RRB NTPC UG Memory Based Mock (14 Aug Exam)

Q1. The angle between the direction of electric and magnetic fields of an electromagnetic wave is:
(a) 90°
(b) 45°
(c) 0°
(d) 180°

Q2. Dupleix, the former Governor-General in India during the 18th century, belonged to which country?
(a) Britain
(b) France
(c) Portugal
(d) Netherlands

Q3. Which Act introduced the system of diarchy in the provinces of British India?
(a) Government of India Act 1858
(b) Indian Councils Act 1909
(c) Government of India Act 1919
(d) Government of India Act 1935

Q4. Which Sri Lankan bank became the first foreign entity to list a green bond on India's NSE International Exchange (NSE IX) at GIFT City?
(a) Bank of Ceylon
(b) DFCC Bank
(c) Commercial Bank of Ceylon
(d) Hatton National Bank

Q5. South Africa's victory in the 2025 ICC World Test Championship Final marked a significant achievement after being considered "chokers" in major tournaments. What was the key factor leading to their success in this tournament?
(a) Their performance in the World Cup
(b) Their record of 8 consecutive Test wins leading into the final
(c) Their dominance in T20 internationals
(d) The return of key players from injury

Q6. Where was the Infosys Centre established in 1994?
(a) Hyderabad
(b) Pune
(c) Bangalore
(d) Mysuru

Q7. The magnification produced by a spherical mirror is -0.5. The image formed by the mirror is:
(a) virtual, erect and enlarged
(b) real, inverted and diminished
(c) real, inverted and enlarged
(d) virtual, erect and diminished

Q8. Which of the following is a special feature of the Agni Prime (Agni-P) missile?
(a) Two-stage solid-fuel ballistic missile
(b) Equipped with modern navigation and guidance system
(c) Range of about 1,000–2,000 km
(d) All of the above

Q9. The place of India which does not have tropical evergreen forest is
(a) Eastern part of Western Ghats
(b) Western part of Western Ghats
(c) Andhaman and Nicobar islands
(d) Eastern part of subtropical Himalayas

Q10. In which of the following industries is mica used as a raw material-
(a) Iron and steel
(b) Toys
(c) Glass and pottery
(d) Electrical

Q11. Consider the following statements regarding matter.
1. Matter is made up of small particles.
2. The forces of attraction between the particles in matter are maximum in gases.
3. Evaporation does not cause cooling.
4. The matter around us exists in three states: solid, liquid and gas.
Which of the statements given above is/are correct?
(a) 1 only
(b) 2 3 and 4
(c) 3 2 and 4
(d) 1 and 4

Q12. During the British era, India was an exporter of:
(a) capital goods
(b) industrial products
(c) manufacturing products
(d) primary products

Q13. Where did DRDO conduct the flight test of the Stratospheric Airship Platform (SAP)?
(a) Pokhran, Rajasthan
(b) Sheopur, Madhya Pradesh
(c) Balasore, Odisha
(d) Sriharikota, Andhra Pradesh

Q14. Which war exercise was conducted by the Indian Air Force (IAF) in April 2025?
(a) Vayu Shakti
(b) Garuda Shakti
(c) Aakraman
(d) Indra Dhanush

Q15. Deficiency of which of the following vitamins causes pellagra?
(a) B1
(b) B3
(c) D
(d) A

Q16. Which country will host the BRICS Summit 2025?
(a) Russia
(b) India
(c) Brazil
(d) China

Q17. The Women's Reservation Act 2023 (106th Constitution Amendment) provides 33% reservation to women in:
(a) Lok Sabha only
(b) Lok Sabha and Rajya Sabha
(c) Lok Sabha, Rajya Sabha and State Legislative Assemblies
(d) Lok Sabha and State Legislative Assemblies

Q18. Statement I: The Mesolithic Age is characterized by the use of microliths.
Statement II: Microliths were large stone tools used for hunting large animals.
(a) Both statements are true, and Statement II is the correct explanation of Statement I.
(b) Both statements are true, but Statement II is not the correct explanation of Statement I.
(c) Statement I is true, but Statement II is false.
(d) Both statements are false.

Q19. In February 2024, Genome India Project was completed. Which of the following statements is NOT true about Genome India Project?
(a) It was initiated in 2020.
(b) The aim was to build a reference genome and study genetic diversity among Indians.
(c) 1 million genome samples were to be collected across the country from citizens of India.
(d) The project was funded and coordinated by the Department of Biotechnology, Govt. of India.

Q20. Which one of the following statements is true with regard to the image formation by two eyes of a person?
(a) Both the eyes see exactly the same image.
(b) One eye sees half portion of the object.
(c) Both the eyes combine the two images seen by them.
(d) Each eye sees a slightly different image.

Q21. Who wrote the book Mother Mary Comes to Me?
(a) Jhumpa Lahiri
(b) Arundhati Roy
(c) Kiran Desai
(d) Anita Desai

Q22. Which team won the 2025 ICC World Test Championship Final at Lord's?
(a) South Africa
(b) Australia
(c) India
(d) England

Q23. Which of the following does NOT significantly influence deep water ocean currents?
(a) Temperature variation
(b) Salinity difference
(c) Wind circulation
(d) Water density

Q24. The main object of Article 13 of the Indian Constitution is to secure the Paramountcy of the Constitution regarding:
(a) Directive Principles of State Policy
(b) Fundamental Rights
(c) Fundamental Duties
(d) All of the above

Q25. Which high-jump para-athlete was honored with the Major Dhyan Chand Khel Ratna Award in 2025?
(a) Tejaswin Shankar
(b) Mariyappan Thangavelu
(c) Praveen Kumar
(d) Sharad Kumar

Q26. Which among the following is the lightest gas?
(a) Neon
(b) Carbon dioxide
(c) Oxygen
(d) Hydrogen

Q27. Conversion of chemical energy into electrical energy occurs in
(a) Dynamo
(b) Electric heater
(c) Battery
(d) Atomic bomb

Q28. Which country hosted the 78th Cannes Film Festival in May 2025?
(a) Spain
(b) France
(c) The Netherlands
(d) Germany

Q29. Which keyboard shortcut can be used to create new folder on desktop or File Explorer?
(a) Alt + F4
(b) Ctrl + D
(c) Shift + Delete
(d) Ctrl + Shift + N

Q30. Major Malla Ram Gopal Naidu, who was recently honoured with the Kirti Chakra, belongs to which Indian state?
(a) Karnataka
(b) Andhra Pradesh
(c) Telangana
(d) Tamil Nadu

Q31. According to Article 19 of the Indian Constitution, the RTI is derived from which fundamental right?
(a) Right to Equality
(b) Right to Property
(c) Freedom of Religion
(d) Freedom of Speech and Expression

Q32. The Fifth Schedule of the Indian Constitution deals with _____.
(a) Powers of panchayats
(b) Disqualification on ground of defection
(c) Administration and control of scheduled areas and scheduled tribes
(d) Provisions regarding languages

Q33. In 1991, which of the following contributed to India's industrial development?
(a) WTO
(b) NABARD
(c) RBI
(d) IMF and World Bank

Q34. Which of the following is an advanced stone tool technology?
(a) Microliths
(b) Hand axe
(c) Chopper
(d) Hammer stone

Q35. Which of the following was the founder of the Pala Dynasty?
(a) Gopala
(b) Dharmapala
(c) Devapala
(d) Mahipala

Q36. What was the primary objective of the 2025 Inland Fisheries Meet held in Indore?
(a) To discuss the expansion of fish markets in India
(b) To review the progress and discuss next steps under PMMSY
(c) To focus on the development of marine fisheries only
(d) To focus on improving fish feed production

Q37. Which state launched the Pandit Deendayal Upadhyay Poverty-Free Village Scheme to help poor rural families?
(a) Maharashtra
(b) Uttar Pradesh
(c) Rajasthan
(d) Madhya Pradesh

Q38. The headquarters of the Greater Chennai Corporation is located at:
(a) Egmore
(b) Ripon Building
(c) George Town
(d) T. Nagar

Q39. Consider the following statements:
Statement-I- The activities of the M23 rebel group in the Democratic Republic of Congo are a result of poverty and lack of government services.
Statement-II- The M23 recruits heavily from the marginalized ethnic group in the region.
Which one of the following is correct in respect to the above statements?
(a) Both Statement -I and Statement - II are correct, and Statement -II is the correct explanation of Statement -I
(b) Both Statement -I and Statement – II are correct, and Statement -II is not the correct explanation of Statement -I
(c) Statement -I is correct, but Statement -II is incorrect
(d) Statement – I is incorrect, but Statement -II is correct

Q40. Under which Article Article 19 is suspended during national emergency?
(a) 356
(b) 358
(c) 360
(d) 361

Q41. A man covers a distance of N km in 5 hours at a speed of 18 km/hr. If he wants to cover the same distance in 3 hours, find the speed of the man.
(a) 36 km/hr
(b) 30 km/hr
(c) 54 km/hr
(d) 24 km/hr

Q42. If 8 men working 5 hours a day complete a work in 12 days, then in how many days will 15 men working 4 hours a day complete the work? Assume that all men work with the same efficiency.
(a) 12 days
(b) 15 days
(c) 42 days
(d) 8 days

Q43. Due to 10% reduction in the price of sugar a person can buy 5 kg more sugar for ₹ 300. Find the reduction in the price of sugar per kg.
(a) Rs. 6.00
(b) Rs. 5.75
(c) Rs. 6.50
(d) Rs. 5.25

Q44. If the simple interest earned at 10 percent per annum is Rs 1000 at the end of 5 years, then what should be the principal amount?
(a) Rs 2000
(b) Rs 2500
(c) Rs 1000
(d) Rs 1500

Q45. Circumference of a circle is equal to the perimeter of a square. What is the ratio of area of circle to the area of square?
(a) 14:11
(b) 18:11
(c) 2:22
(d) 31:22

Q46. A and B can together complete a task in 16 days. They started a task together, and after 4 days A leave, B takes 24 days to finish the rest of the task. How many days would B have taken to do the task if he worked alone?
(a) 30 days
(b) 24 days
(c) 32days
(d) 34 days

Q47. What should come in place of the question mark (?) in the following question?
2712+1534−1225+1845=?2721+1543−1252+1854=?
(a) 491320492013
(b) 481320482013
(c) 493320492033
(d) 49

Q48. 3% of what number is the sum of 4% of 12 and 6% of 80?
(a) 413
(b) 445
(c) 176
(d) 216

Q49. Ifab=711ba=117 andbc=1217cb=1712, thena+bb+cb+ca+b is:
(a) 391216216391
(b) 216391391216
(c) 216319319216
(d) 216931931216

Q50. A cylindrical vessel with a base of radius 15 m and height of 21 m is filled with water to a certain height. 10 spherical balls of radius 1.5 m are dropped into this vessel. By how much will the level of water rise in the vessel?
(a) 50 cm
(b) 40 cm
(c) 20 cm
(d) 60 cm

Q51. Reena reaches a party 20 minutes late if she walks at the speed of 3 km/h from her house. If she increases her speed to 4 km/h, she will reach 30 minutes early. What is the distance between her house and the venue?
(a) 20 km
(b) 40 km
(c) 30 km
(d) 10 km

Q52. C is 60 percent less than D. If the value of C is 320, then what is the value of D?
(a) 80
(b) 88
(c) 880
(d) 800

Q53. If 70 per cent of the total bags were sold at a profit of 30 per cent and the remaining bags were sold at a loss of 20 per cent, then what would be the overall profit percentage?
(a) 12 percent
(b) 18 percent
(c) 20 percent
(d) 15 percent

Q54. Rohit buys a ball for Rs 1300. Rohit gives the customer two successive discounts of 25 % and 20 % on this ball. What will be the selling price of the ball?
(a) Rs 760
(b) Rs 780
(c) Rs 750
(d) Rs 740

Q55. A school has three classes. Each has 12, 70 and 42 students respectively. The school wants to divide each class into groups so that there are equal number of students in each class group and no student is left out. What is the maximum number of students that can be placed in each group?
(a) 12
(b) 2
(c) 6
(d) 8

Q56. Rs 190000 is divided among X, Y and Z in such a way that 40 percent of X 's share = 10 percent of Y 's share = 30 percent of Z 's share . What is Z 's share?
(a) Rs 40,000
(b) Rs 120000
(c) Rs 80000
(d) Rs 30000

Q57. The area of the base of a cuboidal tank is 8400 square centimetres and the volume of petrol contained in it is 10.2 cubic metres. Find the depth of petrol in the tank (correct up to one decimal place).
(a) 1214.3 cm
(b) 900.2 cm
(c) 1343.2 cm
(d) 1300.4 cm

Q58. The median of the observations 87, 56, 27, 31, 13, 39, 18, 80, 98, 92 and 25 is:
(a) 25
(b) 56
(c) 39
(d) 31

Q59. If a + b = 41, and a − b = 38, find the value of $(a + b)^2$.
(a) 1763
(b) 1733
(c) 1759
(d) 1681

Q60. Mahesh withdrew ₹3,100 from a bank. He received a total of 34 notes of ₹50 and ₹100 denominations. The number of ₹50 notes received by him was:
(a) 6
(b) 16
(c) 13
(d) 4

Q61. If ΔABC ≅ ΔPQR, such that ∠ABC = 77°, ∠BCA = (x − y)°, AC = 48 cm, ∠PQR = (3x − 4)°, PR = x + 3y, then find the value of ∠QRP.
(a) 28°
(b) 32°
(c) 23°
(d) 20°

Q62. The larger of two supplementary angles is 60° more than the smaller one. The smaller angle (in degree) is:
(a) 67°
(b) 65°
(c) 60°
(d) 64°

Q63. The angle of elevation of a ladder leaning against a wall is 60° and the foot of the ladder is 4.5 m away from the wall.
The length of the ladder is:
(a) 8 m
(b) 3232 m
(c) 4242 m
(d) 9 m

Q64. If $\sin^4\theta - \cos^4\theta = \frac{1}{2}$ $\sin^4\theta - \cos^4\theta = \frac{1}{21}$, find the value of $2\sin^2\theta - 12\sin 2\theta - 1$.
(a) 1
(b) 1221
(c) 3223
(d) 1221

Q65. A and B entered into a partnership with their capitals in the ratio 56:3865:83 . After 4 months, A reduced his capital by one-fourth and B increased his capital by 100%. What is the share (in Rs. lakhs) of B in the annual profit of Rs.22.8 lakhs?
(a) 12
(b) 10.8
(c) 11.5
(d) 10

Q66. If a 9-digit number 486743x2y is divisible by 55, then a possible value of (5x − y) is:
(a) 0
(b) 2
(c) 3
(d) 1

Q67. At what simple interest rate per annum will a sum of money become four times of itself in 20 years?
(a) 5%
(b) 20%
(c) 10%
(d) 15%

Q68. Find the average of all prime numbers between 42 and 75.
(a) 59.25
(b) 60.25
(c) 55.75
(d) 57.65

Q69. A fruit seller had some apples. He sells 40% apples and still has 420 apples originally he had apples :
(a) 588
(b) 600
(c) 672
(d) 700

Q70. The average age of 14 students of a class is 17 years. If a new student of age 32 years joins the class, then what will be the average age of these 15 students?
(a) 21 years
(b) 22 years
(c) 19 years
(d) 18 years

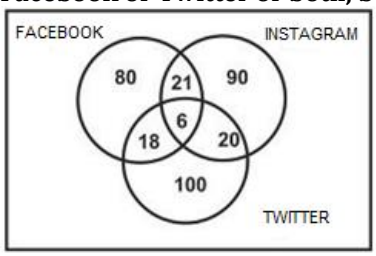
Q71. Which term will come in the place of the question mark?
4, 112, 8, 56, 12, ?, 16, 14, 20, 7
(a) 24
(b) 28
(c) 72
(d) 36

Q72. Varun, Anwar, Prachi, Fatima and Disha are sitting on a bench. Varun is sitting to the left of Anwar, who is not sitting at extreme corners. Fatima is sitting in between Disha and Varun. Prachi is sitting at extreme right. Who is to the right of Anwar?
(a) Prachi
(b) Varun
(c) Fatima
(d) Disha

Q73. Out of the given options, three are similar in a certain manner. However, one option is NOT like the other three. Select the option which is different from the rest.
(a) Galaxy
(b) Constellation
(c) Star
(d) Solar system

Q74. To make the given equation mathematically correct, which two symbols should be interchanged?"
7 - 3 + 6 × 4 ÷ 2 = 25
(a) ÷ and -
(b) × and -
(c) × and +
(d) × and ÷

Q75. The given Venn diagram shows the number of students who use different social media like Facebook, Instagram and Twitter. How many students use either Facebook or Twitter or both, but not Instagram?



(a) 240
(b) 198
(c) 300
(d) 250

Q76. In the given letter-cluster pairs, the first letter-cluster is related to the second letter-cluster following a certain logic. Study the given pairs carefully, and from the given options, select the pair that follows the same logic.
ENT : FQV
FET : GHV
(a) SHE : TKH
(b) TEN : UHP
(c) GMT : HOV
(d) QRY : SUB

Q77. J, K, L, M, N and O 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 is numbered 6. M lives on floor number 2. K and M are immediate neighbours. O lives on the floor immediately above K. N lives on the topmost floor. J lives on an odd numbered floor, exactly above O. On which floor does L live?
(a) 3
(b) 1
(c) 5
(d) 4

Q78. Seven boxes V, U, T, S, R, Q and P are kept one above the other, but not necessarily in the same order. S is at the lowermost position. Only V is kept above R. Only three boxes are kept between U and S. Q is kept immediately above T, which is kept above P. How many boxes are kept between V and P?
(a) 4
(b) 5
(c) 3
(d) 2

Q79. The English alphabet is reordered in the following manner:
The first 5 letters are written in reverse order, the next 5 letters are written in reverse order, and so on. At the end, the letters 'X' and 'Z' are interchanged. Which one of the following is the third letter to the left of the 15th letter?
(a) P
(b) N
(c) Q
(d) S

Q80. Select the pair that has the same relationship as the given pair.
Triangle : Rectangle :: ?
(a) Pentagon : Hexagon
(b) Angle : Quadrilateral
(c) Rhombus : Octagon
(d) Cone : Sphere

Q81. Find the missing term in the given series.
15, 30, ?, 40, 8, 48
(a) 20
(b) 30
(c) 15
(d) 10

Q82. A, B, C, O, E, F, and G are sitting around a circular table facing the center. C is next to the left of F and G is second to the left of C. A is sitting third to the left of E. B is between O and E. What is the position of O?
(a) O is between B and G.
(b) O is to the immediate left of B.
(c) O is between A and C.
(d) O is to the immediate right of G.

Q83. If '+' means '–', '–' means '×', '×' means '÷', and '÷' means '+', then what is the value of the following expression?
18 – 18 ÷ 3 – 72 × 12 + 4 – 6
(a) 345
(b) 329
(c) 318
(d) 333

Q84. Step III of an input is: 81 boat 73 wheel spike dancer 32 59.
How many more steps are required to complete the rearrangement?
Read the following information carefully to answer the given questions:
A word and number arrangement machine when given an input line of words and numbers, rearranges them following a particular rule in each step. The following is an illustration of input and rearrangement.
Input: goal 63 57 home five task 82 17
Step I: 82 goal 63 57 home five task 17
Step II: 82 five goal 63 57 home task 17
Step III: 82 five 63 goal 57 home task 17
Step IV: 82 five 63 goal 57 home 17 task
And Step IV is the last output.
As per the rules followed in the above steps, find out in each of the following questions the appropriate step for the given input.
(a) Three
(b) Four
(c) Five
(d) None of these

Q85. David ranked 19th from the top and 25th from the bottom in his class. How many students are there in his class?
(a) 42
(b) 43
(c) 44
(d) 45

Q86. If 2 is added to each even digit and 1 is subtracted from each odd digit in the number 74135296, how many digits will appear more than once in the new number thus formed?
(a) One
(b) Two
(c) Three
(d) Four

Q87. Mr. KLM starts from Point A and drives 21 km towards the south. He then takes a left turn, drives 7 km, turns left and drives 26 km. He then takes a left turn and drives 11 km. He takes a final left turn, drives 5 km and stops at Point P. How far (shortest distance) and in which direction should he drive in order to reach Point A again? (All turns are 90- degree turns only unless specified)
(a) 4 km to the east
(b) 3 km to the west
(c) 7 km to the east
(d) 5 km to the west

Q88. Mr. I starts from Point M and drives 1 km towards the south. He then takes a right turn, drives 3 km, turns left and drives 3 km. He then takes a left turn and drives 4 km. He takes a final left turn, drives 4 km and stops at Point N. How far (shortest distance) and towards which direction should he drive in order to reach Point M again? (All turns are 90-degree turns only unless specified.)
(a) 1 km towards the west
(b) 2 km towards the south
(c) 4 km towards the east
(d) 4 km towards the north

Q89. In a certain code language, 'GROW' is coded as '2571' and 'WORK' is coded as '5742'. What is the code for 'K' in the given code language?
(a) 5
(b) 4
(c) 7
(d) 2

Q90. In a certain code language, 'BEST' is coded as '4568' and 'STAB' is coded as '8965'. What is the code for 'A' in the given code language?
(a) 6
(b) 5
(c) 9
(d) 8

Q91. In a certain code language, 'NOTED' is written as 'ZAPKJ'. What is the code for 'MOTOR' in that code language?
(a) NKQKI
(b) NKPKJ
(c) NKPKI
(d) NLPLI

Q92. In a certain code language,
'A + B' means 'A is the sister of B'
'A – B' means 'A is the brother of B'
'A × B' means 'A is the wife of B'
'A ÷ B' means 'A is the father of B'.
Based on the above, how is M related to Q if 'M ÷ N + O – P × Q'?
(a) Brother
(b) Wife's Brother
(c) Father
(d) Wife's Father

Q93. In a certain code language LAME is written as 3145. In that code language PEON will be written as?
(a) 6567
(b) 5678
(c) 7567
(d) 7565

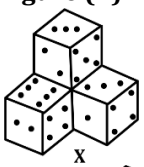
Q94. Pointing to a woman in the photograph, Shuchi told Aastha, "Her father is the only son of your mother." How is Aastha related to the woman in the photograph?
(a) Daughter
(b) Niece
(c) Aunt
(d) Sister

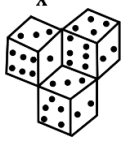
Q95. Two statements are given, followed by two conclusions numbered I and II. Assuming the statements to be true, even if they seem to be at variance with commonly known facts, decide which of the conclusions logically follow(s) from the statements:
Statements:
All paintings are artworks.
Some artworks are not sculptures.
Conclusions:
I. Some sculptures are not paintings.
II. All sculptures are artworks.
(a) Only conclusion I follows
(b) Only conclusion II follows
(c) Both conclusions I and II follow
(d) Neither conclusion I nor II follows

Q96. Two statements are given, followed by two conclusions numbered I and II. Assuming the statements to be true, even if they seem to be at variance with commonly known facts, decide which of the conclusions logically follow(s) from the statements.
Statements:
1. Some writers are poets.
2. All poets are dreamers.
Conclusions:
I. Some dreamers are writers.
II. All dreamers are poets.
(a) Only conclusion I follows.
(b) Both conclusions I and II follows.
(c) Only conclusion II follows.
(d) Neither conclusion I nor II follows.

Q97. Two statements are given followed by two conclusions numbered I and II. Assuming all the information in the statements is true, analyze the two conclusions together and determine whether any of them logically and definitely follow(s) from the statements.
Statements:
Some bottles are bags.
All the boxes are bags.
Conclusions:
I. Some bottles are boxes.
II. Some boxes are bags.
(a) Only conclusion II follows
(b) Neither conclusion I nor II follows
(c) Only conclusion I follows
(d) Both conclusions I and II follow

Q98. Find the water image of the following question figure (X)?



(a) 

(b) 

(c) 

(d) 

Q99. How many times do the hands of a clock coincide in a day?
(a) 24
(b) 22
(c) 21
(d) 20

Q100. In a code language, 'RAM' is written as 'Q14' and 'CAR' is written as 'B19'. How will 'MARK' be written in that language?
(a) L26
(b) M29
(c) M30
(d) L30

Solutions

S1. Ans.(a)
Sol. The correct answer is: (a) 90°
Explanation:
•→In an electromagnetic wave, the **electric field (E)** and **magnetic field (B)** are **perpendicular to each other**, and both are also **perpendicular to the direction of wave propagation**.
•→Hence, the angle between the electric and magnetic fields is **90 degrees**.
Information Booster:
•→EM waves are **transverse in nature**.
•→They do **not require a medium** for propagation.
•→The speed of EM waves in vacuum is $\mathbf{3 \times 10^8}$ **m/s**.
•→EM spectrum includes **radio waves, microwaves, infrared, visible light, ultraviolet, X-rays, and gamma rays**.
•→**James Clerk Maxwell** formulated the theory of electromagnetism.
•→EM waves carry both **energy and momentum**.

S2. Ans.(b)
Sol. Correct Answer: (b) France
Explanation:
Joseph François Dupleix was a French colonial administrator and Governor-General of French India (1742–1754). He expanded French influence in southern India and played a key role in the Carnatic Wars against the British East India Company. **Information Booster:**
•→Born: 1697, France
•→Known for: Expanding French territories in India
•→Key Rival: Robert Clive (British)
•→Outcome: Eventually recalled to France after French defeats in the Carnatic Wars

S3. Ans.(c)
Sol. The Government of India Act 1919, also known as the Montagu-Chelmsford Reforms, introduced the system of diarchy in the provinces of British India. Under this system, the provincial government was divided into two parts: reserved subjects (such as police and revenue) that remained under the control of the British Governor and his executive council, and transferred subjects (such as education, health, and local self-government) that were administered by Indian ministers responsible to the provincial legislature. Although it provided limited self-government, the system of diarchy was criticized for being ineffective and complicated.

S4. Ans.(b)
Sol. The Correct Answer (b) DFCC Bank

- **DFCC Bank** of Sri Lanka made history by becoming the **first foreign corporate** to list a green bond on **India's NSE International Exchange (NSE IX)** at **GIFT City** in Gujarat.
- The bank's **LKR 2.5 billion green bond** was issued for financing **solar PV projects** and aligns with **Sustainable Development Goals (SDGs)**, specifically **SDG 7 (Affordable and Clean Energy)** and **SDG 13 (Climate Action)**.
- This move is a significant step in enhancing regional financial cooperation and supporting sustainable finance across borders.

Information Booster:

- The bond was **dual-listed**, first issued in **Sri Lanka**, then listed on the **Luxembourg Stock Exchange**, and now on NSE IX in India.
- This strategic listing strengthens the capital market ties between **India** and **Sri Lanka**, aligning with **India's goal** to make **GIFT City** a global financial hub.
- **DFCC Bank**'s green bond supports **Sri Lanka's goal** of sourcing **70% of its electricity from renewable sources** by **2030**.

Additional Information:

- The **listing ceremony** took place on **June 9, 2025**, and was attended by significant stakeholders, including **K. Rajaraman** (Chairperson of **IFSCA**) and **V. Balasubramaniam** (MD & CEO of NSE IX).
- The green bond complies with the **Green Bond Principles** of **ICMA** and is an example of **cross-border green finance**.

S5. Ans.(b)
Sol. The correct answer is option (b) Their record of 8 consecutive Test wins leading into the final
Explanation
South Africa's victory in the 2025 ICC World Test Championship Final was a result of their consistent performance leading into the final. They won 8 consecutive Test matches, which showcased their strength and form. This performance was a crucial factor in their eventual triumph, ending their long wait for an ICC title. The team had previously been criticized for their failure to perform under pressure in major tournaments, but their recent dominance in Test cricket led them to break this jinx.
Information Booster
•→South Africa had a remarkable run of 8 consecutive Test wins before the 2025 final.
•→This strong performance contributed to their confidence and success in the final against Australia.
•→The team had faced criticism for being "chokers" in ICC tournaments, but their consistent performance in the lead-up to the final proved they were capable of overcoming pressure.
•→Their first-ever ICC title came after 27 years, marking a historic achievement for South African cricket.
•→South Africa's win in the 2025 final broke the cycle of near-misses in major tournaments.
Additional Knowledge
•→**"Chokers" Label**: South Africa had often been criticized for their inability to win major ICC tournaments, despite their strong teams. Their failure to win key matches in past tournaments led to this label.
•→**8 Consecutive Wins**: This impressive streak of 8 Test victories leading into the final showcased their growing strength and ability to perform consistently, which ultimately helped them clinch the World Test Championship title.
•→**ICC Tournaments**: South Africa had reached the semifinals of several ICC tournaments but had failed to secure a final victory since 1998. Their 2025 triumph broke that pattern.

S6. Ans.(c)
Sol. The correct answer is (c) Bangalore
Explanation:
In 1994, Infosys relocated its corporate headquarters to Electronic City, Bangalore, a major tech hub in India.
•→This move marked a significant expansion of Infosys' infrastructure and visibility in the Indian IT industry.
•→Bangalore, known as the Silicon Valley of India, provided strategic advantages in terms of talent and connectivity.
•→Infosys' growth accelerated significantly after the shift to Bangalore.
•→The same year, Infosys also established a development center in Fremont, USA, strengthening its global footprint.
Information Booster:
•→Electronic City, Bangalore, hosts several IT giants and is one of the largest electronic industrial parks in India.
•→Infosys' Bangalore campus is known for its architectural innovation and corporate training initiatives.

S7. Ans.(b)
Sol. The correct answer is (B) real, inverted and diminished.
Detailed Solution:
1. **Understanding Magnification:** The magnification (mmm) of a mirror is defined as the ratio of the height of the image (hih_ihi) to the height of the object (h_o):

$m=\frac{h_i}{h_o}=\frac{h_i}{h_o}$

It is also related to the distances:

$m=-\frac{v}{u}=-\frac{v}{u}$

where:
   - v = Image distance (distance of the image from the mirror),
   - u = Object distance (distance of the object from the mirror).
2. **Given Data:**
   - $m=-0.5m$.
3. **Characteristics of Magnification:**
   - The **negative sign** of magnification indicates:
     - The image is **inverted**.
     - The image is **real** because only real images are inverted.
   - The absolute value of mmm ($|m|=0.5$) indicates:
     - The image is **diminished** because the magnification is less than 1 ($|m|<1$).
4. **Type of Mirror:**
   - A **concave mirror** can form a real, inverted, and diminished image when the object is placed beyond the center of curvature (C).

5. **Final Characteristics of the Image:**
    - **Nature**: Real
    - **Orientation**: Inverted
    - **Size**: Diminished

S8. Ans.(d)
Sol. Correct Answer: (d) All of the above
Explanation:
•→**Agni Prime (Agni-P)** is a **new-generation nuclear-capable ballistic missile** developed by DRDO.
•→**Two-stage solid-fuel design** for better efficiency and reliability.
•→**Equipped with advanced navigation and guidance systems**, including ring laser gyroscope (RLG-INS) and satellite navigation.
•→**Range:** Approximately **1,000–2,000 km**, suitable for medium-range strategic operations.
•→**Lightweight** compared to Agni-I and Agni-II, improving mobility and deployment speed.
•→**Launch platforms:** Can be launched from **road-mobile and rail-mobile launchers** (not submarine-launched).
•→Capable of carrying **nuclear and conventional warheads**.
•→Designed for **high accuracy** and faster readiness for deployment.
Information Booster:
•→**Type:** Medium Range Ballistic Missile (MRBM)
•→**Successor to:** Agni-I and Agni-II
•→**Purpose:** Strengthens India's strategic deterrence capabilities.
•→**Significance:** Enhances quick reaction capability and operational flexibility for the Indian Armed Forces.

S9. Ans.(a)
Sol. Correct Answer: (A) Eastern part of Western Ghats
Explanation:
- **Tropical evergreen forests** require **very high annual rainfall** (generally above 200 cm), high humidity, and no marked dry season.
- In the **Western Ghats**:
    - **Western slopes** face the Arabian Sea and receive heavy rainfall from the South-West Monsoon, supporting lush tropical evergreen forests.
    - **Eastern slopes** lie in the **rain-shadow area** and receive comparatively **less rainfall** (100–200 cm or less), which supports **moist deciduous forests** instead of evergreen forests.

Information Booster:
- **Regions with Tropical Evergreen Forests** in India:
    1. Western slopes of the Western Ghats (Kerala, Karnataka, Goa, Maharashtra)
    2. Andaman & Nicobar Islands
    3. North-Eastern states (Assam, Meghalaya, Arunachal Pradesh, Nagaland, Manipur, Mizoram, Tripura)
    4. Foothills of the Eastern Himalayas
- **Not found** in: Eastern slopes of the Western Ghats, rain-shadow regions, Thar desert, Ladakh, and other arid/semi-arid areas.

S10. Ans.(d)
Sol. Mica is used as a raw material in the electrical industry because it is a good insulator. It is also used in the manufacture of capacitors, resistors, and other electronic components. Mica is also used in the manufacture of paints, plastics, and cosmetics.
In the electrical industry, mica is used to make insulation for wires and cables. It is also used to make capacitors, which are devices that store electrical energy. Mica is also used to make resistors, which are devices that control the flow of electricity.
Mica - Mica is a mineral that is made up of a series of plates or leaves. It splits easily into thin sheets. These sheets can be so thin that a thousand can be layered into a mica sheet a few centimeters high. Mica can be clear, black, green, red-yellow, or brown.

S11. Ans.(d)
Sol. The correct answer is: (d) 1 and 4
Explanation:
•→**Statement 1 is correct** – Matter is indeed made up of **small particles**, which include atoms, molecules, and ions.
•→**Statement 2 is incorrect** – The **forces of attraction** between particles are **maximum in solids**, not gases. In gases, the particles are far apart and the forces of attraction are weakest.

•→**Statement 3 is incorrect – Evaporation does cause cooling**, as when particles at the surface of a liquid gain enough energy to escape, the average energy (temperature) of the remaining liquid decreases.
•→**Statement 4 is correct** – The matter around us exists in **three primary states**: **solid, liquid, and gas**.
Information Booster:
•→**Matter** can also exist in other states, such as **plasma** (which is a high-energy state), but the three states— **solid, liquid, and gas**—are the most common.
•→**Evaporation** causes cooling because when the higher energy molecules leave the surface, the remaining molecules have lower average kinetic energy, which results in a **lower temperature**.
Additional Knowledge:
•→**Solid**: Particles are tightly packed, resulting in a **fixed shape and volume**.
•→**Liquid**: Particles are close together but can move around, so liquids have a **fixed volume but no fixed shape**.
•→**Gas**: Particles are far apart and move freely, so gases have **no fixed shape or volume**.

S12. Ans.(d)
Sol. The Correct Answer is Primary Products
Explanation:
•→During British rule, India was turned into a **supplier of raw materials** and an importer of finished goods.
•→**Primary products** such as **cotton, jute, indigo, spices, tea, and opium** were exported to Britain, while **manufactured goods were imported**.
•→This led to the **deindustrialization** of India as British policies favored their own industries over India's traditional handicrafts and local manufacturing.
Key Points:
•→**India's economy was predominantly agrarian** under British rule.
•→**Cotton and jute were exported** to British mills, where they were processed into textiles.
•→**Heavy taxation and land revenue policies** further weakened India's economic structure.
Additional Information:
- **Capital goods** – Machinery and tools required for production (mostly imported).
- **Industrial products** – Manufactured goods (India was largely an importer).
- **Manufacturing products** – Limited during British rule due to policies discouraging local industries.

S13. Ans.(b)
Sol. The correct answer is (b) Sheopur, Madhya Pradesh.
- DRDO successfully conducted the **maiden flight trial** of the **Stratospheric Airship Platform (SAP)** at **Sheopur, Madhya Pradesh** on **3 May 2025**.
- The airship reached an altitude of around **17 km** during the 62-minute flight test.

Information Booster:
- Developed by DRDO's **Aerial Delivery Research and Development Establishment (ADRDE), Agra**.
- Systems tested included **envelope pressure control** and **emergency deflation**.
- Data collected will help in creating **simulation models** for future missions.

Additional Knowledge:
- SAP is a **lighter-than-air high-altitude platform** with prolonged endurance.
- It is designed for **Intelligence, Surveillance & Reconnaissance (ISR)**, **earth observation**, and communication support.
- India has now joined a **select group of nations** with indigenous stratospheric airship technology.

S14. Ans.(c)
Sol. Correct Answer: (c) Aakraman
Explanation:
•→In **April 2025**, the **Indian Air Force** conducted a war exercise named **"Aakraman"**.
•→The exercise involved advanced aircraft like **Rafale**, **Sukhoi Su-30MKI**, and other modern fighter planes in **coordinated large-scale operations**.
•→The primary aim was to display **high combat readiness** and efficiency in complex battle scenarios.
•→Activities included **real-time missile firing**, **air launching**, and **multi-force integration**.
•→Such exercises help in maintaining operational preparedness and testing joint capabilities with multiple assets.
Information Booster:
•→**Rafale Fighter Jet:** 4.5 generation multi-role aircraft from France, inducted into IAF in 2020.
•→**Sukhoi Su-30MKI:** Twinjet multi-role air superiority fighter, developed jointly by Russia's Sukhoi and India's HAL.

•→**Importance of Exercises:** Strengthen combat skills, interoperability, and coordination between units.
•→**Other IAF Exercises:**
•→*Vayu Shakti* – Firepower demonstration
•→*Gagan Shakti* – All-theatre exercise
•→*Indra Dhanush* – Indo-UK air exercise

S15. Ans.(b)
Sol. The correct answer is: (b) B3
Explanation:
•→**Pellagra** is caused by a deficiency of **Vitamin B3 (Niacin)** or its precursor **tryptophan**.
•→Symptoms include the **3 D's**: **Dermatitis, Diarrhea, and Dementia**.
•→Common in populations with **maize-based diets** lacking proper protein.
Information Booster:
•→Vitamin B3 is essential for **energy metabolism** and **nerve function**.
•→Found in foods like **meat, fish, nuts, and whole grains**.
•→Pellagra is rare today but was historically common in poor regions.
•→Can also result from alcoholism or absorption disorders.
•→**Nicotinamide** is the medicinal form used in treatment.
Additional Knowledge:
•→**B1 (Thiamine)**: Deficiency causes **beriberi**.
•→**D**: Deficiency leads to **rickets** (children) or **osteomalacia** (adults).
•→**A**: Deficiency causes **night blindness** and **xerophthalmia**.

S16. Ans.(c)
Sol. Ans. (c) Brazil
Sol. Brazil announced in February 2025 that it will host the BRICS Summit 2025 in Rio de Janeiro on July 6-7, 2025.
Information Booster:
•→Brazil assumed the BRICS presidency for 2025, leading the group of developing nations and focusing on global governance reform and cooperation among the Global South.
•→Russia hosted the BRICS Summit 2024 in Kazan, where Indonesia became the 11th member and Nigeria was named a partner country.
Before its expansion in 2024, BRICS had five founding members:
1. **Brazil**
2. **Russia**
3. **India**
4. **China**
5. **South Africa (joined in 2010)**
In 2024, BRICS expanded by adding: Iran,Egypt,Ethiopia,United Arab Emirates (UAE)

S17. Ans.(d)
Sol. The correct answer is **(d) Lok Sabha and State Legislative Assemblies**
Explanation:
- The **Women's Reservation Act, 2023** — officially known as the **106th Constitutional Amendment Act, 2023** — **provides 33% reservation for women in the Lok Sabha and all State Legislative Assemblies**.
- This landmark law is a major step toward enhancing the participation of women in the political sphere.

Information Booster:
- The Bill was passed by **Parliament in September 2023**.
- It mandates **one-third of seats to be reserved for women** in:

1. Lok Sabha (Lower House of Parliament)
2. State Legislative Assemblies
- The reservation will also apply to seats reserved for **Scheduled Castes (SCs) and Scheduled Tribes (STs)**.
- The Act will **come into effect after the first delimitation exercise** is conducted post the census, expected **after 2026**.
- **Rajya Sabha** and **State Legislative Councils** are **not included** in the scope of this Act.

S18. Ans.(c)

Sol. The correct answer is Statement I is true, but Statement II is false

The Mesolithic Age, also known as the Middle Stone Age, is characterized by the use of microliths—small, finely crafted stone tools. These tools marked a significant advancement from the larger, cruder implements of the preceding Paleolithic Age. Microliths were typically less than 5 centimeters in length and were often geometric in shape, such as triangles, trapezoids, and lunates. They were designed to be hafted onto wooden or bone shafts to create composite tools like spears, arrows, and sickles, enhancing efficiency in hunting and gathering activities.

Microliths were not large stone tools. Their small size was intentional, allowing for greater versatility and precision. These tools were particularly effective for hunting smaller, faster animals that became more prevalent after the end of the last Ice Age. The development and use of microliths reflect the adaptive strategies of Mesolithic communities to changing environmental conditions and resources.

Information Booster:

•→Microliths: Small stone tools, often less than 5 cm in length, used during the Mesolithic Age.

•→Function: Served as components of composite tools for hunting, fishing, and processing plant materials.

•→Materials: Commonly made from flint or chert and attached to handles using resin or sinew.

•→Significance: Represent a technological innovation that allowed for more efficient exploitation of diverse food sources.

S19. Ans.(c)

Sol. The Correct Answer Is: **(C) 1 million genome samples were to be collected across the country from citizens of India.**

Explanation:

The **Genome India Project** was initiated in **January 2020** with the primary aim of constructing a comprehensive **reference genome** to study the vast **genetic diversity among Indians**. The project, funded and coordinated by the **Department of Biotechnology (DBT), Government of India**, set out to **sequence 10,000 genomes** from diverse Indian populations in its initial phase. By **February 2024**, the project successfully completed the sequencing of **10,000 whole genomes**, creating a robust repository of genetic information. Therefore, the statement that "1 million genome samples were to be collected across the country from citizens of India" is **not true** regarding the Genome India Project's original scope.

Information Booster:

- **Project Inception:** Launched in **January 2020**, the Genome India Project represents a significant national initiative to map the genetic landscape of the Indian population.
- **Primary Objectives:**
  - **Reference Genome Creation:** Develop a detailed reference genome to understand genetic variations specific to Indian demographics.
  - **Health Implications:** Facilitate research in personalized medicine, disease prediction, and the development of targeted therapies.
- **Sample Collection and Sequencing:**
  - **Diverse Representation:** Collected **20,000 blood samples** from **83 diverse populations** across India, establishing a comprehensive biobank for future research..
- **Data Accessibility:**
  - **Indian Biological Data Centre (IBDC):** All sequencing data is archived at the IBDC, ensuring that researchers worldwide have access to this valuable genetic information.

Additional Knowledge:

- **Significance of the Project:**
  - **Healthcare Transformation:** The insights gained from the Genome India Project are poised to revolutionize healthcare in India by enabling early disease detection, understanding genetic predispositions, and crafting personalized treatment plans.
  - **Global Research Contribution:** By making this extensive genomic data publicly available, India contributes significantly to global genetic research, fostering collaborations and scientific advancements worldwide.
- **Ethical Considerations:**
  - **Data Sharing Protocols:** The project adheres to the **Biotech-PRIDE (Promotion of Research and Innovation through Data Exchange) Guidelines**, ensuring ethical and transparent data sharing practices.

S20. Ans.(d)
Sol. The correct answer is (d) Each eye sees a slightly different image.
Explanation:
•→Each of the two eyes of a person sees the object from a slightly different angle, creating two slightly different images.
•→This difference in the images seen by each eye is essential for depth perception, allowing us to perceive three-dimensional images (stereoscopic vision).
•→The brain processes these two images and combines them, giving a sense of depth and distance.
Information Booster:
•→The slight difference in the images formed by the two eyes is known as binocular disparity, which is crucial for stereopsis (depth perception).
•→This is why we can judge the distance and position of objects more effectively when using both eyes.
Additional Knowledge:
(a) Both the eyes see exactly the same image: This is not true as each eye has a slightly different perspective of the object.
(b) One eye sees half portion of the object: Both eyes see the full object, just from different angles.
(c) Both the eyes combine the two images seen by them: While the brain combines the images, the primary purpose is depth perception rather than just combining two identical images.

S21. Ans.(b)
Sol. Correct Answer: (b) Arundhati Roy
Explanation:
The book *Mother Mary Comes to Me* is authored by **Arundhati Roy** and is scheduled to be published in **September 2025** by **Penguin India**. Arundhati Roy is a Booker Prize-winning Indian author, best known for her debut novel *The God of Small Things* (1997). **Information Booster:**
•→**Full Name:** Suzanna Arundhati Roy
•→**Awards:** Booker Prize (1997) for *The God of Small Things*
•→**Other Works:** *The Ministry of Utmost Happiness*, *Walking with the Comrades*, *Azadi*
•→**Style:** Known for blending political commentary with fiction
•→**Upcoming Release:** *Mother Mary Comes to Me* will continue her tradition of engaging with socio-political themes through literature.

S22. Ans.(a)
Sol. The correct answer is option (a) South Africa
Explanation
South Africa clinched their maiden ICC World Test Championship title in 2025 by defeating Australia at Lord's. This victory marked their first global cricket title in 27 years, with Temba Bavuma leading the team with exceptional courage and leadership. The match concluded decades of near-misses for South African cricket in major international tournaments.
Information Booster
•→South Africa won their first global cricket title in 27 years.
•→The 2025 ICC World Test Championship Final took place at Lord's, a historic cricket ground in London.
•→Temba Bavuma's leadership was instrumental in guiding South Africa to victory.
•→This victory is considered a significant milestone in South African cricket history.
•→Australia was the runner-up in the 2025 World Test Championship.
Additional Knowledge
•→**South Africa**: This victory was significant for South African cricket, as it had been 27 years since their last global title. Their triumph in the 2025 ICC World Test Championship Final has solidified their place in cricket history.
•→**Australia**: Despite being a dominant force in world cricket, Australia fell short in the final. The team had been highly competitive throughout the tournament but could not clinch the title in 2025.

S23. Ans.(c)
Sol. Statement (c): Incorrect. Wind circulation primarily drives surface currents, not deep water currents. While wind affects surface water movement, deep water currents are primarily driven by density differences caused by temperature and salinity.
Information Booster
- Deep Water Currents and Density Differences:
    - Deep ocean currents are primarily driven by density differences in water, which are caused by variations in temperature and salinity. This process, known as thermohaline circulation, is crucial for the movement of water in the ocean's deep layers. In the polar regions, the water cools, increasing its density and causing it to sink. Similarly, high salinity water, typically from areas with high evaporation or ice formation, is denser and sinks, helping drive the deep ocean currents.

- How Temperature and Salinity Drive Deep Currents:
  - In colder regions, water becomes denser as the temperature drops, and it sinks to the ocean depths. At the same time, high salinity increases the density of water, making it sink. This combination of cold temperatures and high salinity leads to the formation of deep water that moves towards the equator, setting in motion a continuous cycle that circulates water through the deep ocean.
- Thermohaline Circulation:
  - The movement of these water masses is an important component of the global conveyor belt (the thermohaline circulation). It helps to regulate global climate by redistributing heat and nutrients. The deep water currents play a significant role in the Earth's climate regulation, distributing warm water from the equator towards the poles and cold water from the poles towards the equator.
- Thermohaline Circulation in Action:
  - Deep water currents do not rely on wind like surface currents. Instead, they move due to the physical properties of water, primarily the density differences created by temperature and salinity. These currents can flow at great depths (up to several kilometers), and their movement is slow but significant in driving the overall ocean circulation.

Additional Knowledge:
Statement (a): Correct. Temperature variation significantly influences deep water ocean currents, especially through the thermohaline circulation. Cold water at higher latitudes is denser, and as it cools, it sinks to form deep water currents.
Statement (b): Correct. Salinity differences also play a key role in deep ocean currents. High salinity (caused by evaporation or ice formation) increases water density, causing it to sink and drive deep water circulation.
Statement (d): Correct. Water density, which is influenced by both temperature and salinity, is the primary factor driving deep ocean currents. Denser water tends to sink, initiating the deep water circulation known as the thermohaline circulation.

S24. Ans.(b)
Sol. Article 13 of the Indian Constitution ensures that all laws in force in India must be consistent with the provisions of the Constitution, particularly the Fundamental Rights enshrined in Part III of the Constitution.
Specifically, it states that:
Article 13(1): All laws in force in the territory of India immediately before the commencement of this Constitution, in so far as they are inconsistent with the provisions of this Part, shall, to the extent of such inconsistency, be void.
Article 13(2): The State shall not make any law which takes away or abridges the rights conferred by this Part and any law made in contravention of this clause shall, to the extent of the contravention, be void.
Article 13(3): Defines "law" to include ordinances, orders, bye-laws, rules, regulations, notifications, customs or usages having the force of law.

S25. Ans.(c)
Sol. Correct Answer: (c) Praveen Kumar
Explanation:
In 2025, **Praveen Kumar**, a distinguished Indian para-athlete specializing in the high jump, received the **Major Dhyan Chand Khel Ratna Award**, India's highest sporting honor. This award recognized his outstanding contributions and achievements in para-athletics. Praveen won **gold in the Paris 2024 Paralympics** and **silver in the Tokyo 2020 Paralympics**, making him one of India's most celebrated Paralympic athletes. His journey reflects immense dedication, resilience, and the spirit of overcoming challenges despite his disability. **Information Booster:**
•→**Major Dhyan Chand Khel Ratna Award:** Conferred annually for the most outstanding performance in sports over a period of four years.
•→**Praveen Kumar's Specialization:** High jump (T64 category in para-athletics).
•→**Achievements:**
•→Gold Medal – Paris 2024 Paralympics
•→Silver Medal – Tokyo 2020 Paralympics
•→**Inspiration:** His career has helped boost awareness and recognition for para-sports in India.

S26. Ans.(d)
Sol. The correct answer is: (d) Hydrogen
Explanation:
•→Hydrogen is the lightest gas with the atomic number 1, consisting of only one proton and one electron.
•→It is lighter than all other gases due to its very low molecular weight compared to Neon, Oxygen, and Carbon dioxide.
Information Booster:
•→Hydrogen is used in many applications, including fuel cells and as a rocket propellant.
•→It is highly flammable and forms H2 gas, the lightest of all the gases.

•→In its molecular form (H2), hydrogen is much lighter than air.
Additional Knowledge:
•→**(a) Neon**: Neon is a noble gas, heavier than hydrogen, and is used in neon signs.
•→**(b) Carbon dioxide**: Carbon dioxide is heavier than hydrogen and is commonly found in the Earth's atmosphere.
•→**(c) Oxygen**: Oxygen is heavier than hydrogen and is essential for respiration in living organisms

S27. Ans.(c)
Sol. The conversion of **chemical energy into electrical energy** occurs in a **battery**.
Batteries (or electrochemical cells) work through chemical reactions—specifically **redox reactions**—that cause electrons to flow through an external circuit, generating electricity. This is how your phone, flashlight, or even electric cars get their power!
Other examples include:
- **Dry cells** (like AA batteries)
- **Lead-acid batteries** (used in cars)
- **Fuel cells** (used in some spacecraft and advanced vehicles)

S28. Ans.(b)
Sol. The correct answer is (b) France
Explanation:
- The **78th Cannes Film Festival** was held from **13 to 24 May 2025** in **Cannes**, a city located on the **French Riviera in France**.
- France has been the permanent host of the Cannes Film Festival since its inception in **1946**.
- The event is recognized globally as one of the most prestigious platforms for celebrating international cinema.

Information Booster:
- The festival is known for premiering high-quality, artistic films and awarding the **Palme d'Or**, one of the most coveted honors in global cinema.
- Cannes attracts **filmmakers, celebrities, critics, and media** from across the world, making it a major cultural event each May.
- It promotes world cinema and serves as a key platform for the launch of new films and talent.

Additional Information:
- **Option (a) Spain**, **(c) The Netherlands**, and **(d) Germany** are incorrect, as none of these countries have hosted the Cannes Film Festival.
- The festival is officially supported by the **French Ministry of Culture** and has never been moved outside France.
- Alongside **Venice and Berlin**, Cannes is considered one of the **"Big Three" international film festivals**.

S29. Ans.(d)
Sol. Alt + F4 : Closes the active window.
Ctrl + D : Delete the selected item to the Recycle Bin.
Shift + Delete : Delete the selected item permanently, skipping the Recycle Bin.
Ctrl + Shift + N : Create new folder on desktop or File Explorer.
Alt + Tab : Switch between the open apps.

S30. Ans.(b)
Sol. Correct Answer: (b) Andhra Pradesh
Explanation:
•→**Major Malla Ram Gopal Naidu** is an officer from **Andhra Pradesh** who was awarded the **Kirti Chakra** in **May 2025**.
•→The **Kirti Chakra** is **India's second highest peacetime gallantry award**, given for acts of **conspicuous gallantry**, courageous action, or self-sacrifice away from the battlefield.
•→This award is presented by the **President of India** and is equivalent to the **Maha Vir Chakra** (which is awarded during wartime).
•→The Kirti Chakra is awarded to both **military personnel** and **civilians**.
•→Andhra Pradesh has a long history of producing brave soldiers and officers who have served the nation with distinction in both peacetime and wartime operations.
Information Booster:
•→**Kirti Chakra:**
•→Instituted: **1952**
•→Awarded for: Gallantry in peacetime
•→Order of precedence: Second after the **Ashoka Chakra** in peacetime gallantry awards
•→Medal: Circular in shape with Ashoka Chakra embossed in the center

•→Ribbon: Green with a central saffron stripe
•→**Recent Awards:** Often given for counter-insurgency operations, anti-terrorism actions, and acts of bravery during natural disasters.
•→**State Fact:** Andhra Pradesh's military contribution includes notable regiments such as the **Andhra Regiment** in the Indian Army.

S31. Ans.(d)
Sol. The Right to Information (RTI) is rooted in the freedom of speech and expression under Article 19.
Citizens must have access to government information to form informed opinions.
This strengthens accountability in governance.

S32. Ans.(c)
Sol. The correct option is **(C) Administration and control of scheduled areas and scheduled tribes**.
Explanation:
The **Fifth Schedule** of the **Indian Constitution** deals with the **administration and control of scheduled areas and scheduled tribes**. It provides a framework for the governance of these areas, with special provisions to protect the rights and interests of **Scheduled Tribes**. The Schedule outlines the role of **tribal advisory councils**, the **Governor's powers**, and the **administrative structures** needed to safeguard tribal regions and populations.
Information Booster:
- The **Fifth Schedule** specifically targets **tribal welfare** and **autonomy** in the **Scheduled Areas**, focusing on issues such as **land rights**, **self-governance**, and **tribal culture**.
- The **Governor** has special powers over the governance of **Scheduled Areas** and can make regulations to safeguard tribal interests.
- **Tribal Advisory Councils** are created to advise on matters related to the welfare of **Scheduled Tribes**.
- The provisions under the Fifth Schedule are aimed at preventing exploitation and ensuring **economic and social justice** for tribes in these areas.

First Schedule:
- Contains a list of **States** and **Union Territories** of India, along with their boundaries.

Second Schedule:
- Deals with the **emoluments**, **allowances**, and **privileges** of the President, Governors, and other officials like judges.

Sixth Schedule:
- Deals with the administration of **tribal areas** in **Assam**, **Meghalaya**, **Tripura**, and **Mizoram**, granting them autonomy and special provisions.

Seventh Schedule:
- Divides the subjects of law-making between the **Union** and the **States** under the **Union List**, **State List**, and **Concurrent List**.

S33. Ans.(d)
Sol. Correct Answer: (d) IMF and World Bank
Explanation:
In 1991, India faced a severe balance of payments crisis. The **International Monetary Fund (IMF)** and **World Bank** provided financial assistance and supported economic reforms. This led to the adoption of the **LPG reforms** (Liberalization, Privatization, Globalization), which opened up the Indian economy, promoted industrial growth, and encouraged foreign investment. **Information Booster:**
•→**Crisis Year:** 1991 – Foreign exchange reserves had dropped to the level of covering just a few weeks of imports.
•→**Key Reforms:** Industrial delicensing, reduction of import tariffs, encouragement of private sector.
•→**Finance Minister:** Dr. Manmohan Singh.
•→**Impact:** Boosted industrial output, increased FDI, modernized industries.

S34. Ans.(a)
Sol. Correct Answer: (a) Microliths
Explanation:
Microliths are small, sharp stone tools, often less than 5 cm in length, used in the **Mesolithic Age**. They represent an **advanced stone tool technology** because they were often mounted on wooden or bone handles to create composite tools such as arrows, spears, and sickles. This innovation allowed humans to hunt more efficiently and process plant materials better. **Information Booster:**
•→**Period:** Mesolithic Age (approx. 10,000–8,000 BCE in India)
•→**Material:** Mostly made of flint, chert, or jasper.

•→**Sites in India:** Bagor (Rajasthan), Adamgarh (Madhya Pradesh), Langhnaj (Gujarat).
•→**Significance:** Indicates transition from hunting-gathering to early farming and domestication of animals.
•→**Difference from Paleolithic tools:** Smaller, more refined, and often hafted (attached to handles).

S35. Ans.(a)
Sol. The Pala Dynasty was founded by Gopala in the 8th century CE. Gopala was the first ruler of the Pala dynasty and established it in the Bengal region of India. He came to power by being elected as a king by the local chiefs, marking the beginning of the Pala Empire. Gopala laid the foundation for the dynasty, which was later strengthened and expanded by his successors, particularly Dharmapala and Devapala. The Pala dynasty is known for its contributions to Buddhism, art, and culture.
Additional Information:
1. Gopala was the founder of the Pala Dynasty in the 8th century CE.
2. Gopala's election as king was a unique aspect of the Pala dynasty's rise to power.
3. The Pala dynasty ruled over the Bengal region and later expanded into parts of Bihar.
4. The Pala rulers were great patrons of Buddhism and promoted its spread.
5. The Pala dynasty is famous for its contributions to education, particularly the establishment of Nalanda University as a center of Buddhist learning.
6. Under Dharmapala and Devapala, the empire flourished and became one of the major powers in northern India.
7. The Pala dynasty was overthrown in the 12th century by the Muslim invasions.
Knowledge Booster:
•→(B) Dharmapala: Dharmapala was one of the most significant rulers of the Pala dynasty and played a major role in expanding the empire. However, he was not the founder; he was the son of Gopala and became the king after his father's reign.
•→(C) Devapala: Devapala was another important ruler of the Pala dynasty who expanded the kingdom to its greatest territorial extent, but like Dharmapala, he was not the founder.
•→(D) Mahipala: Mahipala was a later ruler of the Pala dynasty, but he was not the founder of the dynasty. His reign came after the establishment of the dynasty by Gopala.

S36. Ans.(b)
Sol. The Correct Answer (b) To review the progress and discuss next steps under PMMSY
- The **2025 Inland Fisheries Meet**, held in **Indore**, Madhya Pradesh, focused on accelerating the growth of **India's inland fisheries sector**. One of the key objectives was to **review the progress of the Pradhan Mantri Matsya Sampada Yojana (PMMSY)**, a flagship scheme aimed at improving the sector's productivity, sustainability, and export competitiveness.
- **Union Minister Rajiv Ranjan Singh** emphasized the need for a **collaborative national push** under PMMSY, focusing on scaling up production, fostering technological growth, and enhancing exports.

Information Booster:
- **PMMSY** has been instrumental in enhancing fish production, with India's fish production increasing by **142%** since **2013-14**.
- The meet also discussed innovations like **RAS (Recirculating Aquaculture Systems)**, **Biofloc**, and **coldwater aquaculture**, alongside region-specific strategies and the importance of **state-center cooperation**.

Additional Information:
- The event highlighted **infrastructure development** with initiatives like the **Fisheries and Aquaculture Infrastructure Development Fund (FIDF)** and **PM-MKSSY**.
- **Madhya Pradesh**, the host state, shared insights on **aquaculture development**, and other states like **Uttar Pradesh**, **Bihar**, and **Himachal Pradesh** discussed **region-specific solutions** to promote sustainable fisheries practices.

S37. Ans.(c)
Sol. The correct answer is (c) Rajasthan
- The **Pandit Deendayal Upadhyay Poverty-Free Village Scheme** was launched by the **Rajasthan government** on **July 4, 2025**.
- This scheme aims to **reduce poverty** in **5,000 villages** by providing financial support and work opportunities to **below the poverty line (BPL) families** in the state.
- The government will provide up to **Rs 1 lakh** to selected families to help them start small businesses or gain employment opportunities.
- **Women in self-help groups (SHGs)** can also avail up to **Rs 15,000** per family to enhance their income.
- The goal is to make these families **self-reliant** and improve their livelihoods, thus providing them with **dignity**.

Information Booster:
•→**Support for Women**: Women in **self-help groups** will receive **Rs 15,000** per family to help enhance their income, supporting **women empowerment**.
•→**Reward for Self-Reliance**: Families that have successfully moved above the poverty line will receive a **reward of Rs 21,000**.
•→**Atmanirbhar Parivar Cards**: Families that become self-reliant will be given **Atmanirbhar Parivar Cards**, signifying their achievement.
•→**Identification of BPL Families**: **30,631 BPL families** across **5,002 villages** were identified, and **61,000 new applications** were submitted for support.
•→**Action Plans**: The government is preparing **village-specific action plans** to connect families to **existing government schemes** for **skill training**, **job support**, and **financial assistance**.
Additional Information:

- **Pandit Deendayal Upadhyay**: Pandit Deendayal Upadhyay was a key figure in promoting **rural development** and **poverty alleviation** in India.
- **Other Government Schemes**: The **Poverty-Free Village Scheme** will link beneficiaries with existing programs like **MGNREGA**, **Pradhan Mantri Kaushal Vikas Yojana**, and **financial inclusion initiatives** to ensure comprehensive support.

S38. Ans.(b)
Sol. Correct Answer: (b) Ripon Building
Explanation:
•→**Greater Chennai Corporation** is the **oldest municipal corporation in India** and the second oldest in the world, established in **1688** during British rule.
•→Its headquarters is the **Ripon Building**, an Indo-Saracenic style structure completed in **1913**.
•→The building is named after **Lord Ripon**, the Viceroy of India (1880–1884), who is known for introducing **local self-government** in British India.
•→It is located near **Chennai Central Railway Station**, making it one of the most recognizable landmarks of the city.
•→The Ripon Building serves as the administrative center for the civic governance of Chennai, handling urban planning, public health, waste management, road maintenance, and infrastructure development.
Information Booster:
•→**Foundation Stone Laid:** 1909
•→**Architectural Style:** Indo-Saracenic, with a central clock tower of 8.2 meters.
•→**Functions of Greater Chennai Corporation:** Urban planning, issuing building permits, sanitation, solid waste management, water supply, street lighting, and maintenance of public spaces.
•→**Special Fact:** The clock in the Ripon Building is over 100 years old and still works with original machinery.
•→**Area under Corporation:** Covers **426 sq. km**, divided into **15 zones and 200 wards**.
•→**First Mayor:** Nathaniel Higginson (under British rule).
•→**Recent Initiative:** Smart City projects, LED street lights, eco-friendly waste segregation programs.

S39. Ans.(b)
Sol. Statement 1: correct
Poverty and lack of government services is been factors that fuel rebel group activity. People who feel neglected or marginalized by the government may be more susceptible to recruitment by rebel groups that promise change or better living conditions.
Statement 2: correct
M23 recruiting heavily from a marginalized ethnic group is a separate observation. Even if poverty and lack of services aren't the main reasons, the group might target a specific ethnicity for various reasons, such as shared grievances or a feeling of disenfranchisement.
Therefore, Both statements are true, but statement II doesn't explains statement I.
NEWS:
"Sudan Conflict Sparks Ethnic Violence, Mass Displacement, and Hunger Crisis"

S40. Ans.(b)
Sol. The correct answer is (b) **358**
Under Article 358, the right to **Freedom of Speech and Expression** and **Freedom to Assemble Peacefully** can be suspended during a national emergency.
Article 19 outlines fundamental rights, and during a national emergency, certain rights under this article can be restricted or suspended.

Key Points:

Scope of Article 358:

- It applies only during a **National Emergency** declared under Article 352 based on "war" or "external aggression" (not for internal disturbances or armed rebellion).
- It ensures that the government can restrict the fundamental rights under Article 19 without any legal challenge during such emergencies.

Other Articles Related to Emergency:

- **Article 356:** Deals with President's Rule in states due to the failure of constitutional machinery.
- **Article 360:** Deals with Financial Emergency.
- **Article 361:** Provides immunity to the President and Governors from legal proceedings.

Additional Information:

- During an emergency, **Article 359** also allows for the suspension of enforcement of other fundamental rights (except Articles 20 and 21), but this is subject to specific presidential orders.
- **Article 358** differs from **Article 359** as it automatically suspends Article 19, while Article 359 requires explicit suspension orders.

S41. Ans.(b)

Sol. Given:

A man covers a distance of N km in 5 hours at a speed of 18 km/hr

Formula Used:

Speed=DistanceTimeSpeed=TimeDistance

Solution:

N = 5 × 18 = 90 km

Speed to cover 90 km in 3 hours =903390 = 30 km/h

S42. Ans.(d)

Sol. Given:

8 men working 5 hours a day complete a job in 12 days

Formula Used:

M1D1T1=M2D2T2M1D1T1=M2D2T2

Solution:

=> 8 × 12 × 5 = 15 × D_2 × 4

=> D_2 = 8

S43. Ans.(a)

Sol. Given:

Reduction in price = 10%

Increased quantity = 5 kg

Total money spent = ₹300

Solution:

Let the original price of sugar be ₹x per kg.

Then, the quantity of sugar bought at the original price:300xx300

After a 10% reduction, the new price per kg:90100×x=910x10090×x=109x

The new quantity of sugar bought =300×109x9x300×10

30009x−300x=59x3000−x300=5

30009x−27009x=53009x=5300=5×9x300=45xx=30045=2039x3000−9x2700=59x300=5300=5×9x300=45xx=45300=320

Reduced Price =910x=910×203=6109x=109×320=6

Alternate Solution:

Price∝1Consumption∝Consumption1

10% =110101

Price 10 : 9

Consumption 9 : 10

1 unit = 5 kg

So, Final Purchase Quantity = R. 50 per kg

Final price =3005050300 = 6

S44. Ans.(a)
Sol. Given:
Simple interest earned in 5 years at 10% per annum is 1000
Formula Used:
Simple Interest=Principal×Rate×Time100Simple Interest=100Principal×Rate×Time
Solution:
1000=Principal×10×5100Principal=20001000=100Principal×10×5Principal=2000

S45. Ans.(a)
Sol. Given:
Circumference of a circle = Perimeter of a square
Formula Used:
Circumference of a circle = 2πr
Perimeter of a square = 4a
Area of circle = πr^2
Area of square = a^2
Solution:
From the given,
2πr = 4a
=> πr = 2a
=>raar =2ππ2
Required ratio =πr2a2=π(r2a2)=π×4π2=4π=4227=4×722=2822=1411a2πr2=π(a2r2)=π×π24=π4=7224=224×7=2228 =1114

S46. Ans.(c)
Sol. Given:
A and B can together complete a task in 16 days
They started a task together and after 4 days A leave, B takes 24 days to finish the rest of the task.
Formula Used:
Work = Time × Efficiency
Solution:
Let the efficiency of A and B be a and b respectively.
Total work = (a + b) × 16
Work done by A and B together = 4 × (a + b)
Remaining work done by B = 24 × b
Total work = work done by A + B together in 16 days = work done by (A + B) × 4 + work done by B in 24 days
So,
4 × (a + b) + 24 × b = (a + b) × 16
a = b
Then, time taken by B alone to finish work =(1+1)×1611(1+1)×16 = 32 days.

S47. Ans.(a)
Sol. Given:
2712+1534−1225+18452721+1543−1252+1854
Solution:
2712+1534−1225+1845=552+634−625+945=550+315−248+37620=99320=4913202721+1543−1252+1854 =255+463 −562+594 =20550+315−248+376 =20993 =492013

S48. Ans.(c)
Sol. Given:
3%ofx=4%of12+6%of803% of x=4% of 12+6% of 80
Solution:
3100x=4100×12+6100×803100x=48100+4801003100x=48+4801003100x=5281001003x=1004×12+1006×80 1003 x=10048+100480 1003x=10048+480 1003x=100528
3x = 528
x = 176

S49. Ans.(c)
Sol. Given:
a : b = 7 : 11
b : c = 12 : 17
Solution:

A	:	B	:	C
7	:	11	:	**11**
12	**:**	12	:	17
84	:	132	:	187

a = 84 , b = 132 , c = 187
=a+bb+cb+ca+b
=84+132132+187132+18784+132
=216319319216

S50. Ans.(c)
Sol. Given
Radius of cylindrical vessel R = 15 m
Height of cylindrical vessel H = 21 m
Radius of each spherical ball r = 1.5 m
Number of spherical balls = 10
Formula Used
Vsphere=43πr3Vcylinder=πR2hVsphere=34πr3 Vcylinder=πR2h
Solution
Vsphere=43π(1.5)3=43π×3.375=4.5πm3Vtotal=10×4.5π=45πm3Vsphere=34π(1.5)3=34π×3.375=4.5πm3 Vtotal =10×4.5π=45πm3
Now,
π(15)2h=45ππ(15)2h=45π
h =4522522545 = 0.2 m = 20cm

S51. Ans.(d)
Sol. Given:
At 3 km/h, Reena is 20 minutes late
At 4 km/h, she is 30 minutes early
Time difference = 20 + 30 = 50 minutes =5665 hours
Solution:
Let distance = d km
d3−d4=56d3−d4=564d−3d12=56d12=56d=56×12=103d−4d=65 3d−4d=65 124d−3d=65 12d=65 d=65×12=10
Thus, Distance is 10 km

S52. Ans.(d)
Sol. Given:
C is 60% less than D
C = 320
Solution:
D = 100%
C = 100 – 60 = 40%
40% = 320
1% = 80
100% = 800

S53. Ans.(d)
Sol. Given:
70% of bags sold at 30% profit
30% of bags (remaining) sold at 20% loss
Solution:
Overall Profit % =(70×30+30×(−20)100)(10070×30+30×(−20))
=2100−600100=1500100=1002100−600 =1001500
= 15%

S54. Ans.(b)
Sol. Given:
Marked price of the ball = Rs 1300
Successive discounts = 25% and 20%
Formula Used:
SP = MP ×(1−d1100)×(1−d2100)(1−100d1)×(1−100d2)
Solution:
SP=1300×(1−25100)×(1−20100)=1300×(75100)×(80100)=13×75×(45)SP=1300×(1−10025)×(1−10020) =1300×(10075)×(10080) =13×75×(54)
= 13 × 15 × 4
= 780
Alternate Method:
A + B +A×B100100A×B
= -25 – 20 +(−25)×(−20)100100(−25)×(−20)
= -45 + 5
= -40 % Discount
SP = 100 – 40 = 10%
100% = 1300
1% = 13
60% = 780

S55. Ans.(b)
Sol. Given:
Class A has 12 students
Class B has 70 students
Solution:
$12 = 2^2 \times 3$
70 = 2 × 5 × 7
42 = 2 × 3 × 7
Common factor in all = 2
HCF= (12, 70, 42) = 2

S56. Ans.(a)
Sol. Given:
Total amount = Rs 190000
40% of X = 10% of Y = 30% of Z
Solution:
40% of X = 10% of Y = 30% of Z = k
40100×X=10100×Y=30100×Z4X=Y=3Z10040×X=10010×Y=10030×Z 4X=Y=3Z
let 4X = Y = 3Z = K
X=K4,Y=K,Z=K3X=4K, Y=K, Z=3K
Now,
K4+K+K3=1900003K+12K+4K12=19000019K=190000×12K=190000×1219K=1200004K+K+3K=190000 123K+12K+4K=190000 19K=190000×12 K=19190000×12 K=120000
So,
Z=K3=1200003=40000Z=3K=3120000=40000

S57. Ans.(a)
Sol. Given:
Area of base = 8400 cm^2
Volume = 10.2 m^3 = 10.2 × 10^6 = 10200000
Formula Used:
Depth =VolumeBase AreaBase AreaVolume
Solution:
Depth =102000008400≈1214.3cm840010200000≈1214.3 cm

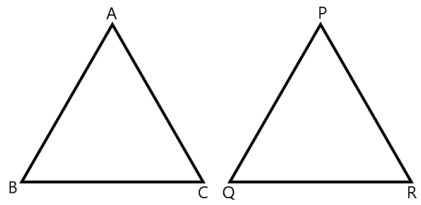
S58. Ans.(c)
Sol. Given:
The set of observations is: 87, 56, 27, 31, 13, 39, 18, 80, 98, 92, 25

Formula Used:
Median (for odd number of terms) = Value at the positionn+12th2n+1th, where n is the number of observations arranged in ascending order.
Solution:
Arrange the data in ascending order: 13, 18, 25, 27, 31, 39, 56, 80, 87, 92, 98
Total number of terms (n) = 11 (which is odd)
Position of the median =11+12th211+1th = 6th position
6th value in the sorted list = 39

S59. Ans.(d)
Sol. Given:
a + b = 41
a - b = 38
Solution:
(a+b)2=412(a+b)2=412 = 1681

S60. Ans.(a)
Sol. Given:
Mahesh withdrew ₹3,100 from the bank.
He received a total of 34 notes, consisting of ₹50 and ₹100 denominations.
We need to find the number of ₹50 notes.
Solution:
Let:
x = the number of ₹50 notes,
y = the number of ₹100 notes.
From the condition;
x + y = 34 .....(1)
second condition;
50x + 100y = 3100
x + 2y = 62.....(2)
subtracting equations 2××(1) - (2)
2x+2y=68−x−2y=−62¯x=62x+2y=68−x−2y=−62x = 6
Thus, The number of ₹50 notes received by Mahesh is 6

S61. Ans.(d)
Sol. Given:
△ABC ≅ △PQR
∠ABC = 77°
∠BCA = (x − y)°
AC = 48 cm
∠PQR = (3x − 4)°
PR = x + 3y
Concept Used:
In congruent triangles, corresponding angles are equal and corresponding sides are equal.
Solution:



Corresponding angles: ∠ABC = ∠PQR, ∠BCA = ∠QRP
Corresponding sides: AC = PR
From angle correspondence:
∠ABC = ∠PQR
77° = 3x − 4
3x = 81

x = 27
From side correspondence:
AC = PR
48 = x + 3y
3y = 21
y = 7
Now, using the corresponding angles:
∠BCA = ∠QRP
∠QRP = x − y = 27 − 7 = 20°

S62. Ans.(c)
Sol. Given:
The two angles are supplementary, meaning their sum is 180°.
The larger angle is 60° more than the smaller one.
Concept Used:
Supplementary angles: The sum of two supplementary angles is 180°.
Let the smaller angle be x. The larger angle is x + 60°.
Formula Used:
Supplementary angles: Smaller angle + Larger angle = 180°
Solution:
Let the smaller angle be x.
Step 1: Express the larger angle.
The larger angle is 60° more than the smaller angle, so:
Larger angle = x + 60°
Step 2: Use the fact that the angles are supplementary.
The sum of the two angles is 180°:
x + (x + 60°) = 180°
Simplifying:
2x + 60° = 180°
Subtracting 60° from both sides:
2x = 120°
Dividing by 2:
x = 60°

S63. Ans.(d)
Sol. Given:
Angle of elevation = 60°
Distance of foot of ladder from wall = 4.5 m
Formula Used:
cos⁡(θ)=basehypotenusecos(θ)=hypotenusebase
Solution:
From the formula;
hypotenuse =4.5cos⁡(60∘)=4.50.5=9mcos(60∘)4.5=0.54.5=9 m

S64. Ans.(b)
Sol. Given:
sin⁡4θ−cos⁡4θ=12sin4θ−cos4θ=21
Formula Used:
a4−b4=(a2−b2)(a2+b2)sin⁡2θ+cos⁡2θ=1a4−b4=(a2−b2)(a2+b2) sin2θ+cos2θ=1
Solution:

sin⁡4θ−cos⁡4θ=12(sin⁡2θ−cos⁡2θ)(sin⁡2θ+cos⁡2θ)=12sin⁡2θ−cos⁡2θ=12sin⁡2θ−(1−sin⁡2θ)=122sin⁡2θ−1=12sin 4θ−cos4θ=21 (sin2θ−cos2θ)(sin2θ+cos2θ)=21 sin2θ−cos2θ=21 sin2θ−(1−sin2θ)=21 2sin2θ−1=21

S65. Ans.(b)
Sol. Given:
Capital ratio of A and B =56:3865:83
A reduces his capital by one-fourth after 4 months.
B increases his capital by 100% after 4 months.
Annual profit = Rs. 22.8 lakhs.
Formula Used:
Investment∝∝ profit
Solution:
Capital ratio of A and B =56:3865:83 = 20 : 9
Let capita of A is 20 unit and B is 9 unit
So, Investment ratio of both
=20×4+15×8:9×4+18×8=50:45=10:9=20×4+15×8:9×4+18×8 =50:45 =10:9
Share of B in annual Profit ;
=22.819×9=10.8lakh1922.8×9=10.8 lakh

S66. Ans.(a)
Sol. Given:
The number is 486743x2y, where x and y are unknown digits. This number is divisible by 55
Concept Used:
A number is divisible by 5 if its last digit is either 0 or 5.
A number is divisible by 11 if the difference between the sum of the digits in odd positions and the sum of the digits in even positions is divisible by 11
Solution:
For divisibility by 5, the last digit of the number 486743x2y must be 0 or 5
Thus, y = 0 or y = 5
For divisibility by 11
The difference of sum of odd place digit and sum of even place digit is:
S = (y + x + 4 + 6 + 4) - (2 + 3 + 7 + 8) = (y + x + 14) − 20 = y + x − 6
Now, y + x − 6 = 0 or divisible by 11
So, considering
x + y = 6
If y = 0, then x = 6
If y = 5, then x = 1
Now, for both cases:
If x = 6 and y = 0:
5x - y = 5(6) - 0 = 30
If x = 1 and y = 5:
5x - y = 5(1) - 5 = 5 - 5 = 0
Thus, Option(a) 0 is correct.

S67. Ans.(d)
Sol. Given:
Amount becomes 4 times the principal in 20 years.
Time = 20 years
Formula Used:
Simple Interest (SI) = Amount – Principal
SI=P×R×T100=100P×R×T
Solution:
Let Principal = P, then Amount = 4P
SI = 4P - P = 3P
P×R×20100=3P100P×R×20=3P
20R100=310020R=3
R=3×10020==203×100= 15 % per annum
Alternate Method:
R %=(n−1)T×100%T(n−1)×100%
R % =4−120×100%=320×100%=15%204−1×100%=203×100%=15%

S68. Ans.(a)
Sol. Given:
Average of all prime numbers between 42 and 75
Formula Used:
Average=Sum of observationsNumber of observationsAverage=Number of observationsSum of observations
Solution:
All prime numbers between 42 and 75 are: 43 , 47 ,53, 59, 61,67,71,73
Sum of all numbers is 43+47+53+59+61+67+71 +73= 474
Average =4748=59.258474=59.25

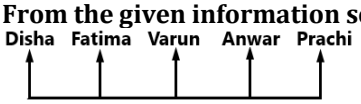
S69. Ans.(d)
Sol. Given:
- The fruit seller sells 40% of the apples.
- He still has 420 apples left.
Formula Used:
- Remaining apples =(100%−percentage sold)×total apples(100%−percentage sold)×total apples
- \text{Remaining apples} =(percentage left100)×x(100percentage left)×x
Solution:
1. Let the total number of apples be x .
Remaining apples =60%ofx,as100%−40%=60%60%ofx,as100%−40%=60%.
2. Set up the equation:
60100×x=42010060×x=420
3. Solve for x :
x=420×10060x=60420×100
x = 700
4. Therefore, the fruit seller originally had 700 apples.

S70. Ans.(d)
Sol. Given:
Average age of 14 students = 17 years
Age of new student = 32 years
Formula Used:
New Average = (Sum of ages of all students) / (Total number of students)
Solution:
Total age of 14 students = 14 * 17 = 238 years
After adding the new student, total age = 238 + 32 = 270 years
New average age = 270 / 15 = 18 years

S71. Ans.(b)
Sol. Given: 4, 112, 8, 56, 12, ?, 16, 14, 20, 7
Logic: 1st number increasing multiple of 4 and 2nd is divided by 2 alternatley.
4×× 2 = 8
112÷÷ 2 = 56
4×× 3 = 12
56÷÷ 2 = **28**
4×× 4 = 16
28÷÷ 2 = 14
4×× 5 = 20
14÷÷ 2 = 7
So, the missing term is **28**.
Thus, correct option is (b).

S72. Ans.(a)
Sol. Given:
Varun, Anwar, Prachi, Fatima and Disha are sitting on a bench.
Varun is sitting to the left of Anwar, who is not sitting at extreme corners.
Fatima is sitting in between Disha and Varun.
Prachi is sitting at extreme right.

From the given information seating arrangement will be.

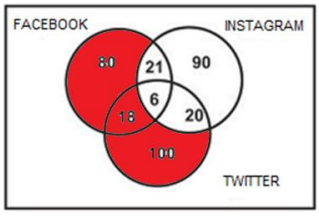


Prachi is to the right of Anwar.
Thus, correct option is (a).

S73. Ans.(c)
Sol. Let's analyze the meaning and category of each options:
Option (a): Galaxy
A massive system consisting of billions of stars, gas, dust, and dark matter, bound by gravity.
Option (b): Constellation
A group of stars forming a recognizable pattern, usually named after mythological characters, animals, etc.
Not a physical group — it's based on visual appearance from Earth.
Option (c): Star
A luminous celestial body made of plasma, like our Sun. The basic unit present in galaxies, solar systems, and constellations.
Option (d): Solar system
A system of planets, moons, asteroids, etc., orbiting a star.
Example: Our solar system orbits the Sun.
So, **Star** odd one out. Star is the only single celestial object. All others are groups or systems made of stars or celestial bodies.
Thus, correct option is (c).

S74. Ans.(b)
Sol. Given: 7 - 3 + 6 × 4 ÷ 2 = 25
Using **BODMAS** rule:
OperationpreferencewiseSymbolBrackets[],,()Orders,
of(power),√(root),ofDivision÷Multiplication×Addition+Subtraction−Operation preference wiseBracketsOrders, ofDivisionMultiplicationAdditionSubtractionSymbol[],,()(power),√(root),of÷×+−
Now, we check each options.
Option (a): ÷ and -
New equation: 7 ÷ 3 + 6 × 4 - 2 = 25
2.3 + 6 × 4 - 2 = 25
2.3 + 24 - 2 = 25
24.3≠ = 25
Option (b): × and -
New equation: 7 × 3 + 6 - 4 ÷ 2 = 25
7 × 3 + 6 - 2 = 25
21 + 6 - 2 = 25
27 - 2 = 25
25 = 25
Option (c): × and +
New equation: 7 - 3 × 6 + 4 ÷ 2 = 25
7 - 3 × 6 + 2 = 25
7 - 18 + 2 = 25
- 9≠ = 25
Option (d): × and ÷
New equation: 7 - 3 + 6 ÷ 4 × 2 = 25
7 - 3 + 1.5 × 2 = 25
7 - 3 + 3 = 25
7≠ = 25
Thus, correct option is (b).

S75. Ans.(b)
Sol. Given: The given Venn diagram shows the number of students who use different social media like Facebook, Instagram and Twitter.



= 80 + 18 + 100
= 198
So, **198** students use either Facebook or Twitter or both, but not Instagram.
Thus, correct option is (b).

S76. Ans.(b)
Sol. Given:
ENT : FQV
FET : GHV

1	2	3	4	5	6	7	8	9	10	11	12	13
A	B	C	D	E	F	G	H	I	J	K	L	M
Z	Y	X	W	V	U	T	S	R	Q	P	O	N
26	25	24	23	22	21	20	19	18	17	16	15	14

Logic: 1st letter + 1 = 4th letter, 2nd letter + 3 = 5th letter and 3rd letter + 2 = 6th letter
For, ENT : FQV
E + 1 = F, N + 3 = Q, T + 2 = V
For, FET : GHV
F + 1 = G, E + 3 = H, T + 2 = V
Now, we check each options.
Option (a): SHE : TKH **(Not Follow)**
S + 1 = T, H + 3 = K, E + 2≠= H
Option (b): TEN : UHP **(Follow)**
T + 1 = U, E + 3 = H, N + 2 = P
Option (c): GMT : HOV **(Not Follow)**
G + 1 = H, M + 3≠= O, T + 2 = V
Option (d): QRY : SUB **(Not Follow)**
Q + 1≠= S, R + 3 = U, Y + 2≠= B
Thus, correct option is (b).

S77. Ans.(b)
Sol. Given:
J, K, L, M, N and O 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 is numbered 6.
M lives on floor number 2.
K and M are immediate neighbours.
O lives on the floor immediately above K.
N lives on the topmost floor.
J lives on an odd numbered floor, exactly above O.
From the given information arrangement will be.

Floors	Persons
6	N
5	J
4	O
3	K
2	M
1	L

On **1** floor does L live.
Thus, correct option is (b).

S78. Ans.(a)
Sol. Given:
Seven boxes V, U, T, S, R, Q and P are kept one above the other, but not necessarily in the same order.
S is at the lowermost position.
Only V is kept above R.
Only three boxes are kept between U and S.

Q is kept immediately above T, which is kept above P.
From the given information arrangement will be.

Order	Boxes
7	V
6	R
5	U
4	Q
3	T
2	P
1	S

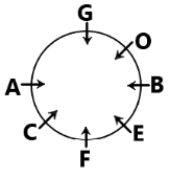
4 boxes are kept between V and P.
Thus, correct option is (a).

S79. Ans.(b)
Sol. Write alphabet in blocks of 5 and reverse each block; then swap X and Z at the end.
Reordered string:
E D C B A | J I H G F | O N M L K | T S R Q P | Y Z W V U | X
(Explanation: U–Y reversed => Y X W V U, then swap X↔Z => Y Z W V U and last Z becomes X.)
The 15th letter in this order is K.
The third to the left of the 15th is the 12th letter → N.

S80. Ans.(a)
Sol. Given: Triangle : Rectangle :: ?
A **triangle** is a 2D shape with 3 sides. A **rectangle** is a 2D shape with 4 sides.
So the relationship is: Both are polygons, the second has one more side than the first.
Now check options:
Option (a): Pentagon (5 sides) : Hexagon (6 sides) → matches the rule.
Option (b): Angle (not a polygon) : Quadrilateral (polygon) → does **not** match.
Option (c): Rhombus (4 sides) : Octagon (8 sides) → **not** just one side more.
Option (d): Cone (3D) : Sphere (3D) → does **not** match different category.
Thus, correct option is (a).

S81. Ans.(d)
Sol. Given: 15, 30, ?, 40, 8, 48
Logic: Numbers are multiplied by even numbers, and numbers are divided by odd numbers alternately, starting from 2.
15×× 2 = 30
30÷÷ 3 = **10**
10×× 4 = 40
40÷÷ 5 = 8
8×× 6 = 48
So, the missing term is **10.**
Thus, the correct option is (d).

S82. Ans.(a)
Sol. Given:
A, B, C, O, E, F, and G are sitting around a circular table facing the center.
C is next to the left of F and G is second to the left of C.
A is sitting third to the left of E.
B is between O and E.
From the given information seating arrangement will be.



O is between B and G.
Thus, correct option is (a).

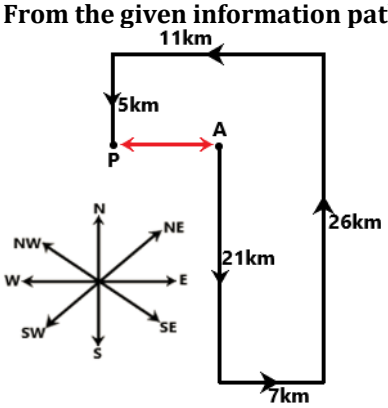
S83. Ans.(c)
Sol. Given:
18 − 18 ÷ 3 − 72 × 12 + 4 − 6
OperationpreferencewiseSymbolBrackets[],,()Orders,
of(power),√(root),ofDivision÷Multiplication×Addition+Subtraction−Operation preference wiseBracketsOrders,
ofDivisionMultiplicationAdditionSubtractionSymbol[],,()(power),√(root),of÷×+−
Given**'+''−''×''÷'**
New **'−''×''÷''+'**
So expression becomes:
= 18 × 18 + 3 × 72 ÷ 12 − 4 × 6
= 18 × 18 + 3 × 6 − 4 × 6
= 324 + 18 − 24
= 342 − 24
= 318
Thus, correct option is (c).

S84. Ans.(b)
Sol. Logic: Operations applied in each step are defined below:
Step I: Decreasing order of number comes first.
Step II: Word comes in increasing order in alphabetical series.
This pattern continues at the end.
Input: 81 boat 73 wheel spike dancer 32 59
Step IV: 81 boat 73 dancer wheel spike 32 59
Step V: 81 boat 73 dancer 59 wheel spike 32
Step VI: 81 boat 73 dancer 59 spike wheel 32
Step VII: 81 boat 73 dancer 59 spike 32 wheel
So, 4 more steps are required to complete the rearrangement.
Thus, the correct answer is (b).

S85. Ans.(b)
Sol. Given:
David ranked 19th from the top and 25th from the bottom in his class.
Formula Used:
Total students = Rank from top + Rank from bottom − 1
Total = 19 + 25 − 1 = **43**
So, **43** students are there in his class.
Thus, correct option is (b).

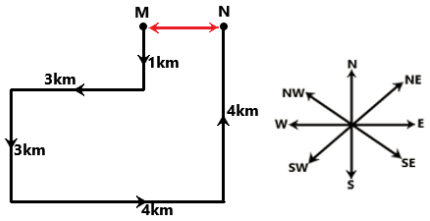
S86. Ans.(c)
Sol. Given: 74135296
Add 2 to each even digit and subtract 1 from each odd digit.
7 (odd) → 7 − 1 = 6
4 (even) → 4 + 2 = 6
1 (odd) → 1 − 1 = 0
3 (odd) → 3 − 1 = 2
5 (odd) → 5 − 1 = 4
2 (even) → 2 + 2 = 4
9 (odd) → 9 − 1 = 8
6 (even) → 6 + 2 = 8
New number: 66042488
Digits appearing more than once: 6, 4, 8
So, **Three** digits will appear more than once in the new number thus formed.
Thus, correct option is (c).

S87. Ans.(a)
Sol. Given:
Mr. KLM starts from Point A and drives 21 km towards the south.
He then takes a left turn, drives 7 km, turns left and drives 26 km.
He then takes a left turn and drives 11 km.
He takes a final left turn, drives 5 km and stops at Point P.
From the given information path diagram will be.



11 - 7 = 4km
He far **4km** and in **East** direction should he drive in order to reach Point A again.
Thus, correct option is (a).

S88. Ans.(a)
Sol. Given:
Mr. I starts from Point M and drives 1 km towards the south.
He then takes a right turn, drives 3 km, turns left and drives 3 km.
He then takes a left turn and drives 4 km.
He takes a final left turn, drives 4 km and stops at Point N.
From the given information path diagram will be.



NM = 4 - 3 = 1 km
He far **1km** and **West** which direction should he drive in order to reach Point M again.
Thus, correct option is (a).

S89. Ans.(b)
Sol. Given:
In a certain code language, 'GROW' is coded as '2571' and 'WORK' is coded as '5742'.

G R O W = 2 5 7 1

W O R K = 5 7 4 2

So, the code of **K** is **4**.
Thus, correct option is (b).

S90. Ans.(c)
Sol. Given:
In a certain code language, 'BEST' is coded as '4568' and 'STAB' is coded as '8965'.

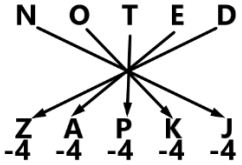
B E S T = 4 5 6 8

S T A B = 8 9 6 5

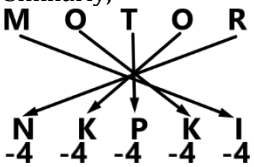
B, S, T and 5, 6, 8 are common in both.
So, the code of **A** is **9**.
Thus, correct option is (c).

S91. Ans.(c)
Sol. Given:
NOTED → ZAPKJ
MOTOR→ ?
Logic: letter are diagonally decresing by (-4).

1	2	3	4	5	6	7	8	9	10	11	12	13
A	B	C	D	E	F	G	H	I	J	K	L	M
Z	Y	X	W	V	U	T	S	R	Q	P	O	N
26	25	24	23	22	21	20	19	18	17	16	15	14



Similarly,



So, MOTOR will be coded as **NKPKI**.
Thus, correct option is (c).

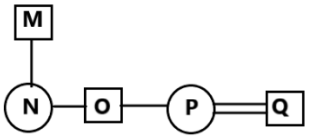
S92. Ans.(d)
Sol. Given:

Symbols	+	-	×	÷
Relations	Sister	Brother	Wife	Father

M ÷ N + O – P × Q'?

Symbol in Diagram	Meaning
- / O	Female
+ / □	Male
=	Married Couple
—	Siblings
|	Difference Of Generation

From the above following family diagram will be –



From the above M is wife's father of Q.

S93. Ans.(d)
Sol. Given: In a certain code language LAME is written as 3145.

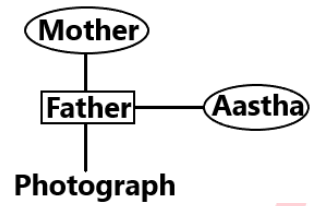
1	2	3	4	5	6	7	8	9	10	11	12	13
A	B	C	D	E	F	G	H	I	J	K	L	M
Z	Y	X	W	V	U	T	S	R	Q	P	O	N
26	25	24	23	22	21	20	19	18	17	16	15	14

Logic: 1. If the letter is not 'A' or 'E', then: Code = (Alphabet position) − 9
2. If the letter is 'A' or 'E', it is directly coded as 1 and 5 respectively (same as their alphabet positions).
For, LAME → 3145
L (12th letter) → 12 − 9 = 3
A (1st letter) → 1
M (13th letter) → 13 − 9 = 4
E (5th letter) → 5
Similarly
PEON : ?
P (16th letter) → 16 − 9 = **7**
E (5th letter) → **5**
O (15th letter) → 15 − 9 = **6**
N (14th letter) → 14 − 9 = **5**
So, **PEON** is written as **7565**.
Thus, correct option is (d).

S94. Ans.(c)
Sol. Given: Pointing to a woman in the photograph, Shuchi told Aastha, "Her father is the only son of your mother."

Symbol in Diagram	Meaning
- / ○	Female
+ / □	Male
=	Married Couple
—	Siblings
|	Difference Of Generation

From the given information blood relation diagram will be.



So, Aastha is **aunt** of woman.
Thus, correct option is (c).

S95. Ans.(d)
Sol. Given:
Conclusions:
I. Some sculptures are not paintings.
II. All sculptures are artworks.
From the above statement following Venn diagram will be -

Conclusion I: Some sculptures are not paintings. (False, No direct or indirect relationship is given between sculptures and paintings. So, we cannot infer anything about sculptures and paintings.)
Conclusion I does not follow.
Conclusion II: All sculptures are artworks. (False, Some artworks are not sculptures, which actually limits sculptures from covering all artworks. It does not imply anything about all sculptures being artworks.)
Conclusion II does not follow.
Correct answer is (d) **Neither conclusion I nor II follows.**

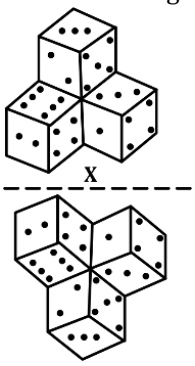
S96. Ans.(a)
Sol. Statements:
1. Some writers are poets.
2. All poets are dreamers.
From the given statements possible Venn diagram will be.

Conclusions:
I. Some dreamers are writers. (**True**, some writers are poets and all poets are dreamers, so that means some dreamers are also writers).
II. All dreamers are poets. (**False**, from statement all poets are dreamers).
So, **Only conclusion I follows.**
Thus, correct option is (a).

S97. Ans.(a)
Sol. Given
Statements:
Some bottles are bags.
All the boxes are bags.
From the above statement following Venn diagram will be -

Conclusion I: Some bottles are boxes. (False, No direct link is given between bottles and boxes. Therefore, we cannot say that some bottles are boxes.)
Conclusion I does not follow.
Conclusion II: Some boxes are bags. (True, Statement 2 clearly says: All the boxes are bags. From this, it is obvious that some boxes are bags (as "all" includes "some").
Conclusion II definitely follows.
Correct answer is (a) **Only conclusion II follows.**

S98. Ans.(c)
Sol. Mirro image of the given figure is shown below.



Thus, correct option is (c).

S99. Ans.(b)
Sol. The hands of a clock overlap 11 times in 12 hours.
A day has 24 hours, which is 2 sets of 12 hours.
(not 12, because at 12:00 they start together)
So,11 × 2 = **22** times
Thus, correct option is (b).

S100. Ans.(d)
Sol. Given:
RAM → Q14
CAR → B19
MARK → ?

1	2	3	4	5	6	7	8	9	10	11	12	13
A	B	C	D	E	F	G	H	I	J	K	L	M
Z	Y	X	W	V	U	T	S	R	Q	P	O	N
26	25	24	23	22	21	20	19	18	17	16	15	14

Logic: 1st letter - 1 and the sum of last two letters.
RAM → Q14
R - 1 = Q
A = 1, M = 13 → 1 + 13 = 14
CAR → B19
C - 1 = B
A = 1, R = 18 → 1 + 18 = 19
As the similarly: to **MARK:**
M - 1 = L
Number calculation:
A = 1, R = 18, K = 11 → 1 + 18 + 11 = 30
Now the next term will be L30
Thus, the correct option is **(d) MARK → L30.**