SSC CHSL 2025 Tier-1 (Held On: 13 Nov, 2025 Shift 1) (Previous Year Paper)

SSC Combined Higher Secondary Level (CHSL) • 2025 • 100 questions • 60 minutes • Answer key and solutions

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ENGLISH LANGUAGE

Q1. Identify the part of the sentence that contains a grammatical error.

A. The book, B. which you recommended, C. was interesting and D. an easily read.

(a) The book,
(b) which you recommended,
(c) was interesting and
(d) an easily read

Q2. Fill in the blank with the most appropriate conjunction:

He neither attended the seminar _____submitted his report on time.

(a) but also
(b) or
(c) nor
(d) and

Q3. Select the most appropriate synonym of the word: Idiosyncrasy

(a) commonalty
(b) Normality
(c) Peculiarity
(d) conformity

Q4. Fill in the blank with the most appropriate idiom:

The politician's speech was full of vague promises but ultimately it was just_____.

(a) pulling strings
(b) a red herring
(c) smoke and mirrors
(d) The last straw

Q5. Which of the following sentences uses the word "wave" with the same meaning as in the "She gave a friendly wave to her neighbor"

(a) The dog loved to chase the waves on the beach.
(b) The crowd gave a slow wave as the parade passed by.
(c) The storm created huge waves.
(d) The ocean waves crashed against the shore.

Directions

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

In addition to the historical taboo that often silenced discussions of psychological well-being, mental health awareness has evolved into an essential part of contemporary society. Creating a culture that is supportive and understanding starts with recognizing that mental health is on par with bodily health. Increasing knowledge helps de-stigmatize conditions like bipolar

disorder, anxiety, and depression by encouraging people to seek treatment without feeling ashamed or afraid of being judged. It promotes early intervention, which is necessary for better long-term outcomes and successful therapy. Moreover, increasing public awareness of mental health conditions gives power to the community to offer sympathy and support to individuals experiencing challenges through informing them about symptoms, coping mechanisms, and services available. Ultimately, a society that gives a lot of emphasis to mental health awareness is one that cares about its people's overall welfare.

Q6. What is one major benefit of increasing mental health awareness?

(a) It makes people ashamed to talk about mental health
(b) It encourages early intervention and better long-term outcomes
(c) It encourages people to hide their mental health issues
(d) It discourages people from seeking treatment

Q7. How does mental health awareness help reduce stigma?

(a) By promoting a culture of silence around mental health issues
(b) By encouraging people to feel ashamed about seeking help
(c) By increasing knowledge and encouraging people to seek treatment
(d) By discouraging open discussions about mental health

Q8. Why is early intervention important in mental health, according to the text?

(a) It prevents people from discussing mental health issues
(b) It leads to better long-term outcomes and more successful therapy
(c) It makes mental health conditions worse
(d) It eliminates the need for therapy

Q9. How does increasing public awareness of mental health conditions benefit the community?

(a) By discouraging individuals from seeking treatment
(b) By helping people offer sympathy and support to those experiencing challenges
(c) By making it harder to find mental health services
(d) By ignoring the symptoms and conditions of mental health

Q10. What does the text suggest about a society that values mental health awareness?

(a) It only cares about physical health
(b) It creates an environment where people feel judged for seeking help
(c) It prioritizes the overall welfare of its people
(d) It ignores the importance of mental well-being

Q11. Choose the correctly spelt word:

(a) Effervescence
(b) Effervescense
(c) Efferescence
(d) Effervesance

Q12. Choose the correctly spelt word:

(a) Personnel
(b) Personel
(c) Personeel
(d) Persnell

Q13. Choose the correct meaning of the idiom: Whatever floats your boat

(a) Something that is impossible
(b) Something that is easy to do
(c) Something that is universally accepted
(d) Something that makes you happy

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Q14. Choose the correct one-word substitute for: A person who loves and collects stamps

(a) Philatelist
(b) Numismatist
(c) Bibliophile
(d) Collector

Q15. Select the most appropriate antonym of the word: Serene

(a) Chaotic
(b) Calm
(c) Peaceful
(d) Tranquil

Q16. Select the most appropriate synonym of the word: Sagacious

(a) Wise
(b) Foolish
(c) Prudent
(d) Shrewd

Q17. Choose the correct one-word substitute for:

A belief that the Earth is the center of the universe

(a) Geocentrism
(b) Heliocentrism
(c) Anthropocentrism
(d) Cosmocentrism

Q18. Change the following sentence into the Active form.

Let the documents be submitted to the head of the department by the end of the week.

(a) You should submit the documents to the head of the department by the end of the week.
(b) Submit the documents to the head of the department by the end of the week.
(c) The documents will be submitted to the head of the department by the end of the week.
(d) Let the head of the department submit the documents by the end of the week.

Q19. Select the option that expresses the given sentence in indirect voice.

The librarian told the child, "You should not be making so much noise, because the other students have been trying to study for their exams."

(a) The librarian told the child that he should not be making so much noise, because the other students had been trying to study for their exams.
(b) The librarian told the child that he should not have been making so much noise, because the other students have been trying to study for their exams.
(c) The librarian told the child that he would not be making so much noise, because the other students had been trying to study for their exams.
(d) The librarian told the child that he should not be making so much noise, because the other students have been trying to study for their exams.

Q20. Choose the most suitable option to replace the highlighted part of the sentence:

This is the most toughest exam that I have ever taken.

(a) the most tough exam
(b) the toughest exam
(c) the most toughest exam
(d) is toughest exam

Q21. Choose the most suitable option to replace the highlighted part of the sentence:

The fraud comes at a time when the unregulated finance industry is facing a crisis on its way of high-interest rates and low repayment of loans.

(a) because manner of

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(b) since ways are
(c) by way of
(d) in the way of

Q22. Choose the correct passive voice transformation of the sentence:

They had not closed the shop.

(a) The shop has not been closed by them.
(b) The shop was not closed by them..
(c) The shop had not been closed by them.
(d) The shop is not closed by them.

Q23. Select the option that expresses the given sentence in direct voice.

He said that if he were to receive a promotion, he would buy his family a bigger house.

(a) He said, "If I received a promotion, I would buy my family a bigger house."
(b) He said, "If I were to receive a promotion, I would buy my family a bigger house."
(c) He said, "If I receive a promotion, I will buy my family a bigger house."
(d) He said, "If I had received a promotion, I would have bought my family a bigger house."

Q24. Rearrange the following sentence parts to form a meaningful and grammatically correct paragraph:

P. He started assembling the deck planks, fastening each one in a neat, even line.

Q. He made sure that every angle was precisely square when he constructed the deck with beams and joists.

R. He prepared the foundation by excavating holes and positioning the building's columns.

S. He took a step back and admired the new outdoor area, a sturdy deck that was made to stay.

(a) S, Q, P, R
(b) R, Q, P, S
(c) Q, R, P, S
(d) P, Q, R, S

Q25. Rearrange the following sentence parts to form a meaningful and grammatically correct paragraph:

P. The method, which is titled the Socratic method, is a cornerstone of Western philosophy.

Q. Socrates believed that the path to knowledge was not through lecturing but through a systematic process of questioning.

R. He would probe his students mercilessly, taking them through a chain of logical conclusions.

S. Its goal was not to provide answers but to force the individual to discover the truth for themselves.

(a) Q, P, R, S
(b) S, P, R, Q
(c) Q, R, S, P
(d) S, Q, R, p

GENERAL INTELLIGENCE

Q26. If COMPLETE is coded as FRPSOHWH, how will DESIGNS be written?

(a) GHVLJQV
(b) GFTILPV
(c) GHVIGPV
(d) GEVIKPU

Q27. In a certain code system, if PHARMACEUTICAL is coded as QIBSNBDFVUJDBM and BIOTECHNOLOGY is coded as CJPUFDIOPMPHZ, then

what is the code for NANOTECHNOLOGY?

(a) OBOPUFDIOPMPHZ
(b) OBMPUFDIOPMPHZ
(c) OBOPUFDIOPPMHZ

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(d) OBOPUFDIOΡΟΡμΗΖ

Q28. In a particular code language, if TRANSPORTATION is coded as USBOTQPSUBUJPO and COMMUNICATION is coded as DPNNVOJDBUJPO, then what is the code for INFORMATION?

(a) JOGPSNBUJPO
(b) JOGPENBUJPO
(c) JOGPSNBAJPO
(d) JOGPRNBUJPO

Q29. Here some problem or solution of the problem is given in the statement you have to choose the appropriate logical deduction for given statement.

Statement: The rise of e-commerce has transformed retail shopping, with many traditional stores closing down due to declining foot traffic. Online platforms offer convenience and competitive pricing, attracting millions of customers worldwide. Despite this growth, certain product categories like luxury goods and fresh groceries still see strong in-store sales, as customers prefer to examine these

items physically before purchasing.

Conclusions:

I. E-commerce will completely replace traditional retail stores in the future. in the future.

II. Customer preferences vary depending on the type of product being purchased.

III. Online platforms are successful only because of competitive pricing.

Which conclusion necessarily follows?

(a) Only I follows
(b) Only II follows
(c) Only III follows
(d) Both I and III follow

Q30. Each item describes a situation and is followed by four possible responses. Indicate the response you find most appropriate. Choose only one response for each item. The responses will be evaluated based on the level of appropriateness for the given situation.

Kavita can spend time helping her sibling with studies or preparing for her own test. Her sibling is struggling and has an exam tomorrow. What's the balanced decision?

(a) Ignore sibling and study
(b) Help sibling all day
(c) Allocate limited time to both
(d) Ask someone else to help sibling

Q31. In this type of questions, question is provided with substitutes for various mathematical symbols, followed by a question involving calculation of an expression or choosing the correct/incorrect equation. You have to put the real signs in the given equation and then solve the questions as required.

If '?' stands for '+', '$' stands for '÷', '@' 'stands for '-', '%' stands for '×', then find the value of:

9 % 2 $ 8 % 7 = ?

(a) 55/4
(b) 59/4
(c) 63/4
(d) 67/4

Q32. During a group assignment, one member contributes less but claims to be busy. How do you manage the situation socially intelligently?

(a) Divide tasks clearly and check-in privately to understand constraints and offer help
(b) Exclude them without discussion
(c) Call them out harshly in front of group
(d) Do all work yourself

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Q33. There are 25 people in a queue. Amit is 7th from the front and Neha is 12th from the back. Find the number of people standing between Amit and Neha.

(a) 5
(b) 6
(c) 7
(d) 8

Q34. Meera arranges lamps in a line. A star lamp is 7th from left, and a round lamp is 12th from right, if they are the same lamp, how many total lamps are there?

(a) 19
(b) 20
(c) 18
(d) 21

Q35. in each question below is given a statement followed by two courses of action numbered I and II. You have to assume everything in the statement to be true and on the basis of the information given in the statement, decide which of the suggested courses of action logically follow(s) for pursuing.

Statement: The city is facing severe water shortage due to delayed monsoon.

Course of action I: Implement strict water rationing immediately.

Course of action II: Encourage citizens to use more water to maintain hygiene.

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

Q36. In each question below is given a statement followed by two courses of action numbered I and II. You have to assume everything in the statement to be true and on the basis of the information given in the statement, decide which of the suggested courses of action logically follow(s) for pursuing.

Statement: A surge in dengue cases has been reported in the city due to water stagnation during monsoon.

Course of action I: Conduct mass fumigation drives and clean stagnant water.

Courses of action II: Declare a public holiday until the monsoon ends.

(a) Only I follows
(b) Only II follows
(c) Both follow
(d) Either I or II follows

Q37. Few of the letters are given followed by a question mark (?) these letters are following a specific pattern you have to give the correct option which can replace question mark.

Which letter should be next: P, M, J, G, ?

(a) D
(b) E
(c) F
(d) G

Q38. Few of the letters are given followed by a question mark (?) these letters are following a specific pattern you have to give the correct option which can replace question mark.

B, G, M, T, ?

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

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Q39. In this question some conditions or circumstances is provided to you, you have to make logical judgement according to mentioned circumstances and mark the correct judgement for question.

A school principal receives multiple complaints from parents about a teacher's strict disciplinary methods, though student grades under the teacher are among the best in the school. The principal must decide how to handle the complaints while also ensuring continued academic success.

(a) Immediately terminate the teacher to satisfy the parents.
(b) Ignore the complaints since the students are doing well.
(c) Meet with the teacher to discuss alternative discipline strategies and monitor classroom dynamics.
(d) Ask students to tolerate the methods since it improves grades.

Q40. Four meaningful words are given in the options you have to check that which of the following words cannot be formed from the letters.

'ESTABLISHMENT'?

(a) TENTS
(b) STATE
(c) TABLE
(d) BLUNT

Q41. In this type of questions, question is provided with someissues/disputes/problem, followed by few methods to resolve the problem in statement choosing the appropriate problem solving method that can be implemented.

A school has only one computer lab and two classes need it at the same time for important projects. What should the principal do to resolve the conflict most fairly?

(a) Let the teacher with more experience decide
(b) Give it to the class with higher average marks
(c) Postpone one class's project deadline
(d) Allocate half time to each class and provide teachers to supervise both

Q42. In each of the following questions, there is a certain relationship between two given letter pairs on one side of (::) and pair is given on another side of (::) where another pair is to be found from the given alternatives, having the same relationship with this pair as the pairs of the given pair bear, Choose the best alternative.

CE: XV:: KG:?

(a) PS
(b) QT
(c) PU
(d) PT

Q43. In each of the following questions, there is a certain relationship between two given letter pairs on one side of (::) and pair is given on another side of (::) where another pair is to be found from the given alternatives, having the same relationship with this pair as the pairs of the given pair bear. Choose the best alternative.

AC: DB:: EG:?

(a) GF
(b) HH
(c) HE
(d) HF

Q44. Find the next element that replace the ? Logically 1, 7, 19, 43, ?

(a) 86
(b) 91
(c) 96
(d) 111

Q45. Find the next element that replace the? Logically 3, 22, 117, 592, ?

(a) 2965
(b) 2967
(c) 2983

(d) 2968

Q46. Find the next element that replace the? Logically 10, 41, 196, 971, ?

(a) 4842
(b) 4849
(c) 4846
(d) 4866

Q47. In three of the following pairs are same by same pattern except one pair. Which pair does not follow this pattern?

(a) 12:19
(b) 25:32
(c) 41:48
(d) 13:21

Q48. In this type of questions, question is provided with substitutes for various mathematical symbols, followed by a question involving calculation of an expression or choosing the correct/incorrect equation. You have to put the real signs in the given equation and then solve the questions as required.

If '!' stands for', ÷' '#' stands for '×', '^' stands for '+', '$' stands for '-', then find the value of:

12 # 7 ^ 3 $ 10 = ?

(a) 76
(b) 78
(c) 77
(d) 79

Q49. Select the option that represents the correct order of the given words as they would appear in an English dictionary.

1. Responsibility
2. Restaurant
3. Representation
4. Revolution
5. Refrigerator.

(a) 5, 3, 1, 2, 4
(b) 3, 5, 1, 2, 4
(c) 5, 3, 2, 1, 4
(d) 3, 1, 5, 2, 4

Q50. Select the option that represents the correct order of the given words as they would appear in

1.Rainbow
2.Rather
3.Reason
4.Recent
5.Region
6. Remove

(a) 1,2,3,4,5,6
(b) 1,3,2,4,5,6
(c) 1,2,3,4,6,5
(d) 1,3,2,4,6,5

QUANTITATIVE APTITUDE

Q51. A person sells a product at a profit of 15%. If he had bought it for 10% less and sold it for Rs. 18 less, he would have gained 25%. Find the cost price of the product.

(a) 600
(b) 650

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(c) 700
(d) 720

Q52. If 3(P's Capital) = 4(Q's Capital) = 7(R's Capital), then out of the total profit of Rs. 3150, R will receive:
(a) Rs. 619.67
(b) Rs. 718.38
(c) Rs. 800
(d) Rs. 900.00

Q53. If sin A = 8/17 and cos B = 15/17,find sin A cos B+cosA sinB:
(a) 120/289
(b) 17/289
(c) 240/289
(d) 15/17

Q54. A fruit basket contains apples and oranges. The number of apples is 25% more than the number of oranges. What is the ratio of apples to oranges?
(a) 1:4
(b) 4:5
(c) 5:4
(d) 3:4

Q55. A sum becomes 4 times its original value in 6 years under compound interest. In how many years will it become 16 times of the original amount?
(a) 12 years
(b) 18years
(c) 24years
(d) 38years

Q56. When a number is divided by 12, 15, and 20, it leaves remainders 5, 8, and 13 respectively. What is the least such number?
(a) 173
(b) 53
(c) 93
(d) 353

Q57. If the average of 14 consecutive even numbers is 107, find the smallest number.
(a) 93
(b) 94
(c) 92
(d) 98

Q58. The population of a city increases by 25% in the first year and decreases by 20% in the second year. What is the net percentage change after 2 years?
(a) 2% increase
(b) 0%
(c) 5% increase
(d) 10% decrease

Q59. A train crosses a man standing on a platform in 12 seconds and crosses the platform, which is 150 meters long, in 20 seconds. What is the length of the train?
(a) 200m
(b) 225m
(c) 250m
(d) 275m

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Q60. A takes 12 days to finish a job, while B takes 36 days to complete the same job. If they collaborate, how many days will it take them to complete the work together?

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

Q61. The printed price of a TV set is 10,000. After two consecutive discounts, it is sold for 8,100. What is the second discount if the first one is 10%?

(a) 8%
(b) 10%
(c) 12%
(d) 20%

Q62. A sum of money becomes 13/8 of itself in 5 years at a certain rate of simple interest. What is the rate of interest per annum?

(a) 10%
(b) 12.5%
(c) 15%
(d) 16.25%

Q63. $p + q = 12$ and $p^2 - q^2 = 72$ then then what is the value of p-q?

(a) 4
(b) 8
(c) 12
(d) 6

Q64. What is the square root of 6561?

(a) 92
(b) 74
(c) 81
(d) 77

Q65. SA 90-liter mixture contains milk and water in the ratio 8: 7. if 15 liters of this mixture is taken out and replaced with 15 liters of pure milk, what is the new ratio of milk to water?

(a) 9:7
(b) 9:5
(c) 11:7
(d) 11:5

Q66. A spherical cannonball with a diameter of 28 cm is melted and recast into a rectangular block. The length and breadth of the block are 44 cm and 14 cm respectively. What is the height of the rectangular block?(Take $\pi = 22/7$)

(a) 17.23 cm
(b) 20.16 cm
(c) 18.67 cm
(d) 19.67 cm

Q67. A hemispherical bowl with a radius of 21 cm is filled with a liquid. The liquid is to be poured into small cylindrical bottles, each with a diameter of 7 cm and a height of 9 cm. How many such bottles are required to empty the bowl?

(a) 54
(b) 56
(c) 48
(d) 50

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Q68. Simplify: 1/2 (3/4 + 1/4) ÷ 1/3

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

Q69. if 9 × 3 ^4 = 3^xwhat is x?

(a) 4
(b) 5
(c) 6
(d) 8

Q70. The diameter of a car's wheel is 63 cm. Calculate the distance the car travels when the wheel completes 1000 revolutions.

(a) 1.98 Km
(b) 2.54 Km
(c) 3.45 Km
(d) 4.56 Km

Q71. Find the equation of the line that passes through the point (2, 5) and is perpendicular to the line y = 3x + 4.

(a) y = -x/3 + 6
(b) y = - 3x + 5
(c) y = - 6x - 15
(d) y = -x/3 + 17/3

Q72. Find the value of $4x^2 + y^2 + 25z^2 + 4xy - 10yz - 20zx$ when x = 4, y = 3 and z = 2

(a) 1
(b) 3
(c) 9
(d) 6

Q73. Simplify: (sec (x) - tan (x))/(sec (x) + tan (x))

(a) (1 - tan (x))/(1 + sin (x))
(b) (1 - sin (x))/(1 + sin (x))
(c) 1
(d) (1 - sin(x)

Q74. If sin 3A = 3/5 what is cos3A?

(a) 4/5
(b) 5/6
(c) 7/8
(d) 8/9

Q75. In a right triangle ABC, right-angled at B, if tan A = 2 what is the value of 2 sin A cos A?

(a) 4/5
(b) 5/6
(c) 8/9
(d) 3/4

GENERAL AWARENESS

Q76. In which year was A. P. J. Abdul Kalam honoured with the Bharat Ratna?

(a) 1989
(b) 1997
(c) 2005

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(d) 2011

Q77. In September 2024, who has been appointed as the new director general of the Narcotics Control Bureau?

(a) Prakash tomar
(b) Nisant Sharma
(c) Anurag Garg
(d) Vikram Chaudhary

Q78. In June 2025, which foreign brand unveiled footwear inspired by Kolhapuri chappals which sparked accusations of 'cultural misappropriation'?

(a) Prada
(b) Gucci
(c) Chanel
(d) Dior

Q79. Pradhan Mantri Awas Yojana - Urban 2.0, approved in August 2024 aims to provide housing subsidies to which group?

(a) Urban poor and middle-class families
(b) All women-headed households
(c) MSME workers in urban slums
(d) Airline industry employees

Q80. Which of the Indian state/union territory achieved 1st rank in India Electric Mobility Index 2024?

(a) Delhi
(b) Rajasthan
(c) Lakshadweep
(d) Haryana

Q81. The Kadbanwadi grassland is in_____.

(a) Tamil Nadu
(b) Andhra Pradesh
(c) Odisha
(d) Maharashtra

Q82. Who is the author of the book 'The Namesake'?

(a) Arundhati Roy
(b) Satyajit Ray
(c) Jhumpa Lahiri
(d) Arun Joshi

Q83. 'Bengbung', a Mizo indigenous instrument, is similar to which instrument?

(a) Flute
(b) Cymbal
(c) Mridangam
(d) Xylophone

Q84. Which traditional puppet dance of Tamil Nadu depicts scenes from the Ramayana and the Mahabharata?

(a) Ghotul
(b) Parichakali
(c) Bandiya
(d) Bommalattam

Q85. Which of the following is an example of artificial satellites?

I. Sputnik-I
II. GSAT-I

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

Q86. -What is the change of state from liquid to solid at atmospheric pressure known as?
(a) Solidification
(b) Deposition
(c) Sublimation
(d) Evaporation

Q87. Which of the following is correct regarding law of conservation of energy?
I. Energy can only be converted from one form to another.
II. Energy can be easily destroyed.
(a) Only I
(b) Only II
(c) Both I and II
(d) Neither i nor II

Q88. The 'ossification test' is used to determine the_____. of a person.
(a) Age
(b) Height
(c) Weight
(d) Blood group

Q89. In August 2025, which technological breakthrough aims to reduce India's reliance on Chinese specialty fertilisers?
(a) Green hydrogen blend
(b) Water-soluble fertiliser process
(c) Nano-fertilizer deployment
(d) Fast-charging lithium battery process

Q90. In progressive income taxation_____.
(a) higher income leads to a higher tax rate
(b) everyone pays the same tax rate
(c) lower income leads to a higher tax rate
(d) higher income leads to a lower tax rate

Q91. The code on social security extends social security to_____.
(a) only central government employee
(b) only state government employee
(c) only private sector employee
(d) organised or unorganised sector employee

Q92. Shivaji's exploits against which forces made him a legendary figure?
I. Mughal
II. Bijapur
(a) Only I
(b) Only II
(c) Both I and II
(d) Neither I nor II

Q93. In which year the SEBI formulated the 'Insider Trading Regulations'?
(a) 1996
(b) 1990
(c) 1992

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(d) 1994

Q94. The Vice President of India can be removed from office by_____.

(a) Impeachment by the President
(b) Resolution passed by the Council of States and agreed to by the House of the People
(c) Resolution passed by both Houses of Parliament with one-thirds majority
(d) The President on the advice of the Prime Minister

Q95. About what percentage of india's land are covered under plateau region?

(a) 5%
(b) 12%
(c) 27%
(d) 59%

Q96. Land reforms introduced after the independence were successful in which of the following Indian state?

I. Kerala
II. West Bengal

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

Q97. What was the share of industry in India's GDP in 1950-1951?

(a) 5%
(b) 7%
(c) 13%
(d) 27%

Q98. In the context of population change, if the birth rate is_____ than death rate, the population will_____.

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

Q99. In humans, what is the value of normal systolic and diastolic blood pressure respectively?

(a) 75 mm Hg and 60 mm Hg respectively
(b) 80 mm Hg and 70 mm Hg respectively
(c) 100 mm Hg and 95 mm Hg respectively
(d) 120 mm Hg and 80 mm Hg respectively

Q100. In ancient India, the Mahajanapada of 'Anga' had its capital at which city in Bihar?

(a) Vaishali
(b) Champa
(c) Kausambi
(d) Gaya

ANSWER KEY

1	d	2	c	3	c	4	c	5	b	6	b	7	c	8	b	9	b	10	c
11	a	12	a	13	d	14	a	15	a	16	a	17	a	18	b	19	a	20	b
21	d	22	c	23	b	24	b	25	a	26	a	27	a	28	a	29	b	30	c
31	c	32	a	33	b	34	c	35	a	36	a	37	a	38	c	39	c	40	d
41	d	42	d	43	d	44	b	45	b	46	c	47	d	48	c	49	a	50	a

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51	d	52	a	53	c	54	c	55	a	56	b	57	b	58	b	59	b	60	c
61	b	62	b	63	d	64	c	65	c	66	c	67	b	68	c	69	c	70	a
71	d	72	a	73	b	74	a	75	a	76	b	77	c	78	a	79	a	80	a
81	d	82	c	83	d	84	d	85	c	86	a	87	a	88	a	89	b	90	a
91	d	92	c	93	c	94	b	95	c	96	c	97	c	98	a	99	d	100	b

SOLUTIONS

Q1. Answer: (d) an easily read

The correct answer is '4' i.e. an easily read.

Key Points

• The phrase "an easily read" contains a grammatical error.

• The word "read" in this context is used as an adjective, which is incorrect. It should be replaced with "readable", which is the correct adjective form.

• The correct phrase should be "an easily readable", as it properly modifies the noun "book".

Correct sentence: The book, which you recommended, was interesting and easily readable.

Additional Information

• Common error when using adjectives and adverbs:

• Adjectives modify nouns (e.g., readable book).

• Adverbs modify verbs, adjectives, or other adverbs (e.g., easily readable).

• Correcting misplaced modifiers:

• Ensure modifiers are placed next to the word they describe to avoid confusion.

• For example: Incorrect - "She almost drove her kids to school every day." Correct - "She drove her kids to school almost every day."

Q2. Answer: (c) nor

The correct answer is '3' i.e. nor.

Key Points

• The sentence begins with the word "neither," which is a correlative conjunction that works in pairs. It requires "nor" to complete the structure.

• The correct form is "neither...nor," which is used to connect two negative ideas in a sentence.

• Using "nor" after "neither" ensures proper grammatical structure and meaning.

Correct sentence: He neither attended the seminar nor submitted his report on time.

Additional Information

• Neither...nor: Used to connect two negative ideas.

• Example: She neither enjoys cooking nor cleaning.

• Usage: Indicates that both actions or ideas are not true or do not happen.

• Other conjunctions:

• But also: Used with "not only" to add emphasis to two ideas.

• Or: Indicates alternatives or choices.

• And: Used to connect similar ideas.

Q3. Answer: (c) Peculiarity

The correct answer is '3' i.e. Peculiarity.

Key Points

• The word Idiosyncrasy refers to a distinctive or peculiar characteristic, habit, or behavior that is unique to an individual.

• Among the given options:

• Option 1: Commonalty means shared features or common aspects, which is opposite in meaning to idiosyncrasy.

• Option 2: Normality refers to being normal or usual, which does not match the meaning of idiosyncrasy.

• Option 3: Peculiarity refers to a unique or unusual characteristic, which is a synonym of idiosyncrasy.

• Option 4: Conformity refers to compliance or aligning with standards or norms, which is opposite to idiosyncrasy.

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• Therefore, the most appropriate synonym for Idiosyncrasy is Peculiarity.

Correct sentence: The word "idiosyncrasy" is best represented by the synonym peculiarity, which captures its meaning of uniqueness or distinctiveness..

Additional Information

• Synonyms: Other synonyms for idiosyncrasy include "quirk," "eccentricity," and "individuality."

• Antonyms: Words like "normality," "conformity," and "commonality" are antonyms of idiosyncrasy.

Q4. Answer: (c) smoke and mirrors

The correct answer is '3' i.e. smoke and mirrors.

Key Points

• The idiom "smoke and mirrors" is used to describe actions or statements intended to confuse or deceive, often to mislead people into believing something that isn't true.

• In the given sentence, the politician's speech is described as being full of vague promises, which means it lacks substance and is intended to create a false impression. Thus, the phrase "smoke and mirrors" fits perfectly.

• The other options do not fit the context:

• Pulling strings: Refers to using influence or connections to achieve something.

• A red herring: Refers to a distraction or something intended to divert attention.

• The last straw: Refers to the final problem or difficulty that makes a situation unbearable.

Correct sentence: The politician's speech was full of vague promises but ultimately it was just smoke and mirrors.

Additional Information

• Other Common Idioms:

• A blessing in disguise: Refers to something that seems bad at first but turns out to be good.

• Break the ice: Refers to initiating a conversation in a social setting.

• Bite the bullet: Refers to facing a difficult or unpleasant situation bravely.

• Using idioms effectively can add depth and color to both spoken and written communication.

Q5. Answer: (b) The crowd gave a slow wave as the parade passed by.

The correct answer is '2' i.e. The crowd gave a slow wave as the parade passed by.

Key Points

• In the sentence, "She gave a friendly wave to her neighbor," the word "wave" refers to a hand movement used as a gesture of greeting, farewell, or acknowledgment.

• In Option 2, "The crowd gave a slow wave as the parade passed by," the word "wave" is used with the same meaning, referring to a hand gesture made by the crowd to acknowledge the parade.

• In Options 1, 3, and 4, the word "wave" refers to the movement of water in the sea or ocean, which is a different meaning.

Correct sentence: The crowd gave a slow wave as the parade passed by.

Additional Information

• The word "wave" can have multiple meanings depending on the context:

• Gesture: A movement of the hand to greet or signal.

• Water movement: The undulating movement of the sea or ocean.

• Physics: A disturbance or oscillation that travels through a medium, such as a sound wave or light wave.

Q6. Answer: (b) It encourages early intervention and better long-term outcomes

The correct answer is Option 2.

Key Points

• The passage explicitly states: "It promotes early intervention, which is necessary for better long-term outcomes and successful therapy."

• The author argues that awareness helps dismantle the "historical taboo" and "de-stigmatize conditions," which directly leads to more effective, timely care.

• Why other options are incorrect:

• Option 1: The text says awareness helps people seek treatment "without feeling ashamed."

• Option 3: Increasing knowledge encourages people to seek treatment, not hide their issues.

• Option 4: Awareness encourages (rather than discourages) people to seek treatment by removing the fear of judgment.

Therefore, the correct answer is 2.

Analytical Insight: In exams, questions often test your ability to distinguish between "consequences of stigma" and "benefits of

awareness." Option 2 is a positive outcome, which aligns with the overall supportive tone of the passage.

Additional Information

• De-stigmatize: To remove negative associations or social shame connected to a particular condition or behavior.

• On par with: Equal to or at the same level as something else.

• Early Intervention: Identifying and providing support for a condition at the earliest possible stage.

• Coping Mechanisms: Strategies people use to manage stress or difficult emotions.

Q7. Answer: (c) By increasing knowledge and encouraging people to seek treatment

The correct answer is Option 3.

Key Points

• The passage explicitly states: "Increasing knowledge helps de-stigmatize conditions... by encouraging people to seek treatment without feeling ashamed or afraid of being judged."

• By replacing "historical taboo" and silence with knowledge and education, society shifts toward a culture that is "supportive and understanding."

• Why other options are incorrect:

• Option 1: The text notes that "historical taboo" silenced discussions, whereas awareness is the solution that ends that silence.

• Option 2: Awareness allows people to seek help "without feeling ashamed."

• Option 4: The goal of awareness is to make mental health an "essential part of contemporary society," which requires encouraging rather than discouraging open discussions.

Therefore, the correct answer is 3.

Analytical Insight: In competitive exams, questions about "How" usually require identifying the mechanism of change. In this passage, the mechanism is "Increasing knowledge," which leads to the result of "encouraging treatment."

Additional Information

• De-stigmatize: To remove the negative social "mark" or shame associated with a condition.

• Taboo: A social custom forbidding or restricting a particular practice or association.

• Contemporary: Belonging to or occurring in the present.

• Intervention: Action taken to improve a medical or psychological situation.

Q8. Answer: (b) It leads to better long-term outcomes and more successful therapy

The correct answer is Option 2.

Key Points

• The passage explicitly links early action to positive results: "It promotes early intervention, which is necessary for better long-term outcomes and successful therapy."

• The author suggests that addressing mental health issues sooner rather than later increases the effectiveness of the treatment received.

• Why other options are incorrect:

• Option 1: The text states that awareness (and by extension, intervention) ends the "historical taboo" that silenced discussions.

• Option 3: The passage argues that intervention is necessary for better outcomes, not that it makes conditions worse.

• Option 4: The text mentions that intervention is necessary for "successful therapy," implying that therapy is still a vital part of the recovery process, not eliminated by it.

Therefore, the correct answer is 2.

Analytical Insight: Questions focusing on "Why" usually require you to find a cause-and-effect relationship. Here, the cause is "early intervention" and the effect is "better long-term outcomes."

Additional Information

• Intervention: Action taken to improve a situation, especially a medical or psychological one.

• Outcomes: The way a thing turns out; a consequence or result.

• Therapy: Treatment intended to relieve or heal a disorder.

• De-stigmatize: To remove the negative "label" or shame associated with a condition.

Q9. Answer: (b) By helping people offer sympathy and support to those experiencing challenges

The correct answer is Option 2.

Key Points

• The passage specifically highlights the community's role: "increasing public awareness... gives power to the community to offer sympathy and support to individuals experiencing challenges."

• It explains that this is achieved by informing the community about symptoms, coping mechanisms, and available services.

• Why other options are incorrect:

• Option 1: The text states that awareness encourages (not discourages) people to seek treatment by removing shame.

• Option 3: Awareness informs people about "services available," making it easier, not harder, to find help.

• Option 4: The purpose of awareness is to inform people about symptoms, which is the opposite of ignoring them.

Therefore, the correct answer is 2.

Analytical Insight: In competitive exams, questions about the "benefit" of a concept often focus on the social impact mentioned in the text. Here, the text moves from individual benefits (seeking treatment) to collective benefits (community support).

Additional Information

• Coping Mechanisms: The strategies people use to manage internal or external stress.

• De-stigmatize: To remove the negative social "stigma" or shame from something.

• On par with: At the same level as; equal to.

• Welfare: The health, happiness, and fortunes of a person or group.

Q10. Answer: (c) It prioritizes the overall welfare of its people

The correct answer is Option 3.

Key Points

• The passage concludes with the statement: "Ultimately, a society that gives a lot of emphasis to mental health awareness is one that cares about its people's overall welfare."

• By valuing mental health, a society demonstrates a holistic approach to the "well-being" of its citizens, moving beyond just "bodily health."

• Why other options are incorrect:

• Option 1: The text explicitly states that mental health should be "on par with bodily health," meaning it values both.

• Option 2: The text says awareness allows people to seek treatment "without feeling ashamed or afraid of being judged."

• Option 4: The passage describes mental health awareness as an "essential part of contemporary society," which is the opposite of ignoring it.

Therefore, the correct answer is 3.

Analytical Insight: In competitive exams, questions about what the text "suggests" or "concludes" often refer back to the final sentence. This is where authors typically summarize their primary thesis.

Additional Information

• Welfare: The health, happiness, and fortunes of a person or group.

• Emphasis: Special importance, value, or prominence given to something.

• On par with: At the same level as; equal to.

• De-stigmatize: To remove the negative social perception associated with a condition.

Q11. Answer: (a) Effervescence

The correct answer is '1' i.e. Effervescence.

Key Points

• The question asks for the correctly spelt word among the given options.

• The correct spelling of the word is "Effervescence", which means the property of forming bubbles or being lively and enthusiastic.

• Option 1, Effervescence, is correct, whereas the other options are incorrect due to incorrect spelling:

• Option 2: Effervescense - Incorrect due to incorrect ending "sence" instead of "scence".

• Option 3: Efferescence - Incorrect due to missing "v" after "Effer".

• Option 4: Effervesance - Incorrect due to incorrect ending "sance" instead of "scence".

Correct answer: Effervescence.

Additional Information

• Learning spellings can be simplified by breaking words into syllables. For example, "Ef-fer-ves-cence".

• Familiarity with commonly used words and their correct spellings can improve both vocabulary and accuracy in spelling.

Q12. Answer: (a) Personnel

The correct answer is '1' i.e. Personnel.

Key Points

• The word Personnel is correctly spelt and refers to people employed in an organization or engaged in a particular activity.

• Option 2 (Personel) is incorrect because it is missing an additional 'n'.

• Option 3 (Personeel) is incorrect as it has an extra 'e'.

• Option 4 (Persnell) is incorrect due to a spelling error and deviation from the correct form.

Correct usage: The company is hiring new personnel to improve efficiency..

Additional Information

• Commonly Confused Words:

• Personnel: Refers to employees or staff.

• Personal: Refers to something private or belonging to an individual.

• Tips to Avoid Spelling Errors:

• Break the word into syllables: Per-son-nel.

• Practice writing the word multiple times to build memory.

Q13. Answer: (d) Something that makes you happy

The correct answer is '4' i.e. Something that makes you happy.

Key Points

• The idiom "Whatever floats your boat" is an informal phrase used to express that someone should do what makes them happy or satisfies them, even if others might not agree or find it interesting.

• It emphasizes personal choice and individual satisfaction.

• It does not imply something impossible, easy, or universally accepted, as suggested by the other options.

Correct sentence: If listening to classical music helps you relax, then that's what you should do—whatever floats your boat!.

Additional Information

• Origin of the idiom:

• The phrase likely originated in the 20th century and draws a comparison to boats floating on water. The idea is that just as a boat floats when it's in its natural state, people are happiest when they do what suits them best.

• Similar idioms:

• "To each their own" — Meaning everyone has their own preferences.

• "Different strokes for different folks" — Meaning people like different things.

Q14. Answer: (a) Philatelist

The correct answer is '1' i.e. Philatelist.

Key Points

• A philatelist is a person who loves and collects stamps. This term specifically refers to stamp collecting, which is often considered a hobby.

• The other options do not match the definition:

• Numismatist: Refers to someone who collects coins, medals, or currency.

• Bibliophile: Refers to a person who loves and collects books.

• Collector: A general term for someone who collects various items but does not specify stamps.

Correct sentence: A person who loves and collects stamps is called a Philatelist.

Additional Information

• Philately: The study and collection of stamps is known as philately, which includes understanding the historical significance, designs, and rarity of stamps.

• Related hobbies: Stamp collecting is often combined with other hobbies like postcard collecting or studying postal history.

Q15. Answer: (a) Chaotic

The correct answer is '1' i.e. Chaotic.

Key Points

• The word serene means calm, peaceful, and untroubled.

• To find the antonym, we need a word that reflects the opposite of serenity, i.e., a state of disorder or chaos.

• Among the options provided:

• Chaotic: Refers to being in complete disorder or confusion, which is the opposite of serene.

• Calm, Peaceful, and Tranquil: These are synonyms of serene and do not fit as antonyms.

Correct sentence: The most appropriate antonym of serene is chaotic.

Additional Information

• Synonyms of Serene: Calm, peaceful, tranquil, placid, untroubled.

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• Antonyms of Serene: Chaotic, turbulent, noisy, agitated, disturbed.
• Always consider the context when selecting an antonym, as nuances in meaning can affect the choice of word.

Q16. Answer: (a) Wise

The correct answer is '1' i.e. Wise.

Key Points

• The word "Sagacious" means someone who is wise, insightful, and displays sound judgment.
• Option 1, "Wise," is the correct match as it aligns with the meaning of "Sagacious."
• Other options:
• Option 2: "Foolish" is the opposite of sagacious and incorrect.
• Option 3: "Prudent" is close in meaning but refers to careful or cautious actions rather than wisdom.
• Option 4: "Shrewd" implies cleverness or sharpness but lacks the wisdom aspect of sagacious.

Correct sentence: A sagacious person is always wise in making decisions.

Additional Information

• The word "sagacious" is often used to describe leaders or thinkers who possess exceptional wisdom and judgment.
• Synonyms for "sagacious" include wise, insightful, intelligent, and discerning.
• Antonyms include foolish, imprudent, and shortsighted.

Q17. Answer: (a) Geocentrism

The correct answer is '1' i.e. Geocentrism.

Key Points

• The belief that the Earth is the center of the universe is referred to as Geocentrism.
• Geocentrism comes from the Greek words "geo" (Earth) and "kentron" (center).
• This concept was historically upheld by ancient civilizations and astronomers such as Ptolemy.
• It was later replaced by Heliocentrism, which states that the Sun is the center of the universe.

Correct term: The belief that the Earth is the center of the universe is called Geocentrism.

Additional Information

• Heliocentrism: The belief that the Sun is the center of the universe.
• Anthropocentrism: The belief that humans are the most important entities in the universe.
• Cosmocentrism: A worldview that considers the cosmos as a central focus in understanding existence.

Q18. Answer: (b) Submit the documents to the head of the department by the end of the week.

The correct answer is '2' i.e. Submit the documents to the head of the department by the end of the week.

Key Points

• The given sentence is in the passive voice, where the action is emphasized rather than the doer.
• To convert it to the active voice, the subject performing the action must be made explicit.
• The active form of the sentence is imperative, as it directly instructs someone to perform an action.

Correct sentence: Submit the documents to the head of the department by the end of the week.

Additional Information

• Active vs Passive Voice:
• Active Voice: The subject performs the action. Example: "She submitted the report."
• Passive Voice: The action is performed on the subject. Example: "The report was submitted by her."
• Key difference: Active voice focuses on the performer of the action, while passive voice emphasizes the action itself.
• Imperative Sentences:
• Imperatives are used to give commands, instructions, or requests.
• Example: "Write your name on the form."

Q19. Answer: (a) The librarian told the child that he should not be making so much noise, because the other students had bee...

The correct answer is '1' i.e. The librarian told the child that he should not be making so much noise, because the other students had been trying to study for their exams.

Key Points

• The given sentence is written in direct speech, where the librarian is speaking directly to the child.

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• To convert this into indirect speech, the pronouns, tense, and expressions need to be adjusted accordingly.

• Since the reporting verb is in the past tense ("told"), the verbs in the reported speech will also shift to the past tense.

• The present perfect tense "have been trying" changes to the past perfect tense "had been trying" in indirect speech.

• The modal verb "should" remains unchanged as it is used to express advice or obligation.

Correct sentence: The librarian told the child that he should not be making so much noise, because the other students had been trying to study for their exams.

Additional Information

• Direct Speech: The exact words spoken by the speaker are enclosed in quotation marks.

• Indirect Speech: The speaker's words are reported without quotation marks, and the sentence structure and tense are modified appropriately.

• Rules for converting direct to indirect speech:

• Change pronouns to match the perspective of the reporting sentence.

• Adjust the verb tense based on the reporting verb (past tense reporting verb requires tense changes).

• Modify time and place expressions if necessary (e.g., "today" changes to "that day").

Q20. Answer: (b) the toughest exam

The correct answer is '2' i.e. the toughest exam.

Key Points

• The word "most" is used to form the superlative degree of adjectives, but it cannot be paired with an adjective that is already in its superlative form, such as "toughest."

• The correct form is simply "the toughest exam" without the word "most."

• Using "most toughest" is redundant and grammatically incorrect.

Correct sentence: This is the toughest exam that I have ever taken.

Additional Information

• Superlative Degree:

• Definition: Used to compare three or more things, showing the highest degree of the quality being described.

• Example: "This is the tallest building in the city."

• Rule: Do not use "most" with adjectives that already have superlative forms ending in "-est" (e.g., tallest, smartest, toughest).

• Common Errors:

• Redundancy: Using both "most" and the "-est" form together (e.g., "most fastest").

• Incorrect pairing of comparative and superlative forms.

Q21. Answer: (d) in the way of

The correct answer is '4' i.e. in the way of.

Key Points

• The given sentence discusses the challenges faced by the unregulated finance industry due to high-interest rates and low repayment of loans.

• The phrase "in the way of" is commonly used to indicate the presence of something as a barrier, obstacle, or challenge, making it the most appropriate choice.

• Other options, such as "because manner of" or "by way of," do not fit the context grammatically or logically, as they change the meaning or make the sentence awkward.

Correct sentence: The fraud comes at a time when the unregulated finance industry is facing a crisis in the way of high-interest rates and low repayment of loans.

Additional Information

• Usage of "in the way of":

• This phrase is used to refer to something that acts as an obstacle or hindrance.

• Example: There is nothing in the way of achieving your dreams if you work hard.

• Usage of "by way of":

• This phrase is used to indicate a method or means of doing something.

• Example: He apologized by way of a handwritten note.

Q22. Answer: (c) The shop had not been closed by them.

The correct answer is '3' i.e. The shop had not been closed by them.

Key Points

• The given sentence is in the past perfect tense (had not closed).
• When converting a sentence from active to passive voice, the structure changes but the tense remains the same.
• In the past perfect tense, the passive voice structure is: "had + not + been + past participle".
• Thus, the correct transformation of "They had not closed the shop" into passive voice is: "The shop had not been closed by them."

Correct sentence: The shop had not been closed by them.

Additional Information

• Passive Voice Basics:
• Used when the focus is on the action or the object receiving the action, rather than the subject performing it.
• Structure: Object + auxiliary verb (form of "to be") + past participle + (optional: "by + subject").
• Examples:
• Active: She writes the report. → Passive: The report is written by her.
• Active: They were cleaning the room. → Passive: The room was being cleaned by them.
• Active: He had completed the task. → Passive: The task had been completed by him.

Q23. Answer: (b) He said, "If I were to receive a promotion, I would buy my family a bigger house."

The correct answer is '2' i.e. He said, "If I were to receive a promotion, I would buy my family a bigger house."

Key Points

• The given sentence is expressed in indirect speech, and the task is to convert it into direct speech.
• The sentence describes a hypothetical situation using the second conditional, characterized by the structure "If + past simple, would + base verb."
• In direct speech, the speaker's exact words are quoted, retaining the structure and tense of the original sentence.
• The correct direct speech version is: He said, "If I were to receive a promotion, I would buy my family a bigger house."

Correct sentence: If I were to receive a promotion, I would buy my family a bigger house.

Additional Information

• 1st Conditional Sentence:
• Structure: If + Present Simple, will + base verb.
• Example: If it rains, we will cancel the picnic.
• Usage: Describes real or possible situations in the future with likely outcomes.
• 2nd Conditional Sentence:
• Structure: If + Past Simple, would + base verb.
• Example: If I were rich, I would travel the world.
• Usage: Describes hypothetical or unreal situations in the present or future.
• 3rd Conditional Sentence:
• Structure: If + Past Perfect, would have + past participle.
• Example: If she had studied harder, she would have passed the exam.
• Usage: Refers to unreal past situations and their imagined outcomes.

Q24. Answer: (b) R, Q, P, S

The correct answer is '2' i.e. R, Q, P, S.

Key Points

• The sequence of events in the paragraph describes the process of constructing a deck step by step, starting with the foundation and ending with admiration of the final product.
• The correct sequence is as follows:
• R: Preparing the foundation by excavating holes and positioning the building's columns.
• Q: Constructing the deck with beams and joists, ensuring precise angles.
• P: Assembling the deck planks in a neat, even line.
• S: Admiring the completed sturdy deck.
• This logical order ensures that the steps are described in a meaningful and grammatically correct manner.

Correct sentence sequence: R, Q, P, S.

Additional Information

• When solving such rearrangement questions:
• Identify the logical sequence of events or ideas.

• Look for connecting words, phrases, or steps to help determine the proper order.
• Ensure that the paragraph flows naturally and grammatically correct.

Q25. Answer: (a) Q, P, R, S

The correct answer is '1' i.e. Q, P, R, S.

Key Points

• The paragraph revolves around explaining the Socratic method, a systematic process of questioning for discovering truth.
• Statement Q introduces the belief of Socrates, which forms the foundation of the Socratic method.
• Statement P names the method and highlights its importance in Western philosophy.
• Statement R describes how Socrates conducted his questioning process with his students.
• Statement S concludes by explaining the ultimate goal of the method.

Correct sequence: Q, P, R, S

Additional Information

• Logical Flow: The paragraph must begin with the introduction of Socrates' belief (Q), followed by identifying the method (P), describing the process (R), and concluding with its purpose (S).
• Elimination of Options:
• Option 2 (S, P, R, Q) disrupts the logical order by starting with the conclusion.
• Option 3 (Q, R, S, P) misplaces the naming of the method after the description of its process.
• Option 4 (S, Q, R, P) incorrectly begins with the conclusion and places the introduction later.

Q26. Answer: (a) GHVLJQV

The pattern followed here is:

COMPLETE : FRPSOHWH

Similarly, DESIGNS : ?

Therefore The correct answer is "Option 1".

Q27. Answer: (a) OBOPUFDIOPMPHZ

The pattern followed here is:

PHARMACEUTICAL : QIBSNBDFVUJDBM

BIOTECHNOLOGY : CJPUFDIOPMPHZ

Similarly, NANOTECHNOLOGY : ?

Therefore The correct answer is "Option 1".

Q28. Answer: (a) JOGPSNBUJPO

The pattern followed here is:

TRANSPORTATION : USBOTQPSUBUJPO

COMMUNICATION : DPNNVOJDBUJPO

Similarly, INFORMATION : ?

Therefore The correct answer is "Option 1".

Q29. Answer: (b) Only II follows

Statement:

The rise of e-commerce has transformed retail shopping, with many traditional stores closing due to declining foot traffic. Online platforms offer convenience and competitive pricing, attracting millions of customers worldwide. However, certain product categories like luxury goods and fresh groceries still see strong in-store sales because customers prefer to examine them physically before purchasing.

Conclusions:

I. E-commerce will completely replace traditional retail stores in the future.

II. Customer preferences vary depending on the type of product being purchased.

III. Online platforms are successful only because of competitive pricing.

Analysis:

I. E-commerce will completely replace traditional retail stores – False (The statement says some products still require in-store shopping, so complete replacement cannot be concluded.)

II. Customer preferences vary depending on the type of product – True (The statement clearly mentions that some products like luxury goods and groceries are still preferred in stores.)

III. Online platforms are successful only because of competitive pricing – False (The statement mentions both convenience and pricing, so success is not only due to pricing.)

Thus, Only Conclusion II follows.

Q30. Answer: (c) Allocate limited time to both

In the given situation,

Option	Correctness	Reasoning
Ignore sibling and study	Incorrect	This shows lack of concern for the sibling who is struggling and needs help before the exam.
Help sibling all day	Incorrect	Helping the sibling the entire day ignores Kavita's own responsibility of preparing for her test.
Allocate limited time to both	Correct	This is a balanced approach where Kavita supports her sibling while also preparing for her own exam.
Ask someone else to help sibling	Partially Correct	This could help, but it may not always be possible and does not directly balance both responsibilities.

Therefore Option 3 is the correct answer.

Q31. Answer: (c) 63/4

Given Equation : 9 % 2 $ 8 % 7 = ?

Symbol meanings:

? → +

$ → ÷

@ → −

% → ×

Calculation:

9 % 2 $ 8 % 7

After replacing symbols with actual signs,

9 × 2 ÷ 8 × 7

=> 18 ÷ 8 × 7

=> (9/4) × 7

=> 63/4

Hence, the correct answer is 63/4.

Q32. Answer: (a) Divide tasks clearly and check-in privately to understand constraints and offer help

In the given situation,

Option	Correctness	Reasoning
Divide tasks clearly and check-in privately to understand constraints and offer help	Correct	This approach shows social intelligence by addressing the issue respectfully, understanding the member's situation, and ensuring fair task distribution without creating conflict.
Exclude them without discussion	Incorrect	This action ignores communication and teamwork, which can create conflict and reduce group cooperation.
Call them out harshly in front of group	Incorrect	Public criticism may embarrass the member and harm group relationships instead of solving the problem.

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Do all work yourself	Incorrect	This avoids addressing the issue and creates an unfair workload while encouraging continued lack of contribution.

Therefore Option 1 is the correct answer.

Q33. Answer: (b) 6

Given:

Total people in queue = 25

Amit's position from front = 7

Neha's position from back = 12

Formula used:

Position from front = Total − Position from back + 1

Calculation:

Neha's position from front = 25 − 12 + 1 = 14

People between Amit and Neha = |14 − 7| − 1

= 7 − 1 = 6

Hence, the number of people between Amit and Neha is 6.

Therefore The correct answer is Option (2).

Q34. Answer: (c) 18

Given:

Position of lamp from left = 7

Position of same lamp from right = 12

Formula used:

Total lamps = (Position from left + Position from right) − 1

Calculation:

Total lamps = 7 + 12 − 1

= 19 − 1

= 18

Hence, total number of lamps = 18.

Therefore The correct answer is Option (3).

Q35. Answer: (a) Only I follows

Statement:

The city is facing severe water shortage due to delayed monsoon.

Courses of Action:

I. Implement strict water rationing immediately.

II. Encourage citizens to use more water to maintain hygiene.

Analysis:

I. Implement strict water rationing immediately – Follows (Since there is severe water shortage, rationing helps control and manage the limited water supply.)

II. Encourage citizens to use more water to maintain hygiene – Does not follow (Encouraging more water use during a shortage would worsen the problem.)

Thus, Only Course of Action I follows.

Therefore The correct answer is Option (1).

Q36. Answer: (a) Only I follows

Statement:

A surge in dengue cases has been reported in the city due to water stagnation during monsoon.

Courses of Action:

I. Conduct mass fumigation drives and clean stagnant water.

II. Declare a public holiday until the monsoon ends.

Analysis:

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I. Conduct mass fumigation drives and clean stagnant water – Follows (Dengue spreads through mosquitoes that breed in stagnant water, so fumigation and cleaning stagnant water directly address the cause of the problem.)

II. Declare a public holiday until the monsoon ends – Does not follow (Declaring a public holiday does not solve the root cause of dengue spread and is not a practical solution.)

Thus, Only Course of Action I follows.

Therefore The correct answer is Option (1).

Q37. Answer: (a) D

Given: P, M, J, G, ?

The pattern followed here is:

Therefore The correct answer is Option (1).

Q38. Answer: (c) B

The logic followed here is:

Therefore The correct answer is Option (3).

Q39. Answer: (c) Meet with the teacher to discuss alternative discipline strategies and monitor classroom dynamics.

In the given situation,

Option	Correctness	Reasoning
Immediately terminate the teacher to satisfy the parents	Incorrect	This is an extreme decision taken without proper investigation and may harm the academic success achieved under the teacher.
Ignore the complaints since the students are doing well	Incorrect	Ignoring parental concerns can damage trust and overlook possible issues in classroom discipline methods.
Meet with the teacher to discuss alternative discipline strategies and monitor classroom dynamics	Correct	This approach balances academic success with student well-being by addressing concerns constructively and improving teaching methods.
Ask students to tolerate the methods since it improves grades	Incorrect	This ignores student comfort and concerns, which is not a healthy or responsible educational practice.

Therefore Option 3 is the correct answer.

Q40. Answer: (d) BLUNT

Given word: ESTABLISHMENT

Option 1) TENTS → Can be formed as ESTABLISHMENTS.

Option 2) STATE → Can be formed as ESTABLISHMENT.

Option 3) TABLE → Can be formed as ESTABLISHMENT.

Option 4) BLUNT → Cannot be formed as letter U is not present in ESTABLISHMENT.

Hence, "Option 4" is the correct answer.

Q41. Answer: (d) Allocate half time to each class and provide teachers to supervise both

In the given situation,

Option	Correctness	Reasoning
Let the teacher with more experience decide	Incorrect	This may create bias and does not ensure a fair solution for both classes.
Give it to the class with higher average marks	Incorrect	This approach is unfair and ignores the needs of the other class.
Postpone one class's project deadline	Partially Correct	This could solve the conflict temporarily but may disadvantage one class.

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Allocate half time to each class and provide teachers to supervise both	Correct	This ensures fairness by giving both classes equal access to the computer lab while maintaining supervision and support.

Therefore Option 4 is the correct answer.

Q42. Answer: (d) PT

CE : XV

Similarly, KG : ?

Therefore The correct answer is Option(4).

Q43. Answer: (d) HF

The logic followed here is:

AC : DB

Similarly, EG : ?

Therefore The correct answer is Option (4).

Q44. Answer: (b) 91

The logic followed here is:

Therefore The correct answer is Option (2).

Q45. Answer: (b) 2967

The logic followed here is:

=> (3 × 5) + 7 = 22

=> (22 × 5) + 7 = 117

=> (117 × 5) + 7 = 592

=> (592 × 5) + 7 = 2967

Therefore The correct answer is Option (2).

Q46. Answer: (c) 4846

The logic followed here is:

=> (10 × 5) - 9 = 41

=> (41 × 5) - 9 = 196

=> (196 × 5) - 9 = 971

=> (971 × 5) - 9 = 4846

Therefore The correct answer is Option (3).

Q47. Answer: (d) 13:21

Given pairs:

1) 12 : 19

2) 25 : 32

3) 41 : 48

4) 13 : 21

Check the pattern:

12 + 7 = 19

25 + 7 = 32

41 + 7 = 48

But,

13 + 7 = 20 ≠ 21

Here the difference is 8 instead of 7.

Hence, 13 : 21 does not follow the pattern.

Therefore The correct answer is Option (4)

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Q48. Answer: (c) 77

Given Equation : 12 # 7 ^ 3 $ 10 = ?

Symbol meanings:

! → ÷

→ ×

^ → +

$ → −

Calculation:

12 # 7 ^ 3 $ 10 = ?

After replacing the symbols with their actual signs,

12 × 7 + 3 − 10 = ?

=> 84 + 3 − 10

=> 87 − 10

=> 77

Hence, the correct answer is 77.

Q49. Answer: (a) 5, 3, 1, 2, 4

The arrangement of the given words in the order in which they appear in an English dictionary is as shown below:

5. Refrigerator

3. Representation

1. Responsibility

2. Restaurant

4. Revolution

Hence, the correct order is: 5, 3, 1, 2, 4

Q50. Answer: (a) 1,2,3,4,5,6

The arrangement of the given words in the order in which they appear in an English dictionary is as shown below:

1. Rainbow

2. Rather

4. Recent

3. Reason

5. Region

6. Remove

Hence, the correct order is: 1, 2, 4, 3, 5, 6

Q51. Answer: (d) 720

Given:

Profit = 15%

Reduced cost price = 10% less

Reduced selling price = Rs. 18 less

New profit = 25%

Formula Used:

Selling Price = Cost Price × (100 + Profit%) ÷ 100

Reduced Cost Price = Original Cost Price × (100 − Reduction%) ÷ 100

Calculation:

=> Let Cost Price = x

=> Selling Price = x × (100 + 15) ÷ 100

=> Selling Price = 1.15x

=> Reduced Cost Price = x × (100 − 10) ÷ 100

=> Reduced Cost Price = 0.9x

=> New Selling Price = 0.9x × (100 + 25) ÷ 100

=> New Selling Price = 1.125x

=> Reduced Selling Price = Original Selling Price − 18

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=> 1.125x = 1.15x − 18
=> 1.15x − 1.125x = 18
=> 0.025x = 18
=> x = 18 ÷ 0.025
=> x = 720
Therefore The correct answer is Rs. 720.

Q52. Answer: (a) Rs. 619.67

Given:
3 × P = 4 × Q = 7 × R
Total Profit = 3150
Formula Used:
If a = b = c, then each quantity can be written equal to a common constant
Profit share prop. to Capital
Calculation:
=> 3P = 4Q = 7R = k
=> P = k ÷ 3
=> Q = k ÷ 4
=> R = k ÷ 7
=> Ratio P : Q : R = 1 ÷ 3 : 1 ÷ 4 : 1 ÷ 7
=> LCM of 3, 4, 7 = 84
=> P : Q : R = 28 : 21 : 12
=> Total ratio = 28 + 21 + 12 = 61
=> R's share = 3150 × 12 ÷ 61
=> R's share = 37800 ÷ 61
=> R's share = 619.67
Therefore The correct answer is Rs. 619.67.

Q53. Answer: (c) 240/289

Shortcut Trick
The expression sin A cos B + cos A sin B follows the compound angle identity sin(A + B).
Given sin A = 8/17 and cos B = 15/17, notice they belong to the Pythagorean triplet (8, 15, 17).
This implies cos A = 15/17 and sin B = 8/17 as they share the same hypotenuse 17.
Substituting values: (8/17 × 15/17) + (15/17 × 8/17) = 120/289 + 120/289 = 240/289.
Therefore The correct answer is 240/289.
Alternate Method
Given: sin A = 8/17 and cos B = 15/17
Formula Used: sin(A + B) = sin A cos B + cos A sin B | $\cos^2\theta = 1 - \sin^2\theta$
=> First, find cos A: cos A = $\sqrt{(1 - \sin^2 A)} = \sqrt{(1 - (8/17)^2)}$
=> cos A = $\sqrt{(1 - 64/289)} = \sqrt{(225/289)} = 15/17$
=> Next, find sin B: sin B = $\sqrt{(1 - \cos^2 B)} = \sqrt{(1 - (15/17)^2)}$
=> sin B = $\sqrt{(1 - 225/289)} = \sqrt{(64/289)} = 8/17$
=> Required value = (8/17 × 15/17) + (15/17 × 8/17)
=> Value = 120/289 + 120/289 = 240/289
Therefore The correct answer is 240/289.
Additional Information
Trigonometric Identities for Sum/Difference
sin(A ± B) = sin A cos B ± cos A sin B and cos(A ± B) = cos A cos B -/+ sin A sin B.
Pythagorean Triplets
Sets of three positive integers a, b, and c such that $a^2 + b^2 = c^2$. Common examples include (3, 4, 5), (5, 12, 13), and (8, 15, 17).
Range of Sine and Cosine
For any real angle θ, $-1 \le \sin\theta \le 1$ and $-1 \le \cos\theta \le 1$.

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Q54. Answer: (c) 5:4

Given:

Apples are 25% more than oranges

Formula Used:

Percentage increase = Original value × (100 + Increase%) ÷ 100

Calculation:

=> Let number of oranges = 100

=> Apples = 100 × (100 + 25) ÷ 100

=> Apples = 125

=> Ratio Apples : Oranges = 125 : 100

=> Ratio Apples : Oranges = 5 : 4

Therefore The correct answer is 5 : 4.

Q55. Answer: (a) 12 years

Given:

Amount becomes 4 times in 6 years

Required amount = 16 times

Formula Used:

$A = P \times (1 + r)^n$

Calculation:

=> 4P = P × (1 + r)^6

=> (1 + r)^6 = 4

=> 16P = P × (1 + r)^t

=> (1 + r)^t = 16

=> $16 = 4^2$

=> (1 + r)^t = ((1 + r)^6)²

=> $(1 + r)^t = (1 + r)^{12}$

=> t = 12

Therefore The correct answer is 12 years.

Q56. Answer: (b) 53

Given:

Remainder when divided by 12 = 5

Remainder when divided by 15 = 8

Remainder when divided by 20 = 13

Formula Used:

If N leaves remainder r when divided by d, then N − r is divisible by d

Required number = LCM of divisors + common remainder

Calculation:

=> N − 5 divisible by 12

=> N − 8 divisible by 15

=> N − 13 divisible by 20

=> 12 − 5 = 7

=> 15 − 8 = 7

=> 20 − 13 = 7

=> N − 5 = N − 8 = N − 13 = common multiple − 7

=> Required number = LCM(12, 15, 20) − 7

=> LCM(12, 15, 20)

=> 12 = 2 × 2 × 3

=> 15 = 3 × 5

=> 20 = 2 × 2 × 5

=> LCM = 2 × 2 × 3 × 5

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=> LCM = 60
=> Required number = 60 − 7
=> Required number = 53
Therefore The correct answer is 53.

Q57. Answer: (b) 94

Given:
Average of 14 consecutive even numbers = 107
Number of terms = 14
Formula Used:
Average = (Sum of observations) ÷ (Number of observations)
Average of consecutive even numbers = (First term + Last term) ÷ 2
Calculation:
=> Average = 107
=> (First term + Last term) ÷ 2 = 107
=> First term + Last term = 214
=> Last term = First term + 2 × (14 − 1)
=> Last term = First term + 26
=> First term + First term + 26 = 214
=> 2 × First term + 26 = 214
=> 2 × First term = 214 − 26
=> 2 × First term = 188
=> First term = 188 ÷ 2
=> First term = 94
Therefore The correct answer is 94.

Q58. Answer: (b) 0%

Given:
Increase in first year = 25%
Decrease in second year = 20%
Formula Used:
Final value = Initial value × (100 + Increase%) ÷ 100 × (100 − Decrease%) ÷ 100
Percentage change = (Final − Initial) ÷ Initial × 100
Calculation:
=> Let initial population = 100
=> After first year = 100 × (100 + 25) ÷ 100
=> After first year = 100 × 125 ÷ 100
=> After first year = 125
=> After second year = 125 × (100 − 20) ÷ 100
=> After second year = 125 × 80 ÷ 100
=> After second year = 100
=> Percentage change = (100 − 100) ÷ 100 × 100
=> Percentage change = 0
Therefore The correct answer is 0%.

Q59. Answer: (b) 225m

Given:
Time to cross a man = 12 s
Time to cross platform = 20 s
Length of platform = 150 m
Formula Used:
Speed = Distance ÷ Time
Distance = Speed × Time

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Calculation:
=> Let length of train = x
=> Speed = x ÷ 12
=> Distance while crossing platform = x + 150
=> Speed = (x + 150) ÷ 20
=> x ÷ 12 = (x + 150) ÷ 20
=> 20x = 12 × (x + 150)
=> 20x = 12x + 1800
=> 20x − 12x = 1800
=> 8x = 1800
=> x = 1800 ÷ 8
=> x = 225
Therefore The correct answer is 225 m.

Q60. Answer: (c) 9 days

Given:
A takes 12 days to complete the job.
B takes 36 days to complete the job.
Formula Used:
Work done in 1 day = 1 ÷ Time taken to complete the job.
Total work = 1 (entire job).
Time taken when working together = 1 ÷ (Work done by A in 1 day + Work done by B in 1 day).
Calculation:
=> Work done by A in 1 day = 1 ÷ 12 = 1/12.
=> Work done by B in 1 day = 1 ÷ 36 = 1/36.
=> Total work done in 1 day when A and B work together = 1/12 + 1/36.
=> Total work done in 1 day = (3 + 1) ÷ 36 = 4 ÷ 36 = 1/9.
=> Time taken when working together = 1 ÷ (1/9) = 9 days.
Therefore The correct answer is 9 days.

Q61. Answer: (b) 10%

Given:
Printed price of TV = 10,000
First discount = 10%
Final selling price = 8,100
Formula Used:
Price after first discount = Printed price × (1 - First discount ÷ 100)
Second discount = [(Price after first discount - Final selling price) ÷ Price after first discount] × 100
Calculation:
=> Price after first discount = 10,000 × (1 - 10 ÷ 100)
=> Price after first discount = 10,000 × 0.9
=> Price after first discount = 9,000
=> Second discount = [(9,000 - 8,100) ÷ 9,000] × 100
=> Second discount = [900 ÷ 9,000] × 100
=> Second discount = 0.1 × 100
=> Second discount = 10%
Therefore The correct answer is 10%.

Q62. Answer: (b) 12.5%

Given:
Time = 5 years
Final amount = 13 ÷ 8 of principal
Formula Used:

Simple Interest = P × R × T ÷ 100
Amount = Principal + Simple Interest
Calculation:
=> Let Principal = P
=> Amount = 13P ÷ 8
=> Simple Interest = Amount − Principal
=> Simple Interest = 13P ÷ 8 − P
=> Simple Interest = 13P ÷ 8 − 8P ÷ 8
=> Simple Interest = 5P ÷ 8
=> P × R × 5 ÷ 100 = 5P ÷ 8
=> R × 5 ÷ 100 = 5 ÷ 8
=> R = 5 × 100 ÷ (8 × 5)
=> R = 100 ÷ 8
=> R = 12.5
Therefore The correct answer is 12.5%.

Q63. Answer: (d) 6

Shortcut Trick
Apply the algebraic identity for the difference of two squares: $p^2 - q^2 = (p + q)(p - q)$.
Substitute the given values into the formula: $72 = 12 \times (p - q)$.
Divide the difference of squares by the sum: $p - q = 72 \div 12 = 6$.
Therefore The correct answer is 6.
Alternate Method
Given:
The sum of two variables: $p + q = 12$
The difference of their squares: $p^2 - q^2 = 72$
Formula Used:
The Difference of Squares identity is given by:
$a^2 - b^2 = (a + b)(a - b)$
Calculations:
=> $p^2 - q^2 = (p + q)(p - q)$
=> $72 = 12 \times (p - q)$
=> $p - q = 72 \div 12$
=> $p - q = 6$
Therefore The correct answer is 6.
Additional Information
Difference of Squares Identity
The formula $a^2 - b^2 = (a + b)(a - b)$ is used to factorize the difference of two perfect squares.
Finding Individual Variables
Once $(p + q)$ and $(p - q)$ are known, you can find p by adding the equations and q by subtracting them.
Square of a Sum
Related identity: $(a + b)^2 = a^2 + 2ab + b^2$, which represents the expansion of the square of a binomial.

Q64. Answer: (c) 81

Given:
Number = 6561
Formula Used:
Square root of a number = √(Number)
Calculation:
=> √6561
=> 81
Therefore The correct answer is 81.

Q65. Answer: (c) 11:7

Given:

Total mixture = 90 L

Milk : Water = 8 : 7

Mixture removed = 15 L

Pure milk added = 15 L

Formula Used:

Quantity of component = Total mixture × Ratio part ÷ Total ratio

Remaining quantity after removal = Initial quantity − Removed quantity

Calculation:

=> Total ratio = 8 + 7 = 15

=> Initial milk = 90 × 8 ÷ 15

=> Initial milk = 48

=> Initial water = 90 × 7 ÷ 15

=> Initial water = 42

=> Milk removed = 48 × 15 ÷ 90

=> Milk removed = 8

=> Water removed = 42 × 15 ÷ 90

=> Water removed = 7

=> Remaining milk = 48 − 8

=> Remaining milk = 40

=> Remaining water = 42 − 7

=> Remaining water = 35

=> New milk after adding pure milk = 40 + 15

=> New milk = 55

=> Water = 35

=> Ratio milk : water = 55 : 35

=> Ratio milk : water = 11 : 7

Therefore The correct answer is 11 : 7.

Q66. Answer: (c) 18.67 cm

Given:

Diameter of sphere = 28 cm

Radius of sphere = 28 ÷ 2 = 14 cm

Length of block = 44 cm

Breadth of block = 14 cm

π = 22 ÷ 7

Formula Used:

Volume of sphere = 4 ÷ 3 × π × r^3

Volume of rectangular block = Length × Breadth × Height

Calculation:

=> Volume of sphere = 4 ÷ 3 × 22 ÷ 7 × 14^3

=> Volume of sphere = 4 ÷ 3 × 22 ÷ 7 × 2744

=> Volume of sphere = 4 ÷ 3 × 22 × 392

=> Volume of sphere = 4 × 8624 ÷ 3

=> Volume of sphere = 34496 ÷ 3

=> Volume of block = 44 × 14 × Height

=> Volume of block = 616 × Height

=> 616 × Height = 34496 ÷ 3

=> Height = 34496 ÷ (3 × 616)

=> Height = 34496 ÷ 1848

=> Height = 56 ÷ 3

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=> Height = 18.67 cm

Therefore The correct answer is 18.67 cm.

Q67. Answer: (b) 56

Given:

Radius of hemisphere = 21 cm

Diameter of cylinder = 7 cm

Radius of cylinder = 7 ÷ 2 = 3.5 cm

Height of cylinder = 9 cm

π = 22 ÷ 7

Formula Used:

Volume of hemisphere = 2 ÷ 3 × π × r^3

Volume of cylinder = π × r^2 × h

Calculation:

=> Volume of hemisphere = 2 ÷ 3 × 22 ÷ 7 × 21^3

=> Volume of hemisphere = 2 ÷ 3 × 22 ÷ 7 × 9261

=> Volume of hemisphere = 2 ÷ 3 × 22 × 1323

=> Volume of hemisphere = 58212 ÷ 3

=> Volume of hemisphere = 19404

=> Volume of cylinder = 22 ÷ 7 × 3.5^2 × 9

=> Volume of cylinder = 22 ÷ 7 × 12.25 × 9

=> Volume of cylinder = 346.5

=> Number of bottles = 19404 ÷ 346.5

=> Number of bottles = 56

Therefore The correct answer is 56.

Q68. Answer: (c) 3/2

Given:

Expression = 1/2 (3/4 + 1/4) ÷ 1/3

Formula Used:

a ÷ b = a × 1/b

Calculation:

=> 1/2 (3/4 + 1/4) ÷ 1/3

=> 1/2 (4/4) ÷ 1/3

=> 1/2 × 1 ÷ 1/3

=> 1/2 × 3

=> 3/2

Therefore The correct answer is 3/2.

Q69. Answer: (c) 6

Given:

9 × 3^4 = 3^x

Formula Used:

a^m × a^n = a^(m+n)

Calculation:

=> 9 × 3^4 = 3^x

=> 3^2 × 3^4 = 3^x

=> 3^(2+4) = 3^x

=> 3^6 = 3^x

=> x = 6

Therefore The correct answer is 6.

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Q70. Answer: (a) 1.98 Km

Given:

Diameter of wheel = 63 cm

Number of revolutions = 1000

π = 22 ÷ 7

Formula Used:

Circumference of circle = π × Diameter

Distance travelled = Circumference × Number of revolutions

Calculation:

=> Circumference = 22 ÷ 7 × 63

=> Circumference = 198 cm

=> Distance = 198 × 1000

=> Distance = 198000 cm

=> Distance = 198000 ÷ 100

=> Distance = 1980 m / 1000 = 1.98 km

Therefore The correct answer is 1.98 Km.

Q71. Answer: (d) y = -x/3 + 17/3

Shortcut Trick

The slope of the given line y = 3x + 4 is m1 = 3.

For a perpendicular line, the slope m2 = −1/m1 = −1/3.

Substitute the point (2, 5) into the equation y = mx + c: 5 = (−1/3)×2 + c.

Solving for c: c = 5 + 2/3 = 17/3.

The required equation is y = −x/3 + 17/3.

Therefore The correct answer is y = -(x)/(3) + (17/3).

Alternate Method

Given:

Equation of the given line: y = 3x + 4

Coordinates of the point: (x1, y1) = (2, 5)

Formula Used:

Slope-intercept form: y = mx + c

Condition for perpendicular lines: m1 × m2 = −1

Point-slope form: y − y1 = m(x − x1)

Calculations:

=> Comparing y = 3x + 4 with y = m1x + c, we get m1 = 3.

=> Since the required line is perpendicular to the given line:

=> m2 = −1 / m1

=> m2 = −1 / 3

=> Using the point-slope form for point (2, 5) and slope −1/3:

=> y − 5 = (−1/3) × (x − 2)

=> 3(y − 5) = −1(x − 2)

=> 3y − 15 = −x + 2

=> 3y = −x + 17

=> y = −x/3 + 17/3

Therefore The correct answer is y = -(x)/(3) + (17/3).

Additional Information

Slope of Parallel Lines

If two lines are parallel, their slopes are equal (m1 = m2).

Slope Calculation from Coordinates

The slope m between two points (x1, y1) and (x2, y2) is given by m = (y2 − y1) ÷ (x2 − x1).

Standard Form of a Line

The standard form is Ax + By + C = 0, where the slope is −A/B.

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Q72. Answer: (a) 1

Given:

x = 4

y = 3

z = 2

Formula Used:

$a^2 + b^2 + c^2 + 2ab - 2bc - 2ca = (a + b - c)^2$

Calculation:

=> $4x^2 + y^2 + 25z^2 + 4xy - 10yz - 20zx$

=> $(2x)^2 + y^2 + (5z)^2 + 2(2x)(y) - 2(y)(5z) - 2(2x)(5z)$

=> $(2x + y - 5z)^2$

=> $(2\times4 + 3 - 5\times2)^2$

=> $(8 + 3 - 10)^2$

=> 1^2

=> 1

Therefore The correct answer is 1.

Q73. Answer: (b) (1 - sin (x))/(1 + sin (x))

Shortcut Trick

Convert sec(x) and tan(x) into sin(x) and cos(x) forms mentally.

Since both sec(x) = 1/cos(x) and tan(x) = sin(x)/cos(x) share the same denominator cos(x), it cancels out from both the numerator and denominator of the main fraction.

Resulting expression = (1 − sin(x)) / (1 + sin(x)).

Therefore The correct answer is ((1 − sin(x))) / ((1 + sin(x))).

Alternate Method

Given: (sec(x) − tan(x)) / (sec(x) + tan(x))

Formula Used: sec(x) = 1/cos(x) and tan(x) = sin(x)/cos(x)

Calculations:

=> [(1/cos(x)) − (sin(x)/cos(x))] / [(1/cos(x)) + (sin(x)/cos(x))]

=> [(1 − sin(x)) / cos(x)] / [(1 + sin(x)) / cos(x)]

=> [(1 − sin(x)) / cos(x)] × [cos(x) / (1 + sin(x))]

=> (1 − sin(x)) / (1 + sin(x))

This expression matches the simplified form given in Option 2.

Therefore The correct answer is ((1 − sin(x))) / ((1 + sin(x))).

Additional Information

Pythagorean Identity

One of the most used identities is $\sec^2(x) - \tan^2(x) = 1$, which implies (sec(x) − tan(x)) = 1 / (sec(x) + tan(x)).

Reciprocal Identities

sec(x) = 1/cos(x), cosec(x) = 1/sin(x), and cot(x) = 1/tan(x) = cos(x)/sin(x) are essential for simplifying rational trigonometric expressions.

Alternative Rationalization

Multiplying both numerator and denominator by (sec(x) − tan(x)) transforms the expression into $(\sec(x) - \tan(x))^2$, which can further be expanded or simplified based on the requirements.

Q74. Answer: (a) 4/5

Shortcut Trick

Identify the Pythagorean triplet for the given sin value.

Since sin 3A = 3/5 (Perpendicular/Hypotenuse), the sides of the triangle are 3, 4, 5.

The Base of this right-angled triangle is 4.

Therefore, cos 3A = Base / Hypotenuse = 4/5.

Therefore The correct answer is 4/5.

Alternate Method

Given: sin 3A = 3/5

Formula Used: $\sin^2\theta + \cos^2\theta = 1$

=> $\cos^2(3A) = 1 - \sin^2(3A)$

=> $\cos^2(3A) = 1 - (3/5)^2$

=> $\cos^2(3A) = 1 - 9/25$

=> $\cos^2(3A) = (25 - 9) / 25$

=> $\cos^2(3A) = 16/25$

=> $\cos 3A = \sqrt{(16/25)}$

=> $\cos 3A = 4/5$

Therefore The correct answer is 4/5.

Additional Information

Trigonometric Identities

The fundamental identity $\sin^2\theta + \cos^2\theta = 1$ relates the sine and cosine of the same angle.

Triple Angle Formulas

For any angle A: $\sin 3A = 3\sin A - 4\sin^3 A$ and $\cos 3A = 4\cos^3 A - 3\cos A$.

Pythagorean Triplets

Common triplets like (3, 4, 5), (5, 12, 13), and (8, 15, 17) satisfy the condition $a^2 + b^2 = c^2$ and are very useful in trigonometry.

Q75. Answer: (a) 4/5

Given:

$\tan A = 2$

Formula Used:

$\tan A$ = Opposite side ÷ Adjacent side

$\sin A$ = Opposite side ÷ Hypotenuse

$\cos A$ = Adjacent side ÷ Hypotenuse

$2 \sin A \cos A = 2 \times \sin A \times \cos A$

Calculation:

=> $\tan A = 2 \div 1$

=> Opposite side = 2

=> Adjacent side = 1

=> Hypotenuse = $\sqrt{(2^2 + 1^2)}$

=> Hypotenuse = $\sqrt{(4 + 1)}$

=> Hypotenuse = $\sqrt{5}$

=> $\sin A = 2 \div \sqrt{5}$

=> $\cos A = 1 \div \sqrt{5}$

=> $2 \sin A \cos A = 2 \times (2 \div \sqrt{5}) \times (1 \div \sqrt{5})$

=> $2 \sin A \cos A = 4 \div 5$

Therefore The correct answer is $4 \div 5$.

Q76. Answer: (b) 1997

The correct answer is 1997.

Key Points

• A. P. J. Abdul Kalam, also known as the "Missile Man of India," was honored with the prestigious Bharat Ratna, India's highest civilian award, in the year 1997.

• The Bharat Ratna is awarded in recognition of exceptional service or performance of the highest order in any field of human endeavor.

• A. P. J. Abdul Kalam received this award for his significant contributions to India's defense and space research programs, particularly his role in the development of ballistic missile technology and the Pokhran-II nuclear tests.

• Kalam served as the chief scientific adviser to the Government of India and played a crucial role in advancing India's self-reliance in military technology.

• He was the third scientist to receive the Bharat Ratna after C. V. Raman and Homi Bhabha, cementing his legacy as one of India's greatest visionaries and leaders in science and technology.

Additional Information

• Bharat Ratna:

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• The Bharat Ratna was instituted in 1954 and is the highest civilian award in India.

• The award is conferred by the President of India and does not have a specific limit on the number of annual recipients.

• The award consists of a medallion and a certificate (Sanad) signed by the President. It does not carry any monetary grant.

• Notable Bharat Ratna recipients include Dr. Sarvepalli Radhakrishnan, Mother Teresa, and Nelson Mandela.

• Contributions of A. P. J. Abdul Kalam:

• Kalam was instrumental in the development of India's Agni and Prithvi missiles, earning him the nickname "Missile Man of India."

• He played a pivotal role in India's nuclear weapons program, particularly in the successful execution of the Pokhran-II nuclear tests in 1998.

• He served as the 11th President of India from 2002 to 2007 and was widely referred to as the "People's President" for his humble and accessible nature.

• He authored several books, including the famous "Wings of Fire", which inspired millions of young Indians to pursue excellence in science and technology.

• Important Points About the Bharat Ratna:

• The award can be given posthumously, as seen in the case of leaders like Lal Bahadur Shastri and Sardar Vallabhbhai Patel.

• It is awarded without distinction of race, occupation, position, or gender, reflecting its broad criteria of excellence.

• In 2019, former President Pranab Mukherjee, social activist Nanaji Deshmukh, and musician Bhupen Hazarika were honored with the Bharat Ratna.

• Other Notable Achievements of A. P. J. Abdul Kalam:

• He was awarded the Padma Bhushan in 1981 and the Padma Vibhushan in 1990 for his contributions to science and engineering.

• Kalam's vision for a developed India was encapsulated in his Vision 2020 document, which laid out a roadmap for India's progress in various sectors.

• He was a recipient of honorary doctorates from 40 universities worldwide for his contributions to science, technology, and public policy.

Q77. Answer: (c) Anurag Garg

The correct answer is Anurag Garg.

Key Points

• Anurag Garg has been appointed as the new Director General of the Narcotics Control Bureau (NCB) in September 2024.

• The Narcotics Control Bureau (NCB) is the primary agency in India for combating drug trafficking and the abuse of illegal substances under the provisions of the Narcotic Drugs and Psychotropic Substances Act, 1985.

• Anurag Garg, an officer of the Indian Police Service (IPS), has a distinguished career in handling various law enforcement and anti-drug operations, making him a suitable choice for this critical role.

• The appointment comes at a time when the Government of India is strengthening its efforts to curb the menace of drug abuse and trafficking across the country.

• As the Director General, Anurag Garg will oversee operations, policy implementation, and international collaboration to address drug-related crimes effectively.

Additional Information

• Narcotics Control Bureau (NCB):

• The NCB was established in 1986 as the apex coordinating agency under the Ministry of Home Affairs, Government of India.

• Its primary function is the implementation of India’s international obligations with respect to drug control and the coordination between various central and state agencies.

• The bureau focuses on intelligence sharing, conducting anti-drug operations, and prosecuting offenders involved in drug trafficking.

• Narcotic Drugs and Psychotropic Substances Act, 1985:

• This is the principal legislation in India aimed at combating drug abuse and illicit trafficking in narcotic drugs and psychotropic substances.

• The act provides stringent provisions for the control and regulation of operations relating to narcotic drugs and substances.

• It prescribes severe penalties for offences, including death or life imprisonment for certain cases.

• International Collaboration:

• NCB works closely with international organizations such as the United Nations Office on Drugs and Crime (UNODC) and foreign law enforcement agencies to combat transnational drug trafficking.

• India is a signatory to various international treaties like the Single Convention on Narcotic Drugs, 1961, and the Convention Against Illicit Traffic in Narcotic Drugs and Psychotropic Substances, 1988.

• Key Challenges in Drug Control:

• The increasing use of the dark web and cryptocurrencies for drug transactions has become a significant challenge for law enforcement agencies.

• India's geographical location makes it vulnerable to drug trafficking from the Golden Crescent and Golden Triangle regions.

• Strengthening inter-agency coordination and capacity building is crucial for addressing these challenges effectively.

Important Points

• Anurag Garg's Appointment:

• He is an experienced officer with extensive knowledge and expertise in counter-narcotics operations and law enforcement mechanisms.

• His leadership is expected to bring about impactful reforms and improvements in the functioning of the Narcotics Control Bureau.

• NCB's Role in India:

• The agency not only conducts seizures and arrests but also plays a critical role in spreading awareness about the adverse effects of drug abuse through campaigns and programs.

• It collaborates with other government agencies like the Central Bureau of Narcotics and the Directorate of Revenue Intelligence for joint operations.

• Impact of Drug Abuse:

• Drug abuse leads to severe health, social, and economic consequences, impacting individuals, families, and communities.

• It is also linked to organized crimes, terrorism, and human trafficking, necessitating stringent measures for its control.

Q78. Answer: (a) Prada

The correct answer is Prada.

Key Points

• Prada, a renowned Italian luxury fashion brand, unveiled footwear inspired by Kolhapuri chappals in June 2025.

• The Kolhapuri chappals are traditional handcrafted leather sandals originating from Kolhapur, Maharashtra, India.

• The launch by Prada sparked accusations of cultural misappropriation, as the design closely resembled the original Kolhapuri chappals without giving due credit to the artisans or their cultural heritage.

• Cultural misappropriation refers to the adoption or use of elements of one culture by another, often leading to criticism when done without acknowledgment or respect for the original culture.

• The controversy highlighted the ongoing debate about the use of indigenous designs by global luxury brands without proper recognition or benefits for the communities that created them.

Additional Information

• Kolhapuri Chappals:

• Kolhapuri chappals are known for their durability and intricate craftsmanship. They are traditionally made from vegetable-tanned leather.

• The art of making Kolhapuri chappals is a centuries-old tradition in Maharashtra, particularly in the Kolhapur district.

• These chappals are recognized as a Geographical Indication (GI) product in India, ensuring protection for their unique heritage and craftsmanship.

• Prada:

• Founded in 1913 by Mario Prada, it is headquartered in Milan, Italy.

• Prada is a globally renowned luxury brand specializing in leather handbags, shoes, ready-to-wear clothing, and accessories.

• The brand is known for its innovative designs and use of high-quality materials.

• Cultural Misappropriation:

• It occurs when elements of a minority culture are used by members of a dominant culture without proper recognition or respect.

• This often leads to the commercial exploitation of cultural elements while ignoring the struggles or contributions of the original creators.

• Global brands have frequently faced criticism for using traditional designs and art forms without acknowledging their origins or compensating the creators.

• Other Brands and Cultural Appropriation:

• Gucci: Faced backlash in the past for releasing products that resembled traditional garments and accessories from various cultures.

• Chanel: Criticized for selling a boomerang as a luxury product, a design traditionally associated with Australian Aboriginal culture.

• Dior: Known for using inspirations from various global cultures in their collections but has faced accusations of not adequately crediting or benefiting the original cultures.

Important Points

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• The controversy over Prada's Kolhapuri-inspired footwear underscores the need for ethical practices in the fashion industry.

• Efforts like GI tags aim to protect traditional crafts and ensure that artisans receive appropriate recognition and financial benefits.

• Brands should collaborate directly with local artisans to create culturally inspired products, ensuring fair compensation and acknowledgment.

• Such incidents also highlight the significance of raising awareness about intellectual property rights for indigenous communities.

Q79. Answer: (a) Urban poor and middle-class families

The correct answer is Urban poor and middle-class families.

Key Points

• Pradhan Mantri Awas Yojana - Urban 2.0 (PMAY-U 2.0) was approved in August 2024 as a continuation of the original PMAY-U scheme aimed at ensuring housing for all by targeting the urban poor and middle-class families.

• The scheme provides subsidies on housing for eligible beneficiaries, enabling them to purchase, construct, or upgrade houses in urban areas.

• Under PMAY-U 2.0, Credit Linked Subsidy Scheme (CLSS) continues to play a pivotal role in offering interest subsidies on home loans to economically weaker sections (EWS), low-income groups (LIG), and middle-income groups (MIG).

• The scheme is specifically designed to address the housing deficit in urban areas, where rapid urbanization has led to a significant shortage of affordable housing options.

• PMAY-U 2.0 aligns with the government's vision of providing 'Housing for All' by 2024, ensuring inclusion and socio-economic upliftment of urban populations.

Additional Information

• Eligibility Criteria:

• Urban poor, including individuals from Economically Weaker Sections (EWS), with an annual income of up to Rs. 3 lakh.

• Low-income groups (LIG) with an annual income between Rs. 3 lakh and Rs. 6 lakh.

• Middle-income groups (MIG) with incomes up to Rs. 18 lakh are also eligible for benefits under the Credit Linked Subsidy Scheme (CLSS).

• Subsidy Details:

• Interest subsidies range from 3% to 6.5%, depending on the income group and loan amount.

• The maximum loan amount eligible for subsidy can go up to Rs. 12 lakh for MIG households.

• Implementation:

• The scheme is implemented by Urban Local Bodies (ULBs), state governments, and private developers in partnership with financial institutions.

• Monitoring and funding are overseen by the Ministry of Housing and Urban Affairs.

• Achievements:

• Under the original PMAY-U, over 1.2 crore houses were sanctioned, and more than 75 lakh houses were completed as of 2023.

• PMAY-U 2.0 aims to accelerate this progress, focusing on reducing urban housing shortages further.

Important Points

• Option 2: All women-headed households: While PMAY-U 2.0 emphasizes empowering women, particularly by making house ownership mandatory in the names of women, the scheme is not exclusively for women-headed households.

• Option 3: MSME workers in urban slums: Although PMAY-U 2.0 covers urban slums, it does not exclusively target MSME workers; it targets all eligible urban poor and middle-class families.

• Option 4: Airline industry employees: This option is irrelevant as the scheme is not industry-specific and focuses on housing for the urban poor and middle-class families.

Q80. Answer: (a) Delhi

The correct answer is Delhi.

Key Points

• Delhi has achieved the 1st rank in the India Electric Mobility Index (IEMI) 2024, showcasing its leadership in promoting electric mobility and sustainable transportation.

• The India Electric Mobility Index is a comprehensive assessment tool developed to evaluate the performance of Indian states and Union Territories (UTs) in the adoption and promotion of electric vehicles (EVs).

• Delhi has excelled in various parameters, including policy implementation, EV infrastructure development, and adoption of EVs by the public.

• The city's Delhi Electric Vehicle Policy 2020 has been instrumental in encouraging EV adoption by providing subsidies, tax incentives, and promoting charging infrastructure.

• Delhi's efforts align with India's broader goal of achieving 30% EV penetration by 2030, as part of its commitment to reducing

carbon emissions and promoting sustainable urban mobility.

Additional Information

• India Electric Mobility Index (IEMI):

• The IEMI evaluates the performance of states and UTs on their efforts to promote electric mobility, focusing on parameters like policy framework, infrastructure, adoption rates, and awareness campaigns.

• The index is an initiative by government institutions and think tanks to encourage healthy competition among states/UTs and accelerate EV adoption.

• Delhi Electric Vehicle Policy 2020:

• Launched in August 2020, the policy focuses on making Delhi the EV capital of India.

• Key features include purchase incentives, scrapping incentives, and the development of charging infrastructure.

• The policy aims to achieve 25% EV registration by 2024.

• India's EV Goals:

• India has set a target of 30% EV penetration by 2030 to reduce dependence on fossil fuels and curb carbon emissions.

• Initiatives like the Faster Adoption and Manufacturing of Hybrid and Electric Vehicles (FAME) scheme provide financial support for EV adoption.

• Other States in the Index:

• Rajasthan: Ranked lower but has taken steps like introducing state-level EV policies and incentives.

• Haryana: Focused on building EV infrastructure but has not matched Delhi's progress.

• Lakshadweep: As a small Union Territory, it has limited EV adoption due to geographical constraints.

Important Points

• FAME India Scheme:

• The Faster Adoption and Manufacturing of Hybrid and Electric Vehicles (FAME) scheme was launched in 2015 to promote EV adoption in India.

• Under the second phase of the scheme, the government allocated Rs. 10,000 crore to provide subsidies for EVs and develop charging infrastructure.

• Benefits of EV Adoption:

• Reduces air pollution: EVs produce zero tailpipe emissions, contributing to cleaner air quality.

• Energy security: Promotes the use of renewable energy and reduces dependence on imported oil.

• Cost savings: EVs have lower running costs compared to conventional fuel vehicles.

Q81. Answer: (d) Maharashtra

The correct answer is Maharashtra.

Key Points

• The Kadbanwadi grassland is located in the state of Maharashtra, India. It is a notable ecological area known for its rich biodiversity and grassland ecosystems.

• This grassland is part of the semi-arid zone of Maharashtra, characterized by its dry climate and unique vegetation that supports various species of flora and fauna.

• Kadbanwadi is situated in the Pune district of Maharashtra, and it is a significant area for grazing and local livelihoods.

• Grasslands like Kadbanwadi play a critical role in maintaining ecological balance, serving as habitats for numerous species and acting as carbon sinks.

• These grasslands are often used for agricultural activities and livestock grazing, making them essential for the rural economy of the region.

Additional Information

• Grasslands in India:

• Grasslands are a critical ecological asset, covering approximately 24% of India’s geographical area.

• India's grasslands are classified into various types, such as tropical, temperate, and alpine, based on climatic conditions and geographical location.

• They are vital for supporting biodiversity, including herbivores like deer and livestock such as cattle, sheep, and goats.

• Importance of Grasslands:

• Grasslands are essential for maintaining the balance of ecosystems by acting as habitats for wildlife and regulating local climates.

• They serve as grazing grounds for livestock, contributing significantly to the livelihoods of pastoral communities.

• Grasslands help in soil conservation by preventing erosion and maintaining soil fertility.

• Challenges faced by Grasslands:

• Grasslands are under threat due to urbanization, industrialization, and conversion into agricultural lands.
• Overgrazing and deforestation also lead to degradation of grassland ecosystems, affecting their biodiversity.
• Climate change poses a significant risk, altering the vegetation patterns and productivity of these areas.
• Conservation Efforts:
• The Indian government and various environmental organizations are working towards grassland conservation by implementing sustainable grazing practices.
• Projects like the National Afforestation Programme aim to restore degraded grasslands and promote biodiversity.
• Community participation and awareness programs are being conducted to ensure the protection of these critical ecosystems.

Important Points

• Other Grassland Areas in India:
• The Banni grasslands in Gujarat are among the largest tropical grasslands in Asia.
• The Shola grasslands of the Western Ghats are known for their unique biodiversity and endemic species.
• The Terai grasslands of northern India are home to iconic species like the Bengal tiger and Indian rhinoceros.
• Global Importance:
• Grasslands are often referred to as the “lungs of the Earth” due to their role in carbon sequestration.
• They are part of the global efforts to combat climate change through preservation and restoration strategies.

Q82. Answer: (c) Jhumpa Lahiri

The correct answer is Jhumpa Lahiri.

Key Points

• Jhumpa Lahiri is the author of the novel "The Namesake", which was published in 2003.
• The book explores themes of identity, cultural assimilation, and the immigrant experience, particularly focusing on the life of a Bengali family in the United States.
• "The Namesake" is Jhumpa Lahiri's first novel, following her Pulitzer Prize-winning short story collection "Interpreter of Maladies" (1999).
• The protagonist of the novel, Gogol Ganguli, struggles to reconcile his Indian heritage with his American upbringing, making the book a poignant tale of identity and belonging.
• A film adaptation of "The Namesake", directed by Mira Nair, was released in 2006, further popularizing the book.

Additional Information

• Jhumpa Lahiri's Background:
• Jhumpa Lahiri was born in London to Bengali parents and later moved to the United States.
• She is known for her exploration of themes related to diaspora, identity, and family dynamics.
• Lahiri has received numerous accolades, including the Pulitzer Prize for Fiction in 2000 for her debut short story collection "Interpreter of Maladies."
• About "The Namesake":
• The title "The Namesake" refers to the protagonist's name, Gogol, which holds cultural and emotional significance for his family.
• The novel addresses the complexities of intergenerational and cross-cultural relationships.
• It is considered a modern classic and is often studied in literature courses for its exploration of immigrant identity.
• Other Works by Jhumpa Lahiri:
• "Interpreter of Maladies" (1999): A collection of short stories that earned her the Pulitzer Prize.
• "Unaccustomed Earth" (2008): Another acclaimed collection of short stories.
• "In Other Words" (2016): A memoir written in Italian, reflecting her love for the language and culture of Italy.
• Other Options:
• Arundhati Roy: Author of "The God of Small Things," which won the Booker Prize in 1997.
• Satyajit Ray: Renowned filmmaker and writer, known for his Feluda series in Bengali literature.
• Arun Joshi: Known for novels like "The Strange Case of Billy Biswas" and "The Apprentice."

Q83. Answer: (d) Xylophone

The correct answer is Xylophone.

Key Points

• 'Bengbung' is a traditional Mizo indigenous instrument that has notable similarities to the Xylophone.
• The Bengbung consists of a series of wooden bars that are arranged in a sequence to produce musical notes when struck, akin to the structure and mechanism of a Xylophone.

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• This instrument is primarily used in Mizo culture during traditional ceremonies, festivals, and other communal gatherings.

• Like the Xylophone, the Bengbung produces melodious sounds when the bars are struck with mallets, and the notes can vary depending on the size and tuning of the bars.

• It is a part of the rich cultural heritage of the Mizo community, representing their artistic and musical traditions.

Additional Information

• Xylophone:

• The Xylophone is a percussion instrument that originated in Africa and Asia but is now used worldwide in various musical genres.

• It consists of wooden bars of varying lengths that are struck with mallets to produce sound, with each bar tuned to a specific pitch.

• The instrument is used in orchestras, folk music, and even contemporary music due to its distinct tonal quality.

• Mizo Culture:

• The Mizos are an indigenous community predominantly found in the northeastern state of Mizoram, India.

• Music and dance play a significant role in their culture, with traditional instruments like the Bengbung being central to their festivities.

• Their musical traditions include folk songs and instruments that reflect their connection to nature and community life.

• Other Mizo Instruments:

• Besides the Bengbung, other traditional Mizo instruments include the Darbu (drum), Tumphit (wind instrument), and Khuang (gong).

• These instruments are often played together in harmony during festivals like Chapchar Kut and Mim Kut.

• Comparison with Other Options:

• Flute: A wind instrument that produces sound by blowing air across an opening. It does not resemble the Bengbung in structure or function.

• Cymbal: A percussion instrument made of metal plates that produce sound when struck together or with a stick. It is dissimilar to the Bengbung.

• Mridangam: A South Indian percussion instrument made of a hollow wooden body and used primarily in Carnatic music. It is structurally and functionally different from the Bengbung.

Q84. Answer: (d) Bommalattam

The correct answer is Bommalattam.

Key Points

• Bommalattam is a traditional puppet dance from the state of Tamil Nadu, India.

• It is a form of shadow puppetry that combines elements of theatre, storytelling, and music.

• The performances typically depict mythological tales, especially scenes from the Ramayana and the Mahabharata, two of the most revered epics in Indian culture.

• Bommalattam uses intricately crafted wooden and leather puppets, which are manipulated by skilled puppeteers to narrate the stories.

• This art form is performed during festivals, temple celebrations, and social gatherings, often aiming to educate and entertain audiences.

Additional Information

• Key Features of Bommalattam:

• The puppets used in Bommalattam are larger and heavier compared to those used in other forms of puppetry.

• They are made from materials like wood, cloth, and leather, adorned with bright colors and intricate designs.

• Puppeteers often use strings or rods to control the movements of the puppets, simulating lifelike actions and expressions.

• The performances are typically accompanied by traditional music and dialogues delivered in Tamil.

• Connection with Indian Epics:

• Scenes from the Ramayana include the heroic deeds of Lord Rama, the abduction of Sita, and the battle with Ravana.

• The Mahabharata episodes often depict the valor of the Pandavas, the wisdom of Lord Krishna, and the epic Kurukshetra war.

• Other Traditional Puppet Art Forms in India:

• Kathputli: A string puppet tradition from Rajasthan.

• Tholu Bommalata: A shadow puppet art form from Andhra Pradesh.

• Putul Nach: A rod puppet tradition in West Bengal and Assam.

• Gombeyatta: A string puppet tradition from Karnataka.

• Preservation Efforts:

• Bommalattam, like many traditional art forms, is facing challenges due to changing cultural preferences and lack of patronage.

• Efforts are being made by the Indian government and cultural organizations to preserve and promote this art through festivals, workshops, and grants.

Important Points

• Significance: Bommalattam serves as a medium to preserve and disseminate cultural heritage, ensuring that the younger generations remain connected to their traditions.

• Performance Spaces: While traditionally performed in temples, Bommalattam is now showcased at cultural festivals and exhibitions to reach a broader audience.

• Educational Value: The stories narrated in Bommalattam often convey moral and ethical lessons, making it both entertaining and enlightening.

Q85. Answer: (c) Both I and II

The correct answer is Both I and II.

Key Points

• Artificial satellites are man-made objects intentionally placed into orbit around Earth or other celestial bodies for various purposes such as communication, weather monitoring, navigation, and research.

• Sputnik-I was the world's first artificial satellite, launched by the Soviet Union on October 4, 1957. It marked the beginning of the space age and the exploration of outer space. Hence, Statement I is correct.

• GSAT-I is an Indian geostationary satellite launched on April 18, 2001, by the Indian Space Research Organisation (ISRO). It was designed for communication purposes and was part of India's GSAT satellite series. Hence, Statement II is correct.

• Since both Sputnik-I and GSAT-I are examples of artificial satellites, the correct answer includes both statements.

Additional Information

• Sputnik-I:

• It was launched by the USSR and weighed approximately 83.6 kg.

• The satellite transmitted radio pulses, which were monitored by scientists and radio operators around the world.

• It remained in orbit for three months before burning up in the Earth's atmosphere.

• This event initiated the space race between the USA and the USSR.

• GSAT-I:

• GSAT-I was developed and launched by the Indian Space Research Organisation (ISRO).

• It was part of India's effort to establish a domestic communication satellite network.

• The satellite had a mission life of 7 years and was equipped with C-band transponders to support telecommunication, television broadcasting, and meteorological services.

• This launch marked India's advancements in satellite technology.

• Artificial Satellites:

• These satellites are launched into space via rockets and are used for various purposes like Earth observation, communication, navigation, scientific research, and military applications.

• India has launched several artificial satellites under missions like INSAT, GSAT, and IRNSS (NavIC).

• Types of Artificial Satellites:

• Communication satellites: Used for television, radio, and internet services (e.g., GSAT series).

• Navigation satellites: Provide location and timing services (e.g., NavIC, GPS).

• Weather satellites: Monitor atmospheric conditions and weather patterns (e.g., INSAT series).

• Scientific satellites: Used for astronomical and Earth observation purposes (e.g., Hubble Space Telescope, Cartosat series).

Important Points

• The first artificial satellite, Sputnik-I, was a significant milestone in the history of space exploration and marked the beginning of modern satellite technology.

• India's ISRO has played a pivotal role in developing indigenous satellite systems for a variety of applications, placing India among the leading spacefaring nations.

• Artificial satellites have revolutionized communication, navigation, and Earth observation, impacting daily life and global connectivity.

• India's achievements in space technology, including satellites like GSAT-I, underscore its commitment to self-reliance and innovation in the field of space exploration.

Q86. Answer: (a) Solidification

The correct answer is Solidification.

Key Points

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• Solidification is the process by which a substance changes its state from a liquid to a solid. This typically occurs when the liquid is cooled to its freezing point.

• The freezing point is the temperature at which the liquid and solid phases of a substance coexist in equilibrium. For water, this temperature is 0°C (273.15 K) at standard atmospheric pressure.

• In the case of solidification, the molecules of the liquid lose kinetic energy due to cooling. As a result, they slow down and arrange themselves into a fixed, orderly structure, forming a solid.

• Solidification is an exothermic process, meaning it releases heat as the liquid transitions into a solid state.

• This process is a key principle in various natural phenomena and industrial applications, such as the formation of ice, the casting of metals, and the crystallization of substances.

Additional Information

• Deposition:

• Deposition is the direct change of state from gas to solid without passing through the liquid phase.

• An example of deposition is the formation of frost, where water vapor in the air turns directly into ice on cold surfaces.

• Sublimation:

• Sublimation refers to the change of state from a solid to a gas without passing through the liquid phase.

• An example of sublimation is the transformation of dry ice (solid carbon dioxide) directly into carbon dioxide gas.

• Evaporation:

• Evaporation is the process where a liquid changes to a gas at a temperature below its boiling point.

• It occurs at the surface of the liquid and is responsible for phenomena like drying of clothes and the cooling effect of sweat.

• Applications of Solidification:

• Metal casting: The process of shaping metals involves pouring molten metal into molds and allowing it to solidify.

• Ice formation: Solidification occurs naturally when water is cooled below its freezing point, forming ice.

• Crystallization: In industries, solidification is used to extract pure solid crystals from a solution.

Important Points

• Freezing vs. Solidification:

• Freezing is a specific type of solidification that occurs when a liquid turns into a solid at its freezing point.

• Solidification is a more general term that can apply to any liquid turning into a solid, regardless of the temperature or conditions.

• Latent Heat of Fusion:

• The latent heat of fusion is the amount of heat energy required to change a unit mass of a substance from solid to liquid (or vice versa) at constant temperature.

• For water, the latent heat of fusion is approximately 334 J/g.

• Phase Changes and Thermodynamics:

• All phase changes, including solidification, involve the transfer of energy in the form of heat.

• During solidification, the system releases heat to its surroundings, which is why it is classified as an exothermic process.

Q87. Answer: (a) Only I

The correct answer is Only I.

Key Points

• Law of Conservation of Energy: It states that energy cannot be created or destroyed, but can only be converted from one form to another. For example, chemical energy in food is converted into kinetic energy when we move. Hence, statement I is correct.

• Energy Transformation: The principle allows the transformation of energy forms such as mechanical, thermal, chemical, electrical, and nuclear energy. These transformations are essential for various physical processes.

• Incorrect Interpretation: Statement II claims that energy can be easily destroyed, which violates the law of conservation of energy. Energy cannot be destroyed; it only changes form or dissipates into less useful forms such as heat. Hence, statement II is incorrect.

• Examples of energy conservation include the functioning of machines, the photosynthesis process in plants, and the operation of electrical appliances where input energy is converted to a useful form.

• The principle is fundamental to physics and engineering, forming the basis for understanding energy systems across various domains.

Additional Information

• Definition: The law of conservation of energy is a fundamental principle in physics stating that the total energy in an isolated system remains constant over time, regardless of the transformations it undergoes.

• Historical Background: The concept was first introduced by Émilie du Châtelet in the 18th century and later refined by James Joule and others during the Industrial Revolution.

• Applications:

• In Thermodynamics: The first law of thermodynamics is based on energy conservation, stating that the energy added to a system is equal to the sum of its increase in internal energy and the work done by the system.

• In Mechanical Systems: Conservation of mechanical energy allows engineers to design efficient engines, turbines, and machines.

• In Electrical Systems: It is used in calculating power consumption and designing circuits for minimal energy loss.

• Real-Life Examples:

• Hydroelectric Power Plants: Potential energy of water stored in dams is converted into kinetic energy and then into electrical energy.

• Solar Panels: Solar energy is transformed into electrical energy through photovoltaic cells.

• Automobiles: Chemical energy in fuel is converted into mechanical energy to power the vehicle.

Important Points

• Energy Conversion Examples:

• Pendulum: A pendulum demonstrates the conversion of potential energy to kinetic energy and vice versa.

• Electric Bulbs: Electrical energy is converted into light and heat energy.

• Relation to Modern Physics: Einstein's equation $E=mc^2$ demonstrates the equivalence of energy and mass, expanding the scope of energy conservation.

• In Cosmology: Conservation laws play a significant role in understanding the dynamics of the universe, including dark energy and matter.

Q88. Answer: (a) Age

The correct answer is Age.

Key Points

• The ossification test is a scientific method used to determine the age of a person by studying the development and fusion of bones.

• This test is based on the principle that the human skeleton undergoes predictable changes as a person grows older, with certain bones fusing at specific ages.

• The process of ossification, or bone formation, begins in the fetus and continues into early adulthood, making it a reliable marker for age estimation.

• It is commonly used in forensic investigations, legal disputes (such as determining the age of juveniles), and in fields like anthropology and archaeology.

• The test typically involves X-ray imaging of bones like the clavicle, pelvis, wrists, and long bones, as these are key indicators of age-specific bone fusion patterns.

Additional Information

• Stages of Ossification:

• Primary ossification: This process begins during the fetal stage and involves the formation of the bone's diaphysis (shaft).

• Secondary ossification: This occurs after birth and includes the development of the epiphysis (ends of long bones).

• The fusion of epiphyseal plates (growth plates) occurs at specific ages, providing key indicators for age estimation.

• Applications of Ossification Test:

• Forensic Science: Used to determine the age of unidentified bodies or suspects in legal cases.

• Sports: Helps verify the age of athletes in age-restricted competitions.

• Legal Disputes: Often employed in cases involving child labor, juvenile crime, and adoption to ascertain the true age of individuals.

• Accuracy:

• The ossification test is generally accurate but may vary slightly depending on factors like genetics, nutrition, and environmental conditions.

• In some cases, advanced imaging techniques like CT scans and MRI are used to enhance accuracy.

• Limitations:

• It is less effective in adults as most bones are fully ossified by the age of 25.

• Factors such as malnutrition, hormonal disorders, and genetic anomalies can affect the ossification process, leading to discrepancies in age determination.

Important Points

• Legal Use in India:

• In India, the ossification test is often used in court cases to determine the age of juveniles under the Juvenile Justice (Care and

Protection of Children) Act, 2015.

• It is also used in cases of child labor to verify compliance with the Child Labour (Prohibition and Regulation) Act, 1986.

• Bone Fusion Timelines:

• The clavicle is one of the last bones to ossify, completing its fusion around the age of 25.

• In children, the wrists and knees are key indicators of bone age, as they show early ossification patterns.

• Global Relevance:

• The ossification test is recognized worldwide for its utility in forensic and legal contexts.

• Different countries may have specific guidelines or protocols for conducting the test, ensuring its reliability and validity in various contexts.

Q89. Answer: (b) Water-soluble fertiliser process

The correct answer is Water-soluble fertiliser process.

Key Points

• Water-soluble fertiliser process is a breakthrough aimed at reducing India's dependency on Chinese specialty fertilisers. This process enables the production of high-quality fertilisers that dissolve entirely in water, making them suitable for modern agricultural practices.

• The development of indigenous water-soluble fertilisers is pivotal for the self-reliance of India in the agricultural sector, as specialty fertilisers like water-soluble variants were largely imported from countries like China.

• These fertilisers are crucial for precision farming and advanced irrigation techniques such as drip irrigation and fertigation systems, ensuring optimal utilisation of nutrients by crops.

• Adopting this process aligns with India's vision of promoting sustainable agriculture and minimizing environmental impacts caused by excessive or improper fertiliser use.

• The production of water-soluble fertilisers is supported by government initiatives to boost domestic manufacturing, reduce import dependency, and achieve agricultural self-sufficiency.

Additional Information

• Green hydrogen blend:

• This technology involves using green hydrogen, produced from renewable energy sources, as a sustainable alternative to fossil fuels.

• India has launched the National Green Hydrogen Mission to promote green hydrogen production, aiming to reduce carbon emissions and dependence on traditional energy sources.

• Though promising, this is unrelated to reducing reliance on Chinese specialty fertilisers.

• Nano-fertiliser deployment:

• Nano-fertilisers are advanced formulations that ensure efficient nutrient delivery to crops at a microscopic level, leading to enhanced productivity.

• India has made significant progress in nano-fertiliser development, with Indian Farmers Fertiliser Cooperative (IFFCO) pioneering nano-urea production.

• While beneficial, they are not specifically designed to replace the specialty fertilisers imported from China.

• Fast-charging lithium battery process:

• Fast-charging lithium batteries are integral to the electric vehicle (EV) revolution, aiming to reduce dependence on fossil fuels and promote clean energy.

• India is investing heavily in lithium battery technology to support its EV industry, but this is unrelated to the agricultural sector or fertiliser dependency.

• Importance of water-soluble fertilisers:

• These fertilisers are used for high-value crops such as fruits, vegetables, and flowers, which require precise nutrient management.

• They enhance nutrient uptake efficiency, reduce wastage, and lower environmental pollution compared to conventional fertilisers.

• India's focus on water-soluble fertilisers is a step toward achieving the goals of the Atmanirbhar Bharat initiative in the agricultural sector.

Important Points

• China's dominance in specialty fertilisers: China is a major global producer of specialty fertilisers, including water-soluble variants, leading to significant import dependency for countries like India.

• Government support: Indian authorities are encouraging domestic production of specialty fertilisers through subsidies and financial incentives to reduce reliance on imports.

• Environmental benefits: The use of water-soluble fertilisers ensures minimal leaching and runoff, reducing soil and water

contamination.

• Market potential: The global water-soluble fertiliser market is expected to grow rapidly, providing opportunities for Indian manufacturers to compete internationally.

Q90. Answer: (a) higher income leads to a higher tax rate

The correct answer is In progressive income taxation, higher income leads to a higher tax rate..

Key Points

• Progressive taxation is a system in which the tax rate increases as the taxable income increases, ensuring that individuals with higher earnings contribute a larger percentage of their income in taxes.

• This system is based on the principle of equity, where those who earn more are expected to pay proportionately more to support societal needs.

• Progressive tax structures often involve tax brackets, where income is divided into ranges, and each range is taxed at a specific rate. For example, income below a certain threshold may be taxed at 10%, while higher income ranges are taxed at 20%, 30%, etc.

• This approach helps to reduce income inequality by redistributing wealth and funding essential services such as education, healthcare, and infrastructure.

• Examples of progressive taxes include income tax in many countries, such as India, the United States, and the United Kingdom. In contrast to flat taxes, progressive taxes are designed to be fairer to lower-income earners.

Additional Information

• Flat Taxation:

• In a flat tax system, everyone pays the same tax rate, regardless of their income level. This structure is simpler but can disproportionately affect low-income individuals.

• Examples of flat tax systems include corporate tax rates in some countries and certain consumption taxes.

• Regressive Taxation:

• In a regressive tax system, the tax rate decreases as income increases, resulting in a higher burden on lower-income individuals.

• Examples include sales taxes or excise taxes, which represent a larger proportion of income for poorer individuals.

• Application of Progressive Taxation:

• Progressive taxation is widely used in countries with social welfare systems to promote economic stability and reduce disparities between rich and poor.

• For instance, in the United States, federal income tax follows a progressive model with seven tax brackets, ranging from 10% to 37% based on income levels.

• Historical Context:

• Progressive taxation was first proposed by Adam Smith in his book "The Wealth of Nations" (1776) as a fair way to collect revenue.

• It was implemented in countries like the United Kingdom in 1799 and the United States in 1913.

Important Points

• Benefits of Progressive Taxation:

• It reduces income inequality by redistributing wealth through higher taxes on the rich.

• Encourages economic stability by funding public services essential for societal welfare.

• Promotes the principle of social justice, ensuring that those with greater financial capacity contribute more.

• Challenges:

• Progressive taxation can discourage high earners from investing or working harder due to higher tax burdens.

• Tax evasion and avoidance practices can undermine the effectiveness of progressive tax systems.

• Administrative complexity in calculating and enforcing tax brackets.

Q91. Answer: (d) organised or unorganised sector employee

The correct answer is organised or unorganised sector employee.

Key Points

• The Code on Social Security, 2020 consolidates and simplifies the existing labor laws relating to social security and applies to employees in both organised and unorganised sectors.

• The code aims to provide universal social security coverage to all workers, including those in the gig economy and platform-based workers.

• It ensures that workers in the unorganised sector—such as daily wage earners, self-employed individuals, and migrant laborers—are brought under the umbrella of social security schemes such as provident fund, health insurance, and maternity benefits.

• The code mandates the establishment of a Social Security Fund to support unorganised workers and gig workers, ensuring their inclusion in welfare measures.

• The Employee Provident Fund (EPF), Employee State Insurance (ESI), and other existing schemes are integrated under the new framework to ensure better benefits for workers across all sectors.

Additional Information

• Organised Sector:

• Refers to industries or workplaces that are formally registered with the government and comply with legal obligations like tax payments, minimum wages, and statutory benefits.

• Workers in this sector are entitled to benefits such as paid leave, health insurance, provident fund, and retirement plans.

• Examples include employees in corporates, public sector units (PSUs), and government institutions.

• Unorganised Sector:

• Comprises workers who are employed in informal setups without legal recognition or benefits.

• Includes occupations such as street vendors, domestic workers, construction workers, and agricultural laborers.

• The Social Security Code, 2020, seeks to address the lack of protection for this vulnerable group.

• Social Security Fund:

• A key provision under the Code is the creation of a Social Security Fund for workers in the unorganised sector, gig workers, and platform workers.

• The fund is financed through contributions from employers, the central government, and state governments.

• It ensures that these workers gain access to benefits such as pensions, health insurance, and disability benefits.

• Gig and Platform Workers:

• The code explicitly includes workers in the gig economy, such as food delivery agents, ride-sharing drivers, and freelancers.

• The inclusion of these workers under social security is a significant step to address the growing informal workforce in India.

Important Points

• The Code on Social Security, 2020 is one of the four labor codes introduced by the Government of India to simplify and consolidate labor laws.

• The code amalgamates nine central labor laws, including the Employees' Provident Fund Act, Employees' State Insurance Act, and Maternity Benefit Act.

• The code mandates the registration of workers in the unorganised sector on a government portal to access social security benefits.

• Employers in the organised sector are required to contribute towards EPF, ESI, and gratuity, ensuring adequate protection for their employees.

• Implementation of the code requires active collaboration between the central and state governments.

Q92. Answer: (c) Both I and II

The correct answer is Both I and II.

Key Points

• Shivaji's exploits against the Mughal Empire: Shivaji Maharaj's battles against the Mughal forces, particularly during the reign of Emperor Aurangzeb, were legendary. His daring raids, such as the attack on Shaista Khan in Pune (1663), showcased his strategic brilliance and ability to outwit the powerful Mughal army. Hence, statement I is correct.

• Shivaji's resistance against the Sultanate of Bijapur: Shivaji began his military career by challenging the Bijapur Sultanate, which controlled much of the Deccan region. His capture of the Torna Fort (1646) and subsequent victories against Bijapur marked the beginning of his rise as a formidable ruler. He defeated Afzal Khan, a general of Bijapur, in a famous encounter in 1659, which further cemented his reputation. Hence, statement II is correct.

• Combination of forces: Shivaji's legendary status was built upon his conflicts with both the Mughal Empire and the Bijapur Sultanate. He skillfully managed to expand his kingdom while resisting these powerful adversaries, making him one of the most remarkable figures in Indian history.

• Military innovations: Shivaji introduced revolutionary tactics, including guerrilla warfare, which allowed him to overcome larger and more powerful forces. His use of mountain forts, rapid mobility, and surprise attacks were instrumental in his victories against both the Mughals and Bijapur.

• Significance: Shivaji's resistance against two prominent powers of the time demonstrated his vision, courage, and leadership. His success against the Mughals and Bijapur laid the foundation for the Maratha Empire, which became a dominant force in Indian politics.

Additional Information

• Mughal Empire:

• The Mughal Empire was one of the most powerful empires in India, known for its administrative efficiency, cultural achievements,

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and military strength. It was established by Babur in 1526 and reached its zenith under Akbar, Jahangir, and Shah Jahan.

• During Shivaji's time, Aurangzeb was the ruler, and his policies were seen as oppressive by many regional leaders, including Shivaji.

• Shivaji's resistance to Mughal expansion in the Deccan significantly weakened Mughal control in southern India.

• Bijapur Sultanate:

• The Bijapur Sultanate was one of the Deccan Sultanates that emerged after the disintegration of the Bahmani Sultanate. It was established in the 15th century and was known for its architectural contributions, including the Gol Gumbaz.

• Shivaji's early battles against Bijapur included the capture of forts and territories, which allowed him to consolidate power in the region.

• His encounter with Afzal Khan is one of the most famous episodes in Indian history, showcasing Shivaji's strategic brilliance.

• Guerrilla Warfare:

• Shivaji is considered the pioneer of guerrilla warfare in India. His tactics involved surprise attacks, rapid movements, and strategic use of terrain, particularly the Western Ghats.

• These methods allowed him to defeat larger and better-equipped armies, including those of the Mughals and Bijapur.

• His military innovations were later adopted by the Maratha Empire and proved instrumental in their expansion.

• Legacy of Shivaji:

• Shivaji's leadership and vision laid the foundation for the Maratha Empire, which became one of the most significant powers in India during the 18th century.

• He is remembered as a symbol of resistance against oppression and a champion of regional autonomy.

• His administrative reforms, including the establishment of an efficient revenue system and promotion of local culture, contributed to his lasting legacy.

Important Points

• Battle of Pratapgad: The Battle of Pratapgad (1659) was a turning point in Shivaji's career. His victory against Afzal Khan demonstrated his tactical brilliance and courage.

• Coronation: Shivaji was formally crowned as the Chhatrapati (king) of the Maratha Empire in 1674, emphasizing his status as an independent ruler.

• Fort System: Shivaji constructed and fortified numerous forts across Maharashtra, which served as strategic bases for his military campaigns.

• Administrative Reforms: Shivaji introduced efficient revenue systems and promoted local industries, ensuring the prosperity of his kingdom.

• Religious Tolerance: Despite being a devout Hindu, Shivaji promoted religious tolerance and respected all faiths, which strengthened his rule.

Q93. Answer: (c) 1992

The correct answer is 1992.

Key Points

• Insider Trading Regulations were first formulated by the Securities and Exchange Board of India (SEBI) in the year 1992. These regulations aimed to curb insider trading practices, ensuring fair and transparent functioning of the securities market.

• The regulations are officially called the SEBI (Prohibition of Insider Trading) Regulations, 1992.

• These regulations were enacted under the powers conferred by the SEBI Act of 1992, which gave SEBI the authority to regulate activities in the securities market.

• Insider trading refers to the trading of securities by individuals or entities having privileged access to non-public, material information about the company.

• The 1992 regulations were a significant step toward strengthening investor protection and ensuring market integrity by preventing the misuse of insider information.

• These regulations have undergone several amendments over the years to incorporate evolving market dynamics, the latest being the SEBI (Prohibition of Insider Trading) Regulations, 2015.

Additional Information

• About SEBI:

• The Securities and Exchange Board of India (SEBI) was established in 1988 and was given statutory powers in 1992 under the SEBI Act.

• SEBI is responsible for regulating the securities market, protecting investor interests, and promoting the development of the stock market in India.

• It oversees various market participants, including stock exchanges, brokers, mutual funds, and other intermediaries.

• Features of SEBI Insider Trading Regulations:

• The regulations define “insider” as a person who has access to unpublished price-sensitive information about securities.

• They prohibit insiders from trading securities while in possession of such information.

• Penalties under the regulations include monetary fines and imprisonment as per provisions of the SEBI Act.

• Amendments to the Regulations:

• In 2015, SEBI introduced revised regulations under the SEBI (Prohibition of Insider Trading) Regulations, 2015.

• The revised regulations focused on concepts like Chinese Walls, which aim to restrict the flow of sensitive information within organizations.

• They also introduced measures for automated monitoring and reporting of insider trading cases using technology.

• Global Relevance:

• Insider trading is prohibited globally, with similar regulations in countries like the USA (under the Securities Exchange Act of 1934) and the UK (under the Criminal Justice Act 1993).

• International bodies such as the International Organization of Securities Commissions (IOSCO) also promote best practices to address insider trading globally.

Important Points

• 1992 SEBI Act:

• The SEBI Act of 1992 gave SEBI statutory powers to regulate the securities market and prevent malpractices like insider trading.

• The act also empowered SEBI to enforce penalties and take legal actions against violators.

• Role of Insider Trading Regulations:

• The regulations aim to enhance investor confidence by ensuring transparency and fairness in trading practices.

• They play a crucial role in maintaining the integrity of financial markets and safeguarding small investors from exploitation.

• Recent Developments:

• SEBI has introduced measures like online reporting systems, whistleblower mechanisms, and stricter penalties for insider trading violations.

• It has been focusing on leveraging technology and data analytics to detect suspicious trading activities more efficiently.

Q94. Answer: (b) Resolution passed by the Council of States and agreed to by the House of the People

The correct answer is Resolution passed by the Council of States and agreed to by the House of the People.

Key Points

• Article 67 of the Constitution of India states that the Vice President of India can be removed from office through a resolution passed by the Council of States (Rajya Sabha) and agreed to by the House of the People (Lok Sabha).

• The resolution must be passed in the Rajya Sabha by an absolute majority (more than half of the total members) and then agreed to by the Lok Sabha.

• The process for removal requires the resolution to be introduced after a 14-day prior notice signed by at least 50 members of the Rajya Sabha.

• This provision ensures that the removal of the Vice President is conducted with due deliberation, maintaining the dignity of the office.

• The Vice President can only be removed for reasons that align with the rules and procedures of parliamentary democracy; arbitrary removal is not permitted. Hence, the correct answer is Resolution passed by the Council of States and agreed to by the House of the People.

Additional Information

• Role of the Vice President:

• The Vice President of India is the ex-officio Chairman of the Rajya Sabha.

• He/she acts as the second-highest constitutional office in India and assists the President in case of absence or resignation.

• The term of the Vice President is five years, but he/she can continue in office until the successor assumes charge.

• Election Process:

• The Vice President is elected by the members of an electoral college consisting of the members of both Houses of Parliament.

• The election is conducted through a single transferable vote system and is by secret ballot.

• The candidate must be a citizen of India, at least 35 years old, and qualified to be a member of the Rajya Sabha.

• Removal Procedure:

• The Vice President can be removed through a resolution passed in the Rajya Sabha and agreed to by the Lok Sabha, as per Article 67.

• A 14-day notice is mandatory before moving the resolution.

• Unlike the President, the Vice President does not face impeachment; the removal process is simpler but requires legislative consensus.

• Important Articles:

• Article 63: Specifies that there shall be a Vice President of India.

• Article 64: States the role of the Vice President as the Chairman of the Rajya Sabha.

• Article 66: Deals with the election of the Vice President.

• Article 67: Provides for the removal of the Vice President.

Important Points

• Comparison with Presidential Impeachment:

• The President of India can be removed through an impeachment process, which is more complex and requires charges to be proved.

• The Vice President, however, is removed through a resolution, making the process less rigorous.

• Historical Context:

• Since the establishment of the office, no Vice President of India has been removed from office.

• This reflects the stability of the constitutional framework and the respect for the office.

• Significance of the Office:

• The Vice President ensures the smooth functioning of the Rajya Sabha and acts as a crucial link in legislative processes.

• He/she plays a key role in maintaining parliamentary decorum and resolving disputes within the Rajya Sabha.

Q95. Answer: (c) 27%

The correct answer is 0.27.

Key Points

• Plateau regions in India cover approximately 27% of the total land area, making them a significant geographical feature of the country.

• India's plateaus are primarily composed of old crystalline rocks and are found in regions like the Deccan Plateau, Chota Nagpur Plateau, and Malwa Plateau.

• The Deccan Plateau is one of the largest plateau regions in India, covering parts of Andhra Pradesh, Maharashtra, Karnataka, Telangana, and Tamil Nadu.

• Plateaus play a vital role in India's geography and economy by serving as a source of mineral resources, having suitable conditions for certain crops, and hosting rivers that provide water for irrigation.

• The plateau regions are elevated landmasses that are rich in resources like coal, iron ore, manganese, and bauxite, which contribute significantly to India's industrial development.

Additional Information

• Features of Plateau Regions:

• Plateaus are elevated flatlands with a relatively level surface and are often referred to as tablelands.

• The average altitude of plateaus in India ranges from 600 to 900 meters above sea level.

• They are bounded by hills or mountains and are often dissected by rivers, which create stunning landscapes like waterfalls and gorges.

• Major Plateau Regions in India:

• Deccan Plateau: Covers the majority of peninsular India and is known for its black soil, suitable for cotton cultivation.

• Chota Nagpur Plateau: Located in eastern India, it is rich in coal, iron, and other minerals, making it the backbone of India's mining industry.

• Malwa Plateau: Found in central India, it is known for its fertile soil, supporting agriculture.

• Importance of Plateaus:

• Mineral Resources: Plateaus are rich in minerals, which support India's industrial activities like iron and steel production.

• Hydropower Potential: Rivers originating from plateau regions are used for generating electricity through hydropower projects.

• Agriculture: The soil in some plateau regions, like the Deccan Plateau, is highly fertile and suitable for crops like cotton and sugarcane.

• Plateaus and Rivers:

• Several rivers like the Godavari, Krishna, and Kaveri originate in plateau regions and play a crucial role in irrigation and drinking water supply.

• Plateaus have waterfalls like Jog Falls and Dhuandhar Falls created by rivers, which are major tourist attractions.

Important Points

• Geographical Significance: Plateaus cover a substantial portion of India’s landmass and significantly impact the climate, biodiversity, and economy.

• Examples of Plateaus Globally: Other famous plateaus in the world include the Tibetan Plateau (the largest and highest plateau)

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and the Colorado Plateau in the USA.

• Formation: Plateaus are formed due to various geological processes such as volcanic activity, tectonic movements, and erosion.

Q96. Answer: (c) Both I and II

The correct answer is Both I and II.

Key Points

• Land reforms in Kerala: Kerala implemented one of the most successful land reform programs in India after independence. The Kerala Land Reforms Act (1969) abolished tenancy and ensured ownership rights for tenants. This led to significant socio-economic changes in the state, reducing inequality and empowering marginalized communities. Hence, Kerala's reforms were successful.

• Land reforms in West Bengal: West Bengal introduced land reforms under the leadership of the Left Front government. Programs like "Operation Barga" provided ownership rights to sharecroppers and improved agricultural productivity. These initiatives enhanced rural livelihoods and reduced exploitation. Thus, West Bengal's reforms were also successful.

• Both Kerala and West Bengal adopted strategies that prioritized redistribution of land, tenant rights, and reduction of landlord exploitation. Their efforts serve as models for land reform in India.

• Land reforms in these states contributed to a reduction in rural poverty and improved access to resources for marginalized communities.

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

Additional Information

• Land reforms in India:

• Land reforms refer to the redistribution of land to ensure equity in ownership and access to land resources.

• Post-independence, India introduced measures such as the abolition of zamindari system, tenancy reforms, and ceilings on land holdings.

• The objective was to address the issues of inequality, poverty, and exploitation in rural areas.

• Kerala Land Reforms Act:

• The Kerala Land Reforms Act (1969) abolished tenancy and granted ownership rights to tenants.

• It also imposed ceilings on land holdings and distributed surplus land to the landless.

• This initiative significantly reduced the influence of landlords and improved rural socio-economic conditions.

• Operation Barga in West Bengal:

• Initiated in the late 1970s, Operation Barga aimed to provide tenancy rights to sharecroppers.

• Under this program, sharecroppers were registered and granted legal rights to cultivate the land.

• This led to increased agricultural productivity and reduced exploitation by landlords.

• Challenges in land reforms:

• Despite success in some states, land reforms in India faced challenges such as poor implementation, resistance from landlords, and lack of political will.

• Several states still struggle with issues of land inequality and exploitation.

Important Points

• Impact of land reforms:

• Land reforms have proven instrumental in reducing poverty and inequality in rural India.

• States like Kerala and West Bengal highlight how effective policies can transform agrarian economies.

• However, uneven implementation across states remains a concern.

• Articles of the Constitution related to land reforms:

• Article 39: Directs the state to ensure equitable distribution of resources, including land.

• Article 31B: Provides protection to land reform laws under the Ninth Schedule of the Constitution.

Q97. Answer: (c) 13%

The correct answer is 0.13.

Key Points

• In 1950-51, the share of the industry in India’s Gross Domestic Product (GDP) was approximately 13%. This was a modest contribution due to India’s largely agrarian economy during the post-independence era.

• At the time, the industrial sector was primarily focused on basic industries such as textiles, food processing, and small-scale manufacturing. Heavy industries were still in their nascent stages.

• The economy of India was characterized by its reliance on agriculture, which accounted for the largest share of GDP, with industry and services contributing lesser proportions.

• The Industrial Policy Resolution of 1948 laid the foundation for industrial development in India, encouraging public and private sector participation in the economy.

• Post-independence, India adopted a strategy of state-led industrialization, with emphasis on establishing public sector enterprises to build heavy industries and infrastructure.

Additional Information

• Indian Economy in 1950-51:

• The Indian economy was predominantly agrarian, with agriculture accounting for over 50% of GDP.

• Industrialization was limited, with most industries being small-scale and traditional in nature.

• India lacked adequate infrastructure, including transportation, energy, and communication facilities, which hindered industrial growth.

• Industrial Policy Resolution of 1948:

• This policy marked the beginning of India's planned economic development, aiming to achieve self-reliance and industrial growth.

• It categorized industries into public sector, private sector, and joint sector for better management and growth.

• The policy emphasized the development of industries such as steel, coal, cement, and other basic sectors.

• Five-Year Plans:

• The First Five-Year Plan (1951-56) focused on agriculture and irrigation, while industrial development was secondary.

• The Second Five-Year Plan (1956-61), under the guidance of economist P.C. Mahalanobis, emphasized heavy industries and infrastructure development.

• Industrial growth accelerated during subsequent plans as India built large-scale industries and public sector undertakings.

• Challenges to Industrial Growth:

• Lack of capital, skilled manpower, and modern technology were major hurdles.

• The partition of India in 1947 resulted in loss of industrial hubs and assets, further affecting growth.

• India faced issues like low productivity, inadequate financial systems, and dependence on imports for machinery and technology.

• Industrial Growth Post-1950:

• The establishment of institutions like Indian Institutes of Technology (IITs) and National Laboratories played a crucial role in fostering industrial and technological development.

• Public sector undertakings like BHEL, SAIL, and ONGC were established to boost industrialization.

• By the late 20th century, India's industrial sector had diversified, with significant contributions from heavy industries, pharmaceuticals, and electronics.

Important Points

• The contribution of the industrial sector to India's GDP has grown significantly since 1950-51, reaching approximately 28.4% by 2022.

• India's industrial policies have evolved, focusing on liberalization, privatization, and globalization since the 1991 economic reforms.

• Today, India boasts a diverse industrial sector, including automobile manufacturing, IT services, pharmaceuticals, and renewable energy.

• Efforts to improve infrastructure, skill development, and foreign investment have further strengthened industrial growth.

Q98. Answer: (a) more, be increase

The correct answer is Option 1: more, be increase.

Key Points

• Birth Rate refers to the number of live births per 1,000 people in a population per year. It is a crucial indicator of population growth.

• Death Rate is the number of deaths per 1,000 individuals per year. It reflects the mortality levels of a population.

• If the birth rate exceeds the death rate, the population will increase, as more people are being added to the population than those leaving it through death. Hence, this statement is correct.

• This relationship is a fundamental principle in demography, the study of population dynamics.

• In contrast, when the birth rate is less than the death rate, the population will decrease, and if both rates are equal, the population remains stable.

Additional Information

• Factors Influencing Birth and Death Rates:

• Economic Development: Higher economic development often results in lower birth rates due to improved education and family planning.

• Healthcare Advances: Improved healthcare reduces death rates, especially infant mortality.
• Cultural and Religious Practices: These can influence family size preferences and birth rates.
• Government Policies: Policies like China's One-Child Policy or incentives for larger families impact population dynamics.
• Population Growth Patterns:
• Exponential Growth: Occurs when birth rates significantly exceed death rates, leading to rapid population increase.
• Zero Population Growth: Achieved when birth and death rates are equal.
• Negative Growth: Occurs when death rates exceed birth rates, leading to population decline.
• Global Trends:
• Countries like India and Nigeria experience high birth rates, contributing to rapid population growth.
• Developed nations like Japan and Germany often face declining populations due to low birth rates.
• Population Policies:
• Governments implement policies to control population growth, such as promoting family planning and education in countries with high birth rates.
• In nations with declining populations, incentives like tax benefits for larger families are introduced.

Important Points

• Demographic Transition Model: This model explains population changes over time due to shifts in birth and death rates. It has four stages:
• Stage 1: High birth and death rates result in a stable population.
• Stage 2: Death rates decline due to improved healthcare, causing population growth.
• Stage 3: Birth rates decrease, slowing population growth.
• Stage 4: Low birth and death rates lead to population stabilization.
• Examples:
• India: High birth rate and declining death rate contribute to its large population.
• Japan: Low birth rate and aging population lead to negative growth.
• United Nations Projections: The UN Population Division predicts the global population will reach 10 billion by 2050, driven mainly by developing countries.

Q99. Answer: (d) 120 mm Hg and 80 mm Hg respectively

The correct answer is 120 mm Hg and 80 mm Hg respectively.

Key Points

• The normal systolic blood pressure in humans is 120 mm Hg, while the normal diastolic blood pressure is 80 mm Hg. These values are considered standard for a healthy adult.
• Systolic blood pressure is the pressure exerted on the walls of the arteries when the heart contracts and pumps blood into the circulation.
• Diastolic blood pressure is the pressure in the arteries when the heart is at rest between beats and filling with blood.
• The measurement of blood pressure is expressed in millimeters of mercury (mm Hg), a unit that indicates the force exerted by the blood on the walls of blood vessels.
• A reading of 120/80 mm Hg is often referred to as the gold standard for cardiovascular health, reflecting optimal functioning of the circulatory system.
• Values above 140/90 mm Hg are generally categorized as hypertension, while values below 90/60 mm Hg are classified as hypotension.

Additional Information

• Understanding Systolic and Diastolic Pressure:
• Systolic Pressure: It represents the peak pressure in the arteries during the heartbeat when the heart's ventricles contract.
• Diastolic Pressure: It represents the lowest pressure in the arteries when the heart is resting between beats.
• Both readings are vital to determine the overall health of the heart and blood vessels.
• Factors Affecting Blood Pressure:
• Age: Blood pressure tends to rise with age due to arterial stiffness.
• Lifestyle: Sedentary habits, high-sodium diets, and obesity can increase blood pressure, while regular exercise and a balanced diet can help maintain normal levels.
• Stress: Chronic stress can lead to elevated blood pressure over time.
• Genetics: A family history of hypertension increases an individual’s risk.
• Importance of Monitoring Blood Pressure:

• Regular monitoring helps detect hypertension, which is a major risk factor for heart disease and stroke.

• It aids in managing chronic conditions like diabetes, kidney disease, and other cardiovascular disorders.

• Early detection allows for timely interventions such as lifestyle changes and medication.

• Categories of Blood Pressure:

• Normal: Less than 120/80 mm Hg.

• Elevated: Systolic between 120-129 mm Hg and diastolic less than 80 mm Hg.

• Hypertension Stage 1: Systolic between 130-139 mm Hg or diastolic between 80-89 mm Hg.

• Hypertension Stage 2: Systolic 140 mm Hg or higher or diastolic 90 mm Hg or higher.

• Measurement of Blood Pressure:

• A sphygmomanometer is commonly used to measure blood pressure.

• It involves a cuff that is wrapped around the arm and inflated to constrict blood flow, followed by a gradual release to measure systolic and diastolic pressures.

Q100. Answer: (b) Champa

The correct answer is Champa.

Key Points

• Anga was one of the sixteen Mahajanapadas (great kingdoms) mentioned in ancient Indian texts such as the Anguttara Nikaya and the Mahabharata. The Mahajanapadas were the political and territorial units that flourished during the 6th century BCE.

• The capital of the Mahajanapada of Anga was Champa, which was located in present-day Bihar. It was a significant city in ancient India and served as a center of trade and commerce.

• Champa was situated on the banks of the Ganga River and had access to waterways, which facilitated its role as a prominent trade hub. The city was especially known for its wealth and luxury.

• The kingdom of Anga played a vital role in ancient Indian history and was later annexed by the kingdom of Magadha, which eventually became one of the most powerful Mahajanapadas.

• Among the other options: Vaishali was the capital of the Vajji Mahajanapada, Kausambi was the capital of Vatsa, and Gaya was a prominent city but not a capital of a Mahajanapada. This confirms that Champa is the correct answer.

Additional Information

• Mahajanapadas:

• The sixteen Mahajanapadas were large territorial states that emerged during the later Vedic period (circa 600 BCE). These included Anga, Magadha, Kosala, Vatsa, and others.

• They were important for the political, economic, and cultural development of India during this period. The rise of these states marked the transition from tribal societies to more centralized political entities.

• The Mahajanapadas were often engaged in warfare for territorial expansion, leading to the dominance of a few powerful states like Magadha.

• Anga:

• The kingdom of Anga was located in present-day Bihar and parts of West Bengal. Its strategic location made it a vital center for trade and communication.

• Anga is mentioned in several ancient texts, including the Mahabharata, which describes its involvement in various historical events and alliances.

• Its annexation by Magadha marked the beginning of Magadha's rise as a dominant power in ancient India.

• Champa:

• Champa, the capital of Anga, was famous for its wealth and trade, particularly in items like precious stones, perfumes, and textiles.

• It was also a cultural center, known for its patronage of art, literature, and religion.

• The city's location on the Ganga River enhanced its connectivity and facilitated the growth of trade and commerce.

• Other Mahajanapadas:

• Vaishali: Capital of the Vajji Mahajanapada, known as one of the world's first republics.

• Kausambi: Capital of Vatsa, known for its prosperity and as a center of learning.

• Gaya: A city in Bihar, significant for its religious and cultural heritage, but not a Mahajanapada capital.

Important Points

• Anguttara Nikaya: A Buddhist text that lists the sixteen Mahajanapadas, providing insights into the political and social organization of ancient India.

• Magadha's Expansion: Magadha's annexation of Anga was an important step in its rise to power, eventually leading to the establishment of great empires like the Maurya and Gupta empires.

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• Trade and Commerce: The location of cities like Champa along rivers played a crucial role in the economic prosperity of the Mahajanapadas, allowing them to engage in both inland and overseas trade.

• Cultural Significance: Cities like Champa were not only economic hubs but also centers of culture, fostering the growth of art, religion, and education.

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