SSC MTS 2025 Official Paper (Held On: 06 Feb, 2026 Shift 2) (Previous Year Paper)

SSC Multi-Tasking Staff (MTS) • 2025 • 90 questions • 90 minutes • Answer key and solutions

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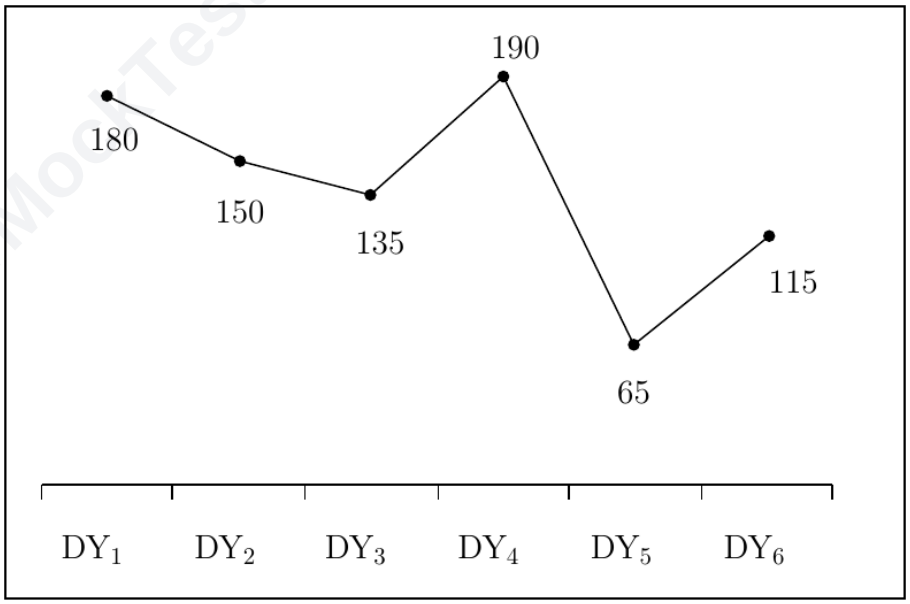
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SESSION 1

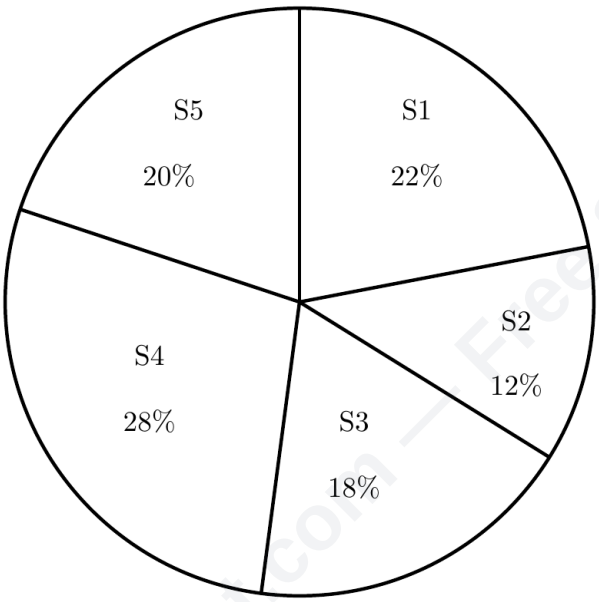
Q1. The line chart given below shows the number of new users signing up on an app on 6 consecutive days DY1, DY2, DY3, DY4, DY5 and DY6.



What is the average number of new users on these 6 days?

(a) 139.17
(b) 134.27
(c) 143.31
(d) 129.61

Q2. The pie chart given below shows the number of hotels in 5 states. The data is presented in the terms of percent. Number of hotels in S1 = 4400.

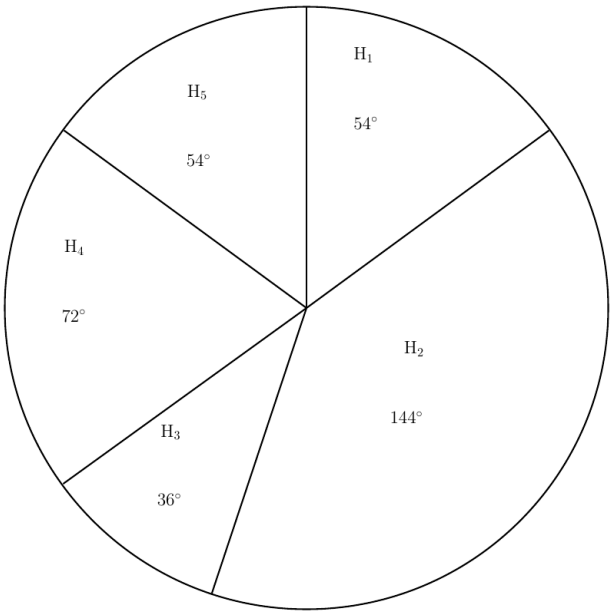


In which state number of hotels are 2400?

(a) S3
(b) S1
(c) S5
(d) S2

Q3. The pie chart given below shows the number of nurses in the 5 hospitals. The data is presented in the terms of degrees.

Total number of nurses in H5 and H1 = 3240.



Number of nurses in H1 are what percent less than the number of nurses in H4?

(a) 30%
(b) 20%
(c) 15%
(d) 25%

Q4. In triangle ABC, the bisector of angle A meets side BC at point D. If AB = 28 cm, AC = 42 cm, and BC = 50 cm, find the length of BD.

(a) 16 cm
(b) 24 cm

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(c) 20 cm
(d) 12 cm

Q5. Kamal and Harshit started a business by investing Rs. 4800 and Rs. 6000. After 4 months, Kamal added Rs. 1200 more and Harshit withdrew Rs. 1200 from their respective initial investment. If the annual profit earned by Harshit was Rs. 2600, then find the profit share of Kamal.

(a) Rs. 2,800
(b) Rs. 2,000
(c) Rs. 2,500
(d) Rs. 2,200

Q6. A watch dealer marks the price of a luxury watch 35% above its cost price. During an annual sale, the dealer offers a primary discount of 20% on the marked price. To attract more buyers, a second successive discount of y% is given. If the dealer's overall profit on the transaction is 8% of the cost price, find the value of the second discount y.

(a) 1.3%
(b) 2%
(c) 1%
(d) 0%

Q7. A container holds a mixture of grape juice and water. The ratio of grape juice to water is initially 5 : 2. If 15 litres of pure grape juice is added to the mixture, the new ratio of grape juice to water becomes 8 : 3. What was the initial total volume of the mixture (in litres)?

(a) 125 L
(b) 115 L
(c) 215 L
(d) 315 L

Q8. A sum of Rs. 1,500 is divided among A, B, and C in the ratio 2:3:5. Find each share.

(a) A = Rs. 100, B = Rs. 550, C = Rs. 850
(b) A = Rs. 250, B = Rs. 550, C = Rs. 700
(c) A = Rs. 300, B = Rs. 450, C = Rs. 750
(d) A = Rs. 350, B = Rs. 450, C = Rs. 700

Q9. The table given below shows the number of tenants in 6 towns.

T1	**120**
T2	100
T3	80
T4	120
T5	100
T6	140

What are the total number of tenants in the given 6 towns?

(a) 660
(b) 580
(c) 720
(d) 700

Q10. If $x = \sqrt{144} \div \sqrt{36} \times \sqrt{49}$, then what is the value of x^2 ?

(a) 121
(b) 169
(c) 196
(d) 225

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Q11. $(1+\sqrt{5})^2 + (1-\sqrt{5})^2 - 6 = ?$

(a) 0
(b) 2
(c) 4
(d) 6

Q12. $(4+\sqrt{2})^2 + (4-\sqrt{2})^2 - 20 = ?$

(a) 12
(b) 14
(c) 16
(d) 10

Q13. The area of a rectangle is 54 square cm. The length of the rectangle is 9 cm. What is the perimeter (in cm) of the rectangle?

(a) 32
(b) 28
(c) 30
(d) 34

Q14. 39P6 is divisible by 3. Which of the following cannot be the value of P?

(a) 0
(b) 3
(c) 6
(d) 7

Q15. The length of a rectangle is 5 cm. The diagonal of the rectangle is 13 cm. What is the area (in square cm) of the rectangle?

(a) 55
(b) 60
(c) 65
(d) 70

Q16. The perimeter of a rectangle is 64 cm. The length of the rectangle is 3 times of its breadth. What is the length (in cm) of its diagonal?

(a) $8\sqrt{10}$
(b) $8\sqrt{7}$
(c) $7\sqrt{5}$
(d) $6\sqrt{5}$

Q17. The average of 8 consecutive even natural numbers is 57. These numbers are in ascending order. What is the value of the third number?

(a) 50
(b) 54
(c) 52
(d) 56

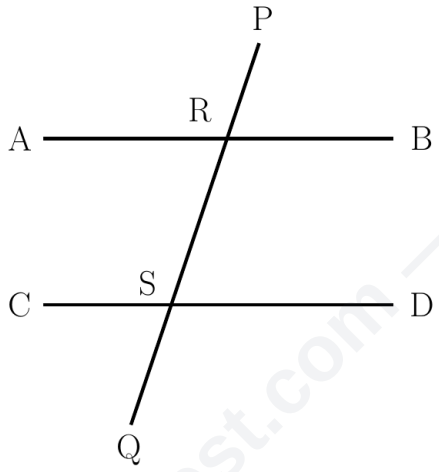
Q18. The average of 19 consecutive natural numbers is A. What is the sum of the largest and the smallest numbers?

(a) 3A
(b) A/3
(c) 2A
(d) A/2

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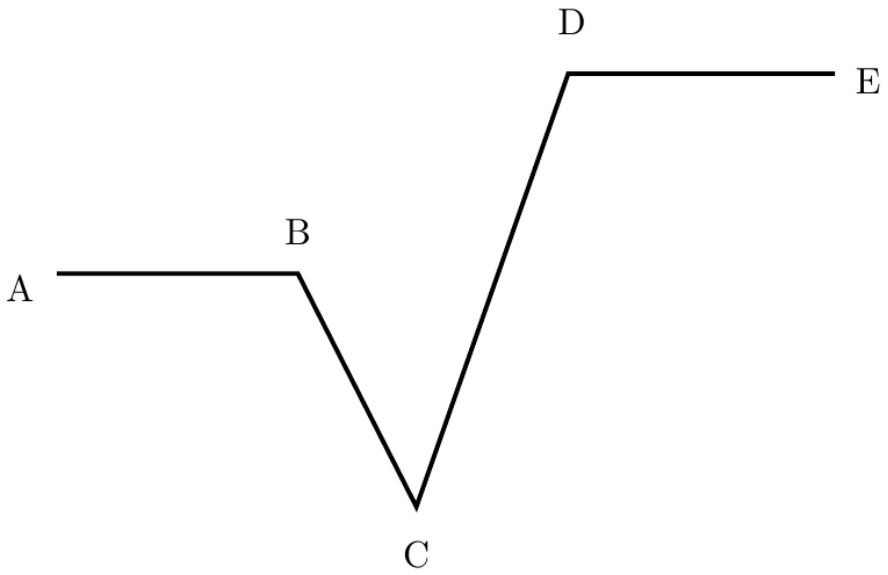
Q19. In the given figure, AB is parallel to CD. Angle PRB = 74 degrees. What is the value (in degrees) of angle DSQ?

In the given figure, AB is par



(a) 74
(b) 84
(c) 106
(d) 96

Q20. In the given figure, angle ABC = 120°, angle EDC = 120°. AB is parallel to DE. What is the value (in degrees) of angle BCD ?



(a) 45
(b) 60
(c) 90
(d) 55

Q21. A series is given with one term missing. Select the correct alternative from the given ones that will complete the series.

500, 494, 486, 476, ?, 450, 434, 416

(a) 461
(b) 463
(c) 464

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(d) 465

Q22. Select the option that is related to the fifth letter cluster in the same way as the second letter cluster is related to the first letter cluster and fourth letter cluster is related to third letter cluster.

ZNV : WKS :: QIP : NFM :: TEY : ?

(a) YMV
(b) QBV
(c) ZMS
(d) BNX

Q23. A series is given with one term missing. Select the correct alternative from the given ones that will complete the series.

VT, SO, PJ, ME, ?, GU, DP, AK

(a) JX
(b) GZ
(c) LC
(d) JZ

Q24. In the following question, set of letter clusters are given. The letter clusters of each set are related to the letter clusters of the same set by some Logic/Rule/Relation. From the given alternatives, select a group of letter clusters which follows the same Logic/Rule/Relation.

(FA, BV, XQ)

(HL, DG, ZB)

(a) (QV, NU, IM)
(b) (YG, RA, MX)
(c) (AQ, YO, TH)
(d) (GY, CT, YO)

Q25. January 5 of a leap year is Wednesday. How many total Saturdays and Thursdays are there in February of that year?

(a) 9
(b) 7
(c) 8
(d) 10

Q26. In the year 1924, which of the following month had 5 Thursdays?

I. March

II. May

(a) Only I
(b) Only II
(c) Both I and II
(d) Neither I nor II

Q27. 5 persons C, D, F, G and H are sitting in a row facing north (not necessarily in the same order). Only C and F are to the left of D. Only H is to the right of G. F is at one of the extreme ends of the row. How many persons are sitting between F and G?

(a) 3
(b) 1
(c) 2
(d) 0

Q28. Height of 6 girls P, Q, R, S, T and U is compared. Height of no two girls is same. R is taller than only four girls. U is taller than both S and P. S and P both are taller than both Q and T. Which of the following is a possible sequence of their heights?

I. U > R > S > P > T > Q

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II. U > R > P > S > Q > T

(a) Only I
(b) Only II
(c) Both I and II
(d) Neither I nor II

Q29. Select the option that is related to the second letter-number cluster in the same way as the third letter-number cluster is related to the fourth letter-number cluster and fifth letter-number cluster is related to sixth letter-number cluster.

(NOTE: Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. E.g.13 – Operations on 13 such as adding /subtracting /multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed)

? : AV60 :: SK18 : TM36 :: BN25 : CP50

(a) ZS15
(b) ZT30
(c) TZ15
(d) TS30

Q30. Select the option that is related to the third letter-number cluster in the same way as the second letter-number cluster is related to the first letter-number cluster and sixth letter-number cluster is related to fifth letter-number cluster.

(NOTE: Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. E.g.13 – Operations on 13 such as adding /subtracting /multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed)

BI320 : GB450 :: DJ110 : ? :: EK240 : JD370

(a) IC240
(b) ID220
(c) CI220
(d) DI240

Q31. Select the option that is related to the third number in the same way as the second number is related to the first number and sixth number is related to fifth number.

(NOTE: Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. E.g.13 – Operations on 13 such as adding /subtracting /multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed)

9165 : 9123 :: 5630 : ? :: 874 : 832

(a) 5593
(b) 5583
(c) 5588
(d) 5589

Q32. Select the option that is related to the third number in the same way as the second number is related to the first number and sixth number is related to fifth number.

(NOTE: Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. E.g.13 – Operations on 13 such as adding /subtracting /multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed)

910 : 632 :: 415 : ? :: 412 : 134

(a) 125
(b) 138
(c) 134
(d) 137

Q33. In a certain coded language 'JAMB' is coded as 'KBNC' and 'BOND' is coded as 'CPOE'. How will 'COIR' be coded in the same code language?

(a) FNKQ
(b) DPJS

(c) BNIS
(d) ENHS

Q34. A series is given with one term wrong. Select that wrong term from the given alternatives.

WP14, XT28, YX42, ZB56, AF70, BK84

(a) YX42
(b) BK84
(c) XT28
(d) ZB56

Q35. A series is given with one term missing. Select the correct alternative from the given ones that will complete the series.

FAN1000, AVI907, ?, QLY721, LGT628

(a) DQV812
(b) QDV815
(c) VDQ813
(d) VQD814

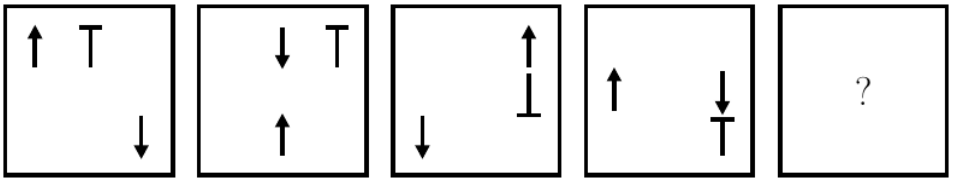
Q36. In 24 hours, how many times minute and hour hands of a clock overlap?

(a) 20
(b) 24
(c) 22
(d) 18

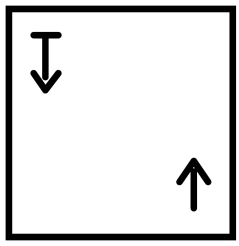
Q37. Angle between minute hand and hour hand of a clock at 3:05 and 11:55 are J and K respectively. What is the difference (in degrees) between J and K ?

(a) 70
(b) 35
(c) 50
(d) 55

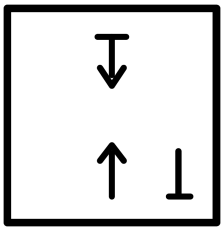
Q38. In the following figure series, select the figure which can be placed at the sign of question mark (?) from the given alternatives.



(a)

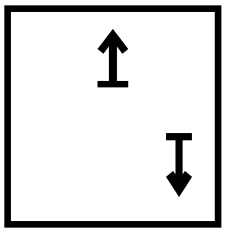


(b)

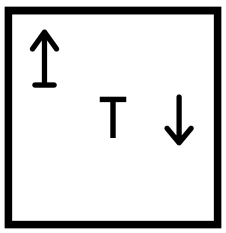


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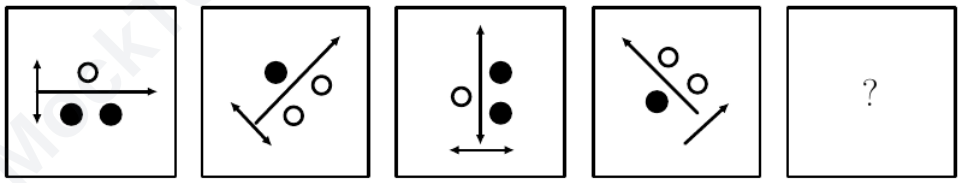
(c)



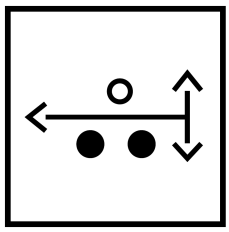
(d)



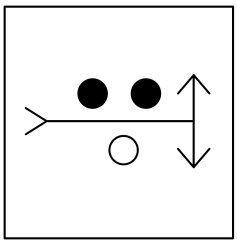
Q39. In the following figure series, select the figure which can be placed at the sign of question mark (?) from the given alternatives.



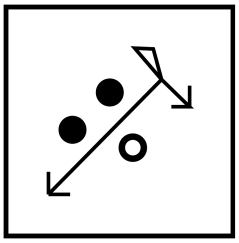
(a)



(b)

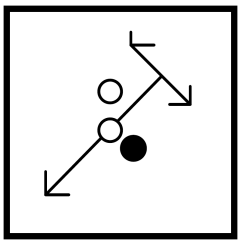


(c)



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(d)



Q40. The sum of present ages of S and T is 50 years. The difference of the present ages of S and T is 8 years. 6 years ago from present, what was the ratio of age of S to age of T? (S is elder to T)

(a) 15 : 23
(b) 23 : 15
(c) 11 : 29
(d) 29 : 11

SESSION 2

Q41. Which of the following is an ore of mercury?

(a) Bauxite
(b) Magnetite
(c) Cinnabar
(d) Malachite

Q42. The Durgapur steel plant was set up in collaboration with the government of the ____.

(a) France
(b) United Kingdom
(c) United states of America
(d) Russia

Q43. Which of the following is NOT the division of the Himalaya?

(a) Himadri
(b) Himachal
(c) Shiwalik
(d) Aravali

Q44. Which metal was unknown to the Harappan people?

(a) Iron
(b) Gold
(c) Silver
(d) Copper

Q45. How do plants primarily get rid of excess water?

(a) By transpiration
(b) By shedding their roots
(c) By secreting through the stems
(d) By storing water in fruits

Q46. Which of the following statement regarding the fundamental rights of the Indian constitution is correct?

I. Article 26 is related Freedom from Taxation for Promotion of a Religion
II. Article 27 is related to freedom to manage religious affairs.

(a) Only I
(b) Only II
(c) Both I and II

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(d) Neither I Nor II

Q47. The last subject mentioned in the concurrent list of the Indian Constitution is numbered ____.

(a) 34
(b) 42
(c) 47
(d) 41

Q48. 'Chawng Laizawn' is a popular dance of which of the following Indian state/ Union Territory?

(a) Mizoram
(b) Assam
(c) Ladakh
(d) Chhattisgarh

Q49. Which Indian state is famous for the folk dance called 'Kajri'?

(a) Assam
(b) Punjab
(c) Maharashtra
(d) Uttar Pradesh

Q50. 'Ganga Dussehra' is celebrated in the month of _____.

(a) January
(b) October
(c) November
(d) June

Q51. As per census 2011, which among the following state had the highest population?

(a) Rajasthan
(b) West Bengal
(c) Karnataka
(d) Tamil Nadu

Q52. In the context of Chandrayaan-III mission, the SHAPE payload was used to _____.

(a) detect moonquakes
(b) study Earth's spectral and polarimetric properties from lunar orbit
(c) measure thermal conductivity from lunar surface
(d) study the plasma density on lunar surface

Q53. 1 kJ = _____ J

(a) 10
(b) 100
(c) 1000
(d) 10000

Q54. Who wrote Hind Swaraj in 1909?

(a) Ravindra Nath Tagore
(b) Gopal Krishna Gokhale
(c) Bal Gangadhar Tilak
(d) Mahatma Gandhi

Q55. Which organization developed the SCOT mission in January 2025?

(a) Skyroot Aerospace
(b) Agnikul Cosmos
(c) Digantara
(d) Pixxel

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Q56. What is the name of the Large Language Model (LLM) developed by CoRover.ai?

(a) IndiaGPT
(b) BharatAI
(c) BharatGPT
(d) DeshGPT

Q57. In the context of population change, if the birth rate is ____ than death rate, the population will ____.

(a) less, increase
(b) less, decrease
(c) more, be same
(d) less, be same

Q58. Which of the following economic activity is NOT included in the primary sector?

(a) Fishing
(b) Mining
(c) Manufacturing
(d) Forestry

Q59. Who is the author of the book 'When Love Came Calling'?

(a) Aruni Kashyap
(b) Preeti Shenoy
(c) Chetan Bhagat
(d) Tanya Selvaratnam

Q60. Which of the following sector is NOT covered under Production Linked Incentive (PLI) scheme?

(a) Manufacturing of Medical Devices
(b) Leather Industry
(c) Automobiles and Auto Components
(d) Drones and Drone Components

Q61. Which of the following is a type of service in volleyball?

I. Jump and Serve
II. Floating serve

(a) Only I
(b) Only II
(c) Both I and II
(d) Neither I nor II

Q62. How many distinct temples are there in the Dilwara Temples complex?

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

Q63. What is molecular mass?

(a) The total number of atoms in a molecule
(b) The sum of the valencies of the atoms in a molecule
(c) The sum of the atomic masses of all atoms in a molecule
(d) The volume occupied by a molecule

Q64. Which of the following is correct regarding Gitam?

I. It is the simplest type of composition.
II. It is very simple in construction, with an easy and melodious flow of music.

(a) Only I
(b) Only II

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(c) Both I and II
(d) Neither I nor II

Q65. EnviStats India 2025: Environment Statistics has been released by which of the following?
(a) Ministry of Statistics & Programme Implementation
(b) Ministry of Environment, Forest and Climate Change
(c) Ministry of Home Affairs
(d) Ministry of Social Justice and Empowerment

Q66. Which of the following idiom given in the alternatives has the meaning?
Enjoy oneself very much
(a) Have a nick of a time
(b) Have a click of a time
(c) Have a whale of a time
(d) Have a shell of a time

Q67. Choose the correctly spelt word from the given options.
(a) Fasination
(b) Fascinacion
(c) Fascination
(d) Facination

Q68. Select the option with the correct spelling that can replace the underlined word in the given sentence. If the spelling in the given sentence is already correct, choose Option "No replacement required".
The doctor diagnosed her with kleptomenia, a disorder that caused her to steal compulsively.
(a) Kleptominia
(b) kleptomania
(c) klaptomania
(d) No replacement required

Q69. There are four underlined words in the sentence given below. One of them is misspelt. Choose the option with the misspelt word.
The summit emphasised multilateral cooperation to address pressing global issues such as climate change and terrorisim.
(a) multilateral
(b) cooperation
(c) pressing
(d) terrorisim

Q70. Choose the misspelt word from the given options.
(a) Cemetery
(b) Punctuate
(c) Ludicurous
(d) Indolence

Q71. Choose the word that is most opposite in meaning to “dig”.
(a) Excavate
(b) Burrow
(c) Fill
(d) Unearth

Q72. Choose the word that is the antonym of Get back.
(a) Regain
(b) Retrieve
(c) Recover

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(d) Lose

Q73. The word "bank" is a homonym. In which sentence does it mean the side of a river?

(a) She deposited her salary in the bank.
(b) They had a picnic on the bank of the Ganga.
(c) He decided to bank on his friends for support.
(d) The central bank controls the country’s money supply.

Q74. Choose the most suitable one-word substitution for the following.

A person who has no money.

(a) Pauper
(b) Miser
(c) Tycoon
(d) Patron

Q75. Choose the most suitable one-word substitution for the following.

An athletic event comprising ten different events.

(a) Decathlon
(b) Pentathlon
(c) Tetrathlon
(d) Heptathlon

Q76. Which of the following options is the most suitable conversion of the following sentence into Passive Voice?

People believed that he was innocent.

(a) It will believe that he was innocent.
(b) He was believe to be innocent by people.
(c) It was believed that he was innocent.
(d) His innocence was believe by people.

Q77. Which of the following options is the most suitable conversion of the following sentence into Passive Voice?

Didn't the manager inform all the employees about the new rule?

(a) Weren't all the employees informed about the new rule by the manager?
(b) Wasn't all the employees informed about the new rule by the manager?
(c) Didn't all the employees informed about the new rule by the manager?
(d) Doesn't all the employees informed about the new rule by the manager?

Q78. Which of the following options is the most suitable conversion of the following sentence into active voice?

You are requested to come early tomorrow.

(a) Let you come early tomorrow.
(b) Come early tomorrow.
(c) Please come early tomorrow.
(d) I request your early coming tomorrow.

Q79. In the given question, a sentence is divided into four parts and given in the alternatives (A), (B), (C), and (D). There is an error in one part. Choose the alternative containing that part of the sentence that has the error. Choosing the alternative with the error will be the answer.

Johnsy was so angry with the stranger that she threw her sandals to him hurting just above his right eyebrow.

(a) Johnsy was so
(b) angry with the
(c) stranger that she threw her sandals to him
(d) hurting just above his right eyebrow.

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Q80. Select the correct alternative to fill in the blank with the correct preposition in the following sentence.

Their surprise gift came _____ the form of a new laptop.

(a) on
(b) by
(c) in
(d) of

Q81. A part of the following sentence is underlined. Choose the option that can replace the underlined part to improve the sentence. In case Options A, B and C are not found suitable, choose Option D: “No Improvement Required.”

The prestigious award was given to the scientist for his groundshaking research in genetics.

(a) groundbraking research in genetics
(b) groundshaking research in genetic
(c) groundbreaking research in genetics
(d) No improvement required

Q82. Select the correct alternative to fill in the blank with the correct preposition in the following sentence.

The child wanted to hear the story _____ Vikramaditya.

(a) about
(b) on
(c) for
(d) in

Q83. Given below are six sentences taken from a paragraph. The first and the last sentences are numbered S1 and S2 and are placed in the first and last positions respectively. The other four sentences between the first and last sentences are jumbled up and are numbered A, B, C, and D. Rearrange the jumbled sentences in a logical sequence keeping the unity and coherence of the paragraph intact. Choose the correct alternative that best describes the sequence.

S1. At half-past eleven that night he drove up to the entrance of the Paris Hotel

A. He was admitted.

B. Grohol sky was packing his things in a portmanteau, Liza was sitting at the table trying on bracelets.

C. He went noisily upstairs and knocked at the door of Grohol sky's apartments.

D. They were both frightened when Bugrov went in to them.

S2. They fancied that he had come for Liza and had brought back the money which he had taken in haste without reflection.

(a) ABCD
(b) BDAC
(c) DABC
(d) CABD

Q84. Given below are six sentences taken from a paragraph. The first and the last sentences are numbered S1 and S2 and are placed in the first and last positions respectively and are fixed in their positions. The other four sentences between the first and last sentences are jumbled up and are numbered A, B, C, and D. Rearrange the jumbled sentences in a logical sequence keeping the unity and coherence of the paragraph intact. Choose the correct alternative that best describes the sequence.

S1. Suddenly, in the midst of his distress, he heard footsteps in the corridor.

A. The Count was tall, lanky, freckled, with close-cropped red hair, and a wicked bony face.

B. His knees stuck out from his tightly fitting trousers like two bunions.

C. In a moment the door opened, and in the middle of the diabolical kitchen stood Count Scarlet with threateningly puckered eyebrows.

D. His hands were as large as beefsteaks.

S2. He lifted his aristocratic, hairy red hand, and his tiny pig eyes grinned searchingly: "Well, Maestro!"

(a) BDAC
(b) DCBA

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(c) CADB
(d) ADBC

Q85. A part of the following sentence is underlined. Choose the option that can replace the underlined part to improve the sentence. If you feel Options A, B, or C do not improve the sentence, then choose Option D: "No improvement required."

The employees, having completing the rigorous training program, felt well prepared for the upcoming challenges.

(a) The rigorous training program, having been completed by the employees
(b) Having completed the employees rigorous training program,
(c) Having completed the rigorous training program, the employees
(d) No improvement required

Directions

Read the following passage carefully and answer the questions based on the passage:

A radical vision of mental health care needs to be centered on the ideals of dignity and disability justice. It needs to be based on the principles of equity, inclusion, and diversity, but it also needs to account for the complexities at issue. It means simply being there for the person, again and again, through various sufferings, whether it be relationship suffering, suffering related to the things they need, or suffering related to existential issues. In this vision, care as the task of addressing adverse life circumstances, relationship issues, or existential issues, while at the same time addressing needs related to security, relationship, daily accomplishment, or problem-solving, is a very complicated story.

Q86. According to the passage, what should a radical vision of mental health care prioritize?

(a) Respect for the values of dignity and disability justice and provision of constant and compassionate care.
(b) Concerned only with medical intervention, to the point of ignoring the relational-existent aspects.
(c) Reducing care management to short-term crisis interventions.
(d) Refraining from dealing with complex needs and only addressing safety-related concerns.

Q87. Why does the passage refer to mental health care as a “complicated story”?

(a) Because most of the mental health problems are solved with just one intervention and regular medication.
(b) Because it must address emotional, relational, practical, and existential needs all at once.
(c) Because care should keep away from the real-life situation.
(d) Because mental health is a matter of medical diagnosis only.

Q88. In what ways does the passage explain what “being there” means in mental health care?

(a) Brief check-ins but not dealing with underlying matters.
(b) Offering consistent support across different kinds of suffering over time.
(c) Overconcern with the basic needs of humans to the point of disregarding the emotional
(d) Restricting contact to life-threatening situations.

Directions

Read the following passage carefully and answer the questions based on the passage:

A radical vision of mental health care needs to be centered on the ideals of dignity and disability justice. It needs to be based on the principles of equity, inclusion, and diversity, but it also needs to account for the complexities at issue. It means simply being there for the person, again and again, through various sufferings, whether it be relationship suffering, suffering related to the things they need, or suffering related to existential issues. In this vision, care as the task of addressing adverse life circumstances, relationship issues, or existential issues, while at the same time addressing needs related to security, relationship, daily accomplishment, or problem-solving, is a very complicated story.

Q89. What is the idea that best reflects the attitude of the passage with respect to the needs of mentally healthy individuals, which would involve things such as security, relationships, and a sense of accomplishment?

(a) These are different from mental health and should be considered individually.
(b) Only security needs have the ability to impact mental health.
(c) The needs are considered irrelevant within a psychological framework that deals with long-term psychological distress.
(d) These needs are interconnected and must be addressed alongside emotional and existential suffering.

Q90. How does the passage infer the existence of suffering within mental health settings?

(a) It only focuses on the chemical imbalance and biological factors.

(b) This develops from a variety of sources: relational, functional, and existent.

(c) Only treatment by medication and crisis intervention.

(d) It can be effectively tackled by working on one aspect of an individual's life.

ANSWER KEY

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

SOLUTIONS

Q1. Answer: (a) 139.17

Given:

Day	Number of New Users
DY1	180
DY2	150
DY3	135
DY4	190
DY5	65
DY6	115

Total number of days = 6

Formula Used:

Average = Sum of all observations ÷ Total number of observations

Calculation:

According to the question,

=> Total sum of new users = 180 + 150 + 135 + 190 + 65 + 115

=> Total sum = 835

=> Average number of new users = Total sum ÷ Total number of days

=> Average = 835 ÷ 6

=> Average = 139.1666...

=> Average ≈ 139.17

Therefore The correct answer is 139.17.

Q2. Answer: (d) S2

Given:

State	Percentage of Hotels
S1	22%

S2	12%
S3	18%
S4	28%
S5	20%

Number of hotels in S1 = 4400
Formula Used:
Total Number of Hotels = (Number of hotels in a State ÷ Percentage of that State) × 100
Number of hotels in a State = Total Number of Hotels × (Percentage of that State ÷ 100)
Calculation:
According to the question,
=> Number of hotels in S1 = 4400
=> Percentage of hotels in S1 = 22%
=> 22% of Total Hotels = 4400
=> Total Hotels = (4400 ÷ 22) × 100
=> Total Hotels = 200 × 100 = 20,000
Now, we need to find the state where the number of hotels is 2400.
=> Let the required percentage be x%
=> x% of 20,000 = 2400
=> (x ÷ 100) × 20,000 = 2400
=> 200 × x = 2400
=> x = 2400 ÷ 200
=> x = 12%
From the table/chart, 12% corresponds to State S2.
Therefore The correct answer is S2.

Q3. Answer: (d) 25%

Given:

Hospital	Number of Nurses (in degrees)
H1	54°
H2	144°
H3	36°
H4	72°
H5	54°
Total	360°

Total number of nurses in H5 and H1 = 3240
Formula Used:
Value of a sector = (Degree of sector ÷ 360°) × Total Value
Percentage less = [(Higher Value − Lower Value) ÷ Higher Value] × 100%
Calculation:
According to the question,
=> Total degree sum for H5 and H1 = 54° + 54° = 108°
=> Given that 108° corresponds to 3240 nurses
=> Value of 1° = 3240 ÷ 108 = 30
=> Number of nurses in H1 = 54° × 30 = 1620
=> Number of nurses in H4 = 72° × 30 = 2160
Now, calculate the percentage by which nurses in H1 are less than those in H4:
=> Difference = 2160 − 1620 = 540

=> Percentage less = (Difference ÷ Number of nurses in H4) × 100%

=> Percentage less = (540 ÷ 2160) × 100%

=> Percentage less = (1 ÷ 4) × 100%

=> Percentage less = 25%

Alternatively, using degrees directly:

=> Percentage less = [(72° − 54°) ÷ 72°] × 100%

=> Percentage less = (18 ÷ 72) × 100% = 25%

Therefore The correct answer is 25% (Option 4).

Q4. Answer: (c) 20 cm

Shortcut Trick

Angle Bisector Theorem: The bisector of an angle divides the opposite side in the ratio of the other two sides.

Ratio BD : DC = AB : AC = 28 : 42 = 2 : 3

Total parts = 2 + 3 = 5 units

Given 5 units = 50 cm => 1 unit = 10 cm

BD = 2 units = 2 × 10 = 20 cm

Therefore The correct answer is 20 cm.

Alternate Method

Given:

In ΔABC, AB = 28 cm, AC = 42 cm, BC = 50 cm.

AD is the internal angle bisector of angle A meeting BC at D.

According to the Internal Angle Bisector Theorem:

=> BD / DC = AB / AC

Let BD = x cm, then DC = (50 − x) cm

=> x / (50 − x) = 28 / 42

=> x / (50 − x) = 2 / 3

=> 3 × x = 2 × (50 − x)

=> 3x = 100 − 2x

=> 5x = 100

=> x = 20

Therefore The correct answer is 20 cm.

Additional Information

Internal Angle Bisector Theorem

The internal bisector of an angle of a triangle divides the opposite side internally in the ratio of the corresponding sides: BD/DC = AB/AC.

Length of Angle Bisector

The length of the internal bisector AD is given by $AD^2 = (AB \times AC) - (BD \times DC)$. For this triangle, $AD = \sqrt{(28 \times 42 - 20 \times 30)} = \sqrt{576} = 24$ cm.

External Angle Bisector Theorem

If AD' is the external bisector of angle A meeting BC produced at D', then BD'/CD' = AB/AC.

Q5. Answer: (a) Rs. 2,800

Shortcut Trick

Profit Ratio (Kamal : Harshit) = (4800 × 4 + 6000 × 8) : (6000 × 4 + 4800 × 8)

=> Ratio = 67200 : 62400 = 672 : 624 = 14 : 13

Harshit's share (13 units) = Rs. 2600 => 1 unit = Rs. 200

Kamal's share (14 units) = 14 × 200 = Rs. 2800

Therefore The correct answer is Rs. 2800.

Alternate Method

Given:

Kamal initial investment = Rs. 4800 | Harshit initial investment = Rs. 6000

After 4 months, Kamal adds Rs. 1200 | Harshit withdraws Rs. 1200

Annual profit of Harshit = Rs. 2600

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Formula:

Profit Ratio = (Investment1 × Time1) : (Investment2 × Time2)

Calculations:

=> Total Investment value for Kamal = (4800 × 4) + (4800 + 1200) × 8

=> Kamal = 19200 + 48000 = Rs. 67200

=> Total Investment value for Harshit = (6000 × 4) + (6000 − 1200) × 8

=> Harshit = 24000 + 38400 = Rs. 62400

=> Ratio (Kamal : Harshit) = 67200 : 62400

=> Ratio = 672 : 624 = 28 : 26 = 14 : 13

=> Harshit's profit share = (13 / 27) × Total Profit = Rs. 2600

=> 13 units = Rs. 2600

=> 1 unit = 2600 ÷ 13 = Rs. 200

=> Kamal's profit share = 14 units = 14 × 200 = Rs. 2800

Therefore The correct answer is Rs. 2800.

Additional Information

Partnership Profit Rule

In any business partnership, the profit is distributed among partners in the ratio of the product of their investments and the time duration: P1 : P2 = C1 × T1 : C2 × T2.

Compound Partnership

When partners invest different amounts for different periods of time, it is called a compound partnership. The effective capital is calculated by summing the products of various capitals and their respective time periods.

Ratio Simplification

To simplify the profit ratio, find the Highest Common Factor (HCF) of the calculated investment-time products and divide both sides by it.

Q6. Answer: (d) 0%

Shortcut Trick

Let Cost Price (CP) = 100. Then Marked Price (MP) = 100 + 35% = 135.

Price after first 20% discount = 135 × 0.8 = 108.

Overall Profit = 8%, so Required Selling Price = 100 + 8% = 108.

Since the price after the first discount (108) is already equal to the target selling price (108), the second discount y must be 0%.

Therefore The correct answer is 0%.

Alternate Method

Given:

Markup Percentage = 35%

First Discount (d1) = 20%

Overall Profit Percentage = 8%

Calculations:

=> Let Cost Price (CP) = Rs. 100

=> Marked Price (MP) = 100 + 35% of 100 = Rs. 135

=> Price after 1st discount = 135 − (20/100) × 135 = 135 − 27 = Rs. 108

=> Required Final Selling Price (SP) for 8% overall profit = 100 + 8% of 100 = Rs. 108

=> Let the second successive discount be y%.

=> SP after second discount = 108 × (1 − y/100) = 108

=> 1 − y/100 = 108 ÷ 108 = 1

=> y/100 = 0

=> y = 0

Therefore The correct answer is 0%.

Additional Information

Successive Discounts Formula

For two successive discounts d1% and d2%, the effective discount D% = d1 + d2 − (d1 × d2) ÷ 100.

CP, MP and Profit Relation

The relationship between Cost Price and Marked Price is given by: MP ÷ CP = (100 + Profit%) ÷ (100 − Discount%).

Effective Profit Percentage

Profit% = Markup% − Discount% − (Markup% × Discount%) ÷ 100. This formula calculates profit directly from markup and discount rates.

Q7. Answer: (d) 315 L

Shortcut Trick

Initial Ratio (Juice : Water) = 5 : 2 → (Multiply by 3) → 15 : 6

New Ratio (Juice : Water) = 8 : 3 → (Multiply by 2) → 16 : 6

Increase in Juice = 16 − 15 = 1 unit

Given: 1 unit = 15 L

Initial Total = 15 + 6 = 21 units = 21 × 15 L = 315 L

Therefore The correct answer is 315 L.

Alternate Method

Initial ratio of grape juice and water = 5 : 2

Let the initial volume of grape juice be 5x and water be 2x.

Initial total volume = 5x + 2x = 7x

After adding 15 litres of juice, the new amount of juice = 5x + 15

The amount of water remains the same = 2x

According to the question:

=> (5x + 15) / 2x = 8 / 3

=> 3 × (5x + 15) = 8 × 2x

=> 15x + 45 = 16x

=> 16x − 15x = 45

=> x = 45

Initial total volume of the mixture = 7x

=> 7 × 45 = 315 L

Therefore The correct answer is 315 L.

Additional Information

Ratio Balancing Method

When one component in a mixture is added or removed, the other component remains constant. Equating the ratio parts of the constant component simplifies the calculation.

Alligation Rule

Used to find the ratio in which two ingredients at different prices or concentrations are mixed to produce a mixture of a desired price or concentration.

Component Percentage

Concentration of a component = (Quantity of component ÷ Total Quantity) × 100.

Q8. Answer: (c) A = Rs. 300, B = Rs. 450, C = Rs. 750

Shortcut Trick

Total ratio units = 2 + 3 + 5 = 10 units.

10 units = Rs. 1,500 => 1 unit = Rs. 150.

A share = 2 × 150 = Rs. 300.

B share = 3 × 150 = Rs. 450.

C share = 5 × 150 = Rs. 750.

Therefore The correct answer is A = Rs. 300, B = Rs. 450, C = Rs. 750.

Alternate Method

Given:

Total Sum = Rs. 1,500

Ratio of A : B : C = 2 : 3 : 5

Formula Used:

Individual Share = (Individual Ratio / Total Ratio Parts) × Total Sum

=> Total Ratio Parts = 2 + 3 + 5 = 10

=> Share of A = (2/10) × 1,500 = 2 × 150 = Rs. 300
=> Share of B = (3/10) × 1,500 = 3 × 150 = Rs. 450
=> Share of C = (5/10) × 1,500 = 5 × 150 = Rs. 750
Therefore The correct answer is A = Rs. 300, B = Rs. 450, C = Rs. 750.
Additional Information
Ratio and Proportion
A ratio is a comparison of two or more quantities of the same kind. If A:B = x:y, then A/x = B/y = k (constant).
Direct Proportion
When quantities are divided in a given ratio, each part is directly proportional to its respective ratio term.
Inverse Ratio
The inverse ratio of a : b is 1/a : 1/b, which simplifies to b : a.

Q9. Answer: (a) 660

Given:

Town	Number of Tenants
T1	120
T2	100
T3	80
T4	120
T5	100
T6	140

Formula Used:
Total number of tenants = Sum of tenants in all given towns
Total tenants = T1 + T2 + T3 + T4 + T5 + T6
Calculation:
According to the question,
=> Total number of tenants = 120 + 100 + 80 + 120 + 100 + 140
=> Total number of tenants = (120 + 80) + (100 + 100) + (120 + 140)
=> Total number of tenants = 200 + 200 + 260
=> Total number of tenants = 400 + 260
=> Total number of tenants = 660
Therefore The correct answer is 660.

Q10. Answer: (c) 196

Shortcut Trick
Simplify square roots: √144 = 12, √36 = 6, and √49 = 7.
Apply calculation: x = (12 ÷ 6) × 7 = 14.
Calculate x^2: $14^2 = 196$.
Therefore The correct answer is 196.
Alternate Method
Given:
$x = \sqrt{144} \div \sqrt{36} \times \sqrt{49}$
Formula Used:
Simplification using BODMAS rule and square root values.
Calculations:
=> x = 12 ÷ 6 × 7
=> x = 2 × 7
=> x = 14
=> $x^2 = 14 \times 14$
=> $x^2 = 196$

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Therefore The correct answer is 196.

Additional Information

BODMAS Rule

Simplification always follows the priority order of Brackets, Orders (powers and roots), Division, Multiplication, Addition, and Subtraction.

Square Roots and Squares

Common squares are essential for speed: $12^2 = 144$, $13^2 = 169$, $14^2 = 196$, and $15^2 = 225$.

Property of Powers

If $x = a$, then $x^2 = a \times a$. This operation is performed after the expression for x is fully simplified.

Q11. Answer: (d) 6

Shortcut Trick

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

Here, $a = 1$ and $b = \sqrt{5}$

$\Rightarrow 2(1^2 + (\sqrt{5})^2) - 6$

$\Rightarrow 2(1 + 5) - 6 = 12 - 6 = 6$

Therefore The correct answer is 6.

Alternate Method

Given expression: $(1 + \sqrt{5})^2 + (1 - \sqrt{5})^2 - 6$

Formula used: $(a + b)^2 = a^2 + b^2 + 2ab$ and $(a - b)^2 = a^2 + b^2 - 2ab$

$\Rightarrow [(1)^2 + (\sqrt{5})^2 + 2(1)(\sqrt{5})] + [(1)^2 + (\sqrt{5})^2 - 2(1)(\sqrt{5})] - 6$

$\Rightarrow [1 + 5 + 2\sqrt{5}] + [1 + 5 - 2\sqrt{5}] - 6$

$\Rightarrow 6 + 2\sqrt{5} + 6 - 2\sqrt{5} - 6$

$\Rightarrow (6 + 6 - 6) + (2\sqrt{5} - 2\sqrt{5})$

$\Rightarrow 6 + 0$

$\Rightarrow 6$

Therefore The correct answer is 6.

Additional Information

Sum and Difference of Squares

$(a + b)^2 + (a - b)^2 = 2(a^2 + b^2)$ and $(a + b)^2 - (a - b)^2 = 4ab$.

Squaring of Surds

The square of a square root of a number is the number itself: $(\sqrt{x})^2 = x$.

BODMAS Rule

Always solve exponents first, then perform addition and subtraction from left to right.

Q12. Answer: (c) 16

Shortcut Trick

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

Here, $a = 4$ and $b = \sqrt{2}$.

Sum of squares $= 2 \times (4^2 + (\sqrt{2})^2) = 2 \times (16 + 2) = 36$.

Final Value $= 36 - 20 = 16$.

Therefore The correct answer is 16.

Alternate Method

Given: $(4 + \sqrt{2})^2 + (4 - \sqrt{2})^2 - 20$

Using formulas: $(a + b)^2 = a^2 + b^2 + 2ab$ and $(a - b)^2 = a^2 + b^2 - 2ab$

$\Rightarrow (4^2 + (\sqrt{2})^2 + 2 \times 4 \times \sqrt{2}) + (4^2 + (\sqrt{2})^2 - 2 \times 4 \times \sqrt{2}) - 20$

$\Rightarrow (16 + 2 + 8\sqrt{2}) + (16 + 2 - 8\sqrt{2}) - 20$

$\Rightarrow 18 + 8\sqrt{2} + 18 - 8\sqrt{2} - 20$

$\Rightarrow 36 - 20$

$\Rightarrow 16$

Therefore The correct answer is 16.

Additional Information

Sum and Difference Identities

The sum of squares $(a + b)^2 + (a - b)^2$ simplifies to $2(a^2 + b^2)$, while the difference $(a + b)^2 - (a - b)^2$ simplifies to $4ab$.

Radical Square Property

For any non-negative number x, $(\sqrt{x})^2 = x$. For example, $(\sqrt{2})^2 = 2$.

BODMAS Rule

Always solve brackets and exponents before performing addition and subtraction in simplification problems.

Q13. Answer: (c) 30

Shortcut Trick

Breadth of the rectangle = Area ÷ Length = 54 ÷ 9 = 6 cm.

Perimeter = 2 × (Length + Breadth) = 2 × (9 + 6) = 2 × 15 = 30 cm.

Therefore The correct answer is 30 cm.

Alternate Method

Given:

Area of rectangle = 54 cm^2

Length (L) = 9 cm

Formula Used:

Area = Length × Breadth

Perimeter = 2 × (Length + Breadth)

Calculations:

=> Area = Length × Breadth

=> 54 = 9 × Breadth

=> Breadth = 54 ÷ 9

=> Breadth = 6 cm

=> Perimeter = 2 × (Length + Breadth)

=> Perimeter = 2 × (9 + 6)

=> Perimeter = 2 × 15

=> Perimeter = 30 cm

Therefore The correct answer is 30 cm.

Additional Information

Properties of Rectangle

Opposite sides are equal and parallel, and each internal angle is 90°.

Diagonal of Rectangle

The length of the diagonal $d = \sqrt{(L^2 + B^2)}$, where L is length and B is breadth.

Square Area vs Perimeter

For a square of side a, Area = a^2 and Perimeter = 4 × a.

Q14. Answer: (d) 7

Shortcut Trick

Divisibility rule for 3: Sum of digits must be a multiple of 3.

Sum of digits for 39P6 = 3 + 9 + P + 6 = 18 + P.

Since 18 is already divisible by 3, P must be 0, 3, 6, or 9.

Among the options, 7 is the only value that makes the sum (18 + 7 = 25) not divisible by 3.

Therefore The correct answer is 7.

Alternate Method

Given: The number 39P6 is divisible by 3.

Property: A number is divisible by 3 if the sum of its digits is divisible by 3.

=> Sum of digits = 3 + 9 + P + 6 => Sum = 18 + P => Since 39P6 is divisible by 3, (18 + P) mod 3 = 0 => For P = 0: 18 + 0 = 18 (18 ÷ 3 = 6, Remainder = 0) => For P = 3: 18 + 3 = 21 (21 ÷ 3 = 7, Remainder = 0) => For P = 6: 18 + 6 = 24 (24 ÷ 3 = 8, Remainder = 0) => For P = 7: 18 + 7 = 25 (25 ÷ 3 = 8, Remainder = 1) => Since the remainder is not 0 for P = 7, the number is not divisible by 3.

Therefore The correct answer is 7.

Additional Information

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Divisibility by 9

Similar to the rule for 3, a number is divisible by 9 if the sum of its digits is a multiple of 9.

Divisibility by 4

A number is divisible by 4 if the last two digits of the number are divisible by 4 or if the last two digits are 00.

Divisibility by 11

Subtract the sum of the digits in the even positions from the sum of the digits in the odd positions. If the result is 0 or divisible by 11, the original number is divisible by 11.

Q15. Answer: (b) 60

Shortcut Trick

Identify the Pythagorean Triplet: (5, 12, 13).

If Length = 5 cm and Diagonal = 13 cm, then Width = 12 cm.

Area = Length × Width = 5 × 12 = 60 cm².

Therefore The correct answer is 60 cm².

Alternate Method

Given: Length (l) = 5 cm, Diagonal (d) = 13 cm

Formula: Diagonal² = Length² + Width² (Pythagoras Theorem)

=> $13^2 = 5^2 + w^2$

=> $169 = 25 + w^2$

=> $w^2 = 169 - 25 = 144$

=> $w = \sqrt{144} = 12$ cm

=> Area = Length × Width

=> Area = 5 × 12 = 60 cm²

Therefore The correct answer is 60 cm².

Additional Information

Perimeter of a Rectangle

The total boundary of the rectangle is given by P = 2 × (length + width).

Common Pythagorean Triplets

Standard integer sets satisfying $a^2 + b^2 = c^2$ include (3, 4, 5), (8, 15, 17), and (7, 24, 25).

Diagonal Property

The diagonal of a rectangle bisects it into two congruent right-angled triangles.

Q16. Answer: (a) 8√10

Shortcut Trick

Ratio of Length : Breadth = 3 : 1.

Perimeter units = 2 × (3 + 1) = 8 units.

8 units = 64 cm => 1 unit = 8 cm.

Sides are 24 cm (Length) and 8 cm (Breadth).

Diagonal = $8 \times \sqrt{(3^2 + 1^2)} = 8\sqrt{10}$ cm.

Therefore The correct answer is 8√10 cm.

Alternate Method

Given:

Perimeter of rectangle = 64 cm

Length (L) = 3 × Breadth (B)

Formula Used:

Perimeter = 2 × (L + B)

Diagonal = $\sqrt{(L^2 + B^2)}$

Calculations:

=> Let the Breadth be x cm. Then Length = 3x cm.

=> 2 × (3x + x) = 64

=> 2 × 4x = 64

=> 8x = 64 => x = 8

=> Breadth = 8 cm and Length = 3 × 8 = 24 cm.
=> Diagonal = $\sqrt{(24^2 + 8^2)}$
=> Diagonal = $\sqrt{(576 + 64)}$
=> Diagonal = $\sqrt{640}$
=> Diagonal = $\sqrt{(64 \times 10)} = 8\sqrt{10}$ cm.
Therefore The correct answer is $8\sqrt{10}$ cm.
Additional Information
Area of Rectangle
The total space occupied by the rectangle is calculated as Area = Length × Breadth.
Diagonal Property
The diagonals of a rectangle are equal in length and bisect each other at the point of intersection.
Pythagoras Theorem
In any right-angled triangle formed by the sides and diagonal, $\text{Diagonal}^2 = \text{Length}^2 + \text{Breadth}^2$.

Q17. Answer: (b) 54

Shortcut Trick
The average of n consecutive numbers is the middle term of the series.
For 8 consecutive numbers, the average (57) lies exactly between the 4th and 5th terms.
4th term = 57 − 1 = 56 (since even numbers have a gap of 2).
3rd term = 4th term − 2 = 56 − 2 = 54.
Therefore The correct answer is 54.
Alternate Method
Given: Average of 8 consecutive even natural numbers = 57.
Let the 8 consecutive even numbers in ascending order be x, x+2, x+4, x+6, x+8, x+10, x+12, x+14.
=> Sum of 8 numbers = 57 × 8 = 456
=> x + (x+2) + (x+4) + (x+6) + (x+8) + (x+10) + (x+12) + (x+14) = 456
=> 8x + 56 = 456
=> 8x = 400
=> x = 50
=> 3rd number = x + 4 = 50 + 4 = 54
Therefore The correct answer is 54.
Additional Information
Average of Arithmetic Progression
For any series in AP, Average = (First term + Last term) ÷ 2. This applies to consecutive even/odd numbers as well.
Middle Term in Even Count
If the number of terms (n) is even, the average is the arithmetic mean of the (n/2)^(th) and (n/2 + 1)^(th) terms.
Sum of Even Numbers
The sum of the first n even natural numbers is given by the formula n(n + 1).

Q18. Answer: (c) 2A

Shortcut Trick
In any sequence of consecutive natural numbers (Arithmetic Progression), the average is always the middle value.
The average is also equal to the mean of the first and last terms.
Formula: Average = (Smallest number + Largest number) ÷ 2
Given: Average = A
Sum of smallest and largest = 2 × Average = 2 × A = 2A
Therefore The correct answer is 2A.
Alternate Method
Given: Total consecutive terms (n) = 19, Average = A
Formula: Average = (First term + Last term) ÷ 2
=> Let the 19 consecutive natural numbers be x, (x + 1), (x + 2), ..., (x + 18).
=> Average = [Sum of all terms] ÷ 19

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=> In an AP, Average = (Smallest + Largest) ÷ 2

=> A = [x + (x + 18)] ÷ 2

=> A = (2x + 18) ÷ 2

=> 2A = 2x + 18

=> Sum of smallest and largest = x + (x + 18) = 2x + 18

=> From the previous step, 2x + 18 = 2A

Therefore The correct answer is 2A.

Additional Information

Average of AP

For any sequence in Arithmetic Progression, the Average = (First Term + Last Term) ÷ 2 = Middle Term (if n is odd).

Sum of n Consecutive Numbers

The sum of n consecutive natural numbers starting from x is S = (n ÷ 2) × [2x + (n − 1)].

Middle Term Location

If the number of terms n is odd, the middle term is the [(n + 1) ÷ 2]^(th) term, which represents the average.

Q19. Answer: (c) 106

Shortcut Trick

In parallel lines, corresponding angles are equal.

angle RSD = angle PRB = 74°

Angles on a straight line (linear pair) sum to 180°.

angle DSQ = 180° − angle RSD = 180° − 74° = 106°

Therefore The correct answer is 106°.

Alternate Method

Given: AB || CD, angle PRB = 74°.

Formula Used: Corresponding angle property and Linear pair property.

=> Since AB || CD and PQ is the transversal, angle PRB and angle RSD are corresponding angles.

=> angle RSD = angle PRB = 74°

=> Now, S lies on the transversal line PQ, making angle RSD and angle DSQ a linear pair.

=> angle RSD + angle DSQ = 180°

=> 74° + angle DSQ = 180°

=> angle DSQ = 180° − 74°

=> angle DSQ = 106°

Therefore The correct answer is 106°.

Additional Information

Corresponding Angles

Angles in the same relative position at each intersection where a straight line crosses two others. If the two lines are parallel, corresponding angles are equal.

Linear Pair

A pair of adjacent angles formed by intersecting lines. The sum of the angles in a linear pair is always 180°.

Alternate Interior Angles

Angles between the parallel lines on opposite sides of the transversal. They are always equal (angle ARS = angle RSD).

Co-Interior Angles

Angles on the same side of the transversal between the two parallel lines. Their sum is always 180° (angle BRS + angle RSD = 180°).

Q20. Answer: (b) 60

Shortcut Trick

Draw a line parallel to AB passing through point C.

Angle between BC and the parallel line = 180° − 120° = 60° (Consecutive Interior Angles).

Angle between CD and the parallel line = 180° − 120° = 60° (Consecutive Interior Angles).

The total angle at point C on a straight line is 180°.

angle BCD = 180° − (60° + 60°) = 60°.

Therefore The correct answer is 60°.

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Alternate Method

Given:

angle ABC = 120°

angle EDC = 120°

AB || DE

Step-by-step Calculation:

=> Let us draw a line PCQ passing through C such that PQ || AB || DE.

=> Since AB || PQ, then angle ABC + angle BCP = 180° (Sum of consecutive interior angles).

=> 120° + angle BCP = 180°

=> angle BCP = 180° − 120° = 60°

=> Since DE || PQ, then angle EDC + angle DCQ = 180° (Sum of consecutive interior angles).

=> 120° + angle DCQ = 180°

=> angle DCQ = 180° − 120° = 60°

=> Now, PCQ is a straight line, so angle BCP + angle BCD + angle DCQ = 180°.

=> 60° + angle BCD + 60° = 180°

=> angle BCD + 120° = 180°

=> angle BCD = 180° − 120° = 60°

Therefore The correct answer is 60°.

Additional Information

Consecutive Interior Angles

When two parallel lines are intersected by a transversal, the pairs of angles on the same side of the transversal inside the parallel lines are supplementary (Sum = 180°).

Alternate Interior Angles

Angles located between parallel lines and on opposite sides of the transversal are equal (angle 1 = angle 2).

Angle on a Straight Line

The sum of all angles formed at a point on one side of a straight line is always 180°.

Q21. Answer: (c) 464

The logic followed here is:

thus, "464" will replace the question mark in the given series.

Hence, the correct option is "Option 3".

Q22. Answer: (b) QBV

The Logic followed here is:

For, ZNV : WKS

For, QIP : NFM

Now for, TEY : ?

Therefore, the related cluster for TEY is QBV.

Hence, the correct answer is Option 2.

Q23. Answer: (d) JZ

The logic followed here is:

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

Hence, the correct answer is "Option 4".

Q24. Answer: (d) (GY, CT, YO)

The Logic followed here is:

For, (FA, BV, XQ)

For, (HL, DG, ZB)

Now checking the options:

Option 1: (QV, NU, IM)

Option 2: (YG, RA, MX)

Option 3: (AQ, YO, TH)

Option 4: (GY, CT, YO)
Therefore, the set (GY, CT, YO) follows the same logic.
Hence, the correct answer is Option 4.

Q25. Answer: (c) 8

The logic followed here is:
Given: January 5 was Wednesday in a leap year.

Date	Day
January 5	Wednesday
January 12	Wednesday
January 19	Wednesday
January 26	Wednesday

From January 26 to January 31 = 5 days
So, Wednesday + 5 days = Monday
Therefore, January 31 = Monday
February 1 = Tuesday

Date	Day
February 1	Tuesday
February 2	Wednesday
February 3	Thursday

Total Thursdays = 4

Date	Day
February 3	Thursday
February 4	Friday
February 5	Saturday

Total Saturdays = 4
Here, Total Saturdays and Thursdays = 4 + 4 = 8
Hence, the correct answer is "Option 3".

Q26. Answer: (b) Only II

The logic followed here is:
Given:1924 was a leap year.
January 1, 1924 was Tuesday.

Month	Odd Days
January	3
February	1
Total	4

So, Tuesday + 4 days = Saturday

Thursdays in March 1924
6
13
20
27

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Total Thursdays in March 1924 = 4

Month	Odd Days
January	3
February	1
March	3
April	2
Total	9 → 2 odd days

So, Tuesday + 2 days = Thursday

Thursdays in May 1924
1
8
15
22
29

Total Thursdays in May 1924 = 5

Statement Result

I. March 1924 had 5 Thursdays Incorrect

II. May 1924 had 5 Thursdays Correct

Hence, the correct answer is "Option 2".

Q27. Answer: (c) 2

Given: Five persons C, D, F, G and H are sitting in a row facing north.

Only C and F are to the left of D.

Only H is to the right of G.

F is at one of the extreme ends of the row.

Now, persons between F and G = 2 persons.

Hence, the correct answer is "Option 3".

Q28. Answer: (c) Both I and II

The logic followed here is:

Given:

R is taller than only four girls.

Since, there are 6 girls in total, R must be the 2nd tallest.

U is taller than both S and P.

S and P both are taller than both Q and T.

So, the general order becomes: U > R > {S, P} > {Q, T}

Now check the given sequences.

I. U > R > S > P > T > Q

1st	2nd	3rd	4th	5th	6th
U	R	S	P	T	Q

This satisfies all conditions.

So, Sequence I is possible.

II. U > R > P > S > Q > T

1st	2nd	3rd	4th	5th	6th
U	R	P	S	Q	T

This also satisfies all conditions.

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So, Sequence II is possible.
Hence, the correct answer is Option 3.

Q29. Answer: (b) ZT30

The Logic followed here is:
For, SK18 : TM36
For, BN25 : CP50
Now for, ? : AV60
Therefore, the missing letter-number cluster is ZT30.
Hence, the correct answer is Option 2.

Q30. Answer: (a) IC240

The Logic followed here is:
For, BI320 : GB450
For, EK240 : JD370
Now for, DJ110 : ?
Therefore, the related cluster for DJ110 is IC240.
Hence, the correct answer is Option 1.

Q31. Answer: (c) 5588

The Logic followed here is:
Logic: The pattern observed is (First Number − 42) = Second Number
For, 9165 : 9123
9165 − 42
= 9123
For, 874 : 832
874 − 42
= 832
Now for, 5630 : ?
5630 − 42
= 5588
Therefore, the missing number is 5588.
Hence, the correct answer is Option 3.

Q32. Answer: (d) 137

The Logic followed here is:
Logic: The pattern observed is (First Number − 278) = Second Number
For, 910 : 632
910 − 278
= 632
For, 412 : 134
412 − 278
= 134
Now for, 415 : ?
415 − 278
= 137
Therefore, the missing number is 137.
Hence, the correct answer is Option 4.

Q33. Answer: (b) DPJS

The logic followed here is:
Logic: Each letter of the word is replaced by the next letter in the English alphabetical series (+1).
Here, JAMB → KBNC
Similarly, BOND → CPOE

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Now, applying the same pattern to COIR:
So, COIR → DPJS
Hence, the correct answer is "Option 2".

Q34. Answer: (b) BK84

The logic followed here is:
Given: WP14, XT28, YX42, ZB56, AF70, BK84
Here, BK84 is wrong among the given terms.
Hence, the correct answer is Option 2.

Q35. Answer: (d) VQD814

The logic followed here is:
So, VQD814 will replace the question mark in the given series.
Hence, the correct answer is "Option 4".

Q36. Answer: (c) 22

The logic followed here is:
Given: The minute hand and hour hand overlap whenever the angle between them becomes 0°.

Time Period	Number of Overlaps
12-hour cycle	11

The hands overlap 11 times in 12 hours because the overlap at 12:00 is common for two adjacent intervals.

Cycle	Number of Overlaps
First 12 hours	11
Second 12 hours	11

So, Total overlaps = 11 + 11
Total overlaps = 22

Duration	Formula	Result
24 hours	11 × 2	22

Therefore, the minute and hour hands overlap 22 times in 24 hours.
Hence, the correct answer is "Option 3".

Q37. Answer: (b) 35

The logic followed here is:
Logic: Angle between hour hand and minute hand is calculated using:
Angle = |30 × H − 5.5 × M|
Now, calculating:
For J at 3:05
= |30 × 3 − 5.5 × 5|
= |90 − 27.5|
= 62.5°
For K at 11:55
= |30 × 11 − 5.5 × 55|
= |330 − 302.5|
= 27.5°
Difference between J and K
= |62.5° − 27.5°|
= 35°
Hence, the correct answer is Option 2.

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Q38. Answer: (a) [figure]

The logic followed here is:

Logic: In each step, all three symbols move one position clockwise along the border of the square and flip vertically.

So in the next figure:

Barred Arrow moves to Top-Left and points downward.

T-shape moves to Bottom-Center and becomes inverted (perpendicular to).

Simple Arrow moves to Bottom-Right and points upward.

Hence, the correct answer is Option 1.

Q39. Answer: (a) [figure]

The logic followed here is:

Logic: The main arrow rotates 45° counter-clockwise in each step, while the circle colors alternate between white and black.

In the next figure:

Main arrow points West.

Two black circles are above the arrow.

One white circle is below the arrow.

Hence, the correct answer is Option 1.

Q40. Answer: (b) 23 : 15

The logic followed here is:

Logic: If the sum and difference of ages are known, then:

Elder person's age = (Sum + Difference) ÷ 2

Younger person's age = (Sum − Difference) ÷ 2

Now, calculating:

Present age of S

= (50 + 8) ÷ 2

= 58 ÷ 2

= 29 years

Present age of T

= (50 − 8) ÷ 2

= 42 ÷ 2

= 21 years

6 years ago:

S = 29 − 6 = 23 years

T = 21 − 6 = 15 years

Required ratio = 23 : 15

Hence, the correct answer is Option 2.

Q41. Answer: (c) Cinnabar

The correct answer is Cinnabar.

Key Points

• Cinnabar is the primary and most common ore of mercury (Hg).

• Chemically, it is known as Mercury(II) sulfide and its chemical formula is HgS.

• It typically appears as a bright red or brownish-red crystalline solid, which has been historically used as a pigment known as vermilion.

• The extraction of mercury from cinnabar involves roasting the ore in a furnace. During this process, sulfur in the ore combines with oxygen to form sulfur dioxide, and the mercury vaporizes.

• The mercury vapor is then cooled and condensed to collect liquid mercury.

Additional Information

• Bauxite:

• It is the principal ore of Aluminium (Al).

• It is not a specific mineral but a sedimentary rock with high aluminum content, primarily consisting of gibbsite, boehmite, and diaspore.

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• Australia is the world's largest producer of bauxite, while in India, the state of Odisha is the leading producer.

• Magnetite:

• It is one of the most important ores of Iron (Fe).

• Its chemical formula is Fe3O4 and it is known for its natural magnetic properties, often called lodestone.

• It has a very high iron content, approximately 72.4%, making it a high-quality ore.

• Malachite:

• It is a copper carbonate hydroxide mineral with the formula Cu2CO3(OH)2.

• It is a minor ore of Copper (Cu) and is easily recognizable by its distinct bright green color.

• It was often used as a mineral pigment in green paints in ancient times.

Important Points

• Mercury (Hg): It is also known as quicksilver and is the only common metal that is liquid at standard temperature and pressure.

• Applications: Due to its uniform thermal expansion, mercury is used in thermometers, barometers, and manometers. It is also used in fluorescent lighting and dental amalgams.

• Amalgams: Mercury can dissolve many other metals (like gold and silver) to form alloys called amalgams. However, it does not form amalgams with iron, which is why it is often stored in iron flasks.

• Toxicity: Mercury is highly toxic to humans. Minamata disease is a neurological syndrome caused by severe mercury poisoning, famously occurring in Japan in the 1950s.

Q42. Answer: (b) United Kingdom

p- The correct answer is United Kingdom.

Key Points

• The Durgapur Steel Plant (DSP) is one of the integrated steel plants of Steel Authority of India Limited (SAIL), located in Durgapur, in the Paschim Bardhaman district of West Bengal.

• It was set up in the late 1950s with the help of a consortium of British companies known as ISCON (Indian Steelworks Construction Co. Ltd.).

• The establishment of this plant was a major part of the Second Five Year Plan (1956-1961), which focused on the development of heavy industries and capital goods in India.

• The plant was initially designed with an annual capacity of 1 million tonnes of crude steel, which was later expanded in various phases.

• It serves as a critical industrial hub in Eastern India, contributing significantly to the production of railway materials like wheels and axles, as well as structural steel.

Additional Information

• Second Five Year Plan (1956-1961):

• This plan was based on the P.C. Mahalanobis Model, which emphasized rapid industrialization with a focus on heavy industries.

• Under this plan, three major integrated steel plants were established in the public sector with foreign collaboration: Bhilai, Rourkela, and Durgapur.

• Bhilai Steel Plant:

• Located in Bhilai, Chhattisgarh, it was set up in 1955 with the collaboration of the Soviet Union (now Russia).

• It is an eleven-time winner of the Prime Minister's Trophy for the best integrated steel plant in the country.

• Rourkela Steel Plant (RSP):

• Located in Odisha, it was the first integrated steel plant in the public sector in India, set up in 1959.

• It was established in collaboration with German firms, specifically Krupp and Demag.

• Bokaro Steel Plant:

• Located in Bokaro, Jharkhand, it was the fourth integrated public sector steel plant in India.

• It was established in 1964 with the assistance of the Soviet Union during the Third Five Year Plan.

• Steel Authority of India Limited (SAIL):

• SAIL is a government-owned steel producer headquartered in New Delhi.

• It was incorporated in 1973 and currently holds the status of a Maharatna Central Public Sector Enterprise.

Q43. Answer: (d) Aravali

The correct answer is Aravali.

Key Points

• Himadri, also known as the Great Himalayas or Inner Himalayas, is the northernmost and most continuous range of the Himalayan mountain system. It contains the highest peaks in the world, such as Mount Everest and Kanchenjunga, with an

average elevation of 6,000 meters.

• Himachal, or the Lesser Himalayas, lies to the south of the Himadri. This range is mainly composed of highly compressed and altered rocks, with an altitude varying between 3,700 and 4,500 meters. It is famous for its hill stations like Shimla, Mussoorie, and Nainital.

• Shiwalik is the outermost range of the Himalayas. It extends over a width of 10-50 km and has an altitude varying between 900 and 1,100 meters. These ranges are composed of unconsolidated sediments brought down by rivers from the main Himalayan ranges located farther north.

• Aravali is one of the oldest fold mountain ranges in the world and is located in the western part of India, primarily in Rajasthan. It is not part of the Himalayan mountain system, which is a much younger geological formation. Hence, Aravali is NOT a division of the Himalaya.

Additional Information

• Himalayan Mountain System:

• The Himalayas are geologically young and structurally fold mountains that stretch across the northern borders of India.

• They run in a west-east direction from the Indus River to the Brahmaputra River, covering a distance of about 2,400 km.

• The width of the Himalayas varies from 400 km in Kashmir to 150 km in Arunachal Pradesh.

• Aravali Range:

• The Aravali Range dates back to the Proterozoic Era, making it significantly older than the Himalayas, which were formed during the Tertiary Period.

• It spans approximately 692 km, starting from Gujarat, passing through Rajasthan and Haryana, and ending in Delhi.

• The highest peak of the Aravali Range is Guru Shikhar, located on Mount Abu, with an elevation of 1,722 meters.

• The range serves as a barrier preventing the eastward expansion of the Thar Desert.

Important Points

• Longitudinal Valleys (Duns): The longitudinal valleys lying between the Lesser Himalayas (Himachal) and the Shiwaliks are known as Duns. Well-known examples include Dehra Dun, Kotli Dun, and Patli Dun.

• Trans-Himalayas: Located immediately north of the Great Himalayan range, this region includes the Karakoram, Ladakh, and Zanskar ranges. It is also known as the Tethys Himalayas.

• Regional Divisions: Apart from longitudinal divisions, the Himalayas are also divided from west to east:

• Punjab Himalayas (between Indus and Sutlej).

• Kumaon Himalayas (between Sutlej and Kali).

• Nepal Himalayas (between Kali and Teesta).

• Assam Himalayas (between Teesta and Dihang).

Q44. Answer: (a) Iron

The correct answer is Iron.

Key Points

• The Harappan Civilization, also known as the Indus Valley Civilization (IVC), belonged to the Bronze Age (circa 3300 BCE to 1300 BCE).

• While the Harappans were highly advanced in metallurgy, Iron was unknown to them. The use of iron in the Indian subcontinent began much later, during the Vedic Period around 1000 BCE. Hence, option 1 is the correct answer.

• Archaeological excavations at major sites like Harappa, Mohenjo-daro, and Lothal have revealed a wide variety of artifacts made of Copper, Bronze, Gold, and Silver, but no iron implements have been discovered.

• The Harappans produced Bronze by mixing Copper with Tin. Copper was sourced from the Khetri mines in Rajasthan, while Tin was likely imported from Afghanistan.

• The absence of Iron suggests that the Harappans relied on softer metals and stone tools for agriculture, construction, and warfare.

Additional Information

• Use of Copper and Bronze:

• Copper was the first metal to be used extensively by the Harappan people. They manufactured tools like axes, saws, knives, and spearheads.

• The invention of Bronze allowed for the creation of more durable tools and artistic figures, marking a significant technological leap.

• Precious Metals (Gold and Silver):

• Gold was used to create elaborate jewelry, including necklaces, bangles, and earrings. It is believed to have been sourced from Southern India (modern-day Karnataka) and Afghanistan.

• Silver was also widely used for making vessels and ornaments. The Harappans were among the earliest people in the world to

use silver.

• Lead and Tin:

• The Harappans were aware of Lead and Antimony. Tin was a rare commodity and its scarcity is reflected in the limited number of high-quality bronze artifacts compared to copper ones.

• Trade and Metallurgy:

• The civilization maintained active trade links with Mesopotamia (modern-day Iraq) and Oman, exchanging metal goods for other commodities.

Important Points

• Technological Limitations: Smelting Iron requires a much higher temperature (approx 1538°C) compared to Copper (approx 1085°C). The Harappans had not yet developed the advanced furnace technology required to extract iron from its ore.

• Lost-Wax Technique: One of the most famous metal artifacts of this era is the "Dancing Girl" statue found at Mohenjo-daro, created using the Cire Perdue or lost-wax casting method.

• Transition to Iron Age: The Iron Age in India is associated with the Painted Grey Ware (PGW) culture. Early evidence of iron usage has been found at sites like Atranjikhera in Uttar Pradesh, dating back to approximately 1000 BCE, which is long after the decline of the mature Harappan phase.

• Agricultural Implements: Due to the lack of Iron, Harappan farmers used wooden plows and copper/bronze sickles for harvesting crops like wheat and barley.

Q45. Answer: (a) By transpiration

The correct answer is By transpiration.

Key Points

• Transpiration is the biological process through which plants eliminate excess water in the form of water vapor from their aerial parts, primarily the leaves.

• Approximately 97-99% of the water absorbed by a plant's roots is not utilized for growth or photosynthesis but is instead released into the atmosphere via this process.

• This process mainly occurs through microscopic pores called stomata, which are located on the underside of the leaves and are regulated by guard cells.

• Transpiration serves several vital functions, including the creation of a transpirational pull (suction force) that aids in the upward transport of water and minerals from the soil to the top of the plant.

• It also helps in thermoregulation, providing a cooling effect to the plant during hot weather, similar to sweating in humans.

• Hence, the correct option is By transpiration.

Additional Information

• Types of Transpiration:

• Stomatal Transpiration: This is the most common type, accounting for about 80-90% of the total water loss through stomata.

• Cuticular Transpiration: Occurs through the cuticle (waxy layer) of the leaf, contributing to about 5-10% of water loss.

• Lenticular Transpiration: Water loss that happens through lenticels, which are small openings in the bark of woody stems.

• Factors Affecting Rate:

• Light: Increases the rate as stomata open in the presence of sunlight.

• Temperature: A higher temperature increases the rate of evaporation, thereby increasing transpiration.

• Humidity: If atmospheric humidity is high, the rate of transpiration decreases because the air is already saturated with moisture.

• Wind Speed: Moving air removes water vapor from the leaf surface, increasing the rate.

• Guttation: This is another method of water loss where water is released in liquid droplets from the edges of leaves through specialized structures called hydathodes. It usually occurs at night or early morning when soil moisture is high and transpiration is low.

Important Points

• Xylem: This is the specialized vascular tissue responsible for the conduction of water and nutrients from the roots to the rest of the plant.

• Cohesion-Tension Theory: This scientific theory explains how water moves upwards against gravity. It relies on the cohesive forces between water molecules and the tension created by transpiration in the leaves.

• Potometer: A laboratory instrument used by botanists to measure the rate of transpiration in a plant shoot.

• Adaptations: Xerophytes (plants in dry climates, like cacti) have adapted features such as sunken stomata, thick cuticles, or leaves modified into spines to minimize water loss.

• Environmental Impact: Transpiration is a key component of the water cycle, as it contributes significantly to atmospheric moisture and rainfall patterns.

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Q46. Answer: (d) Neither I Nor II

The correct answer is Neither I Nor II.

Key Points

• Article 26 of the Indian Constitution provides the freedom to manage religious affairs. It states that every religious denomination has the right to establish and maintain institutions for religious and charitable purposes, manage its own affairs in matters of religion, and own and acquire movable and immovable property. Hence, statement I is incorrect.

• Article 27 of the Constitution relates to the freedom as to payment of taxes for promotion of any particular religion. It mandates that no person shall be compelled to pay any taxes, the proceeds of which are specifically used for the promotion or maintenance of any particular religion or religious denomination. Hence, statement II is incorrect.

• Both articles are part of the Right to Freedom of Religion, which is a Fundamental Right guaranteed under Part III of the Constitution of India.

• The statements provided in the question have swapped the definitions of the two articles, making both descriptions factually wrong in the context of the Article numbers mentioned.

• Hence, the correct answer is Neither I Nor II.

Additional Information

• Right to Freedom of Religion (Articles 25–28):

• Article 25: Guarantees freedom of conscience and the right to freely profess, practice, and propagate religion to all citizens. This right is subject to public order, morality, and health.

• Article 26: Protects collective religious rights. It allows religious denominations to manage their own internal affairs without state interference, provided they do not violate public order.

• Article 27: Prevents the State from using taxpayer money to favor one religion over another, upholding the secular character of the Indian polity.

• Article 28: Prohibits religious instruction in educational institutions wholly maintained out of State funds. In other institutions recognized by the State or receiving aid, religious instruction is permitted only with the consent of the individual (or guardian).

Important Points

• Difference between Tax and Fee:

• Under Article 27, the State is prohibited from levying a tax for religious promotion. However, the courts have clarified that the State can levy a fee to provide secular services, such as providing safety, health, and sanitation facilities for pilgrims during festivals or at religious sites.

• Religious Denominations:

• For a group to be considered a religious denomination under Article 26, it must be a collection of individuals who have a system of beliefs (doctrines) which they regard as conducive to their spiritual well-being, a common organization, and a distinctive name.

• Secularism in India:

• The inclusion of these articles reinforces the Positive Concept of Secularism in India, where the State maintains an equal distance from all religions and gives equal respect to all faiths, rather than a total separation of state and religion seen in Western models.

Q47. Answer: (c) 47

The correct answer is 47.

Key Points

• The Concurrent List, also known as List III, is one of the three lists defined in the Seventh Schedule of the Constitution of India.

• The last subject mentioned in the Concurrent List is officially numbered as 47. While the total number of items has increased due to amendments, the numbering still concludes at 47.

• This list contains subjects of common interest to both the Union Government and the State Governments, allowing both levels of government to legislate on them.

• The concept of the Concurrent List in the Indian Constitution was borrowed from the Constitution of Australia.

• Under Article 246, the Parliament and the State Legislatures have concurrent powers to make laws with respect to any of the matters enumerated in this list.

Additional Information

• The Seventh Schedule and Three Lists:

• The Seventh Schedule provides for the distribution of legislative powers between the Union and the States.

• Union List (List I): Originally contained 97 subjects, currently it has 100 subjects. These include defense, foreign affairs, and banking.

• State List (List II): Originally contained 66 subjects, currently it has 61 subjects. These include police, public health, and agriculture.

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• Concurrent List (List III): Originally contained 47 subjects, currently it has 52 subjects. The subjects added include Education and Forests.

• The 42nd Amendment Act, 1976:

• This landmark amendment moved five subjects from the State List to the Concurrent List to ensure national uniformity.

• The transferred subjects are Education, Forests, Weights and Measures, Protection of Wild Animals and Birds, and Administration of Justice (excluding the Supreme Court and High Courts).

• Legislative Supremacy and Article 254:

• If there is a conflict between a law made by the Parliament and a law made by a State Legislature on a subject in the Concurrent List, the Central law prevails.

• However, if the State law has been reserved for the consideration of the President and has received his assent, the State law prevails in that particular state.

• Residuary Powers:

• Subjects that are not mentioned in any of the three lists are called Residuary Subjects.

• According to Article 248, the power to legislate on these subjects is vested solely in the Union Parliament.

• Examples of Concurrent List Subjects:

• Key subjects include Criminal Law, Marriage and Divorce, Bankruptcy and Insolvency, Trusts and Trustees, Civil Procedure, Contempt of Court, and Vital Statistics (including registration of births and deaths).

• The final entry, number 47, specifically relates to fees in respect of any of the matters in the list, excluding fees taken in any court.

Q48. Answer: (a) Mizoram

The correct answer is Mizoram.

Key Points

• Chawng Laizawn is a popular and vibrant folk dance that originates from the North-Eastern state of Mizoram.

• This dance is specifically associated with the Pawi community, also known as the Lai tribe, who primarily inhabit the Lawngtlai district of Mizoram.

• The dance is traditionally performed on two distinct occasions: to celebrate a successful hunt (specifically when a warrior/hunter returns with a trophy) or during the Pawl Kut festival, which is a post-harvest festival.

• It is a rhythmic performance where drums and gongs serve as the primary musical instruments to provide the beat.

• The performance involves a group of dancers, often both men and women, who move in a synchronized and circular fashion, reflecting the cultural heritage and social cohesion of the Mizo people.

Additional Information

• Mizoram:

• The state is famous for the Cheraw Dance, popularly known as the Bamboo Dance, where dancers move between horizontally placed bamboo poles.

• Other prominent folk dances of Mizoram include Khuallam (dance of the guests), Chheihlam, and Sarlamkai (a warrior dance).

• The major festivals of the state are known as Kuts, such as Chapchar Kut (celebrated in March), Mim Kut, and Pawl Kut.

• Assam:

• The most famous dance is Bihu, performed during the three Bihu festivals (Rongali, Kongali, and Bhogali).

• Sattriya is a Classical Dance of India that originated in the Sattras (monasteries) of Assam, founded by the saint Srimanta Sankardev in the 15th century.

• Other folk dances include Bagurumba (performed by the Bodo community) and Jhumur.

• Ladakh:

• Shondol is known as the 'Royal Dance' of Ladakh and was historically performed for the King of Ladakh on special occasions.

• Jabro is a traditional folk dance of the Nomadic people of the Tibetan plateau living in the Changthang region of Ladakh.

• Chhattisgarh:

• Panthi is a famous folk dance of the Satnami community, performed on the birth anniversary of Guru Ghasidas.

• Raut Nacha is a traditional dance performed by the Yaduvanshi (cowherds) community, typically during the Dev Uthani Ekadashi festival.

• Karma dance is another significant folk dance performed by tribal groups like the Gonds, Baigas, and Oraons.

Important Points

• Cultural Significance: In Mizo culture, dances are not merely for entertainment but are deeply intertwined with rituals and community milestones.

• Lai Tribe: The Lai people have a distinct dialect and cultural practices within the broader Mizo identity, and Chawng Laizawn is a

key marker of their specific ethnic pride.

• Instruments: Traditional Mizo music heavily relies on percussion. The Khuang (drum) is considered the most important instrument and is used in almost all folk dances.

• Mizoram Statehood: Mizoram became the 23rd state of the Indian Union on 20 February 1987, following the Mizo Accord of 1986.

Q49. Answer: (d) Uttar Pradesh

The correct answer is Uttar Pradesh.

Key Points

• Kajri is one of the most prominent folk song and dance genres of India, predominantly famous in the state of Uttar Pradesh and some parts of Bihar.

• It is traditionally associated with the monsoon season, specifically the months of Shravan and Bhadrapada (typically July, August, and September), when the dark clouds bring relief from the summer heat.

• The origin of Kajri is believed to be the city of Mirzapur in Eastern Uttar Pradesh. Legend suggests it evolved from the longing of a woman for her husband during the rainy season.

• The performance of Kajri is a vital part of the Teej festival, where women gather, sing, and dance while enjoying swings in the rain.

• It is usually sung in the Bhojpuri and Maithili dialects, reflecting the local culture and rural lifestyle of the Gangetic plains. Hence, the correct answer is Uttar Pradesh.

Additional Information

• Assam:

• This state is world-famous for the Bihu dance, which is performed during the three Bihu festivals: Rongali Bihu, Kongali Bihu, and Bhogali Bihu.

• Another significant dance is Sattriya, which is one of the eight Classical Dances of India, introduced by the great saint Srimanta Sankardev in the 15th century.

• Other folk forms include Bagurumba (of the Bodo community) and Ojapali.

• Punjab:

• Punjab is renowned for its high-energy folk dances such as Bhangra, traditionally performed by men during the harvest festival of Vaisakhi.

• Giddha is the female counterpart to Bhangra, characterized by rhythmic clapping and singing of folk verses called Boliyan.

• Other traditional dances include Jhumar, Luddi, and Sammi, reflecting the agrarian life of the Five Rivers region.

• Maharashtra:

• The most iconic folk dance of Maharashtra is Lavani, which combines powerful rhythm, traditional Dholak beats, and expressive lyrics.

• The Koli dance is performed by the fishing community, mimicking the movement of waves and the casting of nets.

• Other notable forms include Dhangari Gaja (shepherd dance), Lezim, and Povada, which is a narrative song form praising historical heroes like Chhatrapati Shivaji Maharaj.

• Uttar Pradesh (Other Dances):

• Apart from Kajri, the state is the cradle of Kathak, a major Classical Indian Dance form.

• Folk forms like Charkula (popular in the Braj region), Raslila (depicting the life of Lord Krishna), and Nautanki (a form of folk theater) are widely practiced across the state.

Important Points

• Musical Styles of Kajri: There are two main versions of Kajri. The Dhunmun Kajri is the rustic folk style performed in villages, while the Benares Kajri has been refined into a semi-classical musical form often included in Thumri and Dadra recitals.

• Thematic Focus: The lyrics of Kajri often center on themes of Biraha (separation), romance, the beauty of the monsoon clouds, and the swing (Jhoola).

• Instruments: Traditional musical instruments used during the performance include the Dholak, Majira (cymbals), Harmonium, and sometimes the Sarangi or Shehnai.

• Geographical Spread: While Mirzapur is the heart of Kajri, it is also popular in Varanasi, Prayagraj (Allahabad), and Lucknow.

Q50. Answer: (d) June

The correct answer is June.

Key Points

• Ganga Dussehra, also known as Gangavataran, is a major Hindu festival celebrated to commemorate the descent of the holy River Ganga from heaven to earth.

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• The festival is observed on the Dashami (10th day) of the Shukla Paksha (waxing phase of the moon) during the Hindu month of Jyeshtha.

• In the Gregorian calendar, this auspicious day typically falls in the month of June, though occasionally it may begin in late May depending on the lunar cycle.

• The festival marks the successful culmination of the intense penance performed by King Bhagiratha, who sought to bring the river to earth to liberate the souls of his ancestors. Hence, the statement regarding the month is correct.

• It is believed that on this specific day, the goddess Ganga descended from the heavens, making it one of the most sacred days for purification and spiritual merit.

Additional Information

• Significance of the Name: The word Dussehra is derived from the Sanskrit words 'Dasha' (ten) and 'Hara' (to destroy/remove). It signifies the removal of ten types of sins (three physical, four verbal, and three mental) through the grace of the river.

• Prominent Locations: The festival is celebrated with immense fervor at the Ghats of the Ganga in holy cities such as Varanasi, Haridwar, Rishikesh, Prayagraj, and Garhmukteshwar. Devotees gather in thousands to take a ritualistic holy dip in the waters.

• The Role of Lord Shiva: According to ancient Puranas, the force of the falling Ganga was so powerful that it could have swept the earth away. To prevent this, Lord Shiva caught the river in his matted locks (Jata), releasing her in gentle streams.

• Rituals and Traditions: On this day, pilgrims perform the Ganga Aarti at dusk, offering earthen lamps (diyas) and flowers to the river. Many devotees also observe fasts and engage in charitable activities (Daana) to earn spiritual merit.

• Difference from Ganga Jayanti: It is important to distinguish this festival from Ganga Jayanti (or Ganga Saptami), which is celebrated in the month of Vaisakha (April/May) and marks the day the river was reborn after being consumed by Sage Jahnu.

Important Points

• Duration: While the main festival is on the tenth day, the celebrations often span ten days leading up to the Dashami, involving continuous prayers and religious discourses.

• Cultural Impact: In states like Uttar Pradesh, Bihar, and West Bengal, the festival is a vital part of the cultural fabric, promoting the ecological and spiritual preservation of the National River of India.

• Environmental Awareness: In recent years, the government and local bodies use the occasion of Ganga Dussehra to promote the Namami Gange project and other initiatives aimed at cleaning and rejuvenating the river ecosystem.

Q51. Answer: (b) West Bengal

The correct answer is West Bengal.

Key Points

• According to the Census 2011, West Bengal was identified as the fourth most populous state in India, with a total population of approximately 91,276,115 (9.13 crore).

• Among the options provided, West Bengal holds the highest population figure, significantly exceeding Tamil Nadu, which recorded 72,147,030 inhabitants.

• Rajasthan, the largest state by area, had a population of 68,548,437, placing it below the population count of West Bengal in the 2011 Census records.

• Karnataka recorded a population of 61,095,297, making it the state with the lowest population among the four given choices.

• West Bengal also exhibited a high decadal growth rate of 13.84 percent between 2001 and 2011 and remains one of the most densely populated regions in the country.

Additional Information

• The 2011 Census was the 15th National Census of India and the 7th after independence, conducted under the slogan Our Census, Our Future.

• Population Hierarchy in 2011:

• Uttar Pradesh: Ranked first with a population of about 19.98 crore.

• Maharashtra: Ranked second with 11.24 crore.

• Bihar: Ranked third with 10.41 crore.

• West Bengal: Ranked fourth with 9.13 crore.

• Demographic Facts:

• Highest Density: Bihar had the highest population density with 1,106 persons per sq km, followed by West Bengal with 1,028.

• Lowest Population: Sikkim was the least populous state, while Lakshadweep was the least populous Union Territory.

• Sex Ratio: The overall sex ratio for India was 943 females per 1,000 males.

Q52. Answer: (b) study Earth's spectral and polarimetric properties from lunar orbit

The correct answer is study Earth's spectral and polarimetric properties from lunar orbit.

Key Points

• The SHAPE payload stands for Spectro-polarimetry of Habitable Planet Earth.

• Unlike other payloads on the lander or rover, SHAPE was integrated into the Propulsion Module of the Chandrayaan-3 mission.

• Its primary objective is to study the Earth from the lunar orbit to identify the unique spectral and polarimetric signatures of a habitable planet.

• The data collected helps scientists understand the characteristics of light reflected by Earth, which serves as a benchmark for searching for habitable exoplanets outside our solar system.

• It operates in the Near-Infrared (NIR) wavelength range, specifically from 1.0 to 1.7 μm, to observe the disk of the Earth.

Additional Information

• Lander Payloads (Vikram):

• ChaSTE (Chandra's Surface Thermophysical Experiment): Measures the thermal conductivity and temperature of the lunar surface near the south pole.

• ILSA (Instrument for Lunar Seismic Activity): A seismometer designed to detect moonquakes and seismic vibrations around the landing site.

• RAMBHA-LP (Radio Anatomy of Moon Bound Hypersensitive Ionosphere and Atmosphere - Langmuir Probe): Analyzes the plasma density (ions and electrons) and its variations over time.

• Rover Payloads (Pragyan):

• APXS (Alpha Particle X-ray Spectrometer): Used to determine the elemental composition of the lunar soil and rocks.

• LIBS (Laser Induced Breakdown Spectroscope): Employs laser pulses to determine the chemical and mineralogical composition of the lunar surface.

• Mission Success: Chandrayaan-3 successfully landed near the Lunar South Pole on August 23, 2023, making India the first country to reach this specific region.

Q53. Answer: (c) 1000

The correct answer is 1000.

Key Points

• The unit kJ represents a kilojoule, which is a multiple of the base unit of energy, the joule (J).

• In the International System of Units (SI), the prefix kilo- is used to denote a factor of 10^3 or 1000.

• The joule is defined as the amount of energy transferred to an object when a force of one newton acts on that object in the direction of the force's motion through a distance of one meter.

• Mathematically, the relationship is defined as 1 kilojoule = 1000 joules. This conversion is fundamental in thermodynamics, physics, and chemistry when measuring heat or work.

Additional Information

• Metric System Multiples:

• Mega (M): Represents 10^6 or 1,000,000 units. Therefore, 1 MJ = 1,000,000 J.

• Giga (G): Represents 10^9 or 1,000,000,000 units.

• Milli (m): Represents 10^(−3) or 1/1000 of a unit. Therefore, 1 mJ = 0.001 J.

• Historical Context:

• The unit is named after the English physicist James Prescott Joule, who demonstrated the mechanical equivalent of heat in the 19th century.

• Energy Conversions:

• 1 calorie (cal) is equivalent to approximately 4.184 joules.

• 1 kilowatt-hour (kWh), often used for electrical energy billing, is equal to 3,600,000 joules or 3600 kJ.

• The joule can also be expressed in terms of other SI units as 1 $kg \cdot m^2/s^2$ or 1 Watt-second.

Q54. Answer: (d) Mahatma Gandhi

The correct answer is Mahatma Gandhi.

Key Points

• Hind Swaraj, also known as 'Indian Home Rule', is a seminal work written by Mohandas Karamchand Gandhi in 1909 while he was traveling from London to South Africa.

• The entire manuscript was written on the ship SS Kildonan Castle using the ship's stationery; Gandhi famously wrote with his left hand when his right hand became exhausted.

• The book was originally composed in Gujarati and was subsequently published in the columns of Indian Opinion in South Africa before being released as a book.

• It is written in a dialogic form, consisting of a conversation between an Editor (representing Gandhi's voice) and a Reader (representing the extremist nationalist viewpoint of the time).

• The text serves as a manifesto for Swaraj (Self-Rule), where Gandhi argues that India can only achieve true independence by rejecting modern Western civilization and adopting Satyagraha (non-violent resistance).

• In 1910, the British authorities in India banned the Gujarati edition of the book, labeling it as seditious literature, which prompted Gandhi to publish the English translation.

Additional Information

• Ravindra Nath Tagore

• He was a polymath who reshaped Bengali literature and music; he was the first non-European to win the Nobel Prize in Literature in 1913 for his collection Gitanjali.

• Tagore founded the Visva-Bharati University at Shantiniketan and is the author of the national anthems of both India and Bangladesh.

• Gopal Krishna Gokhale

• A prominent Moderate leader of the Indian National Congress, he was considered the political mentor or 'guru' of Mahatma Gandhi.

• He founded the Servants of India Society in 1905 with the aim of training Indians to devote their lives to the cause of the nation.

• Bal Gangadhar Tilak

• Known as the 'Father of Indian Unrest', he was a key Extremist leader who famously declared, 'Swaraj is my birthright and I shall have it'.

• During his six-year imprisonment in Mandalay Jail, he authored the famous commentary on the Bhagavad Gita titled Gita Rahasya.

Q55. Answer: (c) Digantara

The correct answer is Digantara.

Key Points

• The SCOT mission, which stands for Space-based Compact Optical Tracker, was developed by Digantara, a leading Indian space-technology startup based in Bengaluru.

• The mission was successfully launched in January 2025 as part of the SpaceX Transporter-12 rideshare mission from the United States.

• The primary objective of the SCOT payload is to advance Space Situational Awareness (SSA) by providing high-resolution, in-situ tracking of space objects and space debris from orbit.

• This launch represents a major step for India's private space sector, as it is one of the first commercial space-based sensors designed to monitor the orbital environment directly from space rather than from the ground.

• The data collected by the SCOT sensor will be integrated into Digantara’s proprietary Space-MAP (Space-Mission Assurance Platform) to help satellite operators avoid potential collisions.

Additional Information

• Digantara:

• Founded by Anirudh Sharma and Rahul Rawat, the company is headquartered in Bengaluru, Karnataka.

• It focuses on building a comprehensive infrastructure for space surveillance and space traffic management to ensure the sustainability of outer space activities.

• Space Situational Awareness (SSA):

• SSA involves the detection, tracking, and characterization of all objects in Earth's orbit, including active satellites and space junk.

• With the rapid increase in satellite constellations, SSA has become critical to preventing Kessler Syndrome, a scenario where the density of objects in Low Earth Orbit (LEO) is high enough that collisions could cause a cascade of debris.

• Other Notable Private Space Companies in India:

• Skyroot Aerospace: Based in Hyderabad, they gained fame for launching Vikram-S, India's first privately developed rocket, in November 2022.

• Agnikul Cosmos: A Chennai-based startup that developed the Agnibaan rocket and the world's first 3D-printed semi-cryogenic engine.

• Pixxel: A space-data company that specializes in building a constellation of hyperspectral imaging satellites to provide detailed planetary health data.

• Transporter Missions:

• These are dedicated rideshare missions operated by SpaceX, allowing multiple small satellites from various organizations and countries to be launched together at a lower cost.

Important Points

• The SCOT payload is designed to detect objects as small as 1 centimeter in size, which are often invisible to ground-based radar systems but still pose a significant threat to spacecraft.

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• The Government of India, through IN-SPACe (Indian National Space Promotion and Authorization Centre), has been actively supporting private players like Digantara to boost India's share in the global space economy.

• The launch in January 2025 reinforces India's position as a hub for cost-effective and innovative space solutions under the Make in India initiative.

Q56. Answer: (c) BharatGPT

The correct answer is BharatGPT.

Key Points

• BharatGPT is India's first indigenously developed Large Language Model (LLM), created by the Bengaluru-based conversational AI startup CoRover.ai.

• It was designed specifically to bridge the language gap in India, supporting over 14 Indian languages and more than 22 languages in total across text, voice, and video formats.

• The model is developed in collaboration with the National Language Translation Mission (NLTM), also known as BHASHINI, under the Ministry of Electronics and Information Technology (MeitY).

• Unlike many global LLMs, BharatGPT is fine-tuned to understand the cultural nuances and diverse linguistic dialects of the Indian population, making it a "Sovereign AI" solution.

• The platform integrates with Google Cloud's Vertex AI to provide scalable, secure, and high-performance generative AI capabilities for both government and private enterprises.

Additional Information

• CoRover.ai: Founded in 2016, it is a leading conversational AI company that powers several high-traffic virtual assistants, including IRCTC's AskDISHA, Linguistic University, and Max Life Insurance.

• Multi-modal Capabilities: BharatGPT is not limited to text; it features voice-to-voice interaction, which is crucial for accessibility among the non-literate or semi-literate populations in rural India.

• Data Sovereignty: A key feature of BharatGPT is that it ensures all data stays within the geographical boundaries of India, complying with the Digital Personal Data Protection (DPDP) Act, 2023.

• Bhashini Mission: This is a government initiative aimed at providing all Indians easy access to the internet and digital services in their own language. BharatGPT serves as a significant technological pillar for this mission.

• Applications: The LLM is being deployed across sectors such as Healthcare, Education, Banking, and E-governance to provide automated, human-centric support in regional languages like Hindi, Kannada, Tamil, Telugu, and Marathi.

Important Points

• Comparison with Global Models: While ChatGPT (OpenAI) and Gemini (Google) are trained on vast global datasets, BharatGPT focuses on Indian context, legal frameworks, and socio-economic data points.

• Launch Timeline: The model gained significant attention in 2023 and 2024 as India pushed for self-reliance (Atmanirbhar Bharat) in the field of Artificial Intelligence.

• AskDISHA 2.0: The upgraded version of the IRCTC chatbot utilizes CoRover's technology to handle millions of queries daily, proving the scalability of the BharatGPT framework.

• Efficiency: The model is designed to be more computationally efficient for Indian languages compared to Western models, which often struggle with the complex scripts and syntax of Indic languages.

Q57. Answer: (b) less, decrease

The correct answer is less, decrease.

Key Points

• Population change refers to the change in the number of people during a specific time period. This is a dynamic process influenced by three main factors: births, deaths, and migration.

• The Birth rate is the number of live births per 1,000 people in a year, while the Death rate is the number of deaths per 1,000 people in a year.

• When the birth rate is less than the death rate, it signifies that the number of people dying exceeds the number of babies being born. As a result, the total population will decrease over that period, assuming no significant inward migration. Hence, the statement aligns with the logic of natural decrease.

• The difference between the birth rate and the death rate of a country is called the natural growth rate. If the death rate is higher, the natural growth rate becomes negative.

• Until the 1800s, the world's population grew steadily but slowly because, although many babies were born (high birth rate), the death rate was also high due to poor health facilities and food shortages.

• In modern times, many developed nations have seen a population decline because their birth rate has fallen below the death rate, a phenomenon often observed in countries with aging populations.

Additional Information

• Components of Population Change:

• There are three primary components: Births, Deaths, and Migration. While births and deaths are natural causes, migration is a man-made or induced cause of change.

• Natural Increase occurs when the birth rate is higher than the death rate. This was the primary reason for the population explosion in the 20th century.

• Migration Dynamics:

• Migration is the movement of people across boundaries. It can be internal (within the country) or international (between countries).

• Immigration is when a person arrives in a new country, increasing its population, while Emigration is when a person leaves a country, decreasing its population.

• Countries like the United States of America and Australia have gained in-numbers by in-migration or immigration.

• Demographic Transition:

• This is a model used to represent the transition from high birth and death rates to low birth and death rates as a country develops from a pre-industrial to an industrialized economic system.

• In the final stage of demographic transition, both birth and death rates decline significantly, often leading to a stable or declining population.

• Factors Influencing Rates:

• Birth rates are influenced by social factors, education levels (especially of women), and economic stability.

• Death rates have plummeted globally due to advancements in medicine, better sanitation, and improved nutrition.

• The World Population reached 8 billion in November 2022, largely driven by high natural increase in developing regions.

Important Points

• Statistical Facts:

• A stationary population occurs when the birth rate is exactly equal to the death rate and there is no net migration.

• The Infant Mortality Rate (IMR) and Maternal Mortality Rate (MMR) are critical subsets of the death rate that reflect the socio-economic development and healthcare quality of a nation.

• The Replacement Level Fertility is the total fertility rate—the average number of children born per woman—at which a population exactly replaces itself from one generation to the next, without migration. This value is roughly 2.1 in most countries.

Q58. Answer: (c) Manufacturing

The correct answer is Manufacturing.

Key Points

• The Primary Sector of the economy includes all those activities the end purpose of which consists of exploiting natural resources. It forms the base for all other products that we subsequently make.

• Fishing is a primary activity because it involves the direct extraction of aquatic resources from nature without significant chemical or mechanical transformation at the point of harvest. Hence, it is included in the primary sector.

• Mining involves the extraction of minerals and ores directly from the earth's crust. Since it deals with raw earth materials, it is classified under the primary sector. Hence, it is included in the primary sector.

• Forestry involves activities such as logging, timber production, and the collection of wild-grown forest products. It relies entirely on the biological and environmental growth of forests. Hence, it is included in the primary sector.

• Manufacturing refers to the process of converting raw materials into finished goods using machinery, tools, and labor. This activity adds value to primary products and is categorized under the Secondary Sector. Hence, statement 3 is not included in the primary sector and is the correct answer.

Additional Information

• Sectors of Economy:

• Primary Sector: This sector is also known as the Agriculture and Related Sector. It includes Agriculture, Dairy, Fishing, Forestry, and Mining. In developing countries like India, it remains a significant provider of employment.

• Secondary Sector: This sector covers activities in which natural products are changed into other forms through ways of manufacturing. It is also called the Industrial Sector. Examples include Textile mills, Steel plants, and Automobile assembly.

• Tertiary Sector: Often called the Service Sector, it provides support to the primary and secondary sectors. It includes Transport, Banking, Insurance, Education, and Health Services. It currently contributes the highest share to India's GDP.

• Advanced Classifications:

• Quaternary Sector: This is a knowledge-based part of the economy, including services such as Information Technology (IT), Research and Development (R&D), and Financial planning.

• Quinary Sector: This includes the highest level of decision-making in a society or economy. This includes top officials in Government, Science, and Universities.

• Indian Context:

• In India, while the primary sector employs nearly 45-50% of the workforce, its contribution to the Gross Value Added (GVA) is relatively lower compared to the service sector, highlighting the issue of disguised unemployment in rural areas.

Important Points

• Workers in the primary sector are often called Red-collar workers due to the outdoor nature of their work.

• Workers in the secondary sector (specifically physical labor) are known as Blue-collar workers.

• The transition of an economy from primary to secondary and then to tertiary is known as Structural Transformation. In India, there has been a direct jump from the primary to the tertiary sector in terms of GDP share, bypassing a dominant manufacturing phase.

Q59. Answer: (b) Preeti Shenoy

The correct answer is Preeti Shenoy.

Key Points

• The book 'When Love Came Calling' is authored by Preeti Shenoy, who is one of India's most popular and highest-selling contemporary writers.

• Published in September 2020 by HarperCollins Publishers India, the novel is a story about two starkly different individuals, Puja and Arush, exploring themes of love, self-discovery, and finding one's purpose.

• Preeti Shenoy has the distinction of being nominated for the Forbes India Celebrity 100 list multiple times since 2013, highlighting her influence in the Indian literary landscape.

• The narrative of 'When Love Came Calling' is set against the backdrop of life in India and the UK, focusing on the pressures faced by the youth regarding career choices and social expectations.

• This book is considered her 15th book, adding to her repertoire of national bestsellers that often deal with human emotions and relationships in a relatable manner.

Additional Information

• Preeti Shenoy:

• She is an Indian author and artist, born in 1971.

• Her notable works include 'Life is What You Make It', 'The Secret Wish List', and 'A Hundred Little Flames'.

• She is often praised for her simple yet evocative prose and has received several awards, including the Indian of the Year award by Brands Academy.

• Aruni Kashyap:

• He is an Indian-American writer and translator from Assam.

• He is well-known for his debut novel 'The House with a Thousand Stories' (2013), which is set against the backdrop of the insurgency in Assam.

• He also writes in Assamese and serves as an Associate Professor of Creative Writing.

• Chetan Bhagat:

• An Indian author and columnist, he is famous for his books that cater to the Indian youth.

• His best-known works include 'Five Point Someone', 'The 3 Mistakes of My Life', and 'One Indian Girl'.

• Many of his novels have been adapted into Bollywood movies, such as '3 Idiots' and '2 States'.

• Tanya Selvaratnam:

• She is an Emmy-nominated producer, activist, and author based in the United States.

• She authored the book 'Assume Nothing: A Story of Intimate Violence' (2021), which is a powerful memoir regarding her personal experiences.

• She is also the author of 'The Big Lie: Motherhood, Feminism, and the Reality of the Biological Clock'.

Important Points

• Literary Context: Preeti Shenoy's writing style is frequently categorized as popular fiction or commercial fiction, making it highly accessible to a broad audience in India.

• Target Audience: 'When Love Came Calling' specifically targets the Young Adult (YA) demographic, focusing on the transitional phase of teenagers entering adulthood.

• Publisher Details: HarperCollins India is a subsidiary of News Corp and has been a primary publisher for many of Shenoy's recent titles, emphasizing her commercial success.

• Societal Themes: The book highlights the volunteering culture and the gap between parental ambition and child’s passion, which is a prevalent theme in modern Indian literature.

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Q60. Answer: (b) Leather Industry

The correct answer is Leather Industry.

Key Points

• The Production Linked Incentive (PLI) scheme was launched by the Government of India to boost domestic manufacturing, increase exports, and make India a global supply chain hub under the Atmanirbhar Bharat initiative.

• The scheme initially targeted three industries in March 2020 but was later expanded to cover 14 key sectors with a total outlay of approximately Rs. 1.97 lakh crore.

• Manufacturing of Medical Devices is a recognized sector under the PLI scheme, specifically aimed at reducing import dependence on high-end medical equipment like radiology and imaging devices, anaesthetics, and cancer care equipment. Hence, statement 1 is covered under the scheme.

• Automobiles and Auto Components were included in the scheme in September 2021 with a financial outlay of Rs. 25,938 crore to incentivize the production of Advanced Automotive Technology (AAT) products and Electric Vehicles (EVs). Hence, statement 3 is covered under the scheme.

• Drones and Drone Components were approved under the PLI scheme in 2021 to position India as a global drone hub by 2030, providing an incentive of 20% of the value addition made by the manufacturer. Hence, statement 4 is covered under the scheme.

• The Leather Industry is not one of the 14 sectors currently covered under the PLI scheme. While the government supports this sector through the Indian Footwear and Leather Development Programme (IFLDP), it does not fall under the specific PLI framework. Hence, the Leather Industry is the correct answer.

Additional Information

• List of 14 Sectors: The 14 sectors under the PLI scheme include Mobile Manufacturing, Medical Devices, Critical Key Starting Materials (KSMs)/Drug Intermediaries, Automobiles and Auto Components, Pharmaceutical Drugs, Specialty Steel, Telecom and Networking Products, Electronic/Technology Products, White Goods (ACs and LEDs), Food Products, Textile Products (MMF segment and Technical Textiles), High-Efficiency Solar PV Modules, Advanced Chemistry Cell (ACC) Battery, and Drones.

• Objectives: The primary goal is to provide financial incentives to companies based on their incremental sales from products manufactured in domestic units, encouraging Foreign Direct Investment (FDI) and large-scale manufacturing.

• Implementation: Different ministries manage specific sectors. For example, the Ministry of Heavy Industries oversees Automobiles and Drones, while the Department of Pharmaceuticals manages Medical Devices and Drugs.

• Economic Impact: The scheme is expected to contribute significantly to India's GDP, create employment opportunities for millions, and significantly reduce the trade deficit by promoting import substitution.

Important Points

• Tenure: The duration of the PLI schemes varies by sector, typically ranging from 4 to 6 years, starting from the base year 2019-20 or 2021-22.

• Eligibility: Incentives are provided to both MSMEs and Large Enterprises that meet specific investment and production thresholds defined for each category.

• Recent Developments: In 2023, the government considered expanding the PLI to other sectors like Toys and Bicycles, but as of the current official list, the Leather Industry remains excluded from the PLI umbrella.

Q61. Answer: (c) Both I and II

The correct answer is Both I and II.

Key Points

• A service in volleyball is the act of putting the ball into play by the right-back player, placed in the service zone. It is the only technical action where a player has total control over the ball without interference from teammates or opponents.

• Jump Serve (Jump and Serve): This is an advanced type of serve where the player increases the power and height of the serve by jumping to hit the ball. The server tosses the ball high, takes a rhythmic approach, and strikes the ball in mid-air. This technique generates high velocity and a steep downward angle, making it difficult for the receiving team to pass. Hence, statement I is correct.

• Floating Serve (Floater): A floating serve is hit with very little to no spin. Because of the lack of rotation, the ball's path becomes unpredictable as it interacts with the air currents, causing it to "dance" or move suddenly to the left, right, or drop down. This makes it extremely challenging for the defensive players to track and handle accurately. Hence, statement II is correct.

• Both the Jump Serve and the Floating Serve are fundamental strategies used in modern competitive volleyball to gain an advantage right from the start of the rally.

• Hence, the correct answer is Both I and II.

Additional Information

• History of Volleyball:

• Volleyball was invented in 1895 by William G. Morgan, a physical education director at the YMCA in Holyoke, Massachusetts. It was originally called "Mintonette" and was designed as an indoor sport for businessmen who found basketball too vigorous.

• The game was added to the Olympic Games program for the first time during the 1964 Tokyo Olympics.

• Basic Rules and Court Dimensions:

• A standard volleyball court measures 18 meters in length and 9 meters in width. It is divided by a net into two 9m x 9m halves.

• The height of the net is 2.43 meters for men and 2.24 meters for women.

• Each team consists of 6 players on the court. A team is allowed a maximum of three hits to return the ball over the net.

• Common Volleyball Terminology:

• Ace: A serve that results directly in a point because it hits the floor untouched or the receiving team cannot keep it in play.

• Libero: A specialized defensive player who wears a different colored jersey and can substitute for any back-row player without notice to the officials.

• Dig: The act of preventing the ball from hitting the floor after an attack or spike by the opponent.

• Set: A tactical pass, usually the second contact, that directs the ball towards a hitter to spike it into the opponent's court.

Important Points

• Governing Body: The Fédération Internationale de Volleyball (FIVB) is the international governing body for all forms of volleyball. It was founded in 1947 and is headquartered in Lausanne, Switzerland.

• Variations of Serves: Besides jump and floating serves, players also utilize the Underhand Serve (often for beginners), the Overhand Serve, and the Topspin Serve (which rotates forward rapidly to drop quickly into the court).

• Scoring System: Modern volleyball uses the Rally Point System, where a point is scored on every single rally, regardless of which team is serving. Matches are typically played as the best of five sets, with the first four sets played to 25 points and the fifth set (if necessary) played to 15 points.

Q62. Answer: (c) 5

The correct answer is 5.

Key Points

• The Dilwara Temples are a world-famous group of Svetambara Jain temples located about 2.5 kilometers from the Mount Abu hill station, the only hill station in Rajasthan.

• There are 5 distinct temples in the complex, each dedicated to a different Jain Tirthankara and possessing its own unique architectural identity.

• These temples were built between the 11th and 16th centuries (specifically between 1031 AD and 1582 AD) during the reign of the Chaulukya dynasty (Solanki rulers).

• The complex is globally renowned for its extraordinary architecture and stunning marble stone carvings, often considered superior to the Taj Mahal in terms of intricate detailing.

• The five temples included in the complex are Vimal Vasahi, Luna Vasahi, Pittalhar, Parshvanath, and Mahavir Swami.

Additional Information

• Vimal Vasahi Temple:

• Built in 1031 AD by Vimal Shah, a minister of the Solanki King Bhimdev I.

• It is dedicated to the first Jain Tirthankara, Lord Rishabha (also known as Adinath).

• The temple is famous for its "Rang Mandap," a central hall supported by 12 decorated pillars and a magnificent carved dome.

• Luna Vasahi Temple:

• Constructed in 1230 AD by two brothers, Vastupal and Tejpal, who were ministers of Raja Vir Dhawal of Gujarat.

• It is dedicated to the 22nd Tirthankara, Lord Neminatha.

• The temple is noted for its "Hathishala" (elephant cell), featuring 10 marble elephants, and its incredibly delicate pendant carvings in the central dome.

• Pittalhar Temple:

• This temple was built by Bhima Shah, another minister from Gujarat, during the 14th-15th century.

• It is dedicated to Lord Adinath and houses a massive statue of the deity cast in five metals (Panchaloha), with brass (Pittal) being the dominant metal, giving the temple its name.

• Parshvanath Temple (Khartar Vasahi):

• Built between 1458 and 1459 by the Mandlika family, it is the tallest shrine in the Dilwara complex.

• It is dedicated to the 23rd Tirthankara, Lord Parshvanath, and consists of a three-story building with grey stone carvings on the exterior walls.

• Mahavir Swami Temple:

• Completed in 1582, it is the smallest and newest temple in the complex, dedicated to the 24th and last Tirthankara, Lord Mahavira.

• Despite its small size, it features beautiful wall paintings on the upper walls of the porch, dating back to 1764.

Important Points

• Architectural Style: The temples are built in the Maru-Gurjara style of architecture, which originated in Western India. This style is characterized by ornate carvings, multiple shrines, and vaulted ceilings.

• Material Sourcing: The white marble used for the construction was transported from the Arasuri hills near Ambaji in Gujarat, which was a massive logistical feat at the time.

• Location: Situated at a high altitude in the Aravalli Range, the site provides a serene environment conducive to meditation and religious activities.

• Preservation: The complex is managed by the Seth Kalyanji Paramanandji Pedhi trust and remains a vital pilgrimage site for the Jain community worldwide.

Q63. Answer: (c) The sum of the atomic masses of all atoms in a molecule

The correct answer is The sum of the atomic masses of all atoms in a molecule.

Key Points

• The molecular mass of a substance is defined as the sum of the atomic masses of all the atoms present in a single molecule of that substance. Hence, option 3 is correct.

• It is the relative mass of a molecule compared to 1/12th of the mass of one carbon-12 atom.

• Calculation Method: To find the molecular mass, we multiply the atomic mass of each element by the number of its atoms in the chemical formula and then add the results. For example, in Water (H2O), the mass is (2 x 1u) + (1 x 16u) = 18u.

• The total number of atoms in a molecule is known as its atomicity, not its molecular mass. For instance, the atomicity of Phosphorus (P4) is 4. Hence, statement 1 is incorrect.

• The valency of an atom is its combining capacity. The sum of valencies is used to determine chemical formulas but does not represent the mass of the molecule. Hence, statement 2 is incorrect.

• The volume occupied by a molecule relates to its physical state and conditions like temperature and pressure, as described by Avogadro's Law, rather than its mass. Hence, statement 4 is incorrect.

Additional Information

• Atomic Mass Unit (u): Also known as the unified mass, it is the standard unit used for expressing atomic and molecular weights. It is exactly 1/12th the mass of an unbound neutral atom of carbon-12 at rest and in its ground state.

• Molar Mass: While molecular mass refers to the mass of a single molecule (in u), molar mass refers to the mass of one mole of the substance (6.022 x 10^23 molecules) and is expressed in grams per mole (g/mol). Numerically, molecular mass and molar mass are the same.

• Formula Unit Mass: This term is specifically used for ionic compounds (like NaCl or CaCl2) where the constituent particles are ions rather than discrete molecules. It is calculated the same way as molecular mass.

• Significance in Chemistry: Molecular mass is essential for stoichiometry calculations in chemical reactions, allowing scientists to calculate the exact proportions of reactants needed to produce a specific amount of product.

• Example Calculations:

• Carbon Dioxide (CO2): (1 x 12u) + (2 x 16u) = 44u.

• Methane (CH4): (1 x 12u) + (4 x 1u) = 16u.

Important Points

• Standard Reference: The current scale for atomic and molecular masses is based on Carbon-12, adopted by the IUPAC in 1961 to replace older scales based on Oxygen.

• Precision: Molecular mass can be determined with high precision using Mass Spectrometry, which measures the mass-to-charge ratio of ionized molecules.

• Dalton (Da): In biology and biochemistry, the unit Dalton is frequently used interchangeably with the unified atomic mass unit (u) to describe the mass of large organic molecules like proteins and DNA.

• Gram Molecular Mass: This is simply the molecular mass of a substance expressed in grams. For example, the gram molecular mass of Oxygen (O2) is 32g.

Q64. Answer: (c) Both I and II

The correct answer is Both I and II.

Key Points

• In the realm of Indian Classical Music, specifically the Carnatic tradition, Gitam (also spelled Geetham) is recognized as the simplest type of musical composition. It is designed primarily for students who have moved past basic exercises to understand the melodic structure of a Raga. Hence, statement I is correct.

• A Gitam is characterized by its very simple construction. Unlike more complex forms like Kritis or Varnas, it does not have distinct sections like Pallavi, Anupallavi, and Charana. Instead, it features a continuous and melodious flow of music. Hence, statement II is correct.

• Hence, the correct answer is Both I and II.

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Additional Information

• Structural Features of Gitam:

• The term Gitam literally translates to "song." In these compositions, the Sahitya (lyrics) and the Svara (notes) are given equal importance. There are no Sangatis (variations) or complex Gamaka (ornamentations) used, making it easy for beginners to perform.

• It is typically set to Madhyama Kala (medium tempo). The Sahitya often consists of praises for Gods and Goddesses, reflecting the Bhakti (devotional) essence of Indian music.

• Historical Significance:

• Purandara Dasa, widely revered as the Pitamaha (grandfather) of Carnatic music, is credited with standardizing the teaching methodology, which includes the Pillari Gitams.

• The Pillari Gitams are usually the first few songs taught to students and are composed in praise of Lord Ganesha, such as the famous "Sri Gananatha" in Raga Malahari.

• Types of Gitams:

• Samanya Gitam: Also known as Sanchari Gitam, these are ordinary compositions where the Sahitya is religious or philosophical.

• Lakshana Gitam: These are unique because the Sahitya describes the Lakshanas (characteristics) of the Raga itself, including its Arohana (ascending scale), Avarohana (descending scale), and Varjya notes.

Important Points

• Musical Components:

• Tala: Gitams are usually set to simple Suladi Sapta Talas like Rupaka, Triputa, Dhruva, and Matya.

• Language: The lyrics are commonly found in Sanskrit, Kannada, or a specialized musical dialect known as Bhandira Bhasha.

• Pedagogical Role: Learning Gitams is a crucial milestone for a student to grasp the Svarupa (personality) of different Ragas like Kalyani, Sankarabharanam, or Mohanam before advancing to the Varnam stage.

Q65. Answer: (a) Ministry of Statistics & Programme Implementation

The correct answer is Ministry of Statistics & Programme Implementation.

Key Points

• The EnviStats India 2025: Environment Statistics is a flagship publication released by the National Statistical Office (NSO), which operates under the Ministry of Statistics and Programme Implementation (MoSPI) of the Government of India.

• The report provides comprehensive data and statistics related to the environment, including physical assets, biodiversity, forests, and climate-related indicators within the Indian territory.

• The publication follows the System of Environmental-Economic Accounting (SEEA) framework, which is the international statistical standard for environmental-economic accounting adopted by the United Nations Statistical Commission in 2012.

• It aims to bridge the gap between economic policy and environmental sustainability by providing quantitative data that helps in assessing the impact of economic activities on natural resources.

• The 2025 edition (and its predecessors) serves as a critical resource for monitoring India’s progress towards the Sustainable Development Goals (SDGs), particularly those concerning Clean Water and Sanitation (SDG 6), Climate Action (SDG 13), and Life on Land (SDG 15).

Additional Information

• Ministry of Statistics & Programme Implementation (MoSPI):

• This Ministry was created as an independent entity on 15th October 1999 following the merger of the Department of Statistics and the Department of Programme Implementation.

• The National Statistical Office (NSO) under this ministry is responsible for the conduct of large-scale sample surveys and the compilation of national accounts, including the Gross Domestic Product (GDP).

• System of Environmental-Economic Accounting (SEEA):

• The SEEA framework integrates economic and environmental data to provide a multipurpose information system for understanding the interactions between the economy and the environment.

• It facilitates the calculation of Green GDP, which adjusts the traditional GDP by accounting for environmental degradation and resource depletion.

• Other Ministries and their Roles:

• The Ministry of Environment, Forest and Climate Change (MoEFCC) is the nodal agency for the planning, promotion, and coordination of India's environmental and forestry programs; however, the statistical compilation for EnviStats is handled by MoSPI.

• The Ministry of Home Affairs is primarily responsible for internal security, border management, and the Census of India (via the Registrar General).

• The Ministry of Social Justice and Empowerment focuses on the welfare and empowerment of marginalized sections of society, such as Scheduled Castes, OBCs, and persons with disabilities.

• Significance of EnviStats:

• The report includes detailed accounts of land cover, water use, and solid waste management across different Indian states and Union Territories.

• By providing time-series data, it allows researchers to track long-term environmental trends and the efficiency of government conservation schemes like Namami Gange or the National Afforestation Programme.

Important Points

• Global Context: India is one of the few countries that have actively implemented the SEEA framework to produce Environmental Accounts, aligning its domestic statistical practices with global benchmarks set by the United Nations.

• Data Sources: The MoSPI collaborates with several technical agencies like the Forest Survey of India (FSI), Central Pollution Control Board (CPCB), and Central Ground Water Board (CGWB) to collect primary data for these statistical volumes.

• Scope: EnviStats India is typically released in two volumes: Volume I focuses on Environmental Statistics (based on the FDES 2013 framework), while Volume II focuses on Environmental Accounts.

Q66. Answer: (c) Have a whale of a time

The correct answer is '3' i.e. Have a whale of a time.

Key Points

• The idiom "Have a whale of a time" means to enjoy oneself very much or have a great time.

• It is often used in informal contexts to describe a fun or exciting experience.

• None of the other options (1, 2, or 4) convey this meaning, making option 3 the correct choice.

Correct sentence: We had a whale of a time at the party last night.

Additional Information

• Idioms and their meanings:

• Have a nick of a time: Not a commonly used idiom or phrase.

• Have a click of a time: Not a recognized idiom in English.

• Have a shell of a time: Doesn't carry the intended meaning of enjoying oneself.

• Using idioms: Idioms are phrases that have figurative meanings, and they are often tied to cultural or linguistic contexts.

Q67. Answer: (c) Fascination

The correct answer is '3' i.e. Fascination.

Key Points

• The word Fascination refers to the state of being fascinated or attracted to something strongly.

• The correct spelling of the word is Fascination.

• Option 1 (Fasination) and Option 2 (Fascinacion) are incorrect because they are misspelled versions of the word.

Correct word: Fascination

Additional Information

• Root Word: The word originates from the Latin root "fascinare," meaning to captivate or bewitch.

• Usage in a Sentence: Her fascination with astronomy led her to pursue a career in space science.

Q68. Answer: (b) kleptomania

The correct answer is '2' i.e. kleptomania.

Key Points

• The word kleptomenia in the sentence is misspelled.

• The correct spelling of the word is kleptomania, which refers to a psychological disorder causing an uncontrollable urge to steal items.

• Option 2, kleptomania, is the correct replacement for the misspelled word.

• Options 1 (Kleptominia) and 3 (klaptomania) are incorrect spellings.

• Option 4 (No replacement required) is incorrect because the spelling in the sentence needs correction.

Correct sentence: The doctor diagnosed her with kleptomania, a disorder that caused her to steal compulsively.

Additional Information

• Kleptomania: A mental health disorder characterized by repeated inability to resist urges to steal things not needed for personal use or monetary value.

• It is classified as an impulse control disorder in psychiatry.

• It is important to use the correct spelling to convey the intended meaning clearly.

Q69. Answer: (d) terrorisim

The correct answer is '4' i.e. terrorisim.

Key Points

• The sentence provided highlights global issues such as climate change and terrorism.

• There are four underlined words in the sentence: multilateral, cooperation, pressing, and terrorisim.

• Among these words, terrorisim is misspelt.

• The correct spelling of the word is terrorism.

Correct sentence: The summit emphasised multilateral cooperation to address pressing global issues such as climate change and terrorism.

Additional Information

• Spelling errors can often occur due to typographical mistakes or confusion over the correct form of a word.

• It is important to use accurate spelling in formal writing, especially when addressing serious topics such as terrorism.

Q70. Answer: (c) Ludicurous

The correct answer is '3' i.e. Ludicurous.

Key Points

• The word "Ludicurous" is misspelt.

• The correct spelling of the word is "Ludicrous", which means something that is absurd or ridiculous.

• The other words in the options are correctly spelt:

• Cemetery: A burial ground, typically one that is not attached to a church.

• Punctuate: To insert punctuation marks in a text.

• Indolence: Avoidance of activity or exertion; laziness.

Correct word: Ludicrous

Additional Information

• Commonly misspelt words: English contains many words that are often misspelt, such as:

• Accommodate: Often misspelt as "acommodate" or "accomodate."

• Separate: Often misspelt as "seperate."

• Definitely: Often misspelt as "definately."

• To avoid spelling errors, it is advisable to:

• Use spell-check tools while writing.

• Regularly practice and familiarize yourself with commonly misspelt words.

Q71. Answer: (c) Fill

The correct answer is '3' i.e. Fill.

Key Points

• The word "dig" refers to the act of making a hole in the ground or removing earth.

• Among the options:

• Excavate means to dig out material from the ground, which is similar in meaning to "dig."

• Burrow refers to digging or tunneling, often associated with animals, and is again similar to "dig."

• Fill means to put material into a space or hole, which is the opposite of "dig."

• Unearth means to dig up or uncover something, which is similar in meaning to "dig."

• Hence, the word most opposite in meaning to "dig" is Fill.

Correct sentence: The word most opposite in meaning to "dig" is Fill.

Additional Information

• Synonyms of "dig": Excavate, Unearth, Burrow.

• Antonyms of "dig": Fill, Cover, Patch.

• Understanding synonyms and antonyms is essential for improving vocabulary and comprehension skills.

Q72. Answer: (d) Lose

The correct answer is '4' i.e. Lose.

Key Points

• The question asks for the antonym of the phrase "Get back", which means to regain or recover something.

• Out of the options given:

• Regain: Synonym of "Get back," meaning to recover something.
• Retrieve: Synonym of "Get back," referring to bringing something back.
• Recover: Synonym of "Get back," indicating restoration or reclamation.
• Lose: Antonym of "Get back," as it means to be deprived of or unable to retain something.
Correct sentence: The antonym of "Get back" is Lose.
Additional Information
• Synonyms: Words with similar meanings that can be used interchangeably (e.g., regain, retrieve, recover).
• Antonyms: Words with opposite meanings (e.g., lose).

Q73. Answer: (b) They had a picnic on the bank of the Ganga.

The correct answer is '2' i.e. They had a picnic on the bank of the Ganga.
Key Points
• The word "bank" is a homonym, meaning it has multiple meanings depending on the context in which it is used.
• The sentence "They had a picnic on the bank of the Ganga" clearly refers to the meaning of "bank" as the side of a river.
• Other options use different meanings of the word "bank":
• Option 1: Refers to a financial institution.
• Option 3: Refers to relying or depending on something.
• Option 4: Refers to the central financial authority.
Correct sentence: They had a picnic on the bank of the Ganga.
Additional Information
• Homonyms: Words that have the same spelling or pronunciation but different meanings. For example:
• Bank (River): The side of a river.
• Bank (Financial): A place where money is deposited and withdrawn.
• It is important to understand the context of the sentence to correctly interpret the meaning of a homonym.

Q74. Answer: (a) Pauper

The correct answer is '1' i.e. Pauper.
Key Points
• The term pauper refers to a person who is extremely poor and has no money or means to support themselves.
• Miser: A miser is someone who hoards money and is reluctant to spend it, not necessarily poor.
• Tycoon: A tycoon is a wealthy and powerful businessperson, which is the opposite of being poor.
• Patron: A patron is someone who financially supports others, often in the arts or charity, which also implies wealth rather than poverty.
Correct word: A person who has no money is called a pauper.
Additional Information
• Word Substitution: This is a form of vocabulary exercise where a sentence or phrase is replaced with a single word that conveys the same meaning.
• Example:
• Sentence: A person who writes books for others. Word: Ghostwriter.
• Sentence: A place where animals are kept. Word: Zoo.

Q75. Answer: (a) Decathlon

The correct answer is '1' i.e. Decathlon.
Key Points
• The term Decathlon refers to an athletic competition comprising ten different events.
• The root word "Deca" means ten, which is derived from the Greek word déka.
• The other options are as follows:
• Pentathlon: A competition with five events (Penta means five).
• Tetrathlon: A competition with four events (Tetra means four).
• Heptathlon: A competition with seven events (Hepta means seven).
Correct sentence: An athletic event comprising ten different events is called a Decathlon.
Additional Information
• Decathlon: The competition typically consists of events like 100m sprint, long jump, shot put, high jump, 400m race, 110m

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hurdles, discus throw, pole vault, javelin throw, and 1500m race.

• Origin: Decathlon is a modern event in athletics, primarily conducted in track and field sports.

• Participants: Athletes competing in a Decathlon are often referred to as "decathletes" and need to be versatile across multiple disciplines.

Q76. Answer: (c) It was believed that he was innocent.

The correct answer is '3' i.e. It was believed that he was innocent.

Key Points

• The given sentence is in the active voice: "People believed that he was innocent."

• To convert this sentence into the passive voice, the following changes are required:

• The object of the active sentence ("that he was innocent") becomes the subject of the passive sentence.

• The verb "believed" is changed to its passive form "was believed."

• The subject of the active sentence ("People") is either omitted (as it's a general reference) or retained in a prepositional phrase starting with "by."

• Therefore, the correct passive voice conversion is: "It was believed that he was innocent."

Correct sentence: It was believed that he was innocent.

Additional Information

• Key rules for converting active to passive voice:

• The object of the active voice becomes the subject in the passive voice.

• The verb is replaced with its corresponding passive form: be + past participle.

• The subject of the active voice is either omitted (if it's a general reference) or introduced using "by."

• Example:

• Active: "The team completed the project."

• Passive: "The project was completed by the team."

Q77. Answer: (a) Weren't all the employees informed about the new rule by the manager?

The correct answer is '1' i.e. Weren't all the employees informed about the new rule by the manager?

Key Points

• The given sentence is in the interrogative form of the active voice, starting with "Didn't."

• When converting such sentences into the passive voice, the structure becomes: Wasn't/Weren't + subject (object of active voice) + past participle + by + agent (doer).

• In the active voice, "the manager" is the subject, "all the employees" is the object, and the verb is "inform."

• In the passive voice, the object "all the employees" becomes the subject, and the verb changes to the past participle "informed."

• Option 1 correctly follows this structure: Weren't all the employees informed about the new rule by the manager?

Correct sentence: Weren't all the employees informed about the new rule by the manager?

Additional Information

• Option 2: "Wasn't all the employees informed about the new rule by the manager?" is incorrect because "employees" is plural, so the correct auxiliary verb should be "Weren't," not "Wasn't."

• Option 3: "Didn't all the employees informed about the new rule by the manager?" is incorrect because "informed" is not used correctly as a past participle in the passive voice.

• Option 4: "Doesn't all the employees informed about the new rule by the manager?" is incorrect because it mixes present tense ("Doesn't") with past participle "informed," which is grammatically wrong.

Q78. Answer: (c) Please come early tomorrow.

The correct answer is '3' i.e. Please come early tomorrow.

Key Points

• The given sentence is in the passive voice, as it starts with "You are requested," indicating a polite request.

• In the active voice, the sentence needs to be rewritten to directly convey the request while maintaining the same meaning.

• Option 3, "Please come early tomorrow," is the most appropriate active voice conversion because it is polite and directly conveys the request.

• Options 1, 2, and 4 are either grammatically incorrect or do not match the tone and intent of the original sentence.

Correct sentence: Please come early tomorrow.

Additional Information

• Passive to Active Voice Conversion Tips:

• Identify the subject performing the action in the passive sentence.
• Rewrite the sentence so that the subject appears at the beginning, performing the action.
• Use appropriate verbs and maintain the tone of the original sentence (e.g., polite requests should remain polite).
• Examples:
• Passive: "The homework was completed by the student." → Active: "The student completed the homework."
• Passive: "You are advised to take precautions." → Active: "Please take precautions."

Q79. Answer: (c) stranger that she threw her sandals to him

The correct answer is '3' i.e. stranger that she threw her sandals to him.

Key Points

• The error lies in part 3 of the sentence: "stranger that she threw her sandals to him."
• The preposition "to" is incorrectly used in this context. The correct preposition should be "at."
• The correct phrase is: "she threw her sandals at him."
• The preposition "at" is used when directing an action toward someone or something in a forceful or targeted manner.

Correct sentence: Johnsy was so angry with the stranger that she threw her sandals at him, hurting just above his right eyebrow.

Additional Information

• Usage of "to" vs. "at":
• "To": Indicates direction or movement toward a destination (e.g., "I gave the book to her.").
• "At": Indicates a targeted or aggressive action (e.g., "He threw a ball at the wall.").

Q80. Answer: (c) in

The correct answer is '3' i.e. in.

Key Points

• The preposition "in" is used to indicate the form or manner in which something appears or is presented.
• In the given sentence, the phrase "in the form of" is correct because it describes the way the surprise gift was presented, i.e., as a new laptop.
• Other options such as "on," "by," or "of" do not fit the context or grammatical structure of the sentence.

Correct sentence: Their surprise gift came in the form of a new laptop.

Additional Information

• The preposition "in" is often used in phrases like:
• In the form of: To describe the way something is presented (e.g., "Help came in the form of donations").
• In terms of: To specify a particular aspect or area (e.g., "The project is successful in terms of innovation").
• Prepositions must be chosen carefully as they play a crucial role in maintaining the accuracy and meaning of a sentence.

Q81. Answer: (c) groundbreaking research in genetics

The correct answer is '3' i.e. groundbreaking research in genetics.

Key Points

• The original sentence uses the term “groundshaking,” which is not the appropriate term in this context. While it might be understood as something impactful, it is not the correct phrase used to describe significant scientific research.
• The correct phrase is “groundbreaking research,” which means innovative or pioneering research.
• Option 1 (groundbraking research) contains a spelling error. The correct spelling is “groundbreaking.”
• Option 2 (groundshaking research in genetic) contains two errors: the term “groundshaking” is incorrect, and the word “genetic” should be pluralized to “genetics.”
• Option 4 (No Improvement Required) is incorrect because the original sentence contains an error.

Correct sentence: The prestigious award was given to the scientist for his groundbreaking research in genetics.

Additional Information

• The term “groundbreaking” is commonly used in contexts involving innovation, discoveries, or major achievements.
• For example:
• She received a grant for her groundbreaking work in renewable energy.
• The team made a groundbreaking discovery in cancer research.

Q82. Answer: (a) about

The correct answer is '1' i.e. about.

Key Points

• The child wanted to hear the story about Vikramaditya, which means the story is related to or concerning Vikramaditya.

• Among the given options, 'about' is the correct preposition to use, as it is commonly used to indicate the subject or topic of a story.

• Other options, such as 'on', 'for', or 'in', do not fit the context appropriately.

Correct sentence: The child wanted to hear the story about Vikramaditya.

Additional Information

• 'About': Used to indicate the subject of a discussion, story, or thought (e.g., "Tell me about your day").

• 'On': Generally used to indicate a physical position or a specific topic (e.g., "The book is on the table" or "A lecture on physics").

• 'For': Indicates purpose, recipient, or benefit (e.g., "This gift is for you").

• 'In': Refers to location, time, or condition (e.g., "The keys are in the drawer" or "In the morning").

Q83. Answer: (d) CABD

The correct answer is '4' i.e. CABD.

Key Points

• The paragraph begins with S1, which mentions Bugrov arriving at the Paris Hotel at night.

• Next, C logically follows as Bugrov goes upstairs and knocks on Groholsky's door, maintaining the sequence of events.

• Then, A follows as Bugrov is admitted into the apartment, continuing the flow of the story.

• B comes next, where Groholsky is packing his things and Liza is trying on bracelets, describing the scene inside the room.

• Finally, D follows as Bugrov's entry frightens both of them, leading to the conclusion in S2.

Correct sequence: CABD

Additional Information

• This type of question tests your ability to logically sequence sentences to form a coherent and meaningful paragraph.

• Always identify the introductory and concluding sentences, then analyze the flow of actions or events described in the jumbled sentences.

Q84. Answer: (c) CADB

The correct answer is '3' i.e. CADB.

Key Points

• The paragraph begins with the protagonist hearing footsteps in the corridor (S1).

• Sentence C logically follows, as it describes the door opening and the appearance of Count Scarlet, which builds suspense.

• Sentence A then introduces a detailed description of Count Scarlet, emphasizing his physical traits (tall, lanky, freckled, etc.).

• Sentence D continues the physical description, focusing on his large hands.

• Sentence B concludes the description, highlighting his knees and tightly fitting trousers.

• The paragraph ends with S2, where Count Scarlet lifts his hand and speaks, adding dramatic flair.

Correct sequence: S1 → C → A → D → B → S2.

Additional Information

• Coherence: The sequence ensures logical progression from the event (hearing footsteps) to the description of Count Scarlet and his actions.

• Unity: All sentences are interconnected and contribute to the overall narrative of the paragraph.

Q85. Answer: (c) Having completed the rigorous training program, the employees

The correct answer is '3' i.e. "Having completed the rigorous training program, the employees".

Key Points

• The original sentence, "The employees, having completing the rigorous training program, felt well prepared for the upcoming challenges," contains a grammatical error in the phrase "having completing." The correct form should be "having completed."

• Option 3, "Having completed the rigorous training program, the employees," correctly places the modifier "having completed" before the noun "the employees," ensuring clarity and grammatical accuracy.

• Option 1 ("The rigorous training program, having been completed by the employees") is grammatically correct but changes the sentence's meaning by shifting the focus from the employees to the training program.

• Option 2 ("Having completed the employees rigorous training program") is incorrect because it lacks clarity and proper structure. The phrase does not align with the intended meaning of the original sentence.

• Option 4 ("No improvement required") is incorrect because the original sentence contains a grammatical error that needs correction.

Correct sentence: Having completed the rigorous training program, the employees felt well prepared for the upcoming challenges.

Additional Information

• Placement of Modifiers: Modifiers such as "having completed" should be placed close to the noun they modify to avoid ambiguity.

• Verb Forms: "Having completed" is the correct past participle form, indicating an action completed before another action.

• In this case, the completion of the training program occurs before the employees feel prepared for the challenges.

Q86. Answer: (a) Respect for the values of dignity and disability justice and provision of constant and compassionate care.

The correct answer is Option 1.

Key Points

• To identify what the radical vision should prioritize, we look at the first two sentences of the passage: "A radical vision of mental health care needs to be centered on the ideals of dignity and disability justice... It means simply being there for the person, again and again, through various sufferings..."

• The text emphasizes two main pillars:

• Principles: Dignity, disability justice, equity, and inclusion.

• Practice: Constant presence ("again and again") and addressing various forms of suffering (compassionate care).

• Option 1 accurately combines these elements by mentioning the respect for dignity/justice and the provision of constant, compassionate care.

• Why other options are incorrect:

• Option 2: The passage contradicts this by stating that care should address "relationship suffering" and "existential issues," rather than ignoring them for medical intervention.

• Option 3: The passage suggests being there "again and again," which implies long-term commitment, not just "short-term crisis interventions."

• Option 4: The text explicitly says it needs to "account for the complexities at issue," directly opposing the idea of refraining from complex needs.

Therefore, the correct answer is 1.

Analytical Insight: In high-level reading comprehension for exams, questions often focus on "Philosophy vs. Practice." This passage defines the philosophy (Dignity/Justice) and the practice (Presence/Problem-solving). The correct answer must bridge both aspects.

Additional Information

• Radical Vision: A fundamental or thorough-going change in perspective or approach.

• Dignity: The state or quality of being worthy of honor or respect.

• Disability Justice: A framework that examines disability and ableism as they relate to other forms of oppression and identity.

• Existential Issues: Concerns relating to the nature of human existence, such as meaning, purpose, and mortality.

Q87. Answer: (b) Because it must address emotional, relational, practical, and existential needs all at once.

The correct answer is Option 2.

Key Points

• To understand why the passage uses the phrase "very complicated story," we look at the final sentence which lists the overlapping tasks of care.

• The author explains that a radical vision requires addressing:

• Adverse life circumstances: Practical needs and security.

• Relationship issues: Social and emotional needs.

• Existential issues: Deep mental and philosophical suffering.

• Daily accomplishment: Problem-solving and functional needs.

• The simultaneous management of all these diverse layers—emotional, relational, practical, and existential—is what makes the process "complicated."

• Why other options are incorrect:

• Option 1: This contradicts the text. The passage describes a need for being there "again and again" through various sufferings, which is the opposite of a "one-off" intervention or simple medication.

• Option 3: The passage explicitly states that care is the task of addressing "adverse life circumstances," meaning it must be deeply involved in real-life situations.

• Option 4: This is a narrow view that the passage is trying to move away from by focusing on "dignity," "disability justice," and "existential issues" rather than just a medical diagnosis.

Therefore, the correct answer is 2.

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Analytical Insight: In high-level Reading Comprehension, "Complexity" usually arises from the intersection of different factors. When a text lists multiple categories of needs that must be addressed at the same time, the "complication" lies in that holistic approach.

Additional Information

• Existential: Relating to human existence or the experience of being alive.

• Equity: The quality of being fair and impartial, ensuring everyone has what they need to succeed.

• Disability Justice: A movement that acknowledges that all bodies are unique and that social systems must be built to include everyone.

• Adverse: Preventing success or development; harmful; unfavorable.

Q88. Answer: (b) Offering consistent support across different kinds of suffering over time.

The correct answer is Option 2.

Key Points

• To understand what "being there" means, we look at the third sentence: "It means simply being there for the person, again and again, through various sufferings..."

• The phrase "again and again" implies consistency and a long-term commitment over time.

• The phrase "various sufferings" (relationship, existential, material needs) indicates that support should cover different kinds of human experiences and challenges.

• Option 2 perfectly captures both the temporal aspect (consistency over time) and the comprehensive aspect (different kinds of suffering).

• Why other options are incorrect:

• Option 1: "Brief check-ins" contradicts the instruction to be there "again and again" through complex sufferings.

• Option 3: The passage says care should address both material needs and emotional/existential issues "at the same time," so it doesn't disregard the emotional.

• Option 4: The text lists "relationship issues" and "existential issues," which are not always "life-threatening situations," showing that care is meant to be much broader.

Therefore, the correct answer is 2.

Analytical Insight: In high-level competitive exams, "being there" is a figurative expression. The passage defines it not as physical proximity, but as steadfastness in the face of multi-dimensional human suffering.

Additional Information

• Radical: Relating to or affecting the fundamental nature of something; far-reaching or thorough.

• Existential: Relating to human existence or the experience of being alive.

• Equity: The quality of being fair and impartial.

• Adverse: Preventing success or development; harmful; unfavorable.

Q89. Answer: (d) These needs are interconnected and must be addressed alongside emotional and existential suffering.

The correct answer is Option 4.

Key Points

• To identify the passage's attitude toward these needs, we look at the final sentence: "...care as the task of addressing adverse life circumstances... while at the same time addressing needs related to security, relationship, daily accomplishment, or problem-solving, is a very complicated story."

• The use of the phrase "while at the same time" indicates that these practical and social needs (security, relationships, accomplishment) are not separate from mental health care but are interconnected with it.

• The "radical vision" described doesn't choose between fixing life circumstances and fixing the mind; it advocates for addressing both simultaneously.

• Option 4 perfectly reflects this holistic attitude by stating these needs must be addressed alongside emotional and existential suffering.

• Why other options are incorrect:

• Option 1: The passage suggests they should be addressed "at the same time," which is the opposite of considering them "individually" or as "different from mental health."

• Option 2: This is too restrictive. The passage also mentions relationships, daily accomplishment, and problem-solving, not just security.

• Option 3: This contradicts the text, which explicitly includes these needs as part of the "task of care" in its complicated story.

Therefore, the correct answer is 4.

Analytical Insight: In high-level Reading Comprehension, look for "Integrative" keywords like "while," "simultaneously," or "at the

same time." These words signal that the author views various elements as a unified whole rather than isolated parts.

Additional Information

• Existential Issues: Philosophical concerns about the meaning of life, purpose, and death.

• Disability Justice: A movement that ensures people with disabilities have the same rights and opportunities as everyone else, with a focus on intersectionality.

• Equity: Ensuring everyone has the specific tools they need to be successful, which is different from "equality" (giving everyone the same thing).

• Adverse: Unfavorable or harmful circumstances.

Q90. Answer: (b) This develops from a variety of sources: relational, functional, and existent.

The correct answer is Option 2.

Key Points

• To identify how the passage infers the sources of suffering, we examine the third sentence: "...through various sufferings, whether it be relationship suffering, suffering related to the things they need, or suffering related to existential issues."

• The passage breaks down suffering into three distinct categories:

• Relational: "Relationship suffering."

• Functional/Practical: "Suffering related to the things they need" (security, daily accomplishment).

• Existent: "Existential issues" (meaning and purpose).

• Option 2 accurately summarizes these by stating that suffering "develops from a variety of sources: relational, functional, and existent."

• Why other options are incorrect:

• Option 1: The passage never mentions "chemical imbalances" or "biological factors." It focuses on life circumstances and existential weight.

• Option 3: The text advocates for "being there... again and again" and addressing life circumstances, which is much broader than just "medication and crisis intervention."

• Option 4: The author describes it as a "very complicated story" because you must address multiple needs "at the same time," contradicting the idea of working on only "one aspect."

Therefore, the correct answer is 2.

Analytical Insight: In high-level competitive exams, "Inference" questions require you to categorize specific examples from the text into broader academic terms. "Things they need" becomes Functional, "Relationships" becomes Relational, and "Existential" remains Existent.

Additional Information

• Radical Vision: A fundamental change in the way something is viewed or treated.

• Disability Justice: A framework that centers the lives and leadership of disabled people of color and queer/trans disabled people.

• Existential: Relating to human existence or the experience of being alive.

• Equity: The quality of being fair and impartial, providing specific support based on individual needs.

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