SSC CHSL 2025 Tier-1 (Held On: 30 Nov, 2025 Shift 3) (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 incorrect sentence.

(a) These pieces of jewelleries are designed by a highly acclaimed expert.
(b) Elephants can swim very well.
(c) The Nilgiris are the most productive mountains of the south.
(d) There are not many followers of Gandhiji these days.

Q2. Identify the incorrect sentence

(a) Ten percent of the students in the class speak three languages.
(b) Forty-five minutes is a very long coffee break.
(c) His advice was perfect for the situation his friend was facing.
(d) The academic committee was undivided in their decision to hire the new staff.

Q3. Fill in the blank with the most appropriate preposition:

He invested heavily _____ renewable energy startups last year.

(a) into
(b) in
(c) to
(d) for

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

The patient responded well to the treatment, _____ the prognosis remains guarded.

(a) hence
(b) therefore
(c) yet
(d) because

Q5. Select the most appropriate synonym of the word: MIRAGE

(a) Fantasy
(b) Reality
(c) Evidence
(d) Proof

Q6. Choose the correctly spelt word:

(a) Committee
(b) Committy
(c) Commitee
(d) Comitee

Q7. Select the most antonym of the word: Obsolete

(a) Outdated
(b) Ancient
(c) Current
(d) Disused

Q8. Choose the most suitable option to replace the highlighted part of the sentence:

The trend of wearing boots is something that has most sure come around this season.

(a) most surely
(b) very certainly
(c) very sure
(d) maybe

Q9. Choose the correct one-word substitute for:

A person who believes in fate.

(a) Realist
(b) Fatalist
(c) Idealist
(d) Optimist

Q10. Select the most appropriate antonym of the word:

Cajole

(a) Entice
(b) Bully
(c) Persuade
(d) Flatter

Q11. Choose the option that is the most appropriate conversion of the following sentence into Direct Speech.

The mentor asked whether I had been preparing regularly and if I would be ready by Monday.

(a) The mentor asked, "Have you been preparing regularly and will you be ready by Monday?"
(b) The mentor asked, "Had you been preparing regularly and would you be ready by Monday?"
(c) The mentor asked, "Were you preparing regularly and will you be ready by Monday?"
(d) The mentor asked, "Have you prepared regularly and are you ready by Monday?"

Q12. Change the following sentence into the Active form.

The new policy will have been debated for months before it is implemented.

(a) They will have debated the new policy for months before it is implemented.
(b) The new policy will have debated for months before they implement it.
(c) The new policy will be debated for months before it is implemented.
(d) They will be debating the new policy for months before they implement it.

Q13. Select the option that expresses the given sentence in indirect voice.

She said to them, "You will be surprised."

(a) She told them that they would be surprised.
(b) She told them that you would be surprised.
(c) She told them that they will be surprised.
(d) She told them that she would be surprised.

Q14. Choose the correct passive voice transformation of the sentence:

The doctor is examining the patient.

(a) The patient was being examined by the doctor.
(b) The patient is examined by the doctor.
(c) The patient is being examined by the doctor.
(d) The patient has been examined by the doctor.

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Directions

Read the passage and answer the following questions:

Salt, a ubiquitous yet often underappreciated mineral, manifests in myriad forms, each possessing distinctive characteristics shaped by geological provenance and processing methods. Common table salt, the most prevalent variety, undergoes extensive refinement, wherein impurities are eliminated and iodine is often infused to combat endemic deficiencies. Its crystalline uniformity and rapid solubility make it indispensable in both culinary and industrial contexts.

In contrast, sea salt is derived through the gradual evaporation of seawater, a process that preserves trace minerals such as magnesium and potassium, thereby imparting subtle variations in flavour and hue. Gourmet enthusiasts often extol its coarse granules for the nuanced crunch they confer to dishes.

Himalayan pink salt, quarried from ancient seabeds in the Punjab region, owes its blush to iron oxide deposits. Advocates claim it offers health benefits beyond mere sodium intake, though empirical substantiation remains contested within scientific circles. Black salt, or kala namak, prevalent in South Asian gastronomy, emanates a sulphurous aroma attributable to its volcanic origins, lending complexity to traditional savouries.

“Fleur de sel”, literally “flower of salt,” represents the zenith of artisanal salt production, hand-harvested from the delicate crust forming on salt pans. Prized for its rarity and textural delicacy, it is more an embellishment than a staple seasoning.

Thus, while chemically unified by their sodium chloride essence, salts diverge in sensory appeal, mineral composition, and cultural significance, rendering them as much a subject of connoisseurship as of necessity.

Q15. Identify the correct transformation of the sentence below into the passive voice without altering its meaning.

Original sentence from the passage: "Gourmet enthusiasts often extol its coarse granules for the nuanced crunch they confer to dishes."

(a) Its coarse granules are often extolled by gourmet enthusiasts for the nuanced crunch they confer to dishes.
(b) Its coarse granules confer the nuanced crunch often extolled by gourmet enthusiasts to dishes.
(c) The nuanced crunch is often extolled by gourmet enthusiasts for its coarse granules.
(d) The coarse granules confer the nuanced crunch often praised by gourmet enthusiasts.

Q16. Choose the sentence that correctly changes the tense of the following from present simple to past perfect.

"Advocates claim it offers health benefits beyond mere sodium intake."

(a) Advocates claimed it had offered health benefits beyond mere sodium intake.
(b) Advocates had claimed it offered health benefits beyond mere sodium intake.
(c) Advocates had claimed it had offered health benefits beyond mere sodium intake.
(d) Advocates claimed it had been offering health benefits beyond mere sodium intake.

Q17. The word "provenance" most nearly means:

(a) Origin
(b) Colour
(c) Texture
(d) Purity

Q18. The term "connoisseurship" in the passage refers to:

(a) The ability to mass-produce an item
(b) Expert appreciation and judgment
(c) The act of consuming in large amounts
(d) A legal authority

Q19. Which type of salt is described as "more an embellishment than a staple seasoning"?

(a) Black salt
(b) Himalayan pink salt
(c) Fleur de sel
(d) Sea salt

Q20. Rearrange the following sentences to form a meaningful and grammatically correct paragraph:

P. The last sculpture, a woman carved from one block of marble, had an expression of deep sorrow.

Q. For months, the sculptor had worked incessantly, hacking away at the rock.

R. She was motivated by a black-and-white photo of her grandmother taken during times of severe hardship.

S. The painting was a dedication, a gesture of honouring the memory and the resilience of the woman.

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

Q21. Rearrange the following sentence parts to form a meaningful and grammatically correct paragraph:

P. He presented his diagnosis and suggested a course of treatment with assurance.

Q. In order to search for particular markers, he ordered a number of imaging scans and blood tests.

R. He went over all the information, comparing it to what he knew about medicine.

S. As the patient explained their symptoms, the doctor paid close attention.

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

Q22. Which word can best replace bluffing?

He knew the art of bluffing with confidence and theatrical gestures.

(a) Explaining
(b) Pretending
(c) Proving
(d) Admitting

Q23. Choose the most suitable option to fill in the blanks.

The villagers brought the little boy to the _____, who examined him closely, spotted a mole on his left _____, and solemnly declared him the chosen one.

(a) oracle, oracle
(b) auricle, oracle
(c) auricle, auricle
(d) oracle, auricle

Q24. Which part of the following sentence contains a spelling error?

The author's penchant (1) for archiac diction (2) often obfuscated (3) the text's underlying message (4).

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

Q25. Which of the following terms refers to a substance in the blood that tends to neutralize harmful matter?

(a) Antibody
(b) Antioxidant
(c) Antigen
(d) Antitoxin

GENERAL INTELLIGENCE

Q26. You discovered a factual inaccuracy in a presentation you're about to give, but correcting it would require redoing a significant portion and potentially delaying your slot. What's the most professional decision?

(a) Give the presentation with the inaccuracy, hoping it's not noticed.
(b) Cancel the presentation.
(c) Briefly explain the inaccuracy and present the corrected information, even if it causes a slight delay.
(d) Blame the source of the information.

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Q27. A person walks 5 km north, then 4 km east, and finally 5 km south. In which direction is he from his starting point?

(a) North
(b) South
(c) East
(d) West

Q28. Read the following statement carefully and identify the inference that follows.

Statement: The government has announced a ban on the use of single-use plastic bags in all stores across the country.

Inference:

I. People will have to start carrying their own reusable bags when they go shopping.

II. All stores will have to shut down as they will not be able to use plastic bags anymore.

III. The ban on single-use plastic bags will not have any impact on the environment.

(a) If only I follows
(b) If only II follows
(c) If both I and II follow
(d) If both I and III follow

Q29. In the following questions some issues are provided to you. you have to mark the appropriate answer logically that can be taken in such circumstances.

A teammate panics during a presentation. What would be the most emotionally intelligent way to respond?

(a) Avoid talking to them
(b) Force advice on them
(c) Dismiss their feelings
(d) Offer to listen without pushing

Q30. Directions: The symbols @, ©, $, % and * are used with different meanings as follows:

'P © Q' means 'P is either greater than or equal to Q' 'P $ Q' means 'P is either smaller than or equal to Q 'P % Q' means 'P is neither greater then nor smaller than Q' 'P * Q' means 'P is greater than Q' 'P @ Q' means 'P is smaller than Q'

In each of the following questions assuming the given statements to and II given below them is/are definitely true. Given answer

Statements: W $ N, N % B, B * F

Conclusions:

I. B % W

II. B * W

(a) If only conclusion I is true
(b) If only conclusion II is true
(c) If either conclusion I or conclusion II is true
(d) If neither conclusion I nor conclusion II is true

Q31. Find the next element that replace the ? Logically

1, 15, 85, 435, ?

(a) 2186
(b) 2185
(c) 2184
(d) 2201

Q32. Which one of the following numbers is divisible by both 13 and 17?

(a) 663
(b) 425
(c) 455
(d) 729

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Q33. Directions: Out of four words, three have something in common and one is different. Identify the different one.

(a) Air fryer
(b) Shredder
(c) Scanner
(d) Fax machine

Q34. Directions: Select the correct options from the given alternatives

7 22 37 52 __

(a) 67
(b) 62
(c) 64
(d) 66

Q35. Directions: Pick the correct options from below.

5, 10.5, 18, 27.5, 39. __

(a) 48.5
(b) 52.5
(c) 56
(d) 61.5

Q36. In the questions given below, there are three statements followed by three conclusions I, II and III. You have to take the three given statements to be true even if they seem to be at variance from commonly known facts. Read all the conclusions and then decide which of the given conclusions logically follows from the three statements disregarding commonly known facts.

Statements:

All Super are Big

All Big are Bold

Some Super are Tall

Conclusion:

I. Some Tall is Big

II. Some Bold is Tall

III. All Super is Bold

(a) Only conclusions II and III follow
(b) Only conclusion I follows
(c) Only conclusion III follows
(d) All the conclusions follow

Q37. What comes next in the following series?

A1, B1, C8, D27, E125, F512, ?

(a) G125
(b) E1728
(c) G729
(d) G2197

Q38. What comes next in the series?

B, E, J, Q, Z, ?

(a) K
(b) L
(c) M
(d) N

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Q39. A whistleblower exposes corruption in your organization but breaks internal confidentiality rules. What should you do?

(a) Punish them for breaching rules
(b) Praise them as a hero
(c) Protect their identity and investigate the claim
(d) Fire them quietly

Q40. If @ means "first x second + first", and # means "first + second x second", then what is 4 @ 3 # 2?

(a) 14
(b) 16
(c) 18
(d) 20

Q41. If + → ×, - → +, × → ÷, / → - Then find the result of: 30 x 2 + 12 / 6 - 3 = ?

(a) 172
(b) 175
(c) 177
(d) 180

Q42. A company introduces a flexible work-from-home policy to improve employee well-being. Which of the following would be the most logical assumption underlying this decision?

(a) Employees dislike working in the office environment
(b) Flexibility in work location contributes positively to employee morale.
(c) The company wants to reduce electricity bills.
(d) Employees are more productive at night.

Q43. Directions: Choose the related word from the given alternatives

Nephritis : ? :: Glaucoma : Eye

(a) Kidney
(b) Liber
(c) Ear
(d) Heart

Q44. Directions: Choose the related word from the given alternatives

? : Bore :: Rake : Gather

(a) Hammer
(b) Piler
(c) Cutter
(d) Drill

Q45. In a certain coding system, 'find observe new arena' is coded as 'fgk, rst, mop, tmu'. 'situation new find matters' is coded as 'stk, rst, pnv fgk' and 'observe clear new matters' is coded as 'rtd, pnv, mop, rst'. How will 'arena observe matters clear' are coded in this coding system?

(a) tmu, rtd, pnv, fgk
(b) rtd, tmu, fgk, stk
(c) mop, pnv, rtd, tmu
(d) stk, rst, mop, pnv

Q46. Identify the pattern in the following sequence.

0, 4, 18, 48, 100

(a) 180
(b) 178
(c) 182
(d) 184

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Q47. Select the option that is related to the fifth number in the same way as the second number is related to the first number and fourth number is related to third number.

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

763 : 4573 :: 272 : 1627 :: 421 : ?

(a) 2515
(b) 2521
(c) 2523
(d) 2530

Q48. Select the option that is related to the sixth number in the same way as the first number is related to the second number and third number is related to fourth number.

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

1962 : 324 :: 3378 : 560 :: ? : 238

(a) 1446
(b) 1442
(c) 1448
(d) 1449

Q49. In the following question, four letter-number pairs are given. The letter-number on the left side of (-) is related to the letter-number on the right side of (-) with some Logic/Rule/Relation. Three pairs are similar on the basis of same Logic/Rule/Relation. Select the odd one out from the given alternatives.

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

(a) 120LD - 11OJ
(b) 170MR - 13PX
(c) 288CG - 17FM
(d) 224KB - 15NH

Q50. A word has been given in the question. This word CAN be formed by using the letters of the word given in one of the alternatives only. Select that alternative.

CRAFT

(a) FACTOR
(b) RAFTING
(c) FATIER
(d) TRAFIK

QUANTITATIVE APTITUDE

Q51. A person earns 60,000 per month. He spends 3/5 on essentials, 1/4 on rent, and saves the rest. What is his saving?

(a) 9000
(b) 10,000
(c) 10,500
(d) 9,500

Q52. A trader has two types of sugar: one at Rs.30/kg and another at Rs.50/kg. In what ratio should they be mixed to sell the mixture at Rs.40/kg without gain or loss?

(a) 1 : 1
(b) 2 : 1
(c) 3 : 2

(d) 1 : 2

Q53. Cl on Rs. 2000 for 1 year at 10% p.a. is:

(a) Rs. 200
(b) Rs. 210
(c) Rs. 190
(d) Rs. 180

Q54. A drone is programmed to fly diagonally inside a cuboid-shaped warehouse with internal dimensions 6 m x 8 m x 10 m, starting from one bottom corner to the opposite top corner. What is the shortest straight-line distance the drone must travel?

(a) 12 m
(b) 13.4 m
(c) 14.1 m
(d) 15.6 m

Q55. Rational number + Irrational number = ?

(a) Rational number
(b) Irrational number
(c) Either Rational number or Irrational number
(d) Integer

Q56. A fruit vendor sold 3/4 of his apples at a profit of 20% and the rest at a loss of 10%. If he gained 90 on the whole, find the cost price of all apples.

(a) Rs. 680
(b) Rs. 800
(c) Rs. 750
(d) Rs. 720

Q57. In a triangular steel frame, points A(0,0), B(6,0), and C(2,6) form a triangle. A vertical load acts at the centroid. What is the distance from vertex C to the centroid?

(a) √13 units
(b) 2√37/3 units
(c) √12 units
(d) √14 units

Q58. A group of 12 students appeared for a physics test. The average of the top 6 scores was 84.5, and the average of the bottom 6 scores was 72.75, Later, it was found that a decimal error had occurred, and one of the scores from the bottom half was mistakenly recorded as 58.2 instead of 85.2. What is the corrected overall average of the group?

(a) 80.25
(b) 79.95
(c) 81.00
(d) 80.875

Q59. A carpenter creates a long beam in the shape of a right prism whose base is a right-angled triangle. The legs of the triangular base measure 0.6 m and 0.8 m. The beam is 4.5 m long. If the wood used has a density of 0.75 g/cm', find the mass of the beam in kilograms. (Give your answer to two decimal places)

(a) 810 kg
(b) 792 kg
(c) 825 kg
(d) 780 kg

Q60. A winch pulls a load along a slope where cot θ = 5/12. Find the value of cosec θ.

(a) (13/5)
(b) (13/12)
(c) (13/13)

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(d) (12/13)

Q61. If cos A= 4/5 and A is acute, then find the value of (1 + tan² A) / (1 + cot² A).

(a) 7/111
(b) 11/19
(c) 9/16
(d) 5/17

Q62. If two triangles are congruent, then which of the following is also TRUE?

(a) All corresponding medians are equal
(b) All corresponding inradii are equal
(c) All corresponding altitudes are equal
(d) All of these

Q63. A chord is equal to the radius of the circle. Find the angle subtended at the center.

(a) 45°
(b) 60°
(c) 90°
(d) 120°

Q64. A train travels 240 km in 4 hours. The speed of a car is 25% more than the speed of the train, and the speed of a bike is 40% less than the speed of the car. Find the difference (in minutes) between the time taken by the car and the bike to cover 150 km.

(a) 90 minutes
(b) 110 minutes
(c) 80 minutes
(d) 50 minutes

Q65. AB is a chord in the minor segment of a circle with centre O. C is a point on the minor arc (between A and 8). The tangents to the circle at A and B meet at a point P. If angle ACB = 108°, then angle APB is equal to:

(a) 36°
(b) 54°
(c) 27°
(d) 18°

Q66. Two identical solid hemispheres are placed flat side to flat side, forming a sphere. Find the percentage of the sphere's total surface area that comes from the flat circular faces of the hemispheres before joining.

(a) 40%
(b) 70%
(c) 50%
(d) 80%

Q67. A regular right square pyramid has a base side of 14 cm. An ant walks from one corner of the base to the midpoint of the slant edge opposite that corner by the shortest surface path. If the pyramid's perpendicular height is 9 cm, find the lateral surface area.

(a) 302.12 cm²
(b) 383.33 cm2
(c) 319.2 cm2
(d) 356.36 cm2

Q68. Which of the following is correct?

Statement I: The sum of two mixed fractions can always be expressed as a mixed fraction.

Statement II: Subtracting a smaller mixed fraction from a larger mixed fraction always results in a proper fraction.

(a) Statement I is true, Statement II is false
(b) Statement I is true, Statement II is true

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(c) Statement I is false, Statement II is true
(d) Both statements are false

Q69. If tan{x + 10°) = cot(3x - 20°), what is the value of x?
(a) 15°
(b) 25°
(c) 30°
(d) 20°

Q70. A bacteria culture increases by 20% every hour for 3 hours, then decreases by 10% in the 4th hour, and finally increases by 25% in the 5th hour. If the initial count was 5,000, what will be the approximate count after 5 hours?
(a) 8,900
(b) 9,830
(c) 9,650
(d) 9,720

Q71. A cone has a radius of 9 cm and a slant height of 15 cm. If the height of the cone is increased by 50%, what will be the new slant height?
(a) 20.12 cm
(b) 15.68 cm
(c) 16.28 cm
(d) 19.54 cm

Q72. What is the smallest positive number that must be added to the product of any two consecutive even numbers to make the result a perfect square?
(a) 3
(b) 1
(c) 2
(d) 4

Q73. From an external point P, two tangent segments PA and PB are drawn to a circle with center O and a radius of 5 units. The distance from P to O is 13 units. Calculate the area of quadrilatera PAOB.
(a) 65 square units
(b) 60 square units
(c) 156 square units
(d) 30 square units

Q74. A triangle has vertices at A(0, 0), B(4, 0), and C(2, 6). What is the centroid of the triangle?
(a) (2, 2)
(b) (3, 2)
(c) (2, 3)
(d) (4, 3)

Q75. In a right-angled triangle ABC, where the right angle is at B, if AC = 5 and BC = 3, what is the value of sin(A)?
(a) 3/5
(b) 2/5
(c) 5/6
(d) 4/5

GENERAL AWARENESS

Q76. What was the term for land revenue in the Chola kingdom?
(a) Vetti
(b) Ladder tax
(c) Cess tax

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(d) Kadamai

Q77. Which of the following dynasty ruled India for only fifteen years?

(a) Sur
(b) Khilji
(c) Tughlaq
(d) Lodi

Q78. Which of the following article of the Indian Constitution is related with Admission or establishment of new States?

(a) Article 2
(b) Article 4
(c) Article 8
(d) Article 7

Q79. Which of the following statement is correct regarding the fundamental rights given in the Indian constitution?

I. Article 30 is related with Abolition of titles.

II. Article 22 is related with Prohibition of employment of children in factories, etc.

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

Q80. Which Indian model was crowned Miss World in November 2017?

(a) Lara Dutta
(b) Manushi Chhillar
(c) Shilpa Singh
(d) Harnaaz Sandhu

Q81. The Union Finance Minister in Budget 2025-26 announced to set up _____ Atal Tinkering Labs in Government schools in next 5 years.

(a) 21000
(b) 50000
(c) 75000
(d) 100000

Q82. How many crimes under Bharatiya Nyaya Sanhita, 2023 now include increased imprisonment terms?

(a) 33
(b) 43
(c) 63
(d) 13

Q83. Sakhi Niwas Scheme seen in news in April 2025 is related to which of the following?

(a) Mission Shakti
(b) Mission Vatsalya
(c) Mission Durga
(d) Mission Laxmi

Q84. The game of basketball originated in which of the following countries?

(a) United states of America
(b) United Kingdom
(c) South Africa
(d) Australia

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Q85. What was the total medal count for Tamil Nadu at the National Games 2025?

(a) 92
(b) 68
(c) 85
(d) 81

Q86. Which of the following sports does NOT include a ball?

(a) Cricket
(b) Hockey
(c) Soccer
(d) Badminton

Q87. The endangered black collared yellow catfish found in Chalakudy river. This river is in _____

(a) Kerala
(b) Gujarat
(c) Maharashtra
(d) Haryana

Q88. In March 2025, Prime Minister of India announced that cheetah introduction will be expanded to Gandhisagar Sanctuary, which is in _____

(a) Madhya Pradesh
(b) Gujarat
(c) Maharashtra
(d) Kerala

Q89. The 'Dedh Satara' musical instrument belongs to which Indian state?

(a) Kerala
(b) Manipur
(c) Rajasthan
(d) West Bengal

Q90. At 800 km, a satellite in Sun Synchronous Orbit will travel at a speed of approximately _____ km per second.

(a) 1.5
(b) 15
(c) 22.5
(d) 7.5

Q91. A force of 10 N acts on an object. The object is displaced by 2 metres in the direction of the force. The force acts on the object all through the displacement. What is the work done?

(a) 5 J
(b) 10 J
(c) 15 J
(d) 20 J

Q92. HAL-developed 'Prachand' is which type of aircraft?

(a) Fighter jet
(b) Drone
(c) Civil passenger aeroplane
(d) Light combat helicopter

Q93. Why is the low level of foreign exchange reserves a critical problem for India?

(a) It means India is a lucrative place for investment.
(b) It means India couldn't print money in future.
(c) It means foreign citizens couldn't travel abroad.
(d) It means India could barely afford to pay for essential imports for a very short time.

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Q94. Which of the following statement is correct regarding money received by the government from loans and the sale of its own assets?

(a) Loans create liability but sale of asset do not
(b) Sale of asset create liability but loans do not
(c) Loans are part of revenue receipts and sale of assets are part of capital receipts
(d) Loans and sale of assets both do not reduces or increases the total amount of government financial assets

Q95. Which of the following was the capital of the kingdom of Tipu Sultan?

(a) Erode
(b) Seringapatam
(c) Sira
(d) Chitradurga

Q96. The national highways in India constitute only about _____ of the total road length but carry almost 40% of the road traffic.

(a) 2%
(b) 8%
(c) 12%
(d) 18%

Q97. On whose ideas was the second five year plan based?

(a) Chaudhari Charan Singh
(b) Sardar Vallabh Bhai Patel
(c) K Kamraj
(d) Prasanta Chandra Mahalanobis

Q98. Which of the following was the focus of the Industrial Policy Statement, 1991?

I. Allowing foreign investment by lowering controls and regulations
II. Exit policy for the sick units in private sector for a smooth exit without affecting welfare of labour

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

Q99. Which of the following is NOT a type of rural settlements?

I. Hamleted
II. Dispersed

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

Q100. What are the end products of pyruvate during fermentation process?

(a) Ethanol and carbon dioxide
(b) Methanol and nitrogen
(c) Methanol and hydrogen
(d) Glucose and helium

ANSWER KEY

1	a	2	d	3	b	4	c	5	a	6	a	7	c	8	a	9	b	10	b
11	a	12	a	13	a	14	c	15	a	16	c	17	a	18	b	19	c	20	b
21	c	22	b	23	d	24	c	25	d	26	c	27	c	28	a	29	d	30	c

31	b	32	a	33	a	34	a	35	b	36	d	37	d	38	a	39	c	40	d
41	c	42	b	43	a	44	d	45	c	46	a	47	b	48	a	49	b	50	a
51	a	52	a	53	a	54	c	55	b	56	d	57	b	58	d	59	a	60	b
61	c	62	d	63	b	64	c	65	a	66	c	67	c	68	d	69	b	70	d
71	a	72	b	73	b	74	a	75	a	76	d	77	a	78	a	79	d	80	b
81	b	82	a	83	a	84	a	85	a	86	d	87	a	88	a	89	c	90	d
91	d	92	d	93	d	94	a	95	b	96	a	97	d	98	c	99	d	100	a

SOLUTIONS

Q1. Answer: (a) These pieces of jewelleries are designed by a highly acclaimed expert.

The correct answer is '1' i.e. These pieces of jewelleries are designed by a highly acclaimed expert.

Key Points

• The word 'jewelleries' is incorrect because the noun "jewellery" is uncountable and does not take a plural form.

• The correct term should be 'pieces of jewellery' to indicate the plural form of jewellery in the context.

• The sentence should read: 'These pieces of jewellery are designed by a highly acclaimed expert.'

Correct sentence: These pieces of jewellery are designed by a highly acclaimed expert.

Additional Information

• Common errors with uncountable nouns:

• Uncountable nouns like "furniture," "equipment," and "jewellery" do not take plural forms.

• To indicate plurality, use phrases like "pieces of," "items of," or "types of."

• Example: "The furniture is stylish" (correct), not "The furnitures are stylish" (incorrect).

• Examples of proper usage:

• Incorrect: These furnitures are expensive.

• Correct: These pieces of furniture are expensive.

• Incorrect: She bought many jewelleries.

• Correct: She bought many pieces of jewellery.

Q2. Answer: (d) The academic committee was undivided in their decision to hire the new staff.

The correct answer is '4' i.e. The academic committee was undivided in their decision to hire the new staff..

Key Points

• The incorrect sentence is: "The academic committee was undivided in their decision to hire the new staff."

• This sentence contains an error in subject-verb agreement and pronoun usage.

• The subject "academic committee" is singular, and therefore, the pronoun referring to it should also be singular. The correct pronoun is "its", not "their."

• The word "undivided" indicates a collective action, reinforcing the singular nature of the subject.

Correct sentence: The academic committee was undivided in its decision to hire the new staff.

Additional Information

• Subject-Verb Agreement:

• Rule: Singular subjects require singular verbs and pronouns, while plural subjects require plural verbs and pronouns.

• Example: The team is practicing its strategy. (Singular)

• Example: The students are preparing their presentations. (Plural)

• Pronoun Usage:

• Rule: Pronouns must agree with their antecedents in terms of number and gender.

• Example: The committee made its decision. (Singular)

• Example: The employees voiced their opinions. (Plural)

Q3. Answer: (b) in

The correct answer is '2' i.e. in.

Key Points

• The sentence requires a preposition to indicate the action of investing in renewable energy startups.

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• The correct preposition to use in this context is "in."
• Using "in" signifies that the investment is directed towards renewable energy startups.
• Other options such as "into," "to," or "for" do not appropriately convey the intended meaning of the sentence.

Correct sentence: He invested heavily in renewable energy startups last year.

Additional Information

• Common Uses of Prepositions:
• Into: Indicates movement or transformation, e.g., "He went into the room."
• To: Indicates direction or purpose, e.g., "She gave the book to her friend."
• For: Indicates benefit or purpose, e.g., "This gift is for you."
• In: Indicates location, state, or involvement, e.g., "He works in finance."

Q4. Answer: (c) yet

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

Key Points

• The conjunction "yet" is used to show contrast between two clauses.
• In the given sentence, there is a positive clause ("The patient responded well to the treatment") followed by a contrasting negative clause ("the prognosis remains guarded").
• This contrast is best conveyed by using the conjunction "yet."

Correct sentence: The patient responded well to the treatment, yet the prognosis remains guarded.

Additional Information

• Usage of the other options:
• "Hence": Indicates cause and effect, which is not suitable for this sentence.
• "Therefore": Also indicates cause and effect, which doesn't align with the contrasting ideas in the sentence.
• "Because": Indicates reason or explanation, which is not appropriate in this context.

Q5. Answer: (a) Fantasy

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

Key Points

• The word "Mirage" refers to an optical illusion or something that appears to be real but is not.
• A synonym for "Mirage" would be a word that conveys a similar meaning, such as "Fantasy", which describes an imagined or unreal scenario.
• The other options do not align with the meaning of "Mirage":
• Reality: This is the opposite of what "Mirage" conveys.
• Evidence: This refers to proof or facts, which is unrelated to the idea of illusion.
• Proof: Similar to "Evidence," it does not align with the concept of an illusion or fantasy.

Correct sentence: The most appropriate synonym for "Mirage" is Fantasy.

Additional Information

• Synonym: A word or phrase that has the same or nearly the same meaning as another word.
• Example: The synonym for "beautiful" is "gorgeous."
• Antonym: A word with the opposite meaning. For example, the antonym of "Fantasy" is "Reality."

Q6. Answer: (a) Committee

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

Key Points

• The word "Committee" is the correct spelling and refers to a group of people appointed for a specific function.
• Option 2 ("Committy") is incorrect because it does not exist in the English language.
• Option 3 ("Commitee") and Option 4 ("Comitee") are misspelled versions of the word and therefore incorrect.

Correct word: Committee.

Additional Information

• Definition: Committee refers to a group of people appointed for a particular task or responsibility.
• Example: The planning committee met to discuss the upcoming event.
• Usage: Commonly used in organizational, governmental, or formal contexts.

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Q7. Answer: (c) Current

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

Key Points

• The word obsolete means something that is no longer in use or outdated.

• To find the most appropriate antonym, we need a word that signifies the opposite—something that is modern, recent, or currently in use.

• Among the given options:

• Option 1: Outdated - This is synonymous with "obsolete" and thus incorrect.

• Option 2: Ancient - Refers to something very old and is not the opposite of "obsolete." Hence, incorrect.

• Option 3: Current - Refers to something modern or presently in use, which is the correct antonym.

• Option 4: Disused - Similar in meaning to "obsolete," and thus incorrect.

Correct sentence: The most antonym of the word "obsolete" is Current.

Additional Information

• Synonyms of Obsolete:

• Outdated

• Disused

• Old-fashioned

• Antonyms of Obsolete:

• Current

• Modern

• Up-to-date

Q8. Answer: (a) most surely

The correct answer is '1' i.e. most surely.

Key Points

• The phrase "most sure" in the sentence is grammatically incorrect and does not convey the proper meaning.

• The word "sure" in this context needs to be modified in a way that aligns with standard English usage.

• The correct form is "most surely," which is grammatically appropriate and conveys the intended emphasis on certainty.

Correct sentence: The trend of wearing boots is something that has most surely come around this season.

Additional Information

• Usage of "most surely":

• "Most surely" is used to emphasize certainty or inevitability in a statement.

• Example: She most surely deserves the award for her hard work.

• Incorrect Options:

• Option 2 ("very certainly"): Although it conveys certainty, it is less commonly used and does not fit the natural flow of the sentence.

• Option 3 ("very sure"): Grammatically awkward in this context; "sure" is not typically modified with "very" in this manner.

• Option 4 ("maybe"): Directly contradicts the intended meaning of certainty in the sentence.

Q9. Answer: (b) Fatalist

The correct answer is '2' i.e. Fatalist.

Key Points

• A Fatalist is a person who believes that all events are predetermined and inevitable, emphasizing the role of fate.

• The other options are incorrect because:

• Realist: A realist is someone who sees things as they are and deals with situations practically.

• Idealist: An idealist is someone who envisions or pursues perfection or high ideals, often unrealistic.

• Optimist: An optimist is a person who always expects a positive outcome or looks at the bright side of things.

Correct sentence: A person who believes in fate is called a Fatalist.

Additional Information

• Definitions of other options:

• Realist: Focuses on practical and real-world concerns, avoiding idealism or speculation.

• Idealist: Driven by high principles or ideals, often disregarding practical considerations.

• Optimist: Believes in positive outcomes and looks forward to favorable possibilities.

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Q10. Answer: (b) Bully

The correct answer is '2' i.e. Bully.

Key Points

• The word cajole means to persuade someone to do something using flattery, coaxing, or gentle urging.

• Antonyms are words that have opposite meanings. To find the antonym of cajole, we need to identify a word that conveys forceful or aggressive persuasion.

• Bully is the most appropriate antonym because it signifies using intimidation or aggression to compel someone to act.

Correct sentence: The antonym of cajole is Bully.

Additional Information

• Other options:

• Entice: Means to attract or tempt someone, often using clever or indirect methods. It is similar to cajole rather than being an antonym.

• Persuade: Means to convince someone to do something, which is closely related to cajole.

• Flatter: Means to praise excessively or insincerely, often to gain favor, which aligns with cajole rather than contrasting it.

• Usage Tip: Always evaluate the context and meaning of the word before selecting its antonym.

Q11. Answer: (a) The mentor asked, "Have you been preparing regularly and will you be ready by Monday?"

The correct answer is '1' i.e. "Have you been preparing regularly and will you be ready by Monday?"

Key Points

• The given sentence is in indirect speech and needs to be converted into direct speech.

• Indirect speech statements often use verbs such as "asked," "said," or "told" to report speech, while direct speech reproduces the exact words spoken.

• In the original sentence, "had been preparing regularly" and "would be ready by Monday" are reported in indirect speech. To convert these to direct speech:

• "Had been preparing" changes to "Have you been preparing," as it directly asks about a continuous action.

• "Would be ready" changes to "Will you be ready," as it directly asks about future readiness.

Correct sentence: The mentor asked, "Have you been preparing regularly and will you be ready by Monday?"

Additional Information

• Rules for Direct Speech Conversion:

• When converting indirect speech to direct speech, ensure the tense aligns with the context of the original sentence.

• Maintain proper punctuation: quotation marks ("") surround the spoken words.

• Examples:

• Indirect: She asked whether he had been eating well. → Direct: She asked, "Have you been eating well?"

• Indirect: He wondered if they would arrive on time. → Direct: He wondered, "Will they arrive on time?"

Q12. Answer: (a) They will have debated the new policy for months before it is implemented.

The correct answer is '1' i.e. They will have debated the new policy for months before it is implemented.

Key Points

• The sentence is originally written in the passive voice, where the subject (the new policy) is acted upon.

• To convert the sentence into the active voice, the subject performing the action must be explicitly stated (they).

• The structure of the active voice is Subject + verb + object. In this case, the subject is "they," the verb is "will have debated," and the object is "the new policy."

Correct sentence: They will have debated the new policy for months before it is implemented.

Additional Information

• Active vs Passive Voice:

• Active Voice: The subject performs the action. Example: She wrote the book.

• Passive Voice: The subject is acted upon. Example: The book was written by her.

• Usage: Active voice is preferred for clarity and directness, while passive voice is used when the focus is on the action or when the performer of the action is unknown or unimportant.

Q13. Answer: (a) She told them that they would be surprised.

The correct answer is '1' i.e. She told them that they would be surprised..

Key Points

• The given sentence is expressed in direct speech and needs to be converted into indirect speech.

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• In indirect speech, the pronouns and tenses are changed according to the rules of reported speech.

• In this case, the reporting verb "said to" is changed to "told," and the tense of the verb "will be" is changed to "would be" because the reporting verb is in the past tense.

• The pronoun "you" changes to "they" to maintain consistency with the subject "them."

Correct sentence: She told them that they would be surprised.

Additional Information

• Rules for Changing Direct Speech to Indirect Speech:

• Change of pronouns: Pronouns in the direct speech are changed to match the subject and context of the reporting clause.

• Change of tense: If the reporting verb is in the past tense, the tense of the verb in the direct speech is shifted to the past tense (e.g., "will" changes to "would").

• Reporting verb change: "Said to" is often replaced with "told" when the indirect speech includes an object (e.g., "them").

• Example:

• Direct: She said, "I am happy."

• Indirect: She said that she was happy.

Q14. Answer: (c) The patient is being examined by the doctor.

The correct answer is '3' i.e. The patient is being examined by the doctor.

Key Points

• The sentence provided is in the active voice, where the subject (doctor) performs the action of examining the patient.

• To transform the sentence into the passive voice, the focus shifts to the object of the action (patient).

• The structure for transforming present continuous tense sentences into passive voice is: Object + is/are + being + past participle + by + subject.

Correct sentence: The patient is being examined by the doctor.

Additional Information

• Active voice: The subject performs the action. Example: The teacher is teaching the students.

• Passive voice: The object of the action becomes the subject. Example: The students are being taught by the teacher.

• Key Transformation Rules:

• Identify the tense of the sentence.

• Use the correct form of the verb "to be" (is/are/was/were) based on the tense.

• Add "being" for present/past continuous tense.

• Use the past participle of the verb.

Q15. Answer: (a) Its coarse granules are often extolled by gourmet enthusiasts for the nuanced crunch they confer to dishes.

The correct answer is Option 1.

Key Points

• To transform a sentence from Active to Passive Voice, the object of the active sentence becomes the subject of the passive sentence.

• Active Structure: Gourmet enthusiasts (Subject) + often extol (Verb) + its coarse granules (Object) + for the nuanced crunch... (Prepositional Phrase).

• Passive Structure: Its coarse granules (New Subject) + are often extolled (Auxiliary 'be' + Past Participle) + by gourmet enthusiasts (Agent) + for the nuanced crunch... (Remaining Phrase).

• Option 1 correctly follows the Present Indefinite Passive rule: Subject + is/am/are + V3 + by + Agent.

• Why other options are incorrect:

• Option 2: It changes the meaning of the sentence. It suggests the granules are the ones performing the action of "conferring the extolled crunch" rather than being the thing that is extolled.

• Option 3: It incorrectly identifies "The nuanced crunch" as the primary object being extolled. In the original sentence, the enthusiasts extol the granules.

• Option 4: This remains in the active voice and changes the verb from "extol" to "praised," which is an unnecessary alteration.

Therefore, the correct answer is 1.

Analytical Insight: In competitive exams, voice transformation questions often include a long prepositional phrase (like "for the nuanced crunch...") to distract you. Always focus on the core Subject-Verb-Object relationship first.

Additional Information

• Extol: To praise enthusiastically or highly.

• Provenance: The place of origin or earliest known history of something.

• Nuanced: Characterized by subtle differences or shades of meaning, expression, or sound.

• Passive Voice: Used when the focus is on the action or the recipient of the action rather than the performer.

Q16. Answer: (c) Advocates had claimed it had offered health benefits beyond mere sodium intake.

The correct answer is Option 3.

Key Points

• To transform a sentence from Present Simple to Past Perfect, we must change the finite verbs in both the main clause and the subordinate clause to follow the $had + V3$ (past participle) structure.

• Original (Present Simple): Advocates claim (V1) it offers (V1) health benefits...

• Transformation (Past Perfect):

• "claim" becomes "had claimed".

• "offers" becomes "had offered".

• Option 3 correctly applies the Past Perfect tense to both actions, indicating they were completed before a certain point in the past.

• Why other options are incorrect:

• Option 1: "Claimed" is Past Simple, not Past Perfect.

• Option 2: While the first verb is correct, "offered" is Past Simple. This creates a mix of tenses rather than a full transformation to Past Perfect.

• Option 4: "Had been offering" is Past Perfect Continuous, which changes the aspect of the verb to show an ongoing action in the past.

Therefore, the correct answer is 3.

Analytical Insight: In competitive exams, tense transformation often involves "Reported Speech" logic. When moving a sentence into the "past of the past," both the reporting verb and the reported action typically shift to the Past Perfect to maintain chronological consistency.

Additional Information

• Past Perfect Tense: Used to describe an action that was finished before another action in the past.

• Empirical Substantiation: Evidence based on observation or experience rather than theory or pure logic.

• Zenith: The time at which something is most powerful or successful; the peak.

• Myriad: A countless or extremely great number.

Q17. Answer: (a) Origin

The correct answer is Option 1.

Key Points

• To determine the meaning of "provenance," we look at the first sentence: "...each possessing distinctive characteristics shaped by geological provenance and processing methods."

• The passage discusses how different salts (Himalayan, Sea, Volcanic) get their traits based on where they come from (e.g., "ancient seabeds in the Punjab region" or "evaporation of seawater").

• In English, provenance refers to the place of origin or the earliest known history of something. It is frequently used in art, archaeology, and geology to describe where an object was created or found.

• Why other options are incorrect:

• Option 2: While the passage mentions "hue" and "blush," these are results of the salt's provenance (like iron oxide in the soil), not the meaning of the word itself.

• Option 3: "Texture" (coarse granules, delicate crust) is a physical characteristic, but "provenance" explains why or where those characteristics formed.

• Option 4: "Purity" refers to the level of refinement (mentioned regarding table salt), but the sentence distinguishes between provenance (origin) and processing methods (refinement).

Therefore, the correct answer is 1.

Analytical Insight: In competitive exams, vocabulary words related to "Origin" (like provenance, genesis, or etymology) are common. A helpful tip is to look at the surrounding context; since the passage immediately begins naming specific locations (Punjab, seawater, salt pans), "Origin" is the only logical fit.

Additional Information

• Ubiquitous: Present, appearing, or found everywhere.

• Myriad: A countless or extremely great number.

• Artisanal: Relating to or characteristic of an artisan; made in a traditional or non-automated way.

• Connoisseurship: Expert knowledge or training, especially in the fine arts or matters of taste.

Q18. Answer: (b) Expert appreciation and judgment

The correct answer is Option 2.

Key Points

• To understand "connoisseurship," we look at the final sentence: "...rendering them as much a subject of connoisseurship as of necessity."

• The author is contrasting "necessity" (salt as a basic biological need) with "connoisseurship" (the ability to taste, compare, and judge the subtle differences between gourmet salts like Fleur de sel or Himalayan pink salt).

• A connoisseur is a person who has expert knowledge and a refined taste in a particular field, such as fine arts, wine, or food. Therefore, connoisseurship is the quality of expert appreciation and judgment.

• Why other options are incorrect:

• Option 1: Mass production is associated with "table salt" and "industrial contexts," which the passage contrasts with the artisanal salts that require connoisseurship.

• Option 3: Connoisseurship is about the quality and subtlety of consumption, not the volume or "large amounts."

• Option 4: There is no legal or regulatory context provided for this word in the passage.

Therefore, the correct answer is 2.

Analytical Insight: In competitive exams, words ending in -ship often denote a status or an art (like craftsmanship or statesmanship). When you see "connoisseurship" paired with "necessity," the author is moving from a basic functional level to a high-level expertise level.

Additional Information

• Artisanal: Relating to or characteristic of an artisan; made in a traditional or non-automated way.

• Zenith: The point of culmination; peak or highest point.

• Embellishment: A decorative detail or feature added to something to make it more attractive.

• Provenance: The place of origin or earliest known history of something.

Q19. Answer: (c) Fleur de sel

The correct answer is Option 3.

Key Points

• To find the specific description, we look at the paragraph discussing "Fleur de sel."

• The passage states: ""Fleur de sel"... Prized for its rarity and textural delicacy, it is more an embellishment than a staple seasoning."

• An embellishment is something added to make another thing more beautiful or interesting (like a garnish), while a staple is a basic, everyday necessity (like common table salt).

• The text highlights that because of its artisanal production and delicate crust, it is used as a finishing touch rather than a primary cooking ingredient.

• Why other options are incorrect:

• Option 1: Black salt is described as lending "complexity to traditional savouries," but not as an embellishment.

• Option 2: Himalayan pink salt is mentioned for its "blush" and contested health benefits, but not specifically as an embellishment over a staple.

• Option 4: Sea salt is noted for its "nuanced crunch" and trace minerals, but it is still widely used as a seasoning rather than a rare garnish.

Therefore, the correct answer is 3.

Analytical Insight: In competitive exams, questions often target specific vocabulary pairings. Linking the word "embellishment" to "Fleur de sel" requires scanning the text for that exact phrase. Understanding that Fleur de sel is a "finishing salt" helps reinforce this logical connection.

Additional Information

• Embellishment: A decorative detail or feature added to something to make it more attractive.

• Staple: A main or important element of something, especially of a diet.

• Artisanal: Produced in a traditional way by hand.

• Zenith: The highest point or the peak of something.

Q20. Answer: (b) R, Q, P, S

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

Key Points

• The paragraph must have logical flow and coherence.
• Option 2 (R, Q, P, S) forms a meaningful and grammatically correct paragraph.
• Explanation of the arrangement:
• R introduces the motivation behind the sculpture by describing the photo of the grandmother.
• Q follows logically, describing how the sculptor worked for months inspired by the grandmother's photo.
• P then describes the result of the effort—the sculpture with an expression of sorrow.
• S concludes the paragraph, tying it back to the purpose of the sculpture—to honor the grandmother's resilience.
Correct arrangement: R, Q, P, S.
Additional Information
• Guidelines for Rearranging Sentences:
• Identify the introductory sentence (usually gives context or introduces the main idea).
• Look for logical connectors or chronological clues for sequencing.
• Ensure the paragraph ends with a conclusion or summary tying back to the main idea.

Q21. Answer: (c) S, Q, R, P

The correct answer is '3' i.e. S, Q, R, P.
Key Points
• To form a meaningful and grammatically correct paragraph, the sentence parts need to be arranged in a logical sequence based on the progression of ideas.
• The sequence should follow the natural flow of events or actions described.
• Each part contributes to the narrative, starting with the introduction of the situation and progressing to the resolution or conclusion.
Correct arrangement:
• S: As the patient explained their symptoms, the doctor paid close attention.
• Q: In order to search for particular markers, he ordered a number of imaging scans and blood tests.
• R: He went over all the information, comparing it to what he knew about medicine.
• P: He presented his diagnosis and suggested a course of treatment with assurance.
Additional Information
• The sequence starts with the doctor listening to the patient's explanation (S).
• It then progresses to the doctor's actions to investigate the issue further by ordering tests (Q).
• After gathering the necessary information, the doctor analyzes and compares it to his knowledge (R).
• Finally, the doctor provides a diagnosis and suggests a treatment plan (P).

Q22. Answer: (b) Pretending

The correct answer is '2' i.e. Pretending.
Key Points
• The word bluffing refers to the act of deceiving or pretending something that is not true.
• In the given sentence, the person is described as using confidence and theatrical gestures to create an impression that may not be genuine.
• Among the options provided:
• Option 1: Explaining - This does not fit the context as bluffing is not about providing explanations.
• Option 2: Pretending - This is the correct replacement as bluffing involves pretending to be something one is not.
• Option 3: Proving - Bluffing does not involve proving anything; it is more about deception.
• Option 4: Admitting - Bluffing is contrary to admitting, as admitting involves revealing the truth.
Correct sentence: He knew the art of Pretending with confidence and theatrical gestures.
Additional Information
• Synonyms for Bluffing: Pretending, deceiving, feigning.
• Related Context: Bluffing is often used in situations like games, negotiations, or storytelling where deception plays a role.

Q23. Answer: (d) oracle, auricle

The correct answer is '4' i.e. oracle, auricle.
Key Points
• The word oracle refers to a person or entity that provides wise or prophetic predictions, often associated with divine or

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supernatural knowledge. In the context of the sentence, the villagers brought the boy to an oracle.

• The word auricle refers to the external part of the ear (or pinna). It fits the sentence, as the boy is being examined closely, and the mole is spotted on his left auricle.

• The other options are incorrect because they either repeat the same word twice (e.g., "oracle, oracle" or "auricle, auricle") or mix them incorrectly.

Correct sentence: The villagers brought the little boy to the oracle, who examined him closely, spotted a mole on his left auricle, and solemnly declared him the chosen one.

Additional Information

• Oracle:

• Definition: A person or medium through whom advice or prophecy is sought.

• Usage: Refers to someone who provides wisdom or divine predictions.

• Example: The oracle foretold the coming of a great leader.

• Auricle:

• Definition: The external part of the ear.

• Usage: Often used in medical or anatomical contexts.

• Example: The doctor examined the auricle for signs of infection.

Q24. Answer: (c) 2

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

Key Points

• The word "archiac" in the sentence is spelled incorrectly.

• The correct spelling is "archaic," which means "old-fashioned" or "belonging to an earlier period."

• Spelling errors can change the meaning of the sentence or make the text difficult to understand.

Correct sentence: The author’s penchant for archaic diction often obfuscated the text’s underlying message.

Additional Information

• Common spelling mistakes to watch out for:

• "Definately" → Correct: "Definitely"

• "Seperate" → Correct: "Separate"

• "Occured" → Correct: "Occurred"

• Importance of correct spelling:

• Ensures clarity and professional communication.

• Helps avoid misunderstandings in written texts.

Q25. Answer: (d) Antitoxin

The correct answer is '4' i.e. Antitoxin.

Key Points

• An antitoxin is a substance produced in the blood to neutralize harmful toxins that are introduced into the body, such as those produced by bacteria or other pathogens.

• It is specifically designed to counteract poisons or toxins and prevent their harmful effects.

• Antitoxins are crucial for combating diseases caused by toxins, such as tetanus or diphtheria.

Correct explanation: Antitoxins refer to substances in the blood that neutralize harmful matter, such as toxins, making them harmless.

Additional Information

• Antibody:

• Antibodies are proteins produced by the immune system to identify and neutralize foreign invaders like bacteria and viruses.

• They are part of the body’s immune response, but they do not neutralize toxins directly.

• Antioxidant:

• Antioxidants are substances that protect cells from damage caused by free radicals.

• They are not specifically designed to neutralize toxins in the blood.

• Antigen:

• Antigens are substances that trigger an immune response in the body, such as bacteria or viruses.

• They are not neutralizers but are the targets of antibodies.

Q26. Answer: (c) Briefly explain the inaccuracy and present the corrected information, even if it causes a slight delay.

The logic is based on professionalism and integrity.

Option 1: Give incorrect information – Unethical and misleading.

Option 2: Cancel the presentation – Avoids responsibility.

Option 3: Explain the inaccuracy and present correct information – Honest and professional approach.

Option 4: Blame others – Unprofessional behavior.

Among these, Option 3 ensures accuracy, accountability, and professionalism.

Hence, the correct answer is Option 3.

Q27. Answer: (c) East

Given:

A person walks 5 km north,

then 4 km east, and

finally 5 km south.

Thus, the person isto the east of his starting point.

Hence, "Option 3" is the correct answer.

Q28. Answer: (a) If only I follows

Given:

The government has announced a ban on the use of single-use plastic bags in all stores across the country.

=> The given statement mentions that the government has announced a ban on the use of single-use plastic bags in all stores across the country.

This implies that stores cannot provide single-use plastic bags and people will need alternatives when shopping.

Now, let's evaluate the given inferences:

I. People will have to start carrying their own reusable bags when they go shopping – True

Since stores cannot provide single-use plastic bags, shoppers will need to carry reusable bags or alternatives.

II. All stores will have to shut down as they will not be able to use plastic bags anymore – False

The statement does not suggest that stores will close. Stores can still operate using alternatives like cloth or paper bags.

III. The ban on single-use plastic bags will not have any impact on the environment – False

The purpose of the ban is to reduce plastic pollution, so it is intended to have a positive impact on the environment.

Hence, only inference I follows from the given statement.

Hence, the correct answer is "Option 1".

Q29. Answer: (d) Offer to listen without pushing

The logic is based on emotional intelligence and supportive behavior.

Option 1: Avoid talking – Shows lack of support.

Option 2: Force advice – May increase pressure.

Option 3: Dismiss feelings – Not empathetic.

Option 4: Offer to listen without pushing – Shows understanding and support.

Among these, Option 4 reflects empathy and emotional intelligence.

Hence, the correct answer is Option 4.

Q30. Answer: (c) If either conclusion I or conclusion II is true

Given Statements:

W $ N → W is either smaller than or equal to N → W ≤ N

N % B → N is neither greater than nor smaller than B → N = B

B * F → B is greater than F → B > F

Conclusions:

I. B % W – True (B is neither greater than nor smaller than W → B = W?)

Let’s check: From statements: W ≤ N and N = B → W ≤ B → So B ≥ W, but W ≤ B. Equality is possible if W = B. But definitely true? Not guaranteed. So conclusion I cannot be definitely true.

II. B * W – True (B > W?)

From statements: W ≤ N and N = B → W ≤ B → So B ≥ W. B > W is not definite; equality is possible. Hence conclusion II is not definitely true.

Hence, neither conclusion I nor conclusion II is definitely true.

The correct answer is Option 4.

Q31. Answer: (b) 2185

The logic followed here is:

thus, "2185" will replace the question mark in the given series.

Hence, the correct option is "Option 2".

Q32. Answer: (a) 663

The logic followed here is:

Logic: A number divisible by both 13 and 17 must be divisible by their LCM (Least Common Multiple).

Calculation:

LCM of 13 and 17 = 13 × 17 = 221

Now check options:

663 ÷ 221 = 3

425 ÷ 221 ≠ integer

455 ÷ 221 ≠ integer

729 ÷ 221 ≠ integer

Hence, the correct answer is Option 1.

Q33. Answer: (a) Air fryer

The logic is based on types of devices.

Option 1: Air fryer – A kitchen appliance used for cooking.

Option 2: Shredder – An office device used to destroy documents.

Option 3: Scanner – An office device used to scan documents.

Option 4: Fax machine – An office device used to send documents.

Among these, Shredder, Scanner, and Fax machine are office-related devices, while Air fryer is a kitchen appliance.

Hence, the odd one out is Option 1.

Q34. Answer: (a) 67

The logic followed here is:

thus, "67" will replace the question mark in the given series.

Hence, the correct option is "Option 1".

Q35. Answer: (b) 52.5

The logic followed here is:

thus, "52.5" will replace the question mark in the given series.

Hence, the correct option is "Option 2".

Q36. Answer: (d) All the conclusions follow

Given Statements:

All Super are Big.

All Big are Bold.

Some Super are Tall.

The least possible Venn diagram for the given statements is:

Conclusions:

I. Some Tall is Big – True (As some super are tall and all super are big. so, some tall are definitely big).

II. Some Bold is Tall – True (Since some Super are Tall and all Super are Bold through Big, those Super who are Tall are also Bold.)

III. All Super is Bold – True (All Super are Big and all Big are Bold, hence all Super are Bold.)

All the conclusions follow.

The correct answer is Option 4.

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Q37. Answer: (d) G2197

The logic followed here is:

So, 'G2197' will replace the question mark in the given series.

Hence, the correct answer is "Option 4".

Q38. Answer: (a) K

The logic followed here is:

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

Hence, the correct answer is "Option 1".

Q39. Answer: (c) Protect their identity and investigate the claim

The logic is based on ethical and professional response.

Option 1: Punish them for breaching rules – Ignores the seriousness of corruption.

Option 2: Praise them as a hero – May overlook procedural violations.

Option 3: Protect their identity and investigate the claim – Balanced and ethical approach.

Option 4: Fire them quietly – Avoids addressing the issue.

Among these, Option 3 ensures fairness, accountability, and proper investigation.

Hence, the correct answer is Option 3.

Q40. Answer: (d) 20

BODMAS Table:

Given expression: 4 @ 3 # 2 = ?

Now, if the operations are applied as: @ → first × second + first, # → first + second × second, then:

=> 4 × 3 + 4 # 2 = ?

=> 16 # 2 = ?

=> 16 + 2 × 2 = ?

=> 16 + 4 = 20

Hence, the correct answer is "Option 4".

Q41. Answer: (c) 177

BODMAS Table:

Given equation: 30 × 2 + 12 ÷ 6 − 3 = ?

Now, if the operations are interchanged as: + → ×, − → +, × → ÷, ÷ → −, then:

=> 30 ÷ 2 × 12 − 6 + 3 = ?

=> 15 × 12 − 6 + 3 = ?

=> 180 − 6 + 3 = ?

=> 174 + 3 = 177

Hence, the correct answer is "Option 3".

Q42. Answer: (b) Flexibility in work location contributes positively to employee morale.

The logic is based on identifying the underlying assumption behind the decision.

Option 1: Employees dislike working in the office environment – Not necessarily implied.

Option 2: Flexibility in work location contributes positively to employee morale – Directly supports the goal of improving well-being.

Option 3: The company wants to reduce electricity bills – Not related to employee well-being.

Option 4: Employees are more productive at night – Not relevant to work-from-home policy.

Among these, Option 2 logically explains the reason behind the policy.

Hence, the correct answer is Option 2.

Q43. Answer: (a) Kidney

The logic is based on disease and the organ affected.

Glaucoma is a disease of the Eye.

Similarly, Nephritis is a disease of the Kidney.

Among the options, Kidney correctly matches Nephritis.

Hence, the correct answer is Option 1.

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Q44. Answer: (d) Drill

The logic is based on tool and its function.
Rake is used to Gather.
Similarly, Drill is used to Bore.
Among the options, Drill correctly matches the function Bore.
Hence, the correct answer is Option 4.

Q45. Answer: (c) mop, pnv, rtd, tmu

Given codes:
'find observe new arena' → fgk, rst, mop, tmu
'situation new find matters' → stk, rst, pnv, fgk
'observe clear new matters' → rtd, pnv, mop, rst
So, final mapping:
• arena = tmu
• observe = mop
• matters = pnv
• clear = rtd
Therefore, 'arena observe matters clear' → mop, pnv, rtd, tmu
Hence, the correct answer is Option 3.

Q46. Answer: (a) 180

The logic followed here is:
Pattern: nth term = $n^2 \times (n - 1)$
thus, "180" will replace the question mark in the given series.
Hence, the correct option is "Option 1".

Q47. Answer: (b) 2521

The logic followed here is:
Logic: The pattern involves multiplying the first number by 6 and then subtraction of 5 to get the second number.
Let's analyze the given pairs:
763 : 4573
763 × 6 - 5 = 4578- 5 = 4573
272 : 1627
272 × 6 - 5 = 1632 - 5 = 1627
Now, for the unknown:
421 : ?
421 × 6 - 5 = 2526 - 5 = 2521
Hence, the correct answer is Option 2.

Q48. Answer: (a) 1446

The logic followed here is:
Logic: (1st number - 18) ÷ 6 = 2nd number
Let's analyze the given pairs:
1962 : 324
(1962 - 18) ÷ 6 = 324
1944 ÷ 6 = 324
3378 : 560
(3378 - 18) ÷ 6 = 560
For the unknown:
? : 238
(? - 18) ÷ 6 = 238
(? - 18) = 238 × 6
(? - 18) = 1428

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? = 1428 + 18 = 1446

thus, 1446 : 238

Hence, the correct answer is Option 1.

Q49. Answer: (b) 170MR - 13PX

The logic followed here is:

Logic: The pattern involves using near-perfect squares for numbers and shifting letters forward in the alphabet. Specifically:

Number Pattern: The number on the left is adjusted from a perfect square −1 to get the number on the right.

Letter Pattern: The first letter shifts +3, and the second letter shifts +6 in the alphabet.

Let's analyze each option:

Option 1) 120LD - 11OJ

Option 2) 170MR - 13PX

Option 3) 288CG - 17FM

Option 4) 224KB - 15NH

Hence, the odd one out is Option 2.

Q50. Answer: (a) FACTOR

The logic followed here is:

Logic:"Check each option to see whether the given word (CRAFT) can be formed using its letters."

Option	Word	Analysis
1	FACTOR	All letters of Word CRAFT is mentioned in this option.
2	RAFTING	Cannot be formed because required letters are not fully available in the given word.
3	FATIER	Cannot be formed because one required letter is not available.
4	TRAFIK	Cannot be formed because the letter K is not present in the given word.

Hence, the correct answer is "Option 1".

Q51. Answer: (a) 9000

Given:

Income = 60000

Essentials = 3/5

Rent = 1/4

Formula Used:

Savings = Income × (1 - total expenses fraction)

Calculation:

=> Total expenses = 3/5 + 1/4

=> Total expenses = 12/20 + 5/20 = 17/20

=> Savings fraction = 1 - 17/20 = 3/20

=> Savings = 60000 × 3 ÷ 20

=> Savings = 9000

Therefore The correct answer is 9000.

Q52. Answer: (a) 1 : 1

Shortcut Trick

Apply the Rule of Alligation directly to find the mixing ratio:

Ratio = (Dearer Price − Mean Price) : (Mean Price − Cheaper Price)

Ratio = (50 − 40) : (40 − 30)

Ratio = 10 : 10 = 1 : 1

Therefore The correct answer is 1 : 1.

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Alternate Method

Given:

Cost Price of 1^(st) type of sugar (Cheaper) = Rs. 30/kg

Cost Price of 2^(nd) type of sugar (Dearer) = Rs. 50/kg

Selling Price of mixture = Rs. 40/kg (at no gain or loss, CP = SP)

Mean Cost Price (M) = Rs. 40/kg

Calculations:

=> Quantity of Cheaper (Q1) : Quantity of Dearer (Q2) = (D − M) : (M − C)

=> Q1 : Q2 = (50 − 40) : (40 − 30)

=> Q1 : Q2 = 10 : 10

=> Q1 : Q2 = 1 : 1

Therefore The correct answer is 1 : 1.

Additional Information

Rule of Alligation

It is used to find the ratio in which two ingredients at different prices must be mixed to produce a mixture of a desired mean price. Ratio = (Price of Dearer − Mean Price) / (Mean Price − Price of Cheaper).

Mean Price

The cost price of a unit quantity of the mixture is called the Mean Price. If the mixture is sold at no profit/loss, the Selling Price equals the Mean Price.

Mixture with Profit %

If a profit % is given on Selling Price, first calculate Mean CP using the formula: CP = [100 / (100 + Profit%)] × SP before applying alligation.

Q53. Answer: (a) Rs. 200

Shortcut Trick

For 1 year, Compound Interest = Simple Interest

CI = P × R × T ÷ 100

= 2000 × 10 × 1 ÷ 100

= Rs. 200

Therefore The correct answer is Rs. 200.

Alternate Method

Given:

Principal = Rs. 2000

Rate = 10% p.a.

Time = 1 year

Formula Used:

Amount = P(1 + R ÷ 100)^T

CI = Amount − Principal

Start 1 Year P = Rs. 2000 Rate = 10% CI after 1 year

=> Amount = $2000(1 + 10 \div 100)^1$

=> = 2000 × 110 ÷ 100

=> = Rs. 2200

=> CI = 2200 − 2000

=> CI = Rs. 200

Therefore The correct answer is Rs. 200.

Additional Information

Simple Interest Formula

SI = P × R × T ÷ 100 where P = Principal, R = Rate, T = Time.

Compound Interest Formula

Amount = P(1 + R ÷ 100)^T and CI = Amount − Principal.

SI and CI Relation

For 1 year, Simple Interest and Compound Interest are always equal.

Rule of 72

Approximate doubling time = 72 ÷ Rate%.

Q54. Answer: (c) 14.1 m

Given:

Length = 6

Breadth = 8

Height = 10

Formula Used:

Space diagonal = √(length² + breadth² + height²)

Calculation:

=> Distance = √(6^2 + 8^2 + 10^2)

=> Distance = √(36 + 64 + 100)

=> Distance = √200

=> Distance = 10√2 = 14.1

Therefore The correct answer is 14.1.

Q55. Answer: (b) Irrational number

Shortcut Trick

A Rational number can be expressed as a fraction p/q, meaning its decimal is terminating or repeating.

An Irrational number cannot be expressed as a fraction and has a non-terminating, non-repeating decimal expansion.

When you add a terminating/repeating decimal to a non-terminating, non-repeating decimal, the result will always be non-terminating and non-repeating.

Thus, the sum of a Rational and an Irrational number is always an Irrational number.

Therefore The correct answer is Irrational number.

Alternate Method

Given: A Rational number and an Irrational number are to be added.

Concept: Proof by contradiction or decimal property of Real numbers.

=> Let a be a rational number and b be an irrational number.

=> Suppose a + b = c, where c is a rational number.

=> Then, b = c − a.

=> Since c and a are both rational, their difference (c − a) must also be rational.

=> This implies b is rational, which contradicts the fact that b is irrational.

=> Therefore, the assumption was wrong; the sum must be an Irrational number.

Therefore The correct answer is Irrational number.

Additional Information

Rational Number Definition

Any number that can be expressed as p/q, where p and q are integers and q ≠ 0.

Irrational Number Properties

A number whose decimal expansion is non-terminating and non-recurring. Common examples include √2, √3, π, and e.

Product Property

The product of a non-zero rational number and an irrational number is always an irrational number.

Closure of Rationals

The set of Rational numbers is closed under addition, subtraction, multiplication, and division (except by zero).

Q56. Answer: (d) Rs. 720

Given:

Profit1 = 20%

Loss2 = 10%

Gain = 90

Formula Used:

Profit = SP - CP

Net gain = sum of individual gains

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Calculation:
=> Let total CP = x
=> CP of 3/4 part = 3x/4
=> CP of 1/4 part = x/4
=> Profit on 3/4 part = 20% of 3x/4 = (20/100) × 3x/4 = 3x/20
=> Loss on 1/4 part = 10% of x/4 = (10/100) × x/4 = x/40
=> Net gain = 3x/20 - x/40
=> Net gain = (6x - x)/40 = 5x/40 = x/8
=> x/8 = 90
=> x = 90 × 8
=> x = 720
Therefore The correct answer is 720.

Q57. Answer: (b) 2√37/3 units

Given:
A(0,0)
B(6,0)
C(2,6)
Formula Used:
Centroid = ((x1 + x2 + x3)/3, (y1 + y2 + y3)/3)
Distance = √[(x2 - x1)² + (y2 - y1)²]
Calculation:
=> Centroid = ((0 + 6 + 2)/3, (0 + 0 + 6)/3)
=> Centroid = (8/3, 2)
=> Distance = √[(2 - 8/3)² + (6 - 2)²]
=> Distance = √[(−2/3)² + 4²]
=> Distance = √[4/9 + 16]
=> Distance = √[(4 + 144)/9]
=> Distance = √(148/9)
=> Distance = √148 ÷ 3
=> Distance = 2√37 ÷ 3
Therefore The correct answer is 2√37/3.

Q58. Answer: (d) 80.875

Given:
Total students = 12
Average (top 6) = 84.5
Average (bottom 6) = 72.75
Wrong score = 58.2
Correct score = 85.2
Formula Used:
Total = Average × number
Corrected total = old total + difference
Calculation:
=> Total (top 6) = 84.5 × 6 = 507
=> Total (bottom 6) = 72.75 × 6 = 436.5
=> Total = 507 + 436.5 = 943.5
=> Correction = 85.2 - 58.2 = 27
=> Corrected total = 943.5 + 27 = 970.5
=> Corrected average = 970.5 ÷ 12
=> Corrected average = 80.875
Therefore The correct answer is 80.875.

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Q59. Answer: (a) 810 kg

Given:

Base sides = 0.6, 0.8

Length = 4.5

Density = 0.75 g/cm³

Formula Used:

Area of triangle = 1/2 × base × height

Volume = area × length

Mass = density × volume

Calculation:

=> Area = 1/2 × 0.6 × 0.8 = 0.24 m²

=> Volume = 0.24 × 4.5 = 1.08 m³

=> Convert volume = 1.08 × 1000000 = 1080000 cm³

=> Mass = 0.75 × 1080000 = 810000 g

=> Mass = 810000 ÷ 1000 = 810 kg

Therefore The correct answer is 810.

Q60. Answer: (b) (13/12)

Given:

cot θ = 5/12

Formula Used:

cot θ = adjacent/opposite

cosec θ = hypotenuse/opposite

Pythagoras theorem: hypotenuse² = adjacent² + opposite²

Calculation:

=> adjacent = 5

=> opposite = 12

=> hypotenuse² = 5² + 12²

=> hypotenuse² = 25 + 144

=> hypotenuse² = 169

=> hypotenuse = √169

=> hypotenuse = 13

=> cosec θ = hypotenuse/opposite

=> cosec θ = 13/12

Therefore The correct answer is 13/12.

Q61. Answer: (c) 9/16

Given:

cos A = 4/5

Formula Used:

sin² A + cos² A = 1

1 + tan² A = sec² A

1 + cot² A = csc² A

Calculation:

=> sin A = √(1 - (4/5)²) = √(1 - 16/25) = 3/5

=> (1 + tan² A)/(1 + cot² A) = (sec² A)/(csc² A)

=> = (1/cos² A)/(1/sin² A)

=> = (sin² A)/(cos² A)

=> = tan² A

=> = (3/4)² = 9/16

Therefore The correct answer is 9/16.

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Q62. Answer: (d) All of these

Given:

=> Two triangles are congruent.

=> All corresponding medians

inradii

and altitudes of the triangles are equal.

Formula Used:

=> Congruent triangles have equal corresponding sides and angles.

=> Properties of congruent triangles: Equal medians

equal inradii

and equal altitudes.

Calculation:

=> Since the triangles are congruent

their corresponding sides and angles are equal.

=> Equal sides and angles imply equal medians.

=> Equal sides and angles imply equal inradii.

=> Equal sides and angles imply equal altitudes.

Therefore The correct answer is option 4.

Q63. Answer: (b) 60°

Given:

Chord = radius

Formula Used:

Chord = 2 × radius × sin(θ/2)

Calculation:

=> radius = 2 × radius × sin(θ/2)

=> 1 = 2 × sin(θ/2)

=> sin(θ/2) = 1/2

=> θ/2 = 30°

=> θ = 60°

Therefore The correct answer is 60°.

Q64. Answer: (c) 80 minutes

Shortcut Trick

Speed of Train = 240 ÷ 4 = 60 kmph.

Speed of Car = 60 × 125% = 75 kmph | Speed of Bike = 75 × 60% = 45 kmph.

Time Difference = 150 × (1/45 − 1/75) hours = 150 × (2/225) × 60 minutes.

Time Difference = 80 min.

Therefore The correct answer is 80 min.

Alternate Method

Given:

Distance covered by Train = 240 km, Time taken = 4 hr.

Car speed = 25% more than Train.

Bike speed = 40% less than Car.

New distance to cover = 150 km.

Formula Used:

Speed = Distance ÷ Time

Time = Distance ÷ Speed

=> Speed of Train = 240 ÷ 4 = 60 kmph.

=> Speed of Car = 60 + (25/100) × 60 = 60 + 15 = 75 kmph.

=> Speed of Bike = 75 − (40/100) × 75 = 75 − 30 = 45 kmph.

=> Time taken by Car = 150 ÷ 75 = 2 hours.

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=> Time taken by Car (in min) = 2 × 60 = 120 min.

=> Time taken by Bike = 150 ÷ 45 = 10/3 hours.

=> Time taken by Bike (in min) = (10/3) × 60 = 200 min.

=> Difference = 200 − 120 = 80 min.

Therefore The correct answer is 80 min.

Additional Information

Speed-Time Relationship

For a constant distance, speed is inversely proportional to time (Speed prop. to 1/Time). If speed increases, time decreases in the same ratio.

Unit Conversion

To convert hours to minutes, multiply by 60. To convert kmph to m/s, multiply by 5/18.

Percentage Change in Speed

If speed increases by x%, the new speed is S × (1 + x/100). If it decreases, the new speed is S × (1 − x/100).

Q65. Answer: (a) 36°

Given:

angle ACB = 108°

Formula Used:

Angle in major arc = 180° - angle in minor arc

angle APB = 180° - angle AOB

angle AOB = 2 × angle in major arc

Calculation:

=> Angle in major arc = 180° - 108° = 72°

=> angle AOB = 2 × 72° = 144°

=> angle APB = 180° - 144°

=> angle APB = 36°

Therefore The correct answer is 36°.

Q66. Answer: (c) 50%

Given:

Two hemispheres form a sphere

Formula Used:

Surface area of sphere = $4\pi r^2$

Area of two flat faces = $2 \times \pi r^2$

Calculation:

=> Total sphere surface area = $4\pi r^2$

=> Area of flat faces = $2 \times \pi r^2$

=> Ratio = $(2\pi r^2) \div (4\pi r^2)$

=> Ratio = 1/2

=> Percentage = 1/2 × 100 = 50%

Therefore The correct answer is 50%.

Q67. Answer: (c) 319.2 cm2

Shortcut Trick

For a square pyramid, Slant height (l) = $\sqrt{[\text{Height}^2 + (\text{Side}/2)^2]}$.

Here, $l = \sqrt{[9^2 + 7^2]} = \sqrt{[81 + 49]} = \sqrt{130} \approx 11.40$ cm.

Lateral Surface Area (LSA) = 2 × Side × Slant height.

LSA = $2 \times 14 \times 11.40 \approx 319.2$ cm².

Therefore The correct answer is 319.2 cm².

Alternate Method

Given:

Base side of the square pyramid (a) = 14 cm

Perpendicular height of the pyramid (h) = 9 cm

Formula Used:
1. Slant height (l) = √[h² + (a/2)²]
2. Lateral Surface Area (LSA) = 1/2 × Perimeter of base × Slant height
Calculations:
=> Half of base side = 14 ÷ 2 = 7 cm
=> Slant height (l) = √[9² + 7²]
=> l = √[81 + 49] = √130
=> l ≈ 11.40175 cm
=> Perimeter of square base = 4 × 14 = 56 cm
=> Lateral Surface Area = 1/2 × 56 × 11.40175
=> Lateral Surface Area = 28 × 11.40175 ≈ 319.249 cm²
=> Rounding to one decimal place, we get 319.2 cm².
Therefore, Option 3 is the correct value for the lateral surface area.
Therefore The correct answer is 319.2 cm².
Additional Information
Total Surface Area (TSA) of a Pyramid
TSA = Lateral Surface Area + Area of the Base. For a square pyramid, TSA = 2al + a².
Volume of a Pyramid
Volume = (1/3) × Base Area × Perpendicular Height (h). For a square pyramid, V = (1/3) × a² × h.
Slant Edge of a Pyramid
The slant edge (e) connects the apex to a base corner: e = √[h² + (a√2/2)²] or e = √[l² + (a/2)²].

Q68. Answer: (d) Both statements are false

Shortcut Trick
Test with counter-examples to verify the statements quickly.
Statement I: 1 1over2 + 2 1over2 = 4. Result is an integer, not a mixed fraction. So, it is false.
Statement II: 5 1over2 − 1 1over4 = 4 1over4. Result is a mixed fraction (> 1), not a proper fraction. So, it is false.
A proper fraction must have a numerator less than the denominator and value less than 1.
Since both specific cases fail the general "always" condition, both statements are incorrect.
Therefore The correct answer is Both statements are false.
Alternate Method
Given:
Statement I: Sum of two mixed fractions is always a mixed fraction.
Statement II: Difference of two mixed fractions (Larger − Smaller) is always a proper fraction.
Evaluation of Statement I:
=> Let the two mixed fractions be 2 3over4 and 1 1over4.
=> Sum = (2 + 1) + (3/4 + 1/4)
=> Sum = 3 + (4/4) = 3 + 1 = 4.
=> 4 is an integer (whole number), not a mixed fraction. Hence, Statement I is false.
Evaluation of Statement II:
=> Let the larger mixed fraction be 5 3over4 and the smaller be 2 1over4.
=> Difference = (5 − 2) + (3/4 − 1/4)
=> Difference = 3 + 2/4 = 3 1over2.
=> A proper fraction is always less than 1. Since 3 1/2 > 1, it is not a proper fraction. Hence, Statement II is false.
Therefore The correct answer is Both statements are false.
Additional Information
Proper vs Improper Fractions
A proper fraction has Numerator < Denominator (e.g., 3/4), while an improper fraction has Numerator ≥ Denominator (e.g., 7/4).
Mixed Fractions
A mixed fraction is the sum of a non-zero whole number and a proper fraction (e.g., 2 1/3). It can always be converted to an improper fraction: a b/c = (a × c + b) / c.
Operations on Fractions

To add or subtract mixed fractions, handle the whole numbers and fractional parts separately or convert them into improper fractions first.

Q69. Answer: (b) 25°

Given:

tan(x + 10°) = cot(3x - 20°)

Formula Used:

cot(θ) = tan(90° - θ)

Calculation:

=> tan(x + 10°) = cot(3x - 20°)

=> tan(x + 10°) = tan(90° - (3x - 20°))

=> tan(x + 10°) = tan(90° - 3x + 20°)

=> tan(x + 10°) = tan(110° - 3x)

=> x + 10° = 110° - 3x

=> 4x = 100°

=> x = 100° ÷ 4

=> x = 25°

Therefore The correct answer is x = 25°.

Q70. Answer: (d) 9,720

Given:

Initial = 5000

Increase = 20% for 3 hours

Decrease = 10% for 4th hour

Increase = 25% for 5th hour

Formula Used:

New value = Initial × (1 + rate/100)

New value = Initial × (1 - rate/100)

Calculation:

=> After 3 hours = 5000 × $(1.2)^3$

=> After 3 hours = 5000 × 1.728 = 8640

=> After 4th hour = 8640 × 0.9 = 7776

=> After 5th hour = 7776 × 1.25 = 9720

Therefore The correct answer is 9720.

Q71. Answer: (a) 20.12 cm

Given:

Radius = 9

Slant height = 15

Formula Used:

Slant height² = radius² + height²

Calculation:

=> $15^2 = 9^2$ + height²

=> 225 = 81 + height²

=> height² = 144

=> height = 12

=> New height = 12 × 3 ÷ 2 = 18

=> New slant height = √($9^2 + 18^2$) = √405

=> √405 ≈ 20.12

Therefore The correct answer is 20.12.

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Q72. Answer: (b) 1

Given:

Two consecutive even numbers = 2n, 2n + 2

Formula Used:

Product = (2n)(2n + 2)

Perfect square form = $(2n + 1)^2$

Calculation:

=> Product = 2n × (2n + 2)

=> Product = $4n^2 + 4n$

=> Required square = $(2n + 1)^2$

=> $(2n + 1)^2 = 4n^2 + 4n + 1$

=> Difference = $(4n^2 + 4n + 1) - (4n^2 + 4n)$

=> Difference = 1

Therefore The correct answer is 1.

Q73. Answer: (b) 60 square units

Given:

Radius = 5

OP = 13

Formula Used:

Tangent length = $\sqrt{(OP^2 - radius^2)}$

Area = 2 × (1/2 × base × height)

Calculation:

=> PA = $\sqrt{(13^2 - 5^2)}$

=> PA = $\sqrt{(169 - 25)} = \sqrt{144} = 12$

=> Area of ΔPAO = 1/2 × 5 × 12 = 30

=> Area of ΔPBO = 30

=> Area of quadrilateral PAOB = 30 + 30

=> Area = 60

Therefore The correct answer is 60.

Q74. Answer: (a) (2, 2)

Given:

A(0, 0)

B(4, 0)

C(2, 6)

Formula Used:

Centroid = ((x1 + x2 + x3)/3, (y1 + y2 + y3)/3)

Calculation:

=> x-coordinate = (0 + 4 + 2) ÷ 3 = 6 ÷ 3 = 2

=> y-coordinate = (0 + 0 + 6) ÷ 3 = 6 ÷ 3 = 2

=> Centroid = (2, 2)

Therefore The correct answer is (2, 2).

Q75. Answer: (a) 3/5

Given:

AC = 5

BC = 3

Formula Used:

sin(A) = opposite ÷ hypotenuse

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

Calculation:

=> $AB^2 = 5^2 - 3^2 = 25 - 9 = 16$

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=> AB = 4

=> sin(A) = BC ÷ AC = 3 ÷ 5

=> sin(A) = 3/5

Therefore The correct answer is 3/5.

Q76. Answer: (d) Kadamai

The correct answer is Kadamai.

Key Points

• Kadamai was the term used for land revenue in the Chola kingdom. It referred to the tax or dues collected from the landowners.

• The Chola dynasty, which ruled southern India from approximately the 9th century to the 13th century CE, had a well-organized revenue system for the administration of its vast territories.

• Land revenue under the Cholas was typically collected from agricultural land and was a major source of income for the kingdom. The term Kadamai denoted the obligation of farmers or landowners to pay taxes to the state or local authorities.

• Revenue officers called Vettiyan were appointed to collect Kadamai. These officials ensured compliance with tax obligations and maintained records of the land and its productivity.

• The revenue system under the Cholas also included taxes on irrigation facilities, which were extensively developed during their reign to support agriculture.

• Kadamai was an essential part of the Chola administrative structure, reflecting their efficient governance and resource management practices.

Additional Information

• Chola Dynasty:

• The Chola dynasty was one of the longest-ruling dynasties in Indian history, with its rule extending from the 9th century to the 13th century CE.

• The Cholas were known for their remarkable contributions to art, architecture, literature, and administration.

• Their capital was located at Thanjavur, and they expanded their kingdom to include parts of South India, Sri Lanka, and Southeast Asia.

• Land Revenue System:

• Under the Chola administration, land was classified based on its fertility and productivity, and taxes were levied accordingly.

• The tax rate varied but typically ranged from one-sixth to one-fourth of the produce.

• Irrigation facilities, including tanks and canals, played a crucial role in enhancing agricultural productivity and were often taxed separately.

• Other Revenue Terms:

• Vetti: A form of forced labor or tribute, often paid in goods or services instead of money.

• Cess Tax: While not specific to the Chola kingdom, the term is generally used for taxes levied for specific purposes, such as education or health.

• Ladder Tax: This term is unrelated to the Chola kingdom and typically refers to taxes levied in other historical contexts, such as those imposed on the use of ladders in medieval Europe.

• Significance of Kadamai:

• The term Kadamai highlights the structured approach the Cholas took to governance, ensuring a steady revenue stream to support their administrative and military needs.

• It also reflects the interdependence between the state and the agricultural sector, which was the backbone of the economy.

Important Points

• The Chola dynasty's efficient administrative system included local governance through village assemblies called sabhas. These assemblies played a role in managing revenue collection and agricultural activities.

• The Cholas constructed numerous irrigation facilities, such as the Kallanai Dam, which ensured a reliable water supply for agriculture and contributed to their economic prosperity.

• The Chola rulers were patrons of art and architecture, and the revenue collected through Kadamai funded the construction of grand temples like the Brihadeeswara Temple.

• The Chola dynasty's governance model, including its revenue system, influenced subsequent South Indian kingdoms and contributed to the region's historical legacy.

Q77. Answer: (a) Sur

The correct answer is Sur Dynasty.

Key Points

• The Sur Dynasty ruled India for a brief period of only 15 years, from 1540 to 1555. It was established by Sher Shah Suri, a

prominent ruler known for his administrative reforms and military strategies.

• Sher Shah Suri defeated the Mughal emperor Humayun at the Battle of Kannauj (1540) and effectively ended Mughal rule temporarily during his reign.

• The Sur Dynasty is celebrated for initiating notable reforms, such as the introduction of the Rupiya (currency) and significant improvements in road infrastructure, including the construction of the Grand Trunk Road.

• The Sur Empire declined after the death of Sher Shah in 1545, with a series of weak successors unable to hold the empire together. Humayun regained the throne in 1555, marking the end of the Sur Dynasty.

• The Sur Dynasty ruled primarily over northern India, extending its influence to parts of present-day Pakistan and Afghanistan during its brief reign.

Additional Information

• Khilji Dynasty:

• The Khilji Dynasty ruled India from 1290 to 1320. It was known for its military prowess, territorial expansion, and administrative efficiency under rulers like Alauddin Khilji.

• Alauddin Khilji introduced significant reforms, including market regulation and a centralized revenue system.

• The dynasty was prominent during the Delhi Sultanate period but ruled for a longer duration compared to the Sur Dynasty.

• Tughlaq Dynasty:

• The Tughlaq Dynasty ruled India from 1320 to 1414, making it one of the longest-reigning dynasties of the Delhi Sultanate.

• Notable rulers like Mohammad bin Tughlaq and Firoz Shah Tughlaq introduced significant reforms, although some, like the shifting of the capital to Daulatabad, were unsuccessful.

• The dynasty is remembered for its architectural contributions and expansion of territories.

• Lodi Dynasty:

• The Lodi Dynasty ruled from 1451 to 1526 and was the last dynasty of the Delhi Sultanate before the Mughals took over.

• Rulers like Sikandar Lodi and Ibrahim Lodi contributed to the administration and urban development of cities like Agra.

• The dynasty ended with the defeat of Ibrahim Lodi by Babur at the First Battle of Panipat (1526), leading to the establishment of the Mughal Empire.

• Sher Shah Suri's Contributions:

• He introduced the Rupiya, the precursor to the modern Indian Rupee, standardizing the currency system.

• He constructed the Grand Trunk Road, connecting key trade routes from Bengal to Peshawar.

• His administrative policies, such as land revenue reforms, had a lasting impact on subsequent empires.

• He built the Rohtas Fort in Bihar and significantly improved the postal system.

Important Points

• The Battle of Kannauj: Sher Shah Suri's victory over Humayun at Kannauj was a significant turning point in Indian history, leading to the temporary displacement of the Mughal Empire.

• Infrastructure Development: Sher Shah's focus on road construction and trade routes facilitated economic growth and administrative efficiency in the region.

• Decline of the Sur Dynasty: After Sher Shah's death in 1545, his successors were unable to maintain the empire, leading to its downfall and the restoration of Mughal rule.

Q78. Answer: (a) Article 2

The correct answer is Article 2.

Key Points

• Article 2 of the Indian Constitution empowers Parliament to admit new states into the Union of India or establish new states.

• This provision grants the Parliament the authority to create or incorporate new states into the Indian territory, ensuring flexibility in territorial expansion.

• The admission or establishment of new states under Article 2 is subject to the terms and conditions specified by Parliament.

• It is distinct from Article 3, which deals with changes in the boundaries or names of existing states. Article 2 strictly pertains to the inclusion of new states in the Union.

• Examples of states admitted under Article 2 include the inclusion of Sikkim as a full-fledged state in the Indian Union in 1975.

Additional Information

• Article 2 vs Article 3:

• Article 2: Deals with the admission or establishment of new states in the Union of India. It is applicable for territories that were not previously part of India.

• Article 3: Pertains to the reorganization of existing states, such as altering state boundaries, merging states, or changing state names.

• Sikkim's Inclusion:

• Sikkim was initially a protectorate under India and became a state under Article 2 in 1975 after a referendum.

• This marked a significant event in India's territorial expansion post-independence.

• Historical Context:

• After India's independence in 1947, various princely states and territories joined India through legal and constitutional provisions like Article 2.

• Examples include the inclusion of French territories like Pondicherry and Portuguese territories like Goa into the Indian Union.

• Role of Parliament:

• Parliament holds the supreme authority in deciding the terms and conditions for admitting new states under Article 2.

• Any such admission requires the passage of a law in Parliament, ensuring democratic oversight.

Important Points

• Constitutional Flexibility: Article 2 allows India to incorporate new territories or states, demonstrating the Constitution's adaptability to geopolitical changes.

• Global Examples: Similar provisions exist in other federal systems worldwide, such as the United States, which can admit new states into its union.

• Legal Framework: The inclusion of new states requires careful deliberation in Parliament, ensuring adherence to constitutional principles and democratic processes.

• Statehood Process: Territories aspiring for statehood typically undergo extensive negotiations and legal frameworks before being admitted under Article 2.

Q79. Answer: (d) Neither I nor II

The correct answer is Neither I nor II.

Key Points

• Statement I: Article 30 of the Indian Constitution is not related to the abolition of titles. Instead, it provides rights to minorities to establish and administer educational institutions of their choice. Hence, this statement is incorrect.

• Article 18 of the Indian Constitution is the one that deals with the abolition of titles except for military and academic distinctions. It prohibits the state from conferring titles that create artificial distinctions in society.

• Statement II: Article 22 of the Indian Constitution is not related to the prohibition of employment of children in factories. Instead, it provides protection in cases of arrest and detention. Hence, this statement is incorrect.

• Article 24 is the constitutional provision that prohibits the employment of children below the age of 14 years in factories, mines, or any other hazardous employment.

• Since neither Statement I nor Statement II is correct, the correct answer is "Neither I nor II."

Additional Information

• Fundamental Rights in the Indian Constitution:

• Part III of the Indian Constitution (Articles 12-35) deals with Fundamental Rights, which are basic human rights guaranteed to all citizens.

• These rights are enforceable by the courts and are considered essential for the overall development of individuals.

• Examples include the Right to Equality (Articles 14-18), Right to Freedom (Articles 19-22), and Right against Exploitation (Articles 23-24).

• Article 30:

• Grants minorities the right to establish and administer educational institutions of their choice.

• This right aims to preserve the cultural and educational rights of minorities in India.

• Article 18 (Abolition of Titles):

• Prohibits the state from conferring titles except for military and academic distinctions.

• Prevents the practice of granting hereditary titles like "Raja" or "Maharaja."

• Ensures equality among citizens by eliminating societal distinctions based on titles.

• Article 22 (Protection in Cases of Arrest):

• Deals with protection against arbitrary arrest and detention.

• Provides rights such as being informed of the reasons for arrest, the right to consult a legal practitioner, and being produced before a magistrate within 24 hours.

• Article 24 (Prohibition of Child Labour):

• Prohibits the employment of children below 14 years in factories, mines, or hazardous work environments.

• Aims to protect children from exploitation and ensure their right to education under Article 21A.

Important Points

• Child Labour Prohibition: The Child Labour (Prohibition and Regulation) Act, 1986, prohibits the employment of children in hazardous occupations and regulates the working conditions of children in non-hazardous jobs.

• Right to Education: Article 21A ensures free and compulsory education for children aged 6 to 14 years, which complements the prohibition of child labour under Article 24.

• Judicial Enforcement: Fundamental Rights can be enforced through the courts under Article 32 (Supreme Court) and Article 226 (High Courts).

• Constitutional Amendments: Various amendments, such as the 86th Amendment (2002), have strengthened the provisions related to child rights and education.

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Q80. Answer: (b) Manushi Chhillar

The correct answer is Manushi Chhillar.

Key Points

• Manushi Chhillar, an Indian model and beauty queen, was crowned Miss World on 18th November 2017 at the event held in Sanya, China.

• She is the sixth Indian to win the prestigious title of Miss World, following notable winners like Aishwarya Rai (1994) and Priyanka Chopra (2000).

• Manushi Chhillar represented the state of Haryana in the competition, showcasing her talent, intelligence, and social initiatives.

• Her winning answer in the Q&A round focused on the significance of mothers' contributions to society, resonating deeply with the judges and audience.

• She actively promoted her project titled "Project Shakti," aimed at spreading awareness about menstrual hygiene among women in India.

Additional Information

• Miss World Pageant:

• The Miss World competition is one of the oldest and most prestigious international beauty pageants, established in 1951.

• The pageant evaluates contestants based on their beauty, intelligence, and commitment to social causes through initiatives like the Beauty with a Purpose program.

• India has won the title six times, with winners including Reita Faria (1966), Aishwarya Rai (1994), Diana Hayden (1997), Yukta Mookhey (1999), Priyanka Chopra (2000), and Manushi Chhillar (2017).

• Manushi Chhillar's Background:

• Born on 14th May 1997, Manushi Chhillar hails from Sonipat, Haryana.

• She pursued her studies in medicine at the Bhagat Phool Singh Government Medical College for Women in Haryana.

• Her achievements highlight her dedication to promoting health-related issues and women's empowerment.

• Project Shakti:

• Manushi Chhillar's "Project Shakti" focuses on menstrual hygiene awareness among women in rural areas of India.

• The initiative emphasizes the importance of breaking taboos surrounding menstruation and ensuring access to hygienic products.

• It aligns with global efforts to improve women's health and well-being.

• Other Indian Miss World Winners:

• Reita Faria (1966): First Indian to win Miss World.

• Aishwarya Rai (1994): Became an international film star post her win.

• Diana Hayden (1997): Known for her intelligence and grace.

• Yukta Mookhey (1999): Advocated for social causes post her victory.

• Priyanka Chopra (2000): Gained global fame as an actress and philanthropist.

Important Points

• Significance of Beauty Pageants:

• Beauty pageants like Miss World provide a platform for women to showcase their talents, intelligence, and commitment to social causes.

• They promote cultural exchange and inspire women to play active roles in community-building initiatives.

• Global Impact of Miss World:

• The Beauty with a Purpose initiative associated with Miss World encourages contestants to engage in projects addressing health, education, and environmental issues.

• Manushi Chhillar's win has inspired many young women in India to contribute to social causes and pursue their dreams.

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Q81. Answer: (b) 50000

The correct answer is 50,000.

Key Points

• The Union Finance Minister in the Budget 2025-26 announced the establishment of 50,000 Atal Tinkering Labs (ATLs) in government schools across India over the next five years.

• Atal Tinkering Labs are part of the flagship initiative under the Atal Innovation Mission (AIM), launched by the NITI Aayog.

• The main aim of establishing these labs is to foster a culture of innovation and entrepreneurship among students by equipping schools with state-of-the-art infrastructure to allow hands-on learning.

• The initiative targets promoting STEM (Science, Technology, Engineering, and Mathematics) education in schools and emphasizes critical thinking, creativity, and problem-solving skills among young learners.

• These labs are expected to encourage students to work on real-world problems and develop prototype solutions using innovative technologies like 3D printing, IoT (Internet of Things), Robotics, and Artificial Intelligence.

Additional Information

• Atal Innovation Mission (AIM):

• Launched by the Government of India, AIM is a flagship initiative to promote a culture of innovation and entrepreneurship across the country.

• The mission includes multiple components such as Atal Tinkering Labs, Atal Incubation Centers, and ARISE (Applied Research and Innovation for Small Enterprises).

• AIM supports the creation of an ecosystem conducive to scientific exploration and promotes collaboration between academia, industry, and startups.

• Features of Atal Tinkering Labs (ATLs):

• Each ATL is equipped with cutting-edge tools like 3D printers, robotics kits, microcontrollers, IoT devices, and sensors.

• Students are encouraged to ideate and implement projects that address real-world challenges like water conservation, renewable energy, and health solutions.

• The labs provide a platform for students from Class 6 to Class 12 to explore and develop their innovative potential.

• Impact of ATLs:

• Encourages the development of entrepreneurial skills among students at a young age.

• Promotes interdisciplinary learning by integrating science, technology, and practical application.

• Helps in building a future-ready workforce equipped with 21st-century skills.

• Fosters grassroots innovation and builds a culture of problem-solving and critical thinking in schools.

• Key Statistics:

• As of 2023, over 10,000 Atal Tinkering Labs have already been established in schools across India, benefiting thousands of students.

• The target of 50,000 labs aims to significantly expand the reach of this initiative, especially in rural and underprivileged areas.

• Each ATL receives a grant of up to INR 20 lakhs to set up the infrastructure and manage operational costs.

Important Points

• Eligibility: ATLs are set up in schools managed by government, local bodies, or private trusts, provided they meet the eligibility criteria set by the AIM.

• Training and Mentorship: The initiative includes training programs for teachers and students and connects schools with industry mentors for guidance.

• Global Competitiveness: ATLs aim to prepare Indian students to compete at international innovation challenges and hackathons.

• Alignment with NEP 2020: The initiative aligns with the National Education Policy 2020, which emphasizes experiential learning and skill development.

Q82. Answer: (a) 33

The correct answer is 33 crimes.

Key Points

• The Bharatiya Nyaya Sanhita, 2023 is proposed to replace the Indian Penal Code (IPC) of 1860 as part of comprehensive legal reforms in India.

• The new legal framework includes increased imprisonment terms for 33 specific crimes, reflecting the evolving nature of criminal activities and a focus on stricter punishments.

• These changes aim to address issues like cybercrime, organized crime, sexual offenses, and crimes against women and children, which have become more prevalent in the modern era.

• The reforms also emphasize improving the efficiency of the criminal justice system and ensuring quicker resolution of cases through updated legal provisions.

• By increasing the punishment for these crimes, the Bharatiya Nyaya Sanhita aims to serve as a deterrent to criminal activity and ensure better protection for citizens.

Additional Information

• Key Features of Bharatiya Nyaya Sanhita, 2023:

• The Bharatiya Nyaya Sanhita focuses on simplifying the legal language and addressing ambiguities in the earlier Indian Penal Code (IPC).

• It introduces provisions for new-age crimes, such as cybercrimes, while retaining the core principles of the IPC.

• Provisions for enhanced punishment terms aim to ensure justice for victims and act as a deterrent for offenders.

• Examples of Crimes with Increased Imprisonment:

• Stronger penalties for sexual offenses, including crimes against women and children.

• Enhanced sentences for cybercrimes, considering the rise in online fraud and misuse of technology.

• Increased imprisonment for organized crimes, such as human trafficking and drug smuggling.

• Legal Reforms and Modernization:

• The new legislation aligns with global standards, ensuring that India's legal framework is equipped to handle contemporary challenges.

• It emphasizes the use of technology in judicial processes, including digital evidence and case management systems.

• Impact on the Criminal Justice System:

• The changes are expected to improve the efficiency and credibility of the Indian judicial system.

• By addressing modern-day crimes, the Bharatiya Nyaya Sanhita aims to ensure better protection of citizens' rights.

Important Points

• Historical Context:

• The Indian Penal Code (IPC) was enacted in 1860 during British colonial rule and served as the foundation of India's criminal law system.

• The Bharatiya Nyaya Sanhita, 2023, represents a significant modernization of this century-old legal framework.

• Role of the Law Commission:

• The reforms were proposed after extensive consultations and recommendations by the Law Commission of India.

• The aim was to create a more citizen-friendly legal system that reflects the aspirations of a contemporary society.

• Implementation:

• The Bharatiya Nyaya Sanhita, 2023, will come into effect after approval from the Indian Parliament and Presidential assent.

• It will replace the IPC, marking a historic shift in India's legal landscape.

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Q83. Answer: (a) Mission Shakti

The correct answer is Mission Shakti.

Key Points

• Sakhi Niwas Scheme is part of Mission Shakti, an initiative by the Government of India aimed at empowering women and ensuring their safety and security.

• The scheme focuses on the creation of safe and secure spaces for women, particularly victims of violence, by providing them with shelter and support.

• It is designed to address the needs of women who face challenges such as domestic violence, abuse, and exploitation by offering them a place to heal and rebuild their lives.

• Mission Shakti was launched by the Ministry of Women and Child Development and includes components such as Sakhi One Stop Centers, Women Helplines, and other initiatives to strengthen women's rights and well-being.

• The Sakhi Niwas facilities under Mission Shakti are aimed at creating safe accommodation for women and ensuring access to legal, medical, and psychological assistance.

Additional Information

• Mission Shakti Overview:

• Mission Shakti is a comprehensive scheme launched by the Ministry of Women and Child Development for the empowerment and protection of women.

• The mission has two sub-schemes: "Sambal" and "Samarthya."

• Sambal: Focuses on women’s safety and security and includes initiatives like One Stop Centers, Women Helplines, and Sakhi Niwas.

• Samarthya: Focuses on women’s empowerment through programs like Beti Bachao Beti Padhao, skill development, and capacity-building initiatives.

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• Sakhi One Stop Centers:

• Sakhi One Stop Centers provide integrated support and assistance to women affected by violence, including medical aid, counseling, and legal support.

• These centers are operational in every district of India.

• Women Helpline:

• The Women Helpline (181) under Mission Shakti ensures 24x7 assistance for women facing distress.

• The helpline connects women with services like police assistance, legal aid, medical help, and shelters like Sakhi Niwas.

• Beti Bachao Beti Padhao:

• This component of Mission Shakti focuses on gender equality and the promotion of education for girls.

• The campaign addresses the declining Child Sex Ratio (CSR) and advocates for girls' rights and education.

Important Points

• Estimated Reach: Mission Shakti aims to benefit millions of women across India by providing integrated services and improving their quality of life.

• Budget Allocation: The scheme has received significant financial support in recent Union Budgets to expand its reach and impact.

• Collaborations: Mission Shakti works in collaboration with state governments, NGOs, and other stakeholders to ensure effective implementation.

• Tracking and Monitoring: The government uses technology to monitor the progress of Mission Shakti initiatives and ensure transparency and accountability.

Q84. Answer: (a) United states of America

The correct answer is United States of America.

Key Points

• The game of basketball was invented in the United States of America in the year 1891.

• It was created by Dr. James Naismith, a physical education instructor at the International YMCA Training School in Springfield, Massachusetts.

• The objective behind inventing the game was to develop an indoor activity during the winter months that would keep athletes active and fit.

• The first game was played with a soccer ball and two peach baskets as goals, which were nailed to the balcony of the gymnasium.

• Basketball rapidly gained popularity across schools, colleges, and professional leagues, becoming one of the most widely played sports globally.

Additional Information

• Dr. James Naismith:

• Dr. Naismith was a Canadian-American physical education teacher, physician, and sports coach.

• He formulated the original 13 rules of basketball, which are still foundational to the modern version of the game.

• Features of Early Basketball:

• The game was played with 9 players per team initially, but this was later reduced to the current 5-player format.

• The first official basketball court was 18 meters (60 feet) long and 12 meters (20 feet) wide.

• Development of Basketball:

• The National Basketball Association (NBA), established in 1946, is the premier professional basketball league globally.

• Basketball became an Olympic sport in 1936, played for the first time in the Berlin Olympics.

• Significance of Basketball:

• Basketball is now played worldwide, with significant fan bases in countries like the USA, Canada, China, and the Philippines.

• It is a sport that promotes teamwork, strategy, and athleticism, making it a favorite among youth and professionals alike.

Important Points

• Spread of Basketball:

• Basketball spread internationally through the efforts of the YMCA and American soldiers during World War I.

• The game gained recognition as a global sport, with the establishment of the International Basketball Federation (FIBA) in 1932.

• Modern Basketball:

• The modern game includes 3-point shooting, dunking, and complex strategies involving both offense and defense.

• Major basketball tournaments include the NBA Finals, FIBA World Cup, and the Olympics.

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Q85. Answer: (a) 92

The correct answer is 92.

Key Points

• Tamil Nadu achieved an impressive total medal count of 92 during the National Games 2025, securing its status as one of the top-performing states in the event.

• The tally of 92 medals reflects the state's strong performance across various sports disciplines, showcasing its athletes' diverse skills and dedication.

• The medal distribution included Gold, Silver, and Bronze medals, with Tamil Nadu excelling particularly in athletics, swimming, and team sports.

• The state’s performance in the games was a result of strategic planning, rigorous training programs, and support from the state sports council.

• The achievement of 92 medals also highlights the state's investment in grassroots sports development, talent identification, and infrastructure improvements.

Additional Information

• National Games:

• The National Games are India’s premier multi-sport event, organized every four years under the aegis of the Indian Olympic Association (IOA).

• Participants include athletes from all Indian states and union territories, competing in various sporting categories.

• The 2025 edition saw athletes competing in disciplines such as athletics, swimming, shooting, boxing, badminton, and team sports.

• Tamil Nadu’s Sports Policies:

• Tamil Nadu has introduced several state-level sports initiatives and schemes to promote athletic development, including the construction of modern sports infrastructure.

• Its sports academies and training centers actively nurture young talent, preparing athletes for national and international competitions.

• Medal Distribution:

• The state’s tally of 92 medals included a significant number of Gold medals, showcasing excellence in multiple sports disciplines.

• The performance in team sports such as volleyball, kabaddi, and hockey further contributed to the medal count.

• Comparison with Other States:

• Tamil Nadu's impressive performance places it among the top-ranking states in the National Games 2025.

• Other high-performing states included Maharashtra, Haryana, and Punjab, which also showcased exceptional athletic talent.

Important Points

• Grassroots Development: Tamil Nadu’s achievements underline the importance of grassroots sports programs, which identify and nurture talent from a young age.

• Infrastructure Investment: The state has invested heavily in building world-class sports facilities, contributing to its athletes' success in national competitions.

• Role of Coaches: The contribution of skilled coaches and sports scientists has been pivotal in ensuring athletes are prepared for high-pressure events.

• Collaborations: Partnerships with sports organizations and sponsorships have helped Tamil Nadu athletes receive better training and exposure.

• Policy Framework: Tamil Nadu’s comprehensive sports policies aim to promote inclusivity, encouraging participation from rural and urban areas alike.

Q86. Answer: (d) Badminton

The correct answer is Badminton.

Key Points

• Badminton is a racquet sport that does not use a ball. Instead, it uses a feathered or synthetic object called a shuttlecock, which players hit back and forth over a net.

• The objective of the game is to score points by striking the shuttlecock with the racquet so that it lands in the opponent's half of the court.

• Unlike sports like Cricket, Hockey, or Soccer, which use spherical balls as the primary object of play, Badminton relies on the unique aerodynamic properties of the shuttlecock.

• The shuttlecock, due to its shape and feathered design, behaves differently from a ball, as it slows down significantly after being struck, allowing for a distinct style of play.

• This makes Badminton the correct answer to the question as it does not include the use of a ball in its gameplay.

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Additional Information

• Cricket:

• Cricket is a team sport played with a hard leather ball and a bat. The objective is to score runs by hitting the ball and running between the wickets.

• The game is played internationally and governed by the International Cricket Council (ICC).

• Formats include Test matches, One-Day Internationals (ODIs), and T20s.

• Hockey:

• Hockey is a team sport where players use sticks to hit a small, hard ball to score goals in the opponent's net.

• It is played on grass, turf, or indoor surfaces and is governed by the International Hockey Federation (FIH).

• Field hockey and ice hockey are two common variants of the sport.

• Soccer:

• Soccer, also known as football, is the world's most popular sport. It involves a spherical ball and two teams of 11 players aiming to score goals.

• The game is governed by FIFA (Fédération Internationale de Football Association).

• It is played on a rectangular field with a goal at each end.

• Badminton:

• Badminton is played on a rectangular court divided by a net, and the primary equipment includes racquets and a shuttlecock.

• The sport is governed internationally by the Badminton World Federation (BWF).

• It has been a part of the Olympic Games since 1992.

Important Points

• Shuttlecock: The shuttlecock used in Badminton is made of feathers or synthetic materials with a cork base. Its unique design ensures it slows down after being hit, unlike a ball.

• Gameplay: Badminton can be played in singles (one player per side) or doubles (two players per side). The first player or team to score 21 points wins the game.

• History: Badminton originated in India during British colonial rule and was derived from the game "Poona."

• Other Racquet Sports: Similar sports like tennis and squash use balls; however, badminton stands out for using a shuttlecock instead.

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Q87. Answer: (a) Kerala

The correct answer is Kerala.

Key Points

• The black collared yellow catfish is an endangered species found in the Chalakudy River, which is located in the state of Kerala, India.

• The Chalakudy River originates in the Anamalai Hills of the Western Ghats and flows through Kerala, making it an important water source for the region.

• Kerala is known for its rich biodiversity, and the Chalakudy River is home to many rare and endemic aquatic species, including the endangered black collared yellow catfish.

• The river also supports various environmental and agricultural activities, contributing to the ecological balance and economy of Kerala.

• The presence of the endangered black collared yellow catfish highlights the importance of conservation efforts in Kerala to protect its unique aquatic biodiversity.

Additional Information

• Chalakudy River:

• The Chalakudy River is one of the 44 rivers in Kerala and originates from the Western Ghats.

• It flows through districts like Thrissur, Ernakulam, and Palakkad, covering a distance of about 130 km.

• The river is known for its scenic beauty and is home to the Athirappilly Waterfalls, a popular tourist destination.

• Endangered Species:

• The black collared yellow catfish is classified as endangered due to habitat loss, pollution, and overfishing.

• Conservation efforts are crucial to protecting species like this, as they play a significant role in maintaining the ecological balance of aquatic ecosystems.

• Biodiversity of Kerala:

• Kerala is part of the Western Ghats, which is a UNESCO World Heritage Site and one of the world's eight "hottest hotspots" of biological diversity.

• The state is home to several endemic and rare species of flora and fauna, making it an important region for conservation activities.

• Conservation Efforts:

• Various environmental organizations and government agencies in Kerala are working to protect rivers like Chalakudy and their biodiversity.

• Efforts include monitoring pollution levels, regulating fishing activities, and raising awareness about the importance of conservation.

Important Points

• Western Ghats:

• The Western Ghats spans six states in India, including Kerala, and is a global biodiversity hotspot.

• It is known for its high level of endemic species, many of which are threatened due to deforestation and urbanization.

• Threats to Chalakudy River:

• Pollution from industrial and agricultural activities poses significant threats to the river's ecosystem.

• Unregulated sand mining and encroachments along the riverbanks also contribute to habitat degradation.

• Role of Conservation Policies:

• Government initiatives like the National Biodiversity Authority and Kerala's state-level conservation programs aim to protect the region's rivers and wildlife.

• Community-led efforts, such as eco-tourism projects, also play a role in promoting sustainable practices.

Q88. Answer: (a) Madhya Pradesh

The correct answer is Madhya Pradesh.

Key Points

• Gandhisagar Sanctuary is located in the state of Madhya Pradesh, India.

• It is situated on the northern boundary of the Mandsaur and Neemuch districts of Madhya Pradesh.

• In March 2025, the Prime Minister of India announced the expansion of the cheetah reintroduction program to Gandhisagar Sanctuary as part of efforts to conserve and reintroduce cheetahs in India.

• The cheetah reintroduction initiative was first launched in Kuno National Park, Madhya Pradesh, which is part of India’s commitment to global wildlife conservation and rewilding efforts.

• The Gandhisagar Sanctuary is known for its diverse flora and fauna and is considered a suitable habitat for cheetahs due to its expansive grasslands and prey availability.

Additional Information

• About the Cheetah Reintroduction Program:

• Cheetahs were declared extinct in India in 1952 due to hunting and habitat loss.

• The reintroduction program was initiated to bring cheetahs back to India, with the first batch of cheetahs being imported from Namibia and South Africa.

• The project is a collaboration between the Indian government and international conservation organizations.

• The aim is to restore ecosystems and promote biodiversity in India.

• Key Features of Gandhisagar Sanctuary:

• The sanctuary spans an area of approximately 368 square kilometers.

• It is named after the Gandhisagar Dam, which is located on the Chambal River.

• The sanctuary features a mix of dry deciduous forests and grasslands, making it suitable for various wildlife species.

• It is home to species like leopards, wild boars, nilgais, and several bird species.

• Why Madhya Pradesh?

• Madhya Pradesh is often referred to as the "Tiger State of India" due to its rich wildlife and numerous national parks.

• The state has been a pioneer in wildlife conservation, with renowned reserves like Kanha, Bandhavgarh, and Satpura.

• The availability of suitable habitats and prey species in Madhya Pradesh makes it an ideal location for the reintroduction of cheetahs.

• Other States in the Options:

• Gujarat: Known for the Gir National Park, which is home to the Asiatic lions, but not for cheetah reintroduction.

• Maharashtra: Famous for Tadoba-Andhari Tiger Reserve but not linked to the cheetah project.

• Kerala: Known for its tropical biodiversity and backwaters but unsuitable for cheetahs due to dense forests.

Important Points

• India's Wildlife Conservation Efforts:

• India has launched various programs like Project Tiger (1973) and Project Elephant (1992) to conserve its wildlife.

• The reintroduction of cheetahs is a significant step in India's conservation history and is expected to boost tourism and local economies.

• Global Significance:

• The cheetah reintroduction program in India is the first intercontinental translocation of wild cheetahs.

• This initiative highlights India's commitment to global wildlife conservation efforts under international agreements like CITES (Convention on International Trade in Endangered Species).

Q89. Answer: (c) Rajasthan

The correct answer is Rajasthan.

Key Points

• Dedh Satara is a unique and traditional musical instrument that originates from the state of Rajasthan, India.

• It is a type of stringed instrument, and its name translates to "one and a half strings," referring to its distinctive setup of one full string and one smaller string.

• The instrument is traditionally used in folk music performances and is an integral part of Rajasthan's rich cultural heritage.

• It is commonly played by local folk artists and is often used to accompany Rajasthani folk songs, bhajans, and traditional dances.

• The Dedh Satara is made using materials such as wood, gut strings, and other locally sourced materials, showcasing the craftsmanship of Rajasthan's artisans.

Additional Information

• Rajasthan's Folk Music:

• Rajasthan is known for its vibrant and diverse folk music, which includes instruments like sarangi, morchang, dhol, and algoza.

• The music is deeply rooted in the culture and traditions of the state and is often performed during festivals, weddings, and other cultural events.

• Traditional Musical Instruments of Rajasthan:

• Other than the Dedh Satara, Rajasthan is home to a variety of musical instruments such as ravanhatta, kamaycha, and khartal.

• Each instrument is associated with a specific style of folk music and is often handcrafted by local artisans.

• Craftsmanship in Rajasthan:

• Rajasthan is famous for its skilled artisans who create traditional musical instruments using locally sourced materials.

• The craftsmanship reflects the state's rich cultural heritage and its commitment to preserving traditional arts.

• Significance of Folk Music:

• Folk music in Rajasthan serves as a medium of storytelling, often narrating tales of historical events, love stories, and religious themes.

• It plays a crucial role in preserving the oral traditions of the state.

Important Points

• Rajasthan's Cultural Heritage:

• Rajasthan's culture is characterized by its colorful festivals, traditional attire, handicrafts, and music.

• It is one of the most culturally rich states in India, drawing tourists from across the globe.

• Preservation Efforts:

• Various organizations and government initiatives are working to preserve and promote Rajasthan's folk music and traditional instruments.

• Efforts include cultural festivals, training programs, and international collaborations.

Q90. Answer: (d) 7.5

The correct answer is 7.5 km per second.

Key Points

• Sun Synchronous Orbit: Satellites in a Sun Synchronous Orbit (SSO) maintain a constant angle with respect to the Sun. This ensures consistent lighting conditions for imaging and observation purposes.

• Altitude: A satellite positioned at an altitude of 800 km above the Earth's surface in an SSO has to travel at a specific speed to maintain its orbit.

• Orbital Speed: At an altitude of 800 km, the satellite travels approximately at a speed of 7.5 km per second to balance the gravitational pull and the centrifugal force.

• Orbital Mechanics: The speed of a satellite in orbit is determined by the balance between the Earth's gravitational force and the inertia of the satellite. For a near-Earth orbit like 800 km, this speed is typically close to 7.5 km per second.

• Correct Option: Thus, the correct speed for a satellite in this orbit is 7.5 km per second, as given in Option 4.

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Additional Information

• Sun Synchronous Orbit Characteristics:

• Satellites in SSOs pass over the same region of the Earth at the same local solar time.

• This orbit is commonly used for Earth observation satellites, such as those used for weather monitoring, environmental studies, and reconnaissance.

• The altitude for SSOs typically ranges between 600 km and 800 km.

• The inclination of this orbit is usually near 98 degrees, allowing the satellite to cover almost all parts of the Earth over time.

• Factors Affecting Orbital Speed:

• The orbital speed depends on the altitude of the satellite; the higher the altitude, the lower the speed required to maintain orbit.

• For near-Earth orbits (LEO - Low Earth Orbit), the speed is typically between 7 km/s and 8 km/s.

• Applications of Sun Synchronous Orbits:

• Earth observation satellites like Sentinel (European Space Agency) and Landsat (NASA) use SSOs for consistent imaging conditions.

• They are also utilized in remote sensing for agricultural monitoring, disaster management, and urban planning.

• Physics of Orbital Motion:

• The formula for orbital speed (v) is derived from Newton's law of gravitation and circular motion: $v = \sqrt{(GM/R)}$, where G is the gravitational constant, M is the Earth's mass, and R is the distance from the Earth's center.

• At 800 km altitude, the Earth's radius (6371 km) is added, giving a total distance of approximately 7171 km from the Earth's center.

Important Points

• Satellite Orbits:

• Low Earth Orbit (LEO): Altitude 200–2000 km, speed 7–8 km/s.

• Geostationary Orbit (GEO): Altitude 35,786 km, speed 3.07 km/s.

• Medium Earth Orbit (MEO): Altitude 2000–35,786 km, used by navigation satellites like GPS.

• Examples of Sun Synchronous Satellites:

• Landsat Program: Joint effort by NASA and USGS for Earth observation.

• Sentinel Missions: Part of the European Copernicus program for environmental monitoring.

• Cartosat Satellites: Developed by ISRO for cartographic applications.

Q91. Answer: (d) 20 J

The correct answer is 20 J.

Key Points

• Work done is calculated using the formula: $W = F \times d \times \cos(\theta)$, where F is the force applied, d is the displacement, and θ is the angle between the force and the direction of displacement.

• In this case, the force applied is 10 N, and the displacement is 2 m.

• The force acts in the same direction as the displacement, so the angle $\theta = 0°$. For $\theta = 0°$, $\cos(0°) = 1$.

• Using the formula: $W = F \times d \times \cos(\theta)$, we get $W = 10 \times 2 \times 1 = 20$ J.

• Therefore, the work done by the force on the object is 20 Joules.

Additional Information

• Work:

• Work is a measure of energy transfer when a force is applied over a distance.

• It is expressed in units of Joule (J) in the SI system, where 1 Joule is equivalent to 1 Newton-meter.

• Work is said to be done only when there is displacement and the force has a component along the direction of displacement.

• Force:

• Force is any interaction that can change the motion of an object. It is measured in Newtons (N) in the SI system.

• 1 Newton is the force required to accelerate a 1 kg mass by 1 m/s^2.

• In this problem, a constant force of 10 N acts on the object.

• Displacement:

• Displacement refers to the straight-line distance between the initial and final positions of an object.

• It is a vector quantity and has both magnitude and direction.

• Here, the displacement is 2 meters in the direction of the force.

• Angle between Force and Displacement:

• The angle between the force and displacement determines the effective component of the force contributing to the work.

• If the angle is 0°, the entire force contributes to the work, as cos(0°) = 1.

• If the angle is 90°, no work is done, as cos(90°) = 0.

• In this problem, the angle is 0°, ensuring maximum work.

Important Points

• Work Done in Physics:

• Work done is positive when the force and displacement are in the same direction.

• Work done is negative when the force is opposite to the direction of displacement.

• Work done is zero if there is no displacement or if the force is perpendicular to the displacement.

• Real-life applications of work:

• Examples include lifting objects, pushing a cart, or pulling a rope.

• Mechanical work is essential in machines and engines to convert energy into motion.

Q92. Answer: (d) Light combat helicopter

The correct answer is Light Combat Helicopter.

Key Points

• 'Prachand' is an advanced Light Combat Helicopter (LCH) developed by Hindustan Aeronautics Limited (HAL), a leading aerospace and defense company in India.

• This helicopter was officially inducted into the Indian Air Force (IAF) and the Indian Army in October 2022, strengthening India's combat capabilities.

• The LCH is designed to meet the unique requirements of high-altitude warfare, making it highly effective in regions like the Himalayas.

• Prachand is equipped with state-of-the-art avionics, advanced weapons systems, and stealth features, enabling it to operate in hostile environments.

• The helicopter is capable of performing multiple roles, including anti-tank operations, search and rescue missions, close air support, and counter-insurgency operations.

Additional Information

• Development and Features:

• The Light Combat Helicopter (LCH) project was initiated by HAL to fulfill the need for an indigenous combat helicopter capable of operating at high altitudes.

• It is powered by two Shakti engines, jointly developed by HAL and Safran Helicopter Engines of France, ensuring high performance in extreme conditions.

• Its advanced features include stealth technology, crash-resistant landing gear, and armor protection.

• Operational Use:

• The LCH can operate in diverse terrains, including desert, jungle, and mountainous regions, making it versatile in warfare scenarios.

• It is equipped with air-to-ground missiles, anti-tank missiles, rocket pods, and a 20-mm turret gun for precision strikes.

• It also incorporates advanced sensors and electronic warfare capabilities for enhanced situational awareness.

• Strategic Importance:

• The induction of 'Prachand' into the Indian Armed Forces strengthens India's defense capabilities against threats from neighboring countries like China and Pakistan.

• Its ability to operate at altitudes of up to 16,000 feet makes it indispensable in protecting India's border regions, especially in the Ladakh sector.

• It has been designed to counter armored threats and provide support in high-altitude conflicts.

• Global Context:

• The LCH is comparable to other globally recognized combat helicopters, such as the AH-64 Apache (USA) and the Eurocopter Tiger (Europe).

• Its indigenous production reduces dependency on foreign imports, aligning with the Indian government's 'Make in India' initiative.

Important Points

• Key Competitors:

• AH-64 Apache: Used by the United States, equipped with advanced radar and weapon systems.

• Eurocopter Tiger: Developed by Europe, known for its agility and precision targeting.

• Mi-24 Hind: Russian combat helicopter with heavy firepower and troop-carrying capability.

• HAL's Contribution:

• HAL has been instrumental in developing indigenous aircraft such as the Tejas Light Combat Aircraft and the Dhruv Advanced

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Light Helicopter.

• It plays a critical role in enhancing India's defense ecosystem by manufacturing high-quality, cost-effective aviation solutions.

• Technological Advancements:

• The Prachand incorporates modern avionics, including helmet-mounted displays, infrared targeting systems, and night vision capabilities.

• Its stealth features minimize radar detection, providing a tactical advantage in combat scenarios.

Q93. Answer: (d) It means India could barely afford to pay for essential imports for a very short time.

The correct answer is It means India could barely afford to pay for essential imports for a very short time..

Key Points

• A low level of foreign exchange reserves indicates that India may face challenges in paying for essential imports such as crude oil, machinery, and food commodities. This makes the nation vulnerable to global economic shocks and a potential balance of payments crisis.

• When foreign reserves are insufficient, it limits the government's ability to intervene in the foreign exchange market to stabilize the rupee's value, potentially causing the rupee to weaken further against global currencies.

• Insufficient reserves can adversely affect India's credit rating, making borrowing from international markets more expensive, and reducing investor confidence in the economy.

• India depends heavily on imports for certain critical sectors like energy and defense. A low reserve level can disrupt supplies, causing inflation and economic instability.

• This situation can lead to a trade imbalance, where the country imports more than it exports, widening the current account deficit. Such imbalances can further strain reserves and worsen economic conditions.

Additional Information

• Foreign Exchange Reserves:

• Foreign exchange reserves are assets held by a country's central bank in foreign currencies. These include gold, foreign currency assets, Special Drawing Rights (SDRs), and reserve positions in the IMF.

• India's reserves are managed by the Reserve Bank of India (RBI). As of early 2023, India's foreign exchange reserves were approximately $586 billion.

• Reserves are critical for maintaining economic stability, supporting the currency, and ensuring trade payments.

• Impact of Low Foreign Reserves:

• A low reserve level can lead to a currency crisis, where the domestic currency rapidly depreciates due to a lack of confidence in the economy.

• It can also result in import shortages, affecting essential goods and services like oil, pharmaceuticals, and machinery.

• Countries with low reserves may seek external aid or loans from institutions like the International Monetary Fund (IMF), often leading to austerity measures.

• Correcting Low Reserves:

• Governments can introduce measures like export promotion, restricting non-essential imports, or encouraging foreign direct investment (FDI) to boost reserves.

• India has taken steps like implementing Atmanirbhar Bharat to reduce import dependence and enhance domestic production.

• Other Impacts:

• A weakened economy due to low reserves can impact employment rates, economic growth, and inflation.

• It can reduce the government's ability to fund development projects, affecting infrastructure and welfare programs.

Important Points

• Historical Context:

• India faced a foreign exchange crisis in 1991, leading to economic reforms and liberalization under Prime Minister P.V. Narasimha Rao and Finance Minister Dr. Manmohan Singh.

• During that period, India's reserves were so low that it could only cover imports for two weeks.

• Current Reserve Status:

• As of 2023, India has one of the largest reserves globally, but risks remain due to geopolitical tensions, rising global oil prices, and supply chain disruptions.

Q94. Answer: (a) Loans create liability but sale of asset do not

The correct answer is Loans create liability but sale of asset do not..

Key Points

• Loans create liability: Loans taken by the government are a form of borrowing that must be repaid in the future, often with interest. This creates a financial liability for the government.

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• Sale of assets does not create liability: When the government sells its assets (e.g., land, buildings, or shares in public sector enterprises), it generates revenue without incurring any future obligation or liability. Hence, this does not create any liability.

• Revenue Receipts vs. Capital Receipts: Loans are classified as capital receipts since they impact the financial assets and liabilities of the government, while the sale of assets is also categorized under capital receipts as it changes the asset composition of the government.

• Impact on financial assets: Loans increase the government's liabilities, whereas the sale of assets reduces the government's ownership of financial or physical assets without affecting liabilities.

• Correct Statement: The statement "Loans create liability but sale of assets do not" is correct because loans add to the financial burden, while asset sales simply restructure the government's holdings. Hence, option 1 is accurate.

Additional Information

• Classification of Government Receipts:

• Revenue Receipts: These are non-repayable incomes for the government, such as taxes, fees, and grants. They do not create liabilities or reduce assets.

• Capital Receipts: These involve borrowings, sale of assets, and other transactions that either create liabilities or result in changes to the government's asset structure.

• Sale of Government Assets:

• Common examples include disinvestment of Public Sector Undertakings (PSUs) or selling government-owned land and infrastructure.

• It is often undertaken to generate revenue for developmental purposes or to reduce fiscal deficit.

• For instance, the government's disinvestment in entities like Air India or BPCL involves selling shares to private entities or individuals.

• Government Borrowing:

• Domestic Borrowing: Raised within the country through bonds, treasury bills, etc.

• External Borrowing: Loans from foreign governments or institutions like the World Bank or IMF.

• Impact: Borrowing increases the debt and financial obligations of the government, requiring repayment with interest.

• Fiscal Implications:

• The government must carefully balance asset sales and borrowing to ensure financial stability.

• Excessive reliance on loans can lead to debt accumulation, while over-selling assets may reduce strategic control over critical resources.

• Examples:

• In 2021, the Indian government generated revenue through the National Monetization Pipeline (NMP), which involved leasing assets like highways, railways, and airports.

• Borrowing during the COVID-19 pandemic led to increased fiscal deficits globally as governments needed funds for healthcare and economic stimulus.

Important Points

• Disinvestment Policy: The Indian government uses disinvestment to raise funds and improve efficiency in public enterprises. Notable disinvestments include companies like ONGC and LIC IPO.

• Fiscal Deficit: A key economic indicator representing the difference between the government's total expenditure and total revenue (excluding borrowings).

• Debt-to-GDP Ratio: The ratio is used to measure a country's debt in relation to its economic output. For India, this ratio has been a critical metric in managing fiscal policies.

• Asset Monetization: The government monetizes assets via long-term leases instead of outright sales to retain ownership and generate consistent revenue.

Q95. Answer: (b) Seringapatam

The correct answer is Seringapatam.

Key Points

• Seringapatam, also known as Srirangapatna, was the capital of Tipu Sultan's kingdom. It is located in the Mandya district of Karnataka, India.

• Tipu Sultan, often referred to as the Tiger of Mysore, ruled the Kingdom of Mysore during the late 18th century. Seringapatam served as the political and military center of his reign.

• The city was strategically important due to its location on an island in the Kaveri River, which provided natural defense against invasions.

• Seringapatam was fortified under the rule of Tipu Sultan and his father, Hyder Ali. The city housed the famous fortress that became the center of Tipu Sultan's resistance against the British forces.

• The city also has historical significance as the site of the Fourth Anglo-Mysore War in 1799, which led to the fall of Tipu Sultan and the capture of Seringapatam by British forces.

Additional Information

• Tipu Sultan's Contributions:

• Tipu Sultan was a pioneer in using rocketry in warfare. His military innovations included the use of iron-cased rockets, which were highly effective in battles.

• He introduced several administrative reforms, including a regulated revenue system and the promotion of agriculture and trade.

• Tipu Sultan was known for his resistance against British colonial expansion and sought alliances with the French to counter British forces.

• Seringapatam's Historical Significance:

• The city is home to the Ranganathaswamy Temple, a famous Hindu temple dedicated to Lord Vishnu.

• Seringapatam also houses the Daria Daulat Bagh, the summer palace of Tipu Sultan, which is now a museum showcasing artifacts from his reign.

• The famous Gumbaz Mausoleum in Seringapatam is the burial site of Tipu Sultan and his family.

• The British victory at Seringapatam in 1799 marked a turning point in Indian history, leading to the consolidation of British rule in southern India.

• Other Options Explained:

• Erode: A city in Tamil Nadu, known for its textile industry, but not historically significant as Tipu Sultan’s capital.

• Sira: A town in Karnataka that was part of the Mysore kingdom but never served as the capital under Tipu Sultan's reign.

• Chitradurga: A city in Karnataka known for its fort and history, but it was not the capital of Tipu Sultan's kingdom.

• Important Points:

• Tipu Sultan's reign lasted from 1782 to 1799, during which he fiercely resisted British colonial ambitions.

• The Fourth Anglo-Mysore War in 1799 resulted in Tipu Sultan's death and the eventual dismantling of his kingdom.

• Seringapatam remains a site of historical and cultural importance, attracting scholars and tourists interested in the legacy of Tipu Sultan.

Q96. Answer: (a) 2%

The correct answer is 1) 2%.

Key Points

• National Highways in India comprise around 2% of the total road network in the country. Despite the small percentage, they play a vital role in transportation and connectivity.

• Although they constitute only 2% of the total road length, they bear almost 40% of the total road traffic, underlining their importance in national and inter-state connectivity.

• The National Highway Authority of India (NHAI) is responsible for the development, maintenance, and management of these highways under the Ministry of Road Transport and Highways.

• National highways connect major cities, towns, ports, and industrial hubs, making them the backbone of the Indian economy by facilitating trade and transportation.

• India has around 1,44,634 kilometers of national highways (as of 2023), which includes expressways and high-capacity roads designed for long-distance travel.

Additional Information

• Functions and Importance of National Highways:

• National highways are crucial for economic growth as they facilitate the movement of goods and services across the country.

• They provide connectivity between state capitals, major ports, and international borders, ensuring seamless inter-state and international trade.

• They also play a vital role in reducing travel time and fuel consumption, thereby contributing to environmental sustainability.

• Development Programs:

• The Bharatmala Pariyojana, launched in 2017, is a centrally sponsored scheme aimed at improving the efficiency of road traffic movement by bridging critical infrastructure gaps.

• The program focuses on the construction of economic corridors, inter-corridors, and feeder routes to ensure better connectivity and reduce travel time.

• Other Road Categories in India:

• State Highways: These connect major towns and district headquarters within states and contribute about 3% of the road network in India.

• District Roads: These roads connect district headquarters to rural areas and account for around 10% of the total road length.

• Rural Roads: These roads connect villages and are part of the Pradhan Mantri Gram Sadak Yojana for rural connectivity. They

form a substantial portion of India’s road network.

• Global Comparison:

• India’s road network is the second-largest in the world, with the United States having the largest road network.

• However, India’s national highways contribute a smaller percentage compared to its total road network, highlighting the need for further expansion and development.

Important Points

• Expressways: These are a subset of national highways designed for high-speed travel, such as the Delhi-Mumbai Expressway, which is under development.

• Challenges: National highways face challenges such as overcrowding, maintenance issues, and land acquisition problems for expansion and development.

• Government Initiatives: Programs like the National Highways Development Project (NHDP) aim to upgrade and expand the national highway network to meet future demands.

• Economic Impact: Upgraded highways have a direct impact on GDP growth, employment generation, and regional development by enhancing connectivity and infrastructure.

Q97. Answer: (d) Prasanta Chandra Mahalanobis

The correct answer is Prasanta Chandra Mahalanobis.

Key Points

• The Second Five-Year Plan (1956-1961) of India was based on the ideas of Prasanta Chandra Mahalanobis, an eminent Indian statistician.

• This plan focused on the establishment of a strong industrial base in the country and emphasized the development of the public sector.

• The strategy was inspired by the Mahalanobis Model, which prioritized investment in heavy industries like steel, machinery, and infrastructure.

• The plan also aimed at achieving a rapid growth rate in the industrial and manufacturing sectors to make India self-reliant and reduce dependency on imports.

• The Second Plan marked a departure from the agriculture-focused First Plan and was heavily influenced by the Soviet Union's economic planning approach.

Additional Information

• Prasanta Chandra Mahalanobis:

• He was the founder of the Indian Statistical Institute (ISI) in Kolkata and is often referred to as the "Father of Indian Statistics."

• Mahalanobis introduced statistical methods for national planning and developed the Mahalanobis Distance, a statistical measure still widely used.

• His contributions were recognized internationally, and he worked closely with the Indian government to shape its economic policies.

• Key Features of the Second Five-Year Plan:

• The plan emphasized the development of capital goods industries like iron, steel, and heavy machinery.

• It focused on reducing inequalities in income and wealth distribution across different sections of society.

• The plan introduced the concept of import substitution to reduce dependency on foreign imports by promoting domestic production.

• Comparison with the First Five-Year Plan:

• The First Plan (1951-1956) was primarily focused on agricultural development to address food shortages and improve rural livelihoods.

• In contrast, the Second Plan shifted focus to industrialization as the key driver of economic growth.

• Outcomes of the Second Plan:

• The plan led to the establishment of major industries, including Bokaro Steel Plant and Bhilai Steel Plant.

• It laid the foundation for India's modern industrial base and created employment opportunities in heavy industries.

• However, the focus on industries led to neglect of agriculture, causing food shortages in subsequent years.

Important Points

• Mahalanobis Model:

• The model emphasized the need for a two-sector economy—one focusing on consumer goods and the other on capital goods.

• It advocated for state-led industrialization and increased public sector investments in heavy industries.

• The approach was heavily inspired by the Soviet Union's economic planning framework.

• Challenges Faced:

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• The heavy focus on industrialization led to neglect of agriculture, contributing to food shortages and inflation.

• The high cost of capital-intensive projects strained India's limited financial resources during the plan period.

• Legacy:

• The Second Plan laid the foundation for India's self-reliant industrial economy.

• It marked a significant shift in India's approach to development, prioritizing long-term industrial growth over immediate agricultural needs.

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Q98. Answer: (c) Both I and II

The correct answer is Both I and II.

Key Points

• Industrial Policy Statement, 1991 was introduced to reform India's economic structure by reducing government control and promoting liberalization and privatization.

• The policy allowed foreign direct investment (FDI) by lowering regulatory barriers and simplifying the approval process. This was a key reform to attract global investments. Statement I is correct.

• The policy introduced an exit mechanism for sick units in the private sector. It aimed to allow these businesses to close smoothly without significantly affecting workers' welfare. This was an essential step for economic restructuring. Statement II is correct.

• This policy marked a paradigm shift from the previous highly controlled economic system to a more liberal and open market economy.

• It was a response to the economic crisis of 1991, which necessitated urgent reforms to stabilize and reinvigorate the Indian economy.

• Hence, both Statement I and Statement II are correct.

Additional Information

• Foreign Direct Investment (FDI) Reforms:

• The Industrial Policy of 1991 allowed FDI up to 51% in certain priority sectors to promote technology transfer, capital inflow, and global competitiveness.

• This reform aimed to integrate the Indian economy with the global market and encourage multinational companies to invest in India.

• Exit Policy for Sick Units:

• The policy introduced mechanisms like the Board for Industrial and Financial Reconstruction (BIFR) to address issues of sick industries.

• This framework ensured that businesses could exit the market without disrupting the economic and social fabric, especially protecting labor welfare.

• Key Features of the Industrial Policy Statement, 1991:

• Reduction of industrial licensing to enhance ease of doing business.

• Encouragement of private sector participation in industries previously reserved for the public sector.

• Promotion of Small Scale Industries (SSI) by increasing their investment limits.

• Introduction of MRTP Act reforms to remove restrictions on business expansion and mergers.

• Economic Context:

• India faced a balance of payments crisis in 1991, with foreign exchange reserves plummeting to less than $1 billion.

• The government sought a structural adjustment program supported by the International Monetary Fund (IMF) and World Bank, leading to the formulation of the 1991 Industrial Policy.

• Impact of the Policy:

• The reforms led to significant growth in industrial production, foreign investment, and globalization of the Indian economy.

• It marked the beginning of India's transition to a market-oriented economy.

Important Points

• Economic Crisis of 1991:

• India's fiscal deficit reached 8.4% of GDP, and inflation exceeded 13%.

• The country faced a severe foreign exchange reserve crisis, necessitating immediate economic reforms.

• Liberalization, Privatization, and Globalization (LPG) Model:

• The policy aimed at liberalizing trade and industry, privatizing public enterprises, and integrating India into the global economy.

• This model transformed India's economic landscape and laid the foundation for sustained growth.

• Structural Reforms:

• Measures were introduced to reduce government intervention, enhance competition, and encourage private sector growth.

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• These reforms also included tax rationalization and financial sector liberalization.

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Q99. Answer: (d) Neither I nor II

The correct answer is Neither I nor II.

Key Points

• Rural settlements are classified into various types based on their pattern, structure, and geographical location.

• The major types of rural settlements include clustered, semi-clustered, dispersed, hamleted, and isolated settlements.

• Hamleted settlements are characterized by the division of the village into several small hamlets scattered across the area. These hamlets are often linked socially and economically.

• Dispersed settlements consist of isolated dwellings or small groups of houses separated by large distances, often found in hilly terrains or regions with difficult geographical conditions.

• Both Hamleted and Dispersed settlements are recognized as types of rural settlements based on geographical studies. Hence, neither I nor II is NOT a type of rural settlement.

Additional Information

• Clustered Settlements:

• These settlements are tightly packed, with houses located close to each other.

• Such settlements are usually found in fertile plains or areas with rich agricultural resources.

• Examples include villages in the Indo-Gangetic plains of India.

• Semi-clustered Settlements:

• These are transitional forms of settlements where a part of the population lives clustered, while others live dispersed.

• These settlements are often influenced by socio-economic factors such as caste or occupation.

• Found in regions where agricultural land is unevenly distributed.

• Dispersed Settlements:

• These settlements are scattered over a large area, with houses located far apart.

• Typically found in mountainous regions, deserts, or dense forest areas.

• Examples include tribal settlements in northeastern India.

• Hamleted Settlements:

• Hamleted settlements consist of several small hamlets that form a single village unit.

• These hamlets may have different names and are connected socially and economically.

• Examples include villages in Bundelkhand and parts of Rajasthan.

Important Points

• Geographical Influence:

• The type of rural settlement is heavily influenced by the terrain, climate, and availability of resources.

• For example, dispersed settlements are common in regions with challenging geography like hills or deserts.

• Socio-Cultural Factors:

• Social structures such as caste, ethnicity, and occupation play a significant role in determining settlement patterns.

• Hamleted settlements often arise due to caste-based divisions in certain regions.

• Historical Significance:

• Rural settlement patterns have evolved over centuries based on agricultural practices, wars, and migration.

• Clustered settlements were historically preferred in fertile plains for security and ease of farming.

Q100. Answer: (a) Ethanol and carbon dioxide

The correct answer is Ethanol and carbon dioxide.

Key Points

• Fermentation is an anaerobic process where organisms like yeast convert pyruvate into simpler compounds to regenerate NAD+ for glycolysis.

• During alcohol fermentation, pyruvate is first converted into acetaldehyde by the enzyme pyruvate decarboxylase, releasing carbon dioxide (CO_2) in the process.

• Acetaldehyde is then reduced to ethanol by the enzyme alcohol dehydrogenase, utilizing NADH and regenerating NAD+ required for glycolysis.

• This process is commonly observed in yeast and some bacteria, particularly under anaerobic conditions.

• The end products of this metabolic pathway are ethanol (a type of alcohol) and carbon dioxide, both of which are significant for

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industrial applications like brewing and baking.

• Hence, the correct answer is ethanol and carbon dioxide.

Additional Information

• Types of Fermentation:

• Alcohol Fermentation: Produces ethanol and CO2, widely utilized in industries for brewing beer and wine, and baking bread.

• Lactic Acid Fermentation: Converts pyruvate into lactic acid without releasing CO2. This is common in muscle cells during intense exercise and in the dairy industry for producing yogurt.

• Mixed Acid Fermentation: Used by certain bacteria like E. coli to produce a mixture of organic acids, ethanol, and gases.

• Applications of Alcohol Fermentation:

• Brewing Industry: Ethanol is the key product in alcoholic beverages like beer, wine, and spirits.

• Baking Industry: Carbon dioxide produced during fermentation helps in the leavening of bread.

• Biofuel Production: Ethanol is used as a biofuel and blended with gasoline to reduce fossil fuel consumption.

• Importance of NAD+ Regeneration:

• NAD+ is essential for glycolysis, allowing cells to continue producing ATP under anaerobic conditions.

• Fermentation ensures the recycling of NAD+ from NADH, maintaining energy production even in oxygen-limited environments.

• Organisms Performing Alcohol Fermentation:

• Yeast: Saccharomyces cerevisiae is the most widely used organism in industrial alcohol fermentation.

• Bacteria: Certain bacterial species, like Zymomonas mobilis, also perform alcohol fermentation.

Important Points

• Key Enzymes:

• Pyruvate Decarboxylase: Catalyzes the decarboxylation of pyruvate to acetaldehyde.

• Alcohol Dehydrogenase: Reduces acetaldehyde to ethanol while oxidizing NADH to NAD+.

• Industrial Significance: Fermentation contributes significantly to economic sectors such as food, beverages, pharmaceuticals, and bioenergy.

• Environmental Impact: Ethanol production through fermentation provides a renewable energy source, reducing greenhouse gas emissions when blended with traditional fuels.

• Historical Context: Alcohol fermentation has been utilized by humans for thousands of years, with records of brewing dating back to ancient civilizations like Mesopotamia and Egypt.

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