta)^2 = (1/\cos\theta - \sin\theta/\cos\theta)^2 = ((1 - \sin\theta)/\cos\theta)^2 = (1 - \sin\theta)^2 \div \cos^2\theta$

Substitute this back into the main expression:

=> $[(1 - \sin\theta)^2 \div \cos^2\theta] \times (1 + \sin\theta)^2 \div \cos^2\theta$

=> $[(1 - \sin\theta)^2 \times (1 + \sin\theta)^2] \div \cos^4\theta$

Using the algebraic identity $(a - b)(a + b) = a^2 - b^2$:

=> $[(1 - \sin\theta)(1 + \sin\theta)]^2 \div \cos^4\theta$

=> $(1 - \sin^2\theta)^2 \div \cos^4\theta$

Since $1 - \sin^2\theta = \cos^2\theta$:

=> $(\cos^2\theta)^2 \div \cos^4\theta$

=> $\cos^4\theta \div \cos^4\theta = 1$

Therefore The correct answer is 1.

Additional Information

Trigonometric Identities

The three fundamental Pythagorean identities are $\sin^2\theta + \cos^2\theta = 1$, $1 + \tan^2\theta = \sec^2\theta$, and $1 + \cot^2\theta = \text{cosec}^2\theta$.

Value Substitution Method

For algebraic or trigonometric expressions independent of the angle, substituting standard values like 0°, 30°, 45°, 60°, or 90° (where defined) is the fastest way to find the correct option.

Q24. Answer: (b) Shifting cultivation

The correct answer is Shifting Cultivation.

Key Points

• Shifting cultivation is known as Ponam in Kerala and Podu in Odisha, reflecting regional nomenclature for this agricultural practice.

• It involves clearing forests through slash-and-burn methods, cultivating crops temporarily, and then shifting to another area once soil fertility declines.

• This method is widely practiced by tribal communities in hilly and forested regions of India, including Odisha, Kerala, and the North-Eastern states.

• It is considered a traditional form of agriculture that supports subsistence farming for communities dependent on forest resources.

• Though it provides temporary agricultural productivity, shifting cultivation is often criticized for contributing to deforestation and soil erosion.

Additional Information

• Slash-and-Burn Agriculture: This method involves cutting vegetation and burning it to clear land for cultivation. The ash acts as a nutrient source for the soil.

• Subsistence Farming: A type of farming where farmers grow crops primarily for their family's consumption, with little to no surplus for trade.

• Impact on Environment: Shifting cultivation can lead to loss of biodiversity, deforestation, soil degradation, and disruption of local ecosystems.

• Alternative Practices: Governments and organizations encourage sustainable agricultural practices like agroforestry and terraced farming to replace shifting cultivation.

• Regions Practicing Shifting Cultivation: Besides India, this method is practiced globally in tropical regions such as Southeast Asia, Africa, and South America.

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Q25. Answer: (d) 102

Shortcut Trick

If Curved Surface Area (CSA) is half of Total Surface Area (TSA), then CSA = TSA ÷ 2.

This condition 2×CSA = TSA simplifies to 2×(2πrh) = 2πr(h + r).

Further simplification: 2h = h + r => h = r.

Since height (h) is 102 cm, the radius (r) must also be 102 cm.

Therefore The correct answer is 102 cm.

Alternate Method

Given:

Height (h) of the cylinder = 102 cm

Condition: CSA = 1/2 × TSA

Formula Used:

Curved Surface Area (CSA) = 2πrh

Total Surface Area (TSA) = 2πr(h + r)

Calculations:

=> 2πrh = 1/2 × [2πr(h + r)]

=> 2πrh = πr(h + r)

=> 2h = h + r (By cancelling πr on both sides)

=> 2h − h = r

=> r = h

=> r = 102 cm

Therefore The correct answer is 102 cm.

Additional Information

Volume of Cylinder

The volume of a cylinder is the product of base area and height, given by $V = \pi r^2 h$.

Relationship between CSA and TSA

Total Surface Area is the sum of Curved Surface Area and the area of the two circular bases: TSA = CSA + 2×(πr²).

Hollow Cylinder

For a hollow cylinder with outer radius R and inner radius r, the Volume = $\pi(R^2 - r^2)h$.

Q26. Answer: (d) Q Q $ @ 2

Letter	Z	T	E	P	A	U	X
Code	8	$	@	9	2	%	6

Given- A U T E A

Rule No. (1): This condition does not apply because the last letter (A) is a vowel, not a consonant.

Rule No. (2): This condition does not apply because the last letter (A) is a vowel, not a consonant.

Rule No. (3): This condition does not apply because the 4th letter (E) is a vowel, not a consonant.

Rule No. (4): This condition applies because the 1st letter (A) is a vowel and the 2nd letter (U) is also a vowel. So, both will be coded as ‘Q’.

Based on the applicable rule (4), the 1st and 2nd elements will be coded as ‘Q’.

The code for A is 2.

But, due to rule (4), A will be coded as Q.

The code for U is %.

But, due to rule (4), U will also be coded as Q.

The code for T is $.

The code for E is @.

Thus, 'A U T E A' is coded as → Q Q $ @ 2.

Hence, the correct answer is "Option 4".

Q27. Answer: (a) 35

Shortcut Trick

SP1 = Rs. 950 at 5% loss corresponds to 95% of CP.

100% of CP = (950 ÷ 95) × 100 = Rs. 1000.

New SP2 = Rs. 1350.

Gain = SP2 − CP = 1350 − 1000 = Rs. 350.

Gain% = (350 ÷ 1000) × 100 = 35%.

Therefore The correct answer is 35%.

Alternate Method

Given:

Selling price at 5% loss (SP1) = Rs. 950

Selling price for x% gain (SP2) = Rs. 1350

Formula Used:

CP = (SP × 100) ÷ (100 − Loss%)

Gain% = [(SP − CP) ÷ CP] × 100

Rs. 950

SP1 (Loss)

Rs. 1000

CP (Base)

Rs. 1350

SP2 (Gain)

− 5%

• 35%

Profit / Loss Diagram

Calculations:

=> CP = (950 × 100) ÷ (100 − 5)

=> CP = (950 × 100) ÷ 95 = Rs. 1000

=> New Gain = New SP2 − CP

=> New Gain = 1350 − 1000 = Rs. 350

=> New Gain% = (350 ÷ 1000) × 100

=> New Gain% = 35%

=> Comparing with x%, we get the value of x as 35.

Therefore The correct answer is 35%.

Additional Information

Cost Price (CP) & Selling Price (SP)

CP is the price at which a product is purchased. SP is the price at which it is sold. Profit or loss is always calculated on the base of Cost Price unless stated otherwise.

Profit and Loss Formula

Profit = SP − CP, and Profit% = (Profit ÷ CP) × 100. Similarly, Loss = CP − SP, and Loss% = (Loss ÷ CP) × 100.

Marked Price & Discount

Discount is always offered on the Marked Price (MP). Selling Price (SP) = MP − Discount.

Q28. Answer: (b) 545

Shortcut Trick

Relative Speed in opposite direction = 72 + 63 = 135 kmph = 135 × (5/18) = 37.5 m/s.

Total distance (L_A + L_B) = Speed × Time = 37.5 × 24 = 900 m.

Given L_B = 1.5 L_A => L_A + 1.5 L_A = 900 => 2.5 L_A = 900 => L_A = 360 m, L_B = 540 m.

Speed of Train B = 63 × (5/18) = 17.5 m/s.

Bridge Length = (Speed_B × Time) − L_B = (17.5 × 62) − 540 = 1085 − 540 = 545 m.

Therefore The correct answer is 545 m.

Alternate Method

Step 1: Find lengths of trains.

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=> Speed_A = 72 × 5/18 = 20 m/s; Speed_B = 63 × 5/18 = 17.5 m/s.

=> Relative Speed = 20 + 17.5 = 37.5 m/s.

=> Sum of lengths (L_A + L_B) = 37.5 × 24 = 900 m.

=> L_A + 1.5 L_A = 900 => 2.5 L_A = 900 => L_A = 360 m.

=> L_B = 1.5 × 360 = 540 m.

Step 2: Find bridge length.

=> Total Distance = Speed_B × Time = 17.5 × 62 = 1085 m.

=> Bridge Length = Total Distance − L_B = 1085 − 540 = 545 m.

Therefore The correct answer is 545 m.

Additional Information

Relative Speed Concept

When two objects move in opposite directions, their relative speed is the sum of their individual speeds (S1 + S2). In the same direction, it is the difference (|S1 − S2|).

Crossing Distance Rule

When a train crosses another train or a bridge, the total distance covered is always the sum of the lengths of the train and the object being crossed.

Unit Conversion

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

Q29. Answer: (a) Sattriya

The correct answer is Sattriya.

Key Points

• Sattriya is a classical dance form of India, originating from Assam and was introduced in the 15th century by the Vaishnavite saint Srimanta Sankardev.

• It combines music, dance, and drama and is deeply rooted in Vaishnavism, reflecting devotion to Lord Krishna.

• Independent dance numbers such as Chali, Ramdani, and Jhumura are integral parts of the Sattriya repertoire.

• Sattriya was traditionally performed in satras (monasteries) by male monks as part of religious rituals and teachings.

• In 2000, Sattriya was recognized as one of the eight classical dance forms of India by the Sangeet Natak Akademi.

Additional Information

• Classical Dance Forms of India:

• India has eight officially recognized classical dance forms: Bharatanatyam, Kathak, Kathakali, Odissi, Manipuri, Mohiniyattam, Kuchipudi, and Sattriya.

• These dances are characterized by their distinct styles and are deeply rooted in spiritual and cultural traditions.

• Sattras:

• Sattras are Vaishnavite monasteries established by Srimanta Sankardev in Assam.

• They served as centers for spiritual learning, art, music, and dance.

• Key Components of Sattriya:

• Sattriya consists of Ankiya Nat (drama), Borgeet (devotional songs), and distinct dance numbers like Chali and Jhumura.

• It uses intricate hand gestures (mudras), rhythmic footwork, and expressive facial movements.

• Recognition by Sangeet Natak Akademi:

• Sangeet Natak Akademi officially recognized Sattriya as a classical dance form in 2000.

• This acknowledgment helped promote and preserve the dance form outside Assam.

Q30. Answer: (c) Because executive authority is dispersed among a group of ministers accountable to the Parliament

The correct answer is Because executive authority is dispersed among a group of ministers accountable to the Parliament.

Key Points

• The parliamentary system ensures that the executive authority is not concentrated in one individual but is collectively shared by a cabinet of ministers.

• Ministers in the executive are accountable to the Parliament, which acts as a check against any form of authoritarianism or unilateral decision-making.

• The Prime Minister and cabinet members can be questioned, censured, or removed through parliamentary mechanisms such as votes of no confidence.

• This system promotes transparency and prevents the abuse of executive power by subjecting it to parliamentary oversight and democratic processes.

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• The dispersal of power among various ministers prevents despotism and ensures collective decision-making aligned with public interests.

Additional Information

• Parliamentary Democracy:

• A system of government where the executive branch derives its legitimacy from the legislative branch and is accountable to it.

• Examples include the UK, India, and Canada.

• Vote of No Confidence:

• A parliamentary procedure used to remove a government or executive by showing that it no longer has the majority support of the legislature.

• It is an essential tool to ensure executive accountability in a parliamentary system.

• Separation of Powers:

• A principle where governmental powers are divided among different branches: executive, legislative, and judiciary.

• In a parliamentary system, the executive and legislature are closely linked, unlike in a presidential system where they are separate.

• Judicial Oversight:

• The judiciary in parliamentary democracies can review executive actions to ensure compliance with the Constitution.

• This further prevents authoritarian tendencies in governance.

• Collective Responsibility:

• A principle in parliamentary systems where all cabinet members share responsibility for decisions and policies of the government.

• This ensures accountability and prevents individual despotism within the executive.

Q31. Answer: (a) Phosphofructokinase-1 (PFK-1)

The correct answer is Phosphofructokinase-1 (PFK-1).

Key Points

• Phosphofructokinase-1 (PFK-1) is the rate-limiting enzyme in glycolysis, catalyzing the phosphorylation of fructose-6-phosphate to fructose-1,6-bisphosphate.

• PFK-1 is an allosteric enzyme regulated by ATP, citrate, and AMP, ensuring glycolysis responds to the cell's energy needs.

• This enzyme plays a critical role in controlling the flux of glucose metabolism under different physiological conditions.

• High levels of ATP inhibit PFK-1 activity, while AMP and fructose-2,6-bisphosphate activate it, ensuring energy production aligns with cellular demands.

• PFK-1 is active in the cytoplasm and is essential for anaerobic and aerobic energy production pathways.

Additional Information

• Glycolysis

• Glycolysis is a 10-step metabolic pathway that converts glucose into pyruvate, generating ATP and NADH.

• It occurs in the cytoplasm of cells and is the first stage of cellular respiration.

• The pathway can function under both aerobic and anaerobic conditions.

• The primary products of glycolysis are 2 molecules of pyruvate, 2 ATP, and 2 NADH per glucose molecule.

• Hexokinase

• Hexokinase catalyzes the first step of glycolysis, converting glucose to glucose-6-phosphate.

• It is inhibited by its product, glucose-6-phosphate, to regulate glucose uptake.

• Pyruvate Kinase

• Pyruvate kinase catalyzes the final step of glycolysis, converting phosphoenolpyruvate to pyruvate.

• It is regulated by fructose-1,6-bisphosphate (feed-forward activation) and ATP (inhibition).

• Fructose-2,6-bisphosphate

• This molecule is a potent activator of PFK-1, enhancing glycolysis during high energy demand.

• Fructose-2,6-bisphosphate is synthesized by phosphofructokinase-2 (PFK-2) in response to hormonal signals like insulin.

Q32. Answer: (b) Windows Key + E

The correct answer is Windows Key + E.

Key Points

• The shortcut Windows Key + E opens File Explorer in Windows 11, allowing users to navigate files and folders easily.

• File Explorer is a core file management tool in Windows operating systems, enabling users to view, organize, and manage data.

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• This shortcut works universally across all modern versions of Windows, including Windows 10 and 11.

• Using Windows Key + E is a quick and efficient method to access File Explorer without navigating through the Start Menu or Desktop.

• This feature improves productivity for users by providing instant access to file storage locations.

Additional Information

• File Explorer:

• It is a graphical user interface for accessing and managing file systems in Windows operating systems.

• Introduced in Windows 95, it replaced the older "File Manager" used in earlier versions of Windows.

• File Explorer allows users to perform operations like creating, deleting, copying, renaming, and organizing files and folders.

• Keyboard Shortcuts:

• Keyboard shortcuts are combinations of keys that provide quick access to specific functions, saving time and enhancing productivity.

• Examples include Ctrl + C (Copy), Ctrl + V (Paste), and Alt + Tab (Switch between windows).

• Windows Key:

• The Windows key, located on most keyboards, is used to access the Start Menu or execute system-level shortcuts.

• Other useful shortcuts include Windows Key + D (Show Desktop) and Windows Key + L (Lock Screen).

• Windows 11 Enhancements:

• Windows 11 introduced a modernized File Explorer with a simplified interface and redesigned toolbar.

• It includes features like a compact ribbon, better integration with OneDrive, and improved context menus.

Q33. Answer: (c) 60 π cm2

Shortcut Trick

Area of sector = (θ ÷ 360) × πr²

Given: θ = 150° and r = 12 cm

Area = (150 ÷ 360) × π × 12 × 12

Area = (5 ÷ 12) × 144π = 5 × 12π = 60π

Therefore The correct answer is 60π cm².

Alternate Method

Given:

Central angle (θ) = 150°

Radius (r) = 12 cm

Formula Used:

Area of a sector = (θ ÷ 360°) × πr²

Calculations:

=> Area = (150° ÷ 360°) × π × (12)²

=> Area = (5 ÷ 12) × π × 144

=> Area = 5 × π × (144 ÷ 12)

=> Area = 5 × 12π

=> Area = 60π cm²

Therefore The correct answer is 60π cm².

Additional Information

Length of an Arc

The distance along the curved line of the sector is given by l = (θ ÷ 360) × 2πr.

Area in terms of Arc Length

The area of a sector can also be calculated as Area = (1 ÷ 2) × l × r, where l is the arc length.

Perimeter of a Sector

The total boundary of the sector includes the arc and two radii: Perimeter = l + 2r.

Q34. Answer: (c) Rs. 1,965

Shortcut Trick

Use the direct relationship between Cost Price (CP) and Marked Price (MP).

CP : MP = (100 − Discount%) : (100 + Profit%)

CP : MP = (100 − 40) : (100 + 20) = 60 : 120 = 1 : 2

Since 2 units (MP) = Rs. 3,930, then 1 unit (CP) = 3,930 ÷ 2 = Rs. 1,965.

Therefore The correct answer is Rs. 1,965.

Alternate Method

Given: MP = Rs. 3,930, Discount = 40%, Profit = 20%.

Formulas: SP = MP × (100 − D%) ÷ 100 | CP = SP × 100 ÷ (100 + P%)

=> Selling Price (SP) = 3,930 × (100 − 40) ÷ 100

=> SP = 3,930 × 60 ÷ 100 = 3,930 × 0.6 = Rs. 2,358

=> Cost Price (CP) = 2,358 × 100 ÷ (100 + 20)

=> CP = 2,358 × 100 ÷ 120 = 2,358 × 5 ÷ 6

=> CP = 393 × 5 = Rs. 1,965

Therefore The correct answer is Rs. 1,965.

Additional Information

Relation between CP and MP

The formula CP/MP = (100 − D%)/(100 + P%) is derived by equating the two expressions for Selling Price.

Marked Price & Discount

Marked Price is the price listed on the tag, and Discount is always calculated on this price to find the SP.

Q35. Answer: (c) National Women's Day

The correct answer is National Women's Day.

Key Points

• National Women's Day in India is celebrated on February 13th every year to honor Sarojini Naidu, popularly known as the Nightingale of India.

• Sarojini Naidu was born on February 13, 1879, and the day is marked to commemorate her contributions to Indian society.

• She was a prominent freedom fighter, poet, and the first woman to become the president of the Indian National Congress.

• Sarojini Naidu also served as the first woman governor of an Indian state (Uttar Pradesh) after independence.

• Her literary works and political achievements have left an indelible mark on Indian history and women's empowerment.

Additional Information

• Sarojini Naidu's Legacy:

• She is remembered for her collection of poems such as "The Golden Threshold", "The Bird of Time," and "The Broken Wing."

• Her poetry often highlighted themes of patriotism, nature, and love.

• Sarojini Naidu played a critical role in the Civil Disobedience Movement and the Quit India Movement.

• Role in Indian Freedom Struggle:

• She worked closely with Mahatma Gandhi, Jawaharlal Nehru, and other leaders during the Indian independence movement.

• She was a staunch advocate of women's rights and education.

• Recognition and Impact:

• Sarojini Naidu's birthday is celebrated as National Women's Day to inspire women to achieve greatness.

• Her life symbolizes the blend of art and activism, making her a role model for generations.

Q36. Answer: (a) 4

The given three-digit numbers are: 205, 712, 237, 862, 578.

The highest number is 862. Its third digit is 2.

The lowest number is 205. Its first digit is 2.

Add the third digit of the highest number 2 to the first digit of the lowest number 2.

2 + 2 = 4.

Hence, the correct answer is "Option 1".

Q37. Answer: (d) 1400

The correct answer is 1400.

Key Points

• The maximum score for project design evaluation in the Deen Dayal Upadhyaya Grameen Kaushalya Yojana (DDU-GKY) application form process is 1400 points.

• This evaluation score is used to assess the quality and feasibility of the project proposals submitted by implementing partners.

• The scoring system ensures that only well-structured and impactful projects are approved for implementation under the scheme.

• DDU-GKY focuses on skill development and aims to improve employability among rural youth, particularly those from disadvantaged sections of society.

• The project evaluation process plays a critical role in ensuring transparency and the selection of high-quality projects.

Additional Information

• Deen Dayal Upadhyaya Grameen Kaushalya Yojana (DDU-GKY)

• Launched on September 25, 2014, under the Ministry of Rural Development (MoRD).

• Aims to transform rural poor youth into an economically independent and globally relevant workforce.

• Targets youth between the ages of 15 and 35 years from rural areas, with special focus on marginalized communities like SCs, STs, and minorities.

• DDU-GKY is a part of the National Rural Livelihood Mission (NRLM) and is aligned with the 'Skill India' mission.

• Project Design Evaluation Criteria

• Evaluation is based on several parameters including training plan, post-placement support, and infrastructure readiness.

• Projects that score higher are considered better prepared to deliver quality outcomes for beneficiaries.

• Skill Development in Rural India

• India has a significant rural population, and skill development initiatives like DDU-GKY are crucial for reducing unemployment and poverty.

• Programs focus on industry-relevant skills to ensure better job opportunities.

• Funding and Implementation

• DDU-GKY is funded jointly by the central and state governments.

• Implemented through Project Implementing Agencies (PIAs) that submit proposals for approval.

Q38. Answer: (b) Golaknath vs State of Punjab

The correct answer is Golaknath vs State of Punjab

Key Points

• In Golaknath vs State of Punjab, the Supreme Court ruled that Parliament cannot curtail or amend Fundamental Rights under the Constitution.

• The court held that Fundamental Rights are transcendental and cannot be abridged by ordinary legislation.

• This judgment restricted Parliament’s power to amend Fundamental Rights under Article 368.

• Later, in the Kesavananda Bharati case (1973), Parliament was allowed to amend the Constitution but not in a way that destroys its basic structure, including Fundamental Rights.

Additional Information

• Basic Structure Doctrine:

• Introduced in the Kesavananda Bharati case, it holds that certain fundamental features of the Constitution cannot be altered or destroyed through amendments.

• Examples of such features include the supremacy of the Constitution, secularism, democracy, and judicial independence.

• Fundamental Rights:

• These are enshrined in Part III of the Indian Constitution and guarantee civil liberties such as equality, freedom, and protection against exploitation.

• They ensure that Indian citizens can live with dignity and freedom within the framework of the law.

• 24th Constitutional Amendment:

• Passed in 1971, it empowered Parliament to amend any part of the Constitution, including Fundamental Rights.

• This amendment was challenged in the Kesavananda Bharati case.

• Judicial Review:

• This refers to the power of the judiciary to examine the constitutionality of legislative and executive actions.

• It was reaffirmed in the Kesavananda Bharati case as a feature of the Basic Structure.

• Golaknath vs State of Punjab (1967):

• In this case, the Supreme Court ruled that Parliament could not amend Fundamental Rights.

• This decision was later modified by the Kesavananda Bharati judgment, which allowed amendments but restricted them under the Basic Structure Doctrine.

Q39. Answer: (b) 25,288.70π

Shortcut Trick

Radius (r) = 33.6 cm

Volume of Hemisphere = (2/3) × π × r^3

Direct Calculation: $(2/3) \times \pi \times (33.6)^3 = (2/3) \times 37933.056 \times \pi$

=> $25288.704\ \pi$

Therefore The correct answer is $25,288.70\pi$ cm^3.

Alternate Method

Given: Radius (r) = 33.6 cm

Formula Used: Volume of a Hemisphere = $(2/3) \times \pi \times r^3$

=> Volume = $(2/3) \times \pi \times (33.6) \times (33.6) \times (33.6)$

=> Volume = $(2/3) \times \pi \times 37933.056$

=> Volume = $2 \times \pi \times 12644.352$

=> Volume = 25288.704π

=> Rounded to two decimal places: 25288.70π

Therefore The correct answer is $25,288.70\pi$ cm^3.

Additional Information

Surface Area of Hemisphere

Curved Surface Area (CSA) = $2\pi r^2$ and Total Surface Area (TSA) = $3\pi r^2$.

Volume of a Sphere

A hemisphere is exactly half of a sphere. Volume of full Sphere = $(4/3)\pi r^3$.

Unit Conversion

1 Litre = 1000 cm^3. To convert volume in cm^3 to litres, divide the value by 1000.

Q40. Answer: (c) LH-OK-RT

The logic followed here is:

NJ : QM : TV

QM : TP : WY

Option 1: MH-OK-RU

This option does NOT follow the pattern.

Option 2: MH-PK-RU

This option does NOT follow the pattern.

Option 3: LH-OK-RT

This option follows the pattern.

Option 4: LH-OK-RU

This option does NOT follow the pattern.

Hence, the correct answer is "Option 3".

Q41. Answer: (b) 73 : 77

Shortcut Trick

Assume the third number is 100.

First number = 100 + 46 = 146

Second number = 100 + 54 = 154

Ratio = 146 : 154 = 73 : 77

Therefore The correct answer is 73 : 77.

Alternate Method

Given:

Let the third number be x.

=> First number = x + 46% of x = 1.46x

=> Second number = x + 54% of x = 1.54x

Calculation:

=> Required Ratio = First number : Second number

=> Ratio = 1.46x : 1.54x

=> Ratio = 146 : 154

=> Ratio = (146 ÷ 2) : (154 ÷ 2)

=> Ratio = 73 : 77

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Therefore The correct answer is 73 : 77.

Additional Information

Percentage Increase

If a value is increased by k%, the new value is (1 + k/100) × Original Value.

Ratio Simplification

To simplify a ratio a : b, divide both terms by their Highest Common Factor (HCF).

Base Value Selection

In comparison problems, it is usually easiest to assume the base reference number (third number) as 100.

Q42. Answer: (c) Three

Given: M, N, O, P, Y and Z live on six different floors of the same building. The lowermost floor in the building is numbered 1, the floor above it, number 2 and so on till the topmost floor is numbered 6.

1) P lives on floor numbered 1.

2) Only one person lives between P and M.

3) Only two people live between N and M.

6	N
5	
4	
3	M
2	
1	P

4) Only two people live between O and Z. Also, O lives above M.

Possible positions for O and Z:

• If O is on Floor 5, then Z is on Floor 2 (two people, M and the person on Floor 4, are between them).

• If O is on Floor 4, then Z would need to be on Floor 1, but P is already there. So this is not possible.

Therefore, O is on Floor 5 and Z is on Floor 2.

5) The only remaining person is Y, and the only remaining floor is 4. So, Y lives on Floor 4.

6	N
5	O
4	Y
3	M
2	Z
1	P

Therefore, three people live below Y.

Hence, the correct answer is "Option 3".

Q43. Answer: (c) 588

Given interchange rules:

• '+' and '−' are interchanged.

• '×' and '÷' are interchanged.

The given equation is:

43 ÷ 13 − 648 × 8 + 52 = ?

Replace the operators with their corresponding new meanings:

43 × 13 + 648 ÷ 8 − 52 = ?

Now, we solve the equation following the BODMAS rule:

= 43 × 13 + 648 ÷ 8 − 52

= 559 + 81 − 52

= 640 − 52

= 588

Hence, the correct answer is "Option 3".

Q44. Answer: (a) West

Given:

Town C is to the west of Town D. Town E is to the east of Town C. Town F is to the north of Town D. Town G is to the north of Town E. Town G is to the north-west of Town D.

Thus, town E is to the west of town D.

Hence, the correct answer is "Option 1".

Q45. Answer: (b) Anant Darshan Shankar

The correct answer is Anant Darshan Shankar.

Key Points

• The MS Swaminathan Environment Protection Award is instituted to recognize individuals or organizations for their contributions towards environmental protection and sustainable development.

• In 2024, Anant Darshan Shankar, a pioneer in the field of integrative health sciences and traditional knowledge systems, was honored with this award.

• Anant Darshan Shankar is the Founder of the Foundation for Revitalisation of Local Health Traditions (FRLHT), which focuses on conservation and sustainable use of medicinal plants and local health traditions.

• The award highlights his significant efforts in promoting biodiversity conservation and sustainable practices for the protection of the environment.

• The recognition also underscores the role of traditional knowledge in addressing contemporary environmental challenges.

Additional Information

• MS Swaminathan:

• Known as the "Father of the Green Revolution in India," MS Swaminathan played a crucial role in introducing high-yielding crop varieties to Indian agriculture.

• He emphasized the importance of sustainable and environment-friendly agricultural practices.

• Integrative Health Sciences:

• It is an approach that combines modern medical practices with traditional knowledge systems to promote holistic well-being.

• Anant Darshan Shankar has been a strong advocate for this approach, particularly in the context of biodiversity conservation.

• Foundation for Revitalisation of Local Health Traditions (FRLHT):

• A Bengaluru-based organization founded by Anant Darshan Shankar in 1993.

• It works to preserve traditional health practices and medicinal plant species through research and community engagement.

• Medicinal Plant Conservation:

• Medicinal plants are critical for both traditional medicine systems and modern pharmaceuticals.

• Conservation efforts focus on sustainable harvesting, cultivation, and protection of biodiversity.

Q46. Answer: (b) Father's Brother's Wife

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

Given Expression: M × N – O ÷ P + Q

M × N: M is the wife of N.

N – O: N is the brother of O.

O ÷ P: O is the father of P.

P + Q: P is the sister of Q.

According to the given information Family Tree Representation:

Therefore, M is Father's Brother's Wife of Q.

Hence, the correct answer is "Option 2"

Q47. Answer: (c) 18

The given three-digit numbers are: 194, 932, 446, 225, 493.
The highest number is 932. Its first digit is 9.
The lowest number is 194. Its second digit is 9.
Perform the addition.
Add the first digit of the highest number 9 to the second digit of the lowest number 9.
9 + 9 = 18.
Hence, the correct answer is "Option 3".

Q48. Answer: (b) 8 - 10 - 20 - 40

The logic followed here is:
Logic: The operations between consecutive numbers are: +2, ×2, ×2.
For, 13 - 15 - 30 - 60
=> 13 + 2 = 15.
=> 15 × 2 = 30.
=> 30 × 2 = 60.
For, 3 - 5 - 10 - 20
=> 3 + 2 = 5.
=> 5 × 2 = 10.
=> 10 × 2 = 20.
Option 1) 10 - 12 - 24 - 42
=> 10 + 2 = 12. (Matches)
=> 12 × 2 = 24. (Matches)
=> 24 × 2 = 48 ≠ 42.
Here, logic not followed.
Option 2) 8 - 10 - 20 - 40
=> 8 + 2 = 10. (Matches)
=> 10 × 2 = 20. (Matches)
=> 20 × 2 = 40. (Matches)
Here, logic followed.
Option 3) 15 - 17 - 34 - 44
=> 15 + 2 = 17. (Matches)
=> 17 × 2 = 34. (Matches)
=> 34 × 2 = 68 ≠ 44.
Here, logic not followed.
Option 4) 5 - 7 - 14 - 24
=> 5 + 2 = 7. (Matches)
=> 7 × 2 = 14. (Matches)
=> 14 × 2 = 28 ≠ 24.
Here, logic not followed.
Hence, the correct answer is "Option 2".

Q49. Answer: (c) 78,000

Shortcut Trick
Let Cost Price (CP) be 100 units.
Marked Price (MP) = 100 + 50% of 100 = 150 units.
Selling Price (SP) = 150 × (100 − 26) ÷ 100 = 150 × 0.74 = 111 units.
According to the question, 111 units = 86,580.
1 unit = 86,580 ÷ 111 = 780.
Cost Price (100 units) = 100 × 780 = 78,000.
Therefore The correct answer is 78,000.
Alternate Method

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Given → Markup % = 50%, Discount % = 26%, SP = 86,580.

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

=> Let CP be x.

=> MP = x × (150 ÷ 100) = 1.5x.

=> SP = 1.5x × (74 ÷ 100) = 1.11x.

=> 1.11x = 86,580.

=> x = 86,580 ÷ 1.11.

=> x = 78,000.

Therefore The correct answer is 78,000.

Additional Information

Relationship between CP and MP

CP ÷ MP = (100 − Discount%) ÷ (100 + Profit%). This formula is useful when profit percentage is given instead of individual values.

Successive Percentage Change

Net Gain/Loss% = Markup% − Discount% − (Markup × Discount) ÷ 100.

Q50. Answer: (b) PQ 22

The logic followed here is:

For 'PH 14' related to 'SD 30':

For 'JI 18' related to 'ME 34':

Applying the same logic to 'MU 6':

Thus, MU 6 is related to PQ 22.

Hence, the correct answer is "Option 2".

Q51. Answer: (b) They became the second team to win both the ISL League Shield and ISL Cup in the same season.

The correct answer is They became the second team to win both the ISL League Shield and ISL Cup in the same season.

Key Points

• Mohun Bagan Super Giant achieved a historic milestone by winning both the ISL League Shield and ISL Cup in the 2024-25 season.

• This accomplishment makes them the second team in Indian Super League history to secure both titles in the same season.

• The ISL League Shield is awarded to the team finishing at the top of the league stage, while the ISL Cup is won by the team that triumphs in the playoffs.

• The feat reflects their consistent performance throughout the season, showcasing their dominance in both league and knockout phases.

• Mohun Bagan's achievement further solidifies their status as one of the most successful football clubs in Indian history.

Additional Information

• Indian Super League (ISL)

• The ISL is one of the premier football leagues in India, established in 2014 to boost football culture in the country.

• The league consists of two phases: the league stage and the playoff stage.

• The team finishing first in the league stage wins the ISL League Shield, earning qualification for the AFC Champions League.

• The playoffs determine the winner of the ISL Cup, which is the overall championship title.

• Mohun Bagan Super Giant

• Mohun Bagan is one of the oldest football clubs in India, founded in 1889.

• The club has a rich history, including winning the IFA Shield in 1911 by defeating East Yorkshire Regiment, symbolizing India's fight for independence.

• In 2020, the club merged with ATK to form ATK Mohun Bagan, later renamed Mohun Bagan Super Giant in 2023.

• ISL League Shield and AFC Qualification

• The League Shield winner directly qualifies for the AFC Champions League, which is Asia's premier club football tournament.

• This qualification provides Indian clubs exposure to international football and enhances the growth of Indian football.

• Previous Double Winners

• Prior to Mohun Bagan, Mumbai City FC (2020-21 season) was the first team to win both the ISL League Shield and ISL Cup in the same season.

• Mumbai City's achievement set a benchmark for consistency and excellence in Indian football.

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Q52. Answer: (c) 2.68 lakh

The correct answer is 2.68 lakh.

Key Points

• India has a total of 2.68 lakh Gram Panchayats as per the Union Budget 2025-26.

• Gram Panchayats are the foundation of the local self-governance system under the Panchayati Raj framework.

• The Union Budget 2025-26 allocated resources for strengthening rural infrastructure and empowering Gram Panchayats.

• The 73rd Constitutional Amendment Act established the Panchayati Raj system, giving Gram Panchayats a constitutional status.

• Gram Panchayats play a crucial role in implementing government schemes, ensuring rural development, and promoting community participation.

Additional Information

• Gram Panchayat:

• Gram Panchayat is the lowest administrative unit in India's rural governance system.

• It operates under the Panchayati Raj system, which is a decentralized form of governance.

• Each Gram Panchayat typically covers one or more villages.

• 73rd Constitutional Amendment Act:

• Passed in 1992, it provided constitutional status to the Panchayati Raj Institutions (PRIs).

• The Act mandates regular elections, reservation of seats for Scheduled Castes, Scheduled Tribes, and women, and a three-tier governance system.

• It emphasizes grassroots democracy and decentralized planning.

• Role of Gram Panchayats:

• Gram Panchayats are responsible for implementing government schemes like MGNREGA, Swachh Bharat Abhiyan, and PMAY.

• They handle local administration, sanitation, water supply, and infrastructure development.

• They act as a platform for community participation in decision-making processes.

• Panchayati Raj System:

• The Panchayati Raj System is a three-tier structure consisting of Gram Panchayat, Panchayat Samiti, and Zilla Parishad.

• It is aimed at decentralizing power and promoting democratic governance at the local level.

• It plays a vital role in India's rural development and socio-economic empowerment.

Q53. Answer: (d) Sitar

The correct answer is Sitar.

Key Points

• Sushira Vadya refers to wind instruments that produce sound through the vibration of air.

• Examples of Sushira Vadya include instruments such as Bansuri, Pungi, and Shehnai, which require air to generate sound.

• The Sitar is a string instrument and falls under the category of Tat Vadya (string instruments), not Sushira Vadya.

• Sushira Vadya instruments are typically played by blowing air through them, unlike string instruments that are played by plucking or strumming.

• This categorization is part of the Indian classical music system, which divides musical instruments into four types: Tat (string), Avanaddha (percussion), Sushira (wind), and Ghana (solid instruments).

Additional Information

• Indian Musical Instrument Classification:

• In Indian classical music, instruments are categorized into four groups based on how sound is produced: Tat (string), Avanaddha (percussion), Sushira (wind), and Ghana (solid).

• Tat Vadya: Instruments like Sitar, Veena, and Guitar produce sound by vibrating strings.

• Sushira Vadya: Instruments like Flute, Pungi, and Shehnai utilize air to create sound.

• Avanaddha Vadya: Percussion instruments such as Tabla and Mridangam use stretched membranes.

• Ghana Vadya: Solid instruments like Manjira and Ghatam produce sound by striking.

• Sitar:

• The Sitar is a popular string instrument in Indian classical music, known for its complex structure and resonant sound.

• It has movable frets and is played by plucking the strings with a plectrum.

• The Sitar is closely associated with Hindustani classical music and has gained international recognition.

• Bansuri:

• The Bansuri is a traditional Indian bamboo flute, categorized under Sushira Vadya.

• It is played by blowing air through one end while covering holes to modify the pitch.

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• Pungi and Shehnai:
• The Pungi, also known as Been, is a wind instrument primarily used by snake charmers.
• The Shehnai is a classical wind instrument often played during auspicious events in India.

Q54. Answer: (d) 41

Shortcut Trick
Mode is the value that appears most frequently in a dataset.
By observing the given dataset, we count the frequency of each number:
The number 41 appears 3 times, which is the highest frequency among all numbers.
All other numbers appear 2 times or fewer.
Therefore The correct answer is 41.
Alternate Method
Given:
The dataset is: 41, 55, 45, 48, 40, 47, 41, 47, 54, 44, 49, 48, 53, 54, 50, 53, 41, 46
Formula Used:
Mode = Value with the maximum frequency in the dataset.
Calculations:
Let us arrange the data in ascending order to count the frequencies systematically:
40, 41, 41, 41, 44, 45, 46, 47, 47, 48, 48, 49, 50, 53, 53, 54, 54, 55
Now, let us list the frequency of each observation:
=> Frequency of 40 = 1
=> Frequency of 41 = 3
=> Frequency of 44 = 1
=> Frequency of 45 = 1
=> Frequency of 46 = 1
=> Frequency of 47 = 2
=> Frequency of 48 = 2
=> Frequency of 49 = 1
=> Frequency of 50 = 1
=> Frequency of 53 = 2
=> Frequency of 54 = 2
=> Frequency of 55 = 1
Since the number 41 has the maximum frequency of 3, the mode of the given data is 41.
Let us analyze why the other options are incorrect:
=> Option (1) 45: Frequency is 1, which is not the maximum.
=> Option (2) 55: Frequency is 1, which is not the maximum.
=> Option (3) 48: Frequency is 2, which is less than 3.
=> Option (4) 41: Frequency is 3, which is the maximum.
Therefore The correct answer is 41.
Additional Information
Empirical Relationship between Mean, Median, and Mode
For a moderately skewed distribution, the relationship is given by: Mode = 3 × Median − 2 × Mean.
Types of Mode Distributions
A dataset can have one mode (unimodal), two modes (bimodal), three modes (trimodal), or no mode if all values occur with the same frequency.
Median of a Dataset
The middle value when the data is arranged in ascending or descending order. For N terms, if N is odd, Median = ((N+1)/2)^(th) term; if N is even, Median = Average of (N/2)^(th) and (N/2 + 1)^(th) terms.

Q55. Answer: (b) Rs. 11,350

Shortcut Trick
Total salary represents 100%.
Remaining percentage after house rent = 100% − 12% = 88%.

Total value of the remaining 88% = 407 + 8657 + 924 = Rs. 9988.

Total Salary = 9988 ÷ 88 × 100 = 113.5 × 100 = Rs. 11350.

Therefore The correct answer is Rs. 11,350.

Alternate Method

Given:

Percentage spent on house rent = 12%

Amount spent on conveyance = Rs. 407

Amount spent on grocery = Rs. 8,657

Amount saved = Rs. 924

Calculations:

=> Total remaining amount = Conveyance + Grocery + Savings

=> Total remaining amount = 407 + 8657 + 924 = Rs. 9,988

=> Let the total monthly salary be S.

=> Remaining percentage of the salary = 100% − 12% = 88%

=> So, 88% of S = 9988

=> (88 ÷ 100) × S = 9988

=> S = 9988 × (100 ÷ 88)

=> S = 113.5 × 100

=> S = 11350

Therefore The correct answer is Rs. 11,350.

Additional Information

Percentage Change

Percentage is a ratio expressed as a fraction of 100. The base value always represents 100%. If a part is removed, the remaining percentage corresponds directly to the remaining absolute value.

Successive vs Direct Percentage

In this problem, expenses are taken from the total salary directly. If the phrasing was "12% on rent and out of the remaining...", it would be a successive percentage case, requiring a step-by-step reduction approach.

Unitary Method Application

If X% represents a value V, then 1% = V ÷ X, and the total base 100% = (V ÷ X) × 100.

Q56. Answer: (a) QV57

The pattern followed here is.

Thus, the missing term in the series is QV57.

Hence, the correct answer is Option 1.

Q57. Answer: (d) 80.5%

The correct answer is 0.805.

Key Points

• As per the Periodic Labour Force Survey (PLFS) 2021-22, approximately 80.5% of individuals in the age group 15-59 years in both rural and urban areas did NOT receive vocational/technical training.

• The PLFS is conducted annually by the National Statistical Office (NSO) under the Ministry of Statistics and Programme Implementation (MoSPI).

• The survey provides crucial insights into employment, unemployment, and labor force participation in India.

• Vocational training refers to skill-based training designed to prepare individuals for specific jobs or professions.

• The findings highlight the significant gap in vocational skill development among the working-age population.

Additional Information

• Periodic Labour Force Survey (PLFS):

• Launched in April 2017 by NSO.

• Aims to provide annual estimates of employment and unemployment indicators.

• Covers rural and urban areas across India.

• The survey includes parameters like vocational training, education, and gender-based workforce participation.

• Vocational Training:

• Training designed to equip individuals with specific skills for particular jobs.

• Examples include training in IT, plumbing, electrical work, healthcare, and other technical fields.
• Plays a critical role in enhancing employability and productivity.
• Skill Development Initiatives in India:
• Pradhan Mantri Kaushal Vikas Yojana (PMKVY): A flagship scheme to train and certify youth in various skills.
• India has set up National Skill Development Corporation (NSDC) to promote skill development programs.
• Efforts include partnerships with industries and global organizations for better implementation.
• Challenges in Vocational Training:
• Lack of awareness and accessibility to training facilities in rural areas.
• Mismatch between skills imparted and industry requirements.
• Low enrollment rates due to socio-economic barriers.

Q58. Answer: (d) O2

The correct answer is O2.

Key Points

• In a chemical reaction, the limiting reagent is the reactant that is completely consumed first, limiting the amount of product formed.
• The reaction provided is $2H_2 + O_2 \rightarrow 2H_2O$, where 2 moles of H_2 react with 1 mole of O_2 to form 2 moles of water (H_2O).
• Given 5 moles of H_2 and 2 moles of O_2, the stoichiometric ratio is analyzed: 5 moles H_2 would require (5/2) = 2.5 moles of O_2, but only 2 moles of O_2 are available.
• Since O_2 is insufficient to react with all the H_2, it is the limiting reagent.
• The excess reactant in this scenario is H_2, as not all 5 moles of H_2 can react due to the shortage of O_2.

Additional Information

• Limiting Reagent:
• The reactant that determines the maximum amount of product formed in a chemical reaction.
• It is completely consumed during the reaction, leaving other reactants in excess.
• Stoichiometry:
• The quantitative relationship between reactants and products in a balanced chemical equation.
• It helps in determining the mole ratio required for a reaction.
• Mole Concept:
• A mole represents 6.022×10^{23} particles (Avogadro's number) of a substance.
• Moles are used to express quantities in chemical reactions for easy stoichiometric calculations.
• Excess Reagent:
• The reactant that remains unreacted after the limiting reagent is completely consumed.
• In this case, H_2 is the excess reagent.
• Applications of Limiting Reagent Concept:
• Used in industrial chemical processes to optimize reactant usage.
• Helps prevent wastage and reduce costs by determining the exact proportions of reactants.

Q59. Answer: (d) 14

The given three-digit numbers are: 740, 636, 787, 884, 316.

Now,

The highest number is 884. Its second digit is 8.

The lowest number is 316. Its third digit is 6.

Perform the addition.

Add the second digit of the highest number 8 to the third digit of the lowest number 6.

8 + 6 = 14.

Hence, the correct answer is "Option 4".

Q60. Answer: (d) The US, Russia and China

The correct answer is The US, Russia and China.

Key Points

• India successfully tested a high-energy laser-directed weapon system in March 2025, becoming the fourth nation globally to achieve this milestone.

• The countries that had previously developed high-energy laser-directed weapon systems are The US, Russia, and China.

• The US has been a pioneer in laser weapons development, with systems like the Laser Weapon System (LaWS) deployed by the Navy.

• Russia has made advancements in laser-directed weapons, such as the Peresvet laser system designed for air defense and anti-satellite purposes.

• China has also developed laser weapons for military applications, including systems aimed at disabling drones and satellites.

Additional Information

• High-Energy Laser Weapons:

• These weapons use focused laser beams to target and disable enemy assets such as drones, missiles, and vehicles.

• They rely on directed energy technology, offering precision targeting with minimal collateral damage.

• Laser weapons are cost-effective as they eliminate the need for conventional ammunition.

• India's Defense Technological Advancements:

• India has invested significantly in indigenous defense technologies under initiatives like Make in India.

• The laser-directed weapon system represents a major leap in India's defense capabilities, reinforcing its status as a global military power.

• Global Context of Directed Energy Weapons:

• Directed energy weapons are gaining prominence due to their ability to counter emerging threats like drones and hypersonic missiles.

• Countries like The US, Russia, and China are actively integrating these systems into their defense architectures.

• Challenges in Laser Weapon Development:

• Technological challenges include energy storage, heat dissipation, and operational effectiveness under diverse conditions.

• Operational deployment requires significant advancements in power generation and mobility.

Q61. Answer: (c) C

Given : Each of C, D, E, F, S, T and U has an exam on a different day of a week starting from Monday and ending on Sunday of the same week.

1) S has the exam on Thursday and T has the exam on Saturday.

Weekday	Person
Monday	
Tuesday	
Wednesday	
Thursday	S
Friday	
Saturday	T
Sunday	

2) F has the exam immediately before U.

3) D has the exam immediately after U.

These two clues combine to form a consecutive block: F - U - D. We need three consecutive empty slots for this block.

Weekday	Person
Monday	F
Tuesday	U
Wednesday	D
Thursday	S
Friday	
Saturday	T
Sunday	

4) C has the exam on one of the days after E.

Weekday	Person
Monday	F
Tuesday	U
Wednesday	D
Thursday	S
Friday	E
Saturday	T
Sunday	C

Thus, C has the exam on the last day of the week.

Hence, the correct answer is "Option 3".

Q62. Answer: (b) 12

Given:

1 is added to each even digit and 1 is subtracted from each odd digit in the number 8629475.

Given	8	6	2	9	4	7	5
Operation	+1	+1	+1	-1	+1	-1	-1
New number	9	7	3	8	5	6	4

The new number formed is 9738564.

The highest digit in the new number is 9.

The lowest digit in the new number is 3.

Sum of the highest and lowest digits = 9 + 3 = 12.

Hence, the correct answer is "Option 2".

Q63. Answer: (c) 3 km towards the west

Given:

Q starts from Point P and drives 2 km towards the south. He then takes a right turn, drives 3 km, turns right and drives 11 km.

He then takes a right turn and drives 4 km, turns left and drives 3 km. He then takes a right turn and drives 2 km.

He takes a final right turn, drives 12 km and stops at Point O.

Thus, 3 km west to reach point P.

Hence, the correct answer is "Option 3".

Q64. Answer: (d) 61

The logic followed here is.

Logic: (Sum of positional values of letters) + 4.

For

GSTA is coded as 51 →

G	S	T	A
7	19	20	1

Sum of positional values = 7 + 19 + 20 + 1 = 47

Code = 47 + 4 = 51

XMBJ is coded as 53 →

X	M	B	J
24	13	2	10

Sum of positional values = 24 + 13 + 2 + 10 = 49

Code = 49 + 4 = 53

(Sum of positional values of letters) + 4.

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for YDOM:

Y	D	O	M
25	4	15	13

Sum of positional values = 25 + 4 + 15 + 13 = 57

Code = 57 + 4 = 61

Therefore, the code for 'YDOM' is 61.

Hence, the correct answer is "Option 4".

Q65. Answer: (d) 3

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

1) P has an exam on Friday.

2) Only 2 people have an exam between P and S.

Weekday	Person
Monday	
Tuesday	S
Wednesday	
Thursday	
Friday	P
Saturday	
Sunday	

3) U has an exam immediately before V.

4) Only 2 people have an exam between R and V.

The empty slots are Monday, Wednesday, Thursday, Saturday, Sunday. For U and V to be together, they can be (Wednesday, Thursday) or (Saturday, Sunday).

Weekday	Case 1	Case 2
Monday	R	
Tuesday	S	S
Wednesday	U	
Thursday	V	R
Friday	P	P
Saturday		U
Sunday		V

Explanation for Case 1 and 2 derived:

5) Q has an exam immediately after T.

This requires two consecutive empty slots (T, Q).

Weekday	Case 1	Case 2
Monday	R	
Tuesday	S	S
Wednesday	U	
Thursday	V	R
Friday	P	P
Saturday	T	U

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Sunday	Q	V

Case 2 gets eliminated.

Final arrangement:

Weekday	Person
Monday	R
Tuesday	S
Wednesday	U
Thursday	V
Friday	P
Saturday	T
Sunday	Q

Therefore, 3 people have an exam before V.

Hence, the correct answer is "Option 4".

Q66. Answer: (b) Rs. 1,175.73

Shortcut Trick

Half-yearly rate (r) = 7.8% ÷ 2 = 3.9%.

Effective rate for 1st deposit (2 periods) = 3.9 + 3.9 + (3.9 × 3.9)/100 = 7.9521%.

Effective rate for 2nd deposit (1 period) = 3.9%.

Total Interest % = 7.9521% + 3.9% = 11.8521%.

Interest gained = 9920 × 11.8521 ÷ 100 ≈ Rs. 1,175.73.

Therefore The correct answer is Rs. 1,175.73.

Alternate Method

Given:

Principal (P) = Rs. 9,920 each on 1 January and 1 July.

Annual Rate (R) = 7.8% | Half-yearly rate (r) = 7.8% ÷ 2 = 3.9%.

Time: End of the year (31 December).

Step 1: Interest on 1st deposit (1 Jan) for the first 6 months:

=> I1 = 9920 × (3.9 ÷ 100) = Rs. 386.88

=> Amount on 1 July = 9920 + 386.88 = Rs. 10,306.88

Step 2: Interest on this amount for the next 6 months:

=> I2 = 10306.88 × (3.9 ÷ 100) = Rs. 401.96832

Step 3: Interest on 2nd deposit (1 July) for remaining 6 months:

=> I3 = 9920 × (3.9 ÷ 100) = Rs. 386.88

Step 4: Total Interest Gained:

=> Total Interest = I1 (on 1st) + I2 (on 1st) + I3 (on 2nd)

=> Total Interest = 386.88 + 401.96832 + 386.88 = Rs. 1,175.72832

=> Rounding to two decimal places = Rs. 1,175.73

Therefore The correct answer is Rs. 1,175.73.

Additional Information

Half-Yearly Compounding Formula

When interest is compounded half-yearly, the formula becomes $A = P[1 + (R/2)/100]^{2n}$, where R is the annual rate and n is the number of years.

Effective Rate of Interest

The effective annual rate for compounding can be calculated using the successive percentage formula: a + b + (ab/100).

Interest Calculation Tip

For multiple deposits at different times, calculate interest for each principal separately based on its duration in the account.

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Q67. Answer: (c) Nagarahole Tiger Reserve

The correct answer is Nagarahole Tiger Reserve.

Key Points

• The Jenu Kuruba is a tribal community primarily residing in the forests of Karnataka, and their ancestral land falls within the Nagarahole Tiger Reserve.

• Nagarahole Tiger Reserve is located in the state of Karnataka, India, and is part of the Nilgiri Biosphere Reserve.

• The reoccupation of ancestral land by Jenu Kuruba families in May 2025 highlights the ongoing struggle for tribal rights and access to traditional forest lands.

• Nagarahole Tiger Reserve is known for its rich biodiversity, including tigers, elephants, and other wildlife, making it a critical conservation area.

• The reserve is also a UNESCO World Heritage Site as part of the Western Ghats, recognized for its ecological importance.

Additional Information

• Jenu Kuruba Tribe:

• The Jenu Kuruba tribe derives its name from "Jenu," meaning honey, which they traditionally collected from forests.

• They are one of the prominent Scheduled Tribes in Karnataka, known for their deep connection to forest ecosystems.

• The tribe practices sustainable forest-based livelihoods, including honey collection and small-scale agriculture.

• Nagarahole Tiger Reserve:

• It spans two districts: Mysore and Kodagu in Karnataka.

• The reserve covers an area of approximately 640 square kilometers and is part of the larger Nilgiri Biosphere Reserve.

• It features tropical moist and dry deciduous forests, providing habitat for a wide range of species.

• Nilgiri Biosphere Reserve:

• It is the first biosphere reserve established in India in 1986.

• Spread across Tamil Nadu, Kerala, and Karnataka, the reserve supports diverse flora and fauna.

• The area is critical for conserving endemic species and maintaining ecological balance.

• UNESCO World Heritage Sites in India:

• The Western Ghats, which include the Nagarahole Tiger Reserve, are recognized by UNESCO for their unique biodiversity.

• India has 40 UNESCO World Heritage Sites as of 2023, including cultural and natural landmarks.

• World Heritage status ensures global recognition and support for preservation efforts.

Q68. Answer: (b) 33 locations

The correct answer is 33 locations.

Key Points

• As of April 2025, the Reserve Bank of India (RBI) has offices in 33 locations across India.

• These offices include regional offices, sub-offices, and branches located in major cities to oversee monetary policy implementation and banking regulation.

• The RBI's network is designed to ensure effective supervision of financial institutions and promote economic stability across different regions.

• Key locations include Mumbai (headquarters), Delhi, Kolkata, Chennai, Bengaluru, and Hyderabad, among others.

• The RBI also has specialized offices for foreign exchange management, banking supervision, and financial inclusion.

Additional Information

• Reserve Bank of India (RBI):

• The RBI is India's central bank, established on April 1, 1935, under the Reserve Bank of India Act, 1934.

• Its primary functions include regulating the issuance of currency, controlling inflation, supervising banks, and managing foreign exchange.

• The RBI plays a key role in implementing monetary policy to ensure economic stability and growth.

• Regional Offices:

• Regional offices are located in major cities to facilitate communication between the central bank and local banks.

• They also oversee the implementation of RBI policies in their respective regions.

• Monetary Policy:

• The RBI formulates and implements monetary policy to control inflation, stabilize the currency, and promote economic growth.

• Key tools of monetary policy include the repo rate, reverse repo rate, and cash reserve ratio (CRR).

• Banking Regulation:

• The RBI supervises and regulates India's banking sector to ensure stability and trustworthiness in the financial system.

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• It also manages the licensing of banks and monitors their compliance with financial regulations.
• Financial Inclusion:
• The RBI actively promotes financial inclusion to ensure access to banking services for underserved and rural areas.
• Initiatives include promoting digital payments, opening no-frills accounts, and improving banking infrastructure in remote regions.

Q69. Answer: (d) # = RQM, % = SRN

Given:
: ONJ :: VUQ : %
Option 1) # = RIO, % = ASN
For # (RIO) to ONJ
The pattern derived from RIO to ONJ is: (-3, +5, -5).
For VUQ to % (ASN)
The pattern derived from VUQ to ASN is: (-21, -2, -3).
Since the pattern for RIO to ONJ (-3, +5, -5) is not the same as the pattern for VUQ to ASN (-21, -2, -3), Option 1 is incorrect.
Option 2) # = UIM, % = STN
For # (UIM) to ONJ
The pattern derived from UIM to ONJ is: (-6, +5, -3).
For VUQ to % (STN)
The pattern derived from VUQ to STN is: (-3, -1, -3).
Since the pattern for UIM to ONJ (-6, +5, -3) is not the same as the pattern for VUQ to STN (-3, -1, -3), Option 2 is incorrect.
Option 3) # = RYM, % = PRN
For # (RYM) to ONJ
The pattern derived from RYM to ONJ is: (-3, -11, -3).
For VUQ to % (PRN)
The pattern derived from VUQ to PRN is: (-6, -3, -3).
Since the pattern for RYM to ONJ (-3, -11, -3) is not the same as the pattern for VUQ to PRN (-6, -3, -3), Option 3 is incorrect.
Option 4) # = RQM, % = SRN
For # (RQM) to ONJ
The pattern derived from RQM to ONJ is: (-3, -3, -3).
For VUQ to % (SRN)
The pattern derived from VUQ to SRN is: (-3, -3, -3).
Hence, the correct answer is "Option 4".

Q70. Answer: (b) Keibul Lamjao National Park

The correct answer is Keibul Lamjao National Park.
Key Points
• Keibul Lamjao National Park is located in the state of Manipur, India, on Loktak Lake.
• It is recognized as the world's only floating national park, as it consists of large masses of floating vegetation known as "phumdis."
• The park is the last natural habitat of the endangered Sangai deer, also known as the dancing deer (Rucervus eldii eldii).
• Keibul Lamjao National Park was declared a national park in 1977 to protect the unique ecosystem and its wildlife.
• The park covers an area of approximately 40 square kilometers, and the phumdis play a critical role in supporting the ecosystem.
Additional Information
• Phumdis:
• Phumdis are floating masses of vegetation, soil, and organic matter at various stages of decomposition, unique to Loktak Lake.
• They serve as a critical habitat for wildlife and are an integral part of the ecological balance of Loktak Lake.
• Sangai Deer:
• The Sangai deer is an endangered species endemic to Manipur.
• It is culturally significant and is referred to as the state animal of Manipur.
• The deer’s unique gait, which resembles dancing, has earned it the nickname "dancing deer."
• Loktak Lake:
• Loktak Lake is the largest freshwater lake in northeast India and is known for its phumdis.

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• The lake plays a crucial role in the livelihood of the local communities and provides water for hydropower generation, irrigation, and drinking purposes.

• Conservation Efforts:

• The Manipur Forest Department, along with other organizations, is actively working to conserve the habitat of the Sangai deer and the unique ecosystem of Keibul Lamjao National Park.

• Efforts include monitoring wildlife, reducing human interference, and raising awareness among local communities.

Q71. Answer: (a) 28

Shortcut Trick

When three numbers are in continued proportion (a : b :: b : c), the middle term is the Mean Proportional.

Direct formula: A = √(14 × 56)

=> A = √(14 × 14 × 4) = 14 × 2 = 28

Therefore The correct answer is 28.

Alternate Method

Given: Ratio 14 : A is proportional to A : 56.

Formula Used: Product of Extremes = Product of Means

=> 14 / A = A / 56

=> A^2 = 14 × 56

=> A^2 = 784

=> A = √784

=> A = 28

Therefore The correct answer is 28.

Additional Information

Mean Proportional

If b is the mean proportional between a and c, then b = √(ac).

Third Proportional

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

Fourth Proportional

If a : b :: c : d, then d is the fourth proportional where d = (b × c) / a.

Q72. Answer: (b) Dutch East India Company

The correct answer is Dutch East India Company.

Key Points

• In 1663, the Dutch East India Company (Vereenigde Oostindische Compagnie or VOC) assisted the Raja of Cochin in ousting the Portuguese from his kingdom.

• The Portuguese had established their presence in Cochin since the early 16th century, using it as a key port for trade in spices.

• The Dutch aimed to dominate the spice trade in the Malabar Coast and saw the Portuguese as their primary competitors.

• The Dutch captured Cochin and other Portuguese territories in the region, marking a significant shift in colonial power dynamics in South India.

• This event was part of a broader conflict between European colonial powers over control of trade routes and resources in Asia.

Additional Information

• Portuguese in India:

• The Portuguese were the first European colonial power to establish a stronghold in India, starting with Vasco da Gama's arrival in Calicut in 1498.

• Cochin was one of their earliest and most important bases, established in 1503.

• They controlled trade in spices like pepper, cardamom, and cinnamon from the Malabar Coast.

• Dutch East India Company (VOC):

• Founded in 1602, the VOC was a powerful trading corporation that sought to monopolize trade in the East Indies (modern-day Indonesia and surrounding areas).

• It played a significant role in colonial expansion in Asia, particularly in the spice trade.

• The VOC set up trading posts in various parts of India, including Surat, Nagapattinam, and Cochin.

• Conflict Between European Powers:

• The 16th and 17th centuries saw intense rivalry between European powers like the Portuguese, Dutch, French, and British for

control of trade in Asia.

• These conflicts often involved alliances with local rulers, as seen in the Dutch support for the Raja of Cochin.

• Such rivalries eventually led to the decline of Portuguese influence in India and the rise of Dutch and later British dominance.

• Significance of Cochin:

• Cochin (modern-day Kochi, Kerala) was a major port city and trade hub on the Malabar Coast.

• It was strategically important for controlling the spice trade, which was highly lucrative in the European markets.

• The region's rich resources and trade opportunities attracted multiple colonial powers over centuries.

Q73. Answer: (d) Dasharatha

The correct answer is Dasharatha.

Key Points

• Dasharatha succeeded Emperor Ashoka to the throne of the Maurya Empire in approximately 232 BCE.

• He was the grandson of Ashoka and ruled the eastern part of the Mauryan Empire, including Magadha.

• Dasharatha is known for continuing Ashoka's policy of spreading Buddhism and maintaining the empire's stability during his reign.

• Inscriptions such as the Nagarjuni Hills cave inscriptions suggest Dasharatha dedicated these caves to the Ajivikas, a sect patronized by Ashoka as well.

• Dasharatha's reign marked the beginning of the decline of the Mauryan Empire, as it became fragmented after Ashoka's death.

Additional Information

• Ashoka's Contributions:

• Ashoka was one of the greatest emperors in Indian history, known for his role in spreading Buddhism across Asia.

• His reign marked the peak of the Mauryan Empire's territorial expansion and administrative efficiency.

• The Edicts of Ashoka, inscribed on rocks and pillars, reflect his policies of Dhamma and social welfare.

• Mauryan Empire Decline:

• After Ashoka's death, the Mauryan Empire gradually weakened due to internal divisions and lack of strong leadership.

• The empire fragmented into smaller kingdoms, leading to the rise of regional powers such as the Shunga Dynasty.

• Ajivikas Sect:

• The Ajivikas were an ascetic sect contemporary to Buddhism and Jainism during Ashoka's time.

• They believed in the doctrine of niyati (predestination), which emphasized fate as the ultimate factor in life.

• Nagarjuni Hills Inscriptions:

• These inscriptions are attributed to Dasharatha and are located in Bihar, India.

• The caves were dedicated to Ajivikas and reflect Mauryan architectural and religious influence.

Q74. Answer: (c) 5989

Shortcut Trick

Required number = LCM of (13, 20, 10, 23) + 9

LCM (13, 20, 10, 23) = 13 × 23 × 20 = 299 × 20 = 5980

Required number = 5980 + 9 = 5989

Therefore The correct answer is 5989.

Alternate Method

Given: Divisors are 13, 20, 10, and 23. The number is diminished by 9.

Formula: Required Number = LCM(Divisors) + Remainder/Diminished value

=> Step 1: Find LCM of 13, 20, 10, 23

=> Factors of 10 = 2 × 5

=> Factors of 20 = 2^2 × 5

=> Prime factors of 13 = 13 (Prime)

=> Prime factors of 23 = 23 (Prime)

=> LCM = 2^2 × 5 × 13 × 23 = 4 × 5 × 299 = 20 × 299 = 5980

=> Step 2: According to the question, (Number − 9) = 5980

=> Number = 5980 + 9 = 5989

Therefore The correct answer is 5989.

Additional Information

LCM (Least Common Multiple)

The smallest positive integer that is divisible by each of the given numbers. For prime numbers, LCM is their product.

Divisibility Rule for Diminished Numbers

If a number x when diminished by k is divisible by a, b, c, then x = LCM(a, b, c) + k. Conversely, if increased by k, then x = LCM(a, b, c) − k.

Prime Numbers

Since 13 and 23 are prime numbers, they must be included in the multiplication for calculating the LCM.

Q75. Answer: (b) drought-prone areas

The correct answer is drought-prone areas.

Key Points

• Saline and alkaline soils are commonly found in regions with low rainfall and arid or semi-arid climatic conditions, such as drought-prone areas.

• These soils develop due to the accumulation of salts and lack of adequate leaching caused by limited water availability.

• They are characterized by high pH levels (alkaline nature), poor fertility, and the presence of excessive sodium, calcium, and magnesium salts.

• Such soils are often seen in parts of Rajasthan, Gujarat, Haryana, Punjab, and Uttar Pradesh, where drought conditions are frequent.

• Saline and alkaline soils pose challenges for agriculture, requiring specialized soil treatments like gypsum application and irrigation management.

Additional Information

• Saline Soils:

• Contain high levels of soluble salts such as sodium chloride and sodium sulfate.

• Have poor structure and water infiltration, negatively impacting plant growth.

• Crop cultivation requires techniques like leaching and salt-tolerant crops.

• Alkaline Soils:

• Characterized by high pH (greater than 8.5) due to excessive sodium carbonate.

• Typically found in areas with poor drainage and dry climates.

• Gypsum is often used to reduce alkalinity and improve soil structure.

• Leaching Process:

• Leaching involves flushing out salts from the soil using adequate water supply.

• This process is essential for reclaiming saline and alkaline soils.

• Impact on Agriculture:

• Saline and alkaline soils reduce crop yields due to poor nutrient availability.

• Farmers often use salt-tolerant crops like barley, cotton, and mustard for cultivation.

• Soil amendments like organic matter and gypsum help restore fertility.

Q76. Answer: (c) A two-dimensional grid composed of rows and columns intersecting to form cells

The correct answer is A two-dimensional grid composed of rows and columns intersecting to form cells.

Key Points

• Electronic spreadsheets, such as MS Excel, are fundamentally based on a two-dimensional grid structure.

• Data is organized in rows (horizontal) and columns (vertical), intersecting to form cells where information can be stored.

• Each cell in the grid can hold text, numbers, formulas, or other data types used for computation and analysis.

• The grid structure allows users to perform mathematical operations, create charts, and manage large datasets efficiently.

• Spreadsheets enable data visualization and manipulation through built-in functions and tools.

Additional Information

• Cell:

• A cell is the basic unit in a spreadsheet where data is entered and stored.

• Cells are identified using a combination of column letters and row numbers (e.g., A1, B2).

• Formulas:

• Formulas are expressions used to perform calculations in spreadsheets.

• Examples include SUM(), AVERAGE(), and IF() functions.

• Data Visualization:

• Spreadsheets offer tools for creating charts, graphs, and pivot tables to visualize data.

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• Visualization helps in analyzing trends and summarizing large datasets.
• Applications:
• Spreadsheets are widely used in finance, data analysis, project management, and inventory tracking.
• They facilitate collaboration and sharing, especially in corporate settings.

Q77. Answer: (b) 19

The given venn diagram:
Thus, 19 chairs are there which are also cupboards but not tables.
Hence, the correct answer is "Option 2".

Q78. Answer: (d) Two

Given:
A, B, C, D, R, S and T are sitting around a circular table facing the centre of the table.
Only four people sit between B and D when counted from the right of B.
B sits third to the left of C. T sits third to the left of R.
S is an immediate neighbour of both D and C
Thus, two people sit between A and S when counted from the right of A.
Hence, the correct answer is "Option 4".

Q79. Answer: (d) 19 9/11

Shortcut Trick
Total Work = LCM(18, 22) = 198 units.
Efficiency: A = 11, B = 9.
2-day cycle (B+A) = 9 + 11 = 20 units.
In 9 cycles (18 days), work done = 9 × 20 = 180 units. Remaining = 18 units.
Day 19: B does 9 units. Remaining = 9 units. Day 20: A does 9/11 of work.
Total time = 18 + 1 + 9/11 = 19 9/11 days.
Therefore The correct answer is 19 9/11 days.
Alternate Method
Given: A finishes in 18 days, B finishes in 22 days. They work alternately starting with B.

Person	Days	Total Work	Efficiency
A	18	198	11
B	22	9	

=> Work done in first 2 days (B then A) = 9 + 11 = 20 units.
=> Number of such 2-day cycles = 198 ÷ 20 = 9 cycles with remainder 18.
=> Days for 9 cycles = 9 × 2 = 18 days.
=> Remaining work = 198 − 180 = 18 units.
=> 19th day (B's turn): B completes 9 units. Remaining work = 18 − 9 = 9 units.
=> 20th day (A's turn): Time taken by A = 9 ÷ 11 days.
=> Total time = 18 + 1 + 9/11 = 19 9/11 days.
Therefore The correct answer is 19 9/11 days.
Additional Information
Alternate Day Work
In alternate day problems, always calculate the work done in one full cycle (e.g., 2 days if there are 2 people) and divide the total work by this cycle's efficiency.
Efficiency and Time
Efficiency is inversely proportional to time. If A takes T1 days and B takes T2 days, their efficiencies are in the ratio T2 : T1.

Q80. Answer: (c) One

Given:
Seven people, I, J, K, L, O, P and Q are sitting in a row, facing north.
Only two people sit to the left of P. Only three people sit between P and I.

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Only one person sits between I and O. Q sits to the immediate left of K.

J is not an immediate neighbour of I.

Thus, one person sits to the right of L.

Hence, the correct answer is "Option 3".

Q81. Answer: (c) Judge Tomoko Akane

The correct answer is Judge Tomoko Akane.

Key Points

• Judge Tomoko Akane is a distinguished Japanese legal expert who has held various judicial and prosecutorial positions throughout her career.

• She was elected as the President of the International Criminal Court (ICC) for the term starting in 2024 and continuing through 2027, according to the latest information.

• Judge Akane has been a member of the ICC since 2018, contributing to international justice and global accountability systems.

• Her appointment as President reflects her extensive expertise in criminal law, international law, and judicial administration.

• The ICC, based in The Hague, Netherlands, is an independent judicial institution responsible for prosecuting individuals for crimes such as genocide, crimes against humanity, and war crimes.

Additional Information

• International Criminal Court (ICC):

• The ICC was established by the Rome Statute, which came into force on 1 July 2002.

• It is the first permanent international court set up to prosecute individuals for the most serious offenses of concern to the international community.

• The ICC operates independently from the United Nations, although they cooperate on various issues.

• Rome Statute:

• This treaty serves as the foundation of the ICC and outlines its jurisdiction, structure, and functioning.

• As of 2023, 123 countries are State Parties to the Rome Statute.

• Key crimes under the ICC's jurisdiction include genocide, crimes against humanity, war crimes, and the crime of aggression.

• Judicial Structure of the ICC:

• The ICC is composed of 18 judges, elected by the Assembly of States Parties for nine-year terms.

• Judges are divided among Pre-Trial, Trial, and Appeals Chambers to ensure fair and efficient proceedings.

• The President, along with two Vice-Presidents, is elected from among the judges for a three-year term.

• Role of the ICC President:

• The President oversees the overall administration of the ICC, ensuring its effective functioning.

• They represent the Court in external relations and play a crucial role in managing its judicial and administrative activities.

Q82. Answer: (c) 50

Shortcut Trick

Direct application of the Average Formula.

Average = Total Sum ÷ Total Numbers

Average = 300 ÷ 6 = 50

Therefore The correct answer is 50.

Alternate Method

Given:

Sum of 6 numbers = 300

Number of observations (n) = 6

Formula Used:

Average (Arithmetic Mean) = (Sum of all observations) ÷ (Total number of observations)

Calculations:

=> Average = 300 ÷ 6

=> Average = 50

Therefore The correct answer is 50.

Additional Information

Weighted Average

When different groups have different sizes, the combined average is calculated as (n1×A1 + n2×A2) ÷ (n1 + n2).

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Sum of First n Natural Numbers

The sum of the first n natural numbers is given by [n(n + 1)] ÷ 2, and their average is (n + 1) ÷ 2.

Average of AP Series

For a series in Arithmetic Progression, the average is simply (First Term + Last Term) ÷ 2.

Q83. Answer: (c) 8.4

Shortcut Trick

The Empirical Formula can be rewritten as: (Mode − Mean) = 3 × (Median − Mean).

Given: Mode − Mean = 12.6.

=> 12.6 = 3 × (Median − Mean) => (Median − Mean) = 4.2.

We need (Mode − Median) = (Mode − Mean) − (Median − Mean).

=> (Mode − Median) = 12.6 − 4.2 = 8.4.

Therefore The correct answer is 8.4.

Alternate Method

Given:

Difference between Mode and Mean = 12.6

Formula Used:

Empirical Relationship: Mode = 3 × Median − 2 × Mean

Calculations:

Let the Mean of the data be 'x'.

=> Mode − Mean = 12.6

=> Mode = x + 12.6

Substitute these values into the Empirical Formula:

=> x + 12.6 = 3 × Median − 2x

=> x + 2x + 12.6 = 3 × Median

=> 3x + 12.6 = 3 × Median

Divide the entire equation by 3:

=> Median = x + 4.2

Now, find the difference between Mode and Median:

=> Mode − Median = (x + 12.6) − (x + 4.2)

=> Mode − Median = 12.6 − 4.2

=> Mode − Median = 8.4

Therefore The correct answer is 8.4.

Additional Information

Empirical Relationship

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

Symmetrical Distribution

In a perfectly symmetrical distribution (like the normal distribution), the Mean, Median, and Mode are all equal.

Skewed Distributions

In a positively skewed distribution, Mean > Median > Mode. In a negatively skewed distribution, Mode > Median > Mean.

Q84. Answer: (c) -37

Calculation:

Expression: 10 × (5 - 9) + (123/(41)

=> 10 × (-4) + (123/41)

=> -40 + (123/41)

=> -40 + 3

=> -37

Therefore The correct answer is option (3).

Q85. Answer: (d) UQK

The logic followed here is:

Thus, 'UQK' will be the next in the series.

Hence, the correct answer is "Option 4".

Q86. Answer: (c) GJ−JP

The logic followed here is.

Option (1) 'PS-TW':

Option (2) 'UX-YB':

Option (3) 'GJ-JP':

Not follow the same logic.

Option (4) 'YB-CF':

Hence, the correct answer is "Option 3".

Q87. Answer: (b) Black Salt Queen

The correct answer is Black Salt Queen.

Key Points

• Black Salt Queen is a novel written by Samantha Bansil, set in the precolonial Philippines.

• The book explores themes of culture, identity, and the myths and traditions of the Filipino people during precolonial times.

• The novel delves into the lush landscapes, vibrant history, and rich folklore of the Philippines.

• Samantha Bansil skillfully blends storytelling with historical context, highlighting the depth of Filipino heritage before the advent of colonization.

• It is celebrated for its vivid imagery, compelling narrative, and authentic representation of precolonial Filipino life.

Additional Information

• Precolonial Philippines

• This period refers to the time before Spanish colonization, which began in 1565.

• Filipinos lived in small, self-sufficient communities called barangays, led by chieftains known as datus.

• The society was organized, with a strong emphasis on trade, agriculture, and craftsmanship.

• Animism and ancestral worship were prevalent, with rituals and myths deeply influencing daily life.

• Filipino Mythology

• Filipino mythology includes a rich pantheon of gods, spirits, and mythical creatures such as the diwata (fairy-like beings) and aswang (a mythical shapeshifter).

• Stories were often passed down orally, forming a key part of cultural identity.

• These myths served as a way to explain natural phenomena and teach moral lessons.

• Representation in Literature

• Literature plays a crucial role in preserving and showcasing cultural heritage.

• Novels like "Black Salt Queen" highlight the importance of precolonial history and its influence on modern identity.

• Such works help bridge the gap between historical narratives and contemporary understanding.

• Author Samantha Bansil

• She is known for her focus on Filipino history, culture, and folklore.

• Her writing reflects a deep appreciation for the complexities of Filipino heritage.

• Through her works, she aims to shed light on stories that have often been overlooked or forgotten.

Q88. Answer: (a) emergence of women in public life

The correct answer is emergence of women in public life.

Key Points

• The British social reforms in India during the 19th and early 20th centuries played a crucial role in addressing key social issues like sati, child marriage, and widow remarriage.

• These reforms, driven by British administrators and Indian reformers, led to the creation of laws like the Hindu Widows' Remarriage Act of 1856, which encouraged gender equality.

• Education for women was promoted through initiatives like introducing girls' schools and supporting Indian reformers such as Raja Ram Mohan Roy and Ishwar Chandra Vidyasagar.

• Women began participating in public life, taking up professions such as teaching and social work, and eventually contributing to the freedom movement.

• The active involvement of women in public spheres laid the foundation for their increasing role in politics, education, and social reform in independent India.

Additional Information

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• Sati Abolition:

• The practice of sati (self-immolation of widows) was abolished through the efforts of reformers like Raja Ram Mohan Roy and legislation such as the Bengal Sati Regulation Act of 1829.

• The abolition marked a significant step towards improving the status of women in Indian society.

• Educational Reforms:

• British missionaries and Indian reformers worked to establish schools for girls, breaking societal barriers to female education.

• Pioneering institutions like the Bethune College in 1849 became symbols of progress in women's education.

• Role of Indian Reformers:

• Leaders like Ishwar Chandra Vidyasagar championed the cause of widow remarriage and girls' education.

• Reformers played a pivotal role in bridging the gap between British policies and Indian social realities.

• Women in Freedom Movement:

• Prominent figures like Sarojini Naidu, Kasturba Gandhi, and Annie Besant emerged as key leaders in India's struggle for independence.

• Their active participation was a direct result of the social reforms initiated in the preceding decades.

• Lasting Impact:

• The reforms initiated during the British era laid the groundwork for constitutional provisions like gender equality in independent India.

• Women’s increasing role in education, professions, and politics today can be traced back to these transformative social reforms.

Q89. Answer: (c) $(6x + 3y)^3$

Shortcut Trick

Identify the cube roots of the first and second terms: $\sqrt[3]{(216x^3)} = 6x$ and $\sqrt[3]{(27y^3)} = 3y$.

Check the algebraic form: Since all terms in $216x^3 + 27y^3 + 324x^2y + 162xy^2$ are positive, the expression must be of the form $(a + b)^3$.

Verify middle terms: $3 \times (6x)^2 \times (3y) = 324x^2y$ and $3 \times (6x) \times (3y)^2 = 162xy^2$.

The expression perfectly matches the perfect cube of $(6x + 3y)$.

Therefore The correct answer is $(6x + 3y)^3$.

Alternate Method

Given: $216x^3 + 27y^3 + 324x^2y + 162xy^2$

Formula Used: $(a + b)^3 = a^3 + b^3 + 3a^2b + 3ab^2$

=> Rearranging the expression: $216x^3 + 324x^2y + 162xy^2 + 27y^3$

=> Writing terms as cubes and products: $(6x)^3 + 3(6x)^2(3y) + 3(6x)(3y)^2 + (3y)^3$

=> Comparing with the standard identity, we identify $a = 6x$ and $b = 3y$.

=> Substituting these into the identity $(a + b)^3$: $(6x + 3y)^3$

Therefore The correct answer is $(6x + 3y)^3$.

Additional Information

Cube of a Difference

$(a - b)^3 = a^3 - b^3 - 3a^2b + 3ab^2$

Sum of Two Cubes

$a^3 + b^3 = (a + b)(a^2 - ab + b^2)$

Difference of Two Cubes

$a^3 - b^3 = (a - b)(a^2 + ab + b^2)$

Q90. Answer: (d) 60°

Shortcut Trick

The angle subtended by an arc at the center of a circle is directly proportional to the length of the arc.

Since POR is the diameter, the total angle of the semicircle arc PR at the center O is 180°.

Given that the length of arc PQ is half of the length of arc RQ, the ratio of their lengths is 1 : 2.

Therefore, the central angles angle POQ and angle ROQ are also in the ratio 1 : 2.

angle POQ = $180° \times [1 \div (1 + 2)] = 180° \times (1 \div 3) = 60°$.

Therefore The correct answer is 60°.

Alternate Method

Given:

• POR is the diameter of the circle with center O.

• PQ and RQ are two chords of the circle.

• Length of arc PQ = 1 ÷ 2 × Length of arc RQ.

Formula Used:

• The angle subtended by an arc at the center of a circle is directly proportional to the length of the arc.

• The angle of a straight line (diameter) at the center is 180°.

Calculations:

Let the length of arc RQ be 2x.

Then, the length of arc PQ = x.

Since POR is the diameter, the total arc PR is a semicircle.

=> Length of arc PR = Length of arc PQ + Length of arc RQ

=> Length of arc PR = x + 2x = 3x

The total angle subtended by the diameter POR at the center O is 180°.

=> angle POQ + angle ROQ = 180°

Since the angle subtended at the center is proportional to the arc length:

=> angle POQ ÷ angle ROQ = Length of arc PQ ÷ Length of arc RQ = x ÷ 2x = 1 ÷ 2

=> angle ROQ = 2 × angle POQ

Substitute this in the angle sum equation:

=> angle POQ + 2 × angle POQ = 180°

=> 3 × angle POQ = 180°

=> angle POQ = 180° ÷ 3

=> angle POQ = 60°

Why other options are incorrect:

• Option (1) - 30°: If angle POQ = 30°, then angle ROQ = 180° − 30° = 150°. The ratio of arc PQ to arc RQ would be 30° ÷ 150° = 1 ÷ 5, which does not satisfy the given condition of being half (1 ÷ 2).

• Option (2) - 90°: If angle POQ = 90°, then angle ROQ = 180° − 90° = 90°. The ratio of arc PQ to arc RQ would be 90° ÷ 90° = 1, meaning the arcs are equal, which contradicts the given condition.

• Option (3) - 120°: If angle POQ = 120°, then angle ROQ = 180° − 120° = 60°. The ratio of arc PQ to arc RQ would be 120° ÷ 60° = 2, meaning arc PQ is twice the length of arc RQ, which is the reverse of the given condition.

Therefore The correct answer is 60°.

Additional Information

Arc Length and Central Angle Relationship

The length of an arc s in a circle of radius r is given by s = r × θ (where θ is in radians). Thus, for a constant radius, arc length is directly proportional to the central angle.

Angle in a Semicircle

The angle subtended by a diameter at any point on the circumference of the circle is always a right angle (90°). In this case, angle PQR = 90°.

Sum of Angles on a Straight Line

The angles on a straight line always add up to 180°. Since POR is a straight line diameter, angle POQ + angle ROQ = 180°.

Q91. Answer: (a) 9485/9

Given:

Simplify the following: 88/9 × (74 + 30) + 37

Formula used:

Follow BODMAS rule (Brackets, Orders, Division/Multiplication, Addition/Subtraction).

Calculation:

88/9 × (74 + 30) + 37

=> 88/9 × 104 + 37

=> (88 × 104)/9 + 37

=> 9152/9 + 37

=> (9152 + (37 × 9))/9

=> (9152 + 333)/9

=> 9485/9

Therefore The correct answer is option (1).

Q92. Answer: (c) NVS-02

The correct answer is NVS-02.

Key Points

• NVS-02 is the second satellite in the Navigation with Indian Constellation (NavIC) series, aimed at enhancing India's regional navigation capabilities.

• It was launched by the Indian Space Research Organisation (ISRO) in January 2025 using the GSLV rocket.

• NavIC, India's independent navigation system, provides accurate location data over India and a region extending up to 1,500 km around its borders.

• The satellite is equipped with advanced atomic clocks and signal generators to improve positioning, timing, and reliability of navigation services.

• NVS-02 strengthens NavIC's application in sectors like disaster management, transportation, and agriculture, among others.

Additional Information

• NavIC (Navigation with Indian Constellation):

• NavIC is India's regional satellite navigation system developed by ISRO to provide accurate position information services.

• It consists of seven satellites, with additional satellites like NVS-02 launched to enhance its capabilities.

• NavIC is designed to serve civilian and military purposes, with applications in terrestrial, aerial, and marine navigation.

• It is an alternative to global systems like GPS, offering better accuracy in the Indian region.

• Atomic Clocks:

• Atomic clocks are precise timekeeping devices used in navigation satellites to maintain synchronization of signals.

• NVS-02 is equipped with rubidium atomic clocks for improved accuracy and reliability.

• These clocks ensure seamless data transmission for positioning services.

• GSLV (Geosynchronous Satellite Launch Vehicle):

• GSLV is a launch vehicle developed by ISRO for deploying satellites into geostationary and geosynchronous orbits.

• It utilizes cryogenic technology for enhanced payload capacity.

• GSLV was chosen for the launch of NVS-02 due to its capability to handle medium-lift missions.

• Applications of NavIC:

• NavIC is used for applications such as disaster management, fleet monitoring, vehicle tracking, and precision agriculture.

• It also aids in marine navigation, railway signaling, and aerial positioning systems.

• Its regional focus ensures high accuracy within India and surrounding areas.

Q93. Answer: (a) Rs. 690

Shortcut Trick

Assume all 45 kg are apples: Cost = 45 × 25 = Rs. 1125.

Difference from total cost = 1240 − 1125 = Rs. 115.

Difference in price per kg (mangoes − apples) = 30 − 25 = Rs. 5.

Weight of mangoes = 115 ÷ 5 = 23 kg.

Total money spent on mangoes = 23 × 30 = Rs. 690.

Therefore The correct answer is Rs. 690.

Alternate Method

Given: Total weight of apples and mangoes = 45 kg, Total cost = Rs. 1,240. Price of apples = Rs. 25/kg, Price of mangoes = Rs. 30/kg.

Formula Used: Total Cost = (Weight1 × Price1) + (Weight2 × Price2)

Let the weight of mangoes be x kg.

=> Weight of apples = (45 − x) kg

=> 30 × x + 25 × (45 − x) = 1240

=> 30x + 1125 − 25x = 1240

=> 5x = 1240 − 1125

=> 5x = 115

=> x = 115 ÷ 5 = 23 kg

=> Money spent on mangoes = 23 × 30 = Rs. 690

Therefore The correct answer is Rs. 690.

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Additional Information

Alligation Rule

It is used to find the ratio in which two components at different prices are mixed to get a mixture at a mean price: Ratio = (Dearer Price − Mean Price) : (Mean Price − Cheaper Price).

Weighted Average

The average price of a mixture is calculated as (n1c1 + n2c2) ÷ (n1 + n2), where n is quantity and c is cost per unit.

Substitution Method

A linear equation approach where one variable is expressed in terms of another (e.g., Apple = Total − Mango) to solve for a single unknown.

Q94. Answer: (c) Banking operations

The correct answer is Banking operations.

Key Points

• The Capital Adequacy Ratio (CAR) is a metric used to measure the financial strength of banks, ensuring they have enough capital to absorb potential losses.

• It is expressed as a percentage of a bank's risk-weighted credit exposures, calculated using Tier 1 and Tier 2 capital.

• CAR is mandated by international banking regulations such as the Basel Accords, which promote financial stability and reduce systemic risks.

• The Reserve Bank of India (RBI) requires Indian banks to maintain a minimum CAR of 9%, higher than the Basel III global standard of 8%.

• The ratio ensures banks can sustain operations even during financial crises, safeguarding depositors' interests and maintaining trust in the banking system.

Additional Information

• Basel Accords:

• International banking regulatory frameworks developed by the Basel Committee on Banking Supervision.

• Basel I (1988), Basel II (2004), and Basel III (2010) focus on improving risk management and enhancing financial stability.

• Basel III introduced stricter CAR requirements, liquidity coverage ratios, and leverage ratios.

• Tier 1 and Tier 2 Capital:

• Tier 1 capital consists of core capital like equity and disclosed reserves, which can absorb losses directly.

• Tier 2 capital includes supplementary capital such as subordinated debt and undisclosed reserves.

• Banks use both types of capital to calculate CAR, with Tier 1 being more critical for financial stability.

• Risk-Weighted Assets (RWA):

• Assets are assigned risk weights based on their inherent credit, market, and operational risks.

• For example, government securities may have a lower risk weight compared to loans to businesses.

• RWA calculations are crucial for determining CAR and compliance with regulatory standards.

• Importance of CAR:

• Maintains depositor confidence by ensuring banks are financially stable.

• Helps mitigate risks of insolvency during economic downturns.

• Promotes responsible lending and banking practices.

Q95. Answer: (b) 91 : 150 : 119

Shortcut Trick

Multiply the ratio parts by their respective percentage multipliers (100 + increment).

New ratio → 10 × 182 : 20 × 150 : 20 × 119

Divide by 20 → 91 : 150 : 119

Therefore The correct answer is 91 : 150 : 119.

Alternate Method

Given: Initial ratio of salaries X : Y : Z = 10 : 20 : 20

Increments: X = 82%, Y = 50%, Z = 19%

=> Let the initial salaries be 100, 200, and 200.

=> New salary of X = 100 + 82% of 100 = 100 + 82 = 182

=> New salary of Y = 200 + 50% of 200 = 200 + 100 = 300

=> New salary of Z = 200 + 19% of 200 = 200 + 38 = 238

=> New ratio = 182 : 300 : 238

=> Divide all terms by 2 → 91 : 150 : 119

Therefore The correct answer is 91 : 150 : 119.

Additional Information

Percentage Change in Ratio

When each part of a ratio a:b is increased by x% and y%, the new ratio becomes a(1 + x/100) : b(1 + y/100).

Base Value Selection

For easier calculation, assume ratio parts as multiples of 100 to avoid decimals during percentage increments.

Compound Ratio

If multiple ratios are given (A:B and B:C), they must be balanced using a common term before applying percentage changes.

Q96. Answer: (d) To develop a mobile game promoting cybersecurity awareness

The correct answer is To develop a mobile game promoting cybersecurity awareness.

Key Points

• The 'Trinetra' project by IIT Tirupati primarily focuses on developing a mobile game designed to promote cybersecurity awareness.

• This initiative aims to educate users about cybersecurity threats in an engaging and interactive manner.

• The project leverages gamification techniques to make learning about cybersecurity concepts more accessible and appealing.

• 'Trinetra' aligns with the growing need for awareness about cyber risks due to increasing digital dependence in daily activities.

• By targeting a wide audience, including students and professionals, the project seeks to strengthen cybersecurity practices at the individual level.

Additional Information

• Cybersecurity Awareness:

• Cybersecurity awareness involves understanding the risks associated with online activities and adopting safe practices to protect personal and organizational data.

• It is crucial in today's era of increasing cyber threats, such as phishing, malware, ransomware, and identity theft.

• Gamification in Education:

• Gamification refers to the use of game-like elements, such as points, badges, and levels, to make learning more engaging and effective.

• It has been widely adopted in various fields, including cybersecurity, to improve user engagement and retention of knowledge.

• Cybersecurity Challenges:

• India has witnessed a significant increase in cyber incidents, prompting the need for initiatives to enhance cybersecurity education and awareness.

• Projects like 'Trinetra' help bridge the gap between technical knowledge and public understanding of cyber risks.

• National Cybersecurity Efforts:

• The Indian government has launched various programs and frameworks to enhance cybersecurity infrastructure, such as the National Cyber Security Policy.

• Educational institutions like IITs actively contribute by developing innovative solutions, including awareness campaigns and technological tools.

Q97. Answer: (b) By naturalisation

The correct answer is By naturalisation.

Key Points

• Indian citizenship can be acquired by a foreigner who has resided in India for a continuous period of 12 years under the provisions of the Citizenship Act, 1955.

• The process is known as naturalisation, which is detailed in Section 6 of the Citizenship Act, 1955.

• To be eligible, the individual must have resided in India for 11 years cumulatively in the 14 years preceding the application and for 12 months continuously before submitting the application.

• The applicant must also meet specific qualifications, such as good character, adequate knowledge of an Indian language, and renunciation of citizenship of the foreign country.

• Upon successful application, citizenship is granted by a certificate issued by the Government of India.

Additional Information

• Citizenship Act, 1955:

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

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• It provides five methods for acquiring citizenship: by birth, descent, registration, naturalisation, and incorporation of territory.

• Naturalisation vs Registration:

• Naturalisation is for foreigners who meet the residency and other criteria, while registration is for specific categories like persons of Indian origin (PIOs) or spouses of Indian citizens.

• Registration requires a shorter residency period compared to naturalisation.

• Language Requirement:

• The applicant must have adequate knowledge of at least one of the official languages of India as specified in the Eighth Schedule of the Indian Constitution.

• Renunciation of Previous Citizenship:

• India does not allow dual citizenship; therefore, an individual must renounce their previous citizenship to acquire Indian citizenship via naturalisation.

• Good Character Criterion:

• The applicant must demonstrate good moral character, verified through background checks during the application process.

Q98. Answer: (a) YR-EK

The logic followed here is.

Option (1) 'YR-EK':

Not follow same kogic.

Option (2) 'AT-FM':

Option (3) 'MF-RY':

Option (4) 'GZ-LS':

Hence, the correct answer is "Option 1".

Q99. Answer: (c) Bay of Bengal

The correct answer is Bay of Bengal.

Key Points

• The Palk Strait is a narrow stretch of water that lies between India and Sri Lanka.

• It connects the Bay of Bengal to the northeast and the Palk Bay to the southwest.

• The strait is named after Sir Robert Palk, a Governor of Madras during British rule in India.

• The Palk Strait is characterized by shallow waters and a chain of low islands and reef shoals collectively known as Adam's Bridge or Rama's Bridge.

• This geographical feature has been historically significant for trade and cultural exchanges between India and Sri Lanka.

Additional Information

• Bay of Bengal:

• The Bay of Bengal is the largest bay in the world and is bordered by India, Bangladesh, Myanmar, and Sri Lanka.

• Major rivers like the Ganges, Brahmaputra, Mahanadi, Godavari, Krishna, and Kaveri drain into this bay.

• It plays a vital role in monsoon dynamics and is home to important marine biodiversity.

• The bay is a hub for international shipping and fishing industries.

• Adam's Bridge:

• Also known as Rama's Bridge, it is a chain of limestone shoals connecting Pamban Island (India) to Mannar Island (Sri Lanka).

• It is mentioned in ancient Hindu texts, including the Ramayana.

• Geological studies suggest the feature may have formed due to tectonic activity and sediment deposition.

• Geopolitical Importance of the Palk Strait:

• The strait serves as a maritime boundary between India and Sri Lanka.

• It is significant for fisheries and marine trade in the region.

• India and Sri Lanka cooperate on managing maritime security and combating illegal fishing in the strait.

• Marine Biodiversity:

• The Palk Strait is home to diverse marine species, including corals, fish, and crustaceans.

• Efforts are underway to conserve the fragile marine ecosystem in the region.

Q100. Answer: (d) Where the worksheet splits across printed pages

The correct answer is Where the worksheet splits across printed pages.

Key Points

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• Setting a Page Break in MS Excel allows users to control where the worksheet content is divided across pages during printing.
• Page Breaks can be manually inserted in Excel using “Page Layout” → “Breaks” → “Insert Page Break”.
• This feature is helpful for ensuring that specific sections or rows are printed together, avoiding incomplete data splits across pages.
• Excel supports both horizontal and vertical page breaks, providing flexibility in organizing printed outputs.
• Page Break Preview mode allows users to visually adjust and review page breaks before printing.

Additional Information

• Page Setup Options:
• Excel allows users to customize margins, orientation (portrait or landscape), and paper size under the “Page Setup” menu.
• These settings directly influence how the printed worksheet appears.
• Print Area:
• Users can define a specific print area to ensure only selected portions of the worksheet are printed.
• This is useful for focusing on relevant data while excluding unnecessary information from printouts.
• Headers and Footers:
• Excel allows customization of headers and footers to include page numbers, dates, or custom text on printed pages.
• This feature improves document organization and presentation.
• Print Preview:
• Print Preview helps users inspect the layout and formatting of the worksheet before printing.
• This ensures alignment and avoids printing errors or unnecessary page breaks.
• Automatic Page Breaks:
• Excel automatically inserts page breaks based on paper size and margins if manual page breaks are not defined.
• Users can override these automatic breaks by inserting custom ones.

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