SSC MTS 2025 Official Paper (Held On: 04 Feb, 2026 Shift 3) (Previous Year Paper)

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

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SESSION 1

Q1. 77 - 41 + 34 + (21 + 18) × 2 - 55 = ?

(a) 97
(b) 99
(c) 101
(d) 93

Q2. 91 - 56 + 78 - (31 + 23) + 45 × 2 = ?

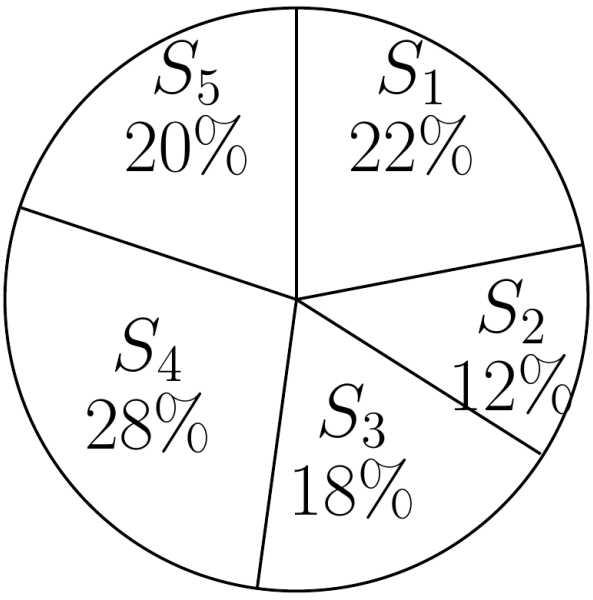
(a) 149
(b) 151
(c) 153
(d) 155

Q3. 92 - 31 + 22 of 2 + 38 ÷ 2 - (29) + 13 = ?

(a) 102
(b) 134
(c) 108
(d) 106

Q4. 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.



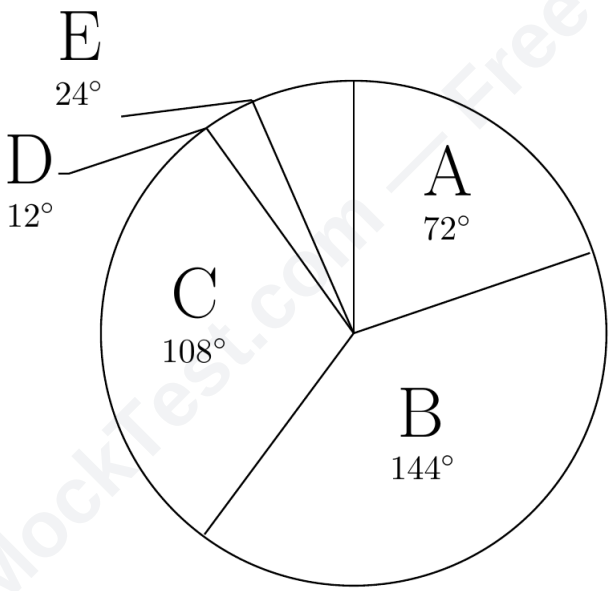
In which of the following states, average number of hotels are 4400?

(a) S3, S4 and S5

(b) S1, S2 and S3
(c) S2 and S3
(d) S1, S3 and S4

Q5. The pie chart given below shows the number of students studying in 5 sections of a class. The data is presented in the terms of degrees.

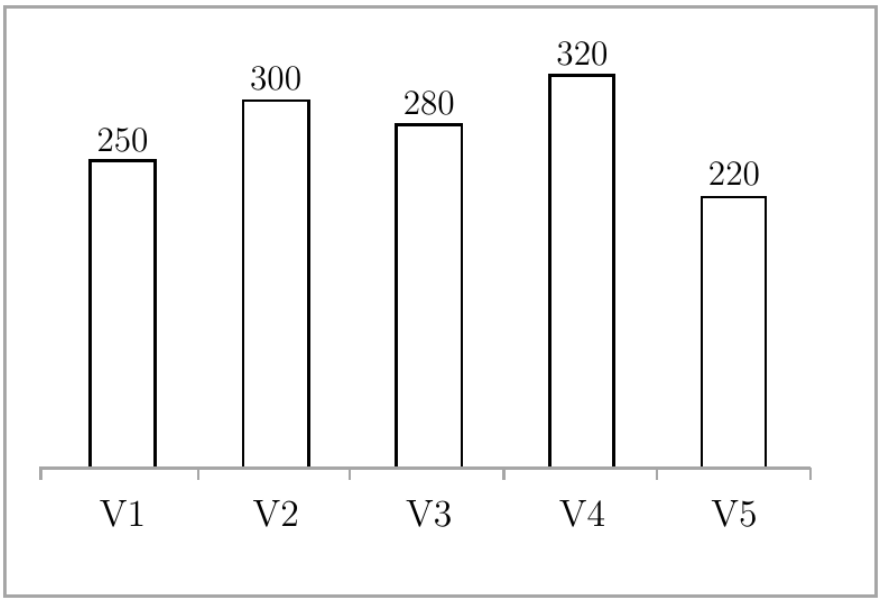
Total number of students studying in section C and D = 400.



What is the difference between the number of students studying in section C and A ?

(a) 120
(b) 140
(c) 105
(d) 115

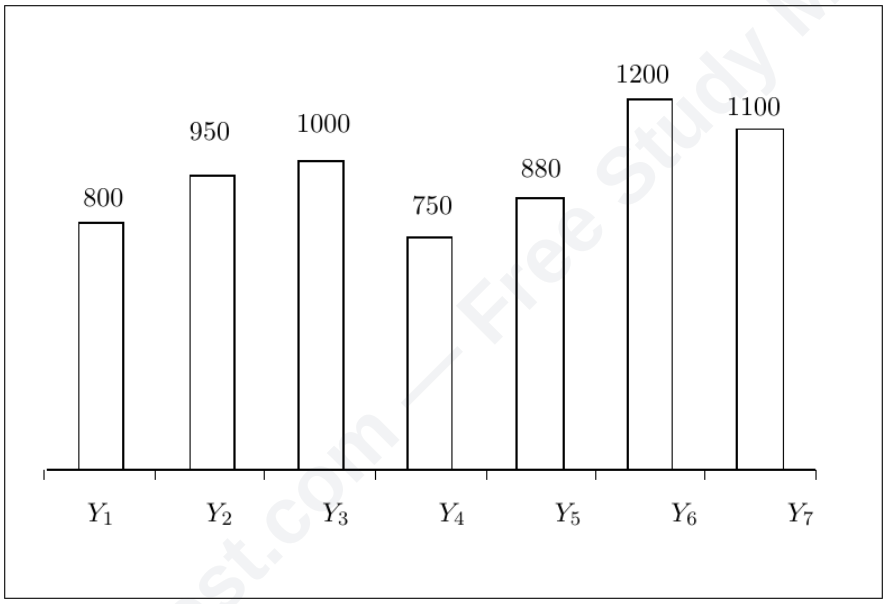
Q6. The bar graph given below shows the distance travelled (in k.m.) by the given 5 vehicles in a day.



What is the average distance travelled (in km) by given 5 vehicles in the given day?

(a) 270
(b) 274
(c) 265
(d) 278

Q7. The bar graph given below shows runs scored by a batsman in the given 7 years.



Average runs scored by batsman in years Y3, Y6 and y7 is equal to runs scored by the batsman in which year?

(a) Y2
(b) Y7
(c) Y4
(d) Y5

Q8. M and N started a business with capital of Rs. 28,000 and Rs. 32,000. After 4 months, M withdrew Rs. 8,000 and N added Rs. 8,000. If at the end of the year, the profit was Rs. 54,000, find N's share.

(a) Rs. 18,650
(b) Rs. 27,500
(c) Rs. 33,600
(d) Rs. 41,600

Q9. A car travels 80 km at 40 km/h, 120 km at 60 km/h, and 100 km at 50 km/h. Find the average speed.

(a) 25 km/h
(b) 50 km/h
(c) 75 km/h
(d) 100 km/h

Q10. A trader sells two articles at the same selling price. On one, he makes 10% profit, on the other, he incurs 10% loss. What is his overall profit or loss on the entire transaction?

(a) 1% loss
(b) 2% loss
(c) 1% profit
(d) 0.5% loss

Q11. In an election contested by two candidates, 1,780 votes were declared invalid. The winning candidate secured 82% of the valid votes and triumphed by a margin of 80 votes. Determine the total number of votes cast in the election.

(a) 2400
(b) 1694
(c) 1943
(d) 1905

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Q12. A triangle has sides in the ratio 3:4:5 and a perimeter of 36 cm. Find its area.

(a) 54 cm²
(b) 27 cm²
(c) 34 cm²
(d) 17 cm²

Q13. The altitude of an equilateral triangle is 15 cm. Find its area and perimeter.

(a) Area = 25√3 cm², Perimeter = 15√3 cm
(b) Area = 75√3 cm², Perimeter = 30√3 cm
(c) Area = 50√3 cm², Perimeter = 45√3 cm
(d) Area = 100√3 cm², Perimeter = 60√3 cm

Q14. Two jars, J1 and J2, contain 120 ml and 80 ml of a honey and water mixture, respectively.

J1 has honey and water in the ratio 3:1.

J2 has honey and water in the ratio 1:3.

A quantity of the mixture is transferred from J1 to J2. After the transfer, the ratio of honey to water in J2 becomes 1:1. What is the volume of the mixture (in ml) transferred from J1 to J2 ?

(a) 40 ml
(b) 60 ml
(c) 80 ml
(d) 100 ml

Q15. A square sheet of metal is cut into 4 equal square pieces. If the original sheet had an area of 456 cm², find the side of each smaller square.

(a) Approximately 20.68 cm
(b) Approximately 5.68 cm
(c) Approximately 15.68 cm
(d) Approximately 10.68 cm

Q16. Train A is 200 meters long and takes 10 seconds to cross a man standing on a platform. It then takes 8 seconds to cross Train B, which is also 200 meters long and traveling in the opposite direction. What is the speed of Train B?

(a) 90 km/h
(b) 96 km/h
(c) 108 km/h
(d) 120 km/h

Q17. Which of the following is greater than 0.7272... ?

(a) 0.711...
(b) 0.733...
(c) 0.7070...
(d) 0.7171...

Q18. $(8(1.75)^3 + 1)/((3.5)^2 - 2.5) = ?$

(a) 4
(b) 4.5
(c) 4.25
(d) 5

Q19. What is the unit digit of 562 × 841 × 927 ?

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

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Q20. The average of five numbers is 38. If one number is removed, then the average becomes 30. What is the removed number?

(a) 62
(b) 68
(c) 70
(d) 74

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

605, ?, 615, 620, 625, 630, 635, 640

(a) 611
(b) 607
(c) 606
(d) 610

Q22. A series is given with one term missing. Select the correct alternative from the given ones that will complete the series.

-40, -81, -164, -329, -660, -1321, ?

(a) -2641
(b) -2646
(c) -2644
(d) -2647

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

G, I, L, P, U, ?, H, P

(a) B
(b) Y
(c) C
(d) A

Q24. A series is given with one term missing. Select the correct alternative from the given ones that will complete the series.

Y, ?, I, N, S, X, C, H

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

Q25. 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.

HE : DZ :: RO : NJ :: KF : ?

(a) GA
(b) GX
(c) HA
(d) HB

Q26. 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.

(FE, HG, LL)

(IK, KM, OR)

(a) (EU, GW, KB)
(b) (IG, LK, LP)

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(c) (HC, LG, LL)
(d) (XA, AE, DJ)

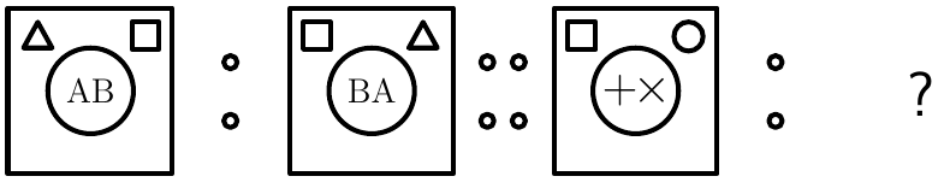
Q27. If the month of October 2025 started on Thursday, then which date will be the last Thursday of April 2026?
(a) 29
(b) 28
(c) 30
(d) 27

Q28. What was the last day of the year 1881?
(a) Monday
(b) Friday
(c) Saturday
(d) Sunday

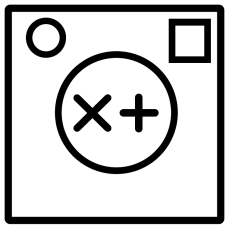
Q29. 5 girls P, Q, R, S and T are sitting in a row facing north (not necessarily in the same order). Q is the immediate neighbour of P and R. R is not to the left of Q. T and S are immediate neighbours. T and S both are to the right of Q. S is not at any end of the row. Who is sitting at second position from left end of the row?
(a) S
(b) R
(c) T
(d) Q

Q30. 7 teachers A, B, C, D, E, F and G are sitting in a row facing north (not necessarily in the same order). B is fifth to the left of E. A is fifth to the left of G. D is third to the left of E. C is second to the right of D. Who are the immediate neighbours of A?
(a) F and C
(b) B and D
(c) C and G
(d) D and F

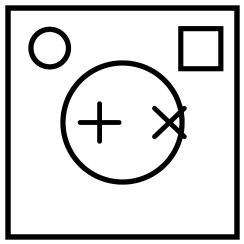
Q31. Two figures given on the left side of (::) are related with some logic/rule/relation. Select the missing figure on the right side of (::) from the given alternatives based on the same logic/rule/relation.



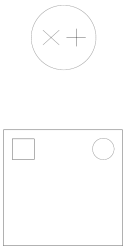
(a)



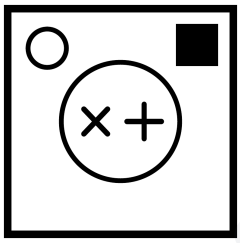
(b)



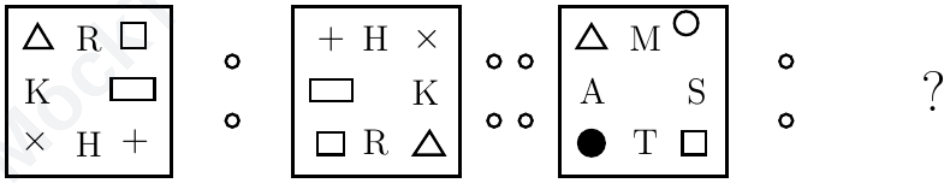
(c)



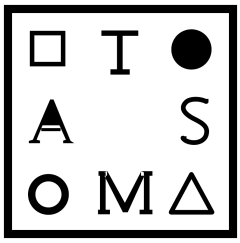
(d)



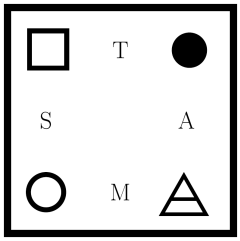
Q32. Two figures given on the left side of (::) are related with some logic/rule/relation. Select the missing figure on the right side of (::) from the given alternatives based on the same logic/rule/relation.



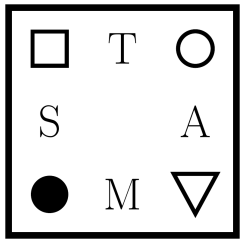
(a)



(b)

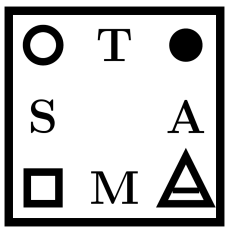


(c)



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(d)



Q33. Select the option that is related to the first letter-number cluster in the same way as the fourth letter-number cluster is related to the third 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)

PD420 : ? :: RX128 : SY156 :: VL500 : WM528

(a) RF448
(b) QE448
(c) QG408
(d) RG408

Q34. Select the option that is related to the first letter-number cluster in the same way as the fourth letter-number cluster is related to the third 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)

KPL180 : ? :: ACD220 : CEF400 :: WKT310 : YMV490

(a) MNP360
(b) NMR380
(c) MRN360
(d) RPM380

Q35. Arrange the given words in the sequence in which they occur in the dictionary.

1. Medical
2. Medium
3. Meditate
4. Medicine
5. Mediocre

(a) 41532
(b) 14523
(c) 14532
(d) 41523

Q36. Arrange the given words in the sequence in which they occur in the dictionary.

1. Diesel
2. Dieses
3. Diesis
4. Dieing
5. Dienes

(a) 54312
(b) 45132
(c) 45123
(d) 54213

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Q37. Select the option that is related to the first number in the same way as the fourth number is related to the third 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)

9670 : ? :: 4889 : 4851 :: 5596 : 5558

(a) 9629
(b) 9628
(c) 9635
(d) 9632

Q38. Select the option that is related to the sixth number in the same way as the first number is related to the second number and third number is related to fourth 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)

654 : 2610 :: 466 : 1858 :: ? : 322

(a) 86
(b) 83
(c) 77
(d) 82

Q39. In a certain code language, 'fish lives in water' is coded as 'sa pm fe tq' and 'fish comes under sea food' is coded as 'zf fe li na pq'. How will 'fish' be coded in that code language?

(a) fe
(b) pq
(c) tq
(d) sa

Q40. A series is given with one term missing. Select the correct alternative from the given ones that will complete the series.

LKV256, NMT200, POR144, ?, TSN32

(a) QPR87
(b) RQP88
(c) PRQ104
(d) PQR97

SESSION 2

Q41. The solute-like component or the dispersed particles in a colloid form the _____.

(a) solvent
(b) dispersed phase
(c) continuous phase
(d) solution phase

Q42. What is the meaning of the term Hiranyagarbha?

(a) Sacred fire
(b) Golden womb
(c) Divine offering
(d) Royal coronation

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Q43. Raziya Sultana was removed from the throne in which year?

(a) 1240
(b) 1244
(c) 1248
(d) 1252

Q44. Which of the following five year plan of India was launched after the initiation of structural adjustment policies?

(a) First
(b) Second
(c) Third
(d) Eighth

Q45. Which of the following philosopher was born in Tamil Nadu in the eleventh century?

(a) Chaitanya
(b) Ramanuja
(c) Shankara
(d) Namdev

Q46. Which of the following layer of atmosphere helps in radio transmission?

(a) Troposphere
(b) Stratosphere
(c) Mesosphere
(d) Thermosphere

Q47. The time period between the 6th and 4th centuries BCE is associated with the rise of _____.

(a) Magadha
(b) Guptas
(c) Lodis
(d) Mughals

Q48. Naurata' dance during Navratri is performed in which region?

(a) Marwar
(b) Vidarbha
(c) Konkan
(d) Bundelkhand

Q49. In Humans, involuntary actions including blood pressure, salivation and vomiting are controlled by the _____ in the _____.

(a) Medulla, hind-brain
(b) Cerebrum, mid-brain
(c) Spinal cord, fore-brain
(d) Medulla, mid-brain

Q50. Which of the following festivals is celebrated in the Union Territory of Ladakh?

(a) Karaga
(b) Shigmo
(c) Yuru Kabgyat
(d) Thrissur Pooram

Q51. Which lake in Himachal Pradesh is associated with Baisakhi celebrations?

(a) Loktak Lake
(b) Chilika Lake
(c) Pushkar Lake
(d) Rewalsar Lake

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Q52. In which of the following years was the census not conducted in Jammu & Kashmir?

(a) 1981
(b) 1991
(c) 2001
(d) 2011

Q53. The International Space Station was launched in _____.

(a) 1965
(b) 1972
(c) 1998
(d) 2004

Q54. The International Space Station travels from west to east on an orbital inclination of ____ degrees.

(a) 51.6
(b) 184.3
(c) 234.6
(d) 312.5

Q55. In 1930, _____ established the Depressed Classes Association.

(a) Mahatma Gandhi
(b) B.R. Ambedkar
(c) Jyoti Rao Phule
(d) M. G. Ranade

Q56. What is the primary purpose of the 'Bhargavastra system' developed in May 2025?

(a) Anti-submarine warfare
(b) Countering swarm drone threats
(c) Surface-to-air missile for fighter jets
(d) Missile defense against ballistic missiles

Q57. A _____ is a disturbance that moves through a medium when the particles of the medium set neighbouring particles into motion.

(a) frequency
(b) wave
(c) phase
(d) tone

Q58. The ‘EnVision’ mission of the European Space Agency is aimed at exploring which planet?

(a) Mars
(b) Venus
(c) Jupiter
(d) Mercury

Q59. The real gross domestic product (GDP) is calculated in a way such that, the goods and services are evaluated at _____.

(a) some constant set of prices
(b) prices set by world trade organisation
(c) prices set by International monetary fund
(d) the lowest prices observed in the economy

Q60. Ruhr Coal-field is located in which of the following countries?

(a) Germany
(b) China
(c) Russia
(d) France

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Q61. In the context of Privatisation, what is the meaning of total decentralisation?

(a) It implies 100% transfer of ownership of a public enterprise to private sector.
(b) It implies 51% transfer of ownership of a private enterprise to public sector.
(c) It implies 51% transfer of ownership of a public enterprise to private sector.
(d) It implies 100% transfer of ownership of a private enterprise to public sector.

Q62. Which book of poems was written by Sarojini Naidu and published in 1905?

(a) The Indian War of Independence
(b) The Story of My Deportation
(c) Glimpses of World History
(d) The Golden Threshold

Q63. Ekattarso Mahadeva Temple is also known as _____.

(a) Chausath Yogini Temple
(b) Virupaksha Temple
(c) Somnath Temple
(d) Dilwara Temple

Q64. A typical example of early cave architecture is the Lomas Rishi cave in the Barabar Hills of ____.

(a) Kerala
(b) Jharkhand
(c) Gujarat
(d) Bihar

Q65. Which of the following statement is correct regarding thumri?

I. The thumri is very lyrical in its structure and presentation.
II. Thumri is a love song and hence the textual beauty is very important.

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

Q66. Which of the following idioms given in the alternatives has the meaning?

To desire to go back to a previous point in the past to change or undo events or actions that are now regretted.

(a) Turn back the hands of time
(b) In the fullness of time
(c) Turn around time
(d) Arrive somewhere up on the stroke of some time

Q67. From the alternatives given below, select the correct meaning of the idiom.

To even the score.

(a) To avenge a wrong or make an unfair situation more equal
(b) To score a point from a particular situation or setup
(c) To get points equal with the opponent
(d) To be within the distance from which scoring a goal

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 iriscible chef shouted at the staff for the smallest mistakes in the kitchen.

(a) irassible
(b) iresceble
(c) irascible
(d) No replacement required

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Q69. There are four underlined words in the sentence given below. One of them is misspelt. Choose the option with the misspelt word.

The company announced a dividend for its shareholders, citing a remarkable rise in profits despite the volatelity of global financial markets.

(a) dividend
(b) shareholders
(c) remarkable
(d) volatility

Q70. Choose the misspelt word from the given options.

(a) Independence
(b) Retribyution
(c) Connotation
(d) Ignoreamus

Q71. Choose the word that is most opposite in meaning to "depth".

(a) Intensity
(b) Abyss
(c) Profundity
(d) Shallowness

Q72. Choose the word that is the antonym of Generous.

(a) Kind
(b) Stingy
(c) Benevolent
(d) Charitable

Q73. Choose the correct word to complete the sentence.

She bought a _____ of shoes for the party.

(a) pare
(b) pair
(c) peer
(d) pear

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

A person who studies handwriting.

(a) Calligrapher
(b) Graphologist
(c) Typographer
(d) Linguist

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

A person who behaves in an unconventional manner.

(a) Reticent
(b) Egotist
(c) Stickler
(d) Eccentric

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

Someone is bound to notice your absence.

(a) Your absence is bound to be noticed.
(b) Your absence is bound to be noticed by everyone.
(c) Your absence is bound to notice by someone.
(d) Your absence is bound to be notice.

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

Don't you teach English to seventh graders?

(a) Don't English taught by you to seventh graders?
(b) Do English taught by you to seventh graders?
(c) Isn't English taught by you to seventh graders?
(d) Did English taught by you to seventh graders?

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

Let the plot of the movie be kept a secret.

(a) Keep the plot of the movie a secret.
(b) The plot of the movie is a secret.
(c) Let us kept the plot of the movie a secret.
(d) Kept the plot of the movie a secret.

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.

The only disadvantage with teaching is repeating the same curriculum again and again.

(a) The only
(b) disadvantage with teaching
(c) is repeating the same
(d) curriculum again and again.

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

The wife has a strange influence _____ her husband.

(a) after
(b) before
(c) over
(d) under

Q81. A part of the following sentence is underlined. Choose the option which 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 principal stated that the proposed plan was in accordance to the guidelines issued by the education department.

(a) in accordance with the guidelines
(b) in accordance for the guidelines
(c) in accordance on the guidelines
(d) No improvement required

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

Many patriots have lost their lives fighting _____ freedom.

(a) in
(b) for
(c) through
(d) of

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 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. Soon all was quiet in the house: everyone was asleep.

A. The snowstorm had not subsided; the wind blew in their faces as if trying to stop the young criminal.

B. Her maid followed her with two bundles.

C. They descended into the garden.

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D. Masha wrapped herself in a shawl, put on a warm cloak, took her small box in her hand, and went down the back staircase.

S2. With difficulty they reached the end of the garden.

(a) BDAC
(b) DBCA
(c) CDBA
(d) DCAB

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. Laurella kissed his hand, and let one farewell drop, for the padre and Antonio to divide between them.

A. But after they had turned their backs, he let his eyes travel but a short way with the padre, as he went toiling over the deep bed of small, loose stones; he soon sent them after the maiden, who, turning to the right, had begun to climb the heights, holding one hand above her eyes to protect them from the scorching sun.

B. At her feet lay the marina; the rugged rocks rose high around her; the sea was shining in the rarest of its deep blue splendour.

C. Just before the path disappeared behind high walls, she stopped, as if to gather breath, and looked behind her.

D. Antonio, however, appropriated no part of it to himself; he pulled off his cap exclusively to the padre, without even looking at Laurella.

S2. The scene was surely worth a moment's pause.

(a) ABDC
(b) CBDA
(c) CADB
(d) DACB

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."

I feel frustrated that she keeps reverting back to her bad habits after brief phases of positive change.

(a) keeps reverting to her bad habits
(b) keeps reverting backward to her bad habits
(c) keeps reverting forth to her bad habits
(d) No improvement required

Directions

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

The Thought Fox is one of the early and most favourite poems of Ted Hughes (published in 1957). This poem is symbolic of the process of poetic inspiration. The symbolism of poetic inspiration is concealed behind the animal imagery. The fox in this poem represents the poet's imaginative powers. The poet goes through a special kind of loneliness; this loneliness is not the absence of people around him, but the absence of Creative powers. His fingers move, but the pages remain blank. The poetic inspiration in the poem, which is represented by Fox, appears in the poem part by part. It does not appear in full. Sometimes it's nose images, Eyes, it's prints, or the Shadows. This is a perfect illustration of how our poetic inspiration comes, i.e., any literary composition is produced in parts; it is seldom written in one sitting or in one go.

Q86. What does the fox symbolize in Ted Hughes' poem The Thought Fox?

(a) The writer's loneliness and disconnection with nature
(b) The slowly emerging imaginative power and creative inspiration in the writer's mind
(c) The nature's destructive power that hinders the poet's writing
(d) The factory development that eclipses the countryside and art.

Q87. Why does the poet describe a sense of loneliness in the poem?

(a) As he is going through a dry creative period, even though he is in the middle of a crowd.
(b) As he is literally pushed away in a forest far from any human being.
(c) As he considers himself an outsider to the social group and does not want to interact with anyone at all.
(d) As he remembers the good old days of his childhood, he longs for the countryside life very much.

Q88. How does the poem illustrate the process of writing a literary composition?

(a) By demonstrating that poems are generally composed in a single session, with a constant and uninterrupted flow of ideas
(b) By implying that creativity is a systematic process and adheres to a standardized formula
(c) By representing inspiration as being cut up into pieces, coming bit by bit, before a whole thought is formed
(d) By drawing attention to the fact that poetic ideas arrive already shaped, with no work or time needed

Q89. What is the significance of animal imagery in The Thought Fox?

(a) It gives a bright picture of the countryside, not connected to the theme of creativity
(b) It highlights the anxiety of the poet in regard to nature and its unpredictability
(c) It points out the drawbacks of industrialization in relation to nature and its inhabitants.
(d) It hides the abstract idea of poetic inspiration under a visible, palatable metaphor

Q90. Why is The Thought Fox considered one of Hughes' most celebrated early poems?

(a) For the reason that it deals with the poet's intimate relations rather than his art in the making
(b) Since the poem deals with the themes of the countryside and the industrialization of Northern Ireland
(c) Due to the fact that it reveals the mystery of the creative process by means of abundant, vivid imagery
(d) As the poem does not use metaphors at all and only gives a literal account of the situation

ANSWER KEY

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

SOLUTIONS

Q1. Answer: (d) 93

Shortcut Trick
Apply BODMAS: First solve the bracket (21 + 18) = 39.
Multiply the result by 2: 39 × 2 = 78.
Combine all terms: 77 − 41 + 34 + 78 − 55 = 189 − 96 = 93.
Therefore The correct answer is 93.
Alternate Method
Given expression: 77 − 41 + 34 + (21 + 18) × 2 − 55
Method: BODMAS Rule
=> 77 − 41 + 34 + (39) × 2 − 55 => 77 − 41 + 34 + 78 − 55 => (77 + 34 + 78) − (41 + 55) => 189 − 96 => 93
Therefore The correct answer is 93.
Additional Information
BODMAS Rule

It stands for Brackets, Of, Division, Multiplication, Addition, and Subtraction. It dictates the order of operations in any mathematical expression.

Bracket Types

Brackets should be solved in the order: small brackets (), then curly brackets {}, and finally big brackets [].

Addition and Subtraction Priority

Addition and Subtraction have the same priority level and can be performed from left to right or by grouping like-signed terms.

Q2. Answer: (a) 149

Shortcut Trick

Identify operations using BODMAS: Bracket → Multiplication → Addition/Subtraction.

91 − 56 + 78 − (54) + 90

Combine positive terms: 91 + 78 + 90 = 259

Combine negative terms: 56 + 54 = 110

Net result: 259 − 110 = 149

Therefore The correct answer is 149.

Alternate Method

Given expression: 91 − 56 + 78 − (31 + 23) + 45 × 2

Following the BODMAS order of operations:

=> 91 − 56 + 78 − 54 + 45 × 2 (Solved Bracket: 31 + 23 = 54)

=> 91 − 56 + 78 − 54 + 90 (Solved Multiplication: 45 × 2 = 90)

=> 35 + 78 − 54 + 90 (Subtraction: 91 − 56 = 35)

=> 113 − 54 + 90 (Addition: 35 + 78 = 113)

=> 59 + 90 (Subtraction: 113 − 54 = 59)

=> 149

Therefore The correct answer is 149.

Additional Information

BODMAS Rule

It defines the sequence to solve mathematical expressions: Brackets (), Of (orders/powers), Division (÷), Multiplication (×), Addition (+), and Subtraction (−).

Handling Signs

While performing addition and subtraction, grouping like-signed numbers (all positives together and all negatives together) reduces the risk of calculation errors.

Unit Digit Check

In competitive exams, verify the unit digit: 1 − 6 + 8 − 4 + 0 = −1. Since the result is positive, 10 − 1 = 9. The answer must end in 9.

Q3. Answer: (c) 108

Shortcut Trick

Solve using BODMAS priority: Of → Division → Addition/Subtraction.

Calculate "Of" and "Division" terms: 22 of 2 = 44 and 38 ÷ 2 = 19.

Expression becomes: 92 − 31 + 44 + 19 − 29 + 13.

Group positive and negative terms: (92 + 44 + 19 + 13) − (31 + 29) = 168 − 60.

Final result: 168 − 60 = 108.

Therefore The correct answer is 108.

Alternate Method

Given:

92 − 31 + 22 of 2 + 38 ÷ 2 − 29 + 13

Formula Used:

BODMAS Rule: B (Brackets), O (Of), D (Division), M (Multiplication), A (Addition), S (Subtraction).

Calculations:

=> 92 − 31 + (22 × 2) + 38 ÷ 2 − 29 + 13

=> 92 − 31 + 44 + 19 − 29 + 13

=> 61 + 44 + 19 − 29 + 13

=> 105 + 19 − 29 + 13
=> 124 − 29 + 13
=> 95 + 13
=> 108
Therefore The correct answer is 108.
Additional Information
BODMAS/VBODMAS Rule
This rule dictates the order of operations: Vinculum, Brackets, Of, Division, Multiplication, Addition, and Subtraction.
Of Operator Significance
The "of" operator represents multiplication but must be solved before any division or standard multiplication in the expression.
Addition and Subtraction Priority
Addition and Subtraction have the same level of priority and should be solved from left to right or by grouping signs to avoid errors.

Q4. Answer: (a) S3, S4 and S5

Given:

State	Percentage (%)
S1	22%
S2	12%
S3	18%
S4	28%
S5	20%

Number of hotels in S1 = 4400
Formula Used:
Total Number of Hotels = (Value of state) ÷ (Percentage of state)
Average Number of Hotels = (Sum of hotels in selected states) ÷ (Number of states)
Calculation:
According to the question, S1 represents 20% of the total hotels.
=> 22% of Total Hotels = 4400
=> Total Hotels = 4400 ÷ 0.22 = 20000
For an average to be 4400 across 3 states, the sum of hotels in those states must be:
=> Sum = 4400 × 3 = 13200
In terms of percentage, the sum of the percentages of the three states must be:
=> Total % = [13200 ÷ 20000] × 100 = 66%
Checking the states S3, S4, and S5 from the given data:
=> Percentage of (S3 + S4 + S5) = 18% + 28% + 20% = 66%
Therefore The correct answer is (1) S3, S4 and S5.

Q5. Answer: (a) 120

Given:

Section	Value (in degrees)
Section A	108°
Section B	72°
Section C	72°
Section D	48°
Section E	60°
Total	360°

Total number of students in Section C and D = 400

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Formula Used:
Total degrees in a pie chart = 360°
Number of students per degree = Total students in sections ÷ Total degrees of those sections
Difference in students = (Difference in degrees) × (Number of students per degree)
Calculation:
According to the chart,
=> Sum of degrees for Section C and Section D = 72° + 48° = 120°
=> Given that 120° corresponds to 400 students,
=> Number of students per 1° = 400 ÷ 120 = 10/3
Now, we need to find the difference between Section A and Section C:
=> Difference in degrees between Section A and Section C = 108° − 72° = 36°
=> Difference in number of students = 36 × (10/3)
=> Difference in number of students = 12 × 10 = 120
Therefore The correct answer is 120.

Q6. Answer: (b) 274

Given:

Vehicle	Distance Travelled (in km)
A	320
B	240
C	280
D	220
E	310

Total number of vehicles = 5
Formula Used:
Average Distance = Total Distance Travelled ÷ Number of Vehicles
Total Distance Travelled = Sum of distances travelled by all 5 vehicles
Calculation:
According to the question,
=> Total distance travelled = 320 + 240 + 280 + 220 + 310
=> Total distance travelled = 1370 km
=> Average distance = 1370 ÷ 5
=> Average distance = 274 km
Therefore The correct answer is 274.

Q7. Answer: (b) Y7

Calculation:
Average run scored by batsman in years Y3, Y6 and Y7:
=> (10000 + 12000 + 11000) / 3
=> 33000 / 3
=> 11000
Average run is 11000, which is equal to the runs scored by the batsman in the Y7 year.
Hence, the correct answer is option (2).

Q8. Answer: (c) Rs. 33,600

Shortcut Trick
Profit Ratio M : N = (28 × 4 + 20 × 8) : (32 × 4 + 40 × 8)
=> 272 : 448 = 17 : 28
Total Ratio Parts = 17 + 28 = 45 units
45 units = Rs. 54,000 → 1 unit = Rs. 1,200

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N's Share = 28 units × 1,200 = Rs. 33,600

Therefore The correct answer is Rs. 33,600.

Alternate Method

Given:

Initial Capital: M = Rs. 28,000, N = Rs. 32,000

After 4 months: M's Capital = 28,000 − 8,000 = Rs. 20,000; N's Capital = 32,000 + 8,000 = Rs. 40,000

Total Profit = Rs. 54,000, Total Time = 12 months

Formula Used:

Profit Ratio = (Capital1 × Time1) : (Capital2 × Time2)

Calculations:

=> Total Investment of M = (28,000 × 4) + (20,000 × 8)

=> M's Share = 1,12,000 + 1,60,000 = Rs. 2,72,000

=> Total Investment of N = (32,000 × 4) + (40,000 × 8)

=> N's Share = 1,28,000 + 3,20,000 = Rs. 4,48,000

=> Ratio of M's profit to N's profit = 2,72,000 : 4,48,000 = 17 : 28

=> N's share of profit = (28 ÷ (17 + 28)) × 54,000

=> N's share = (28 ÷ 45) × 54,000

=> N's share = 28 × 1,200 = Rs. 33,600

Therefore The correct answer is Rs. 33,600.

Additional Information

Simple Partnership

When investments of all partners are for the same time, profit is distributed in the ratio of their capitals: P1 : P2 = C1 : C2.

Compound Partnership

When investments are for different time periods, profit ratio is the product of capital and time: P1 : P2 = (C1 × T1) : (C2 × T2).

Working vs. Sleeping Partner

A working partner manages the business and may receive a fixed salary or percentage of profit before the remaining profit is divided.

Q9. Answer: (b) 50 km/h

Shortcut Trick

Average Speed = Total Distance ÷ Total Time

Total Distance = 80 + 120 + 100 = 300 km

Total Time = (80/40) + (120/60) + (100/50) = 2 + 2 + 2 = 6 hours

Average Speed = 300 ÷ 6 = 50 km/h

Therefore The correct answer is 50 km/h.

Alternate Method

Given:

Distance1 (d1) = 80 km, Speed1 (s1) = 40 km/h

Distance2 (d2) = 120 km, Speed2 (s2) = 60 km/h

Distance3 (d3) = 100 km, Speed3 (s3) = 50 km/h

Formula Used:

Time = Distance ÷ Speed

Average Speed = (Total Distance) ÷ (Total Time)

Calculations:

=> Time1 = 80 ÷ 40 = 2 hours

=> Time2 = 120 ÷ 60 = 2 hours

=> Time3 = 100 ÷ 50 = 2 hours

=> Total Time = 2 + 2 + 2 = 6 hours

=> Total Distance = 80 + 120 + 100 = 300 km

=> Average Speed = 300 ÷ 6 = 50 km/h

Therefore The correct answer is 50 km/h.

Additional Information

Average Speed for Equal Distances

If a journey is divided into two equal distances traveled at speeds x and y, the average speed is 2xy ÷ (x + y).

Unit Conversion

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

Relative Speed

If two objects move in the same direction, relative speed = S1 − S2. If they move in opposite directions, relative speed = S1 + S2.

Q10. Answer: (a) 1% loss

Shortcut Trick

When two articles are sold at the same price, one at x% profit and the other at x% loss, there is always an overall loss.

Shortcut formula: Overall Loss % = $(x / 10)^2$

Given: x = 10%

Overall Loss % = $(10 / 10)^2 = 1^2 = 1\%$

Therefore The correct answer is 1% loss.

Alternate Method

Given: SP1 = SP2, Profit % = 10%, Loss % = 10%

Formula: CP = SP × [100 / (100 ± Profit/Loss %)]

Let the Selling Price (SP) of each article be Rs. 99.

=> CP1 = 99 × (100 / 110) = Rs. 90

=> CP2 = 99 × (100 / 90) = Rs. 110

=> Total CP = 90 + 110 = Rs. 200

=> Total SP = 99 + 99 = Rs. 198

=> Overall Loss = 200 − 198 = Rs. 2

=> Overall Loss % = (2 / 200) × 100 = 1%

Therefore The correct answer is 1% loss.

Additional Information

Equal Cost Price Case

If two articles are sold at the same Cost Price, one at x% profit and another at x% loss, the net result is always 0% (No Profit, No Loss).

Successive Percentage Formula

Net change for two successive changes of a% and b% is given by [a + b + (ab / 100)]%.

Same SP with Different %

If two items are sold at same SP with x% profit and y% loss, net % = [100(x−y) − 2xy] / [200+x−y].

Q11. Answer: (d) 1905

Shortcut Trick

Winner = 82% of Valid votes → Loser = 18% of Valid votes.

Victory Margin = 82% − 18% = 64% of Valid votes.

64% = 80 → 1% = 1.25 → 100% (Valid) = 125 votes.

Total Votes = Valid + Invalid = 125 + 1780 = 1905 votes.

Therefore The correct answer is 1905 votes.

Alternate Method

Given:

Invalid votes = 1,780

Winner's share = 82% of valid votes

Margin of victory = 80 votes

Calculations:

=> Let Total Valid Votes = V

=> Winner's Votes = 82% of V = 0.82V

=> Loser's Votes = (100 − 82)% of V = 18% of V = 0.18V

=> Margin = Winner's Votes − Loser's Votes

=> 80 = 0.82V − 0.18V

=> 80 = 0.64V

=> V = 80 ÷ 0.64 = 125

=> Total Votes Cast = Valid Votes + Invalid Votes

=> Total Votes Cast = 125 + 1780 = 1905

Therefore The correct answer is 1905 votes.

Additional Information

Election Margin Calculation

In a two-candidate election, if the winner gets x% of votes, the margin is (x − (100 − x))% = (2x − 100)% of the total valid votes.

Valid vs Invalid Votes

Total votes cast = Valid votes + Invalid votes. Percentages are always calculated on the base of valid votes unless specified otherwise.

Percentage to Fraction Conversion

To simplify calculations, convert percentages to fractions: 64% = 64/100 = 16/25. Thus, (16/25) × Valid = 80 => Valid = 125.

Q12. Answer: (a) 54 cm²

Shortcut Trick

Ratio 3 : 4 : 5 represents a right-angled triangle (Pythagorean triplet).

Sum of ratios = 3 + 4 + 5 = 12 parts.

12 parts = 36 cm => 1 part = 3 cm.

Sides are (3 × 3) = 9 cm and (4 × 3) = 12 cm (base and height).

Area = 1/2 × 9 × 12 = 54 cm².

Therefore The correct answer is 54 cm².

Alternate Method

Given: Ratio of sides = 3 : 4 : 5, Perimeter = 36 cm.

Formula: Area of Right-Angled Triangle = 1/2 × Base × Height.

=> Let the sides be 3x, 4x, and 5x.

=> Perimeter = 3x + 4x + 5x = 36

=> 12x = 36

=> x = 3 cm

=> Side 1 = 3 × 3 = 9 cm

=> Side 2 = 4 × 3 = 12 cm

=> Side 3 = 5 × 3 = 15 cm

=> Since $9^2 + 12^2 = 81 + 144 = 225 = 15^2$, it is a right-angled triangle.

=> Area = 1/2 × 9 × 12

=> Area = 9 × 6 = 54 cm²

Therefore The correct answer is 54 cm².

Additional Information

Heron's Formula

For any triangle with sides a, b, and c, Area = √[s(s − a)(s − b)(s − c)], where s = (a + b + c) ÷ 2.

Pythagorean Triplets

Common triplets include (3, 4, 5), (5, 12, 13), (8, 15, 17), and (7, 24, 25). Multiples of these also form triplets.

Semi-Perimeter (s)

In this case, s = 36 ÷ 2 = 18 cm. Area = √[18 × (18−9) × (18−12) × (18−15)] = √[18 × 9 × 6 × 3] = 54 cm².

Q13. Answer: (b) Area = 75√3 cm², Perimeter = 30√3 cm

Shortcut Trick

Area of an equilateral triangle in terms of altitude (h) = $h^2 / \sqrt{3}$

=> Area = $15^2 / \sqrt{3} = 225 / \sqrt{3} = 75\sqrt{3}$ cm²

Side (a) = $2h / \sqrt{3} = 30 / \sqrt{3} = 10\sqrt{3}$ cm

Perimeter = 3 × a = $3 \times 10\sqrt{3} = 30\sqrt{3}$ cm

Therefore The correct answer is Area = 75√3 cm², Perimeter = 30√3 cm.

Alternate Method

Given:
Altitude (h) = 15Formula Used:
Altitude (h) = (√3 / 2) × side (a)
Area = (√3 / 4) × a^2
Perimeter = 3 × a
Calculations:
=> 15 = (√3 / 2) × a
=> a = (15 × 2) / √3
=> a = 30 / √3 = 10√3 cm
=> Area = (√3 / 4) × $(10\sqrt{3})^2$
=> Area = (√3 / 4) × (100 × 3)
=> Area = (√3 / 4) × 300 = 75√3 cm^2
=> Perimeter = 3 × 10√3 = 30√3 cm
Therefore The correct answer is Area = 75√3 cm^2, Perimeter = 30√3 cm.
Additional Information
Equilateral Triangle Properties
All sides are equal (a) and all internal angles are 60°. The altitude, median, and angle bisector are the same line segment.
Inradius and Circumradius
Inradius (r) = a / (2√3) = h / 3 and Circumradius (R) = a / √3 = 2h / 3. The ratio R : r is always 2 : 1.
Area-Altitude Relation
Area can be directly calculated from altitude as Area = h^2 / √3 or Area = (h^2√3) / 3.

Q14. Answer: (c) 80 ml

Shortcut Trick
Concentration of honey: J1 = 75% (3/4), J2 = 25% (1/4), Final = 50% (1/2).
By Alligation, the ratio of (Volume transferred from J1) to (Initial volume of J2) is:
(50 − 25) : (75 − 50) = 25 : 25 = 1 : 1.
Initial volume of J2 = 80 ml. Since the ratio is 1 : 1, the transferred volume is also 80 ml.
Therefore The correct answer is 80 ml.
Alternate Method
Given: Jar J1 (3:1 ratio) contains 120 ml. Jar J2 (1:3 ratio) contains 80 ml.
Let the volume transferred from J1 to J2 be x ml.
=> Honey in x ml from J1 = (3/4) × x = 0.75x.
=> Initial honey in J2 = (1/4) × 80 = 20 ml.
=> Initial water in J2 = (3/4) × 80 = 60 ml.
=> Water in x ml from J1 = (1/4) × x = 0.25x.
=> Final J2 Honey = Final J2 Water (for 1:1 ratio).
=> 20 + 0.75x = 60 + 0.25x.
=> 0.75x − 0.25x = 60 − 20.
=> 0.50x = 40.
=> x = 40 ÷ 0.50 = 80 ml.
Therefore The correct answer is 80 ml.
Additional Information
Alligation Rule
Ratio of quantities = |Mean value − Value 2| : |Value 1 − Mean value|. This simplifies mixture ratio problems.
Concentration Formula
For a ratio a:b, the concentration of the first component is [a ÷ (a + b)] × 100%.
Mixture Balance
The total volume of a resulting mixture is the sum of the volumes of the individual components being mixed.

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Q15. Answer: (d) Approximately 10.68 cm

Shortcut Trick

Side of smaller square = √(Original Area ÷ Number of pieces)

Side = √(456 ÷ 4)

Side = √114 ≈ 10.68 cm

Therefore The correct answer is 10.68 cm.

Alternate Method

Given:

Area of the original square sheet = 456 cm²

The sheet is cut into 4 equal square pieces.

Formula Used:

Area of a square = side × side = (side)²

Calculations:

=> Area of each smaller square = Total Area ÷ 4

=> Area of smaller square = 456 ÷ 4 = 114 cm²

=> Let the side of each smaller square be 's'.

=> $s^2 = 114$

=> $s = \sqrt{114}$

=> s ≈ 10.677 cm

=> s ≈ 10.68 cm

Therefore The correct answer is 10.68 cm.

Additional Information

Area and Side Relationship

The side of a square is the square root of its area (s = √A). If the area increases by a factor of k, the side increases by a factor of √k.

Diagonal of a Square

The diagonal of a square is s × √2. For the smaller square in this problem, diagonal ≈ 10.68 × 1.414 ≈ 15.10 cm.

Perimeter Calculation

The perimeter of a square is 4 × side. The perimeter of each smaller square is 4 × 10.68 ≈ 42.72 cm.

Q16. Answer: (c) 108 km/h

Shortcut Trick

Speed of first train (S1) = 200 / 10 = 20 m/s

Relative speed (S1 + S2) = Total distance / Time = (200 + 200) / 8 = 50 m/s

Speed of second train (S2) = 50 − 20 = 30 m/s

S2 in km/h = 30 × 18/5 = 108 km/h

Therefore The correct answer is 108 km/h.

Alternate Method

Given:

Length of Train 1 (L1) = 200 m

Time to cross man (t1) = 10 s

Length of Train 2 (L2) = 200 m

Time to cross each other (t2) = 8 s

Calculations:

=> Speed of first train (S1) = Distance / Time = 200 / 10 = 20 m/s

=> When crossing each other in opposite directions, relative speed = S1 + S2

=> Total distance covered = L1 + L2 = 200 + 200 = 400 m

=> Relative Speed = 400 / 8 = 50 m/s

=> 20 + S2 = 50

=> S2 = 50 − 20 = 30 m/s

=> To convert m/s to km/h, multiply by 18/5:

=> S2 = 30 × (18 / 5) = 6 × 18 = 108 km/h

Therefore The correct answer is 108 km/h.

Additional Information

Relative Speed Rules

Opposite Direction: Relative Speed = S1 + S2 | Same Direction: Relative Speed = |S1 − S2|.

Crossing Objects

When a train crosses a point object (man, pole, tree), distance = Length of train. When crossing a platform/bridge/train, distance = Sum of lengths.

Unit Conversion

1 m/s = 18/5 km/h and 1 km/h = 5/18 m/s.

Q17. Answer: (b) 0.733...

Shortcut Trick

Expand the target recurring decimal: 0.727272...

Compare with options in expanded form:

Option 1: 0.7111... | Option 3: 0.7070... | Option 4: 0.7171...

Option 2: 0.7333... is the only value where the hundredths digit (3) is greater than 2.

Therefore The correct answer is 0.73.

Alternate Method

Given:

Target value = 0.72 = 0.727272...

Formula Used:

Comparison of decimals by digit-by-digit verification from left to right.

=> Target value x = 0.727272...

=> Option 1: 0.71 = 0.711111...

=> Option 2: 0.73 = 0.733333...

=> Option 3: 0.70 = 0.707070...

=> Option 4: 0.71 = 0.717171...

=> Compare digits at the second decimal place (hundredths):

=> Target digit = 2, Option 2 digit = 3.

=> Since 0.733... > 0.727..., Option 2 is greater.

Therefore The correct answer is 0.73.

Additional Information

Comparison of Decimals

To compare decimals, align the decimal points and compare digits from left to right starting from the tenths place.

Converting Recurring Decimals to Fractions

For a pure recurring decimal like 0.ab, the fraction is ab/99. For a mixed recurring decimal like 0.ab, it is (ab − a)/90.

Rational Numbers

Every terminating or recurring decimal can be expressed as a ratio of two integers p/q, making it a rational number.

Q18. Answer: (b) 4.5

Shortcut Trick

The expression follows the algebraic form: $(a^3 + b^3) \div (a^2 - ab + b^2) = a + b$.

Rewrite $8 \times (1.75)^3$ as $(2 \times 1.75)^3 = (3.5)^3$.

Denominator $(3.5)^2 - 2.5$ matches $(a^2 - ab + b^2)$ where a = 3.5 and b = 1.

Required value = a + b = 3.5 + 1 = 4.5.

Therefore The correct answer is 4.5.

Alternate Method

Given: $[8(1.75)^3 + 1] \div [(3.5)^2 - 2.5]$

Formula used: $a^3 + b^3 = (a + b)(a^2 - ab + b^2)$

=> $8 \times (1.75)^3 + 1 = (2)^3 \times (1.75)^3 + 1 = (2 \times 1.75)^3 + 1^3 = (3.5)^3 + 1^3$

=> $(3.5)^2 - 2.5 = (3.5)^2 - 3.5 + 1 = (3.5)^2 - (3.5 \times 1) + 1^2$

=> Expression = $[(3.5 + 1)\{(3.5)^2 - (3.5 \times 1) + 1^2\}] \div [(3.5)^2 - 3.5 + 1]$

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=> Expression = 3.5 + 1 = 4.5

Therefore The correct answer is 4.5.

Additional Information

Sum and Difference of Cubes

$a^3 + b^3 = (a + b)(a^2 - ab + b^2)$ and $a^3 - b^3 = (a - b)(a^2 + ab + b^2)$. These identities are frequently used to simplify fractions involving decimals.

BODMAS Rule

The order of operations is Brackets, Orders (powers/roots), Division, Multiplication, Addition, and Subtraction. For complex fractions, simplify the numerator and denominator separately before dividing.

Q19. Answer: (b) 4

Shortcut Trick

To find the unit digit of a product, multiply only the unit digits of each number.

Unit digits of 562, 841, and 927 are 2, 1, and 7 respectively.

Product of unit digits = 2 × 1 × 7 = 14.

The unit digit of 14 is 4.

Therefore The correct answer is 4.

Alternate Method

Given expression: 562 × 841 × 927

=> Unit digit of 562 = 2

=> Unit digit of 841 = 1

=> Unit digit of 927 = 7

=> The unit digit of (562 × 841 × 927) is the unit digit of (2 × 1 × 7)

=> 2 × 1 × 7 = 14

=> The unit digit of 14 is 4.

Therefore The correct answer is 4.

Additional Information

Unit Digit Multiplication Rule

The unit digit of any product depends only on the unit digits of the numbers being multiplied. If the product of unit digits is a multi-digit number, the unit digit of that result is the final answer.

Unit Digit of Powers (Cyclicity)

Unit digits of powers repeat in cycles of 1, 2, or 4. For example, digits 0, 1, 5, and 6 always result in themselves as the unit digit for any positive power n.

Special Case for 5 and Even Numbers

In a series of multiplication, if there is a number ending in 5 and at least one even number, the unit digit of the final product will always be 0.

Q20. Answer: (c) 70

Shortcut Trick

Initial average of 5 numbers = 38

New average of 4 numbers = 30 (Decrease of 8 per number)

Removed value = Old Average + (Change in Average × Number of remaining items)

Removed value = 38 + (8 × 4) = 38 + 32 = 70

Therefore The correct answer is 70.

Alternate Method

Given:

Average of 5 numbers = 38

Average of 4 numbers = 30

Formula used:

Sum = Average × Number of observations

Calculations:

=> Sum of 5 numbers = 5 × 38 = 190

=> Sum of 4 numbers = 4 × 30 = 120

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=> Removed number = Sum of 5 numbers − Sum of 4 numbers

=> Removed number = 190 − 120

=> Removed number = 70

Therefore The correct answer is 70.

Additional Information

Average Concept

The average (arithmetic mean) is the sum of all values divided by the total number of values: Average = Total Sum ÷ Count.

Effect of removing a number

If the removed number is greater than the average, the new average will decrease. If the removed number is less than the average, the new average will increase.

Weighted Average

When combining two groups, the combined average is (n1A1 + n2A2) ÷ (n1 + n2).

Q21. Answer: (d) 610

The logic followed here is:

thus, "610" will replace the question mark in the given series.

Hence, the correct option is "Option 4".

Q22. Answer: (c) -2644

The logic followed here is:

thus, "-2644" will replace the question mark in the given series.

Hence, the correct option is "Option 3".

Q23. Answer: (d) A

The logic followed here is:

So, the missing term = A

Hence, the correct answer is Option 4.

Q24. Answer: (c) D

The logic followed here is:

So, the missing term = D

Hence, the correct answer is Option 3.

Q25. Answer: (a) GA

The logic followed here is:

For, HE → DZ

For, RO → NJ

Now, KF → ?

So, KF → GA

Hence, the correct answer is Option 1.

Q26. Answer: (a) (EU, GW, KB)

The logic followed here is:

For, FE → HG → LL

For, IK → KM → OR

Now check the options:

For, EU → GW → KB

So, EU → GW → KB follows the same pattern.

Hence, the correct answer is Option 1.

Q27. Answer: (a) 29

Given: October 1, 2025 was Thursday.

We need to find the last Thursday of April 2026.

Now, find day on April 1, 2026:

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Month	Number of Days	Odd Days
October	31	3
November	30	2
December	31	3
January	31	3
February	28	0
March	31	3

Total odd days = 3 + 2 + 3 + 3 + 0 + 3 = 14 days

14 ÷ 7 = 0 odd days

So, April 1, 2026 = Thursday

Date	Day
April 1	Thursday
April 8	Thursday
April 15	Thursday
April 22	Thursday
April 29	Thursday

April has 30 days, So, next Thursday would be May 6.

Therefore, the last Thursday of April 2026 is April 29.

Hence, the correct option is Option 1.

Q28. Answer: (c) Saturday

Given: We need to find the last day of the year 1881.

Now, calculate odd days up to 1880:

1600 years = 0 odd days

200 years = 3 odd days

80 years = 2 odd days

Total odd days = 0 + 3 + 2 = 5

Now, 1881 is a normal year:

365 days = 52 weeks + 1 odd day

=> 1 odd day

Now total odd days = 5 + 1 = 6

Odd Days	Day
0	Sunday
1	Monday
2	Tuesday
3	Wednesday
4	Thursday
5	Friday
6	Saturday

So, 6 corresponds to Saturday.

Hence, the correct answer is Option 3.

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Q29. Answer: (d) Q

Given: Five girls P, Q, R, S and T are sitting in a row facing north.

Q is the immediate neighbour of P and R.

R is not to the left of Q.

T and S are immediate neighbours and both are to the right of Q.

S is not at any end.

Second position from the left end = Q

Hence, the correct answer is Option 4.

Q30. Answer: (b) B and D

Given: Seven teachers A, B, C, D, E, F and G are sitting in a row facing north.

B is fifth to the left of E.

D is third to the left of E.

C is second to the right of D.

A is fifth to the left of G.

Immediate neighbours of A are B (left) and D (right).

Hence, the correct answer is Option 2.

Q31. Answer: (a) [figure]

The logic followed here is:

Logic: The pattern involves a diagonal swap of the outer corner elements along with a reversal of the sequence of elements inside the central circle.

From the first pair, we observe that the triangle and square interchange positions while the inner letters AB become BA, indicating a reversal of sequence inside the circle.

Applying the same rule to the second pair, the square at the top-left swaps with the circle at the top-right, and the symbols inside the circle reverse their order accordingly.

Hence, the correct answer is Option 1.

Q32. Answer: (b) [figure]

The logic followed here is:

Logic: The pattern is based on a complete 180-degree rotation of the box, where each element shifts to the diagonally opposite position. The top-left element moves to bottom-right, top-right moves to bottom-left, bottom-left moves to top-right, and bottom-right moves to top-left, while the middle elements also swap correspondingly across the center.

By tracking the movement of each symbol, it is clear that the entire arrangement is flipped both vertically and horizontally in a single transformation step.

Applying the same 180-degree rotation to the given third box, each symbol moves to its opposite position, preserving the structure but reversing spatial placement.

Hence, the correct answer is Option 2.

Q33. Answer: (b) QE448

The logic followed here is:

RX128 → SY156

VL500 → WM528

Now, PD420 → ?

So, PD420 → QE448

Hence, the correct answer is Option 2.

Q34. Answer: (c) MRN360

The logic followed here is:

For, ACD220 → CEF400

For, WKT310 → YMV490

Now, KPL180 → ?

So, KPL180 → MRN360

Hence, the correct answer is Option 3.

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Q35. Answer: (c) 14532

The correct order of words as they would appear in the English dictionary is:

1. Medical
2. Medicine
3. Mediocre
4. Meditate
5. Medium

The correct order is '1, 4, 5, 3, 2'.

Hence, the correct answer is Option 3.

Q36. Answer: (c) 45123

The correct order of words as they would appear in the English dictionary is:

4. Dieing
5. Dienes
6. Diesel
7. Dieses
8. Diesis

The correct order is '4, 5, 1, 2, 3'.

Hence, the correct answer is Option 3.

Q37. Answer: (d) 9632

The logic followed here is:

Logic: Each output is obtained by subtracting a fixed number, 38, from the given number.

For, 4889 : 4851

4889 − 38 = 4851

For, 5596 : 5558

5596 − 38 = 5558

Now, 9670 : ?

9670 − 38 = 9632

So, 9670 → 9632

Hence, the correct answer is Option 4.

Q38. Answer: (d) 82

The logic followed here is:

Logic: The pattern follows the rule: multiply the number by 4 and then subtract 6.

For, 654 : 2610

654 × 4 = 2616

2616 − 6 = 2610

For, 466 : 1858

466 × 4 = 1864

1864 − 6 = 1858

Now, ? : 322

Let the number be X

X × 4 − 6 = 322

4X = 322 + 6 = 328

X = 328 ÷ 4 = 82

So, ? = 82

Hence, the correct answer is Option 4.

Q39. Answer: (a) fe

The logic followed here is:

Given:

fish lives in water → sa pm fe tq

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fish comes under sea food → zf fe li na pq

So, fish → fe

Hence, the correct answer is Option 1.

Q40. Answer: (b) RQP88

The logic followed here is:

So, the missing term = RQP88

Hence, the correct answer is Option 2.

Q41. Answer: (b) dispersed phase

The correct answer is dispersed phase.

Key Points

• A colloid is a heterogeneous mixture in which one substance of microscopically dispersed insoluble particles is suspended throughout another substance.

• The solute-like component or the dispersed particles in a colloid form the dispersed phase. It represents the discontinuous phase of the system.

• The component in which the dispersed phase is suspended is known as the dispersing medium (or dispersion medium). It is analogous to the solvent in a true solution and is also called the continuous phase.

• Colloidal particles have a size ranging between 1 nanometer (nm) and 1000 nanometers (nm). They are large enough to scatter light but small enough to remain suspended without settling.

• While a solution is a homogeneous mixture where the solute completely dissolves in the solvent, a colloid remains heterogeneous even if it appears uniform to the naked eye.

Additional Information

• Classification of Colloids: Colloids are classified based on the state (solid, liquid, or gas) of the dispersed phase and the dispersion medium.

• Aerosol: Liquid or solid dispersed in gas (e.g., fog, clouds, smoke).

• Foam: Gas dispersed in liquid (e.g., shaving cream, whipped cream).

• Emulsion: Liquid dispersed in liquid (e.g., milk, face cream, hair cream).

• Sol: Solid dispersed in liquid (e.g., milk of magnesia, mud, paints).

• Gel: Liquid dispersed in solid (e.g., jelly, cheese, butter).

• Tyndall Effect: This is the scattering of a beam of light by colloidal particles. Because the particles in the dispersed phase are large enough, they reflect light, making the path of the beam visible. This effect is not seen in true solutions because the solute particles are too small.

• Brownian Motion: Colloidal particles exhibit a continuous zigzag motion called Brownian motion. This movement is caused by the unbalanced bombardment of the particles of the dispersed phase by the molecules of the dispersion medium.

• Stability: Colloids are quite stable. Unlike suspensions (where particles are greater than 1000 nm), the particles in the dispersed phase of a colloid do not settle down when left undisturbed for a long period.

Important Points

• Solvent (Option 1): This term is specifically used for true solutions (homogeneous mixtures) to describe the component present in the larger amount that dissolves the solute. In colloids, the equivalent term is the dispersion medium.

• Continuous Phase (Option 3): This is a synonym for the dispersion medium. It is the phase that surrounds the dispersed particles. Since the question asks for the "dispersed particles" component, this option is incorrect as it describes the medium instead.

• Solution Phase (Option 4): This is not a standard scientific term used to describe the internal components of a colloidal system. A solution consists of a solute and a solvent on a molecular or ionic level.

• Dialysis: It is a process used for purifying colloids by removing electrolytes or crystalloids through a semi-permeable membrane.

• Electrophoresis: The movement of colloidal particles under the influence of an electric field, which helps determine the charge (positive or negative) carried by the dispersed phase particles.

Q42. Answer: (b) Golden womb

The correct answer is Golden womb.

Key Points

• The term Hiranyagarbha is a Sanskrit word where "Hiranya" means Gold and "Garbha" means Womb, Seed, or Egg. Therefore, it literally translates to the "Golden Womb" or "Golden Egg".

• In Vedic philosophy, it is considered the source of the creation of the Universe or the manifested Cosmos. It is often referred to as the "Soul of the Universe" or Brahman.

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• The Hiranyagarbha Sukta is found in the Rigveda (Mandala 10, Hymn 121). This hymn suggests that in the beginning, there was only the Golden Embryo, which was the sole lord of all created beings. Hence, the statement regarding its meaning as the "Golden Womb" is correct.

• Historically, Hiranyagarbha was also the name of a Vedic ritual performed by kings. This ritual was intended to symbolize the "rebirth" of the sacrificer, often to claim Kshatriya status even if they were not born into that caste.

• A famous historical instance involves the Rashtrakuta chief Dantidurga, who performed the Hiranyagarbha ritual at Ujjain in the 8th century (753 AD) to establish his authority and "become" a Kshatriya.

Additional Information

• Sacred Fire:

• Commonly known as Agni, it is a central element in Hinduism. It serves as a medium between humans and gods during Yajnas (sacrifices). It is not synonymous with Hiranyagarbha.

• Divine Offering:

• Known as Naivedya or Ahuti, these are food or materials offered to a deity during a ritual. While Hiranyagarbha involves offerings, the term itself refers to the "Golden Womb."

• Royal Coronation:

• Known as Rajyabhishek, this is the formal ceremony of crowning a monarch. While rituals like Hiranyagarbha might precede or accompany a rise to power, they are distinct liturgical acts.

• The Philosophical Concept:

• According to the Matsya Purana, after the Mahapralaya (great dissolution), the universe was in darkness, and then the Self-existent Being appeared and created the Golden Egg.

• In Advaita Vedanta, Hiranyagarbha is considered the First-born or the Cosmic Mind, acting as the intermediary between the Unmanifested Absolute and the Visible World.

Important Points

• Historical Context: In ancient and medieval India, the Hiranyagarbha ritual involved the king passing through a large golden vessel shaped like a womb. After the completion of the ritual, the golden vessel was broken and distributed among the Brahmanas.

• The Deity: In later Puranic literature, Hiranyagarbha is frequently identified with Lord Brahma, the creator god, who is said to have been born from the Golden Egg that floated in the Primeval Waters.

• Scientific Parallel: Some modern scholars and enthusiasts draw parallels between the Hiranyagarbha (Golden Egg) concept and the Big Bang Theory or the Cosmic Egg theory of modern Astrophysics, seeing it as an ancient intuition of the universe's origin from a single point.

Q43. Answer: (a) 1240

The correct answer is 1240.

Key Points

• Raziya Sultana, the daughter of Shams-ud-din Iltutmish, was the first and only woman sovereign of the Delhi Sultanate.

• She ascended the throne of Delhi in the year 1236, succeeding her brother Ruknuddin Firuz, who was deposed shortly after taking power.

• Her reign was characterized by her refusal to be a puppet ruler; she abandoned the traditional purdah (veil), conducted state business in open court, and led her armies into battle.

• In April 1240, a rebellion led by Malik Altunia, the governor of Bathinda, resulted in her defeat and removal from the throne. Hence, the statement regarding her removal in 1240 is correct.

• Following her removal, the Turkish nobility (known as the Chahalgani or the Forty) installed her brother, Muizuddin Bahram Shah, as the new Sultan.

Additional Information

• Succession Struggle: Although Iltutmish nominated Razia as his successor before his death in 1236, the conservative nobles initially refused to accept a woman as ruler and instead crowned her brother Ruknuddin Firuz.

• Administrative Reforms: During her short reign of approximately three and a half years, she proved to be a capable administrator, issuing coins in her own name and establishing schools, academies, and public libraries.

• Conflict with Nobility: Her appointment of Jamal-ud-Din Yaqut, an Abyssinian slave, to the high-ranking post of Amir-i-Akhur (Master of the Stables) deeply offended the powerful Turkish nobles.

• The Battle of Bathinda: After Yaqut was murdered and Razia was imprisoned by Malik Altunia, she eventually married him to regain her power and attempt to reclaim the throne.

• Final Days: Razia and Altunia marched toward Delhi but were defeated by the forces of Bahram Shah. They were captured and killed near Kaithal in October 1240.

Important Points

• Mamluk Dynasty: Razia Sultana belonged to the Mamluk Dynasty (also known as the Slave Dynasty), which ruled the Delhi Sultanate from 1206 to 1290.

• The Chahalgani: This was a group of 40 powerful Turkish nobles created by Iltutmish to assist in administration, but they eventually became "king-makers" and were instrumental in Razia's downfall.

• Historical Legacy: Razia's reign challenged the patriarchal norms of the 13th century. Historian Minhaj-i-Siraj noted that she was endowed with all the qualities befitting a Sultan, but her gender was seen as a primary disqualification by the elite of that era.

Q44. Answer: (d) Eighth

The correct answer is Eighth.

Key Points

• The Eighth Five-Year Plan was launched for the period 1992 to 1997. It was the first plan to be introduced after the initiation of Structural Adjustment Policies (SAP) and the New Economic Policy in 1991.

• During the early 1990s, India faced a severe Balance of Payments (BoP) crisis, which led the government to initiate radical economic reforms under the leadership of Prime Minister P.V. Narasimha Rao and Finance Minister Dr. Manmohan Singh.

• The Structural Adjustment Policies focused on Liberalization, Privatization, and Globalization (LPG). Because of the economic transition and political instability at the center, the Eighth Plan could not be launched in 1990; instead, two Annual Plans were implemented between 1990 and 1992.

• The main objective of the Eighth Five-Year Plan was the modernization of industries and human resource development, including the promotion of employment, education, and public health.

• It marked a shift in the role of the Planning Commission from a directive role to an indicative one, where the state's role in the economy began to diminish in favor of the private sector. Hence, the correct answer is Eighth.

Additional Information

• First Five-Year Plan (1951–1956):

• This plan was based on the Harrod-Domar model and focused primarily on the agricultural sector to overcome food shortages resulting from Partition.

• It was launched shortly after Independence and long before any Structural Adjustment Policies were even conceptualized.

• Second Five-Year Plan (1956–1961):

• Known as the Mahalanobis Plan, it emphasized rapid industrialization and the development of heavy and basic industries.

• It followed the Socialist pattern of society and aimed to increase the public sector's dominance in the Indian economy.

• Third Five-Year Plan (1961–1966):

• Also called the Gadgil Yojana, its goal was to make the economy independent and self-active.

• This plan failed significantly due to the Sino-Indian War (1962), the Indo-Pak War (1965), and a severe drought in 1965-66, leading to a "Plan Holiday" from 1966 to 1969.

• Structural Adjustment Policies (1991):

• These were a set of economic reforms suggested by the International Monetary Fund (IMF) and the World Bank as a condition for financial assistance.

• The reforms aimed at reducing fiscal deficits, devaluing the Rupee, and removing license raj to make the Indian market more competitive globally.

• The Eighth Plan achieved a growth rate of 6.8%, which was higher than the target of 5.6%, proving the success of the initial reform phase.

Q45. Answer: (b) Ramanuja

The correct answer is Ramanuja.

Key Points

• Ramanuja was a famous Indian philosopher and theologian who was born in Sriperumbudur, Tamil Nadu, in the eleventh century (specifically around 1017 CE).

• He was a major proponent of the Sri Vaishnavism tradition and is best known for propounding the philosophical doctrine of Vishishtadvaita (Qualified Non-dualism).

• His teachings were deeply influenced by the Alvars, who were Tamil saint-poets devoted to Lord Vishnu.

• Ramanuja argued that the soul (Atman) remains distinct even after merging with the Supreme God (Brahman), and he emphasized that Bhakti (intense devotion) was the path to salvation.

• He made the Vedic teachings accessible to the common people and worked towards social equality by allowing people from different backgrounds to enter the fold of Vaishnavism.

Additional Information

• Shankara (Adi Shankaracharya):

• He was born in Kaladi, Kerala, in the eighth century (approx. 788 CE).

• He was the advocate of Advaita (Monism or pure non-dualism), which teaches that the individual soul is identical to Brahman.

• He established four major Mathas (monasteries) in the four corners of India (Sringeri, Puri, Dwaraka, and Badrinath).

• Chaitanya (Chaitanya Mahaprabhu):

• He was a 15th-century saint and philosopher born in Nadia, West Bengal, in 1486 CE.

• He was the founder of Gaudiya Vaishnavism and is revered as an avatar of Lord Krishna by his followers.

• He popularized Sankirtana (communal chanting of God's name) and the Hare Krishna Maha-mantra.

• Namdev:

• He was a prominent saint-poet of the Varkari tradition from Maharashtra, born in the 13th century (approx. 1270 CE).

• His compositions, known as Abhangas, were dedicated to Lord Vitthal (a form of Vishnu).

• Interestingly, some of his hymns are included in the Guru Granth Sahib, the holy scripture of Sikhism.

Important Points

• Philosophical Works: Ramanuja authored several significant texts, including the Sri Bhashya (a commentary on the Brahma Sutras) and the Vedartha Sangraha.

• Legacy: His philosophy provided a strong intellectual foundation for the Bhakti Movement in South India and later influenced north Indian saints like Ramananda.

• Historical Context: During the 11th century, Tamil Nadu was a hub for religious and cultural developments under the Chola Dynasty, which facilitated the spread of his devotional philosophy.

• Statue of Equality: In 2022, a 216-foot tall statue of Ramanuja, known as the Statue of Equality, was inaugurated in Hyderabad to commemorate his 1,000th birth anniversary and his message of social justice.

Q46. Answer: (d) Thermosphere

The correct answer is Thermosphere.

Key Points

• The Thermosphere is the atmospheric layer located directly above the Mesosphere and below the Exosphere, extending from about 80 kilometers to 400-600 kilometers above the Earth's surface.

• This layer is fundamental for radio transmission because it contains the Ionosphere, a region where the air is ionized by solar radiation. This ionization creates a layer of free electrons and ions that reflect radio waves back to the Earth's surface.

• By reflecting these waves, the thermosphere enables long-distance wireless communication, allowing radio signals to travel beyond the horizon via skywave propagation. Hence, the correct answer is Thermosphere.

• In the Thermosphere, temperatures increase with altitude due to the absorption of highly energetic solar radiation (X-rays and UV rays). Temperatures in this region can soar to 1,500 degrees Celsius or higher.

• The International Space Station (ISS) and many low Earth orbit (LEO) satellites reside in this layer, benefitting from the extremely low density of the air.

Additional Information

• Troposphere:

• This is the lowest layer of the atmosphere, extending from the surface up to an average height of 13 kilometers (about 18 km at the equator and 8 km at the poles).

• It contains approximately 75% to 80% of the atmosphere's total mass and nearly all the water vapor.

• All weather phenomena such as cloud formation, rain, and storms occur in this layer. Hence, statement 1 is incorrect regarding radio transmission.

• Stratosphere:

• Located above the troposphere, it extends up to 50 kilometers.

• This layer contains the Ozone Layer, which protects life on Earth by absorbing harmful Ultraviolet (UV) rays from the sun.

• The stratosphere is very stable and lacks turbulent weather, making it the preferred layer for flying commercial jet aircraft. Hence, statement 2 is incorrect regarding radio transmission.

• Mesosphere:

• This is the third layer of the atmosphere, extending from 50 kilometers to 80 kilometers.

• It is the coldest layer of the atmosphere, with temperatures reaching as low as -90 degrees Celsius.

• Meteors burn up in this layer upon entering from space due to friction. Hence, statement 3 is incorrect regarding radio transmission.

Important Points

• Ionosphere Dynamics: The Ionosphere is not a separate physical layer but a series of regions (D, E, and F layers) within the thermosphere and mesosphere. During the day, the F layer splits into two, while at night, some layers disappear, which is why AM radio reception is often better and travels further after sunset.

• Auroras: The Aurora Borealis (Northern Lights) and Aurora Australis (Southern Lights) are primarily observed in the

Thermosphere. These occur when charged particles from the sun collide with gas molecules, causing them to emit light.

• Atmospheric Boundary: The Kármán line, which is internationally recognized as the boundary between the Earth's atmosphere and outer space, is located at an altitude of 100 kilometers, well within the lower part of the Thermosphere.

Q47. Answer: (a) Magadha

The correct answer is Magadha.

Key Points

• The period between the 6th and 4th centuries BCE is known for the rise of Magadha as the most powerful Mahajanapada (great kingdom) in ancient India.

• During this era, Magadha (located in present-day Bihar) emerged as the center of political activity due to its strategic location and abundant natural resources.

• Several powerful dynasties governed Magadha during this period, including the Haryanka dynasty, the Shishunaga dynasty, and the Nanda dynasty.

• The expansion of Magadha began under the rule of Bimbisara and his son Ajatashatru, who employed both matrimonial alliances and aggressive military conquests to enlarge their territory.

• By the 4th century BCE, the Nanda dynasty had established a vast empire, which further paved the way for the Mauryan Empire under Chandragupta Maurya.

Additional Information

• Reasons for Magadha's Dominance:

• Geographical Advantage: Magadha was surrounded by rivers like the Ganges, Son, and Gandak, which provided water for agriculture and served as efficient routes for trade and transport.

• Natural Resources: The region had rich deposits of iron ore in the Rajgir hills, which allowed for the manufacturing of superior weapons and agricultural tools.

• Military Strength: Magadha was the first state to use elephants on a large scale in warfare, which gave them a significant advantage over rival kingdoms.

• Capital Cities: The first capital was Rajgriha (modern-day Rajgir), a fortified settlement, which was later shifted to Pataliputra (modern-day Patna) to better control riverine trade.

• Other Eras mentioned in the options:

• The Gupta Empire rose much later, ruling from the 4th to the 6th century CE, often described as the Golden Age of India.

• The Lodi Dynasty was an Afghan dynasty that ruled the Delhi Sultanate from 1451 to 1526 CE.

• The Mughal Empire was established in 1526 CE by Babur and lasted until the mid-19th century.

Important Points

• The 6th century BCE is considered a major turning point in early Indian history, characterized by the emergence of early states, cities, and the growing use of iron.

• This period also witnessed the rise of new philosophical and religious movements, most notably Buddhism and Jainism, which challenged the existing Vedic social order.

• Out of the 16 Mahajanapadas mentioned in Buddhist and Jaina texts (such as the Anguttara Nikaya), Magadha eventually overshadowed others like Vatsa, Avanti, and Kosala to become the supreme power in Northern India.

• The transition from Janapadas (small tribal settlements) to Mahajanapadas (large territorial states) signifies the evolution of complex socio-political structures in the Indo-Gangetic plain.

Q48. Answer: (d) Bundelkhand

The correct answer is Bundelkhand.

Key Points

• The Naurata dance is a significant folk dance tradition performed exclusively in the Bundelkhand region, which spans across parts of Madhya Pradesh and Uttar Pradesh.

• It is performed by unmarried girls during the nine days of the Navratri festival, which typically falls in the months of September or October.

• The primary objective of this ritualistic dance is to seek the blessings of the Goddess for attaining a good husband and a prosperous married life.

• During the performance, girls create intricate mural paintings known as Naurata on the walls of their houses using lime, clay, cow dung, and vibrant colors.

• The dance involves rhythmic movements around these symbolic representations, often accompanied by traditional folk songs that narrate religious stories or local legends. Hence, the correct answer is Bundelkhand.

Additional Information

• Bundelkhand Region:

• It is a central Indian geographical region divided between the states of Uttar Pradesh and Madhya Pradesh, including districts like Jhansi, Sagar, Damoh, Chhatarpur, Panna, and Tikamgarh.

• The region is historically known for the Bundela Rajputs and possesses a rich tapestry of folk arts, including Rai dance, Saira dance, and Jawara.

• Marwar (Option 1):

• Located in Western Rajasthan, it is famous for its distinct cultural identity. Iconic dances from this region include the Ghoomar and Dandiya Raas, which are also popular during Navratri.

• Vidarbha (Option 2):

• This is the eastern region of Maharashtra. It is known for folk forms like Dhangari Gaja and Zadi Patti theatre, reflecting the local agrarian lifestyle.

• Konkan (Option 3):

• A coastal strip along the western coast of India, covering Maharashtra, Goa, and Karnataka. Popular folk traditions here include Dashavatar and the Dekhni dance.

Important Points

• Cultural Significance: The Naurata festival is not just a dance but a rite of passage for young girls in Bundelkhand, emphasizing the transition into adulthood and domesticity.

• Artistic Element: The Naurata paintings often depict various forms of the Goddess Durga, and the complexity of the art increases as the nine-day festival progresses.

• Associated Folk Music: The songs sung during Naurata are part of an oral tradition passed down through generations, often featuring regional dialects such as Bundeli.

• Other Bundelkhand Dances:

• Rai Dance: Traditionally performed by the Bedia community, it is known for its fast-paced movements and Dholak beats.

• Jawara: A dance of prosperity performed by both men and women carrying baskets of harvested grain on their heads.

Q49. Answer: (a) Medulla, hind-brain

The correct answer is Medulla, hind-brain.

Key Points

• The human brain is divided into three main parts: the fore-brain, mid-brain, and hind-brain. Involuntary actions such as blood pressure, salivation, and vomiting are controlled by the medulla (or medulla oblongata) which is located in the hind-brain.

• The medulla oblongata acts as the primary control center for autonomic functions. It regulates the Autonomic Nervous System, which manages internal organ functions without conscious effort. Hence, the statement regarding the medulla in the hind-brain is correct.

• The medulla contains vital centers for cardiac, respiratory, and vasomotor functions. This means it manages heart rate, breathing, and the dilation or constriction of blood vessels to maintain blood pressure.

• Reflex actions like vomiting, salivation, sneezing, coughing, and swallowing are also coordinated by the medulla.

• Structurally, the medulla is the lowest part of the brain and serves as a transition point between the brain and the spinal cord, facilitating the transmission of signals between the two.

Additional Information

• Fore-brain (Prosencephalon):

• This is the largest and most complex part of the brain, consisting primarily of the cerebrum, thalamus, and hypothalamus.

• The cerebrum is responsible for high-level functions such as thinking, reasoning, memory, willpower, and voluntary actions.

• The hypothalamus regulates body temperature, hunger, thirst, and emotions.

• Mid-brain (Mesencephalon):

• It is a small region that connects the fore-brain to the hind-brain.

• It plays a crucial role in visual and auditory processing and controls eye movement and pupil size.

• Hind-brain (Rhombencephalon):

• Besides the medulla, it contains the cerebellum and the pons.

• The cerebellum is responsible for maintaining posture, equilibrium, and body balance. It ensures the precision of voluntary movements, such as walking in a straight line or picking up a pencil.

• The pons acts as a bridge between various parts of the brain and assists in regulating respiration.

Important Points

• The Brainstem: This structure is formed by the mid-brain, pons, and medulla oblongata. It is essential for life because it controls the flow of messages between the brain and the rest of the body.

• Voluntary vs. Involuntary: Voluntary actions (like walking or talking) are primarily controlled by the cerebrum and cerebellum, whereas involuntary actions (like heartbeat or digestion) are managed by the medulla and the mid-brain.

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• Biological Significance: Because the medulla controls critical life-sustaining functions, any severe injury to this part of the hind-brain usually results in immediate death due to respiratory or cardiac failure.

• Evolutionary Aspect: The hind-brain is often called the "primitive brain" or "reptilian brain" because it governs the basic survival functions found in almost all vertebrates.

Q50. Answer: (c) Yuru Kabgyat

The correct answer is Yuru Kabgyat.

Key Points

• Yuru Kabgyat is one of the most significant monastic festivals celebrated in the Union Territory of Ladakh.

• The festival takes place at the Lamayuru Monastery, which is also known as Yuru Gompa, located about 127 km from Leh.

• It is a two-day annual event held during the second month of the Tibetan lunar calendar, typically falling in the months of June or July.

• The festival is dedicated to Guru Padmasambhava (the Second Buddha) and Yamanthaka (the deity of death), aimed at seeking protection from natural calamities and bringing peace to the world.

• The central attraction of the festival is the Cham Dance, a sacred masked dance performed by the Buddhist monks to the accompaniment of traditional music played with drums, cymbals, and long pipes.

• The masks used in the Cham Dance represent various guardian deities and mythological figures, and the performance symbolizes the victory of good over evil.

Additional Information

• Karaga:

• It is one of the oldest and most important folk festivals of Karnataka, specifically celebrated in Bengaluru.

• The festival is dedicated to Draupadi, the wife of the Pandavas, and is celebrated by the Tigala community during the Chaitra month (March/April).

• Shigmo:

• Also known as Shishirotsava, it is the largest spring festival celebrated in the state of Goa.

• It is a vibrant celebration by the Hindu community involving street dances, traditional folk songs, and colorful floats, marking the arrival of spring and the homecoming of warriors.

• Thrissur Pooram:

• It is considered the "festival of festivals" in Kerala, held at the Vadakkunnathan Temple in Thrissur.

• Introduced by Sakthan Thampuran (the Maharaja of Cochin) in the year 1797, it is famous for its grand procession of decorated elephants and spectacular fireworks display.

• Other Festivals of Ladakh:

• Hemis Festival: Celebrated at the Hemis Monastery to commemorate the birth anniversary of Guru Padmasambhava.

• Losar: This is the Tibetan New Year, celebrated with great fervor across the Union Territory for about 15 days.

• Dosmoche: Known as the "Festival of Scapegoats," it is celebrated in Leh, Likir, and Diskit monasteries to drive away evil spirits.

Important Points

• Lamayuru Monastery, the venue for Yuru Kabgyat, is one of the oldest and largest monasteries in Ladakh, often referred to as "Moonland" due to its unique lunar-like landscape.

• The Union Territory of Ladakh was established on 31st October 2019, following the Jammu and Kashmir Reorganisation Act passed by the Parliament of India.

• The Cham Dance performed during these festivals is intended as a form of meditation and an offering to the deities, showcasing the rich Indo-Tibetan cultural heritage of the region.

• Specific musical instruments like the Dungchen (long copper trumpets) are integral to the ritualistic atmosphere of Ladakhi monastic festivals.

Q51. Answer: (d) Rewalsar Lake

The correct answer is Rewalsar Lake.

Key Points

• Rewalsar Lake is situated in the Mandi district of Himachal Pradesh at an altitude of about 1,360 meters above sea level.

• It is a sacred site for three major religions: Hinduism, Buddhism, and Sikhism, making it a unique symbol of religious harmony.

• The lake is famously associated with Baisakhi celebrations. On this occasion, pilgrims from various regions gather to take a holy dip in the lake, believing it washes away sins. Hence, the correct answer is Rewalsar Lake.

• For Buddhists, the lake is known as Tso Pema (Lotus Lake). It is associated with Guru Padmasambhava (also known as Guru Rinpoche), who is credited with establishing Vajrayana Buddhism in Tibet.

• The lake features seven islands of floating reed, which are considered sacred. It is believed that the spirit of Guru

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Padmasambhava resides within them.

Additional Information

• Loktak Lake:

• Located in the state of Manipur, it is the largest freshwater lake in North-East India.

• It is world-famous for its phumdis, which are floating heterogeneous masses of vegetation, soil, and organic matter.

• The lake hosts the Keibul Lamjao National Park, the only floating national park in the world, which is the last natural refuge of the endangered Sangai (brow-antlered deer). Hence, this option is incorrect.

• Chilika Lake:

• Situated in Odisha, it is the largest brackish water lagoon in India and the second largest in the world.

• In 1981, it was designated as the first Indian wetland of international importance under the Ramsar Convention.

• It is a major wintering ground for migratory birds and home to the Irrawaddy dolphins. Hence, this option is incorrect.

• Pushkar Lake:

• Located in the Ajmer district of Rajasthan, this lake is considered one of the most sacred places for Hindus.

• It is surrounded by 52 bathing ghats and over 400 temples, including the prominent Brahma Temple.

• The famous Pushkar Camel Fair takes place here during the month of Kartik (October-November). Hence, this option is incorrect.

Important Points

• Historical and Religious Significance:

• Hinduism: The lake is associated with Lomas Rishi, who performed penance here to appease Lord Shiva.

• Sikhism: The tenth Sikh Guru, Guru Gobind Singh, visited Rewalsar in 1701 to meet with the local hill Rajas to seek their support against the Mughal Empire. A Gurudwara built in 1930 commemorates his visit.

• Buddhism: The Sishu Fair (also called Chesu Fair) is celebrated here annually in the month of February or March to mark the birth anniversary of Guru Padmasambhava.

• Baisakhi: It is the Solar New Year celebrated across North India. In Himachal Pradesh, it is also known as Beesh or Bishu and marks the beginning of the harvesting season.

Q52. Answer: (b) 1991

The correct answer is 1991.

Key Points

• The Census of India is a massive decennial exercise conducted every 10 years to gather demographic, social, and economic data.

• In the year 1991, the census was conducted throughout the country, but it was not conducted in the state of Jammu & Kashmir. Hence, the correct answer is 1991.

• The enumeration was skipped in Jammu & Kashmir during 1991 primarily due to intense militancy and civil unrest that prevailed in the region at that time, which hindered the safety and movement of census officials.

• This was not the first time a state was excluded; in 1981, the census was not conducted in Assam due to the Assam Agitation and widespread political instability in that state.

• Because the 1991 census did not take place in Jammu & Kashmir, the population figures for the state for that decade were later interpolated or estimated based on mathematical projections to maintain national data continuity.

Additional Information

• Historical Background:

• The first attempt at a census in India was made in 1872 under the viceroyalty of Lord Mayo.

• The first synchronous census (conducted simultaneously across the country) took place in 1881 under Lord Ripon. Since then, it has been conducted uninterruptedly every ten years.

• Legislative Authority:

• The census is conducted under the Census Act, 1948. This Act provides the legal framework for the Registrar General and Census Commissioner of India to carry out the operation.

• The Office of the Registrar General falls under the administrative control of the Ministry of Home Affairs, Government of India.

• 2011 Census:

• The 2011 Census was the 15th national census of India and the 7th since independence.

• The slogan of the 2011 census was "Our Census, Our Future."

• During this census, the total population of India was recorded at 1,210,854,977 (approximately 1.21 billion).

• Utility of Data:

• Census data is vital for the delimitation of parliamentary and assembly constituencies.

• It serves as the base for government planning, resource allocation by the Finance Commission, and the implementation of social welfare schemes for Scheduled Castes and Scheduled Tribes.

Important Points

• Specific Years of Exclusion: It is a notable fact in Indian administrative history that Assam was excluded in 1981 and Jammu & Kashmir was excluded in 1991.

• The 2021 Census: The 16th Indian Census, which was scheduled to be conducted in 2021, was postponed indefinitely due to the COVID-19 pandemic. It is planned to be India's first ever digital census.

• Demographic Indicators: The census tracks various parameters including literacy rate, sex ratio, density of population, and occupational structure across all States and Union Territories.

Q53. Answer: (c) 1998

The correct answer is 1998.

Key Points

• The International Space Station (ISS) is a large-scale modular space station located in low Earth orbit (LEO). It serves as a habitable artificial satellite and a major international research facility.

• The launch of the first component of the ISS took place on November 20, 1998. This initial module was named Zarya (meaning "Sunrise" in Russian), which provided electrical power, storage, propulsion, and guidance to the station during the initial stage of assembly. Hence, the year 1998 is correct.

• The project is a joint endeavor involving five participating space agencies: NASA (United States), Roscosmos (Russia), JAXA (Japan), ESA (Europe), and CSA (Canada). The ownership and use of the station are established by intergovernmental treaties and agreements.

• Following the Zarya module, the second module, Unity (Node 1), was launched by the United States on December 4, 1998, aboard the Space Shuttle Endeavour, marking the first time components from different nations were joined in space.

• Continuous human presence on the ISS began on November 2, 2000, with the arrival of Expedition 1. Since then, the station has never been without a crew.

Additional Information

• Physical Characteristics and Orbit:

• The ISS orbits at an average altitude of 400 kilometers (250 miles) above the Earth's surface.

• It travels at a staggering speed of approximately 28,000 kilometers per hour (17,500 mph), which allows it to complete an entire orbit around the Earth every 90 minutes.

• The total mass of the station is nearly 450,000 kilograms (approximately 1 million pounds), and it covers an area equivalent to a football field.

• Scientific Purpose:

• The station functions as a microgravity and space environment research laboratory. It allows scientists to conduct experiments in biology, human biology, physics, astronomy, and meteorology that would be impossible to perform on Earth.

• Key research includes studying the long-term effects of space exposure on the human body, which is critical for future missions to Mars and the Moon.

• Discussion of Other Options:

• 1965: This year is famous for the first spacewalk by Aleksei Leonov and the Gemini missions, but it predates the ISS by decades. Hence, statement 1 is incorrect.

• 1972: This year marked the final Apollo lunar mission (Apollo 17) and the transition toward the Skylab program. Hence, statement 2 is incorrect.

• 2004: By this year, the ISS was already fully operational and inhabited by its ninth and tenth permanent crews. Hence, statement 4 is incorrect.

Important Points

• End of Mission: The ISS is currently scheduled to operate until 2030. NASA has developed a transition plan to deorbit the station safely into a remote part of the Pacific Ocean, known as Point Nemo, in early 2031.

• International Cooperation: The ISS is widely regarded as one of the most complex engineering and political feats in human history, demonstrating that multiple countries can collaborate on long-term peaceful scientific endeavors.

• The Zvezda Module: Launched in July 2000, the Zvezda Service Module provided the early living quarters and life support systems, enabling the first permanent crew to reside on the station.

Q54. Answer: (a) 51.6

The correct answer is 51.6.

Key Points

• The International Space Station (ISS) orbits the Earth at an orbital inclination of 51.6 degrees relative to the equator.

• The station travels from west to east, a direction known as a prograde orbit, which allows the launch vehicles to take advantage of the Earth's rotational velocity.

• The specific inclination of 51.6 degrees was chosen to allow the station to be reachable by launch sites in both the United States and Russia. Specifically, it allows Russian Soyuz and Progress spacecraft launched from the Baikonur Cosmodrome in Kazakhstan (located at approximately 46 degrees North) to reach the station without overflying third-party territories during ascent.

• Because of this inclination, the ISS flies over approximately 90 percent of the Earth's populated areas, providing a unique vantage point for Earth observation and science.

• The orbit covers almost all the regions between 51.6 degrees North and 51.6 degrees South latitude.

Additional Information

• Altitude and Speed: The ISS maintains a Low Earth Orbit (LEO) at an average altitude of about 400 kilometers (roughly 250 miles). It travels at a speed of approximately 28,000 kilometers per hour (17,500 miles per hour).

• Orbital Period: Due to its high velocity, the station completes one full trip around the Earth every 90 to 93 minutes. This results in the crew experiencing about 16 sunrises and sunsets in a single 24-hour day.

• Collaborating Agencies: The ISS is a multinational collaborative project involving five space agencies: NASA (United States), Roscosmos (Russia), JAXA (Japan), ESA (Europe), and CSA (Canada).

• First Module: The first component of the International Space Station, the Zarya Functional Cargo Block, was launched on November 20, 1998, by a Russian Proton rocket.

• Microgravity: The station serves as a microgravity research laboratory where scientific experiments in biology, physics, and astronomy are conducted in an environment impossible to replicate on Earth for long durations.

Important Points

• Orbit Maintenance: The ISS experiences a slight atmospheric drag even at its high altitude. To prevent it from falling back into the Earth's atmosphere, it requires periodic re-boosts using the engines of docked spacecraft or the station's own thrusters.

• Visible to Naked Eye: Because of its large size (roughly the size of a football field) and highly reflective solar arrays, the ISS is the brightest man-made object in the sky and can often be seen from the ground with the naked eye.

• Life Support: The station features complex Environmental Control and Life Support Systems (ECLSS) that recycle water (including perspiration and urine) and generate oxygen to sustain a permanent human presence, which has been continuous since November 2, 2000.

Q55. Answer: (b) B.R. Ambedkar

The correct answer is B.R. Ambedkar.

Key Points

• In August 1930, Dr. B.R. Ambedkar established the Depressed Classes Association to represent the interests of the untouchables and the oppressed sections of Indian society.

• The primary objective of the association was to demand political representation and social equality for the Depressed Classes within the colonial administrative framework.

• During the First Round Table Conference in 1930, Dr. Ambedkar used this platform to vigorously advocate for separate electorates for the depressed classes, arguing that they needed distinct political safeguards.

• This demand for separate electorates later led to a significant ideological conflict with Mahatma Gandhi, eventually resulting in the Poona Pact of 1932.

• The formation of the association marked a crucial step in the Dalit movement, transforming it into a structured political struggle for constitutional rights.

Additional Information

• Mahatma Gandhi:

• Following the Poona Pact in 1932, Gandhi founded the Harijan Sevak Sangh to work towards the abolition of untouchability.

• He began using the term "Harijan" (meaning Children of God) to refer to the depressed classes, though this term was later criticized by Dr. Ambedkar.

• Jyotirao Phule:

• He was a 19th-century social reformer from Maharashtra who founded the Satyashodhak Samaj in September 1873.

• His work focused on the education of women and the emancipation of lower castes, authoring the famous book Gulamgiri in 1873.

• M. G. Ranade:

• Mahadev Govind Ranade was a founding member of the Indian National Congress and a key figure in the Prarthana Samaj.

• He was instrumental in establishing the Poona Sarvajanik Sabha in 1870 and worked extensively for widow remarriage and educational reforms.

Important Points

• Dr. B.R. Ambedkar is widely regarded as the Chief Architect of the Indian Constitution and served as the Chairman of the

Drafting Committee.

• In 1924, he also founded the Bahishkrit Hitakarini Sabha with the motto "Educate, Agitate, and Organize" to promote the welfare of outcasts.

• The Poona Pact of September 1932 replaced the Communal Award's separate electorates with reserved seats for the depressed classes in the Provincial Legislatures.

• He led the Mahad Satyagraha in 1927 to assert the rights of untouchables to use water from public tanks and entered the Kalaram Temple in 1930 as part of the temple entry movement.

• In the final phase of his life, in 1956, he converted to Buddhism along with thousands of followers at Deekshabhoomi in Nagpur.

Q56. Answer: (b) Countering swarm drone threats

The correct answer is Countering swarm drone threats.

Key Points

• The Bhargavastra system is a sophisticated defense technology developed and unveiled in May 2025 specifically to mitigate the growing dangers of swarm drone attacks.

• Its primary function is Countering swarm drone threats, which involve multiple autonomous or semi-autonomous unmanned aerial vehicles (UAVs) acting in coordination to saturate and bypass traditional air defense systems. Hence, the correct answer is Countering swarm drone threats.

• The system utilizes Directed Energy Weapon (DEW) technology, allowing it to target and neutralize several drones simultaneously through electromagnetic pulses rather than relying on individual kinetic projectiles.

• Developed as part of modernizing asymmetric warfare capabilities, the Bhargavastra system provides a low-cost-per-kill solution against mass-produced, inexpensive drone units.

• The deployment of such systems is critical for the protection of high-value assets, such as military bases, naval fleets, and industrial hubs, from coordinated saturation strikes.

Additional Information

• Swarm Drone Technology:

• Drone swarms use artificial intelligence (AI) and swarm intelligence to communicate with each other, allowing them to adjust their formations and maintain mission objectives even if individual units are destroyed.

• These threats are particularly challenging because they can overwhelm radar systems and exhaust the missile magazines of conventional defense platforms.

• High Power Microwave (HPM):

• The Bhargavastra likely employs High Power Microwave technology, which sends bursts of electromagnetic energy to "fry" the sensitive electronic circuits and sensors of incoming drones.

• This non-kinetic approach ensures that there is minimal falling debris, making it safer for use in populated urban areas or over friendly forces.

• Atmanirbhar Bharat in Defense:

• The development of the Bhargavastra system in 2025 represents a milestone for indigenous defense manufacturing, reducing the country's reliance on imported anti-drone solutions.

• It aligns with the national goal of achieving strategic autonomy in high-tech electronic warfare and microwave technologies.

Important Points

• Detection and Tracking: The system is integrated with Active Electronically Scanned Array (AESA) radars that provide a 360-degree coverage and are capable of detecting small RCS (Radar Cross Section) targets at significant distances.

• Engagement Range: It is designed to be effective against swarms within a range of 5 to 10 kilometers, acting as a critical inner-tier defense layer.

• Mobility and Deployment: The Bhargavastra units are highly mobile and can be mounted on heavy-duty trucks for land-based protection or integrated into naval destroyers for maritime security.

• Reaction Speed: Due to its electronic nature, the system has a near-instantaneous reaction time, which is essential when facing drones traveling at high speeds or in high-density clusters.

Q57. Answer: (b) wave

The correct answer is wave.

Key Points

• A wave is a disturbance that travels through a medium, transferring energy from one location to another without the permanent transfer of mass.

• When a wave moves through a medium, the particles of that medium do not travel along with the wave; instead, they oscillate or vibrate about their fixed mean positions.

• The process occurs when a vibrating particle sets its neighboring particles into motion through intermolecular forces or collisions,

thereby propagating the disturbance further.

• This energy transport mechanism is fundamental to all types of mechanical waves, such as sound waves in air or seismic waves in the Earth's crust.

• The medium can be a solid, liquid, or gas, and its physical properties like density and elasticity determine the speed at which the wave travels.

Additional Information

• Types of Waves:

• Longitudinal Waves: In these waves, the particles of the medium vibrate parallel to the direction of wave propagation. A common example is sound waves, which consist of compressions (high pressure) and rarefactions (low pressure).

• Transverse Waves: In these waves, the particles vibrate perpendicular to the direction of wave movement. Examples include water waves and light waves.

• Wave Parameters:

• Frequency: This refers to the number of oscillations or cycles per unit of time. It is measured in Hertz (Hz). While frequency is a characteristic of a wave, it is not the disturbance itself.

• Wavelength: The distance between two consecutive points in the same phase, such as from crest to crest or trough to trough.

• Amplitude: The maximum displacement of the particles of the medium from their original undisturbed position. It represents the energy or intensity of the wave.

• Wave Speed: The speed (v) of a wave is calculated by the product of its frequency (f) and wavelength. The formula is expressed as v = f × wavelength.

Important Points

• Phase: It describes the position and direction of motion of a particle at a specific instant of time within a cycle. Points in the same phase are at the same stage of their vibration.

• Tone: In the context of sound, a tone is a sound of a distinct pitch and quality, often resulting from a single frequency or a combination of harmonics.

• Mechanical vs. Electromagnetic Waves: Unlike mechanical waves (like sound), electromagnetic waves (like radio waves or X-rays) do not require a material medium and can propagate through a vacuum at the speed of light (approx 3 × 10^8 m/s).

• Acoustics: The branch of physics that deals with the study of mechanical waves in gases, liquids, and solids including vibration, sound, ultrasound, and infrasound.

Q58. Answer: (b) Venus

The correct answer is Venus.

Key Points

• The EnVision mission is a venture led by the European Space Agency (ESA), with significant contributions from NASA, specifically aimed at exploring the planet Venus.

• It was officially selected by the ESA's Science Programme Committee on June 10, 2021, as the fifth medium-class mission (M5) in the agency's Cosmic Vision plan.

• The primary objective of the EnVision mission is to perform a comprehensive study of Venus, ranging from its inner core to its upper atmosphere, to understand why it evolved so differently compared to Earth.

• The mission is scheduled for launch in the early 2030s, with the earliest possible launch window opening in 2031, followed by 2032 and 2033.

• The spacecraft will utilize a suite of sophisticated instruments, including a Synthetic Aperture Radar (VenSAR) provided by NASA, a Subsurface Radar Sounder (SRS), and a set of spectrometers to study the planet's surface and atmospheric composition.

Additional Information

• Characteristics of Venus:

• Venus is the second planet from the Sun and is often referred to as Earth's twin due to its similar size and mass.

• It is the hottest planet in the solar system because of a runaway greenhouse effect caused by an atmosphere rich in carbon dioxide and clouds of sulfuric acid.

• Unlike most other planets, Venus rotates on its axis clockwise (retrograde rotation), meaning the Sun rises in the west and sets in the east.

• Other Missions to Venus:

• NASA announced two new missions to Venus in 2021: DAVINCI+ (Deep Atmosphere Venus Investigation of Noble gases, Chemistry, and Imaging) and VERITAS (Venus Emissivity, Radio Science, InSAR, Topography, and Spectroscopy).

• The Indian Space Research Organisation (ISRO) is developing Shukrayaan-1, a planned orbiter mission to study the surface and atmosphere of Venus.

• Historical missions include the Soviet Union's Venera series, which achieved the first soft landing on another planet, and NASA's

Magellan, which mapped the surface using radar in the 1990s.

• European Space Agency (ESA):

• The ESA is an intergovernmental organization established in 1975 and is headquartered in Paris, France.

• It currently consists of 22 member states and works to coordinate European space activities and research.

Important Points

• The EnVision orbiter will track volcanic activity and tectonic shifts to determine if Venus is still geologically active today.

• The mission's VenSAR instrument will provide high-resolution images of the surface, allowing scientists to see features as small as 10 meters to 30 meters.

• Data gathered by EnVision will be compared with Earth to provide insights into climate change and the habitability of rocky planets in other solar systems.

Q59. Answer: (a) some constant set of prices

The correct answer is some constant set of prices.

Key Points

• Real Gross Domestic Product (GDP) is an inflation-adjusted measure that reflects the value of all goods and services produced by an economy in a given year.

• It is calculated by evaluating goods and services at some constant set of prices, which are prices from a predetermined base year.

• By using constant prices, the effect of inflation or deflation is removed, allowing for a comparison of the actual volume of production between different time periods.

• The primary purpose of calculating Real GDP is to track the true growth of the economy. If Real GDP increases, it signifies that the economy is producing more goods and services, rather than just selling the same amount at higher prices.

• In contrast, Nominal GDP evaluates production at current market prices, meaning it can increase simply because prices have risen, even if the quantity of output remains the same.

Additional Information

• Nominal GDP: This refers to the GDP calculated at current year prices. It reflects both changes in output and changes in prices. While it is useful for understanding the current size of the economy, it is not a reliable indicator of economic growth over time.

• GDP Deflator: It is an economic metric that converts Nominal GDP into Real GDP. It is a measure of the level of prices of all new, domestically produced, final goods and services in an economy. The formula is: (Nominal GDP / Real GDP) × 100.

• Base Year: This is the benchmark year against which economic data is compared. In India, the Ministry of Statistics and Programme Implementation (MoSPI) currently uses 2011-2012 as the base year for calculating GDP.

• Purchasing Power Parity (PPP): While Real GDP measures internal growth, PPP is used to compare the economic productivity and standard of living between countries by adjusting for the cost of living and inflation rates.

• National Statistical Office (NSO): In India, the NSO is the nodal agency responsible for the release of GDP estimates. It operates under the Ministry of Statistics and Programme Implementation.

Important Points

• Role of International Organizations: Agencies like the International Monetary Fund (IMF) and the World Trade Organization (WTO) monitor global GDP trends, but they do not set the prices for a country's internal Real GDP calculation. Each country determines its own base year and constant price metrics.

• Comparison of Real vs. Nominal: If an economy has high inflation, the Nominal GDP will be significantly higher than the Real GDP. If Real GDP is higher than Nominal GDP, it indicates deflation relative to the base year.

• Formula for Real GDP: It can be derived as Real GDP = Nominal GDP / (Price Index / 100). This allows researchers to isolate the quantity factor from the price factor.

• Use in Policy: Central Banks, such as the Reserve Bank of India (RBI), use Real GDP data to formulate monetary policy, adjust interest rates, and manage inflation targets.

Q60. Answer: (a) Germany

The correct answer is Germany.

Key Points

• The Ruhr Coal-field is a world-renowned industrial and mining region located in the western part of Germany.

• It is situated within the federal state of North Rhine-Westphalia, which is the most populous and industrially significant state in the country.

• The region takes its name from the Ruhr River, a tributary of the Rhine River, which flows through the heart of the coal-producing belt.

• This area has historically been the industrial heartland of Europe, driven by its vast and high-quality deposits of bituminous coal (hard coal).

• The concentration of coal mining led to the rapid development of major industrial cities such as Essen, Dortmund, Duisburg, Bochum, and Gelsenkirchen.

• The Ruhr Valley was central to Germany's industrialization during the 19th century and provided the fuel necessary for the massive growth of the Iron and Steel Industry.

Additional Information

• Historical Significance: Following World War II, the control of the Ruhr's resources was a key factor in European politics, leading to the creation of the European Coal and Steel Community (ECSC) in 1951, which was the precursor to the European Union.

• Industrial Transition: Since the 1960s, the region has undergone a profound structural transformation (known as Strukturwandel) as it shifted away from heavy coal and steel production toward service sectors, high-technology industries, and renewable energy.

• Logistics Hub: The city of Duisburg, located at the confluence of the Ruhr and Rhine rivers, hosts the world's largest inland port, serving as a critical node for European trade and the New Silk Road.

• Global Coal-field Comparisons:

• China: The world's largest coal producer, with major coal-fields located in the Shanxi and Shaanxi provinces and Inner Mongolia.

• Russia: Home to the massive Kuznetsk Basin (Kuzbass) in southwestern Siberia, which is one of the largest coal mining areas in the world.

• France: Previously had a significant coal industry in the Nord-Pas-de-Calais and Lorraine regions, but mining operations were phased out and completed by 2004.

• Geography: The Ruhr region is bounded by the Lippe River to the north and the Rhine River to the west, forming a dense urban conglomerate often referred to as the Ruhrgebiet.

Important Points

• Coal Quality: The coal found in the Ruhr is primarily Coking Coal, which is essential for the production of pig iron in blast furnaces.

• Environmental Reclamation: Following the closure of most mines (the last hard coal mine, Prosper-Haniel, closed in December 2018), the region has become a model for environmental restoration, converting old industrial sites into parks and cultural heritage centers.

• Cultural Impact: The industrial landscape of the Ruhr is recognized by UNESCO, with the Zollverein Coal Mine Industrial Complex in Essen being designated as a World Heritage Site in 2001.

Q61. Answer: (a) It implies 100% transfer of ownership of a public enterprise to private sector.

The correct answer is It implies 100% transfer of ownership of a public enterprise to private sector..

Key Points

• Privatisation is the process of involving the private sector in the ownership or operation of a state-owned enterprise. It can take several forms, ranging from partial disinvestment to complete denationalization.

• In the context of the question, total decentralisation (or total privatisation) refers to the 100% transfer of ownership and management control of a public sector enterprise to private hands. Hence, statement 1 is correct.

• The transfer of ownership from a private enterprise to the public sector is known as Nationalisation. If 51% or more is transferred to the government, the government gains majority control. Hence, statement 2 is incorrect.

• The transfer of 51% ownership of a public enterprise to the private sector is known as Strategic Disinvestment or Majority Privatisation. In this case, the government might still hold a minority stake, but management control is usually transferred. Hence, statement 3 is incorrect.

• A 100% transfer of a private enterprise to the public sector is the absolute form of Nationalisation, where the state takes full monopoly over the industry or specific firm. Hence, statement 4 is incorrect.

• The ultimate goal of total privatisation is to remove government interference entirely from the commercial operations of the entity, allowing market forces to dictate efficiency and pricing.

Additional Information

• LPG Reforms (1991): India introduced Privatisation as part of the New Economic Policy in July 1991. The Liberalisation, Privatisation, and Globalisation (LPG) model was launched by then-Prime Minister P.V. Narasimha Rao and Finance Minister Dr. Manmohan Singh to address the Balance of Payments (BoP) crisis.

• Disinvestment: This refers to the dilution of the Government of India's stake in Public Sector Undertakings (PSUs). It is categorized into Minority Disinvestment (where the government retains 51% or more stake) and Strategic Disinvestment (where the government sells a significant portion, often 50% or more, and transfers management control).

• DIPAM: The Department of Investment and Public Asset Management, under the Ministry of Finance, is the nodal agency responsible for managing government investments in equity and advising on the disinvestment process.

• Modes of Privatisation:

• Denationalization: Total 100% transfer of ownership.

• Joint Venture: Partial transfer where both public and private sectors co-exist.

• Franchising: The government grants the right to a private firm to provide a specific service for a fixed period.

• Objectives: The primary motives include improving financial discipline, facilitating modernization, reducing the fiscal burden on the Exchequer, and promoting consumer-centric services through healthy competition.

Important Points

• Navratnas and Maharatnas: To ensure that PSUs can compete even without full privatisation, the government granted financial autonomy to certain profit-making enterprises. Maharatna status, introduced in 2010, gives the highest level of investment freedom (up to 5,000 crore) to top-performing companies like ONGC, NTPC, and SAIL.

• Industrial Policy Resolution (IPR) 1956: Before 1991, India followed a policy of expansion of the public sector, where 17 industries were exclusively reserved for the state. The 1991 reforms drastically reduced this number to encourage private participation.

• Global Context: Mass privatisation gained global momentum in the 1980s, famously known as Thatcherism in the United Kingdom, which sought to reduce state role in the economy to improve GDP growth and productivity.

Q62. Answer: (d) The Golden Threshold

The correct answer is The Golden Threshold.

Key Points

• The Golden Threshold is a famous collection of poems written by Sarojini Naidu and was first published in 1905 in London.

• This volume marked her debut in the literary world and established her reputation as a major poet, eventually earning her the title of the "Nightingale of India" (Bharat Kokila).

• The book is divided into three sections: Folk Songs, Songs for Music, and Poems. It features iconic poems like "Palanquin Bearers", "Coromandel Fishers", and "The Bazaars of Hyderabad".

• The introduction to the 1905 edition was written by Arthur Symons, a renowned British poet and critic, who praised the authentic Indian essence of her work.

• The title of the book, The Golden Threshold, is also the name of the residence of Sarojini Naidu in Hyderabad, which is now a center for arts and communication under the University of Hyderabad.

Additional Information

• The Indian War of Independence:

• This book was authored by Vinayak Damodar Savarkar (V.D. Savarkar) in 1909.

• It provided a nationalist interpretation of the Revolt of 1857, describing it as the "First War of Indian Independence" rather than a mere sepoy mutiny.

• The book was banned by the British authorities even before its publication due to its revolutionary content.

• The Story of My Deportation:

• This book was written by the prominent nationalist leader Lala Lajpat Rai, popularly known as Punjab Kesari.

• Published in 1908, it narrates his experiences and observations during his imprisonment and exile in Mandalay, Burma, following his arrest in 1907.

• Glimpses of World History:

• Written by Jawaharlal Nehru, this work is a collection of 196 letters written to his daughter, Indira Gandhi, between 1930 and 1933 from various prisons.

• It was published in 1934 and provides a broad, secular, and interconnected view of human history from ancient times to the early 20th century.

Important Points

• Sarojini Naidu was born on February 13, 1879, in Hyderabad. Her birthday is celebrated as National Women's Day in India.

• She was a trailblazer in Indian politics, becoming the first Indian woman to serve as the President of the Indian National Congress at the Kanpur Session in 1925.

• Following India's independence in 1947, she was appointed as the Governor of the United Provinces (now Uttar Pradesh), making her the first woman to hold the office of Governor in independent India.

• Other significant literary works by her include The Bird of Time (1912), The Broken Wing (1917), and the posthumously published The Feather of the Dawn (1961).

• She was a key participant in the Salt Satyagraha of 1930 and led the protest at the Dharasana Salt Works alongside other leaders.

Q63. Answer: (a) Chausath Yogini Temple

The correct answer is Chausath Yogini Temple.

Key Points

• The Chausath Yogini Temple, located in Morena district, Madhya Pradesh, is also famously known as the Ekattarso Mahadeva Temple.

• The name "Ekattarso Mahadeva" is derived from the presence of 71 small shrines within the temple complex. Specifically, it contains 64 chambers dedicated to the Yoginis and a central shrine, along with others, dedicated to Lord Shiva.

• It was constructed in the 14th century, specifically around 1323 AD, during the reign of King Devapala of the Kachchhapaghata dynasty.

• The temple is unique for its circular structure and is one of the few well-preserved hypaethral (open-to-the-sky) temples in India. It stands on a hill about 100 feet high in Mitaoli village.

• It is widely believed by architectural historians that this temple served as the design inspiration for the old Parliament House (Sansad Bhavan) in New Delhi, which was designed by British architects Edwin Lutyens and Herbert Baker in the 1920s.

• The temple is maintained and protected by the Archaeological Survey of India (ASI) as a monument of national importance.

Additional Information

• Virupaksha Temple:

• Located in Hampi, in the Ballari district of Karnataka, it is a part of the Group of Monuments at Hampi, a UNESCO World Heritage Site.

• It is dedicated to Lord Shiva, known here as Virupaksha, the consort of the local goddess Pampa.

• The temple was built by Lakkana Dandesha, a commander under the ruler Deva Raya II of the Vijayanagara Empire. It is famous for its massive Gopuram and Dravidian architecture.

• Somnath Temple:

• Situated in Prabhas Patan near Veraval in Saurashtra, Gujarat, it is considered the first among the twelve Jyotirlinga shrines of Lord Shiva.

• The temple has been destroyed and reconstructed several times throughout history. The present structure was rebuilt in the Māru-Gurjara style (Chalukya style) of Hindu temple architecture and was completed in May 1951.

• The reconstruction was initiated by Sardar Vallabhbhai Patel after India's independence.

• Dilwara Temple:

• These are a group of five Shvetambara Jain temples located about 2.5 kilometers from the Mount Abu settlement in Rajasthan.

• Built between the 11th and 16th centuries, they are world-famous for their stunning marble carvings and intricate architectural details.

• The oldest of these, the Vimal Vasahi temple, was built in 1031 AD by Vimal Shah, a minister of the Chaulukya King Bhima I.

• Significance of Yogini Temples:

• The Yogini cult was a Tantric tradition that flourished between the 9th and 12th centuries.

• Other notable Chausath Yogini temples are located in Khajuraho (Madhya Pradesh), Hirapur (Odisha), and Ranipur-Jharial (Odisha).

• The circular shape of these temples is often associated with the Sri Yantra or the Dharmachakra, representing the cosmic flow of energy.

Q64. Answer: (d) Bihar

The correct answer is Bihar.

Key Points

• The Lomas Rishi Cave is a prominent example of early rock-cut architecture located in the Barabar Hills in the Jehanabad district of Bihar.

• It was constructed during the Mauryan period in the 3rd century BCE, making it one of the oldest surviving rock-cut caves in India.

• The cave is famous for its ornamental facade, which mimics contemporary wooden architecture of that era, specifically resembling the front of a thatched-roof hut.

• The entrance is decorated with a row of elephants in a semi-circular frieze, moving towards Stupa symbols, showcasing the early artistic mastery of the Mauryan artisans.

• This cave represents the formative stage of the Chaitya arch (horseshoe arch) that became a defining feature of later Buddhist cave temples.

• Hence, the correct answer is Bihar.

Additional Information

• Barabar Caves Group:

• The Barabar Hill Caves consist of four main caves: Lomas Rishi, Sudama, Karan Chaupar, and Visva Zopri.

• The Sudama cave is considered the earliest in the group, dedicated by Emperor Ashoka in the 12th year of his reign (around 261 BCE).

• Ajivika Sect:

• Most of these caves were primarily dedicated by the Mauryan emperors Ashoka and his grandson Dasharatha to the Ajivikas.

• The Ajivika was a major heterodox ascetic sect of ancient India that competed with Buddhism and Jainism.

• Architectural Significance:

• A characteristic feature of Mauryan caves is the Mauryan polish, which gives the interior granite surfaces a mirror-like finish.

• This technique reflects the advanced masonry skills developed during the Mauryan Empire.

Important Points

• Nagarjuni Caves:

• Located about 2 km from the Barabar Hills, the Nagarjuni Hills contain three more caves, including the Gopi cave.

• Inscriptions found here mention Dasharatha Maurya, the grandson of Ashoka, confirming the continued royal patronage of the region in the late 3rd century BCE.

• Internal Layout:

• The Lomas Rishi cave consists of two rooms: a large rectangular hall (mandapa) and a smaller, circular inner chamber (shrine) with a hemispherical roof.

• This layout indicates that the cave was used as a place of worship and assembly for the ascetics.

• Legacy:

• The architectural style of the Lomas Rishi facade directly influenced the later Buddhist Chaitya halls at sites such as Ajanta, Karle, and Kanheri.

Q65. Answer: (c) Both I and II

The correct answer is Both I and II.

Key Points

• Thumri is a prominent genre of semi-classical Indian music that is characterized by its lyrical structure and expressive presentation. Unlike the more rigid Khayal, it prioritizes the melodic rendering of words to evoke specific emotions. Hence, statement I is correct.

• The genre is fundamentally a love song, often revolving around the themes of romantic longing, devotion, and the shringara rasa (the sentiment of love).

• Because Thumri is centered on emotional expression, the textual beauty and the meaning of the lyrics are of paramount importance. The performer uses musical ornamentations to highlight the nuances of the poetry. Hence, statement II is correct.

• The compositions are usually set in Braj Bhasha, Awadhi, or Bhojpuri dialects, which lend a rustic yet sophisticated charm to the textual content.

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

Additional Information

• Origins and History:

• Thumri rose to significant popularity in the 19th Century within the royal courts of North India.

• It received immense patronage from Nawab Wajid Ali Shah, the last Nawab of Awadh, who was himself a great poet and musician under the pen name 'Akhtarpiya'.

• Regional Schools (Gharanas):

• There are two main styles or gharanas of Thumri: the Lucknow Thumri and the Benares (Varanasi) Thumri.

• The Lucknow style is known for its grace and delicacy, often linked with the Kathak dance tradition.

• The Benares style is characterized by a robust and earthy quality, focusing heavily on the 'Bol-Banao' technique where a single line of text is interpreted in multiple melodic ways.

• Musical Features:

• The Ragas used in Thumri are generally "light" or 'chhota' ragas such as Kafi, Khamaj, Bhairavi, Piloo, and Des.

• The common Taals (rhythmic cycles) associated with this genre include Deepchandi, Dadra, Kaherva, and Jat.

• The compositions often depict the divine love between Radha and Krishna, serving as a metaphor for the human soul's longing for the divine.

Important Points

• Famous Exponents:

• Legendary singers like Girija Devi (often called the 'Queen of Thumri'), Begum Akhtar, Shobha Gurtu, and Bade Ghulam Ali Khan have made monumental contributions to this art form.

• Girija Devi was instrumental in bringing the Purab Ang Thumri to the global stage and was awarded the Padma Vibhushan in 2016.

• Performance Techniques:

• Bol-Banao: The act of using musical improvisation to describe the meaning of the words (Bol).

• Bol-Baant: The use of rhythmic variations and distributions of the lyrics within the time cycle.

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• Traditionally, Thumri was accompanied by the Sarangi and Tabla, though the Harmonium is now more commonly used.

Q66. Answer: (a) Turn back the hands of time

The solution is in Hindi. Read it online.

Q67. Answer: (a) To avenge a wrong or make an unfair situation more equal

The solution is in Hindi. Read it online.

Q68. Answer: (c) irascible

The solution is in Hindi. Read it online.

Q69. Answer: (d) volatility

The correct answer is option 4.

Key Points

• The misspelt word in the sentence is 'volatelity.'

• The correct spelling is 'volatility.'

• The word 'volatility' is a noun that refers to the quality of being subject to frequent, rapid, or unexpected changes, especially in financial markets.

• For Example: The stock market is known for its volatility during uncertain times.

Correct sentence: The company announced a dividend for its shareholders, citing a remarkable rise in profits despite the volatility of global financial markets.

Additional Information

• Dividend: A sum of money paid regularly by a company to its shareholders out of its profits.

• Shareholders: Individuals or entities that own shares in a company.

• Remarkable: Worthy of attention; extraordinary.

Q70. Answer: (b) Retribyution

The solution is in Hindi. Read it online.

Q71. Answer: (d) Shallowness

The solution is in Hindi. Read it online.

Q72. Answer: (b) Stingy

The solution is in Hindi. Read it online.

Q73. Answer: (b) pair

The correct answer is 'pair'.

Key Points

• The word "pair" refers to a set of two related items or objects that are used together.

• In the context of shoes, a "pair" is the correct term, as shoes come in two pieces (left and right).

• Options 1, 3, and 4 are incorrect because:

• Option 1: "pare" means to trim or reduce, which does not fit the context.

• Option 3: "peer" refers to a person of the same rank or status, unrelated to shoes.

• Option 4: "pear" is a fruit and does not apply in this sentence.

Therefore, the correct answer is Option 2.

Complete Sentence: "She bought a pair of shoes for the party."

Additional Information

• Option 1: "pare" is incorrect because it refers to trimming or reducing, not a set of shoes.

• Option 3: "peer" is unrelated to the context of the sentence.

• Option 4: "pear" is a fruit and does not make sense in the sentence.

Q74. Answer: (b) Graphologist

The solution is in Hindi. Read it online.

Q75. Answer: (d) Eccentric

The solution is in Hindi. Read it online.

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Q76. Answer: (a) Your absence is bound to be noticed.

The correct answer is Option 1.

Key Points

• Passive voice structure: The object of the active voice sentence becomes the subject of the passive voice sentence.

• In the active voice, the sentence is: "Someone is bound to notice your absence."

• To convert to passive voice: Place the object "your absence" at the beginning.

• Change the active verb form "is bound to notice" to "is bound to be noticed" (passive structure).

• Avoid unnecessary additions like "by everyone" unless explicitly mentioned in the context.

• Ensure grammatical correctness and clarity in the passive sentence.

Therefore, the correct answer is Option 1.

Correct Sentence: "Your absence is bound to be noticed."

Additional Information

• Option 2: "Your absence is bound to be noticed by everyone." – While grammatically correct, it adds "by everyone," which is not present in the original sentence.

• Option 3: "Your absence is bound to notice by someone." – Incorrect structure; "to notice" cannot be used in passive voice.

• Option 4: "Your absence is bound to be notice." – Grammatically incorrect; "notice" should be "noticed."

Q77. Answer: (c) Isn't English taught by you to seventh graders?

The correct answer is Option 3.

Key Points

• Passive voice structure: The object of the active voice sentence becomes the subject of the passive voice sentence.

• In the active voice, the sentence is: "Don't you teach English to seventh graders?"

• To convert to passive voice: Place the object "English" at the beginning.

• Change the active verb form "teach" to "is taught" (present simple passive).

• Add "by you" to indicate the original subject performing the action.

• Ensure the sentence retains the negative and interrogative structure ("Isn't English taught by you to seventh graders?").

Therefore, the correct answer is Option 3.

Correct Sentence: "Isn't English taught by you to seventh graders?"

Additional Information

• Option 1: "Don't English taught by you to seventh graders?" – Incorrect sentence structure and verb form.

• Option 2: "Do English taught by you to seventh graders?" – Incorrect tense and interrogative structure.

• Option 4: "Did English taught by you to seventh graders?" – Incorrect tense and verb form.

Q78. Answer: (a) Keep the plot of the movie a secret.

The correct answer is Option 1.

Key Points

• The sentence is written in passive voice, and the task is to convert it into active voice.

• Passive voice structure: "Let + object + be + past participle."

• To convert the sentence into active voice, we remove "Let" and start with the imperative verb directly.

• The correct active voice sentence is: "Keep the plot of the movie a secret."

• The verb "Keep" is in imperative form, directly addressing the subject.

• This conversion maintains the intended meaning of the sentence while correctly structuring it in active voice.

Therefore, the correct answer is Option 1.

Correct Sentence: "Keep the plot of the movie a secret."

Additional Information

• Option 2: "The plot of the movie is a secret." – This is not a conversion of the sentence but a different statement.

• Option 3: "Let us kept the plot of the movie a secret." – Incorrect grammar ("kept" should be "keep").

• Option 4: "Kept the plot of the movie a secret." – Incorrect sentence structure; lacks a subject.

Q79. Answer: (b) disadvantage with teaching

The correct answer is Option 2.

Key Points

• The error lies in the use of the preposition "with" after the noun "disadvantage."

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• Certain nouns take specific prepositions to form a standard collocation. When referring to a drawback or a negative feature of something, the preposition "of" is used.

• The correct phrase should be "disadvantage of teaching," which correctly identifies the activity to which the disadvantage belongs.

• Thus, the error is located in Option 2 of the sentence.

Therefore, the correct answer is Option 2.

Correct Sentence: "The only disadvantage of teaching is repeating the same curriculum again and again."

Additional Information

• Option 1: "The only" – This part is grammatically correct as it functions as a determiner identifying a specific singular noun.

• Option 3: "is repeating the same" – This part is correct; "repeating" acts as a gerund serving as the subject complement.

• Option 4: "curriculum again and again." – This part is correct. While "again and again" might seem redundant with "repeating," it is a common idiomatic expression used for emphasis to show monotony.

• Usage of 'Disadvantage to': We use "disadvantage to" when referring to a person or group that is negatively affected (e.g., "The new tax is a disadvantage to low-income families").

Q80. Answer: (c) over

The correct answer is 'over'.

Key Points

• The preposition "over" is used to indicate a dominating or controlling influence in this context.

• The sentence describes the wife's influence on her husband, which fits the usage of the word "over."

• Options 1, 2, and 4 are incorrect because they do not convey the intended meaning of the sentence.

Therefore, the correct answer is Option 3.

Complete Sentence: "The wife has a strange influence over her husband."

Additional Information

• Option 1: "after" is incorrect because "after" does not describe influence.

• Option 2: "before" is incorrect because "before" does not relate to influence.

• Option 4: "under" is incorrect because "under" implies submission rather than influence.

Q81. Answer: (a) in accordance with the guidelines

The correct answer is 'in accordance with the guidelines'.

Key Points

• The phrase "in accordance with" is the correct usage and is commonly used to refer to compliance or agreement with a set of rules, regulations, or guidelines.

• The given sentence uses the incorrect phrase "in accordance to", which is grammatically wrong.

• Option 2: "in accordance for" is incorrect because the preposition "for" does not fit the required grammatical structure.

• Option 3: "in accordance on" is incorrect because "on" is not appropriate in this context.

• Option 4: "No improvement required" is incorrect because the existing sentence needs improvement.

Therefore, the correct answer is Option 1.

Complete Sentence: "The principal stated that the proposed plan was in accordance with the guidelines issued by the education department."

Additional Information

• Option 2: "in accordance for" is grammatically incorrect because "for" does not work with "accordance" in this context.

• Option 3: "in accordance on" is grammatically incorrect because "on" is not suitable with "accordance" here.

• Option 4: No improvement required is incorrect because the phrase "in accordance to" is wrong and needs to be replaced.

Q82. Answer: (b) for

The correct answer is 'for'.

Key Points

• The preposition "for" is used to indicate the purpose or reason for an action.

• In the given sentence, the correct preposition is "for" because the phrase "fighting for freedom" describes the purpose of the patriots' actions.

• Options 1, 3, and 4 are incorrect as they do not convey the intended meaning in this context.

Therefore, the correct answer is Option 2.

Complete Sentence: "Many patriots have lost their lives fighting for freedom."

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Additional Information

• Option 1: "in" is incorrect because "fighting in freedom" does not make logical sense.

• Option 3: "through" is incorrect because "fighting through freedom" is not a meaningful phrase.

• Option 4: "of" is incorrect because "fighting of freedom" does not convey the intended meaning.

Q83. Answer: (b) DBCA

The correct answer is Option 2.

Key Points

• The sentences need to be rearranged logically to maintain the coherence and unity of the paragraph.

• Sentence D introduces the action of Masha preparing to go out and descending the stairs, so it is the first logical sentence after S1.

• Sentence B follows as it describes her maid accompanying her with bundles, which logically connects to Masha preparing to leave.

• Sentence C comes next as it describes their descent into the garden, continuing the sequence of events logically.

• Sentence A is placed last before S2 as it describes the challenging weather conditions they faced after reaching the garden, leading to the final sentence.

• The correct sequence is DBCA.

Additional Information

• Understanding the structure: Rearranging the sentences logically involves identifying the flow of events and connections between sentences.

• Key points for coherence:

• Identify the introductory sentence that sets the scene or introduces the main action.

• Ensure sentences follow a logical chronological order or thematic connection.

• The concluding sentence should wrap up the paragraph cohesively.

Coherent paragraph after rearrangement:

"Soon all was quiet in the house: everyone was asleep. Masha wrapped herself in a shawl, put on a warm cloak, took her small box in her hand, and went down the back staircase. Her maid followed her with two bundles. They descended into the garden. The snowstorm had not subsided; the wind blew in their faces as if trying to stop the young criminal. With difficulty they reached the end of the garden."

Q84. Answer: (d) DACB

The correct answer is Option 4.

Key Points

• The paragraph revolves around Laurella's farewell and the characters Antonio and the padre, depicting their actions and emotions in a picturesque environment.

• Sentence D is the first sentence because it describes Antonio's reaction to Laurella's farewell, showing his indifference and exclusive reverence for the padre:

• "Antonio, however, appropriated no part of it to himself; he pulled off his cap exclusively to the padre, without even looking at Laurella."

• Sentence A follows as it shows the padre and Antonio leaving, and Laurella beginning her ascent, highlighting the shift in focus:

• "But after they had turned their backs, he let his eyes travel but a short way with the padre, as he went toiling over the deep bed of small, loose stones; he soon sent them after the maiden, who, turning to the right, had begun to climb the heights, holding one hand above her eyes to protect them from the scorching sun."

• Sentence C is the third sentence because it describes Laurella pausing and looking back, adding to the vivid depiction of her journey:

• "Just before the path disappeared behind high walls, she stopped, as if to gather breath, and looked behind her."

• Sentence B comes last as it paints a picturesque view of the surroundings, emphasizing the beauty of the scene and Laurella's position:

• "At her feet lay the marina; the rugged rocks rose high around her; the sea was shining in the rarest of its deep blue splendour."

• The correct sequence is DACB.

Coherent paragraph after rearrangement:

"Antonio, however, appropriated no part of it to himself; he pulled off his cap exclusively to the padre, without even looking at Laurella. But after they had turned their backs, he let his eyes travel but a short way with the padre, as he went toiling over the deep bed of small, loose stones; he soon sent them after the maiden, who, turning to the right, had begun to climb the heights, holding one hand above her eyes to protect them from the scorching sun. Just before the path disappeared behind high walls, she stopped, as if to gather breath, and looked behind her. At her feet lay the marina; the rugged rocks rose high around her; the sea

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was shining in the rarest of its deep blue splendour."

Q85. Answer: (a) keeps reverting to her bad habits

The correct answer is 'keeps reverting to her bad habits'.

Key Points

• The word "revert" inherently means "to go back" or "return to a previous state," so the use of "back" in the original sentence is redundant.

• Option 1, "keeps reverting to her bad habits," removes the redundancy and provides a grammatically correct and concise sentence.

• Option 2 ("keeps reverting backward to her bad habits") repeats the redundancy by adding "backward," which is unnecessary.

• Option 3 ("keeps reverting forth to her bad habits") is incorrect because "reverting forth" is not a valid usage of the verb "revert."

• Option 4 ("No improvement required") is incorrect because the original sentence contains redundancy that needs to be corrected.

Therefore, the correct answer is Option 1.

Complete Sentence: "I feel frustrated that she keeps reverting to her bad habits after brief phases of positive change."

Additional Information

• Option 2: "keeps reverting backward to her bad habits" is incorrect because "reverting" already implies going back, making "backward" redundant.

• Option 3: "keeps reverting forth to her bad habits" is incorrect because "reverting forth" does not make sense in standard English usage.

• Option 4: "No improvement required" is incorrect because the original sentence has a redundancy that needs correction.

Q86. Answer: (b) The slowly emerging imaginative power and creative inspiration in the writer’s mind

The correct answer is 'Option 2'.

Key Points

• Option 2: The slowly emerging imaginative power and creative inspiration in the writer’s mind.

• The passage explicitly states that the fox "represents the poet's imaginative powers" and the "symbolism of poetic inspiration."

• It further explains that this inspiration "appears in the poem part by part" (nose, eyes, prints, shadows), much like how a literary work is slowly composed rather than written in one go.

• Option 1: The writer’s loneliness and disconnection with nature.

• This is incorrect. While the passage mentions "loneliness," it defines it as the absence of creative powers, not the fox itself. The fox is the solution to that loneliness.

• Option 3: The nature’s destructive power that hinders the poet's writing.

• This is incorrect. The fox is used as a positive symbol of inspiration that allows the poet to fill the blank pages, not a destructive force that stops him.

• Option 4: The factory development that eclipses the countryside and art.

• This is incorrect. The passage makes no mention of industrialization, factories, or the eclipse of the countryside.

Therefore, the correct answer is Option 2.

Additional Information

• Animal Imagery: Ted Hughes is famous for using intense, often violent animal imagery to explore human nature and the subconscious. In this poem, the fox is a "thought" made physical.

• Structure: The poem follows the fox as it moves from the dark forest into the "dark hole of the head," ending with the page being printed.

• Loneliness: In the context of the poem, the poet is sitting alone at night. This physical isolation provides the space for internal "imaginative powers" to manifest.

Q87. Answer: (a) As he is going through a dry creative period, even though he is in the middle of a crowd.

The correct answer is 'Option 1'.

Key Points

• Option 1: As he is going through a dry creative period, even though he is in the middle of a crowd.

• The passage explicitly clarifies the nature of the poet's isolation: "this loneliness is not the absence of people around him, but the absence of Creative powers."

• A "dry creative period" is a common literary way to describe the absence of inspiration or "Creative powers" mentioned in the text. Even if people are physically present, the poet feels "lonely" because he cannot connect with his own imagination.

• Option 2: As he is literally pushed away in a forest far from any human being.

• This is incorrect. The passage states that the fox is an image or symbol and that the loneliness is specifically not about the physical absence of people.

• Option 3: As he considers himself an outsider to the social group...

• This is incorrect. The text focuses entirely on the process of poetic inspiration and the "blank pages," rather than the poet's social standing or his desire to interact with others.

• Option 4: As he remembers the good old days of his childhood...

• This is incorrect. There is no mention of childhood, nostalgia, or a longing for the countryside life in the provided passage.

Therefore, the correct answer is Option 1.

Additional Information

• Writer's Block: The phrase "his fingers move, but the pages remain blank" is a classic description of writer's block. The "loneliness" here is the frustration of having the tools to write but lacking the internal "spark."

• Symbolic Fox: The fox is the thought that gradually becomes solid. Just as a fox's nose or eyes might appear first in the darkness of a forest, a poem often begins with a single, small image or "part" before the whole idea is formed.

• Loneliness as a Catalyst: For many poets, this "special kind of loneliness" is necessary for the imagination to take shape, as it forces the mind to look inward for the "fox" to appear.

Q88. Answer: (c) By representing inspiration as being cut up into pieces, coming bit by bit, before a whole thought is formed

The correct answer is 'Option 3'.

Key Points

• Option 3: By representing inspiration as being cut up into pieces, coming bit by bit, before a whole thought is formed.

• According to the passage, the poem serves as a "perfect illustration" of how inspiration arrives. It emphasizes that "any literary composition is produced in parts."

• The fox doesn't appear all at once; instead, it manifests through fragments like "nose images, Eyes, it's prints, or the Shadows." This mirrors the non-linear and gradual nature of creative writing.

• Option 1: By demonstrating that poems are generally composed in a single session...

• This is incorrect. The passage explicitly contradicts this, stating that a literary composition is "seldom written in one sitting or in one go."

• Option 2: By implying that creativity is a systematic process...

• This is incorrect. While there is a process, the text describes it as symbolic and imaginative (represented by an animal in the dark) rather than a rigid, standardized formula.

• Option 4: By drawing attention to the fact that poetic ideas arrive already shaped...

• This is incorrect. The text mentions the poet's "loneliness" and "blank pages," suggesting that ideas require effort and time to materialize from the initial "shadows" into a complete work.

Therefore, the correct answer is Option 3.

Additional Information

• Metaphorical Manifestation: The "Fox" in Ted Hughes' poem is often interpreted as a thought that "enters the dark hole of the head." The poem itself is the result of that thought finally becoming "printed" on the page.

• Loneliness of the Creator: The text highlights a specific type of isolation. It's not about being alone physically, but about the internal void one feels when the "Creative powers" are absent.

• Synecdoche: The author uses parts (nose, eyes) to represent the whole (the fox/the poem). This literary device reinforces the idea that writing is an incremental process.

Q89. Answer: (d) It hides the abstract idea of poetic inspiration under a visible, palatable metaphor

The correct answer is 'Option 4'.

Key Points

• Option 4: It hides the abstract idea of poetic inspiration under a visible, palatable metaphor.

• The passage explicitly states that "the symbolism of poetic inspiration is concealed behind the animal imagery."

• Poetic inspiration is an abstract concept (something that cannot be seen or touched). By using the fox as a metaphor, Ted Hughes makes this abstract process visible and palatable (easier to understand or digest) for the reader.

• The "part-by-part" description of the fox (nose, eyes, prints) serves as a physical representation of how a poem gradually takes shape in the mind.

• Option 1: It gives a bright picture of the countryside...

• This is incorrect. The passage confirms that the imagery is directly "symbolic of the process of poetic inspiration," contradicting the idea that it is not connected to the theme of creativity.

• Option 2: It highlights the anxiety of the poet in regard to nature...

• This is incorrect. While there is a sense of "loneliness" mentioned, it is a creative loneliness (the absence of ideas), not an anxiety about the unpredictability of nature itself.

• Option 3: It points out the drawbacks of industrialization...

• This is incorrect. The passage does not discuss industrialization, factories, or environmental drawbacks. It focuses entirely on literary composition.

Therefore, the correct answer is Option 4.

Additional Information

• Metaphor vs. Symbol: A metaphor directly compares two unlike things. Here, the fox is the thought. As a symbol, the fox represents the wild, untameable, and sudden nature of a creative spark.

• Animal Poetry: Ted Hughes is known as an "animal poet." He often used animals to bridge the gap between the human intellect and the instinctual world.

• The "Internal" Forest: In the poem, the setting is both a literal dark night and a metaphorical "forest" of the poet's mind where the "Thought Fox" lives.

Q90. Answer: (c) Due to the fact that it reveals the mystery of the creative process by means of abundant, vivid imagery

The correct answer is 'Option 3'.

Key Points

• Option 3: Due to the fact that it reveals the mystery of the creative process by means of abundant, vivid imagery.

• The passage describes the poem as a "perfect illustration" of how poetic inspiration comes to a writer.

• It "reveals the mystery" by showing that inspiration is not a sudden, complete event but a gradual process, which Hughes captures through "vivid imagery" of the fox appearing part by part (nose, eyes, prints).

• The use of the fox as a symbol for imaginative powers is what makes the poem a celebrated early work.

• Option 1: For the reason that it deals with the poet's intimate relations...

• This is incorrect. The passage explicitly states that the poem is about "the process of poetic inspiration" (art in the making) rather than the poet's personal or intimate relationships.

• Option 2: Since the poem deals with the themes of the countryside and industrialization...

• This is incorrect. While Ted Hughes often wrote about the countryside, this specific passage makes no mention of industrialization or Northern Ireland.

• Option 4: As the poem does not use metaphors at all...

• This is incorrect. The text clarifies that the poem is "symbolic" and that the imagery "conceals" the meaning, which is the definition of metaphorical writing.

Therefore, the correct answer is Option 3.

Additional Information

• Animal as Idea: In "The Thought Fox," the fox is not a real animal in a literal forest; it is an idea emerging from the "forest" of the poet's mind.

• Creative Loneliness: The passage emphasizes that the poet's "loneliness" is a necessary state for creation. Without this space, the "fox" of inspiration cannot find its way to the page.

• Vividness: By using specific body parts of the fox (nose, eyes), Hughes makes the internal act of thinking feel as real and physical as an animal walking through the snow.

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