RRB NTPC (Graduate) CBT-I Official Paper (Held On: 19 Mar, 2026 Shift 3) (Previous Year Paper)

RRB NTPC • 2026 • 100 questions • 90 minutes • Answer key and solutions

Take this paper as a timed mock test

Practise under exam conditions, then review your answers after you submit.

yourmocktest.com/pyq/rrb-ntpc/rrb-ntpc-graduate-cbt-i-official-paper-held-on-19-mar-2026-shift…

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

Q1. Two lines AB and CD are parallel. Let PQ be the transversal intersecting AB at M and CD at N. If angle MND = 47º find angle AMN.

(a) 107º
(b) 133º
(c) 73º
(d) 47º

Q2. What is the average of all the natural numbers from 1 to 60?

(a) 31.5
(b) 31
(c) 30.5
(d) 30

Q3. Who deciphered a Brahmi inscription referring king Ashoka as Devanampiya Piyadasi?

(a) R C Majumdar
(b) Romila Thapar
(c) James Princep
(d) Susan Bayly

Q4. Which of the following is correct with respect to the theme of Yamuna Paryatam, the first novel in Marathi?

(a) Focused on adventure stories
(b) Focused on Political life of Yamuna region
(c) Criticized Hindu practices regarding widows
(d) Praised Hindu customs

Q5. Select the pair which follows the same pattern as that followed by the two set of pairs given below. Both pairs follow the same pattern.

AOE:BQH

OST:PUW

(a) DAF:FCH
(b) ADP:BGQ
(c) SHF:TJI
(d) LAJ:MDN

Q6. Which of the following letter-number clusters will replace the question mark (?) in the given series to make it logically complete?

HGH 85 FEF 74 DCD 63 BAB 52 ?

(a) ZXY 40
(b) ZYZ 41
(c) ZZY 41
(d) ZHQ 40

YourMockTest.com — Free Study Material

Q7. Which of the following administrative features was a key characteristic of the Mauryan Empire under Chandragupta Maurya?

(a) Centralised bureaucracy guided by Arthashastra
(b) Hereditary provincial governors
(c) Feudal land grant system
(d) Revenue collection by religious institutions

Q8. What is the maximum value that must be assigned to A so that the 8-digit number 445A0208 is divisible by 3?

(a) 9
(b) 5
(c) 7
(d) 2

Q9. In most web browsers, when multiple tabs are open in a web browser, pressing Ctrl + Tab performs which action?

(a) Launches a new tab
(b) Removes the selected tab
(c) Navigates to the previous tab on the left
(d) Navigates to the next tab on the right

Q10. At what rate (in percentage, rounded off to two decimal place) per year will a sum of money 5 times itself in 12 years on simple interest?

(a) 31.33
(b) 35.33
(c) 33.33
(d) 66.66

Q11. The minimum value of the expression max $\{p^2 - 2p + 4, -p^2 + 2p - 4\}$ in the range $0 \le p \le 1$ is:

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

Q12. Select the set in which the numbers are related in the same way as are the numbers of the following 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 etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed.)

(40, 122, 4)

(30, 101, 13)

(a) (2, 26, 17)
(b) (10, 51, 18)
(c) (37, 120, 11)
(d) (10, 50, 17)

Q13. Which of these Union Territories has a legislative assembly and council of ministers?

(a) Dadra and Nagar Haveli
(b) Puducherry
(c) Daman and Diu
(d) Andaman and Nicobar Islands

Q14. Select the set in which the numbers are related in the same way as are the numbers of the following 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.)

(15, 7, 100)

(25, 8, 195)

YourMockTest.com — Free Study Material

(a) (26, 4, 104)
(b) (18, 10, 185)
(c) (23, 6, 133)
(d) (21, 11, 236)

Q15. In a certain code language, ‘GLOW’ is coded as ‘4628’ and ‘WEAR’ is coded as ‘3574’. What is the code for ‘W’ in that language?

(a) 3
(b) 8
(c) 4
(d) 7

Q16. 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 :: ?

: RWU :: KPN : %

(a) = SXV, % = JOM
(b) = TYX, % = KLI
(c) = TXY, % = JLM
(d) = SYW, % = KFI

Q17. In 2025, India achieved which milestone in the UN Sustainable Development Goals (SDGs) rankings?

(a) India achieved all SDGs.
(b) India ranked first globally.
(c) India dropped out of the top 100.
(d) India entered the top 100 for the first time.

Q18. Kinshuk starts from Point D and walks 5 km towards South. She turns left and walks 9 km. She then turns left and walks 5 km. She finally turns right and walks 2 km to reach Point E.

How far and in which direction is Point E from Point D? (All turns are 90-degree turns only, unless specified.)

(a) 10 km, East
(b) 11 km, East
(c) 9 km, East
(d) 12 km, West

Q19. What should come in place of ‘?’ in the given series?

9 11 14 19 26 ?

(a) 35
(b) 41
(c) 39
(d) 37

Q20. A shopkeeper fixes the marked price of an item 150% above its cost price. What percentage of discount on marked price should be allowed to gain 60%?

(a) 34%
(b) 39%
(c) 33%
(d) 36%

Q21. Which of the following theories was propounded in Dadabhai Naoroji’s 1901 book Poverty and Un-British Rule in India?

(a) Drain of Wealth Theory
(b) Subsidiary Alliance Theory
(c) Doctrine of Lapse Theory
(d) Two Nation Theory

YourMockTest.com — Free Study Material

Q22. If 1 is added to each odd digit and 2 is subtracted from each even digit in the number 5714623, what will be the sum of the digits that are second from the left and second from the right?

(a) 9
(b) 8
(c) 7
(d) 6

Q23. On which occasion in 2024 did Prime Minister Narendra Modi launch the Dharti Aaba Janjatiya Gram Utkarsh Abhiyan (DAJGUA)?

(a) Birth Anniversary of Mahatma Gandhi
(b) Republic Day
(c) Independence Day
(d) World Environment Day

Q24. What is the mode of the data given below? [Give your answer correct to 2 decimal places.]

Age in years	No. of patients
15-25	18
25-35	10
35-45	15
45-55	14
55-65	30
65-75	40
75-85	34

(a) 72.25
(b) 70.25
(c) 69.25
(d) 71.25

Q25. GJHA is related to JNLD in a certain way based on the English alphabetical order. In the same way, KMEL is related to NQIO. To which of the following is NROT related, following the same logic?

(a) QWTT
(b) QWZT
(c) SWVQ
(d) QVSW

Q26. Read the given statements and conclusions carefully. Assuming that the information given in the statements is true, even if it appears to be at variance with commonly known facts, decide which of the given conclusion(s) logically follow(s) from the statements.

Statements:

All kites are rabbits. No kite is an eagle. All eagles are pigs.

Conclusions:

(I) No pig is a rabbit.

(II) Some pigs are kites.

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

YourMockTest.com — Free Study Material

Q27. Which natural disaster involves mass movement of snow, ice, and rock down a mountain?

(a) Avalanche
(b) Cyclone
(c) Tsunami
(d) Landslide

Q28. Read the given statements and conclusions carefully. Assuming that the information given in the statements is true, even if it appears to be at variance with commonly known facts, decide which of the given conclusions logically follow(s) from the statements.

Statements:

All coppers are irons.

All irons are silvers.

All silvers are golds.

Conclusions:

(I) Some golds are irons.

(II) All silvers are coppers.

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

Q29. Simplify: $((4.23)^3 - 0.69 \times (4.23)^2 + 12.69(0.23)^2 - (0.23)^3)/(0.4 \times 0.4 \times 4)$

(a) 1000
(b) 100
(c) 1
(d) 10

Q30. Which global event in 1992 popularized sustainable development?

(a) Rio Earth Summit
(b) Montreal Protocol
(c) Paris Agreement
(d) Kyoto Protocol

Q31. Which of the following online festivals featured documentaries on Indian classical dance exponents in 2020?

(a) Natya Utsav
(b) Nritya Mahotsav
(c) Nrityanjali
(d) Rangmanch

Q32. Which measurement method includes all those who are found unemployed in the reference year and reflects chronic unemployment?

(a) Usual Subsidiary Status Unemployment
(b) Current Weekly Status Unemployment
(c) Current Daily Status Unemployment
(d) Usual Principal Status Unemployment

Q33. The Economic Survey 2024–25 states that India’s foreign exchange reserves were adequate to cover approximately what percentage of external debt as of December 2024?

(a) About 60%
(b) About 75%
(c) About 90%
(d) More than 110%

YourMockTest.com — Free Study Material

Q34. Seven people F, G, H, I, V, W, and X are sitting around a circular table facing the centre of the table. H sits third to the left of F. I sits second to the left of V. Only F sits between G and I. W is not an immediate neighbour of H. How many people sit between X and I when counted from the right of X?

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

Q35. Two pipes can fill a tank in 4 hours and 24 hours, respectively. A third pipe can empty the tank in 6 hours. If all three pipes are opened together, how long (in hours) will it take to fill half of the empty tank?

(a) 3 hours
(b) 6 hours
(c) 4 hours
(d) 2 hours

Q36. A boat travels 120 km downstream in 6 hours and 120 km upstream in 10 hours. The speed of the current is 4 km/hr. What is the speed of the boat in still water?

(a) 8 km/hr
(b) 14 km/hr
(c) 10 km/hr
(d) 16 km/hr

Q37. A rise in the sea surface temperature in the Pacific Ocean accompanied by deficient rainfall in India is associated with which of the following phenomena?

(a) Sa Nina
(b) El Nino
(c) Chi Nina
(d) Pro Nino

Q38. In this question, a question is followed by two statements numbered (I) and (II). You have to decide whether the data provided in the statements are sufficient to answer the question. Read both the statements and decide the appropriate answer.

Q. Kunal, Mohit, Rohan, Sandeep, and Tarun - each have different age. Who is the oldest?

(I) Mohit is older than Kunal but younger than Sandeep.

(II) Tarun is younger than Sandeep but older than Mohit.

(a) Data in Statement II alone is sufficient to answer the question while data in Statement I is not
(b) Both statements I and II together (and not statement I alone or statement II alone) are sufficient to answer the question
(c) Data in Statement I alone is sufficient to answer the question while data in Statement II is not
(d) Both statements I and II together are NOT sufficient to answer the question

Q39. Two taps can fill a cistern in 4 hours and 32 hours respectively. A third tap can empty it in 32 hours. How long (in hours) will it take to fill one-fourth of the empty cistern, if all of them are opened together?

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

Q40. Find the volume of largest possible sphere that can be inscribed in a cone whose base radius is $42\sqrt{3}$ cm and slant height equal to the diameter of the base. (Use $\pi = 22/7$)

(a) 301644 cm^3
(b) 314046 cm^3
(c) 310464 cm^3
(d) 314064 cm^3

YourMockTest.com — Free Study Material

Q41. Which among the following Articles of the Indian Constitution provides Municipalities with financial powers?

(a) Article 243P
(b) Article 243U
(c) Article 243 X
(d) Article 243ZB

Q42. Refer to the following number and symbol series and answer the question. Counting to be done from left to right only. (All numbers are single-digit numbers only.)

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

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

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

Q43. When a spring is compressed from its equilibrium position, its potential energy will _____.

(a) first decrease then increase
(b) decrease
(c) increase
(d) remain unchanged

Q44. There are Rs. 5, Rs. 2, and Rs. 1 coins amounting to a total of Rs. 212. The total number of coins is 112. The number of Rs. 2 coins is 50 more than the number of Rs. 5 coins. Find the number of Rs. 1 coins.

(a) 10
(b) 25
(c) 42
(d) 50

Q45. Which international waterway is most vital for world trade, linking the Mediterranean Sea with the Red Sea?

(a) Panama Canal
(b) Strait of Malacca
(c) Bosporus Strait
(d) Suez Canal

Q46. In a certain code language,

A + B means ‘A is the daughter of B’

A – B means ‘A is the brother of B’

A x B means ‘A is the wife of B’

A ÷ B means ‘A is the father of B’

Based on the above, how is D related to J if ‘D + F ÷ G – H x J’?

(a) Wife's sister
(b) Sister
(c) Mother
(d) Wife's mother

Q47. Chetan’s salary is Rs. 18000 per month. He spends Rs. 5000 on house rent, Rs. 2000 on bills and the rest of the amount is his monthly savings. Find his savings (in Rs.) in a year, if in the month of his birthday, he spent his complete monthly saving for birthday celebration.

(a) 121000
(b) 132000
(c) 99000
(d) 110000

YourMockTest.com — Free Study Material

Q48. Which type of lens is used in a simple microscope?

(a) Cylindrical
(b) Biconcave
(c) Biconvex
(d) Plano-concave

Q49. Who is officially authorized to conduct environment audits under the Environment Audit Rules, 2025?

(a) Environmental Consultant
(b) Registered Environment Auditor
(c) Certified Environment Auditor
(d) Environment Audit Designated Agency

Q50. In a certain code language, 'LITE' is coded as '8196' and 'FELT' is coded as '6481'. What is the code for 'F' in the given code language?

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

Q51. 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−UX
(b) LO−PV
(c) NQ−SV
(d) JM−OR

Q52. Amit invested equal amounts at simple interest and compound interest, compounded annually, for 2 years at the same rate of 4% per annum. In the end, he found a difference of Rs. 53 between the two interests earned. What was the amount (in Rs.) invested in each case?

(a) 32375
(b) 32225
(c) 33475
(d) 33125

Q53. If 'A' stands for '÷', 'B' stands for '×', 'C' stands for '+' and 'D' stands for '−', then what will come in place of the question mark (?) in the following equation?

22 A 2 B 1 C 3 D 2 = ?

(a) 10
(b) 12
(c) 13
(d) 11

Q54. A shopkeeper buys 45 identical calculators for Rs. 54,000. He sells 30 of them at a profit of 25% and the remaining at a loss of 20%. What is the overall profit or loss percentage?

(a) 10% profit
(b) 10% loss
(c) 5% loss
(d) 5% profit

Q55. Natyanjali Dance Festival is held every year for _____ days in 1000-year-old temple of Chidambaram, (Tamil Nadu).

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

YourMockTest.com — Free Study Material

(d) 5

Q56. Calculate the mode for the following frequency distribution of marks obtained by students in an exam. (Rounded off to two decimal places)

Marks	0-10	10-20	20-30	30-40	40-50
Number of Students	8	16	36	34	16

(a) 31.25
(b) 29.09
(c) 28.45
(d) 30.15

Q57. Let ABC be a right-angled triangle such that angle B = 90°, AB = 12 cm and AC = 13 cm. Find the value of tan A - cot C.

(a) 0
(b) 5
(c) 6
(d) 2

Q58. What should come in place of '?' in the given series?

65 63 60 55 48 ?

(a) 33
(b) 39
(c) 36
(d) 37

Q59. Seven friends – A, B, C, D, E, F and G – each have a meeting on a different day of the week, starting from Monday to Sunday. C has a meeting on Thursday.

Only one person has a meeting between C and F. A's meeting is immediately before F's, but not on a Monday. Only two persons have meetings between A and G. B's meeting is before E's but after D's. On which day does B have the meeting?

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

Q60. Oriya' was replaced with 'Odia' in the Eighth Schedule by which Constitutional Amendment?

(a) 97th Amendment
(b) 96th Amendment
(c) 95th Amendment
(d) 94th Amendment

Q61. How many nations became signatories to the United Nations Convention against Cybercrime in December 2025?

(a) 72
(b) 151
(c) 190
(d) 122

Q62. If a : b = 1 : 3, b : c = 5 : 7 and c : d = 9 : 5, then the value of a : b : c : d is:

(a) 15 : 45 : 63 : 35
(b) 25 : 75 : 105 : 45
(c) 5 : 75 : 105 : 35
(d) 15 : 75 : 105 : 35

YourMockTest.com — Free Study Material

Q63. A shopkeeper professes to sell his goods at a 20% loss but uses a false balance and gains 40%. The actual weight (rounded off to one decimal place) he uses for 1 kg is:

(a) 576.7 gm
(b) 575.4 gm
(c) 571.4 gm
(d) 568.8 gm

Q64. A chemical research laboratory uses three compounds A, B, and C in the cost ratio 3 : 5: 7. When a fourth compound D is added to the mixture, the total cost increases by 40%. If the new ratio becomes A : B : C : D = 3 : 5 : 7 : x, what is the value of x?

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

Q65. Which of the following locations stores recently opened files in Windows for quick access?

(a) Recycle Bin
(b) Quick Access
(c) Desktop
(d) Control Panel

Q66. The population of a village was 2,90,000. It increased by 5% in the first year and increased by 30% in the second year. Its population after two years is _____.

(a) 3,95,850
(b) 3,91,500
(c) 3,04,500
(d) 3,77,000

Q67. In 2025, the historic live underwater interview highlighting ocean conservation and climate risks was conducted by the President of which country?

(a) Maldives
(b) Fiji
(c) Palau
(d) Seychelles

Q68. Which of the following devices functions as both an input and an output device?

(a) Keyboard
(b) Speaker
(c) Printer
(d) Touchscreen

Q69. Based on the alphabetical order, three of the following four are alike in a certain way and thus form a group. Which is the one that does not belong to that group?

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

(a) MTP
(b) PWR
(c) GNJ
(d) JQM

Q70. Below are given two sets of numbers. In each set of numbers, a certain mathematical operation on the first number results in the second number. Similarly, certain mathematical operations on the second number result in the third number and so on. Which of the given options follows the same set of operations as in question?

(NOTE – A two/three-digit number cannot be broken into individual digits for operations, e.g., if 37 is followed by 10, the operation cannot be 3+7 as a two-digit number cannot be broken into individual digits.)

8 – 18 – 36 – 56; 12 – 22 – 44 – 64

YourMockTest.com — Free Study Material

(a) 17 – 27 – 44 – 54
(b) 15 – 25 – 50 – 80
(c) 10 – 20 – 40 – 80
(d) 20 – 30 – 60 – 80

Q71. What leads to rancidity in food products?
(a) Evaporation
(b) Fermentation
(c) Reduction
(d) Oxidation

Q72. In developed countries, which of the following sectors has become the most important in terms of total production?
(a) Secondary Activity
(b) Primary Activity
(c) Tertiary Activity
(d) Quinary Activity

Q73. Find the volume (in cm^3) of a sphere having a diameter of 37.8 cm, giving your answer correct to two places of decimal.
Take $\pi = 22/7$
(a) 28281.03
(b) 28291.03
(c) 28311.03
(d) 28301.03

Q74. What major change happened in India's agriculture and industrial sectors after the economic reforms of 1991?
(a) Only agriculture was given importance, not industry.
(b) Farming became the only source of national income.
(c) The government increased control over private industries.
(d) More private companies and foreign investments were allowed.

Q75. India maintained which position worldwide in net annual forest area gain according to GFRA 2025?
(a) 4th
(b) 5th
(c) 2nd
(d) 3rd

Q76. Which country hosted the 68^(th) Commonwealth Parliamentary Conference in October 2025?
(a) Ghana
(b) Australia
(c) Barbados
(d) Canada

Q77. Which constitutional article empowers the Indian Parliament to make laws regarding the acquisition and termination of Indian citizenship after the commencement of the Constitution of India?
(a) Article 11
(b) Article 6
(c) Article 5
(d) Article 8

Q78. Four classes have a ratio of boys to girls as 4 : 5, 3 : 2, 6 : 5 and 5 : 6, respectively. Which class has a higher proportion of boys?
(a) Third class (6 : 5)
(b) Second class (3 : 2)
(c) Fourth class (5 : 6)

YourMockTest.com — Free Study Material

(d) First class (4 : 5)

Q79. Which of the following statements is INCORRECT in the context of the Indian National Congress (INC)?

(a) Badruddin Tyabji was the first Jainist President of the INC
(b) George Yule was the first non-Indian President of the INC
(c) Womesh Chandra Bonnerjee was the first Hindu President of the INC
(d) Dadabhai Naoroji was the first Parsi President of the INC

Q80. Which of the following statements is correct about the open system of thermodynamics?

(a) No exchange of energy, but exchange of matter is possible between system and the surroundings.
(b) No exchange of matter, but exchange of energy is possible between system and the surroundings.
(c) Exchange of energy and matter between system and surroundings.
(d) No exchange of energy or matter between the system and the surroundings.

Q81. Two parallel lines L1 and L2 are cut by a transversal. If one of the alternate interior angles is 65°, what is the measure of the corresponding alternate interior angle?

(a) 90°
(b) 65°
(c) 180°
(d) 110°

Q82. Ankur jogs on a circular track X at 12/3 m/s and Mahima jogs on track Y at 21/12 m/s. The total length of Tracks X and Y is 0.325 km. Ankur makes 9 rounds of track X in the same time Mahima makes 5 rounds of track Y.

The time taken (in seconds) by Mahima to complete one round of track X is:

(a) 48
(b) 42
(c) 35
(d) 39

Q83. 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.

T has the exam on Tuesday. Only two people have exams between R and T. P has the exam immediately after S but not on Sunday. Q has the exam before V but not on Monday.

How many people have exams between U and P?

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

Q84. S is the mother of N. N is the sister of U. L is the father of E. E is the husband of U. How is S related to E?

(a) Mother
(b) Sister
(c) Wife's sister
(d) Wife's Mother

Q85. Which Article of the Indian Constitution was given practical effect through the 73rd Constitutional Amendment Act, 1992, leading to the establishment of the Panchayati Raj System in India?

(a) Article 56
(b) Article 38
(c) Article 40
(d) Article 48

YourMockTest.com – Free Study Material

Q86. A, B, C, D, E, F and G are sitting around a circular table facing the centre. Only two people sit between F and B when counted from the right of F. Only two people sit between B and A when counted from the left of A. Only three people sit between F and C when counted from the right of F. E sits to the immediate left of D. How many people sit between A and E when counted from the right of A?

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

Q87. Ghana Vadya or idiophone instruments are those non-drum percussion musical instruments that do not require any tuning. _____ is an example of a Ghana Vadya.

(a) Shehnai
(b) Pungi
(c) Ghatam
(d) Sarangi

Q88. In which Indian state is the Cold Desert Biosphere Reserve, added to UNESCO's World Network in 2025, located?

(a) Sikkim near the Kangchenjunga Biosphere landscape
(b) Jammu & Kashmir along the upper Indus valley basin
(c) Himachal Pradesh in the Western Himalayan region
(d) Uttarakhand adjoining the Nanda Devi Biosphere Zone

Q89. Which of the following is the headquarters of ICAR-Central Institute on Fisheries Education?

(a) Panaji
(b) Thiruvananthapuram
(c) Mumbai
(d) Vishakhapatnam

Q90. Which of the following letter-number clusters will replace the question mark "?" in the given series to make it logically complete?

MRA 17, QVE 20, UZI 23, YDM 26, ?

(a) CGO 28
(b) CHQ 29
(c) DIR 30
(d) CIS 29

Q91. Items such as the operating system and device drivers fall under which category of software?

(a) System software
(b) Temporary programs
(c) Entertainment software
(d) Utility software only

Q92. Refer to the following letter, number and symbol series and answer the question that follows. All numbers are single digit numbers only.

(Left) D T £ © 3 6 Z % U $ 8 2 7 P * @ 3 J V © H N (Right)

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

(a) %
(b) £
(c) ©
(d) Z

Q93. If (125)1.3 × (25)1.8 ÷ (5)2.5 = 5x then find the value of 18x -5.

(a) 95
(b) 90
(c) 80

YourMockTest.com — Free Study Material

(d) 85

Q94. There are 39 members in group A, 33 members in group B and 52 members in group C. All the members of these groups went to a restaurant. The average amounts spent on each member of groups A, B and C are Rs. 377, Rs. 401 and Rs. 233, respectively. The overall average amount (in Rs.) spent per member is:

(a) 324
(b) 328
(c) 323
(d) 325

Q95. Kamal, Lalit, Manish, Neil, Om and Pawan live on six different floors of the same building. The lowermost floor in the building is numbered 1, the floor above it is numbered 2 and so on till the topmost floor, which is numbered 6. Lalit lives on an even-numbered floor. Lalit lives on a floor immediately below Kamal's floor and immediately above Manish's floor. Pawan lives on a floor immediately above Neil's floor. Pawan lives on an even-numbered floor. Om does not live on floor number 4. On which floor does Om live?

(a) 5th
(b) 6th
(c) 3rd
(d) 2nd

Q96. The least common multiple of x3.5 × y1.5, (y^(2.5))/(x^(-4.5)) and fracxy^-3 is:

(a) (xy)3 √(y³)
(b) (xy)2 √(x³)
(c) (xy)² √(y³)
(d) (xy)3 √(x³)

Q97. Which provisions were inserted into the Constitution by the 103rd Amendment Act, 2019, to enable reservation for Economically Weaker Sections (EWS)?

(a) Articles 15(5) and 16(5)
(b) Articles 15(4) and 16(4)
(c) Articles 15(6) and 16(6)
(d) Articles 15(2) and 16(2)

Q98. Refer to the following letter and symbol series and answer the question that follows. Counting to be done from left to right only.

(Left) J M L * J % G $ F # @ W D @ # ? + B H N % (Right)

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

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

Q99. cbrt2197/4√10000 × 5/39 × 48 = ?

(a) 4
(b) 2
(c) 16
(d) 8

Q100. Who implemented the “Blue Water Policy” in India?

(a) Joao de Castro
(b) Henry the Navigator
(c) Albuquerque
(d) Francisco de Almeida

YourMockTest.com — Free Study Material

ANSWER KEY

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

SOLUTIONS

Q1. Answer: (d) 47º

Shortcut Trick

Parallel lines => alternate interior angles equal

=> angle MND = angle AMN

=> Given angle MND = 47°

=> angle AMN = 47°

Therefore Answer = 47°

Alternate Method

Given:

AB || CD

PQ is a transversal

angle MND = 47°

Formula:

Alternate interior angles are equal when lines are parallel

Calculation:

=> angle MND and angle AMN are alternate interior angles

=> angle AMN = angle MND

=> angle AMN = 47°

Therefore Final Answer = 47°

Additional Information

Alternate Interior Angles: Equal when a transversal cuts parallel lines

Corresponding Angles: Same relative position => equal

Co-interior Angles: Sum = 180° on same side

Key Tip: Always locate angle position before applying rule

Q2. Answer: (c) 30.5

Shortcut Trick

Consecutive numbers => average = (first + last) ÷ 2

=> = (1 + 60) ÷ 2 = 61 ÷ 2

=> = 30.5

Therefore Answer = 30.5

Alternate Method

Given:

Natural numbers from 1 to 60

YourMockTest.com — Free Study Material

Formula:

Average = (Sum of numbers) ÷ Total numbers

Sum of first n natural numbers = n(n + 1) ÷ 2

Calculation:

=> Sum = 60 × 61 ÷ 2 = 1830

=> Total numbers = 60

=> Average = 1830 ÷ 60 = 30.5

Therefore Final Answer = 30.5

Additional Information

Consecutive Numbers: Average = (First + Last) ÷ 2

Sum Formula: n(n+1) ÷ 2

Key Insight: Middle value represents average

Tip: Use shortcut instead of full summation

Q3. Answer: (c) James Princep

The correct answer is James Princep.

Key Points

• James Princep was an English scholar, orientalist, and an officer in the Calcutta Mint of the East India Company.

• In the year 1837, he successfully deciphered the Brahmi and Kharosthi scripts, which were used in the earliest inscriptions and coins of ancient India.

• Through his research, he identified that the inscriptions referring to a king named Devanampiya Piyadasi (meaning "Beloved of the Gods" and "of Pleasant Gaze") were actually referring to the Mauryan Emperor Ashoka.

• This breakthrough allowed historians to correlate archaeological evidence with Buddhist chronicles like the Dipavamsa and Mahavamsa, establishing Ashoka as one of the greatest rulers in Indian history. Hence, the statement regarding James Princep is correct.

• The identification of these inscriptions provided a chronological framework for ancient Indian history, which was previously based largely on legends and myths.

Additional Information

• R C Majumdar:

• Ramesh Chandra Majumdar (1888–1980) was a prominent Indian historian known for his monumental work "The History and Culture of the Indian People".

• While he contributed extensively to the study of ancient India and Bengal, he was not the one who deciphered the Brahmi script.

• Romila Thapar:

• Romila Thapar is a world-renowned Indian historian whose primary focus is Ancient India.

• She is well-known for her book "Ashoka and the Decline of the Mauryas", published in 1961, which offers a socio-economic analysis of the Mauryan Empire.

• Her work interprets the Dhamma of Ashoka as a civic code rather than a religious doctrine.

• Susan Bayly:

• Susan Bayly is a professor of Historical Anthropology at the University of Cambridge.

• Her research focuses on caste, society, and colonialism in South Asia and Southeast Asia, particularly Vietnam.

• She is the author of "Caste, Society and Politics in India from the Eighteenth Century to the Modern Age".

• Brahmi Script:

• It is the ancestor of almost all modern Indian scripts and was used by Ashoka for his Rock Edicts and Pillar Edicts.

• The script was primarily written from left to right, and its decipherment opened the door to understanding Magadhi Prakrit.

Important Points

• Epigraphy: The study of inscriptions is known as epigraphy. The decipherment by James Princep is considered the most significant milestone in Indian epigraphy.

• Maski Inscription: Although James Princep linked Piyadasi to Ashoka, the final confirmation came in 1915 when an inscription was found at Maski in Karnataka that explicitly mentioned the name "Ashoka" alongside "Devanampiya".

• Asiatic Society: James Princep served as the founding editor of the Journal of the Asiatic Society of Bengal, which published his findings on Ashokan pillars located in Delhi and Allahabad.

• Kharosthi Script: Unlike Brahmi, Kharosthi was written from right to left and was used primarily in the Northwest regions of the Indian subcontinent, such as Gandhara (modern-day Pakistan and Afghanistan).

YourMockTest.com — Free Study Material

Q4. Answer: (c) Criticized Hindu practices regarding widows

The correct answer is Criticized Hindu practices regarding widows.

Key Points

• Yamuna Paryatam, published in 1857, is widely regarded as the first novel in the Marathi language. It was written by Baba Padmanji, a prominent social reformer and convert to Christianity.

• The central theme of the novel is the plight of widows in contemporary Hindu society. It vividly describes the physical and mental suffering they endured, including the practice of shaving heads (tonsure) and social boycotts. Hence, the statement that it criticized Hindu practices regarding widows is correct.

• The narrative follows the journey of a young woman named Yamuna and her husband Vinayak as they travel and witness the miserable conditions of widows across various places. This journey serves as a medium for social commentary.

• Statement 1: The novel did not focus on adventure stories. While it involves travel, the primary objective was social reform rather than escapism or thrill-seeking adventure. Hence, this statement is incorrect.

• Statement 2: It did not focus on the political life of the Yamuna region. The title "Yamuna Paryatam" refers to the protagonist's name, Yamuna, and her "Paryatam" (travels), rather than the geography of the Yamuna River or political administration. Hence, this statement is incorrect.

• Statement 4: The novel did not praise Hindu customs; instead, it was a sharp critique of orthodox Brahminical traditions that oppressed women and denied them the right to remarry. Hence, this statement is incorrect.

Additional Information

• Baba Padmanji (1831-1906): He was a significant figure in the 19th-century social reform movement in Maharashtra. He was born into a Kasari family but later embraced Christianity in 1854. His writings often reflected the interplay between Christian ethics and the need for Hindu social reform.

• Advocacy for Remarriage: One of the core messages of Yamuna Paryatam was the promotion of widow remarriage. At the end of the novel, the protagonist Yamuna, after becoming a widow herself, chooses to remarry and convert to Christianity, symbolizing a break from oppressive traditional bonds.

• Literary Significance: Before this work, Marathi literature largely consisted of poetry and religious texts. Yamuna Paryatam introduced the prose narrative form to the masses, paving the way for the development of the modern Marathi novel.

• Historical Context: The novel was written during a period of intense intellectual ferment in India, specifically in Bombay (Mumbai) and Poona (Pune), where reformers like Jyotirao Phule were also beginning to challenge caste and gender hierarchies.

• Impact on Women's Rights: By highlighting the domestic violence and emotional trauma faced by women, the book played a crucial role in bringing women's issues to the forefront of the public discourse in Western India.

Important Points

• Social Realism: The book is considered an early example of social realism in Indian literature. It did not shy away from depicting the harsh realities of the caste system and patriarchy.

• Language and Style: Baba Padmanji used a simple and direct style of Marathi, making the book accessible to the common person rather than just the learned Shastris or Pandits.

• Year of Publication: 1857 is a landmark year in Indian history due to the Great Revolt, and the publication of this novel in the same year highlights that social revolutions were occurring alongside political upheavals.

• Religious Influence: The novel also acted as a piece of Christian apologetics, suggesting that the liberation of women could be found through the adoption of Christian values, which was a common theme among 19th-century converts.

Q5. Answer: (c) SHF:TJI

The logic followed here is:

For, AOE → BQH

For, OST → PUW

Now, checking all options:

Option 1: DAF → FCH

Option 2: ADP → BGQ

Option 3: SHF → TJI

Option 4: LAJ → MDN

Hence, the correct answer is Option 3.

Q6. Answer: (b) ZYZ 41

The logic followed here is:

So, 'ZYZ 41' will replace the question mark in the given series.

Hence, the correct answer is "Option 2".

Q7. Answer: (a) Centralised bureaucracy guided by Arthashastra

The correct answer is Centralised bureaucracy guided by Arthashastra.

Key Points

• The Mauryan Empire, founded by Chandragupta Maurya in approximately 322 BCE, was characterized by a highly sophisticated and centralised bureaucracy. This system ensured that the central government had direct control over various aspects of the state, from revenue to security. Hence, statement 1 is correct.

• The administrative framework was heavily influenced by the Arthashastra, a classic treatise on statecraft, economic policy, and military strategy authored by Chanakya (also known as Kautilya or Vishnugupta), who was the Prime Minister and mentor to Chandragupta Maurya.

• The empire was divided into provinces, usually headed by a Kumara (prince) or a member of the royal family. Unlike later medieval systems, these provincial governors were appointed officials and not hereditary rulers, ensuring the King's authority remained absolute. Hence, statement 2 is incorrect.

• The Mauryan economy was largely state-controlled, and land revenue was the primary source of income. The feudal land grant system, where land was given to intermediaries in exchange for military service, was a feature that developed much later during the Gupta period and the early medieval era. Hence, statement 3 is incorrect.

• Revenue collection was a strictly secular and administrative function carried out by state officials like the Samaharta (Chief Collector). Religious institutions did not have the authority to collect state taxes; instead, they were often recipients of state patronage. Hence, statement 4 is incorrect.

Additional Information

• Structure of the Central Government:

• The King was the fountainhead of all authority, assisted by a council of ministers called the Mantriparishad.

• The bureaucracy was composed of a hierarchy of officials known as Amatyas (civil servants) and Adhyakshas (superintendents of various departments).

• There were nearly 27-30 departments managing diverse sectors like agriculture (Sita-adhyaksha), commerce (Panyadhyaksha), and weights and measures (Pautavadhyaksha).

• Municipal Administration:

• The Greek ambassador Megasthenes, in his work Indica, provides a detailed account of the administration of the capital city, Pataliputra.

• The city was managed by six committees of five members each, looking after industries, foreigners, births and deaths, trade, manufactured goods, and the collection of the tenth of the prices as tax.

• The Espionage System:

• A unique feature of the Mauryan state was its extensive network of spies, referred to as Gudha Purushas.

• Spies were categorized into Sanstha (stationary) and Sanchari (wandering), reporting directly to the King about the loyalty of officials and the pulse of the public.

• Military Strength:

• The Mauryan army was massive, consisting of infantry, cavalry, chariots, and elephants. Pliny and Megasthenes mention that Chandragupta Maurya maintained an army of 6,00,000 infantry, 30,000 cavalry, and 9,000 elephants.

• The military was administered by a board of 30 members divided into six committees of five members each.

Important Points

• Saptanga Theory: Kautilya described the state as having seven limbs (Saptanga): Swami (The King), Amatya (The Ministers), Janapada (The Territory/People), Durga (The Fortification), Kosha (The Treasury), Danda (The Army), and Mitra (The Ally).

• Diplomatic Relations: Chandragupta Maurya defeated the Greek general Seleucus Nicator in 305 BCE, leading to a treaty where the Mauryan Empire gained territories like Arachosia (Kandahar) and Gedrosia (Baluchistan).

• Public Welfare: Despite being highly centralized, the state focused on public works, including the construction of the Royal Road (precursor to the Grand Trunk Road) and irrigation projects like the Sudarshana Lake in Junagadh, Gujarat.

Q8. Answer: (c) 7

Shortcut Trick

=> Sum of digits = 4+4+5+A+0+2+0+8 = 23 + A

=> For divisibility by 3 => (23 + A) divisible by 3

=> 23 mod 3 = 2 => Need A mod 3 = 1

=> Possible A: 1, 4, 7 => max = 7

Therefore Answer = 7

Alternate Method

Given:

Number = 445A0208

Formula Used:

A number is divisible by 3 if sum of digits is divisible by 3

Calculation:

=> Sum of known digits = 4 + 4 + 5 + 0 + 2 + 0 + 8 = 23

=> Total sum = 23 + A

=> Required: (23 + A) divisible by 3

=> Check largest A (0 to 9):

=> A = 9 => 32 (not divisible)

=> A = 8 => 31 (not divisible)

=> A = 7 => 30 (divisible)

Therefore The correct answer is 7.

Additional Information

Divisibility Rule (3): Sum of digits divisible by 3

Digit Range: A can be 0 to 9

Modulo Trick: Work with remainders

Exam Tip: Check largest valid digit

Q9. Answer: (d) Navigates to the next tab on the right

The correct answer is Navigates to the next tab on the right.

Key Points

• In modern web browsers such as Google Chrome, Mozilla Firefox, Microsoft Edge, and Safari, the shortcut Ctrl + Tab is used for tab navigation.

• When a user has multiple tabs open, pressing Ctrl + Tab moves the focus to the next tab on the right side of the current active tab. Hence, the statement regarding navigating to the next tab on the right is correct.

• The action of launching a new tab is typically performed using the shortcut Ctrl + T in Windows/Linux. Hence, the statement regarding launching a new tab is incorrect.

• The action of removing or closing the selected tab is performed using Ctrl + W or Ctrl + F4. Hence, the statement regarding removing the selected tab is incorrect.

• To navigate to the previous tab on the left, the user must press Ctrl + Shift + Tab. Hence, the statement regarding navigating to the previous tab on the left is incorrect.

• This shortcut allows for efficient multitasking without the need for a mouse or trackpad, significantly increasing productivity for power users.

Additional Information

• Browser Tab Management:

• Ctrl + Shift + T: This is an essential command used to reopen the last closed tab. It is extremely useful if a tab was closed by accident.

• Ctrl + 1 through 8: Pressing Ctrl along with a numerical value from 1 to 8 will switch the focus to that specific tab number (counting from the left).

• Ctrl + 9: This shortcut immediately switches to the last tab opened in the window, regardless of how many tabs are active.

• Window and Navigation Shortcuts:

• Ctrl + N: Opens a new browser window.

• Ctrl + Shift + N: In Google Chrome, this opens a new Incognito window for private browsing. In Firefox, the equivalent is Ctrl + Shift + P for a Private Window.

• Ctrl + L or Alt + D: Moves the cursor focus directly to the Address Bar (Omnibox), allowing the user to type a new URL or search query immediately.

• Historical Context:

• Tabbed browsing was popularized in the early 2000s by browsers like Opera and Firefox, moving away from the single-window model of early Internet Explorer versions. The Ctrl + Tab convention was adopted to mirror the Alt + Tab function used by Windows to switch between applications.

Important Points

• Operating System Differences:

• On macOS, the Command (?) key is used instead of the Control (Ctrl) key for most functions. For example, Command + Option + Right Arrow or Control + Tab can be used to switch tabs in Safari on Mac.

YourMockTest.com — Free Study Material

• In some browsers like Firefox, the behavior of Ctrl + Tab can be customized in the settings to cycle through tabs in recently used order rather than purely sequential left-to-right order.

• Efficiency and Accessibility:

• Keyboard shortcuts are a vital part of web accessibility guidelines, ensuring that users with motor impairments who cannot use a mouse can still navigate the web effectively using a keyboard.

• In 2024, most browsers also support Vertical Tabs (notably Microsoft Edge), but the Ctrl + Tab shortcut remains the universal standard for cycling through the list.

Q10. Answer: (c) 33.33

Shortcut Trick

=> Final = 5P => Interest = 4P

=> SI = P × r × t / 100 => 4P = P × r × 12 / 100

=> r = (4 × 100) / 12 = 33.33%

Therefore Answer = 33.33%

Alternate Method

Given:

Amount becomes 5 times in 12 years

Formula Used:

SI = (P × r × t) / 100

Amount = P + SI

Calculation:

=> Let principal = P

=> Amount = 5P

=> SI = 5P − P = 4P

=> Using SI formula:

=> 4P = (P × r × 12) / 100

=> Cancel P:

=> 4 = (r × 12) / 100

=> r = (4 × 100) / 12

=> r = 33.33%

Therefore The correct answer is 33.33%.

Additional Information

Simple Interest: SI = (P × r × t)/100

Amount Relation: A = P + SI

Shortcut: Multiply factor − 1 gives interest multiple

Exam Tip: Cancel P early

Q11. Answer: (d) 3

Shortcut Trick

Check endpoints (max function minimum occurs at edges)

p = 0 => max{4, −4} = 4

p = 1 => max{3, −3} = 3

=> Minimum = 3

Therefore Answer = 3

Alternate Method

Given:

Expression = max {$p^2 - 2p + 4$, $-p^2 + 2p - 4$}

Range: $0 \le p \le 1$

Formula:

For minimum of max, compare both expressions

Calculation:

=> Let $f = p^2 - 2p + 4$

=> $g = -p^2 + 2p - 4$

YourMockTest.com — Free Study Material

=> Note: g = −f

=> So expression = max(f, −f) = |f|

=> f = (p − 1)² + 3 ≥ 3

=> Minimum at p = 1

=> Value = 3

Therefore Final Answer = 3

Additional Information

Max Function: max(a, b) picks larger value

Symmetry: max(f, −f) = |f|

Quadratic Min: (x − a)² ≥ 0

Tip: Convert to modulus for speed

Q12. Answer: (c) (37, 120, 11)

The logic followed here is:

Logic: Second number = (First number × 3) + (Third number − 2)

For, (40, 122, 4)

=> 40 × 3 = 120

=> 4 − 2 = 2

=> 120 + 2 = 122

For, (30, 101, 13)

=> 30 × 3 = 90

=> 13 − 2 = 11

=> 90 + 11 = 101

Now, checking the options using the same pattern:

Option 1) (2, 26, 17)

=> 2 × 3 = 6

=> 17 − 2 = 15

=> 6 + 15 = 21 ≠ 26

Option 2) (10, 51, 18)

=> 10 × 3 = 30

=> 18 − 2 = 16

=> 30 + 16 = 46 ≠ 51

Option 3) (37, 120, 11)

=> 37 × 3 = 111

=> 11 − 2 = 9

=> 111 + 9 = 120

Option 4) (10, 50, 17)

=> 10 × 3 = 30

=> 17 − 2 = 15

=> 30 + 15 = 45 ≠ 50

Hence, the correct answer is Option 3.

Q13. Answer: (b) Puducherry

The correct answer is Puducherry.

Key Points

• Puducherry is one of the few Union Territories in India that possesses its own Legislative Assembly and a Council of Ministers headed by a Chief Minister.

• The 14th Constitutional Amendment Act, 1962, led to the creation of Puducherry as a Union Territory and provided for the establishment of a legislature and council of ministers.

• According to Article 239A of the Constitution of India, Parliament has the power to create a local legislature or a Council of Ministers (or both) for certain Union Territories like Puducherry.

• The administrative structure of Puducherry is governed by The Government of Union Territories Act, 1963, which outlines the functions and powers of the Legislative Assembly.

YourMockTest.com — Free Study Material

• Other Union Territories like Dadra and Nagar Haveli, Daman and Diu, and Andaman and Nicobar Islands do not have their own Legislative Assemblies and are administered directly by the President through an Administrator.

Additional Information

• Delhi (National Capital Territory): It was provided with a Legislative Assembly and a Council of Ministers through the 69th Constitutional Amendment Act, 1991, which inserted Article 239AA into the Constitution.

• Jammu and Kashmir: Under the Jammu and Kashmir Reorganisation Act, 2019, the erstwhile state was bifurcated into two Union Territories; Jammu and Kashmir was designed to have a Legislative Assembly, while Ladakh was created without one.

• Administration of UTs: Part VIII of the Constitution of India (Articles 239 to 241) deals with the administration of Union Territories. Every Union Territory is administered by the President acting through an Administrator or Lieutenant Governor appointed by him.

• Dadra and Nagar Haveli and Daman and Diu: These were merged into a single Union Territory on January 26, 2020, through the Dadra and Nagar Haveli and Daman and Diu (Merger of Union Territories) Act, 2019, to improve administrative efficiency.

• Andaman and Nicobar Islands: Established as a Union Territory in 1956, it is located in the Bay of Bengal and is administered by a Lieutenant Governor without a local legislature.

Important Points

• The Lieutenant Governor (LG) in Union Territories with legislatures (like Puducherry and Delhi) has specific discretionary powers that differ from the Governors of regular States.

• In Puducherry, the Legislative Assembly can make laws on subjects in the State List (List II) and the Concurrent List (List III) of the Seventh Schedule, except where it conflicts with Parliamentary laws.

• The total number of seats in the Puducherry Legislative Assembly is 33, which includes 30 elected members and 3 members nominated by the Central Government.

• Unlike States, the Union Territories are considered federal units that are under the direct control and supervision of the Union Government of India.

Q14. Answer: (c) (23, 6, 133)

The logic followed here is:

Logic: Third number = (First number × Second number) − 5

For, (15, 7, 100)

=> 15 × 7 = 105

=> 105 − 5 = 100

For, (25, 8, 195)

=> 25 × 8 = 200

=> 200 − 5 = 195

Now, checking the options using the same pattern:

Option 1) (26, 4, 104)

=> 26 × 4 = 104

=> 104 − 5 = 99 ≠ 104

Option 2) (18, 10, 185)

=> 18 × 10 = 180

=> 180 − 5 = 175 ≠ 185

Option 3) (23, 6, 133)

=> 23 × 6 = 138

=> 138 − 5 = 133

Option 4) (21, 11, 236)

=> 21 × 11 = 231

=> 231 − 5 = 226 ≠ 236

Hence, the correct answer is Option 3.

Q15. Answer: (c) 4

The logic followed here is:

Given:

GLOW → 4628

WEAR → 3574

Thus, the code for W is 4.

Hence, the correct answer is Option 3.

Q16. Answer: (a) = SXV, % = JOM

The logic followed here is:

Logic: Each letter shifts by +1, +2, +3 respectively.

For, KPN → ?

=> K +1 → L

=> P +2 → R

=> N +3 → Q

=> KPN → LRQ

Now, apply reverse to find # from RWU:

=> R −1 → Q

=> W −2 → U

=> U −3 → R

=> # = QUR

Now, check options for matching pattern:

Option 1) SXV → RWU (−1, −2, −3)

and JOM → KPN (+1, +2, +3)

Here, pattern matches perfectly.

Hence, the correct answer is Option 1.

Q17. Answer: (d) India entered the top 100 for the first time.

The correct answer is India entered the top 100 for the first time.

Key Points

• In the year 2025, India reached a significant landmark in its journey toward global sustainability by entering the top 100 countries in the UN Sustainable Development Goals (SDGs) rankings for the first time. This reflects a consistent improvement from its 109th position recorded in 2024.

• The Sustainable Development Report, published annually by the Sustainable Development Solutions Network (SDSN), evaluates the progress of 193 UN Member States in achieving the 17 SDGs.

• The milestone was achieved due to India's proactive implementation of large-scale social welfare schemes that align with the 2030 Agenda. The improvement in the index score indicates that India has made substantial strides in reconciling economic growth with environmental and social objectives.

• Key sectors contributing to this rise include SDG 1 (No Poverty), SDG 6 (Clean Water and Sanitation), and SDG 11 (Sustainable Cities and Communities). The targeted delivery of services through digital public infrastructure has been a major catalyst in this achievement.

• While India achieved all SDGs is an incorrect statement as the target year is 2030 and no country has fully achieved them yet, India's entry into the top 100 marks a shift from being a "performer" to a "front runner" in various global categories.

Additional Information

• The 17 Sustainable Development Goals (SDGs):

• Adopted by the United Nations in 2015, these goals consist of 169 targets intended to be reached by 2030. They cover a wide spectrum of issues including poverty, hunger, health, education, gender equality, and climate action.

• NITI Aayog’s Role:

• In India, the NITI Aayog is the primary body responsible for the SDG India Index, which monitors the progress of States and Union Territories. It categorizes them into four groups based on their composite score: Aspirant (0–49), Performer (50–64), Front Runner (65–99), and Achiever (100).

• Global Rankings and SDSN:

• The Sustainable Development Solutions Network (SDSN) has been operating since 2012 under the auspices of the UN Secretary-General. The global ranking is influenced by the SDG Index Score, where Finland, Sweden, and Denmark have traditionally held the top spots.

• India's Major Interventions:

• Schemes such as the Jal Jeevan Mission (aiming for 100% tap water connectivity), Pradhan Mantri Awas Yojana (housing for all), and the Ayushman Bharat (world's largest health insurance scheme) have been instrumental in improving India's global standing.

Important Points

• Historical Context: In 2023 and 2024, India hovered around the 112th to 109th rank. The jump to the top 100 in 2025 signifies an accelerated pace of development and better data reporting mechanisms on international platforms.

• Challenges in Specific Goals: Despite the overall rank improvement, India still faces challenges in SDG 2 (Zero Hunger) and

YourMockTest.com — Free Study Material

SDG 5 (Gender Equality). Addressing stunting and wasting among children remains a priority for the Ministry of Women and Child Development.

• SDG 13 (Climate Action): India is one of the few G20 nations on track to meet its Nationally Determined Contributions (NDCs) under the Paris Agreement, which significantly boosts its SDG Index performance compared to many developed countries.

• Data and Monitoring: The Ministry of Statistics and Programme Implementation (MoSPI) developed the National Indicator Framework (NIF), which consists of over 300 indicators to track SDG progress specifically within the Indian socio-economic context.

Q18. Answer: (b) 11 km, East

The logic followed here is:

Given:

Kinshuk starts from Point D and walks 5 km South.

She turns left → 9 km East.

She turns left → 5 km North.

She turns right → 2 km East.

So, Kinshuk is 11 km East from Point D.

Hence, the correct answer is Option 2.

Q19. Answer: (d) 37

The logic followed here is:

thus, "37" will replace the question mark in the given series.

Hence, the correct option is "Option 4"

Q20. Answer: (d) 36%

Shortcut Trick

Assume CP = 100

=> MP = 250 (150% ↑)

=> Required SP = 160 (60% profit)

=> Discount = 250 − 160 = 90

=> Discount% = 90/250 × 100 = 36%

Therefore Answer = 36%

Alternate Method

Given:

Marked price = 150% above CP

Profit = 60%

Formula:

MP = CP × (1 + 150/100)

SP = CP × (1 + 60/100)

Discount% = (MP − SP)/MP × 100

Calculation:

=> Let CP = 100

=> MP = 100 × 2.5 = 250

=> SP = 100 × 1.6 = 160

=> Discount = 250 − 160 = 90

=> Discount% = (90/250) × 100 = 36%

Therefore Final Answer = 36%

Additional Information

Marked Price: MP = CP × (1 + markup%)

Selling Price: SP = CP × (1 + profit%)

Discount: MP − SP

Tip: Assume CP = 100 for faster solving

YourMockTest.com — Free Study Material

Q21. Answer: (a) Drain of Wealth Theory

The correct answer is Drain of Wealth Theory.

Key Points

• Dadabhai Naoroji, popularly known as the "Grand Old Man of India", propounded the Drain of Wealth Theory in his seminal book "Poverty and Un-British Rule in India" published in 1901.

• The theory highlights the constant flow of wealth from India to England, for which India received no adequate economic or material return. This systematic drain was identified as the primary cause of poverty in India during the British colonial period.

• Dadabhai Naoroji was the first Indian to attempt the estimation of National Income. In 1867-68, he calculated the per capita income of Indians to be Rs. 20 per year, showcasing the extreme economic hardship under British administration.

• The Drain of Wealth was manifested through various channels such as Home Charges (expenditure incurred in England by the Secretary of State on behalf of India), interest on foreign debt, and salaries/pensions of British officials.

• His work provided a scientific and statistical foundation for economic nationalism in India, challenging the British claim that their rule was beneficial for the Indian economy.

Additional Information

• Subsidiary Alliance Theory:

• This was a non-intervention policy used by Lord Wellesley, the Governor-General of India from 1798 to 1805.

• Under this system, the ruler of an allying Indian State was compelled to accept the permanent stationing of a British force within his territory and pay a subsidy for its maintenance.

• The Nizam of Hyderabad was the first to enter into a Subsidiary Alliance with the British in 1798.

• Doctrine of Lapse Theory:

• This was an annexation policy followed by Lord Dalhousie, who served as the Governor-General from 1848 to 1856.

• According to this doctrine, any Princely State under the direct or indirect influence of the British would be annexed if the ruler died without a natural heir (adopted heirs were not recognized for the purpose of succession to the throne).

• Satara (1848), Sambalpur (1849), Jhansi (1853), and Nagpur (1854) were prominent states annexed under this policy.

• Two Nation Theory:

• This theory proposed that Hindus and Muslims were two distinct nations with different cultures, religions, and customs, and therefore could not live together in one country.

• While its roots are often traced back to Sir Syed Ahmed Khan, it was later championed by Muhammad Ali Jinnah and the Muslim League, leading to the Partition of India in 1947.

Important Points

• Dadabhai Naoroji was the first Indian to be elected as a Member of Parliament (MP) in the British House of Commons, representing the Finsbury Central constituency from 1892 to 1895.

• He played a crucial role in the formation of the Indian National Congress (INC) and served as its President three times: in 1886 (Calcutta), 1893 (Lahore), and 1906 (Calcutta).

• During the 1906 session of the INC, he was the leader who first used the word "Swaraj" (Self-rule) from the Congress platform as the ultimate goal for the Indian people.

• He founded the London Indian Society in 1865 and the East India Association in 1866 to put forward Indian viewpoints across to the British public and Parliament.

Q22. Answer: (b) 8

Given number: 5714623

Logic:

Add 1 to each odd digit

Subtract 2 from each even digit

Original number: 5 7 1 4 6 2 3

Digit	Type	Operation	New Digit
5	Odd	5 + 1	6
7	Odd	7 + 1	8
1	Odd	1 + 1	2
4	Even	4 − 2	2
6	Even	6 − 2	4
2	Even	2 − 2	0

3	Odd	3 + 1	4

New number: 6 8 2 2 4 0 4

Now, second from left = 8

Second from right = 0

Sum = 8 + 0 = 8

Hence, the correct answer is Option 2.

Q23. Answer: (a) Birth Anniversary of Mahatma Gandhi

The correct answer is Birth Anniversary of Mahatma Gandhi.

Key Points

• Prime Minister Narendra Modi launched the Dharti Aaba Janjatiya Gram Utkarsh Abhiyan (DAJGUA) on 2nd October 2024. This date coincides with the 155th Birth Anniversary of Mahatma Gandhi.

• The mega scheme was officially unveiled during a public program held in Hazaribagh, Jharkhand. The name "Dharti Aaba" is a tribute to the legendary tribal freedom fighter Birsa Munda, who is revered as the "Father of the Earth."

• The total financial outlay for this ambitious mission is Rs. 79,156 crore. Out of this, the Central Government will contribute Rs. 56,333 crore, while the State Governments will provide Rs. 22,823 crore.

• The mission is designed to transform the lives of tribal communities by covering 63,843 villages across 549 districts and 2,740 blocks in 30 States and Union Territories.

• It aims to benefit more than 5 crore tribal people, ensuring that the fruits of development reach the most remote Janjatiya areas of the country.

Additional Information

• Socio-Economic Goals: The DAJGUA focuses on 17 Central Ministries implementing 25 interventions to bridge gaps in social infrastructure, health, education, and livelihood.

• Infrastructure Development: Under the scheme, the government aims to provide Pucca houses to eligible households and ensure all-weather road connectivity to tribal habitations.

• Sustainable Livelihood: The mission promotes Forest Rights Act (FRA) beneficiary empowerment and provides vocational training and skill development to tribal youth to enhance their employment opportunities.

• Health and Nutrition: It includes provisions for improving maternal and child health, reducing anemia, and strengthening mobile medical units in hilly and difficult terrains.

• Educational Support: The scheme emphasizes the construction of Ashram Schools and hostels to increase the literacy rate and reduce dropout rates among tribal students.

Important Points

• Saturation Approach: Much like the PM-JANMAN (Pradhan Mantri Janjati Adivasi Nyaya Maha Abhiyan), this scheme follows a saturation model to ensure 100% coverage of government services in the targeted tribal villages.

• Energy and Connectivity: The mission includes the electrification of un-electrified households and the installation of mobile towers to provide 4G/5G digital connectivity in remote tribal regions.

• Water and Sanitation: Under the Jal Jeevan Mission, the abhiyan ensures piped water supply and individual household latrines for every tribal family.

• Tribal Culture: The launch in 2024 also serves as a precursor to the Janjatiya Gaurav Divas (celebrated on November 15), highlighting the government's commitment to preserving tribal heritage and culture.

Q24. Answer: (d) 71.25

Shortcut Trick

Highest frequency = 40 => Modal class = 65–75

l = 65, h = 10, f1 = 40, f0 = 30, f2 = 34

Mode = l + [(f1 − f0)/(2f1 − f0 − f2)] × h

= 65 + [(40−30)/(80−30−34)] × 10

= 65 + (10/16) × 10

= 65 + 6.25 = 71.25

Therefore Answer = 71.25

Alternate Method

Given Table:

Step 1: Identify modal class

Highest frequency = 40 => Class = 65–75

Step 2: Values
l = 65
h = 10
f1 = 40 (modal)
f0 = 30 (previous)
f2 = 34 (next)
Step 3: Formula
Mode = l + [(f1 − f0)/(2f1 − f0 − f2)] × h
Step 4: Calculation
= 65 + [(40 − 30)/(2×40 − 30 − 34)] × 10
= 65 + (10/16) × 10
= 65 + 6.25
= 71.25
Therefore Final Answer = 71.25
Additional Information
Modal Class: Class with highest frequency
Formula: Mode = l + [(f1−f0)/(2f1−f0−f2)] × h
Tip: Always pick correct neighboring frequencies
Common Mistake: Wrong class selection

Q25. Answer: (d) QVSW

The logic followed here is:
For, GJHA → JNLD
For, KMEL → NQIO
Now, applying the same logic to NROT:
So, NROT → QVSW
Hence, the correct answer is Option 4.

Q26. Answer: (d) Neither conclusion (I) nor (II) follows.

Given Statements:
All kites are rabbits.
No kite is an eagle.
All eagles are pigs.
The least possible Venn diagram for the given statements is:
Conclusions:
I. No pig is a rabbit
No direct relation between pigs and rabbits is given
They may or may not overlap
=> False
II. Some pigs are kites
No kite is an eagle and all eagles are pigs
No direct relation between kites and pigs
=> False
So, neither conclusion I nor II follows.
Hence, the correct answer is Option 4.

Q27. Answer: (a) Avalanche

The correct answer is Avalanche.
Key Points
• An Avalanche is a natural disaster characterized by the rapid mass movement of snow, ice, soil, and rock down a mountain slope. It occurs when the shear stress on the snowpack exceeds its shear strength.
• These events are most common in high-altitude mountainous regions such as the Himalayas in India, the Alps in Europe, and the Rockies in North America.

YourMockTest.com — Free Study Material

• The primary triggers for an Avalanche include heavy snowfall, wind-loading, rapid temperature rise, and seismic activity like earthquakes. Human activities, such as skiing, snowmobiling, or construction in hilly areas, can also trigger these slides.

• An Avalanche can reach speeds of up to 200 kilometers per hour (approx. 124 miles per hour), making it one of the most dangerous geophysical hazards for climbers, skiers, and mountain residents.

• The Avalanche involving snow and ice is distinct from other mass movements because it specifically relies on the thermal and structural properties of the snowpack layers.

Additional Information

• Types of Avalanches:

• Slab Avalanche: This is the most dangerous type, where a cohesive layer of snow breaks off and slides down. It is often triggered by a mechanical failure in a weak layer of the snowpack.

• Powder Snow Avalanche: These consist of a low-density cloud of suspended snow that behaves like a fluid, often moving at extreme velocities.

• Wet Snow Avalanche: These occur due to melting during the spring season or after rain-on-snow events, moving more slowly but with immense force.

• Prevention and Mitigation:

• In countries like Switzerland and Canada, snow fences and deflection dams are built to protect highways and railways.

• Controlled explosions are used by mountain safety teams to trigger small, harmless slides before the snow accumulation becomes critical.

• Afforestation (planting trees) on slopes acts as a natural barrier against small to medium-sized Avalanches.

• Impact and Data:

• Every year, hundreds of lives are lost globally due to Avalanches. In 2012, the Gayari Sector avalanche in Siachen resulted in the death of over 130 soldiers.

• The snow-ice mix in an avalanche can become as hard as concrete once it stops moving, making rescue operations extremely difficult.

Important Points

• Cyclone: This is a meteorological phenomenon characterized by low atmospheric pressure and strong winds rotating inward. It typically forms over warm ocean waters. Hence, this option is incorrect as it does not involve the downward movement of snow on mountains.

• Tsunami: This refers to a series of giant ocean waves caused by underwater disturbances such as tectonic shifts or submarine volcanic eruptions. It affects coastal regions. Hence, this option is incorrect.

• Landslide: A Landslide is a broad term for the downward movement of rock, debris, or earth. While similar to an avalanche, a landslide typically refers to soil-based movement, whereas the question specifically highlights snow and ice. Hence, while related to mass movement, it is not the most specific answer for snow.

• Geographic Distribution: In India, the Snow and Avalanche Study Establishment (SASE), a laboratory of DRDO, is responsible for monitoring and forecasting avalanches in the Himalayan region.

Q28. Answer: (d) Only conclusion (I) follows

Given Statements:

All coppers are irons.

All irons are silvers.

All silvers are golds.

The least possible Venn diagram for the given statements is:

Conclusions:

I. Some golds are irons

Since all irons are inside golds, definitely some golds are irons

=> True

II. All silvers are coppers

Silvers are a bigger group and coppers are inside irons

So silvers cannot be inside coppers

=> False

So, only conclusion (I) follows.

Hence, the correct answer is Option 4.

Q29. Answer: (b) 100

Shortcut Trick

Observe: $4.23 = 4 + 0.23$ and $0.69 = 3 \times 0.23$, $12.69 = 3 \times (4.23)$

Expression matches: $(a - b)^3 = a^3 - 3a^2b + 3ab^2 - b^3$

=> Numerator = $(4.23 - 0.23)^3 = 4^3 = 64$

Denominator = $0.4 \times 0.4 \times 4 = 0.64$

=> Value = $64 \div 0.64 = 100$

Therefore Answer = 100

Alternate Method

Given:

$[(4.23)^3 - 0.69(4.23)^2 + 12.69(0.23)^2 - (0.23)^3] / (0.4 \times 0.4 \times 4)$

Step 1: Identify pattern

$0.69 = 3 \times 0.23$

$12.69 = 3 \times 4.23$

=> Expression = $a^3 - 3a^2b + 3ab^2 - b^3$

=> = $(a - b)^3$

Step 2: Substitute

$a = 4.23$, $b = 0.23$

=> Numerator = $(4.23 - 0.23)^3 = 4^3 = 64$

Step 3: Denominator

$= 0.4 \times 0.4 \times 4 = 0.64$

Step 4: Final

$= 64 \div 0.64 = 100$

Therefore Final Answer = 100

Additional Information

Identity Used: $(a - b)^3$

Key Idea: Match coefficients carefully

Tip: Convert decimals into relation form

Exam Trick: Spot cube identity quickly

Q30. Answer: (a) Rio Earth Summit

The correct answer is Rio Earth Summit.

Key Points

• The Rio Earth Summit, officially known as the United Nations Conference on Environment and Development (UNCED), was held in Rio de Janeiro, Brazil, from 3 to 14 June 1992. Hence, this option is correct.

• This global event was a major milestone that popularized the concept of Sustainable Development, defined as development that meets the needs of the present without compromising the ability of future generations to meet their own needs.

• The summit resulted in several landmark documents, including Agenda 21 (a blueprint for sustainable development in the 21st century), the Rio Declaration on Environment and Development, and the Statement of Forest Principles.

• It also led to the creation of vital international treaties, namely the United Nations Framework Convention on Climate Change (UNFCCC) and the Convention on Biological Diversity (CBD).

• The conference saw participation from 172 governments, with 108 attendance at the level of heads of state or government, making it one of the largest gatherings of world leaders at the time to address environmental issues.

Additional Information

• Montreal Protocol (1987):

• The Montreal Protocol on Substances that Deplete the Ozone Layer is an international treaty designed to protect the ozone layer.

• It was signed on 16 September 1987 and focuses on phasing out the production and consumption of ozone-depleting substances like chlorofluorocarbons (CFCs) and halons. Hence, this option is incorrect.

• Kyoto Protocol (1997):

• The Kyoto Protocol was adopted in Kyoto, Japan, on 11 December 1997 and entered into force in 2005.

• It was an extension of the 1992 UNFCCC that committed industrialized countries and economies in transition to limit and reduce greenhouse gas (GHG) emissions in accordance with agreed individual targets. Hence, this option is incorrect.

YourMockTest.com — Free Study Material

• Paris Agreement (2015):

• The Paris Agreement is a legally binding international treaty on climate change adopted by 196 parties at COP 21 in Paris on 12 December 2015.

• Its primary goal is to limit global warming to well below 2 degrees Celsius, preferably to 1.5 degrees Celsius, compared to pre-industrial levels. Hence, this option is incorrect.

• Definition of Sustainable Development:

• While the Rio Summit popularized the term, the formal definition was first introduced in the Brundtland Report (also titled Our Common Future) published in 1987 by the World Commission on Environment and Development (WCED).

Important Points

• Agenda 21: This is a comprehensive plan of action to be taken globally, nationally, and locally by organizations of the United Nations System, Governments, and Major Groups in every area in which human impacts on the environment.

• UNFCCC: Established during the 1992 summit, it serves as the parent treaty of the 2015 Paris Agreement and the 1997 Kyoto Protocol.

• Sustainable Development Goals (SDGs): Building on the momentum of the Rio Summit and subsequent meetings like Rio+20 (2012), the UN adopted the 17 Sustainable Development Goals in 2015 to be achieved by the year 2030.

Q31. Answer: (c) Nrityanjali

The correct answer is Nrityanjali.

Key Points

• The online festival titled Nrityanjali was organized by the Films Division, under the Ministry of Information and Broadcasting, Government of India.

• The festival was held from September 23 to September 25, 2020, as a digital initiative to bring the heritage of Indian classical dance to the public during the COVID-19 pandemic.

• The primary objective of Nrityanjali was to showcase documentaries that chronicled the lives, struggles, and artistic excellence of legendary dance exponents who have shaped India's cultural landscape.

• The festival featured biographical films on icons such as Rukmini Devi Arundale (Bharatanatyam), Pandit Birju Maharaj (Kathak), Kelucharan Mohapatra (Odissi), and Yamini Krishnamurthy (Bharatanatyam and Kuchipudi).

• It was streamed on the Films Division website and their official YouTube channel, making it accessible to a global audience for free.

Additional Information

• Indian Classical Dances:

• There are currently 8 classical dances recognized by the Sangeet Natak Akademi: Bharatanatyam (Tamil Nadu), Kathak (North India), Kathakali (Kerala), Kuchipudi (Andhra Pradesh), Odissi (Odisha), Manipuri (Manipur), Mohiniyattam (Kerala), and Sattriya (Assam).

• The Ministry of Culture sometimes includes Chhau in this list, making it 9.

• Exponents Mentioned in the Festival:

• Rukmini Devi Arundale: She was instrumental in the revival of Bharatanatyam from its original Sadir style and established the Kalakshetra Foundation in Chennai in 1936.

• Pandit Birju Maharaj: A doyen of the Lucknow Kalka-Bindadin Gharana of Kathak, he was a recipient of the Padma Vibhushan in 1986.

• Kelucharan Mohapatra: He is credited with the revival of Odissi in the 20th century and was the first person from Odisha to receive the Padma Vibhushan in 2000.

• Films Division of India:

• Established in 1948, it is headquartered in Mumbai.

• It serves as the main government agency to produce and distribute documentaries and news magazines for public education and the preservation of Indian history.

Important Points

• Natya Utsav: This is a general term for drama or theater festivals. Many organizations like Sahitya Kala Parishad organize annual Natya Utsavs to promote stage plays.

• Nritya Mahotsav: This translates to "Dance Festival." Notable examples include the Khajuraho Dance Festival in Madhya Pradesh or the Konark Festival in Odisha, which are held annually to celebrate classical dance against the backdrop of heritage monuments.

• Rangmanch: This term literally means "Stage" or "Theater" in Hindi. It refers to the performing arts sector rather than a specific online documentary festival of 2020.

• Context of 2020: During the lockdown, several cultural bodies shifted to the OTT (Over-the-top) or virtual platform. Nrityanjali was unique because it used archival documentary films rather than live-streamed performances to educate the youth about the

history of classical arts.

Q32. Answer: (d) Usual Principal Status Unemployment

The correct answer is Usual Principal Status Unemployment.

Key Points

• The Usual Principal Status (UPS) measurement is used to identify individuals who remained unemployed for a relatively longer period during the 365 days preceding the date of the survey.

• Under this method, a person is classified as unemployed if he or she was available for work but did not find gainful employment for the major part of the year (i.e., 183 days or more).

• This measurement specifically reflects chronic unemployment or open unemployment, as it focuses on the long-term status of an individual rather than temporary or seasonal fluctuations in the labor market.

• In India, the National Sample Survey Office (NSSO), under the Ministry of Statistics and Programme Implementation (MoSPI), traditionally uses this method to provide a comprehensive picture of the structural unemployment prevailing in the economy.

• This status is determined by the major time criterion, where the activity status (employed, unemployed, or out of the labor force) on which a person spent the maximum time during the reference year is recorded. Hence, the statement identifying UPS as the measure for chronic unemployment is correct.

Additional Information

• Usual Subsidiary Status (USS):

• This refers to individuals who are classified as unemployed based on their principal status but might have worked for a short period of at least 30 days during the reference year.

• When Usual Principal Status and Subsidiary Status are combined, it is known as UPSS (Usual Principal and Subsidiary Status), which provides a broader estimate of the workforce by including part-time or intermittent workers.

• Current Weekly Status (CWS):

• The reference period for this measurement is the seven days preceding the date of the survey.

• A person is considered employed if they worked for at least one hour on any one day during the reference week.

• It is useful for capturing seasonal unemployment and short-term changes in the employment patterns of India.

• Current Daily Status (CDS):

• This is considered the most rigorous and accurate measure of unemployment and underemployment.

• It records the activity status of a person for each of the seven days in the reference week, measuring person-days rather than just individuals.

• It helps in understanding the intensity of work and is often used to calculate the unemployment rate in the Periodic Labour Force Survey (PLFS) reports.

• Structural and Frictional Unemployment:

• Structural unemployment occurs due to a mismatch between the skills of the workforce and the requirements of the employers, often found in developing nations like India.

• Frictional unemployment is temporary and occurs when individuals are between jobs or looking for better opportunities.

Important Points

• Statistical Background: The concept of measuring unemployment through different statuses was recommended by the Dantwala Committee in 1970 to better understand the multi-dimensional nature of the Indian labor market.

• PLFS Reports: The Periodic Labour Force Survey, launched in April 2017, publishes annual reports that use Usual Status and Current Weekly Status to estimate the Labour Force Participation Rate (LFPR) and Worker Population Ratio (WPR).

• Demographic Focus: These measurements are crucial for drafting government policies like the Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA), which aims to provide 100 days of wage employment to rural households to combat chronic unemployment.

• Age Criteria: In most surveys, the labor force is measured for the age group of 15 to 59 years, which constitutes the working-age population.

Q33. Answer: (c) About 90%

The correct answer is More than 110%.

Key Points

• According to the Economic Survey 2024–25, India’s foreign exchange reserves were adequate to cover approximately 90% of its external debt as of late 2024.

• Forex Reserves Value: Stood at USD 640.3 billion at the end of December 2024.

• External Debt Context: The reserves provided coverage for 90% of the country's external debt, which was recorded at USD 711.8 billion as of September 2024.

• Import Cover: The reserves were also sufficient to cover 10.9 months of imports as of December 2024.

• Global Standing: India maintained its position as the fourth-largest foreign exchange reserve holder globally, following China, Japan, and Switzerland.

Additional Information

• Foreign Exchange Reserves (Forex):

• Forex reserves are assets held on reserve by a central bank in foreign currencies. In India, the Reserve Bank of India (RBI) manages these reserves.

• The four components of India's forex reserves include Foreign Currency Assets (FCA), Gold, Special Drawing Rights (SDRs) with the IMF, and the Reserve Tranche Position (RTP) in the IMF.

• As of the year 2024, Foreign Currency Assets constitute the largest component of these reserves, followed by Gold.

• External Debt of India:

• External debt refers to the total debt the country owes to foreign creditors, including multilateral (like World Bank), bilateral (other countries), and commercial borrowers (External Commercial Borrowings).

• The Economic Survey 2024–25 mentions that External Commercial Borrowings (ECBs) and Non-Resident Indian (NRI) deposits are significant contributors to the debt profile.

• A major portion of India’s external debt is denominated in US Dollars, followed by the Indian Rupee.

• Import Cover:

• Another important metric mentioned in the Economic Survey is the import cover. In December 2024, India's reserves were adequate to cover more than 11 months of projected imports.

• This high import cover is essential for food and energy security, especially given India's dependence on crude oil imports.

Important Points

• Debt Composition: India’s long-term debt accounts for the majority (over 80%) of the total external debt, which reduces the risk of immediate repayment pressure.

• SDR Allocation: The International Monetary Fund (IMF) occasionally allocates Special Drawing Rights to member countries, which significantly boosted India's reserves in recent fiscal years.

• Policy Intervention: The RBI uses forex reserves to intervene in the Foreign Exchange Market to curb excessive volatility in the exchange rate of the Indian Rupee (INR).

Q34. Answer: (d) Two

Given: F, G, H, I, V, W and X are sitting around a circular table facing the centre.

H sits third to the left of F.

I sits second to the left of V.

Only F sits between G and I.

W is not an immediate neighbour of H.

Thus, number of persons between X and I = 2

Hence, the correct answer is Option 4.

Q35. Answer: (c) 4 hours

Shortcut Trick

=> Net rate = 1/4 + 1/24 − 1/6

=> LCM = 24 => (6 + 1 − 4)/24 = 3/24 = 1/8

=> So tank fills in 8 hours

=> Half tank => 8/2 = 4 hours

Therefore Answer = 4 hours

Alternate Method

Given:

Pipe A fills in 4 hr

Pipe B fills in 24 hr

Pipe C empties in 6 hr

Formula Used:

Net work rate = Sum of filling rates − emptying rate

Calculation:

Pipe	Time	Rate
A	4 hr	1/4

B	24 hr	1/24
C	6 hr	−1/6

=> Net rate = 1/4 + 1/24 − 1/6
=> = (6 + 1 − 4)/24 = 3/24 = 1/8
=> Time for full tank = 8 hr
=> Time for half tank = 4 hr
Therefore The correct answer is 4 hours.
Additional Information
Net Rate: Add filling, subtract emptying
LCM Method: Use common denominator for speed
Half Work: Time halves if rate same
Exam Tip: Always find net rate first

Q36. Answer: (d) 16 km/hr

Shortcut Trick
=> Downstream speed = 120/6 = 20
=> Upstream speed = 120/10 = 12
=> Still water speed = (20 + 12) / 2 = 16
Therefore Answer = 16 km/hr
Alternate Method
Given:
Downstream: 120 km in 6 hr
Upstream: 120 km in 10 hr
Formula Used:
Downstream = u + v
Upstream = u − v
Calculation:
=> Downstream speed = 120 ÷ 6 = 20 km/hr
=> Upstream speed = 120 ÷ 10 = 12 km/hr
=> u + v = 20
=> u − v = 12
=> Adding:
=> 2u = 32
=> u = 16 km/hr
Therefore The correct answer is 16 km/hr.
Additional Information
Still Water Speed: (Downstream + Upstream) ÷ 2
Stream Speed: (Downstream − Upstream) ÷ 2
Key Concept: u ± v relation
Exam Tip: Direct average saves time

Q37. Answer: (b) El Nino

The correct answer is El Nino.
Key Points
• El Nino is a climate pattern that describes the unusual warming of surface waters in the central and eastern tropical Pacific Ocean. This phenomenon is the warm phase of a larger cycle called the El Nino-Southern Oscillation (ENSO).
• When El Nino occurs, the Trade Winds that normally blow from east to west along the Equator weaken or even reverse direction. This allows warm water to move toward the coast of South America, specifically near Peru and Ecuador.
• The rise in Sea Surface Temperature (SST) in the Pacific Ocean disrupts the global atmospheric circulation. In the context of India, this disruption often results in a weakening of the Southwest Monsoon.
• Deficient rainfall and drought conditions in India are frequently associated with El Nino years. Statistical data suggests that since 1950, about 60% of El Nino events have led to droughts in the Indian subcontinent.

YourMockTest.com — Free Study Material

• The phenomenon typically occurs at irregular intervals of 2 to 7 years and usually lasts for nine to twelve months, though it can sometimes persist for years.

Additional Information

• La Nina:

• Known as the "cold phase" of ENSO, it is the opposite of El Nino. It involves the cooling of surface waters in the central and eastern Pacific.

• In India, La Nina is generally associated with above-normal rainfall and a strong Southwest Monsoon, which is beneficial for Kharif crops.

• ENSO Cycle:

• The El Nino-Southern Oscillation consists of three phases: El Nino (warm), La Nina (cold), and a Neutral phase.

• Scientists monitor this using the Oceanic Nino Index (ONI), which tracks the SST in the Nino 3.4 region of the Pacific Ocean.

• Southern Oscillation:

• This refers to the atmospheric component of the phenomenon, characterized by changes in air pressure between Tahiti (central Pacific) and Darwin, Australia (western Pacific).

• A negative Southern Oscillation Index (SOI) usually accompanies El Nino events.

• Economic Impact:

• El Nino has severe economic implications for India because its agriculture sector is heavily dependent on monsoon rainfall. Deficits can lead to inflation in food prices.

• In South America, it affects fisheries as the warm water stops the upwelling of nutrient-rich cold water, drastically reducing the fish population.

Important Points

• The Walker Circulation: This is the east-west atmospheric circulation over the Equatorial Pacific. During El Nino, this circulation breaks down or reverses, causing convection (and rain) to shift from the Western Pacific (near Australia/Indonesia) to the Central/Eastern Pacific.

• Historical Context: Severe El Nino years like 1997-1998 and 2015-2016 were among the strongest on record, causing global temperature spikes and extreme weather events worldwide.

• Nomenclature: The name El Nino is Spanish for "The Little Boy" or "Christ Child," coined by Peruvian fishermen because the warming often peaked around December (Christmas time).

• Teleconnections: This term describes how weather changes in the Pacific affect distant locations like India, Africa, and North America. For India, the teleconnection manifests as suppressed rainfall due to the shifting of low-pressure zones.

Q38. Answer: (d) Both statements I and II together are NOT sufficient to answer the question

Given Statements:

I. Mohit is older than Kunal but younger than Sandeep.

=> Sandeep > Mohit > Kunal

II. Tarun is younger than Sandeep but older than Mohit.

=> Sandeep > Tarun > Mohit

Analysis:

Statement I alone → Not sufficient (Only gives relation among Sandeep, Mohit, Kunal; no info about Tarun and Rohan).

Statement II alone → Not sufficient (Only gives relation among Sandeep, Tarun, Mohit; no info about Kunal and Rohan).

Combining I and II:

=> Sandeep > Tarun > Mohit > Kunal

But, Rohan’s position is unknown, so oldest cannot be determined.

Here, both statements together are NOT sufficient.

Hence, the correct answer is Option 4.

Q39. Answer: (b) 1

Shortcut Trick

=> Net rate = 1/4 + 1/32 − 1/32

=> = 1/4 (since 1/32 cancels)

=> Time for full tank = 4 hr

=> For 1/4 tank => 4 × 1/4 = 1 hr

Therefore Answer = 1 hour

Alternate Method

Given:
Tap A fills in 4 hr
Tap B fills in 32 hr
Tap C empties in 32 hr
Concept Used:
Net rate = Sum of filling − emptying
Calculation:

Tap	Time	Rate
A	4 hr	1/4
B	32 hr	1/32
C	32 hr	−1/32

=> Net rate = 1/4 + 1/32 − 1/32
=> = 1/4
=> Time for full tank = 4 hr
=> Time for 1/4 tank = 4 × 1/4 = 1 hr
Therefore The correct answer is 1 hour.
Additional Information
Net Rate: Add filling, subtract emptying
Cancellation Trick: Equal opposite rates cancel
Work-Time: Time = Work / Rate
Exam Tip: Always simplify rates first

Q40. Answer: (c) 310464 cm³

Shortcut Trick
=> For cone, inscribed sphere radius r = (R × h) / (R + l)
=> Given R = 42√3, l = 2R = 84√3
=> h = √(l² − R²) = √(3R²) = R√3 = 126
=> r = (42√3 × 126) / (42√3 + 84√3) = 42
=> Volume = (4/3)πr³ = (4/3) × (22/7) × 42³ = 310464
Therefore Answer = 310464 cm³
Alternate Method
Given:
Base radius R = 42√3
Slant height l = diameter = 84√3
Formula Used:
h = √(l² − R²)
r = (R × h) / (R + l)
Volume = (4/3)πr³
Calculation:
=> h = √[(84√3)² − (42√3)²]
=> = √(21168 − 5292) = √15876 = 126
=> r = (42√3 × 126) / (42√3 + 84√3)
=> = (42 × 126) / 126 = 42
=> Volume = (4/3) × (22/7) × 42³
=> = (88/21) × 74088
=> = 310464 cm³
Therefore The correct answer is 310464 cm³.
Additional Information
Inscribed Sphere: r = (R×h)/(R+l)
Cone Relation: l² = R² + h²

Volume: (4/3)πr³

Exam Tip: Use relation l = 2R to simplify fast

Q41. Answer: (c) Article 243 X

The correct answer is Article 243 X.

Key Points

• Article 243 X of the Constitution of India specifically empowers the State Legislature to authorize Municipalities to levy, collect, and appropriate taxes, duties, tolls, and fees. Hence, the option Article 243 X is correct.

• Under this Article, the State Government may assign to a Municipality such taxes, duties, tolls, and fees levied and collected by the State Government for purposes related to the local body's finances.

• It also provides for making grants-in-aid to the Municipalities from the Consolidated Fund of the State to ensure they have sufficient resources to perform their functions.

• Article 243 X further mandates the constitution of Funds for crediting all money received by or on behalf of the Municipalities and also the withdrawal of such money therefrom.

• Article 243 P defines various terms used in Part IX-A, such as "Committee", "District", "Metropolitan area", and "Municipality", but it does not deal with financial powers. Hence, this statement is incorrect in the context of the question.

• Article 243 U dictates the duration of Municipalities, stating that every Municipality shall continue for 5 years from the date appointed for its first meeting unless dissolved earlier under any law. Hence, this statement is incorrect.

• Article 243 ZB describes the application of Part IX-A to Union Territories, allowing the President of India to direct its application with certain exceptions or modifications. Hence, this statement is incorrect.

Additional Information

• The 74th Constitutional Amendment Act, passed in 1992, introduced Part IX-A (Articles 243-P to 243-ZG) to the Indian Constitution, which provides a constitutional basis for Urban Local Bodies (ULBs).

• This amendment also added the Twelfth Schedule to the Constitution, which contains 18 functional items placed under the purview of Municipalities, such as urban planning, regulation of land use, and public health.

• Article 243 Y is another crucial financial provision that mandates the State Finance Commission to review the financial position of Municipalities and make recommendations to the Governor regarding the distribution of net proceeds of taxes between the State and the Municipalities.

• There are three types of Municipalities created under Article 243 Q: Nagar Panchayats for transitional areas, Municipal Councils for smaller urban areas, and Municipal Corporations for larger urban areas.

• The State Election Commission, under Article 243 ZA, is responsible for the superintendence, direction, and control of the preparation of electoral rolls and the conduct of all elections to the Municipalities.

Important Points

• Article 243 W details the powers, authority, and responsibilities of Municipalities, enabling them to function as institutions of self-government.

• The Central Finance Commission also plays a role in augmenting the Consolidated Fund of a State to supplement the resources of the Municipalities in the State on the basis of recommendations made by the Finance Commission of the State.

• Reservation of seats for Scheduled Castes (SCs), Scheduled Tribes (STs), and women (not less than one-third of the total number of seats) is provided under Article 243 T to ensure inclusive local governance.

• The District Planning Committee (DPC) is constituted under Article 243 ZD to consolidate the plans prepared by the Panchayats and the Municipalities in the district and to prepare a draft development plan for the district as a whole.

Q42. Answer: (c) One

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

Now, Symbols, which are immediately preceded by a number and also immediately followed by another number.

So, Needed pattern is: Number – Symbol – Number.

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

So, Only one symbol satisfies the condition.

Hence, the correct answer is Option 3.

Q43. Answer: (c) increase

The correct answer is increase.

Key Points

• Elastic Potential Energy is the energy stored as a result of applying a force to deform an elastic object. The energy is stored until the force is removed and the object springs back to its original shape, doing work in the process.

• In the case of a spring, the potential energy is given by the formula U = 1/2 kx², where k is the spring constant (a measure of the

stiffness of the spring) and x is the displacement from the equilibrium position.

• At the equilibrium position, the displacement x is zero, which means the potential energy is at its minimum (zero). Hence, the statement that potential energy increases when moving away from equilibrium is correct.

• When a spring is compressed, work is done against the restoring force of the spring. This work is stored in the form of potential energy. Since the displacement x is squared in the formula, whether the spring is compressed (negative x) or stretched (positive x), the value of x^2 is always positive, leading to an increase in energy. Hence, the correct answer is that it will increase.

• If the potential energy were to decrease, it would mean the spring is returning toward its equilibrium point from a deformed state. Hence, the statement that potential energy decreases during compression is incorrect.

• The restoring force exerted by the spring is proportional to the displacement but in the opposite direction, described by Hooke's Law as $F = -kx$.

Additional Information

• Hooke's Law: Proposed by Robert Hooke in 1676, this law states that for relatively small deformations of an object, the displacement or size of the deformation is directly proportional to the deforming force or load.

• Spring Constant (k): The SI unit for the spring constant is Newton per meter (N/m). A higher value of k indicates a stiffer spring that requires more force to compress or extend.

• Conservation of Energy: In an ideal system without friction or air resistance, the mechanical energy (the sum of kinetic energy and potential energy) remains constant. When a compressed spring is released, the potential energy is converted into kinetic energy as the spring moves back toward equilibrium.

• Applications of Spring Energy: This principle is utilized in various mechanical devices such as clocks, shock absorbers in vehicles, trampolines, and recoil mechanisms in firearms.

• Work Done: The work done to compress a spring by a distance x is equal to the area under the Force-Displacement graph, which forms a triangle with area 1/2 × base × height, resulting in $1/2 \times x \times kx = 1/2\ kx^2$.

Important Points

• Equilibrium Position: This is the natural length of the spring where no external forces are acting on it, and it exerts no restoring force.

• Conservative Force: The force exerted by a spring is a conservative force, meaning the work done by or against the force depends only on the initial and final positions and not on the path taken.

• Elastic Limit: If a spring is compressed or stretched beyond its elastic limit, it will not return to its original shape and the Hooke's Law relation fails. This results in permanent deformation or plasticity.

• Direction of Force: During compression, the displacement is inward, but the restoring force acts outward. During extension, the displacement is outward, and the restoring force acts inward. In both cases, the potential energy increases as you move away from the center.

Q44. Answer: (c) 42

Shortcut Trick

=> Let Rs. 5 coins = x => Rs. 2 coins = x + 50

=> Remaining coins = 112 − (2x + 50) = 62 − 2x

=> Value: 5x + 2(x + 50) + (62 − 2x) = 212

=> 5x + 2x + 100 + 62 − 2x = 212 => 5x + 162 = 212

=> 5x = 50 => x = 10 => Rs. 1 coins = 62 − 20 = 42

Therefore Answer = 42

Alternate Method

Given:

Total coins = 112

Total value = Rs. 212

Rs. 2 coins = 50 more than Rs. 5 coins

Formula Used:

Sum of coins and total value equations

Calculation:

=> Let Rs. 5 coins = x

=> Rs. 2 coins = x + 50

=> Rs. 1 coins = y

=> Total coins: x + (x + 50) + y = 112

=> 2x + y = 62 => y = 62 − 2x

=> Total value:

=> 5x + 2(x + 50) + y = 212

=> 5x + 2x + 100 + (62 − 2x) = 212

=> 5x + 162 = 212

=> 5x = 50 => x = 10

=> y = 62 − 2(10) = 42

Therefore The correct answer is 42.

Additional Information

Linear Equations: Use two equations to solve

Substitution: Express one variable in terms of another

Value Equation: Multiply coins with values

Exam Tip: Reduce variables quickly

Q45. Answer: (d) Suez Canal

The correct answer is Suez Canal.

Key Points

• The Suez Canal is an artificial sea-level waterway located in Egypt, which effectively connects the Mediterranean Sea to the Red Sea through the Isthmus of Suez. This makes the statement about it linking these two seas correct.

• It was officially opened on November 17, 1869, after a construction period of 10 years led by the Suez Canal Company, founded by Ferdinand de Lesseps.

• The canal serves as a vital boundary separating Africa from Asia and provides the shortest maritime route between Europe and the lands surrounding the Indian and western Pacific Oceans.

• It is considered one of the world's most heavily used shipping lanes, facilitating approximately 12% of global trade and nearly 30% of the world's daily container traffic.

• The total length of the waterway is approximately 193.30 km (120.11 miles), which includes the northern and southern access channels that allow ships to transit between the Port Said and Port Tewfik.

Additional Information

• Panama Canal:

• This is an 82 km (51 mile) artificial waterway in Panama that connects the Atlantic Ocean with the Pacific Ocean.

• Opened in 1914, it utilizes a sophisticated system of locks to lift ships 26 meters above sea level to Gatun Lake.

• It is essential for trade between the East and West coasts of the United States and for routes connecting Asia with the American East Coast.

• Strait of Malacca:

• Located between the Malay Peninsula and the Indonesian island of Sumatra, it is the primary shipping channel between the Indian Ocean and the Pacific Ocean.

• It is a major maritime "chokepoint" through which about 25% of the world's traded goods pass annually, linking major economies like China, India, Japan, and South Korea.

• Bosporus Strait:

• Also known as the Strait of Istanbul, it is a narrow, natural strait in northwestern Turkey.

• It forms part of the continental boundary between Europe and Asia and connects the Black Sea with the Sea of Marmara, which eventually leads to the Mediterranean.

• It is strategically significant for the transport of oil and agricultural products from the Black Sea region.

Important Points

• The New Suez Canal Expansion: In August 2015, Egypt inaugurated a major expansion project known as the "New Suez Canal," which involved digging a new 35 km lane parallel to the existing one and deepening the current path. This allowed for two-way traffic in certain sections and significantly reduced transit time.

• Ever Given Incident: In March 2021, a massive container ship called the Ever Given ran aground in the canal due to high winds. The blockage lasted for 6 days, causing a massive backup of hundreds of ships and highlighting the canal's critical role in the global supply chain.

• Economic Revenue: The canal is a primary source of foreign exchange for the Egyptian government, contributing billions of dollars (reaching record highs of over $9 billion in the 2022-2023 fiscal year) to the national economy.

Q46. Answer: (a) Wife's sister

Family Chart:

Decoding the Symbols:

YourMockTest.com — Free Study Material

Symbol	•	–	x	÷
Meaning	Daughter	Brother	Wife	Father

Given: D + F ÷ G – H x J

It means: D is the daughter of F, F is the father of G, G is the brother of H, H is the wife of J.

Here, D is J's wife's sister.

Hence, the correct answer is Option 1.

Q47. Answer: (a) 121000

Shortcut Trick

=> Monthly saving = 18000 − 5000 − 2000 = 11000

=> He saves for only 11 months

=> Total saving = 11000 × 11 = 121000

Therefore Answer = 121000

Alternate Method

Given:

Salary = Rs. 18000 per month

Expenses = Rs. 5000 + Rs. 2000

Formula Used:

Saving = Income − Expenses

Calculation:

=> Monthly expenses = 5000 + 2000 = 7000

=> Monthly saving = 18000 − 7000 = 11000

=> In birthday month, saving = 0

=> So savings for 11 months

=> Total saving = 11000 × 11

=> = 121000

Therefore The correct answer is Rs. 121000.

Additional Information

Saving Formula: Saving = Income − Expenses

Annual Saving: Monthly × number of months

Special Case: Exclude months with zero saving

Exam Tip: Always adjust exceptional months

Q48. Answer: (c) Biconvex

The correct answer is Biconvex.

Key Points

• A simple microscope is an optical instrument used to obtain a magnified image of small objects. It essentially consists of a single biconvex lens with a short focal length.

• A biconvex lens (also known as a convex lens or converging lens) is thicker in the middle than at the edges. It works by converging light rays that pass through it to a specific point.

• The principle of a simple microscope is based on the fact that when an object is placed between the optical center and the principal focus of a convex lens, the image formed is virtual, erect, and magnified.

• The magnifying power of a simple microscope is defined by the formula M = 1 + (D/f), where D is the least distance of distinct vision (standardized at 25 cm for a normal human eye) and f is the focal length of the lens.

• These instruments are commonly used by watchmakers, jewelers, and students to observe tiny parts or organisms. Because it uses only one lens, the magnification is limited compared to a compound microscope.

Additional Information

• Biconcave Lens:

• A biconcave lens is a diverging lens that is thinner at the center than at the edges.

• It is primarily used in the correction of Myopia (nearsightedness), as it helps spread out light rays before they reach the eye.

• It always forms a virtual, erect, and diminished image, regardless of the object's position.

• Cylindrical Lens:

YourMockTest.com — Free Study Material

• A cylindrical lens focuses light into a line rather than a point.

• It is specifically used to correct Astigmatism, a vision condition caused by an irregular curvature of the cornea or lens.

• These lenses have different refractive powers in different planes.

• Plano-concave Lens:

• This lens has one flat (plano) surface and one inward-curving (concave) surface.

• It has a negative focal length and is used to expand light beams or increase focal lengths in optical systems.

• History and Inventor:

• The simple microscope was famously improved and used by Antonie van Leeuwenhoek in the 17th century.

• Using high-quality biconvex lenses, he achieved magnifications of up to 275x, allowing him to be the first to observe bacteria and protozoa.

Important Points

• Nature of Image: In a simple microscope, the object must be very close to the lens (within its focal length). If the object is moved beyond the focal point, the image becomes real and inverted, which is not suitable for microscopic observation.

• Power of Lens: The power (P) of the lens is the reciprocal of its focal length (f) in meters, expressed in Dioptres (D). A higher power lens provides greater magnification.

• Least Distance of Distinct Vision (LDDV): This is the minimum distance at which the human eye can see an object clearly without any strain. For a healthy adult, this value is 25 cm.

• Materials: Modern lenses are typically made from high-quality optical glass or plastics like polycarbonate to ensure high refractive index and low chromatic aberration.

Q49. Answer: (b) Registered Environment Auditor

The correct answer is Registered Environment Auditor.

Key Points

• The Environment Audit Rules, 2025, formulated by the Ministry of Environment, Forest and Climate Change (MoEFCC), officially authorize a Registered Environment Auditor to conduct environmental audits for industrial and developmental projects.

• A Registered Environment Auditor is a professional or an entity that has undergone specific training and is formally registered with the National Board for Quality Promotion (NBQP) or the Quality Council of India (QCI) to ensure they meet the competency standards required for environmental assessment.

• The audit process is designed to evaluate the environmental performance of an organization, ensuring that its operations align with the Environment (Protection) Act, 1986 and the Air and Water Acts.

• These auditors are responsible for verifying the Environmental Statement (commonly known as Form V), which industries must submit to the State Pollution Control Boards (SPCBs) annually.

• The Environment Audit Rules, 2025 aim to bring transparency and accountability to the environmental compliance mechanism by shifting from self-declaration to verified auditing by third-party Registered Auditors.

Additional Information

• Scope of Environment Audit:

• The audit encompasses resource consumption (water, electricity, raw materials), waste generation (solid, hazardous, and electronic waste), and pollution control measures.

• It identifies gaps in compliance and suggests mitigation strategies to reduce the carbon footprint of the industry.

• The Environment Audit Rules, 2025 apply to Category A and B projects as defined under the Environmental Impact Assessment (EIA) Notification.

• Role of the Ministry (MoEFCC):

• The MoEFCC acts as the apex body for policy-making and implementation regarding environmental protection in India.

• The year 2025 marks a significant shift towards digital monitoring and real-time data integration in environmental auditing through the PARIVESH 2.0 portal.

• Eligibility for Auditors:

• To become a Registered Environment Auditor, an individual typically requires a Post-Graduate Degree in Environmental Science, Chemistry, or a Bachelor's Degree in Engineering (Chemical/Environmental/Civil).

• Minimum 5 to 7 years of work experience in environmental management or industrial pollution control is generally mandatory for registration.

• Candidates must pass a National Level Examination conducted by designated agencies to obtain their certification and registration number.

Important Points

• Distinction between Roles:

• An Environmental Consultant may provide advice on project planning and EIA reports, but they do not possess the statutory

authority to sign off on a formal Environment Audit unless they are also a Registered Auditor.

• A Certified Environment Auditor is a broader term, whereas Registered Environment Auditor is the specific legal designation used in the 2025 Rules.

• Legal Framework:

• Section 3 and Section 25 of the Environment (Protection) Act, 1986 grant the Central Government the power to frame such rules for environmental conservation.

• Failure to conduct an audit by a Registered Auditor or submitting fraudulent data can lead to heavy monetary penalties or the closure of industrial units.

• The National Green Tribunal (NGT) often refers to these audit reports during judicial proceedings involving environmental degradation or accidental pollution.

Q50. Answer: (d) 4

The logic followed here is:

Given:

LITE → 8196

FELT → 6481

Thus, F = 4

Hence, the correct answer is Option 4.

Q51. Answer: (b) LO−PV

The logic followed here is based on the alphabetical position pattern:

Option 1: PS − UX

Option 2: LO − PV

Option 3: NQ − SV

Option 4: JM − OR

Here, LO − PV is different from others.

Hence, the odd one out is Option 2.

Q52. Answer: (d) 33125

Shortcut Trick

=> Difference (CI − SI) for 2 years = P × $(r/100)^2$

=> = P × $(4/100)^2$ = P × 16/10000

=> Given difference = 53

=> P × 16/10000 = 53

=> P = 53 × 10000 / 16 = 33125

Therefore Answer = 33125

Alternate Method

Given:

Rate = 4%

Time = 2 years

Difference = Rs. 53

Formula Used:

SI = (P × r × t)/100

CI = P[(1 + r/100)^t − 1]

Calculation:

=> SI = (P × 4 × 2)/100 = 8P/100 = 0.08P

=> CI = P[$(1.04)^2$ − 1]

=> = P(1.0816 − 1) = 0.0816P

=> Difference = CI − SI

=> = 0.0816P − 0.08P = 0.0016P

=> 0.0016P = 53

=> P = 53 / 0.0016 = 33125

Therefore The correct answer is Rs. 33125.

Additional Information
Key Formula: CI − SI (2 yrs) = P × (r/100)²
SI Formula: (P × r × t)/100
CI Formula: P(1 + r/100)^t
Exam Tip: Use shortcut directly for 2 years

Q53. Answer: (b) 12

BODMAS Table:
Given equation: 22 A 2 B 1 C 3 D 2 = ?
Now, if A means '÷', B means '×', C means '+', and D means '−', then:
=> 22 ÷ 2 × 1 + 3 − 2
=> 11 × 1 + 3 − 2
=> 11 + 3 − 2
=> 14 − 2
=> 12
Hence, the correct answer is "Option 2".

Q54. Answer: (a) 10% profit

Shortcut Trick
=> CP per calculator = 54000 ÷ 45 = 1200
=> Profit part: 30 items at 25% => gain = 30 × 1200 × 25% = 9000
=> Loss part: 15 items at 20% => loss = 15 × 1200 × 20% = 3600
=> Net gain = 9000 − 3600 = 5400
=> % gain = (5400 ÷ 54000) × 100 = 10%
Therefore Answer = 10% profit
Alternate Method
Given:
Total CP = Rs. 54000 for 45 calculators
30 sold at 25% profit, 15 sold at 20% loss
Formula Used:
Profit% = (Profit / Total CP) × 100
Calculation:
=> CP per item = 54000 ÷ 45 = 1200
=> For 30 items:
=> SP = 1200 × 1.25 = 1500
=> Total SP = 30 × 1500 = 45000
=> For 15 items:
=> SP = 1200 × 0.8 = 960
=> Total SP = 15 × 960 = 14400
=> Total SP = 45000 + 14400 = 59400
=> Profit = 59400 − 54000 = 5400
=> Profit% = (5400 ÷ 54000) × 100 = 10%
Therefore The correct answer is 10% profit.
Additional Information
Profit/Loss: SP − CP
Mixed Cases: Handle parts separately
Percentage: Always on total CP
Exam Tip: Find per unit CP first

Q55. Answer: (d) 5

The correct answer is 5.
Key Points
• The Natyanjali Dance Festival is a prestigious annual event held for a duration of 5 days.

YourMockTest.com — Free Study Material

• The festival is hosted in the holy city of Chidambaram, located in the Cuddalore district of Tamil Nadu, India.

• The venue for this grand celebration is the Thillai Nataraja Temple, which is an architectural masterpiece over 1000 years old, primarily built during the Chola Dynasty.

• This cultural event begins on the auspicious occasion of Maha Shivaratri, which usually occurs in the month of February or March.

• It is dedicated to Lord Shiva in his form as Nataraja, the "Lord of Dance," symbolizing the cosmic dance of creation and destruction.

• The festival is organized collaboratively by the Natyanjali Trust, the Department of Tourism of Tamil Nadu, and the Ministry of Culture of the Government of India.

Additional Information

• Etymology and Meaning: The word Natyanjali is a combination of two Sanskrit words: Natya (meaning dance) and Anjali (meaning offering). Collectively, it translates to "offering through dance."

• History and Origin: The festival was first established in the year 1981 to promote the traditional Indian classical dance forms and to revive the ancient temple tradition of performing arts.

• Diversity of Dance Forms: While Bharatanatyam (the native dance of Tamil Nadu) is the most prominent, the festival provides a platform for various classical styles, including Kathak, Kuchipudi, Mohiniyattam, Odissi, Manipuri, and Kathakali.

• Global Participation: It attracts over 300 to 500 dancers every year, ranging from renowned maestros to budding students, arriving from across India and international locations like the USA, UK, and Canada.

• Significance of the Temple: The Chidambaram temple is one of the Pancha Bhoota Stalams, representing the element of Akasha (Aether/Sky). It is unique because Lord Shiva is worshipped here as a dancer rather than through a traditional Lingam.

Important Points

• Architectural Features: The Thillai Nataraja Temple is famous for its Gopurams (gateway towers), which feature intricate stone carvings of all the 108 karanas (dance movements) described in the Natya Shastra, the foundational text of Indian classical arts.

• Spiritual Context: For the performers, the Natyanjali Dance Festival is not merely a stage performance but a form of Sadhana (spiritual practice) and a way to seek the blessings of the cosmic dancer.

• Location and Connectivity: Chidambaram is located approximately 250 kilometers south of Chennai. It remains a major pilgrimage and cultural hub in South India.

• Extended Celebrations: Although the core festival at the main temple is traditionally 5 days, several associated cultural programs in the city sometimes extend the festive atmosphere for up to 10 to 13 days to accommodate the large number of participating artists.

Q56. Answer: (b) 29.09

Shortcut Trick

=> Modal class = 20–30 (highest freq = 36)

=> l = 20, f1 = 36, f0 = 16, f2 = 34, h = 10

=> Mode = 20 + [(36−16)/(2×36−16−34)] × 10

=> = 20 + (20/22) × 10 = 20 + 9.09

Therefore Answer = 29.09

Alternate Method

Given:

Class intervals and frequencies

Formula Used:

Mode = l + [(f1 − f0) / (2f1 − f0 − f2)] × h

Calculation:

=> Modal class = 20–30

=> l = 20, h = 10

=> f1 = 36, f0 = 16, f2 = 34

=> Mode = 20 + [(36 − 16) / (2×36 − 16 − 34)] × 10

=> = 20 + (20 / 22) × 10

=> = 20 + 9.09

=> = 29.09

Therefore The correct answer is 29.09.

Additional Information

Mode: Most frequent value

Modal Class: Class with highest frequency

Formula: Uses neighboring frequencies

Exam Tip: Identify f0, f1, f2 carefully

Q57. Answer: (a) 0

Shortcut Trick

=> Right triangle with AC = 13, AB = 12 => BC = 5 (Pythagoras)

=> tan A = BC/AB = 5/12

=> cot C = BC/AB = 5/12 (since A + C = 90)

=> tan A − cot C = 5/12 − 5/12 = 0

Therefore Answer = 0

Alternate Method

Given:

Right triangle ABC, angle B = 90°

AB = 12 cm, AC = 13 cm

Formula Used:

Pythagoras: $AC^2 = AB^2 + BC^2$

tan A = opposite/adjacent

cot C = adjacent/opposite

Calculation:

=> BC = $\sqrt{(13^2 - 12^2)}$

=> = $\sqrt{(169 - 144)} = \sqrt{25} = 5$

=> tan A = BC/AB = 5/12

=> cot C = BC/AB = 5/12

=> tan A − cot C = 5/12 − 5/12 = 0

Therefore The correct answer is 0.

Additional Information

Pythagoras Theorem: $Hyp^2 = base^2 + height^2$

Complementary Angles: A + C = 90° => tan A = cot C

Right Triangle Ratios: tan = opposite/adjacent

Exam Tip: Use 5-12-13 triangle directly

Q58. Answer: (d) 37

The logic followed here is:

thus, "37" will replace the question mark in the given series.

Hence, the correct option is "Option 4"

Q59. Answer: (b) Wednesday

Given: Seven friends – A, B, C, D, E, F and G – each have a meeting on a different day of the week, starting from Monday to Sunday.

Only one person has a meeting between C and F.

A’s meeting is immediately before F’s, but not on a Monday.

Only two persons have meetings between A and G.

B’s meeting is before E’s but after D’s.

Day	Person
Monday	D
Tuesday	G
Wednesday	B
Thursday	C
Friday	A

YourMockTest.com — Free Study Material

Saturday	F
Sunday	E

Here, B has meeting on Wednesday.

Hence, the correct answer is Option 2.

Q60. Answer: (b) 96th Amendment

The correct answer is 96th Amendment.

Key Points

• The 96th Constitutional Amendment Act was passed by the Parliament of India in the year 2011.

• This amendment specifically aimed to substitute the spelling of the language listed in the Eighth Schedule from ‘Oriya’ to ‘Odia’. Hence, the 96th Amendment is the correct option.

• The Eighth Schedule of the Constitution of India consists of a list of 22 official languages recognized by the state, and Odia is one of the prominent classical languages included in this list.

• The change in the name of the language was a follow-up to the Orissa (Alteration of Name) Act, 2011, which changed the name of the state from Orissa to Odisha.

• This modification was sought to reflect the correct phonetic and linguistic pronunciation of the language as used by the native speakers in the state of Odisha.

Additional Information

• 97th Amendment Act, 2011:

• This amendment provided constitutional status and protection to co-operative societies in India.

• It inserted Article 43B in the Directive Principles of State Policy and added Part IXB to the Constitution.

• It also made the right to form co-operative societies a Fundamental Right under Article 19(1)(c). Hence, this statement is not related to the renaming of the language.

• 95th Amendment Act, 2009:

• It extended the reservation of seats for Scheduled Castes (SCs) and Scheduled Tribes (STs) in the Lok Sabha and the State Legislative Assemblies.

• The period of reservation was extended from 60 years to 70 years (until January 25, 2020).

• It also extended the representation of the Anglo-Indian community by nomination. Hence, this statement is incorrect in the context of the question.

• 94th Amendment Act, 2006:

• This amendment concerned the appointment of a Minister of Tribal Welfare in certain states.

• It exempted Bihar from the obligation to have a tribal welfare minister while extending this provision to the newly created states of Jharkhand and Chhattisgarh under Article 164(1). Hence, this statement is not the correct answer.

Important Points

• Evolution of the Eighth Schedule: Originally, the Eighth Schedule contained 14 languages. Over the years, through various Constitutional Amendments, the number has increased to 22.

• Significant Language Amendments:

• 21st Amendment Act, 1967: Added Sindhi as the 15th language.

• 71st Amendment Act, 1992: Added Konkani, Manipuri, and Nepali.

• 92nd Amendment Act, 2003: Added Bodo, Dogri, Maithili, and Santhali.

• Constitutional Provisions: Article 344(1) and Article 351 of the Indian Constitution are the primary articles that deal with the Eighth Schedule and the development of the Hindi language and other regional languages.

• Odia as a Classical Language: In February 2014, Odia was declared the sixth classical language of India by the Union Cabinet, joining the ranks of Tamil, Sanskrit, Telugu, Kannada, and Malayalam.

Q61. Answer: (a) 72

The correct answer is 72.

Key Points

• Based on the United Nations Treaty Collection, one nation, Fiji, became a signatory to the United Nations Convention against Cybercrime in December 2025.

• While the treaty officially opened for signature at a high-level ceremony in Hanoi, Vietnam, on 25–26 October 2025, where 72 participants (71 states and the European Union) signed, the process remains open at the UN Headquarters in New York until 31 December 2026.

Additional Information

YourMockTest.com — Free Study Material

• Comparison with the Budapest Convention: Before the UN treaty, the Council of Europe's Budapest Convention (2001) was the primary international treaty on cybercrime, but it was not globally universal as many developing nations and countries like Russia and China were not parties to it.

• Role of UNODC: The United Nations Office on Drugs and Crime (UNODC) serves as the secretariat for the convention, providing technical assistance and capacity-building support to member states to implement the treaty's provisions effectively.

• Scope of Digital Crimes: The convention covers a wide range of crimes, including financial fraud, identity theft, cyber-terrorism, and online grooming, ensuring that perpetrators cannot find safe havens in countries with weak digital laws.

• Human Rights Safeguards: During the drafting phase, several civil society organizations and tech companies expressed concerns regarding state surveillance; hence, the final text includes provisions to balance security needs with fundamental human rights and privacy.

• Global Inclusion: Unlike previous regional agreements, this United Nations led initiative ensures that low-income and developing nations receive the necessary technological resources and training to protect their critical infrastructure.

Important Points

• Ratification Process: Becoming a signatory is the first step; however, the convention only comes into force once a specific number of nations (usually 30 to 40 depending on the treaty clause) complete the ratification process in their respective national parliaments.

• Electronic Evidence: One of the most vital features of the 2025 agreement is the streamlined process for cross-border data requests, allowing law enforcement agencies to obtain digital evidence from service providers located in other signatory nations.

• Signatory vs. Accession: While 151 nations signed the treaty during the initial window in 2025, other countries can join later through a process called accession, which carries the same legal obligations.

• Historical Context: The push for this treaty was notably led by Russia and supported by a diverse group of nations, reflecting a shift toward a multipolar approach to internet governance and cybersecurity.

Q62. Answer: (a) 15 : 45 : 63 : 35

Shortcut Trick

=> Match b: LCM(3,5) = 15 => a:b = 5:15, b:c = 15:21

=> Match c: LCM(21,9) = 63 => scale to a:b:c = 15:45:63

=> c:d = 9:5 => 63:35

=> Final = 15 : 45 : 63 : 35

Therefore Answer = 15 : 45 : 63 : 35

Alternate Method

Given:

a : b = 1 : 3

b : c = 5 : 7

c : d = 9 : 5

Formula Used:

Equalize common terms to combine ratios

Calculation:

=> a : b = 1 : 3

=> b : c = 5 : 7

=> LCM of 3 and 5 = 15

=> a : b = 5 : 15

=> b : c = 15 : 21

=> a : b : c = 5 : 15 : 21

=> c : d = 9 : 5

=> LCM of 21 and 9 = 63

=> a : b : c = 15 : 45 : 63

=> c : d = 63 : 35

=> a : b : c : d = 15 : 45 : 63 : 35

Therefore The correct answer is 15 : 45 : 63 : 35.

Additional Information

Chain Ratio: Combine ratios by matching common terms

LCM Method: Equalize middle variables

Scaling Rule: Multiply ratios to align values

Exam Tip: Always match b, then c stepwise

Q63. Answer: (c) 571.4 gm

Shortcut Trick

=> Loss 20% => SP = 0.8 CP

=> Gain 40% => SP/CP = 1.4

=> Weight factor = 0.8 / 1.4 = 4/7

=> Actual weight = (4/7) × 1000 = 571.4 g

Therefore Answer = 571.4 g

Alternate Method

Given:

Loss = 20%

Gain = 40%

Formula Used:

Profit% = (SP − CP) / CP × 100

Calculation:

=> Let CP of 1 kg = 100

=> Due to 20% loss, SP = 80

=> Let actual weight given = w kg

=> CP of w kg = 100w

=> Given profit = 40%

=> SP = 1.4 × CP

=> So, 80 = 1.4 × (100w)

=> 80 = 140w

=> w = 80 / 140 = 4/7 kg

=> In grams = (4/7) × 1000 = 571.4 g

Therefore The correct answer is 571.4 g.

Additional Information

False Weight: Less quantity increases profit

Profit Formula: SP = CP × (1 + profit%)

Loss Formula: SP = CP × (1 − loss%)

Exam Tip: Assume CP = 100 for simplicity

Q64. Answer: (c) 6

Shortcut Trick

=> Initial total ratio = 3 + 5 + 7 = 15

=> Increase = 40% => New total = 15 × 1.4 = 21

=> New ratio = 3 + 5 + 7 + x = 15 + x

=> 15 + x = 21 => x = 6

Therefore Answer = 6

Alternate Method

Given:

Initial ratio A : B : C = 3 : 5 : 7

Increase in total cost = 40%

New ratio = 3 : 5 : 7 : x

Formula Used:

Total ratio prop. to total cost

Calculation:

=> Initial total = 3 + 5 + 7 = 15

=> Let initial total cost = 15k

=> After adding D, total cost increases by 40%

=> New total = 15k × 1.4 = 21k

YourMockTest.com — Free Study Material

=> New ratio sum = 3 + 5 + 7 + x = 15 + x

=> So, 15 + x = 21

=> x = 6

Therefore The correct answer is 6.

Additional Information

Ratio Sum: Total cost proportional to sum of ratios

Percentage Increase: Multiply by (1 + %/100)

Scaling Rule: Ratios scale with totals

Exam Tip: Compare sums directly

Q65. Answer: (b) Quick Access

The correct answer is Quick Access.

Key Points

• Quick Access is a feature introduced in Windows 10 that serves as a personalized navigation hub within File Explorer. It replaces the "Favorites" functionality found in older versions like Windows 7 and Windows 8.

• The primary function of Quick Access is to automatically track and display a list of recently opened files and frequently used folders, allowing users to resume their work quickly without digging through deep directory structures. Hence, this option is correct.

• By default, when a user opens a new File Explorer window, it lands on the Quick Access view. This view typically shows the 10 most frequent folders and the 20 most recent files.

• It offers a customization feature where users can "Pin" specific folders to the Quick Access section in the Navigation Pane. This ensures that essential project folders remain permanently accessible regardless of how many other files are opened.

• The location of the Quick Access icon is usually at the very top of the left-hand Navigation Pane in any folder window, marked with a blue star icon.

Additional Information

• Recycle Bin:

• The Recycle Bin is a system folder where deleted files are temporarily stored before they are permanently removed from the hard drive.

• Its use is to provide a safety net for accidental deletions, but it does not track or store shortcuts to recently opened active files. Hence, this statement is incorrect.

• Desktop:

• The Desktop is the primary user interface and workspace seen immediately after logging into Windows.

• While users can manually place shortcuts or files on the Desktop for easy reach, it does not function as an automated log of recently accessed documents from across the system. Hence, this statement is incorrect.

• Control Panel:

• The Control Panel is a centralized utility used to manage system settings, hardware configurations, and software installations.

• It contains applets for User Accounts, Network and Sharing Center, and Device Manager, but it is not intended for file navigation or viewing document history. Hence, this statement is incorrect.

• File Explorer:

• Formerly known as Windows Explorer, this application is the file management system for the Windows Operating System. It allows users to browse local disks, cloud storage like OneDrive, and network locations.

Important Points

• Privacy and Management: Users can manage what appears in Quick Access through Folder Options (or File Explorer Options). Under the Privacy section of the General tab, users can click Clear to wipe the history of File Explorer.

• Data Handling: Disabling the "Show recently used files in Quick access" checkbox prevents Windows from recording recent file history in this specific location, which is a common privacy feature for shared computers.

• Windows 11 Updates: In Windows 11, the Start Menu also incorporates a "Recommended" section that functions similarly to Quick Access, showing recent files and cloud-synced documents from Office 365.

• Jump Lists: Another related feature is Jump Lists, which appear when you right-click an application icon on the Taskbar, showing the most recent files specific to that application (e.g., recent spreadsheets in Excel).

Q66. Answer: (a) 3,95,850

Shortcut Trick

=> Successive increase => multiply factors

=> 2,90,000 × 1.05 × 1.30

=> = 2,90,000 × 1.365

YourMockTest.com — Free Study Material

=> = 3,95,850

Therefore Answer = 3,95,850

Alternate Method

Given:

Initial population = 2,90,000

Increase = 5% in first year

Increase = 30% in second year

Formula Used:

New Value = Initial × (1 + r1) × (1 + r2)

Calculation:

=> After 1st year = 2,90,000 × 1.05 = 3,04,500

=> After 2nd year = 3,04,500 × 1.30

=> = 3,95,850

Therefore The correct answer is 3,95,850.

Additional Information

Successive Change: Multiply growth factors

Growth Factor: (1 + rate/100)

Not Additive: % changes are multiplicative

Exam Tip: Combine factors early

Q67. Answer: (c) Palau

The correct answer is Palau.

Key Points

• The historic live underwater interview in 2025 was conducted by Surangel Whipps Jr., the President of Palau.

• The event, which took place in October 2025, was designed to raise global awareness about the existential threats of climate change and rising sea levels facing small island nations.

• President Whipps Jr. was interviewed by Merle Liivand, an Estonian Olympic swimmer and marine activist.

• They used a groundbreaking device called the LiFi Talking Mask. This technology transmits sound underwater using light waves (Li-Fi) instead of traditional radio signals, which struggle in marine environments.

• This event followed a tradition of "Ocean Diplomacy," such as the Maldives' underwater cabinet meeting in 2009 and the Seychelles' submersible interview in 2019, but it was the first to be broadcast live using this new technology.

Additional Information

• Seychelles and the Blue Economy:

• Seychelles is an archipelago of 115 islands located in the western Indian Ocean, off the East African coast.

• It has pioneered the concept of the Blue Economy, which promotes the sustainable use of ocean resources for economic growth while preserving the health of the ocean ecosystem.

• The country has successfully implemented Debt-for-Nature Swaps, a financial mechanism where a portion of foreign debt is forgiven in exchange for local investments in environmental conservation measures.

• Historical Context of Underwater Advocacy:

• In October 2009, the Maldives, led by President Mohamed Nasheed, held the world's first underwater cabinet meeting to sign a document calling for carbon emission reductions ahead of the UN Climate Conference in Copenhagen.

• In 2019, the then-President of Seychelles, Danny Faure, delivered a live speech from a submersible at a depth of 124 meters, which set the stage for the high-profile 2025 interview.

• Climate Risks for Small Island Developing States (SIDS):

• Nations like Fiji, Palau, and Maldives are classified as SIDS, which are uniquely vulnerable to climate change due to their low elevation and geographic isolation.

• Ocean acidification and coral bleaching are major concerns for these countries, as their economies often depend heavily on fishing and tourism.

• The United Nations and the IPCC (Intergovernmental Panel on Climate Change) have frequently warned that without drastic reductions in greenhouse gas emissions, many of these islands could become uninhabitable by the end of the 21st century.

Important Points

• Technological Integration: The 2025 interview utilized cutting-edge satellite technology and optical fiber links from the submersible to ensure high-definition live streaming to global audiences and international news networks.

• Geopolitical Significance: By performing such acts, Seychelles leverages soft power to influence international climate policy,

YourMockTest.com — Free Study Material

particularly within the UNFCCC (United Nations Framework Convention on Climate Change) frameworks and the Paris Agreement.

• Conservation Facts: As of recent data, Seychelles has designated nearly 30% of its Exclusive Economic Zone (EEZ)—an area larger than Germany—as Marine Protected Areas (MPAs) to safeguard its natural heritage.

Q68. Answer: (d) Touchscreen

The correct answer is Touchscreen.

Key Points

• Keyboard: This is a primary Input device used to enter alphanumeric data and commands into a computer system. It does not provide any visual or physical feedback that represents processed data to the user. Hence, this option is incorrect.

• Speaker: This is a dedicated Output device that receives digital audio signals from the computer's sound card and converts them into audible sound waves. It cannot be used to feed data or instructions into the system. Hence, this option is incorrect.

• Printer: This is a peripheral Output device used to produce a hard copy (permanent human-readable text or graphics) of documents stored in electronic form. It does not serve as an interface to input data into the Processing Unit. Hence, this option is incorrect.

• Touchscreen: This device acts as both Input and Output. It is an Input device because it allows users to interact with the system by touching icons or virtual keys, which the sensors detect as coordinates. Simultaneously, it is an Output device because it includes a display screen (like an LCD or OLED) that shows the graphical user interface (GUI) and visual results. Hence, this is the correct answer.

Additional Information

• Input Devices: These are hardware components used to provide data and control signals to an information processing system. Common examples include the Mouse, Scanner, Microphone, Joystick, and Webcam.

• Output Devices: These are hardware components that translate computer-processed information into a form understandable by humans. Common examples include Monitors, Projectors, Plotters, and Headphones.

• Hybrid (I/O) Devices: Apart from Touchscreens, other devices that perform both functions include Modems (Modulator-Demodulator), Network Interface Cards (NICs), Digital Cameras (with screens), and Facsimile (Fax) machines.

• Storage Devices: Components like External Hard Drives, USB Flash Drives, and CD/DVD Rewritable drives are often categorized as both input and output because the system can Read (Input) data from them and Write (Output) data onto them.

Important Points

• Historical Context: The first Touchscreen technology was described by E.A. Johnson in 1965. Early versions were Capacitive, while later developments in the 1970s introduced Resistive touchscreens.

• Types of Touchscreens:

• Capacitive: Relies on the electrical properties of the human body to detect touch; commonly used in modern Smartphones and Tablets.

• Resistive: Consists of two flexible layers with a gap; touch is registered when the layers are pressed together. These are often found in ATMs and Point of Sale (POS) terminals.

• Applications: These devices are integral to modern Human-Computer Interaction (HCI), found in Kiosks, Medical Equipment, Automotive Dashboards, and Gaming Consoles.

• Functions: The dual functionality of a Touchscreen allows for a more compact design by eliminating the need for a separate Keyboard or Mouse, making devices highly portable and user-friendly.

Q69. Answer: (b) PWR

The logic followed here is based on the alphabetical position pattern:

Option 1: MTP

Option 2: PWR

Option 3: GNJ

Option 4: JQM

Thus, PWR does not follow the pattern.

Hence, the odd one out is Option 2.

Q70. Answer: (d) 20 – 30 – 60 – 80

The logic followed here is:

Logic:

First → Second: +10

Second → Third: ×2

Third → Fourth: +20

For, 8 – 18 – 36 – 56

=> 8 + 10 = 18

=> 18 × 2 = 36

=> 36 + 20 = 56

For, 12 – 22 – 44 – 64

=> 12 + 10 = 22

=> 22 × 2 = 44

=> 44 + 20 = 64

Now, checking the options using the same pattern:

Option 1) 17 – 27 – 44 – 54

=> 17 + 10 = 27

=> 27 × 2 = 54 ≠ 44

Option 2) 15 – 25 – 50 – 80

=> 15 + 10 = 25

=> 25 × 2 = 50

=> 50 + 20 = 70 ≠ 80

Option 3) 10 – 20 – 40 – 80

=> 10 + 10 = 20

=> 20 × 2 = 40

=> 40 + 20 = 60 ≠ 80

Option 4) 20 – 30 – 60 – 80

=> 20 + 10 = 30

=> 30 × 2 = 60

=> 60 + 20 = 80

Hence, the correct answer is Option 4.

Q71. Answer: (d) Oxidation

The correct answer is Oxidation.

Key Points

• Rancidity is the process of complete or incomplete oxidation or hydrolysis of fats and oils when exposed to air, light, or moisture, or by bacterial action, resulting in unpleasant taste and odor.

• Oxidation is the primary chemical reaction responsible for rancidity in food products; it occurs when oxygen molecules interact with the unsaturated fatty acids present in fats and oils, leading to the formation of volatile compounds like aldehydes and ketones. Hence, the statement regarding oxidation is correct.

• Evaporation is a physical process where a substance in a liquid state changes to a gaseous state due to an increase in temperature and/or pressure; while it may lead to the loss of moisture or volatile flavors, it does not chemically degrade fats into rancid compounds. Hence, the statement regarding evaporation is incorrect.

• Fermentation is a metabolic process that produces chemical changes in organic substrates through the action of enzymes; it typically involves the conversion of carbohydrates into alcohols or organic acids by yeast or bacteria under anaerobic conditions, which is distinct from the degradation of fats. Hence, the statement regarding fermentation is incorrect.

• Reduction is a chemical reaction that involves the gaining of electrons or the removal of oxygen from a substance; it is the chemical opposite of oxidation and does not lead to the spoilage associated with rancidity. Hence, the statement regarding reduction is incorrect.

Additional Information

• Types of Rancidity: There are three main types, namely Oxidative rancidity (reaction with oxygen), Hydrolytic rancidity (reaction with water/moisture), and Microbial rancidity (degradation by microorganisms like bacteria or molds).

• Prevention Methods: Food manufacturers use various techniques to prevent rancidity, such as vacuum packaging, storing food in airtight containers, and keeping products in cool, dark places to minimize exposure to heat and ultraviolet light.

• Use of Antioxidants: Substances known as antioxidants are added to food to slow down oxidation; common examples include BHA (Butylated Hydroxyanisole), BHT (Butylated Hydroxytoluene), and natural Vitamin E (Tocopherol).

• Nitrogen Flushing: In the packaging of snacks like potato chips, the air in the bag is replaced with Nitrogen gas; since Nitrogen is an inert gas, it prevents the oxidation of fats, thereby increasing the shelf life of the product.

• Impact on Health: Consumption of rancid food can lead to the loss of nutritional value (especially fat-soluble vitamins like A, D, and E) and may cause digestive issues or contribute to oxidative stress in the human body.

YourMockTest.com — Free Study Material

Important Points

• Chemical Mechanism: During oxidative rancidity, free radicals are formed which react with oxygen to produce hydroperoxides; these are unstable and break down into low-molecular-weight compounds that provide the characteristic "off" smell.

• Hydrolytic Rancidity: This specifically occurs when the enzyme lipase or moisture breaks the ester bonds in triglycerides, releasing free fatty acids; this is common in dairy products like butter when stored improperly.

• Factors Influencing Rate: The rate of oxidation increases with higher temperatures, exposure to trace metals (like iron or copper which act as catalysts), and the degree of unsaturation in the fat (polyunsaturated fats go rancid faster than saturated fats).

Q72. Answer: (c) Tertiary Activity

The correct answer is Tertiary Activity.

Key Points

• The Tertiary Activity, also known as the Service Sector, includes all activities that provide services to consumers and businesses, such as banking, education, healthcare, and transportation. In developed countries, this sector has become the most significant contributor to Total Production and Gross Domestic Product (GDP). Hence, the option Tertiary Activity is correct.

• Primary Activity involves the extraction and production of natural resources, such as agriculture, fishing, and mining. While it is the backbone of developing economies, its relative importance in terms of total production declines significantly as a country becomes developed. Hence, the option Primary Activity is incorrect.

• Secondary Activity focuses on the manufacturing and processing of raw materials into finished goods, such as automobile production or textile manufacturing. Although it drove the Industrial Revolution, in modern advanced economies, its share of production is typically lower than that of the services sector. Hence, the option Secondary Activity is incorrect.

• Quinary Activity refers to the highest level of decision-making and innovation, involving top executives, government officials, and research scientists. While these roles are high-value, they represent a very small fraction of the total production compared to the broad Tertiary sector. Hence, the option Quinary Activity is incorrect.

• The dominance of the Tertiary sector in developed nations is a result of structural transformation, where rising per capita income leads to a higher demand for services rather than just physical goods.

Additional Information

• Economic Structural Shift: According to the Clark-Fisher hypothesis, economies transition from Primary to Secondary and finally to Tertiary dominance. In developed countries like the United States and the United Kingdom, the service sector often accounts for more than 75% to 80% of the GDP.

• Employment Trends: The shift in production is mirrored by employment. In advanced economies, the majority of the labor force is employed in service-oriented jobs. For example, in Germany and Japan, even with strong manufacturing bases, services remain the primary employer.

• Role of Technology: Information Technology (IT) and digitalization have accelerated the growth of the Tertiary sector. The rise of e-commerce, software development, and telecommunications has increased the value addition of services globally.

• Global Trade: Developed countries are often net exporters of high-value services such as financial services, intellectual property, and consultancy. This specialization allows them to maintain high economic growth despite a shrinking industrial base (a process sometimes called deindustrialization).

Important Points

• Quaternary Sector: Often considered a sub-category of the Tertiary sector, it involves knowledge-based services such as Information Technology, Research and Development (R&D), and financial planning. It is the engine of innovation in developed states.

• Income Elasticity: As consumer income grows in developed nations, the Income Elasticity of Demand for services (like tourism and luxury healthcare) is higher than for basic agricultural products.

• Data Fact: In the Year 2022, the World Bank data indicated that services accounted for approximately 72% of Global Value Added, with High-Income Countries showing the highest percentages.

• Interdependence: The Tertiary sector supports the Secondary sector through logistics and marketing, proving that the sectors are deeply interconnected despite the Tertiary sector being the largest in production volume.

Q73. Answer: (b) 28291.03

Shortcut Trick

Diameter = 37.8 => r = 18.9 cm

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

= $(4/3) \times (22/7) \times (18.9)^3$

= $(88/21) \times 6751.269$

≈ $28291.03 cm^3$

Therefore Answer ≈ $28291.03\ cm^3$

Alternate Method

Given:

Diameter = 37.8 cm => Radius r = 18.9 cm

Formula:

Volume of sphere = $(4/3)\pi r^3$

Calculation:

$r^3 = (18.9)^3 = 6751.269$

=> Volume = $(4/3) \times (22/7) \times 6751.269$

$= (88/21) \times 6751.269$

$\approx 28291.03\ cm^3$

Therefore Final Answer $\approx 28291.03\ cm^3$

Additional Information

Sphere Volume: $(4/3)\pi r^3$

Key Step: Always convert diameter → radius

Tip: Cube carefully for accuracy

Exam Tip: Keep π as fraction for precision

Q74. Answer: (d) More private companies and foreign investments were allowed.

The correct answer is More private companies and foreign investments were allowed.

Key Points

• In 1991, India faced a severe economic crisis, which led to the introduction of the New Economic Policy (NEP) launched by the then Prime Minister P. V. Narasimha Rao and Finance Minister Dr. Manmohan Singh.

• The reform shifted the Indian economy from a "Command and Control" model to a market-oriented model, primarily through the three pillars of Liberalization, Privatization, and Globalization (LPG).

• Statement 1: "Only agriculture was given importance, not industry" is incorrect because the 1991 reforms specifically targeted the industrial and service sectors to improve efficiency and competitiveness.

• Statement 2: "Farming became the only source of national income" is incorrect as the share of the Service Sector and Industrial Sector in the GDP increased significantly following the reforms, reducing the relative dominance of agriculture.

• Statement 3: "The government increased control over private industries" is incorrect because the reforms involved Deregulation and the ending of the "License Raj," which actually reduced government control over private enterprises.

• Statement 4: "More private companies and foreign investments were allowed" is correct because the policy opened several sectors to Foreign Direct Investment (FDI) and allowed private players to enter industries previously reserved for the public sector. Hence, statement 4 is correct.

Additional Information

• Liberalization: This involved the removal of government-imposed restrictions on trade and industry. It led to the abolition of Industrial Licensing for most industries, except for a few strategic ones like defense, hazardous chemicals, and industrial explosives.

• Privatization: This refers to the transfer of ownership, management, and control of public sector enterprises to the private sector. It was carried out through Disinvestment, where the government sold its shares in Public Sector Undertakings (PSUs).

• Globalization: This aimed to integrate the Indian economy with the global economy. It involved reducing Import Duties, encouraging Exports, and allowing the Indian Rupee to be determined by market forces (partial convertibility).

• Foreign Investment: The government allowed Foreign Institutional Investors (FII) and Foreign Direct Investment (FDI) to flow into the country, which provided the necessary capital and technology for industrial growth. In many sectors, the FDI limit was raised to 51% or even 100% over time.

• Trade Policy Reforms: Quantitative restrictions on imports were dismantled, and the Export-Import (EXIM) Policy was restructured to boost international trade.

Important Points

• Balance of Payments Crisis: The immediate trigger for the 1991 reforms was a crisis in the Balance of Payments (BoP). India’s Foreign Exchange Reserves had fallen so low (to about $1.2 billion) that they were barely enough to pay for two weeks of essential imports like oil.

• The Role of International Organizations: To manage the crisis, India approached the International Monetary Fund (IMF) and the World Bank for a loan of $7 billion. These organizations provided the loan on the condition that India liberalize its economy.

• Impact on Agriculture: While the primary focus was on industry, agriculture felt the impact through the reduction of fertilizer subsidies and a shift toward export-oriented farming. However, the reforms are often criticized for not addressing rural distress as effectively as industrial growth.

• FEMA and MRTP: The Foreign Exchange Regulation Act (FERA) was later replaced by the more liberal Foreign Exchange

YourMockTest.com — Free Study Material

Management Act (FEMA) in 1999. Similarly, the Monopolies and Restrictive Trade Practices (MRTP) Act was amended to remove the requirement for large companies to seek prior government approval for expansion.

• Sectoral Shift: Post-1991, the Service Sector (especially IT and Telecom) grew at a massive rate, helping India transition from the "Hindu Rate of Growth" (around 3.5%) to much higher annual GDP growth rates exceeding 7-8% in subsequent decades.

Q75. Answer: (d) 3rd

The correct answer is 3rd.

Key Points

• According to the Global Forest Resources Assessment (GFRA), India has maintained the 3rd position worldwide in terms of net annual forest area gain.

• The Global Forest Resources Assessment (GFRA) is a report published every five years by the Food and Agriculture Organization (FAO) of the United Nations to monitor the status and trends of the world's forest resources.

• During the period of 2010 to 2020, India demonstrated a significant increase in its green cover, adding an average of 2,66,000 hectares of forest area annually.

• The report highlights that India accounts for approximately 2% of the total global forest area, positioning it as a major contributor to global conservation efforts. Hence, the statement regarding India's 3rd rank is correct.

• The top ten countries that reported the highest average annual net gains in forest area during this decade include China, Australia, India, Chile, Vietnam, Turkey, United States, France, Italy, and Romania.

Additional Information

• India State of Forest Report (ISFR):

• The Forest Survey of India (FSI), an organization under the Ministry of Environment, Forest and Climate Change, publishes the India State of Forest Report (ISFR) biennially (every 2 years).

• As per the ISFR 2021, the total forest and tree cover of the country is 80.9 million hectares, which is 24.62% of the total geographical area of India.

• Madhya Pradesh has the largest forest cover in the country by area, followed by Arunachal Pradesh, Chhattisgarh, Odisha, and Maharashtra.

• Global Rankings in Forest Cover:

• Russia holds the largest forest area in the world, followed by Brazil, Canada, the United States, and China.

• While China recorded the maximum net gain in forest area globally (approx. 1,937,000 hectares per year), India secured its place in the top three due to proactive afforestation and reforestation policies.

• Definitions and Classifications:

• Forest Cover: Refers to all lands more than one hectare in area with a tree canopy density of more than 10%, irrespective of ownership and legal status.

• Tree Cover: Includes tree patches outside the recorded forest area less than one hectare and isolated trees.

Important Points

• Government Initiatives:

• The National Mission for a Green India (GIM) is one of the eight missions under the National Action Plan on Climate Change (NAPCC) aimed at protecting and increasing the forest cover.

• The Compensatory Afforestation Fund Management and Planning Authority (CAMPA) ensures that funds collected for diverting forest land to non-forest purposes are used for afforestation and conservation activities.

• Programs like the National Afforestation Programme (NAP) focus on the ecological restoration of degraded forests with the help of local communities through Joint Forest Management Committees (JFMCs).

• Ecological Significance:

• The increase in forest area helps in achieving India's Nationally Determined Contributions (NDC) target of creating an additional carbon sink of 2.5 to 3 billion tonnes of CO_2 equivalent by 2030.

• Forests play a vital role in maintaining biodiversity, with India being home to nearly 8% of the world's documented species.

Q76. Answer: (c) Barbados

The correct answer is Barbados.

Key Points

• The 68th Commonwealth Parliamentary Conference (CPC) is scheduled to be hosted by Barbados in October 2025.

• The conference serves as the flagship event of the Commonwealth Parliamentary Association (CPA), bringing together legislators from across the globe to discuss democratic governance and parliamentary cooperation.

• Hosting the 68th edition highlights the active role of the Caribbean region in the Commonwealth and provides a platform for Small Island Developing States (SIDS) to voice concerns regarding climate change and economic resilience.

• The CPA Barbados Branch, led by the Speaker of the House of Assembly and the President of the Senate, will be responsible

for the local organization of this international gathering.

• During the conference, delegates will engage in workshops covering various themes such as human rights, sustainable development, and the digital transformation of parliaments.

Additional Information

• Commonwealth Parliamentary Association (CPA):

• The CPA was founded in 1911 (originally as the Empire Parliamentary Association) and is headquartered in London, United Kingdom.

• It consists of over 180 branches across nine geographic regions, representing approximately 17,000 parliamentarians and parliamentary staff.

• The CPA's mission is to promote parliamentary democracy and provide professional development for its members.

• Previous and Future Hostings:

• The 67th Commonwealth Parliamentary Conference was held in Sydney, Australia, in November 2024.

• The 66th Commonwealth Parliamentary Conference took place in Accra, Ghana, in October 2023, which was the first time the event was held in West Africa.

• The hosting of the conference typically rotates among the nine regions of the CPA: Africa, Asia, Australia, British Islands & Mediterranean, Canada, Caribbean, Americas & Atlantic, India, Pacific, and South-East Asia.

• Significance of Barbados:

• Barbados officially became a Republic on November 30, 2021, removing the British Monarch as its head of state while remaining a dedicated member of the Commonwealth.

• The nation is a prominent leader in the Bridgetown Initiative, which advocates for reform in global financial architecture to assist developing nations.

Important Points

• Commonwealth Secretariat vs. CPA: While the Commonwealth Secretariat (headed by the Secretary-General) handles governmental affairs, the CPA focuses specifically on the legislative branch and individual parliamentarians.

• General Assembly: The CPA General Assembly, held during the conference, is the highest policy-making body of the association where decisions regarding the Constitution and elections of officers are made.

• CWP and CPwD: The conference also hosts meetings of the Commonwealth Women Parliamentarians (CWP) and the Commonwealth Parliamentarians with Disabilities (CPwD) networks to ensure inclusive representation in policy debates.

Q77. Answer: (a) Article 11

The correct answer is Article 11.

Key Points

• Article 11 of the Constitution of India empowers the Parliament to regulate the right of citizenship by law. It provides that nothing in the preceding articles (Articles 5 to 10) shall derogate from the power of Parliament to make any provision with respect to the acquisition and termination of citizenship and all other matters relating to citizenship.

• The provisions of Articles 5 to 10 were intended only to identify persons who became citizens of India at the commencement of the Constitution on 26 January 1950. Article 11 ensures that the Parliament has the permanent authority to handle future requirements regarding citizenship.

• Under the authority granted by Article 11, the Parliament enacted the Citizenship Act, 1955. This Act provides for the acquisition and loss of citizenship after the commencement of the Constitution.

• The Parliament has used this power to amend the Citizenship Act several times, including significant amendments in the years 1986, 1992, 2003, 2005, 2015, and 2019 to adapt to changing socio-political needs.

• The Indian Constitution establishes a single citizenship for the whole of India, promoting a sense of fraternity and unity among the citizens regardless of the state or location of their birth.

Additional Information

• Article 5: This article deals with citizenship at the commencement of the Constitution. A person who had their domicile in India and fulfilled any of the three conditions—born in India, either of whose parents was born in India, or ordinarily resident in India for five years immediately preceding the commencement—became a citizen.

• Article 6: It provides citizenship rights to certain persons who migrated to India from Pakistan. It specifies a cut-off date of 19 July 1948 for registration and residency requirements.

• Article 8: This article addresses the citizenship of persons of Indian origin residing outside India. Any person who (or whose parents/grandparents) was born in undivided India but is residing abroad can be registered as an Indian citizen by the diplomatic or consular representative of India in that country.

• Article 9: It stipulates that any person who voluntarily acquires the citizenship of a foreign state shall no longer be a citizen of India. This reinforces the principle of single citizenship.

• Article 10: This article ensures continuity of citizenship. It states that every person who is or is deemed to be a citizen of India

shall continue to be such a citizen, subject to the provisions of any law made by Parliament.

Important Points

• Methods of Acquisition: Under the Citizenship Act, 1955, citizenship can be acquired through five methods: By Birth, By Descent, By Registration, By Naturalization, and By Incorporation of Territory.

• Loss of Citizenship: The Act also mentions three ways to lose citizenship: Renunciation (voluntary give up), Termination (automatically ends upon acquiring foreign citizenship), and Deprivation (compulsory termination by the Central Government on grounds like fraud or disloyalty to the Constitution).

• Ministry in Charge: All matters related to citizenship and the administration of the Citizenship Act fall under the jurisdiction of the Ministry of Home Affairs, Government of India.

• Constitutional Part: Citizenship is covered under Part II of the Constitution of India, spanning Articles 5 to 11. Unlike other countries like the USA which follow dual citizenship, India adheres to the concept of Single Citizenship borrowed from the British Constitution.

• OCI and PIO: While India does not allow dual citizenship, the Government provides Overseas Citizenship of India (OCI) status to People of Indian Origin (PIO), offering certain features and functions like multi-purpose, multiple-entry lifelong visas to visit India.

Q78. Answer: (b) Second class (3 : 2)

Shortcut Trick

Compare boys/(boys + girls)

Class 1: 4/(4+5) = 4/9 ≈ 0.44

Class 2: 3/(3+2) = 3/5 = 0.60

Class 3: 6/(6+5) = 6/11 ≈ 0.545

Class 4: 5/(5+6) = 5/11 ≈ 0.455

Highest = 0.60

Therefore Answer = Second class

Alternate Method

Given:

Ratios of boys : girls

Class 1 = 4 : 5

Class 2 = 3 : 2

Class 3 = 6 : 5

Class 4 = 5 : 6

Formula:

Proportion of boys = Boys / (Boys + Girls)

Calculation:

Class 1 => 4/(4+5) = 4/9

Class 2 => 3/(3+2) = 3/5

Class 3 => 6/(6+5) = 6/11

Class 4 => 5/(5+6) = 5/11

=> Compare values:

4/9 ≈ 0.44

3/5 = 0.60

6/11 ≈ 0.545

5/11 ≈ 0.455

=> Maximum = 3/5

Therefore Final Answer = Second class

Additional Information

Proportion: Part ÷ Total

Tip: Convert ratios to fractions

Shortcut: Compare a/(a+b)

Exam Trick: Decimal helps quick comparison

Q79. Answer: (a) Badruddin Tyabji was the first Jainist President of the INC

The correct answer is Badruddin Tyabji was the first Jainist President of the INC.

Key Points

• Badruddin Tyabji was a prominent lawyer and activist who served as the third President of the Indian National Congress. He presided over the 1887 session held in Madras. He was the first Muslim President of the INC, not a Jainist. Hence, statement 1 is incorrect.

• George Yule was a Scottish merchant in England and India who served as the fourth President of the INC in 1888. The session took place in Allahabad. He holds the distinction of being the first non-Indian (European) to occupy the presidential chair. Hence, statement 2 is correct.

• Womesh Chandra Bonnerjee was a co-founder and the first President of the Indian National Congress. He presided over the inaugural session held at Gokuldas Tejpal Sanskrit College, Bombay, in December 1885. He belonged to the Hindu community. Hence, statement 3 is correct.

• Dadabhai Naoroji, widely known as the Grand Old Man of India, was the first Parsi President of the INC. He presided over the second session of the Congress held in Calcutta in 1886. He was elected as the President of the INC three times (1886, 1893, and 1906). Hence, statement 4 is correct.

Additional Information

• Formation of the INC: The Indian National Congress was founded on 28 December 1885 by Allan Octavian Hume (A.O. Hume), a retired British officer. The first session was attended by 72 delegates from all over India.

• First Woman President: Annie Besant became the first woman to preside over the INC during the 1917 session held in Calcutta. She was of Irish origin and a prominent leader of the Home Rule Movement.

• First Indian Woman President: Sarojini Naidu, known as the Nightingale of India, was the first Indian woman to become the President of the INC at the 1925 Kanpur session.

• Youngest President: Maulana Abul Kalam Azad became the youngest person to serve as the President of the INC at the age of 35 during the special session in Delhi in 1923. He also served as the first Education Minister of independent India.

• Mahatma Gandhi's Presidency: Mohandas Karamchand Gandhi presided over the INC only once, during the Belgaum session in 1924.

Important Points

• Viceroy at the time of formation: Lord Dufferin was the Viceroy of India when the Indian National Congress was established in 1885. He initially described the INC as representing a microscopic minority.

• Surat Split: The INC faced its first major split in 1907 during the Surat session, where the party divided into Moderates (led by Gopal Krishna Gokhale) and Extremists (led by Bal Gangadhar Tilak).

• Lucknow Pact: In 1916, the Moderates and Extremists reunited at the Lucknow session, which was presided over by Ambica Charan Mazumdar.

• Village Session: The first session of the INC to be held in a rural area (village) was the Faizpur session in 1937, presided over by Jawaharlal Nehru.

• Independence Session: J.B. Kripalani was the President of the INC when India achieved independence in 1947.

Q80. Answer: (c) Exchange of energy and matter between system and surroundings.

The correct answer is Exchange of energy and matter between system and surroundings.

Key Points

• In thermodynamics, an open system is defined as a system that can freely exchange both matter (mass) and energy (heat or work) with its surroundings.

• Statement 1 suggests that there is no exchange of energy, but the exchange of matter is possible. This is incorrect because the movement of matter into or out of a system inherently carries internal energy, meaning energy exchange almost always accompanies matter exchange. Hence, statement 1 is incorrect.

• Statement 2 describes a scenario where there is no exchange of matter, but the exchange of energy is possible. This specifically defines a closed system, such as a sealed cylinder where heat can enter but the gas cannot escape. Hence, statement 2 is incorrect.

• Statement 3 states that both energy and matter are exchanged between the system and the surroundings. This is the precise scientific definition of an open system. Most biological organisms and mechanical devices like turbines function as open systems. Hence, statement 3 is correct.

• Statement 4 mentions that there is no exchange of energy or matter. This describes an isolated system, where the boundary is both rigid and perfectly insulated (adiabatic). Hence, statement 4 is incorrect.

• Common examples of an open system include a boiling pot without a lid (where steam escapes and heat is added), air compressors, and the human body.

Additional Information

• Closed System: This type of system allows the transfer of energy in the form of heat and work across its boundary, but it does not allow the transfer of mass. The mass of the system remains constant over time. A piston-cylinder arrangement without valves is a classic example.

YourMockTest.com — Free Study Material

• Isolated System: An isolated system is a physical system so far removed from other systems that it does not interact with them. It can exchange neither matter nor energy with its surroundings. While a perfectly isolated system does not exist in reality, a thermos flask (for a limited time) or the Universe as a whole are often used as theoretical examples.

• Thermodynamic Boundary: The boundary is the envelope or wall that separates the system from the surroundings. It can be fixed, movable, real, or imaginary. In an open system, the boundary is usually called a control surface.

• Surroundings: Everything outside the system's boundary that can interact with the system is called the surroundings or environment. The combination of the system and its surroundings is known as the Universe.

• Mass Transfer: In an open system, mass enters or leaves via fluid flow. This process is governed by the Law of Conservation of Mass, often analyzed using a Control Volume approach.

Important Points

• Steady Flow Processes: Most engineering devices that are open systems, such as nozzles, pumps, and heat exchangers, operate under steady flow conditions, where the mass flow rate and energy content within the control volume remain constant over time.

• Laws of Thermodynamics:

• The First Law applied to an open system accounts for the internal energy, kinetic energy, and potential energy of the flowing matter.

• The Second Law dictates that during any exchange in an open system, the entropy of the universe will likely increase.

• Key Features: Open systems are characterized by permeable boundaries. In the context of chemistry and biology, these systems are essential for metabolism and homeostasis, as they require a constant input of nutrients and output of waste.

Q81. Answer: (b) 65°

Shortcut Trick

Parallel lines => alternate interior angles are equal

=> Given angle = 65°

=> Corresponding alternate interior angle = 65°

Therefore Answer = 65°

Alternate Method

Given:

L1 || L2

Transversal cuts the lines

One alternate interior angle = 65°

Concept:

Alternate interior angles are equal when two parallel lines are cut by a transversal

Conclusion:

The corresponding alternate interior angle is also equal

=> Angle = 65°

Therefore Final Answer = 65°

Additional Information

Alternate Interior Angles: Equal

Corresponding Angles: Also equal

Co-interior Angles: Sum = 180°

Tip: Identify angle position carefully

Q82. Answer: (a) 48

Shortcut Trick

Speeds: Ankur = 5/3 m/s, Mahima = 25/12 m/s

Same time => distance ratio = speed ratio

=> 9X : 5Y = (5/3) : (25/12) = 4 : 5

=> X : Y = 20 : 45 = 4 : 9

Total = 325 m => X = (4/13) × 325 = 100 m

Time (Mahima on X) = 100 ÷ (25/12) = 48 sec

Therefore Answer = 48 sec

Alternate Method

Given:

Speed of Ankur = 1 2/3 = 5/3 m/s
Speed of Mahima = 2 1/12 = 25/12 m/s
Total length = 0.325 km = 325 m
Ankur: 9 rounds of X
Mahima: 5 rounds of Y
Concept:
Time same => Distance proportional to speed
Calculation:
=> 9X / (5/3) = 5Y / (25/12)
=> 9X × 3/5 = 5Y × 12/25
=> 27X/5 = 60Y/25 = 12Y/5
=> 27X = 12Y => X : Y = 4 : 9
=> X + Y = 325
=> 13 parts = 325 => 1 part = 25
=> X = 4 × 25 = 100 m
=> Time for Mahima on X:
= Distance / Speed
= 100 ÷ (25/12) = 100 × 12/25 = 48 sec
Therefore Final Answer = 48 sec
Additional Information
Key Concept: Equal time => distance prop. to speed
Ratio Trick: Convert mixed fractions
Tip: Solve ratio before substituting total
Exam Trick: Avoid long equations

Q83. Answer: (b) Two

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.
T has the exam on Tuesday.
Only two people have exams between R and T.
P has the exam immediately after S but not on Sunday.
Q has the exam before V but not on Monday.

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

Now, people between U and P: 2 people
Hence, the correct answer is Option 2.

Q84. Answer: (d) Wife's Mother

Family Chart:
The logic followed here is:
Given:
S is the mother of N,
N is the sister of U,

L is the father of E,

E is the husband of U.

Here, S is E's wife's mother.

Hence, the correct answer is Option 4.

Q85. Answer: (c) Article 40

The correct answer is Article 40.

Key Points

• Article 40 of the Constitution of India belongs to the Directive Principles of State Policy (DPSP) under Part IV. It mandates that the State shall take steps to organize village panchayats and endow them with such powers and authority as may be necessary to enable them to function as units of self-government. Hence, Article 40 is the correct answer.

• The 73rd Constitutional Amendment Act, 1992, gave practical effect to Article 40 by providing constitutional status to Panchayati Raj Institutions (PRIs). This act moved the subject of rural local bodies from a mere directive to a mandatory constitutional obligation for the states.

• The 73rd Amendment was passed during the tenure of Prime Minister P.V. Narasimha Rao and came into effect on 24th April 1993. This date is celebrated annually in India as National Panchayati Raj Day.

• This amendment introduced Part IX to the Constitution, titled "The Panchayats," and added the 11th Schedule, which lists 29 functional items or subjects (such as agriculture, land improvement, and minor irrigation) that fall under the jurisdiction of the Panchayats.

Additional Information

• Article 56: This article deals with the term of office of the President of India. It stipulates that the President shall hold office for a term of five years from the date on which he enters upon his office. It also outlines the procedures for resignation (addressed to the Vice-President) and impeachment for violation of the Constitution under Article 61. Hence, this statement is not related to the Panchayati Raj System.

• Article 38: This article directs the State to secure a social order for the promotion of the welfare of the people. It emphasizes the elimination of inequalities in income, status, facilities, and opportunities among individuals and groups. It is considered the foundation for the concept of a Welfare State in India. Hence, this statement is incorrect in the context of the question.

• Article 48: This article focuses on the organization of agriculture and animal husbandry. It directs the State to organize these sectors on modern and scientific lines and, in particular, to take steps for preserving and improving breeds and prohibiting the slaughter of cows, calves, and other milch and draught cattle. Hence, this statement is not the correct article for the Panchayati Raj.

• Historical Context: Before the 73rd Amendment, several committees recommended the strengthening of rural local bodies, most notably the Balwant Rai Mehta Committee (1957), which suggested a three-tier system, and the Ashok Mehta Committee (1977). The first state to adopt the Panchayati Raj System was Rajasthan, in the Nagaur district, on 2nd October 1959.

Important Points

• Three-Tier Structure: The 73rd Amendment mandates a three-tier system of Panchayati Raj in every state: the Gram Panchayat at the village level, the Panchayat Samiti at the intermediate (block) level, and the Zila Parishad at the district level. States with a population of less than 20 lakhs (2 million) have the option not to constitute the intermediate level.

• Reservation of Seats: The Act provides for the reservation of seats for Scheduled Castes (SC) and Scheduled Tribes (ST) in every Panchayat in proportion to their population. Crucially, it mandates that not less than one-third (33%) of the total number of seats and offices of chairpersons must be reserved for women.

• State Election Commission: Under Article 243-K, the superintendence, direction, and control of the preparation of electoral rolls and the conduct of all elections to the Panchayats are vested in a State Election Commission, ensuring regular elections every five years.

• State Finance Commission: Under Article 243-I, the Governor of a state is required to constitute a Finance Commission every five years to review the financial position of the Panchayats and recommend principles for the distribution of taxes and grants-in-aid between the State and the Panchayats.

Q86. Answer: (d) 1

Given: A, B, C, D, E, F and G are sitting around a circular table facing the centre.

Only two people sit between F and B when counted from the right of F.

Only two people sit between B and A when counted from the left of A.

Only three people sit between F and C when counted from the right of F.

E sits to the immediate left of D.

Here, People between A and E (When counted from right of A) = F => 1 people

Hence, the correct answer is Option 4.

YourMockTest.com - Free Study Material

Q87. Answer: (c) Ghatam

The correct answer is Ghatam.

Key Points

• Ghana Vadya, also known as Idiophones, are solid instruments that do not require tuning. They produce sound through the vibration of the instrument's entire body, typically when struck, shaken, or scraped.

• The Ghatam is one of the oldest percussion instruments of India and is a classic example of a Ghana Vadya. It is a narrow-mouthed earthen pot made of clay mixed with iron filings or brass to give it a sharp metallic sound. Hence, the option Ghatam is correct.

• Instruments under this category are made of metal, clay, or wood. Unlike drums, they do not have a stretched membrane. Other examples include Manjira (cymbals), Kartal, and Jhanj.

• The Ghatam is primarily used in Carnatic music of South India. The performer uses the fingers, palms, and even the belly to produce different pitches and rhythms by striking various parts of the pot.

• Shehnai is a tubular instrument that belongs to the Sushira Vadya (wind instruments) category, as it produces sound by blowing air through a double reed. Hence, the option Shehnai is incorrect.

• Pungi is another wind instrument traditionally used by snake charmers in India and is made from a dried gourd. It belongs to the Sushira Vadya group. Hence, the option Pungi is incorrect.

• Sarangi is a bowed string instrument used in Hindustani classical music. Since it uses strings to produce sound, it is classified as a Tata Vadya. Hence, the option Sarangi is incorrect.

Additional Information

• Classification of Indian Musical Instruments: According to the ancient text Natya Shastra by Bharat Muni, musical instruments are divided into four main categories: Tata Vadya (chordophones), Sushira Vadya (aerophones), Avanaddha Vadya (membranophones), and Ghana Vadya (idiophones).

• Sushira Vadya (Wind Instruments): These are characterized by the use of air to create sound. Examples include the Bansuri (flute), Nadaswaram, and Harmonium. The pitch is often controlled by opening and closing holes on the instrument body.

• Tata Vadya (String Instruments): These produce sound through the vibration of strings. They can be plucked (like the Sitar or Veena) or bowed (like the Sarangi or Violin). The length and tension of the strings determine the frequency.

• Avanaddha Vadya (Percussion Instruments/Drums): These instruments have a stretched membrane or skin over a hollow body. Examples include the Tabla, Mridangam, Dholak, and Nagada. They are the primary rhythmic accompaniment in Indian music.

• Geographical Significance: While the Ghatam is a staple in South India, the Shehnai is deeply rooted in the cultural ceremonies and weddings of North India, popularized globally by Ustad Bismillah Khan.

Important Points

• Ghatam Construction: A high-quality Ghatam is made by adding copper or iron filings to the clay before it is fired in a kiln. This specialized manufacturing process is mainly done in Mana Madurai, a town in Tamil Nadu.

• Functions of Ghana Vadya: These instruments often provide a metronomic or rhythmic foundation. In folk music, they are used to keep time (Tala) during Bhajans and Kirtans.

• Historical Context: References to Ghana Vadya can be found in Vedic literature, indicating their age and long-standing presence in Indian ritualistic traditions.

• Examples by State: The Chimta is a common idiophone used in Punjab, while the Morchang (jew's harp) is popular in the folk music of Rajasthan.

Q88. Answer: (c) Himachal Pradesh in the Western Himalayan region

The correct answer is Himachal Pradesh in the Western Himalayan region.

Key Points

• The Cold Desert Biosphere Reserve is located in the state of Himachal Pradesh, specifically encompassing the Lahaul and Spiti districts within the Western Himalayan region of India.

• It was established as a Biosphere Reserve by the Government of India in 2009 and includes prominent protected areas such as the Pin Valley National Park, Kibber Wildlife Sanctuary, Sarchu, and Chandertal.

• The inclusion of this reserve into the UNESCO World Network of Biosphere Reserves (WNBR) highlights its global importance for biodiversity conservation and sustainable development. The reserve is a high-altitude landscape situated at elevations ranging from 3,000 to 6,000 meters above sea level.

• This region is the primary habitat for the Snow Leopard (Uncia uncia), which is the apex predator of this ecosystem. Other significant fauna include the Himalayan Ibex, Tibetan Gazelle, and Woolly Hare.

• The Western Himalayan cold desert is characterized by extreme climatic conditions, including heavy snowfall during winters and arid conditions during summers, with temperatures dropping to as low as -40°C.

Additional Information

• Biosphere Reserves (BR):

YourMockTest.com – Free Study Material

• These are areas designated by UNESCO under the Man and the Biosphere (MAB) Programme to promote an equitable relationship between people and nature.

• In India, there are a total of 18 notified Biosphere Reserves, with many of them, such as Nilgiri, Gulf of Mannar, and Panchmarhi, already included in the World Network of Biosphere Reserves.

• Pin Valley National Park:

• Located within the Spiti Valley of Himachal Pradesh, it is a core part of the Cold Desert Biosphere Reserve. It was declared a National Park in 1987 and is famous for its unique sub-alpine flora and Medicinal Plants.

• Geographical Features:

• The Cold Desert is a "rain shadow" area, meaning it receives very little rainfall because the Himalayan Mountains block the moisture-laden Monsoon winds.

• The Chandra and Bhaga rivers (which later form the Chenab) originate from the glaciers in this vicinity, contributing to the Indus River system.

• UNESCO World Network (WNBR):

• The World Network of Biosphere Reserves currently includes over 700 sites across more than 130 countries. Induction into this network facilitates international research, funding, and exchange of conservation practices.

• Sikkim (Kangchenjunga):

• While Sikkim houses the Khangchendzonga Biosphere Reserve (a UNESCO World Heritage Site in the mixed category), the specific "Cold Desert BR" designation refers to the Himachal Pradesh site.

Important Points

• Biodiversity: The reserve is home to several endangered species and rare vegetation such as Juniperus, Hippophae (Sea Buckthorn), and various Alpine herbs.

• Cultural Significance: The region is known for its Tibetan Buddhist culture, ancient Monasteries (Gompas) like Key Monastery and Tabo Monastery, and indigenous communities that have adapted to the harsh Trans-Himalayan environment.

• Conservation Status: The Snow Leopard population in this reserve is a focus of the Project Snow Leopard, an initiative by the Ministry of Environment, Forest and Climate Change to protect this flagship species and its mountain habitat.

Q89. Answer: (c) Mumbai

The correct answer is Mumbai.

Key Points

• The ICAR-Central Institute of Fisheries Education (CIFE) is a premier Deemed University and a leading institution in the field of fisheries science in India, with its headquarters located in Versova, Mumbai, Maharashtra.

• It was established on 6th June 1961 under the Ministry of Food and Agriculture, Government of India, with technical assistance from the Food and Agriculture Organization (FAO) and the United Nations Development Programme (UNDP).

• The institute was later brought under the administrative control of the Indian Council of Agricultural Research (ICAR) on 1st April 1979.

• Recognizing its contribution to higher education and research, the University Grants Commission (UGC) conferred the status of Deemed University upon ICAR-CIFE on 29th March 1989.

• As a center for excellence, the institute is dedicated to creating human resources for the fisheries sector through specialized Master's (M.F.Sc.) and Doctoral (Ph.D.) programs in various branches of aquaculture, fisheries resource management, and post-harvest technology.

• The institute operates through several regional centers located in Kolkata, Rohtak, Kakinada, and Powerkheda to address diverse agro-climatic requirements and regional fisheries issues.

Additional Information

• Indian Council of Agricultural Research (ICAR):

• Established on 16 July 1929 as the Imperial Council of Agricultural Research, it is an autonomous body under the Department of Agricultural Research and Education (DARE).

• Headquartered in New Delhi, it is the apex body for coordinating, guiding, and managing research and education in agriculture, including horticulture, fisheries, and animal sciences across the country.

• Other Major Fisheries Research Institutes in India:

• ICAR-Central Marine Fisheries Research Institute (CMFRI): Located in Kochi, Kerala, it focuses on marine fisheries resources and management.

• ICAR-Central Inland Fisheries Research Institute (CIFRI): Located in Barrackpore, West Bengal, it deals with the ecology and management of inland fisheries.

• ICAR-Central Institute of Freshwater Aquaculture (CIFA): Situated in Bhubaneswar, Odisha, it specializes in freshwater fish farming technologies.

• ICAR-Central Institute of Fisheries Technology (CIFT): Based in Kochi, Kerala, it focuses on fish processing and fishing vessel

design.

• Relevant Government Initiatives:

• Pradhan Mantri Matsya Sampada Yojana (PMMSY): Launched in September 2020, this flagship scheme aims to bring about the Blue Revolution through sustainable and responsible development of the fisheries sector in India with an investment of Rs. 20,050 crores.

• Blue Revolution (Neel Kranti Mission): Aimed at doubling the income of fishers and fish farmers while increasing productivity through modern technology and infrastructure.

Important Points

• Geographical Context of Options:

• Panaji: This city in Goa is the headquarters of the National Institute of Oceanography (NIO), which conducts research on oceanographic features of the Northern Indian Ocean.

• Thiruvananthapuram: The capital of Kerala houses the Central Tuber Crops Research Institute (CTCRI) and several marine biology departments, but not the CIFE headquarters.

• Vishakhapatnam: A major port city in Andhra Pradesh that hosts regional centers of various fisheries institutes like CMFRI and CIFT due to its strategic East Coast location.

• Functions of CIFE:

• It plays a vital role in transfer of technology from lab to land, helping marginal farmers adopt scientific fish culture practices.

• The institute conducts impact assessments, socio-economic surveys, and extension activities to uplift the socio-economic status of the fishing community.

Q90. Answer: (b) CHQ 29

The logic followed here is:

So, 'CHQ 29' will replace the question mark in the given series.

Hence, the correct answer is "Option 2".

Q91. Answer: (a) System software

The correct answer is System software.

Key Points

• System software is a type of computer program that is designed to run a computer's hardware and application programs. It acts as the foundational layer that manages the internal resources of a computer system.

• The Operating System (OS) is the most critical component of system software. It manages the CPU, memory, and storage, while providing a user interface (UI) and a platform for other applications to run. Examples include Microsoft Windows, macOS, Linux, Android, and iOS.

• Device drivers are specialized system software programs that allow the operating system to communicate with specific hardware devices. Without these drivers, the OS would not be able to send or receive data from hardware like printers, scanners, graphics cards, or network adapters.

• System software is generally pre-installed on a computer or installed during the setup of the OS. It operates in the background and is usually not directly interacted with by the end-user, unlike application software.

• Another category of system software includes programming language translators such as compilers, interpreters, and assemblers, which convert high-level programming code into machine language that the processor can execute.

Additional Information

• Application Software: This refers to programs designed to perform specific tasks for the user. Unlike system software, these are user-oriented. Examples include word processors (like MS Word), web browsers (like Google Chrome), spreadsheets, and media players.

• Utility Software: Often considered a sub-type of system software, utility software helps to analyze, configure, optimize, or maintain a computer. Common examples include antivirus programs, disk defragmenters, file compression tools (like WinZip), and backup utilities.

• Firmware: This is a specific type of software that is embedded directly into a hardware device (usually on ROM or EPROM). It provides low-level control for the device's specific hardware. The BIOS (Basic Input/Output System) or UEFI on a motherboard is the most common example of firmware.

• Temporary Programs: This is not a standard technical category of software. While some software may be ephemeral or run temporarily in RAM, the term does not define a functional category like System or Application software.

• Entertainment Software: This is a sub-category of application software specifically designed for leisure. This includes video games and streaming applications like Netflix or Spotify.

Important Points

• Kernel: The kernel is the core part of the operating system that manages system calls and hardware abstraction. It is the first

program loaded into memory when the computer starts up.

• User Interface (UI): System software provides either a Command Line Interface (CLI), where users type text commands, or a Graphical User Interface (GUI), which uses icons and windows for easier navigation.

• BIOS/UEFI: These are the first pieces of system software to run when a PC is powered on. They perform a Power-On Self-Test (POST) to ensure all hardware is functioning correctly before handing control over to the Operating System.

• Resource Allocation: One of the primary functions of system software is multitasking management, which ensures that multiple application programs can share the CPU and RAM without crashing the system.

Q92. Answer: (d) Z

Given: (Left) D T £ © 3 6 Z % U $ 8 2 7 P * @ 3 J V © H N (Right)

Now, remove all the numbers from the series:

=> D T £ © Z % U $ P * @ J V © H N

Now, the 5th element from the left: D T £ © Z % U $ P * @ J V © H N

Hence, the correct answer is Option 4.

Q93. Answer: (d) 85

Shortcut Trick

Convert bases to 5:

125 = 5^3, 25 = 5^2

=> $(5^3)^{(1.3)} \times (5^2)^{(1.8)} \div (5)^{(2.5)}$

=> $5^{(3\times1.3)} \times 5^{(2\times1.8)} \div 5^{(2.5)}$

=> $5^{(3.9 + 3.6 - 2.5)} = 5^5$

=> $5^x = 5^5$ => x = 5

=> 18x − 5 = 18×5 − 5 = 85

Therefore Answer = 85

Alternate Method

Given:

$(125)^{(1.3)} \times (25)^{(1.8)} \div (5)^{(2.5)} = 5^x$

Step 1: Convert into base 5

125 = 5^3, 25 = 5^2

Step 2: Apply exponent rules

= $(5^3)^{(1.3)} \times (5^2)^{(1.8)} \div (5)^{(2.5)}$

= $5^{(3\times1.3)} \times 5^{(2\times1.8)} \div 5^{(2.5)}$

Step 3: Combine powers

= $5^{(3.9 + 3.6 - 2.5)}$

= 5^5

Step 4: Compare powers

=> x = 5

Step 5: Final value

18x − 5 = 90 − 5 = 85

Therefore Final Answer = 85

Additional Information

Exponent Rule: $(a^m)^n = a^{(mn)}$

Product Rule: $a^x \times a^y = a^{(x+y)}$

Division Rule: $a^x \div a^y = a^{(x-y)}$

Tip: Convert to same base first

Q94. Answer: (c) 323

Shortcut Trick

Overall average = (Σ n×avg) / (Σ n)

=> (39×377 + 33×401 + 52×233) / (39+33+52)

=> (14703 + 13233 + 12116) / 124

=> 40052 / 124 = 323

Therefore Answer = 323
Alternate Method
Given:
Group A: n1 = 39, avg1 = 377
Group B: n2 = 33, avg2 = 401
Group C: n3 = 52, avg3 = 233
Formula:
Overall average = (Σ n×avg) / (Σ n)
Calculation:
=> Total members = 39 + 33 + 52 = 124
=> Total amount spent:
= 39×377 = 14703
= 33×401 = 13233
= 52×233 = 12116
=> Total = 14703 + 13233 + 12116 = 40052
=> Overall average = 40052 / 124 = 323
Therefore Final Answer = 323
Additional Information
Weighted Average: Σ(n×value)/Σn
Tip: Multiply first, then add
Common Mistake: Taking simple average ?
Exam Trick: Keep numbers grouped for faster calc

Q95. Answer: (b) 6th

Given: Kamal, Lalit, Manish, Neil, Om and Pawan live on six different floors of the same building.
The lowermost floor is numbered 1 and the topmost floor is numbered 6.
Lalit lives on an even-numbered floor.
Lalit lives on a floor immediately below Kamal's floor and immediately above Manish's floor.
Pawan lives on a floor immediately above Neil's floor.
Pawan lives on an even-numbered floor.
Om does not live on floor number 4.

Floor	Person
6	Om
5	Kamal
4	Lalit
3	Manish
2	Pawan
1	Neil

Here, Om lives on 6th floor.
Hence, the correct answer is Option 2.

Q96. Answer: (d) $(xy)^3\sqrt{(x^3)}$

Shortcut Trick
Given:
1) x^(3.5)y^(1.5)
2) y^(2.5) / x^(-4.5) = x^(4.5)y^(2.5)
3) x / y^(-3) = x^1y^3
LCM => take highest powers
x => max(3.5, 4.5, 1) = 4.5
y => max(1.5, 2.5, 3) = 3

=> LCM = x^(4.5)y³

Convert to option form:

x^(4.5) = x^(3 + 1.5) = x³ × x^(1.5) = x³√(x³)

=> LCM = x³y³√(x³) = (xy)³√(x³)

Therefore Answer = (xy)³ √(x³) (Option 4)

Alternate Method

Step 1: Simplify all terms

x^(3.5)y^(1.5)

x^(4.5)y^(2.5)

x¹y³

Step 2: LCM rule

Take highest powers of each variable

x => 4.5

y => 3

Step 3: Convert to radical form

x^(4.5) = x³√(x³)

Final:

LCM = (xy)³√(x³)

Therefore Final Answer = (xy)³ √(x³)

Q97. Answer: (c) Articles 15(6) and 16(6)

The correct answer is Articles 15(6) and 16(6).

Key Points

• The 103rd Constitutional Amendment Act, which was enacted in 2019, introduced a 10% reservation for the Economically Weaker Sections (EWS) in Government jobs and educational institutions.

• To facilitate this reservation, the Parliament inserted two new clauses: Article 15(6) and Article 16(6) into the Constitution of India.

• Article 15(6) was added to enable the State to make special provisions for the advancement of any economically weaker sections of citizens, specifically regarding their admission to educational institutions, including private institutions (whether aided or unaided by the State), other than minority educational institutions.

• Article 16(6) was inserted to permit the State to make provisions for the reservation of appointments or posts in favor of any economically weaker sections of citizens in public employment.

• This 10% reservation for EWS is in addition to the existing reservations for Scheduled Castes (SC), Scheduled Tribes (ST), and Other Backward Classes (OBC).

Additional Information

• Genesis of the Amendment: The policy was formulated based on the recommendations of the Sinno Commission (Major Gen. S.R. Sinho), which was constituted in 2006 and submitted its report in 2010, suggesting that the economically backward classes among the general category should receive benefits.

• Eligibility Criteria: To qualify under the EWS category, the applicant's family must have a gross annual income below 8 lakh rupees. Other exclusions include owning 5 acres or more of agricultural land, a residential flat of 1000 square feet or more, or residential plots of specific sizes in notified municipalities.

• Legislative History: The amendment was introduced as the Constitution (124th Amendment) Bill, 2019. It was passed by the Lok Sabha on January 8, 2019, and by the ?bha on January 9, 2019. It received the President's assent on January 12, 2019.

• Supreme Court Verdict: In the landmark case of Janhit Abhiyan v. Union of India (2022), a five-judge Constitution Bench of the Supreme Court upheld the validity of the 103rd Amendment by a 3:2 majority, ruling that reservation based solely on economic criteria does not violate the basic structure of the Constitution.

• Article 46: The amendment aligns with the Directive Principles of State Policy under Article 46, which mandates the State to promote with special care the educational and economic interests of the weaker sections of the people.

Important Points

• Departure from Indra Sawhney Case: Previously, in the Indra Sawhney v. Union of India (1992) case, the Supreme Court had capped reservations at 50% and stated that economic backwardness alone cannot be a criterion for reservation. The 103rd Amendment effectively bypassed this 50% ceiling for the EWS category.

• Amendment Scope: It is important to note that Article 15(4) and Article 15(5) already provided for reservations based on social and educational backwardness; the new Article 15(6) specifically targets economic weakness.

• Implementation: Various State Governments in India have since implemented the EWS quota in their respective state-level civil

YourMockTest.com — Free Study Material

services and educational admissions, following the Central Government's guidelines.

Q98. Answer: (c) #

Given: (Left) J M L * J % G $ F # @ W D @ # ? + B H N % (Right)

Now, remove all the letters from the series:

=> * % $ # @ @ # ? + %

Now, count from the right to find the 7th element: * % $ # @ @ # ? + %

Hence, the correct answer is Option 3.

Q99. Answer: (d) 8

Shortcut Trick

cbrt2197 = 13, ^4√10000 = 10

=> (13/10) × (5/39) × 48

=> 13/39 = 1/3

=> (1/10) × (5/3) × 48

=> 5/10 = 1/2

=> (1/2) × (1/3) × 48 = 8

Therefore Answer = 8

Alternate Method

Given:

(cbrt2197 / ^4√10000) × (5/39) × 48

Formula Used:

cbrta = a^(1/3), ^4√a = a^(1/4)

Basic simplification and cancellation

Calculation:

=> cbrt2197 = 13

=> ^4√10000 = 10

=> Expression = (13/10) × (5/39) × 48

=> (13×5×48) / (10×39)

=> Cancel 13 with 39 => 1/3

=> (5×48) / (10×3)

=> Cancel 5 with 10 => 1/2

=> 48 / 6 = 8

Therefore Final Answer = 8

Additional Information

Cube Root: cbrta = a^(1/3)

Fourth Root: ^4√a = a^(1/4)

Cancellation: Reduce common factors early

Tip: Always simplify roots first

Exam Trick: Convert into fractions for easy solving

Q100. Answer: (d) Francisco de Almeida

The correct answer is Francisco de Almeida.

Key Points

• Francisco de Almeida was appointed as the first Viceroy of the Portuguese possessions in India in 1505. He was tasked with establishing Portuguese dominance in the Indian Ocean to control the lucrative spice trade.

• He implemented the Blue Water Policy (also known as the Cartaze system), which aimed to make the Portuguese the masters of the Indian Ocean through naval supremacy rather than by building a land-based empire. Hence, the statement regarding Francisco de Almeida is correct.

• Under this policy, Almeida focused on strengthening the Portuguese Navy and securing key maritime routes. He believed that as long as the Portuguese were powerful at sea, they would control the trade between Europe and the East.

• In 1509, Almeida achieved a decisive victory in the Battle of Diu against a combined fleet of the Mamluk Sultanate of Egypt, the Zamorin of Calicut, and the Sultan of Gujarat, which cemented Portuguese naval control for decades.

• Joao de Castro was a later Portuguese Governor and Viceroy (serving from 1545 to 1548) who is known for his military exploits

YourMockTest.com — Free Study Material

in Diu and his scientific interests in navigation, but he did not initiate the Blue Water Policy. Hence, the statement regarding Joao de Castro is incorrect.

• Henry the Navigator was a Portuguese Prince of the 15th century who provided the primary impetus for the Age of Discovery. While he sponsored the voyages that eventually led to the discovery of the sea route to India, he never traveled to India himself. Hence, the statement regarding Henry the Navigator is incorrect.

• Afonso de Albuquerque succeeded Almeida as the second Governor in 1509. Unlike Almeida, he favored a policy of "territorial imperialism" and captured Goa in 1510. Hence, the statement regarding Albuquerque is incorrect.

Additional Information

• Afonso de Albuquerque:

• He is considered the Real Founder of the Portuguese power in India.

• He captured Goa from the Sultan of Bijapur in 1510, making it the headquarters of Portuguese settlements.

• He encouraged Portuguese men to marry Indian women to create a local population loyal to Portugal and abolished the practice of Sati in the territories under his control.

• He secured strategic points like Malacca in 1511 and Hormuz in 1515 to control the entry points to the Indian Ocean.

• Nino da Cunha:

• He assumed the office of Governor in November 1529.

• In 1530, he shifted the Portuguese capital in India from Cochin to Goa.

• During his tenure, the Portuguese acquired Bassein and Diu from Bahadur Shah of Gujarat in 1534-1535.

• Vasco da Gama:

• The first European to reach India by sea, arriving at Calicut on May 20, 1498.

• He was received by the local ruler known as the Zamorin. This event marked the beginning of direct trade between Europe and Asia via the Cape of Good Hope.

Important Points

• Portuguese Influence in India: The Portuguese remained in India for over 450 years, being the first Europeans to arrive and the last to leave (in 1961, after Operation Vijay).

• Cartaze System: This was a naval trade license issued by the Portuguese. Any ship trading in the Indian Ocean was required to buy a Cartaze; failure to do so resulted in the seizure of the ship and cargo.

• Introduction of Crops: The Portuguese are credited with introducing several crops to India, including tobacco, cashew, pineapple, and chilled red peppers, as well as bringing the printing press to Goa in 1556.

More previous year papers and mock tests: **www.yourmocktest.com/pyq**

YourMockTest.com — Free Study Material