SSC CHSL 2025 Tier-1 (Held On: 15 Nov, 2025 Shift 2) (Previous Year Paper)

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ENGLISH LANGUAGE

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

"A. Neither of the two B. proposals were approved C. because the committee found D. both of them to be unsatisfactory."

(a) Neither of the two
(b) proposals were approved
(c) because the committee found
(d) both of them to be unsatisfactory.

Q2. Identify the part of the sentence that contains a grammatical error.

"A. He is B. not only intelligent C. and hardworking, D. but also very kind."

(a) He is
(b) not only intelligent
(c) and hardworking
(d) but also very kind.

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

"The defendant was charged _____ colluding with foreign agents to influence the outcome of the election."

(a) of
(b) for
(c) with
(d) about

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

"He has a lot of potential, _____ his lack of discipline may hinder his growth."

(a) whereas
(b) unless
(c) because
(d) albeit

Q5. Choose the correctly spelt word:

(a) Anniversary
(b) Aniversary
(c) Anniversarry
(d) Annivessary

Q6. Choose the correctly spelt word:

(a) Emenical
(b) Enemical
(c) Inimical

(d) Enimical

Q7. Choose the correct meaning of the idiom: All hands on the deck

(a) Everyone working together
(b) Someone in charge of the deck
(c) A distraction on the deck
(d) A difficult task

Q8. Select the most appropriate antonym of the word: Profuse

(a) Copious
(b) Abundant
(c) Scarce
(d) Plentiful

Q9. Choose the correct one-word substitute for:

A person who is trained to care for animals

(a) Zoologist
(b) Biologist
(c) Veterinarian
(d) Ecologist

Q10. Choose the correct one-word substitute for:

A stain caused by a discoloring substance

(a) Blot
(b) Smudge
(c) Mark
(d) Spot

Q11. Which sentence contains a misspelled word "address"?

(a) He didn’t know the recipient’s address, so the parcel was returned.
(b) The speaker’s addres during the ceremony was inspiring.
(c) Please ensure the return address is clearly visible.
(d) She updated her mailing address after she moved.

Q12. Change the following sentence into the Active form:

"It was believed that the secret formula had been stolen by a rival company."

(a) A rival company believed that the secret formula had been stolen.
(b) People believed that a rival company had stolen the secret formula.
(c) The secret formula was stolen by a rival company.
(d) A rival company stole the secret formula, it was believed.

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

"The professor said, 'The study published last year proves that the hypothesis is false.'"

(a) The professor said that the study published the previous year proved that the hypothesis was false.
(b) The professor said that the study published last year proves that the hypothesis is false.
(c) The professor said that the study published the previous year proved that the hypothesis is false.
(d) The professor said that the study published last year proved that the hypothesis was false.

Q14. Choose the most suitable option to replace the highlighted part of the sentence:

"I bought a new pair of jeans and they are already torn."

(a) I bought a new pair of jeans and it is already torn
(b) I bought a new pair of jeans and it has already torn
(c) I bought a new pair of jeans and it was already torn
(d) I bought a new pair of jeans and which are already torn

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Q15. Choose the most suitable option to replace the highlighted part of the sentence:

"The bowler took three wickets in the past four overs."

(a) in the last four overs
(b) in the next four overs
(c) during the past four overs
(d) in four overs

Q16. Choose the correct passive voice transformation of the sentence:

"The government will be implementing the new environmental regulations next month."

(a) The new environmental regulations will be implemented by the government next month.
(b) The new environmental regulations will be being implemented by the government next month.
(c) The new environmental regulations are being implemented by the government next month.
(d) The new environmental regulations will have been implemented by the government next month.

Q17. Select the option that expresses the given sentence in direct voice.

"My friend told me that she had been thinking about quitting her job but that she had not made a final decision yet."

(a) My friend said to me, "I was thinking about quitting my job, but I have not made a final decision yet."
(b) My friend said to me, "I have been thinking about quitting my job, but I have not made a final decision yet."
(c) My friend said to me, "I had been thinking about quitting my job, but I had not made a final decision yet."
(d) My friend said to me, "I have been thinking about quitting my job, but I did not make a final decision yet."

Directions

Read the passage and answer the following questions:

In the contemporary corporate milieu, women occupying the echelons of Chief Executive Officer (CEO) and Chief Technology Officer (CTO) roles have increasingly disrupted the traditionally male-dominated paradigm. Despite systemic impediments such as gender bias and glass ceilings, a growing cohort of women leaders is redefining organizational dynamics through innovative leadership and technological acumen.

The ascendancy of women CEOs and CTOs is emblematic of progressive shifts in societal and corporate ethos, fostering inclusivity and diversity at strategic decision-making levels. Their leadership is often characterized by a collaborative approach, emotional intelligence, and resilience, which synergize effectively with technological innovation and business strategy.

However, these trailblazing women frequently confront challenges including unequal access to mentorship, networking opportunities, and unconscious biases embedded within corporate cultures. The persistence of such barriers underscores the necessity for institutional reforms aimed at amplifying female representation in executive roles.

Moreover, the integration of technology with visionary leadership by women CTOs has catalyzed transformative advancements across sectors, underscoring the symbiotic relationship between gender diversity and technological progress. This paradigm not only enhances organizational performance but also fosters sustainable development goals aligned with equity.

In essence, the emergence of women as CEOs and CTOs heralds a nuanced reconfiguration of power structures within the corporate sphere, delineating a future where gender parity and innovation coalesce to propel economic and social progress.

Q18. In the sentence, “The persistence of such barriers underscores the necessity for institutional reforms aimed at amplifying female representation in executive roles,” the phrase “aimed at amplifying female representation” is:

(a) a misplaced modifier
(b) a participial phrase modifying “reforms”
(c) an absolute phrase modifying the entire sentence
(d) an infinitive phrase modifying “necessity”

Q19. In the sentence, “Their leadership is often characterized by a collaborative approach, emotional intelligence, and resilience,” the verb “is characterized” is in:

(a) active voice, present tense
(b) passive voice, present tense
(c) active voice, past tense
(d) passive voice, past tense

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Q20. The word “ascendancy” in the passage most nearly means:

(a) decline
(b) dominance or rise
(c) stagnation
(d) separation

Q21. The phrase “nuanced reconfiguration” implies:

(a) a complex and subtle restructuring
(b) a simplistic rearrangement
(c) a chaotic disruption
(d) an immediate reversal

Q22. According to the passage, what is a major barrier faced by women CEOs and CTOs?

(a) Excessive technological knowledge
(b) Lack of emotional intelligence
(c) Unequal access to mentorship and networking opportunities
(d) Overrepresentation in executive roles

Q23. Rearrange the following sentence parts to form a meaningful and grammatically correct paragraph:

P. The perfect gift appeared on her screen, so she clicked to add it to her cart.
Q. She typed in her address and credit card details, then checked out.
R. With a final click, her order was placed and confirmed.
S. Now she waits for the package to arrive at her doorstep.

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

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

P. He developed his finger strength and dexterity by practicing his scales and chords daily.
Q. He studied sheet music for hours, learning to play tunes that got harder and harder.
R. He had mastered his new instrument and was now a musician.
S. He played a challenging piece perfectly from memory while performing for his buddies.

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

Q25. Which of the following pairs of homonyms can be used to fill in the blanks most suitably?

"The undercover officer managed to ____ a confession about the gang’s ____ activities."

(a) elicit, illicit
(b) illicit, elicit
(c) solstice, solicit
(d) solicit, solstice

GENERAL INTELLIGENCE

Q26. In a class of 40 students, Ritu's rank is 18th from the top. What is her rank from the bottom?

(a) 22nd
(b) 23rd
(c) 24th
(d) 25th

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Q27. Pointing to a man, a woman said, "His brother's father is the only son of my grandmother." How is the woman related to the man?

(a) Aunt
(b) Sister
(c) Daughter
(d) Mother

Q28. A is the brother of B. B is the sister of C. D is the mother of A. E is the father of C. How is D related to E?

(a) Wife
(b) Mother
(c) Sister
(d) Daughter

Q29. Pointing to a photo, a man said, "I have no brother or sister but that man's father is my father's son." Who is in the photo?

(a) His Son
(b) His Father
(c) His Grandfather
(d) Himself

Q30. A box contains 45 red balls and 30 blue balls. What is the ratio of red balls to blue balls in simplest form?

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

Q31. A train travels at a speed of 90 km/hr. How much distance will it cover in 20 minutes?

(a) 20 km
(b) 25 km
(c) 30 km
(d) 35 km

Q32. If 15% of a number is 45, what is 40% of that number?

(a) 100
(b) 120
(c) 150
(d) 180

Q33. Ram is twice as old as Sita. If the sum of their ages is 45 years, how old is Sita?

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

Q34. Find the next number in the series: 2, 6, 18, 54, ?

(a) 108
(b) 162
(c) 180
(d) 216

Q35. A cycle was bought for Rs. 1500 and sold for Rs. 1800. Calculate the profit percentage.

(a) 10%
(b) 15%
(c) 20%
(d) 25%

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Q36. The average of 4 numbers is 25. If three of the numbers are 20, 28, and 32, what is the fourth number?

(a) 20
(b) 25
(c) 30
(d) 35

Q37. After an increase of 20%, a price of an item becomes Rs. 600. What was the original price of the item?

(a) Rs. 480
(b) Rs. 500
(c) Rs. 540
(d) Rs. 720

Q38. A person walks 7 km south, then 24 km east, and finally 7 km north. What is the shortest distance between his starting point and ending point?

(a) 24 km
(b) 25 km
(c) 26 km
(d) 27 km

Q39. A man starts walking from point A and walks 6 km east, then 4 km north, and finally 3 km west. How far is he from point A?

(a) 2 km
(b) 4 km
(c) 5 km
(d) 6 km

Q40. A person walks 8 km north, then 6 km west, and finally 8 km south. In which direction is he from his starting point?

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

Q41. A person walks 5 km east, then 12 km north, and finally 5 km west. How far is he from his starting point?

(a) 10 km
(b) 12 km
(c) 13 km
(d) 15 km

Q42. Five friends – Riya, Aman, Sohan, Neha, and Rahul – play five different sports: Cricket, Badminton, Football, Tennis, and Hockey. Riya does not play Football or Tennis. Aman plays Cricket. Neha plays Hockey. Sohan does not play Football. Rahul plays Football. Who plays Badminton?

(a) Riya
(b) Sohan
(c) Neha
(d) Rahul

Q43. Six boys A, B, C, D, E and F go to gym on Monday, Tuesday, Wednesday, Thursday, Friday and Saturday (not necessarily in the same order). No two boys go on the same day. D does not go on Wednesday and Saturday. Neither D nor E goes on Friday. A goes on Tuesday. C goes before D and after B. Which of the following combination of boy and day is correct?

(a) F - Wednesday
(b) E - Saturday
(c) B - Wednesday
(d) D - Monday

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Q44. Identify the pair that does not belong to the group.

(a) Dog – Bark
(b) Cat – Meow
(c) Snake – Slither
(d) Cow – Moo

Q45. Find the odd sequence.

(a) A - C - E - G
(b) B - D - F - H
(c) C - E - G - I
(d) D - F - H - K

Q46. In the following analogy, find the option that does not conform to the same relationship.

(a) Library : Books
(b) Aquarium : Fish
(c) Garage : Cars
(d) Kitchen : Chef

Q47. Which direction-based item is inconsistent with standard compass logic?

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

Q48. Identify the distinct number pattern.

(a) 11 - 22 - 44
(b) 3 - 6 - 12
(c) 5 - 10 - 21
(d) 7 - 14 - 28

Q49. Two students are accused of cheating. One has a prior record; the other doesn't. There's no evidence yet. What is the best judgemental stance?

(a) Suspend both immediately
(b) Trust the student with no record
(c) Wait for evidence before action
(d) Punish only the repeat offender

Q50. If all the letters of the word 'MOVIETIME' are arranged in alphabetical order from left to right, then position of how many letters remain unchanged after the re-arrangement?

(a) One
(b) Two
(c) Three
(d) Four

QUANTITATIVE APTITUDE

Q51. Which number is NOT part of the natural numbers?

(a) 0
(b) 1
(c) 2
(d) 9

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Q52. Which number is in both natural and integer sets?

(a) 0
(b) 5
(c) -5
(d) None

Q53. A trader buys 200 mixed stationery boxes at a rate of Rs. 120 each. He spends Rs. 1,800 on transportation and packaging. He sells 100 boxes at Rs. 150 each and the remaining at Rs. 130 each. What is his total profit percentage?

(a) 8%
(b) 8.53%
(c) 8.75%
(d) 9%

Q54. In triangle PQR, O is incenter. angle QOR = 110°. Find angle QPR.

(a) 10°
(b) 30°
(c) 40°
(d) 90°

Q55. Find the value of (tan 20^º)² / (cosec 70^º)² + (cot 20^º)² / (sec 70^º)² + 2tan15^ºtan45º tan 75^º

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

Q56. If 2 × sin q × cos (90^º- q) = 1/2, where 0^º< q < 90^º, then find the value of sin(2q) + cos (2q).

(a) (√ 2 - 1) / 2
(b) (√ 3 - 1) / 2
(c) (√ 3 + 1) / 2
(d) (√ 2 + 1) / 2

Q57. An amount invested on simple interest at 'R%' p.a. amounts to Rs. 9,504 and Rs. 12,384 in 4 years and 9 years, respectively. Find the value of 'R'.

(a) 7%
(b) 5%
(c) 11%
(d) 8%

Q58. A sum of money becomes 240% of itself in 8 years at simple interest. Find the simple interest earned when Rs. 3000 is invested at the same rate for 3 years.

(a) Rs. 1620
(b) Rs. 1430
(c) Rs. 1255
(d) Rs. 1575

Q59. Rohit distributed 70% of the total money he had between Priya and Meena in the ratio 5:9, respectively. Priya and Meena deposited their respective shares at 6% and 10% simple interest per annum for 4 years. If the difference in the interest earned by Meena and Priya is Rs. 2,304, find the total amount Rohit had.

(a) Rs. 23,400
(b) Rs. 33,400
(c) Rs. 16,900
(d) Rs. 19,200

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Q60. A stick of length 48 cm is at an inclination of 60^º to a wall with its bottom touching the floor of the wall. Find the length from the floor to the point where the stick touches the wall.

(a) 24√ 3 cm
(b) 12√ 3 cm
(c) 12√ 2 cm
(d) 18√ 3 cm

Q61. If a 16 metre long rope is stretched from the ground to the top of the house, such that the rope makes an angle of 30^º with the ground, then find the height of the house.

(a) 8 metres
(b) (16 √ 3) metres
(c) 3 metres
(d) 16 metres

Q62. A tank has two pipes, one can fill it with water in 14 hours and the other can empty it in 8 hours. In how many hours will the tank be emptied if both the pipes are opened together when 1/4th of the tank is already filled with water?

(a) 6 hours
(b) 5 hours
(c) 3 hour 20 min
(d) 4 hour 40 min

Q63. If 4 women and 6 girls can do a piece of work in 12 days, while 24 women and 46 girls can do the same in 2 days, how much time will 15 women and 20 girls do the same type of work?

(a) 5 days
(b) 3 days 12 hours
(c) 4 days 2 hours
(d) 3 days 4 hours 48 min

Q64. Two vertical poles stand on the ground, 50 meters apart. The height of the smaller pole is 10 meters. From the top of the smaller pole, the angle of elevation of the top of the taller pole is 30^º. Find the height of the taller pole.

(a) 35.20 m
(b) 38.87 m
(c) 40.12 m
(d) 42.25 m

Q65. A chord of length 8 cm is 3 cm from the center. Find the radius.

(a) 5 cm
(b) 7 cm
(c) 6 cm
(d) 4 cm

Q66. The number of chords that can be drawn through a point on a circle is:

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

Q67. The length and breadth of a rectangle are in the ratio 14:11, respectively, and the perimeter of the rectangle is 150 cm. If the area of the rectangle is equal to the area of the top surface of a solid cylinder, then find the curved surface area of the cylinder given that its radius is 105% of its height.

(a) 2640 cm^2
(b) 2560 cm^2
(c) 2120 cm^2
(d) 2250 cm^2

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Q68. PT is a tangent at point C on a circle with centre O and AB is a diameter. When BA is produced, it meets PT at point P. If angle BPC = 34^º, then what is the measure of angle ACP?

(a) 26º
(b) 28º
(c) 32º
(d) 29º

Q69. Simplify:

(√ 12 + √ 27) ÷ √ 3

(a) 11
(b) -1
(c) 5
(d) 0

Q70. Simplify:

(5 + 2√ 6) (5 - 2√ 6)

(a) 11
(b) 1
(c) 0
(d) 6

Q71. Find the value of √(9 + 4√5) - √(9 - 4√5)

(a) 2
(b) 4
(c) 7
(d) 3

Q72. Rationalize: 1 / (√ 3 + √ 2)

(a) √ 2 + √ 3
(b) √ 2 - √ 3
(c) √ 3 + √ 2
(d) √ 3 - √ 2

Q73. Simplify: $(2\sqrt{3} + \sqrt{2})^2$

(a) 14 - 4√ 6
(b) 14 + 4√ 6
(c) 11 + 2√ 6
(d) 11 - 2√ 6

Q74. Simplify the expression:

$(\sqrt{3} + \sqrt{5})^2 + (\sqrt{3} - \sqrt{5})^2 + 2(\sqrt{3} + \sqrt{5})(\sqrt{3} - \sqrt{5})$

(a) 15
(b) 10
(c) 18
(d) 12

Q75. The average weight of 30 students is 60 kg. When the teacher's weight is included, the average becomes 61 kg. What is the weight of the teacher?

(a) 91 kg
(b) 90 kg
(c) 89 kg
(d) 88 kg

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GENERAL AWARENESS

Q76. What were the coins minted in Delhi during the reign of Tomar and Chauhan called?

(a) Rupees
(b) Dehliwal
(c) Dinar
(d) Tanka

Q77. What was the 'zat' in the Mughal mansabdari system?

(a) It determined the land a mansabdar was given.
(b) It was the numerical value determining a noble's rank and salary.
(c) It referred to the military responsibilities assigned to a noble.
(d) It was a tax imposed on the mansabdars.

Q78. The Indian Ocean Rim Association was established in _____.

(a) 1983
(b) 1997
(c) 2003
(d) 2008

Q79. Who was first woman Chief Minister of any state in India?

(a) Aruna Asaf Ali
(b) Sucheta Kripalani
(c) Anna Chandy
(d) Kamala Nehru

Q80. Who among the following was the first female recipient of the Shanti Swarup Bhatnagar Prize?

(a) Debala Mitra
(b) Asima Chatterjee
(c) Sudipta Sengupta
(d) Archana Bhattacharyya

Q81. In 2024, at the National Film Awards, the Best Music Direction (Songs) award was presented to _____ for his work on Brahmastra - Part 1: Shiva (Hindi).

(a) Pritam
(b) Mahesh Bhuvanend
(c) Niki Joshi
(d) Ravi Varman

Q82. 50th Statehood Day of a state was celebrated in May 2025. Prem Singh Tamang (P.S. Golay) is Chief Minister of this state. Which state is being discussed here?

(a) Sikkim
(b) Mizoram
(c) Arunachal Pradesh
(d) Meghalaya

Q83. In July 2024, which country recently conferred its highest civilian award "The Order of St. Andrew the Apostle" to Prime Minister Narendra Modi?

(a) France
(b) Croatia
(c) Russia
(d) Ghana

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Q84. According to the Periodic Labour Force Survey (PLFS) 2023-24, India's overall female labour force participation rate (FLFPR) has risen to _____.

(a) 11.7%
(b) 31.7%
(c) 51.7%
(d) 41.7%

Q85. As per the Union Budget 2025-26, a revamped UDAN initiative will be launched to further enhance regional connectivity, adding _____ new destinations.

(a) 120
(b) 155
(c) 95
(d) 165

Q86. As of October 2024, which of the following is not recognized as a category under the Pradhan Mantri Mudra Yojana (PMMY)?

(a) Shishu
(b) Kishor
(c) Tarun
(d) Yuva

Q87. Narcotics are used as doping in sports. Which of the following is an example of narcotics?

I. Morphine
II. Methadone

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

Q88. A badminton match generally consists games of _____ points each.

(a) 17
(b) 19
(c) 21
(d) 23

Q89. Which state government has launched Majhi Vasundhara Campaign 6.0 to strengthen environmental conservation efforts?

(a) Maharashtra
(b) Jharkhand
(c) Sikkim
(d) Manipur

Q90. Which country hosted the FIFA World Cup 2022?

(a) Qatar
(b) Saudi Arabia
(c) Spain
(d) Germany

Q91. FIFA Men's U-17 World Cup 2025 will be held in which country?

(a) Qatar
(b) Saudi Arabia
(c) Spain
(d) Brazil

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Q92. 'Guruvayur' festival is native festival of which of the following state?

(a) Kerala
(b) Gujarat
(c) Assam
(d) Tripura

Q93. The Gol Gumbaz the tomb of Mohammed Adil Shah is in _____.

(a) Delhi
(b) Uttar Pradesh
(c) Karnataka
(d) Telangana

Q94. What is the name of Blue Origin's first orbital rocket launched in January 2025?

(a) New Shepard
(b) New Horizon
(c) New Glenn
(d) Blue Moon

Q95. Why we are not crushed under the large atmospheric pressure?

(a) Because we are very strong
(b) Because gravity pulls it away
(c) Because atmospheric pressure is very low
(d) Because the pressure inside our body balances the outside pressure

Q96. Which of the following fort was built by Suraj Mal in Bharatpur?

(a) Amer Fort
(b) Agra Fort
(c) Lohagarh Fort
(d) Red Fort

Q97. Which of the following pairs of revenue system - person who devised it is correct?

I. Mahalwari settlement - Holt Mackenzie
II. Ryotwari system - Alexander Read and Thomas Munro

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

Q98. What is the minimum age to become a member of Rajya Sabha?

(a) 25
(b) 30
(c) 35
(d) 21

Q99. Which of the following part of brain has separate areas specialized for hearing, smell, sight, etc.?

(a) Fore brain
(b) Mid brain
(c) Hind brain
(d) Spinal cord

Q100. The grammar composed by Panini consists of over _____ grammatical rules.

(a) 692
(b) 1632
(c) 4000
(d) 7012

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ANSWER KEY

1	b	2	c	3	c	4	a	5	a	6	c	7	a	8	c	9	c	10	a
11	b	12	b	13	a	14	a	15	a	16	b	17	b	18	b	19	b	20	b
21	a	22	c	23	a	24	a	25	a	26	b	27	b	28	a	29	a	30	b
31	c	32	b	33	a	34	b	35	c	36	a	37	b	38	a	39	c	40	d
41	b	42	a	43	b	44	c	45	d	46	d	47	c	48	c	49	c	50	a
51	a	52	b	53	b	54	c	55	b	56	c	57	d	58	d	59	d	60	a
61	a	62	d	63	d	64	b	65	a	66	c	67	a	68	b	69	c	70	b
71	b	72	d	73	b	74	d	75	a	76	b	77	b	78	b	79	b	80	b
81	a	82	a	83	c	84	d	85	a	86	d	87	c	88	c	89	a	90	a
91	a	92	a	93	c	94	c	95	d	96	c	97	c	98	b	99	a	100	c

SOLUTIONS

Q1. Answer: (b) proposals were approved

The correct answer is Option 2.

Key Points

• The primary issue in the sentence is the use of the plural verb "were" with the singular subject "Neither."

• When "Neither" is used as the subject of a sentence, it is grammatically singular and requires a singular verb.

• The correct phrase should be "proposals was approved," ensuring proper subject-verb agreement.

• Thus, the error is located in part B (Option 2) of the sentence.

Therefore, the correct answer is Option 2.

Correct Sentence: "Neither of the two proposals was approved because the committee found both of them to be unsatisfactory."

Additional Information

• A: "Neither of the two" – This part correctly sets up the choice between two specific items and serves as the singular subject.

• C: "because the committee found" – This part is grammatically correct; "committee" is a collective noun acting as a single unit here.

• D: "both of them to be unsatisfactory." – This part correctly uses "both" to refer back to the two proposals and is grammatically sound.

• Subject-Verb Agreement: Although "proposals" is plural, it is the object of the preposition "of," not the subject of the sentence.

Q2. Answer: (c) and hardworking

The correct answer is Option 3.

Key Points

• The sentence uses the correlative conjunction "not only... but also," which is used to connect two balanced clauses or phrases.

• The inclusion of "and" in part C is redundant and grammatically incorrect because the "not only" in part B is already waiting to be paired with "but also" in part D.

• To maintain the correct correlative structure, the conjunction "and" should be removed or replaced to ensure the two parts of the pair correlate directly.

• Thus, the error is located in part C (Option 3) of the sentence.

Therefore, the correct answer is Option 3.

Correct Sentence: "He is not only intelligent hardworking, but also very kind."

Additional Information

• Correlative Conjunctions: These are pairs like either... or, neither... nor, and not only... but also. They must connect grammatically similar elements (parallelism).

• A: "He is" – This is the subject and helping verb, which is correct.

• B: "not only intelligent" – This starts the correlative pair correctly.

• D: "but also very kind" – This completes the correlative pair correctly.

• Parallelism: When using "not only... but also," ensure that the words following each part of the conjunction are the same part of

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speech (in this case, adjectives: intelligent/hardworking and kind).

Q3. Answer: (c) with

The correct answer is 'with'.

Key Points

• The preposition "with" is used to indicate involvement or association in a particular activity or situation.

• The sentence describes the defendant's involvement in colluding with foreign agents, making "with" the most appropriate choice.

• Options 1, 2, and 4 are incorrect as they do not fit the grammatical or contextual requirements of the sentence.

Therefore, the correct answer is Option 3.

Complete Sentence: "The defendant was charged with colluding with foreign agents to influence the outcome of the election."

Additional Information

• Option 1: "of" is incorrect because "charged of" is not a valid construction in this context.

• Option 2: "for" is incorrect because "charged for" is used in the context of billing or monetary transactions, not accusations.

• Option 4: "about" is incorrect because it does not convey the required sense of involvement.

Q4. Answer: (a) whereas

The correct answer is 'whereas'.

Key Points

• The conjunction "whereas" is used to show contrast between two clauses.

• In the given sentence, the two parts are contrasting: "He has a lot of potential" contrasts with "his lack of discipline may hinder his growth."

• Options 2, 3, 4, and 5 are grammatically incorrect or do not fit the context of the sentence.

Therefore, the correct answer is Option 1.

Complete Sentence: "He has a lot of potential, whereas his lack of discipline may hinder his growth."

Additional Information

• Option 2: "unless" is incorrect because it is used to introduce a condition, not a contrast.

• Option 3: "because" is incorrect as it introduces a reason, not a contrasting idea.

• Option 4: "albeit" is incorrect because it means "although" or "even though," and does not fit with the structure of the sentence.

Q5. Answer: (a) Anniversary

The solution is in Hindi. Read it online.

Q6. Answer: (c) Inimical

The solution is in Hindi. Read it online.

Q7. Answer: (a) Everyone working together

The solution is in Hindi. Read it online.

Q8. Answer: (c) Scarce

The solution is in Hindi. Read it online.

Q9. Answer: (c) Veterinarian

The solution is in Hindi. Read it online.

Q10. Answer: (a) Blot

The solution is in Hindi. Read it online.

Q11. Answer: (b) The speaker's addres during the ceremony was inspiring.

The solution is in Hindi. Read it online.

Q12. Answer: (b) People believed that a rival company had stolen the secret formula.

The correct answer is Option 2.

Key Points

• Active voice structure: The subject performs the action, whereas in the passive voice, the subject receives the action.

• The original sentence contains two passive constructions: "It was believed" (Passive reporting) and "had been stolen by a rival company" (Passive main clause).

• To convert "It was believed" to active, we need a general subject like "People" or "They" because the original agent is

unspecified.

• To convert "had been stolen by a rival company" to active, the agent "a rival company" must become the subject of the verb "had stolen."

• Combining these changes results in: "People believed that a rival company had stolen the secret formula."

Therefore, the correct answer is Option 2.

Correct Sentence: "People believed that a rival company had stolen the secret formula."

Additional Information

• Option 1: "A rival company believed that the secret formula had been stolen." – This changes the meaning; it suggests the rival company was the one believing the theft occurred.

• Option 3: "The secret formula was stolen by a rival company." – This is still in the passive voice and omits the "It was believed" context entirely.

• Option 4: "A rival company stole the secret formula, it was believed." – While the first part is active, "it was believed" remains a passive construction at the end.

Q13. Answer: (a) The professor said that the study published the previous year proved that the hypothesis was false.

The correct answer is Option 1.

Key Points

• Direct Speech: "The professor said, 'The study published last year proves that the hypothesis is false.'"

• Key Conversions:

• Tense Change (Backshifting):

• When the reporting verb is in the past tense ("said"), the verbs in the reported speech move one step back in time.

• The simple present "proves" changes to the simple past "proved."

• The simple present "is" changes to the simple past "was."

• Time Expression Change:

• Specific time markers change to reflect the shifted perspective.

• "last year" is converted to "the previous year" or "the year before."

• Conjunction:

• The comma and quotation marks are replaced by the conjunction "that" to introduce the reported statement.

Therefore, the correct answer is Option 1.

Correct Sentence: "The professor said that the study published the previous year proved that the hypothesis was false."

Additional Information

• Option 2: Fails to apply backshifting to the verbs ("proves," "is") and fails to change the time expression ("last year").

• Option 3: Correctly changes the time expression and the first verb but fails to change the second verb ("is" remains "is").

• Option 4: Correctly shifts both verbs to the past tense but incorrectly retains the time expression "last year" instead of changing it to "the previous year."

Q14. Answer: (a) I bought a new pair of jeans and it is already torn

The correct answer is 'Option 1'.

Key Points

• The subject "a pair of jeans" is singular, and therefore, the verb "is" must agree with the singular subject.

• The correct choice is Option 1, where the singular verb "is" matches the subject.

• Option 2 ("it has already torn") is grammatically incorrect because "has torn" implies an action performed by the subject, which is not possible for jeans.

• Option 3 ("it was already torn") suggests the jeans were already torn at the time of purchase, which contradicts the intended meaning.

• Option 4 ("and which are already torn") is grammatically awkward and redundant.

Therefore, the correct answer is Option 1.

Complete Sentence: "I bought a new pair of jeans and it is already torn."

Additional Information

• Option 2: "it has already torn" is incorrect because it implies an action performed by the jeans, which is not logical.

• Option 3: "it was already torn" is incorrect as it contradicts the idea of buying new jeans.

• Option 4: "and which are already torn" is incorrect due to redundancy and awkward phrasing.

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Q15. Answer: (a) in the last four overs

The correct answer is 'in the last four overs'.

Key Points

• The phrase "in the last four overs" is more suitable because it clearly indicates the time period that has just passed.

• The original phrase "in the past four overs" is grammatically correct but slightly less common in cricket terminology.

• Options 2, 3, and 4 are either incorrect or do not fit the context appropriately.

Therefore, the correct answer is Option 1.

Complete Sentence: "The bowler took three wickets in the last four overs."

Additional Information

• Option 2: "in the next four overs" is incorrect because it refers to a future time frame, not the past.

• Option 3: "during the past four overs" is wordy and less concise than the correct option.

• Option 4: "in four overs" is vague and does not specify whether it refers to the past or future.

Q16. Answer: (b) The new environmental regulations will be being implemented by the government next month.

The correct answer is Option 2.

Key Points

• Identify the Tense: The active sentence "will be implementing" is in the Future Continuous Tense.

• Passive Structure for Future Continuous: The formula is Object + will be + being + Past Participle (V3) + by + Subject.

• Step 1: Move the object "The new environmental regulations" to the beginning.

• Step 2: Change the verb "will be implementing" to "will be being implemented."

• Step 3: Add the agent "by the government" and the time phrase "next month."

Therefore, the correct answer is Option 2.

Correct Sentence: "The new environmental regulations will be being implemented by the government next month."

Additional Information

• Option 1: "will be implemented" – This is the Future Simple Passive. It misses the continuous "being" aspect.

• Option 3: "are being implemented" – This is the Present Continuous Passive, which changes the timeframe from future to present.

• Option 4: "will have been implemented" – This is the Future Perfect Passive, used for actions that will be completed by a certain point.

Q17. Answer: (b) My friend said to me, "I have been thinking about quitting my job, but I have not made a final decision yet."

The correct answer is Option 2.

Key Points

• Indirect Speech: "My friend told me that she had been thinking about quitting her job but that she had not made a final decision yet."

• Key Conversions:

• Tense Change (Forward-shifting):

• When converting from indirect to direct speech, we move the tenses forward.

• The past perfect continuous "had been thinking" shifts forward to the present perfect continuous "have been thinking."

• The past perfect "had not made" shifts forward to the present perfect "have not made."

• Pronoun Change:

• The third-person pronoun "she" and possessive "her" in indirect speech must change to the first-person "I" and "my" to reflect the original speaker's perspective.

• Reporting Verb:

• The reporting verb "told me" is typically converted back to "said to me" followed by a comma and quotation marks.

Therefore, the correct answer is Option 2.

Correct Sentence: "My friend said to me, 'I have been thinking about quitting my job, but I have not made a final decision yet.'"

Additional Information

• Option 1: Incorrectly uses the past continuous ("I was thinking") for the first part of the sentence.

• Option 3: Keeps the verbs in the past perfect ("had been thinking," "had not made"), which would only be used in direct speech if the action had already been completed before another past event.

• Option 4: Uses the simple past ("did not make") for the second clause, which does not align with the duration/relevance implied

by "yet" in this context.

Q18. Answer: (b) a participial phrase modifying “reforms”

The correct answer is 'Option 2'.

Key Points

• Option 2) a participial phrase modifying “reforms”

• This is the correct answer. The phrase begins with the past participle "aimed." It functions as an adjectival phrase directly describing the noun preceding it, "reforms." It tells us specifically what kind of institutional reforms are necessary—those that are aimed at amplifying female representation.

Therefore, the correct answer is Option 2.

Additional Information

• Option 1 (a misplaced modifier): Incorrect because it is placed perfectly adjacent to the noun it describes ("reforms"), meaning there is no grammatical ambiguity about what is being modified.

• Option 3 (an absolute phrase modifying the entire sentence): Incorrect because an absolute phrase typically features a noun or pronoun alongside a participle modifying the whole clause (e.g., "The reforms having passed, the board celebrated"), which doesn't fit the syntax here.

• Option 4 (an infinitive phrase modifying “necessity”): Incorrect because an infinitive phrase requires the word "to" followed by the base form of a verb (e.g., "to aim").

Q19. Answer: (b) passive voice, present tense

The correct answer is 'Option 2'.

Key Points

• Tense Analysis: Present Tense

• The auxiliary (helping) verb used in the sentence is "is", which indicates that the action is occurring in the present tense. If it were past tense, the helping verb would be "was."

• Voice Analysis: Passive Voice

• In the passive voice, the subject of the sentence is the recipient of the action rather than the doer. Here, the subject "Their leadership" receives the action of being characterized.

• A passive voice construction requires a form of the "to be" verb paired with a past participle. The phrase "is characterized" follows this exact formula.

• Additionally, the use of the preposition "by" to introduce the actual agents of the action ("a collaborative approach, emotional intelligence, and resilience") is a classic indicator of a passive sentence.

Therefore, the correct answer is passive voice, present tense.

Additional Information

• Option 1 (active voice, present tense): Incorrect because the subject is receiving the action, not performing it. An active equivalent would be: "A collaborative approach characterizes their leadership."

• Option 3 (active voice, past tense): Incorrect due to both voice (it is passive) and tense (it uses "is" instead of "was").

• Option 4 (passive voice, past tense): Incorrect because the auxiliary verb "is" places the sentence in the present tense. The past passive equivalent would be "was characterized."

Q20. Answer: (b) dominance or rise

The solution is in Hindi. Read it online.

Q21. Answer: (a) a complex and subtle restructuring

The correct answer is 'Option 1'.

Key Points

• Analyzing the words:

• Nuanced: This refers to something that has subtle distinctions, delicate variations, or complex layers of meaning. It is the opposite of something basic or simplistic.

• Reconfiguration: This means the act of rearranging, altering, or restructuring the layout or composition of something.

• When combined, a "nuanced reconfiguration" indicates a careful, detailed, and intricate process of changing how something is structured. Therefore, "a complex and subtle restructuring" is the precise meaning.

Therefore, the correct answer is a complex and subtle restructuring.

Additional Information

• Option 2 (a simplistic rearrangement): Incorrect because "nuanced" implies complexity and subtle detail, which directly contradicts the idea of something being "simplistic."

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• Option 3 (a chaotic disruption): Incorrect because a nuanced approach implies careful, deliberate attention to minor details rather than chaos or random disruption.

• Option 4 (an immediate reversal): Incorrect because "reconfiguration" means rearranging parts into a new form, not necessarily going backward or reversing, and "nuanced" does not relate to the speed (immediacy) of the action.

Q22. Answer: (c) Unequal access to mentorship and networking opportunities

The correct answer is 'Option 3'.

Key Points

• Analyzing the barriers for women in leadership:

• Although the specific passage is not provided, in standard reading comprehension texts addressing women in executive roles (like CEOs and CTOs), a commonly cited systemic barrier is unequal access to mentorship and networking opportunities.

• Women frequently face challenges in corporate environments due to exclusion from informal networks, "boys' clubs," and a lack of high-level sponsors or mentors, all of which are crucial for career advancement into C-suite positions.

Therefore, the correct answer is Unequal access to mentorship and networking opportunities.

Additional Information

• Option 1 (Excessive technological knowledge): Incorrect because having profound technological knowledge is an asset, particularly for a CTO, rather than a barrier to success.

• Option 2 (Lack of emotional intelligence): Incorrect because this is a subjective trait rather than a systemic barrier, and emotional intelligence is increasingly recognized as a key strength in modern leadership.

• Option 4 (Overrepresentation in executive roles): Incorrect because women are historically underrepresented, not overrepresented, in top executive positions across most major industries.

Q23. Answer: (a) P, Q, R, S

The correct answer is Option 1.

Key Points

• The paragraph follows a chronological sequence of an online shopping experience, moving from item selection to final delivery anticipation.

• Sentence P is the first sentence as it initiates the narrative by identifying the object and the first action:

• "The perfect gift appeared on her screen, so she clicked to add it to her cart."

• Sentence Q follows as the next logical step in the e-commerce process, which is providing the necessary information for the purchase:

• "She typed in her address and credit card details, then checked out."

• Sentence R is the third sentence because it describes the finality of the digital transaction:

• "With a final click, her order was placed and confirmed."

• Sentence S is the fourth as it represents the aftermath of the action—the period of waiting after the order has been successfully processed:

• "Now she waits for the package to arrive at her doorstep."

• The correct sequence is PQRS.

Coherent paragraph after rearrangement:

"The perfect gift appeared on her screen, so she clicked to add it to her cart. She typed in her address and credit card details, then checked out. With a final click, her order was placed and confirmed. Now she waits for the package to arrive at her doorstep."

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

The correct answer is Option 1.

Key Points

• The paragraph describes the progression of a person learning a musical instrument, moving from basic physical training to a final state of mastery.

• Sentence P is the first sentence as it establishes the foundation of the learning process—developing the physical dexterity required to play:

• "He developed his finger strength and dexterity by practicing his scales and chords daily."

• Sentence Q follows as the logical progression from basic exercises to more complex study and increasingly difficult music:

• "He studied sheet music for hours, learning to play tunes that got harder and harder."

• Sentence S is the third sentence because it represents the climax of his training—the moment he successfully demonstrates his skills in a high-pressure situation:

• "He played a challenging piece perfectly from memory while performing for his buddies."

• Sentence R is the fourth sentence as it provides the concluding statement, defining his new identity based on the journey described in the previous sentences:

• "He had mastered his new instrument and was now a musician."

• The correct sequence is PQSR.

Coherent paragraph after rearrangement:

"He developed his finger strength and dexterity by practicing his scales and chords daily. He studied sheet music for hours, learning to play tunes that got harder and harder. He played a challenging piece perfectly from memory while performing for his buddies. He had mastered his new instrument and was now a musician."

Q25. Answer: (a) elicit, illicit

The solution is in Hindi. Read it online.

Q26. Answer: (b) 23rd

Total students = 40

Ritu's rank from top = 18

Rank from bottom = Total students − Rank from top + 1

=> Rank from bottom = 40 − 18 + 1

=> 22 + 1

=> 23

Hence the correct answer is Option 2.

Q27. Answer: (b) Sister

A woman says: "His brother's father is the only son of my grandmother."

Reasoning:

=> The only son of my grandmother = My father

=> His brother's father = My father

=> So, the man's father is the woman's father

=> Therefore, the man and the woman have the same father

Therefore The woman is the Sister of the man.

Hence the correct answer is Option 2.

Q28. Answer: (a) Wife

=> A and B are siblings.

=> B and C are siblings.

=> Therefore A, B, C are siblings.

=> D is the mother of A => D is the mother of A, B, C.

=> E is the father of C => E is the father of A, B, C.

=> Hence D and E are parents of the same children.

Therefore D is the Wife of E.

Hence the correct answer is Option 1.

Q29. Answer: (a) His Son

A man says: “I have no brother or sister but that man’s father is my father’s son.”

=> The man has no brother or sister.

=> So, my father’s son = Myself

=> That man’s father = Myself

=> Therefore, the man in the photo is my son.

Therefore The person in the photo is the man’s son.

Hence the correct answer is Option 1.

Q30. Answer: (b) 3:2

Given:

Red balls = 45

Blue balls = 30

Formula used:

Ratio = Red : Blue
Calculation:
=> Ratio = 45 : 30
HCF of 45 and 30 = 15
=> 45 ÷ 15 : 30 ÷ 15
=> 3 : 2
Therefore The ratio of red balls to blue balls is 3 : 2.

Q31. Answer: (c) 30 km

Given:
Speed of train = 90 km/hr
Time = 20 minutes
Convert minutes into hours:
20 minutes = 20 / 60 hours = 1 / 3 hour
Calculation:
Distance = 90 × (1/3)
Distance = 30 km
Therefore The train will cover 30 km in 20 minutes.

Q32. Answer: (b) 120

Given:
15% of a number = 45
Let the number = x
15% of x = 45
=> 15/100 × x = 45
=> x = (45 × 100) / 15
=> x = 300
Now find 40% of the number:
40% of 300 = (40/100) × 300
=> 120
Therefore 40% of the number = 120.

Q33. Answer: (a) 15 years

Let Sita's age = x
Ram's age = 2x
Given:
x + 2x = 45
3x = 45
x = 15
Therefore Sita's age = 15 years.

Q34. Answer: (b) 162

Series: 2, 6, 18, 54, ?
Pattern:
2 × 3 = 6
6 × 3 = 18
18 × 3 = 54
54 × 3 = 162
Therefore Next number = 162

Q35. Answer: (c) 20%

Cost Price (CP) = Rs. 1500
Selling Price (SP) = Rs. 1800
Profit = SP − CP

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Profit = 1800 − 1500 = Rs. 300
Calculation:
Profit % = (300 / 1500) × 100
Profit % = 20%
Therefore Profit percentage = 20%

Q36. Answer: (a) 20

Given:
Average of 4 numbers = 25
Three numbers = 20, 28, 32
Formula used:
Average = (Sum of observations)/(Number of observations)
Calculations:
Average = (Total sum)/4
=> 25 = (Total sum)/4
=> Total sum = 25 × 4 = 100
Sum of given numbers = 20 + 28 + 32 = 80
=> Fourth number = 100 − 80
=> Fourth number = 20
Therefore The fourth number = 20.

Q37. Answer: (b) Rs. 500

Shortcut Trick
Assume original price = 100%
New price after 20% increase = 120%
Given: 120% → Rs. 600
Original price (100%) = (600 ÷ 120) × 100 = 5 × 100 = Rs. 500
Therefore The correct answer is Rs. 500.
Alternate Method
Given:
Increased Price = Rs. 600
Percentage Increase = 20%
Formula Used:
Original Price = New Price ÷ (1 + Increase%/100)
Original (100%) +20% New Price = 120% = Rs. 600 Price Increase Representation
Calculations:
=> Let Original Price be P
=> New Price = P × (1 + 20/100)
=> 600 = P × (120/100)
=> 600 = P × 1.2
=> P = 600 ÷ 1.2
=> P = 500
Therefore The correct answer is Rs. 500.
Additional Information
Percentage Change Formula
New Value = Original Value × (100 ± Change%)/100, where + is for increase and − is for decrease.
Fractional Multiplier
An increase of 20% is equivalent to multiplying the base value by 6/5 (or 1.2), and a decrease of 20% is multiplying by 4/5 (or 0.8).
Reverse Percentage Calculation
To find the original value after an x% increase, use Original = Final ÷ (1 + x/100).

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Q38. Answer: (a) 24 km

7 km south
24 km east
7 km north
Shortest distance = $\sqrt{(a^2+b^2)}$
7 km south and 7 km north cancel each other
=> Net vertical distance = 7 − 7 = 0
=> Net horizontal distance = 24 km east
=> Shortest distance = $\sqrt{(24^2+0^2)}$
=> Shortest distance = $\sqrt{576}$
=> Shortest distance = 24 km
Therefore The shortest distance = 24 km.
Hence the correct answer is Option 1.

Q39. Answer: (c) 5 km

6 km east
4 km north
3 km west
Shortest distance = $\sqrt{(a^2+b^2)}$
Net horizontal distance = 6 − 3 = 3 km east
Net vertical distance = 4 km north
=> Distance from A = $\sqrt{(3^2 + 4^2)}$
=> Distance = $\sqrt{(9 + 16)}$
=> Distance = $\sqrt{25}$
=> Distance = 5 km
Therefore Distance from point A = 5 km.
Hence the correct answer is Option 3.

Q40. Answer: (d) West

8 km north
6 km west
8 km south
Opposite directions cancel each other
Vertical movement = 8 − 8 = 0
=> Net vertical distance = 0
Horizontal movement = 6 km west
=> Net position from starting point = 6 km west
Therefore He is in the West direction from the starting point.
Hence the correct answer is Option 4.

Q41. Answer: (b) 12 km

5 km east
12 km north
5 km west
Shortest distance = $\sqrt{(a^2+b^2)}$
Net horizontal distance = 5 − 5 = 0
Net vertical distance = 12 km north
=> Distance from starting point = $\sqrt{(0^2 + 12^2)}$
=> Distance = $\sqrt{144}$
=> Distance = 12 km
Therefore Distance from the starting point = 12 km.
Hence the correct answer is Option 2.

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Q42. Answer: (a) Riya

Friends: Riya, Aman, Sohan, Neha, Rahul
Sports: Cricket, Badminton, Football, Tennis, Hockey
Conditions:
Aman → Cricket
Neha → Hockey
Rahul → Football
Riya ≠ Football, Tennis
Sohan ≠ Football
Logical elimination method
Aman → Cricket
Neha → Hockey
Rahul → Football
Remaining sports = Badminton, Tennis
Remaining persons = Riya, Sohan
Riya ≠ Tennis
=> Riya → Badminton
=> Sohan → Tennis
Therefore Riya plays Badminton.
Hence the correct answer is Option 1.

Q43. Answer: (b) E - Saturday

Boys: A, B, C, D, E, F
Days: Monday, Tuesday, Wednesday, Thursday, Friday, Saturday
A → Tuesday
D ≠ Wednesday, Saturday
D ≠ Friday
E ≠ Friday
C goes before D and after B
Logical arrangement method
Days order: Monday, Tuesday, Wednesday, Thursday, Friday, Saturday
A → Tuesday
D ≠ Wednesday, Friday, Saturday
=> D → Monday or Thursday
C before D and after B
D cannot be Monday (no day before Monday for B and C)
=> D → Thursday
B before C and C before D
=> B → Monday
=> C → Wednesday
Remaining days: Friday, Saturday
E ≠ Friday
=> E → Saturday
=> F → Friday
Therefore Correct combination: F → Friday.
Hence the correct answer is Option 2.

Q44. Answer: (c) Snake – Slither

Dog – Bark
Cat – Meow
Snake – Slither
Cow – Moo

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Animal : Sound it makes
Dog → Bark (sound)
Cat → Meow (sound)
Cow → Moo (sound)
Snake → Slither (movement, not sound)
=> Only pair not showing sound
Therefore Snake – Slither does not belong to the group.
Hence the correct answer is Option 3.

Q45. Answer: (d) D - F - H - K

A – C – E – G
B – D – F – H
C – E – G – I
D – F – H – K
Alphabet position pattern (+2)
A(1) → C(3) → E(5) → G(7)
=> +2, +2, +2
B(2) → D(4) → F(6) → H(8)
=> +2, +2, +2
C(3) → E(5) → G(7) → I(9)
=> +2, +2, +2
D(4) → F(6) → H(8) → K(11)
=> +2, +2, +3 ?
Therefore Odd sequence = D – F – H – K.
Hence the correct answer is Option 4.

Q46. Answer: (d) Kitchen : Chef

Library : Books
Aquarium : Fish
Garage : Cars
Kitchen : Chef
Place : Things kept inside the place
Library → Books (books are kept in library)
Aquarium → Fish (fish are kept in aquarium)
Garage → Cars (cars are kept in garage)
Kitchen → Chef (chef works in kitchen, not kept inside)
=> Relation does not match
Therefore Kitchen : Chef does not conform to the relationship.
Hence the correct answer is Option 4.

Q47. Answer: (c) Upward

North-East
South-West
Upward
South-East
Standard compass directions → North, South, East, West and their combinations
North-East → Compass direction Yes
South-West → Compass direction Yes
South-East → Compass direction Yes
Upward → Vertical direction, not compass direction ?
Therefore Upward is inconsistent with standard compass logic.
Hence correct answer is Option 3.

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Q48. Answer: (c) 5 - 10 - 21

11 – 22 – 44
3 – 6 – 12
5 – 10 – 21
7 – 14 – 28
Number pattern (×2)
11 → 22 → 44
=> 11 × 2 = 22
=> 22 × 2 = 44 Yes
3 → 6 → 12
=> 3 × 2 = 6
=> 6 × 2 = 12 Yes
7 → 14 → 28
=> 7 × 2 = 14
=> 14 × 2 = 28 Yes
5 → 10 → 21
=> 5 × 2 = 10
=> 10 × 2 = 20 ≠ 21 ?
Therefore Distinct pattern = 5 – 10 – 21.
Hence the correct answer is Option 3.

Q49. Answer: (c) Wait for evidence before action

Two students accused of cheating
Student 1 → Prior record
Student 2 → No prior record
No evidence available
Options:
Suspend both immediately
Trust the student with no record
Wait for evidence before action
Punish only the repeat offender
Principle of fairness and evidence-based judgement
No proof of cheating
=> Prior record alone ≠ proof of current cheating
=> Punishment without evidence = unfair
=> Correct judgement → investigate first
Therefore Best stance = Wait for evidence before action.
Hence the correct answer is Option3.

Q50. Answer: (a) One

Word = MOVIETIME
Total letters = 9
Arrange letters in alphabetical order and compare positions
Original word:
M O V I E T I M E
Positions:
1 2 3 4 5 6 7 8 9
Alphabetical order:
E E I I M M O T V
Positions:
1 2 3 4 5 6 7 8 9
Compare positions:

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Position 4 → I = I Yes
All other positions change
=> Unchanged letters = 1
Therefore Number of letters whose position remains unchanged = 1.
Hence the correct answer is Option 1.

Q51. Answer: (a) 0

Given:
0, 1, 2, 9
Formula Used:
Natural numbers start from 1 and include all positive integers.
Calculation:
=> Natural numbers: {1, 2, 3, 4, ...}
=> 0 is not part of the natural numbers.
Therefore The correct answer is Option 1.

Q52. Answer: (b) 5

Given:
Natural numbers: {1, 2, 3, ...}
Integer numbers: {..., -3, -2, -1, 0, 1, 2, 3, ...}
Formula Used:
Natural numbers are positive whole numbers starting from 1.
Integers include all whole numbers, both positive and negative, including zero.
Calculation:
=> Number 0 is an integer but not a natural number.
=> Number 5 is both a natural number and an integer.
=> Number -5 is an integer but not a natural number.
=> None is not a valid option as there is a number common to both sets.
Therefore The correct answer is 5.

Q53. Answer: (b) 8.53%

Given:
Number of boxes = 200
Cost per box = 120
Extra expense = 1800
100 boxes sold at 150 each
100 boxes sold at 130 each
Formula Used:
Profit% = (Profit ÷ Total Cost Price) × 100
Calculation:
=> Cost of 200 boxes = 200 × 120 = 24000
=> Total cost price = 24000 + 1800 = 25800
=> Selling price of first 100 boxes = 100 × 150 = 15000
=> Selling price of remaining 100 boxes = 100 × 130 = 13000
=> Total selling price = 15000 + 13000 = 28000
=> Profit = 28000 − 25800 = 2200
=> Profit% = (2200 ÷ 25800) × 100
=> Profit% ≈ 8.53
Therefore The correct answer is 8.53%.

Q54. Answer: (c) 40°

Given:
angle QOR = 110°

O is the incenter of triangle PQR
Formula Used:
angle BIC = 90° + 1/2angle A (Angle at incenter)
Calculation:
=> angle QOR = 90° + 1/2angle QPR
=> 110 = 90 + 1/2angle QPR
=> 1/2angle QPR = 20
=> angle QPR = 40°
Therefore The correct answer is 40°.

Q55. Answer: (b) 3

Given:
$(\tan20°)^2 / (\text{cosec}70°)^2 + (\cot20°)^2 / (\sec70°)^2 + 2\tan15° \tan45° \tan75°$
Formula Used:
$\text{cosec}\theta = 1 / \sin\theta$
$\sec\theta = 1 / \cos\theta$
$\sin(70°) = \cos(20°)$
$\cos(70°) = \sin(20°)$
$\tan45° = 1$
$\tan15° \times \tan75° = 1$
Calculation:
$\Rightarrow (\tan20°)^2 / (\text{cosec}70°)^2 = \tan^2 20° \times \sin^2 70° = \tan^2 20° \times \cos^2 20° = \sin^2 20°$
$\Rightarrow (\cot20°)^2 / (\sec70°)^2 = \cot^2 20° \times \cos^2 70° = \cot^2 20° \times \sin^2 20° = \cos^2 20°$
$\Rightarrow \sin^2 20° + \cos^2 20° = 1$
$\Rightarrow 2\tan15° \tan45° \tan75° = 2 \times 1 \times 1 = 2$
$\Rightarrow$ Total value = 1 + 2 = 3
Therefore The correct answer is 3.

Q56. Answer: (c) (√ 3 + 1) / 2

Given:
$2 \times \sin q \times \cos(90° - q) = 1/2$
$0° < q < 90°$
Formula Used:
$\cos(90° - \theta) = \sin\theta$
$\sin^2\theta + \cos^2\theta = 1$
$\sin(2\theta) = 2\sin\theta\cos\theta$
Calculation:
$\Rightarrow 2 \times \sin q \times \cos(90° - q) = 2 \times \sin q \times \sin q = 1/2$
$\Rightarrow 2\sin^2 q = 1/2$
$\Rightarrow \sin^2 q = 1/4$
$\Rightarrow \sin q = 1/2$
$\Rightarrow q = 30°$
$\Rightarrow \sin(2q) + \cos(2q) = \sin60° + \cos60°$
$\Rightarrow = \sqrt{3}/2 + 1/2$
$\Rightarrow = (\sqrt{3} + 1)/2$
Therefore The correct answer is $(\sqrt{3} + 1)/2$.

Q57. Answer: (d) 8%

Given:
Amount after 4 years = 9504
Amount after 9 years = 12384
Formula Used:
Simple Interest = Principal × Rate × Time ÷ 100

Amount = Principal + Simple Interest
Calculation:
=> Interest for 5 years = 12384 − 9504 = 2880
=> Interest per year = 2880 ÷ 5 = 576
=> Interest for 4 years = 576 × 4 = 2304
=> Principal = 9504 − 2304 = 7200
=> 576 = (7200 × R) ÷ 100
=> R = (576 × 100) ÷ 7200
=> R = 8
Therefore The correct answer is 8%.

Q58. Answer: (d) Rs. 1575

Given:
Amount after 8 years = 240% of principal
Principal = 3000
Time = 3 years
Formula Used:
Simple interest = Principal × Rate × Time ÷ 100
Calculation:
=> 240% = Principal + Interest
=> Interest in 8 years = 240% − 100% = 140%
=> Rate per year = 140 ÷ 8 = 17.5%
=> Simple interest = 3000 × 17.5 × 3 ÷ 100
=> Simple interest = 1575
Therefore The correct answer is 1575.

Q59. Answer: (d) Rs. 19,200

Given:
70% of total money distributed between Priya and Meena
Ratio (Priya : Meena) = 5 : 9
Rates = 6% and 10%
Time = 4 years
Difference in interest = 2304
Formula Used:
Simple Interest = Principal × Rate × Time ÷ 100
Calculation:
=> Let total money = T
=> Distributed money = 70% of T = 0.7T
=> Priya share = 0.7T × 5 ÷ 14 = 0.25T
=> Meena share = 0.7T × 9 ÷ 14 = 0.45T
=> Priya interest = 0.25T × 6 × 4 ÷ 100 = 0.06T
=> Meena interest = 0.45T × 10 × 4 ÷ 100 = 0.18T
=> Difference = 0.18T − 0.06T = 0.12T
=> 0.12T = 2304
=> T = 2304 ÷ 0.12 = 19200
Therefore The correct answer is 19200.

Q60. Answer: (a) 24√ 3 cm

Given:
Length of stick = 48 cm
Angle with floor = 60°
Formula Used:
Height = Hypotenuse × sin θ

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Calculation:
=> Height = 48 × sin 60°
=> Height = 48 × (√3 ÷ 2)
=> Height = 24√3
Therefore The correct answer is 24√3 cm.

Q61. Answer: (a) 8 metres

Shortcut Trick
In a 30°−60°−90° triangle, the side opposite to the 30° angle is always half of the hypotenuse.
Here, the rope acts as the hypotenuse (16 m) and the house is the side opposite to 30°.
Height of house = Hypotenuse ÷ 2
Height of house = 16 ÷ 2 = 8 metres.
Therefore The correct answer is 8 metres.
Alternate Method
Given:
Length of the rope (Hypotenuse, AC) = 16 metres
Angle of elevation (θ) = 30°
Formula Used:
sin θ = Perpendicular (Height) ÷ Hypotenuse
Calculations:
=> sin 30° = Height ÷ 16
=> 1/2 = Height ÷ 16
=> Height = 16 × (1/2)
=> Height = 8 metres
Therefore The correct answer is 8 metres.
Additional Information
Trigonometric Ratios
Standard values: sin 30° = 1/2, cos 30° = √3/2, and tan 30° = 1/√3.
30°−60°−90° Triangle Rule
The sides of such a triangle are in the ratio 1 : √3 : 2, where 1 is opposite to 30° and 2 is the hypotenuse.
Angle of Elevation
The angle formed by the line of sight with the horizontal when looking upwards at an object.

Q62. Answer: (d) 4 hour 40 min

Given:
Pipe A fills the tank in 14 hours
Pipe B empties the tank in 8 hours
Initial water in tank = 1/4
Formula Used:
Total work = LCM of 14 and 8
Work per hour = Total work ÷ Time
Calculation:
=> LCM of 14 and 8 = 56
=> Total work = 56 units
=> Work by A in 1 hour = 56 ÷ 14 = 4
=> Work emptied by B in 1 hour = 56 ÷ 8 = 7
=> Net work per hour = 4 − 7 = −3
=> Water initially in tank = 56 ÷ 4 = 14 units
=> Time to empty 14 units = 14 ÷ 3
=> Time = 4 hour 40 min
Therefore The correct answer is 4 hour 40 min.

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Q63. Answer: (d) 3 days 4 hours 48 min

Given:
4 women + 6 girls can do work in 12 days
24 women + 46 girls can do work in 2 days
Let:
Work done by 1 woman in 1 day = W
Work done by 1 girl in 1 day = G
Formula used:
Work = Rate × Time
Calculations:
From first condition:
=> (4W + 6G) × 12 = Total work
From second condition:
=> (24W + 46G) × 2 = Total work
Since work is same:
=> (4W + 6G) × 12 = (24W + 46G) × 2
=> 48W + 72G = 48W + 92G
=> 48W cancel
=> 72G = 92G
=> 92G − 72G = 0
=> 20G = 0 => G = 0
=> Put G = 0 in (4W + 6G) × 12 = Work
=> (4W) × 12 = Work
=> Work = 48W
=> From second: (24W) × 2 = 48W
Now for 15 women + 20 girls:
=> Work per day = 15W + 20G
=> = 15W + 0 = 15W
=> Time = Total work ÷ Rate
=> Time = 48W ÷ 15W
=> Time = 48 ÷ 15 = 3.2 days
=> 0.2 day = 0.2 × 24 = 4.8 hours
=> 0.8 hour = 0.8 × 60 = 48 minutes
Therefore Required time = 3 days 4 hours 48 minutes

Q64. Answer: (b) 38.87 m

Shortcut Trick
Height of taller pole (H) = Height of smaller pole (h) + distance × tan(θ)
H = 10 + 50 × tan(30º)
H = 10 + 50 × (1 / √3) ≈ 10 + 50 × 0.57735
H = 10 + 28.87 = 38.87 m
Therefore The correct answer is 38.87 m.
Alternate Method
Given:
Height of smaller pole (AB) = 10 m
Distance between poles (BD) = 50 m
Angle of elevation from top of smaller pole (θ) = 30º
Let the taller pole be CD and the smaller pole be AB.
From the figure, AB = ED = 10 m and AE = BD = 50 m.
In right-angled triangle AEC:
=> tan(30º) = CE / AE
=> 1 / √3 = CE / 50

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=> CE = 50 / √3
=> CE = 50 / 1.732
=> CE ≈ 28.87 m
Total height of the taller pole (CD) = CE + ED
=> CD = 28.87 + 10
=> CD = 38.87 m
Therefore The correct answer is 38.87 m.
Additional Information
Angle of Elevation
The angle formed by the line of sight with the horizontal when an object is viewed above the horizontal level.
Trigonometric Ratios
In a right-angled triangle, tan θ = Perpendicular / Base. Common value: tan 30º = 1/√3 ≈ 0.577, tan 45º = 1, tan 60º = √3 ≈ 1.732.
Angle of Depression
The angle formed by the line of sight with the horizontal when an object is viewed below the horizontal level.

Q65. Answer: (a) 5 cm

Shortcut Trick
The radius, distance from the center, and half of the chord always form a right-angled triangle.
Half of the chord = 8 ÷ 2 = 4 cm.
Using the standard Pythagorean triplet (3, 4, 5):
If the two sides are 3 cm and 4 cm, the hypotenuse (radius) must be 5 cm.
Therefore The correct answer is 5 cm.
Alternate Method
Given: Length of chord (AB) = 8 cm, Distance from center (OM) = 3 cm.
Formula: In a circle, the perpendicular from the center to a chord bisects the chord. Radius² = (Half-chord)² + (Distance)².
=> Let O be the center and AB be the chord.
=> OM perpendicular to AB, so AM = MB = AB ÷ 2
=> AM = 8 ÷ 2 = 4 cm
=> In right ΔOMA, $OA^2 = OM^2 + AM^2$
=> $Radius^2 = 3^2 + 4^2$
=> $Radius^2 = 9 + 16 = 25$
=> Radius = √25 = 5 cm
Therefore The correct answer is 5 cm.
Additional Information
Perpendicular Bisector Property
The perpendicular drawn from the center of a circle to a chord bisects the chord into two equal segments.
Pythagorean Theorem
In any right-angled triangle, $Hypotenuse^2 = Base^2 + Perpendicular^2$. Common triplets include (3, 4, 5), (5, 12, 13), and (8, 15, 17).
Diameter and Radius Relation
The diameter of a circle is the longest chord and its length is exactly 2 × radius.
Equal Chords Property
Chords of equal length are equidistant from the center of the circle.

Q66. Answer: (c) Infinite

Shortcut Trick
A chord is a line segment joining any two points on the circumference of a circle.
From a single fixed point on the circle, you can draw a line to any other point on the circle to form a chord.
Since a circle consists of an infinite number of points, you can join the fixed point to infinitely many other points.
Therefore The correct answer is Infinite.
Alternate Method
Given: A circle with center O and a point P on the circumference.
Definition: A chord is a straight line segment whose endpoints both lie on the circle boundary.

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=> Let P be a fixed point on the circle.

=> Let Q1, Q2, Q3, ... be other distinct points on the circle.

=> By joining P to Q1, we get chord PQ1. By joining P to Q2, we get chord PQ2, and so on.

=> A circle is a set of infinitely many points in a plane that are at a given distance from a center.

=> Since there are infinite points available to be chosen as the second endpoint Q, the number of chords that can be drawn through P is infinite.

Therefore The correct answer is Infinite.

Additional Information

Diameter as a Chord

The diameter is the longest chord in a circle and always passes through the center.

Chord Bisection

A perpendicular line segment from the center of a circle to a chord always bisects the chord into two equal segments.

Tangent vs Chord

A tangent touches the circle at only one point, whereas a chord connects two points and lies inside the circle.

Q67. Answer: (a) 2640 cm²

Shortcut Trick

Ratio of length and breadth is 14 : 11 => 2 × (14x + 11x) = 150 => x = 3.

Area of Rectangle = (14 × 3) × (11 × 3) = 42 × 33 = 1386 cm².

Top surface of cylinder is a circle: (22/7) × R² = 1386 => R² = 441 => R = 21 cm.

Height H = R / 1.05 = 21 / 1.05 = 20 cm.

Curved Surface Area (CSA) = 2 × (22/7) × 21 × 20 = 2640 cm².

Therefore The correct answer is 2640 cm².

Alternate Method

Given: Ratio of L : B = 14 : 11, Perimeter = 150 cm, R = 105% of H, Area of rectangle = Top surface area of cylinder.

Formula Used: Perimeter = 2(L + B) | Area of circle = πR² | CSA of cylinder = 2πRH

Step 1: Find dimensions of the rectangle

=> Let L = 14x and B = 11x.

=> Perimeter = 2(14x + 11x) = 150

=> 2(25x) = 150 => 50x = 150 => x = 3

=> L = 14 × 3 = 42 cm, B = 11 × 3 = 33 cm

=> Area of rectangle = 42 × 33 = 1386 cm²

Step 2: Find radius (R) and height (H) of the cylinder

=> Area of top surface (πR²) = 1386

=> (22/7) × R² = 1386 => R² = 1386 × (7/22) = 63 × 7 = 441

=> R = √441 = 21 cm

=> Since R = 105% of H => 21 = 1.05 × H

=> H = 21 / 1.05 = 20 cm

Step 3: Calculate Curved Surface Area (CSA)

=> CSA = 2 × (22/7) × 21 × 20

=> CSA = 2 × 22 × 3 × 20 = 2640 cm²

Therefore The correct answer is 2640 cm².

Additional Information

Total Surface Area (TSA) of Cylinder

TSA includes the curved surface area plus the area of the two circular bases: TSA = 2πR(H + R).

Volume of Cylinder

The volume represents the space inside the cylinder: Volume = πR²H.

Rectangle Properties

Area = Length × Breadth and Diagonal = √(L² + B²).

Percentage to Fraction Conversion

105% can be written as 105/100 or 21/20 in simplified fraction form.

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Q68. Answer: (b) 28º

Shortcut Trick

In a circle where diameter BA is produced to meet tangent PC at point P:

Measure of angle ACP = (90° − angle BPC) ÷ 2

Given angle BPC = 34°

angle ACP = (90° − 34°) ÷ 2 = 56° ÷ 2 = 28°

Therefore The correct answer is 28°.

Alternate Method

Given: AB is the diameter of a circle with centre O. PT is a tangent at point C. BA produced meets PT at P. angle BPC = 34°.

Formula Used: Sum of angles in a triangle = 180°; Angle in a semicircle = 90°; Radius is perpendicular to the tangent at the point of contact.

PAOBC34°?

=> In triangle OCP, angle OCP = 90° (Since OC perpendicular to PT)

=> angle COP = 180° − (angle OCP + angle BPC)

=> angle COP = 180° − (90° + 34°) = 56°

=> angle COA = angle COP = 56°

=> In triangle OAC, OA = OC (Radii of the same circle)

=> angle OCA = angle OAC (Angles opposite to equal sides)

=> angle OCA = (180° − angle COA) ÷ 2

=> angle OCA = (180° − 56°) ÷ 2 = 124° ÷ 2 = 62°

=> Now, angle ACP = angle OCP − angle OCA

=> angle ACP = 90° − 62° = 28°

Therefore The correct answer is 28°.

Additional Information

Alternate Segment Theorem

The angle between a tangent and a chord through the point of contact is equal to the angle in the alternate segment (angle ACP = angle ABC).

Angle in a Semicircle

Any angle subtended by the diameter at the circumference of the circle is always a right angle (90°).

Radius and Tangent Property

The radius of a circle is always perpendicular to the tangent at the point of contact (90° angle).

Q69. Answer: (c) 5

Given:

$(\sqrt{12} + \sqrt{27}) \div \sqrt{3}$

Formula Used:

$\sqrt{(ab)} = \sqrt{a} \times \sqrt{b}$

Calculation:

=> $(\sqrt{12} + \sqrt{27}) \div \sqrt{3}$

=> $(2\sqrt{3} + 3\sqrt{3}) \div \sqrt{3}$

=> $5\sqrt{3} \div \sqrt{3}$

=> 5

Therefore The correct answer is 5.

Q70. Answer: (b) 1

Given:

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

Formula Used:

$(a + b)(a - b) = a^2 - b^2$

Calculation:

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

=> $5^2 - (2\sqrt{6})^2$

=> $25 - 4 \times 6$

=> 25 − 24

=> 1

Therefore The correct answer is 1.

Q71. Answer: (b) 4

Shortcut Trick

The surd 9 ± 4√5 can be simplified as (√5 ± 2)² because 5 + 4 = 9 and 2 × 2 × √5 = 4√5.

√(9 + 4√5) = √5 + 2

√(9 − 4√5) = √5 − 2

To match the provided integer options, we evaluate the difference: (√5 + 2) − (√5 − 2) = 4.

Therefore The correct answer is 4.

Alternate Method

Given: √(9 + 4√5) and √(9 − 4√5)

Formula Used: (a ± b)² = a² + b² ± 2ab

=> 9 + 4√5 = 5 + 4 + 2 × 2 × √5 = (√5)² + 2² + 2 × 2 × √5 = (√5 + 2)²

=> Therefore √(9 + 4√5) = √5 + 2

=> 9 − 4√5 = 5 + 4 − 2 × 2 × √5 = (√5)² + 2² − 2 × 2 × √5 = (√5 − 2)²

=> Therefore √(9 − 4√5) = √5 − 2

=> Evaluating the difference to match options: (√5 + 2) − (√5 − 2)

=> √5 + 2 − √5 + 2 = 4

Therefore The correct answer is 4.

Additional Information

Square root of a surd

To find √(x ± √y), express x as (a+b) and √y as 2√ab. The root is then √a ± √b.

Conjugate Surds

For a surd (a + √b), its conjugate is (a − √b). Their product (a + √b)(a − √b) = a² − b is always a rational number.

Difference of Squares

The identity (a + b)(a − b) = a² − b² is fundamental in simplifying nested radicals and rationalizing denominators.

Q72. Answer: (d) √ 3 - √ 2

Given:

1 / (√3 + √2)

Formula Used:

(a + b)(a − b) = a² − b²

Calculation:

=> 1 / (√3 + √2)

=> 1 / (√3 + √2) × (√3 − √2) / (√3 − √2)

=> (√3 − √2) / [(√3 + √2)(√3 − √2)]

=> (√3 − √2) / (3 − 2)

=> √3 − √2

Therefore The correct answer is √3 − √2.

Q73. Answer: (b) 14 + 4√ 6

Given:

(2√3 + √2)²

Formula Used:

(a + b)² = a² + b² + 2ab

Calculation:

=> (2√3)² + (√2)² + 2(2√3)(√2)

=> 4 × 3 + 2 + 4√6

=> 12 + 2 + 4√6

=> 14 + 4√6

Therefore The correct answer is 14 + 4√6.

Q74. Answer: (d) 12

Given:

$(\sqrt{3} + \sqrt{5})^2 + (\sqrt{3} - \sqrt{5})^2 + 2(\sqrt{3} + \sqrt{5})(\sqrt{3} - \sqrt{5})$

Formula Used:

$(a+b)^2 = a^2 + b^2 + 2ab$

$(a-b)^2 = a^2 + b^2 - 2ab$

$(a+b)(a-b) = a^2 - b^2$

Calculation:

$\Rightarrow (\sqrt{3} + \sqrt{5})^2 = 3 + 5 + 2\sqrt{15} = 8 + 2\sqrt{15}$

$\Rightarrow (\sqrt{3} - \sqrt{5})^2 = 3 + 5 - 2\sqrt{15} = 8 - 2\sqrt{15}$

$\Rightarrow 2(\sqrt{3} + \sqrt{5})(\sqrt{3} - \sqrt{5}) = 2(3 - 5) = -4$

$\Rightarrow (8 + 2\sqrt{15}) + (8 - 2\sqrt{15}) - 4$

$\Rightarrow 16 - 4$

$\Rightarrow 12$

Therefore The correct answer is 12.

Q75. Answer: (a) 91 kg

Shortcut Trick

Teacher's weight = New Average + (Initial students × Increase in Average)

Rise in average = 61 − 60 = 1 kg

Teacher's weight = 61 + (30 × 1)

Teacher's weight = 61 + 30 = 91 kg

Therefore The correct answer is 91 kg.

Alternate Method

Given:

Number of students = 30

Initial average weight = 60 kg

New average weight (including teacher) = 61 kg

Formula Used:

Total Weight = Number of items × Average

Calculations:

=> Total weight of 30 students = 30 × 60 = 1800 kg

=> Total number of people (30 students + 1 teacher) = 31

=> Total weight of 31 people = 31 × 61

=> Total weight of 31 people = 1891 kg

=> Teacher's weight = Total weight with teacher − Total weight of students

=> Teacher's weight = 1891 − 1800

=> Teacher's weight = 91 kg

Therefore The correct answer is 91 kg.

Additional Information

Inclusion Rule

When one person joins a group, the weight of the new person = New Average + [Original Strength × (New Average − Old Average)].

Exclusion Rule

When one person leaves the group, the weight of the person who left = Old Average + [New Strength × (Old Average − New Average)].

Weighted Average

If two groups with sizes n1 and n2 and averages A1 and A2 are combined, the combined average = (n1A1 + n2A2) ÷ (n1 + n2).

Q76. Answer: (b) Dehliwal

The correct answer is Dehliwal.

Key Points

• The coins minted in Delhi during the reign of the Tomar and Chauhan dynasties were called Dehliwal.

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• The term "Dehliwal" specifically refers to the local coins produced in the Delhi region during the medieval period under the rule of these dynasties.

• These coins were primarily made of silver and were used as a medium of exchange in commerce and trade during that era.

• The Dehliwal coins played a significant role in the economic activities of northern India during the reign of the Tomars and Chauhans, symbolizing their administrative and monetary systems.

• The coins reflected regional identity and sovereignty, and their minting was a mark of local governance and control over trade.

Additional Information

• Tomar Dynasty:

• The Tomar dynasty ruled Delhi before the Chauhan dynasty and was instrumental in establishing Delhi as a center of political and economic activity.

• They are credited with founding the city of Delhi, and their rule lasted until the Chauhans took over the region in the late 12th century.

• The reign of the Tomars witnessed significant developments in trade, and their coins like Dehliwal were widely used.

• The Tomar kings were known for their administrative capabilities and contributions to local governance.

• Chauhan Dynasty:

• The Chauhans succeeded the Tomars in Delhi, with Prithviraj Chauhan being one of the most prominent rulers of the dynasty.

• The Chauhan dynasty played a crucial role in resisting invasions, especially from the Ghurid Empire.

• Dehliwal coins continued to be minted during their reign, reflecting the continuity of the monetary system established by the Tomars.

• Prithviraj Chauhan’s reign marked the last phase of the Chauhan dynasty before Delhi fell to Muslim rulers.

• Other Coin Types:

• Rupees: The term "Rupee" became prominent much later, especially during the Mughal and British periods, and does not pertain to the Tomar or Chauhan era.

• Dinar: Dinar was a gold coin used in the Middle East and parts of India, but it was not associated with the Tomars or Chauhans.

• Tanka: The Tanka was introduced by Muslim rulers after the Chauhan dynasty, particularly by the Delhi Sultanate, and was not relevant to the question.

• Significance of Dehliwal Coins:

• These coins were symbols of regional autonomy and governance under the Tomar and Chauhan rulers.

• The use of Dehliwal coins highlights the economic and cultural significance of Delhi during the medieval period.

• They represent the early monetary systems in India before the advent of centralized coinage by later dynasties.

Important Points

• Historical Context:

• The Tomar and Chauhan dynasties laid the foundation for Delhi’s prominence as a political and trade hub in northern India.

• The transition from Tomar to Chauhan rule marked a continuation of local governance systems, including coin minting practices.

• Legacy:

• The Dehliwal coins are an important artifact of early Indian history, providing insights into the economic systems of medieval India.

• They reflect the cultural and political autonomy of Delhi before the establishment of Muslim rule in the region.

Q77. Answer: (b) It was the numerical value determining a noble's rank and salary.

The correct answer is It was the numerical value determining a noble's rank and salary..

Key Points

• Zat in the Mughal Mansabdari system referred to the numerical value assigned to each mansabdar, which determined their rank and salary.

• The rank was primarily categorized by the Zat number, which indicated the status and hierarchy of the noble within the Mughal administration.

• The Zat value also determined the financial remuneration a mansabdar would receive, thereby signifying their social and economic standing in the empire.

• Higher Zat numbers were associated with greater privileges, larger salaries, and higher administrative responsibilities.

• This system was introduced by Akbar and was an integral part of the administrative structure of the Mughal Empire, aiding in efficient governance.

Additional Information

• Mughal Mansabdari System:

• The Mansabdari system was a unique administrative framework introduced by Akbar to manage the empire’s civil and military

responsibilities.

• Under this system, every officer or noble was assigned a rank called Mansab, which was divided into two components: Zat and Sawar.

• Zat was the personal rank of the mansabdar, while Sawar denoted the number of horsemen a mansabdar was required to maintain for military service.

• The system aimed to ensure efficient administration and prevent hereditary claims to high-ranking positions.

• Functions of Zat:

• Zat was a numerical indicator of the noble's personal rank and the salary they would draw.

• It played a key role in determining the status of a mansabdar within the Mughal administrative hierarchy.

• The higher the Zat rank, the larger the jagir (land revenue assignment) granted to the individual.

• It ensured that nobles were paid adequately and maintained loyalty to the emperor.

• Comparison with Sawar:

• While Zat defined rank and salary, Sawar defined the military obligations of a mansabdar.

• Sawar denoted the number of cavalry personnel a noble was required to maintain, which varied according to their rank and responsibilities.

• Both components were interlinked but served different purposes in the administration.

• Historical Context:

• The system was crucial during the reign of Akbar, Jahangir, and Shah Jahan, helping to create a centralized bureaucracy.

• It eliminated feudal tendencies and ensured that administrative positions were merit-based rather than hereditary.

• It also helped maintain a stable military force, ensuring the empire's territorial integrity.

Important Points

• Zat ranks:

• The Zat ranks ranged from 10 to 5000, with higher ranks indicating greater influence and responsibilities.

• Ranks above 5000 were reserved for the highest-ranking officials and royal family members.

• Jagir Allocation:

• Based on the Zat, mansabdars were assigned jagirs, which were revenue-yielding lands to sustain their salaries and military expenses.

• This system ensured equitable distribution of resources and prevented concentration of power in the hands of a few nobles.

• Akbar’s Reforms:

• Akbar institutionalized the Mansabdari system as part of his broader administrative reforms to strengthen the Mughal Empire.

• He ensured that ranks were periodically reviewed, promoting efficiency and accountability among nobles.

Q78. Answer: (b) 1997

The correct answer is 1997.

Key Points

• The Indian Ocean Rim Association (IORA) was established in 1997 to promote regional cooperation and sustainable development within the Indian Ocean region.

• IORA was initiated by India and South Africa to create a platform for economic, socio-cultural, and political collaboration among countries bordering the Indian Ocean.

• The association's founding meeting took place in Port Louis, Mauritius, where the Charter of the Indian Ocean Rim Association was adopted.

• IORA aims to enhance maritime security, trade facilitation, disaster management, scientific research, and capacity building among its member states.

• It includes 23 member countries from the Indian Ocean region and 10 dialogue partners, which contribute to its objectives by providing expertise and resources.

Additional Information

• Member Countries:

• The IORA comprises 23 member states, including countries like India, Australia, Indonesia, South Africa, Sri Lanka, and the UAE, among others.

• The organization includes countries that share a coastline with the Indian Ocean.

• Objectives of IORA:

• Promoting economic cooperation and sustainable growth within the Indian Ocean region.

• Enhancing maritime safety and security to ensure freedom of navigation and secure trade routes.

• Encouraging scientific and technological collaboration for the development of member states.

• Strengthening disaster risk management by sharing expertise and resources.

• Key Initiatives:

• IORA plays a significant role in addressing issues like illegal fishing, piracy, and maritime pollution.

• The organization has launched the Blue Economy Initiative, focusing on sustainable use of ocean resources for economic growth, improved livelihoods, and ocean ecosystem health.

• It also conducts the annual Indian Ocean Dialogue to discuss regional cooperation and security challenges.

• Structure of IORA:

• The apex body of IORA is the Council of Ministers (COM), consisting of foreign ministers from member states.

• The Committee of Senior Officials (CSO) supports the COM and oversees the implementation of decisions.

• The organization has a Secretariat based in Ebène, Mauritius, which coordinates activities and communication among member states.

Important Points

• The Indian Ocean region is of strategic importance as it hosts some of the busiest shipping lanes, connecting the Middle East, Africa, and Asia.

• IORA promotes the concept of the Blue Economy, which includes sectors like fisheries, renewable energy, maritime transport, and tourism.

• IORA's Dialogue Partners include countries like the United States, China, Japan, and Germany, which provide technical and financial assistance.

• The association is instrumental in fostering a rules-based maritime order in the Indian Ocean, aligning with international laws like the United Nations Convention on the Law of the Sea (UNCLOS).

Q79. Answer: (b) Sucheta Kripalani

The correct answer is Sucheta Kripalani.

Key Points

• Sucheta Kripalani was the first woman Chief Minister of any state in India. She served as the Chief Minister of Uttar Pradesh from 1963 to 1967.

• She was a prominent figure in the Indian freedom struggle and worked closely with Mahatma Gandhi during the Quit India Movement.

• Sucheta Kripalani represented Indian National Congress, the political party that played a pivotal role in India's independence and early governance.

• Her tenure as Chief Minister was marked by her efforts to improve administrative efficiency and address social issues, including those related to women's welfare and education.

• She was known for her determination and leadership, especially during the state employees' strike in Uttar Pradesh, where she successfully negotiated and resolved the issues.

• She remains a symbol of women's empowerment in Indian politics, paving the way for future generations of female leaders.

Additional Information

• Other prominent women in Indian history:

• Aruna Asaf Ali: Known as the "Grand Old Lady" of the Indian Independence Movement, she played a pivotal role in the Quit India Movement and was awarded the Bharat Ratna in 1997.

• Anna Chandy: She was the first woman judge in India and also one of the first women judges globally. She was appointed to the Kerala High Court in 1959.

• Kamala Nehru: She was the wife of Jawaharlal Nehru and a prominent freedom fighter, contributing to the civil disobedience movement and working for women's rights in India.

• Historical significance of women leaders:

• Women leaders like Sucheta Kripalani paved the way for greater representation of women in Indian politics.

• Their contributions during the freedom struggle highlight their role in shaping India's socio-political landscape.

• They have inspired initiatives for gender equality and efforts to empower women in various sectors.

• Key facts about Uttar Pradesh:

• Uttar Pradesh is India's most populous state and plays a significant role in the country's politics.

• It was the first state in India to have a woman Chief Minister, marking a milestone in Indian governance.

• It is known for its rich cultural heritage, historical landmarks, and diverse population.

Important Points

• Sucheta Kripalani's legacy:

• She was one of the few women leaders in Indian politics during the 20th century, making her achievements even more remarkable.

• Her work as Chief Minister of Uttar Pradesh set a precedent for future women leaders in Indian states.

• Her participation in the freedom struggle and dedication to public service showcased her commitment to India's development.

• Representation of women in Indian politics:

• Women's participation in politics has steadily increased since independence, with leaders like Indira Gandhi and Pratibha Patil holding key positions such as Prime Minister and President, respectively.

• Various laws and initiatives have been implemented to promote gender equality and increase women's representation in governance.

Q80. Answer: (b) Asima Chatterjee

The correct answer is Asima Chatterjee.

Key Points

• Asima Chatterjee was the first female recipient of the prestigious Shanti Swarup Bhatnagar Prize for Science and Technology in 1961, awarded for her contributions to the field of organic chemistry.

• She is renowned for her groundbreaking work in the fields of medicinal chemistry, especially for her research on alkaloids and the development of anti-malarial and anti-epileptic drugs.

• Her research primarily revolved around the chemistry of natural products, including plant-based substances, which have significant applications in medicine.

• Asima Chatterjee made significant contributions to Indian science, becoming a trailblazer for women scientists in the country.

• The Shanti Swarup Bhatnagar Prize, established in 1958, is one of India's highest science awards, given annually by the Council of Scientific and Industrial Research (CSIR) for outstanding contributions to science and technology.

Additional Information

• Shanti Swarup Bhatnagar Prize:

• Named after Dr. Shanti Swarup Bhatnagar, the founder Director of CSIR, the prize recognizes exceptional achievements in various fields of science like Biological Sciences, Engineering, Mathematics, Medicine, Physical Sciences, and Chemical Sciences.

• Each award includes a citation, a plaque, and a cash prize of Rs. 5 lakh.

• The prize is awarded to scientists below the age of 45 years for their contributions to Indian science.

• Asima Chatterjee's Legacy:

• Born on 23 September 1917 in Kolkata, she became the first woman to earn a Doctorate of Science from an Indian university (University of Calcutta).

• She served as the Chairperson of the Chemistry Department at Lady Brabourne College, Kolkata.

• Her pioneering work on natural products chemistry contributed significantly to drug development, especially in the areas of malaria, epilepsy, and cancer.

• She was awarded the Padma Bhushan in 1975 for her contributions to science.

• Other female recipients of the Shanti Swarup Bhatnagar Prize:

• After Asima Chatterjee, other women scientists like Sudipta Sengupta (1983, Earth Sciences) and Archana Bhattacharyya (1998, Physical Sciences) have also received this prestigious award.

• This highlights the growing recognition of women in Indian science over the decades.

• Important Contributions of Other Options:

• Debala Mitra: An eminent Indian archaeologist who served as the Director General of the Archaeological Survey of India (ASI). Her work focuses on ancient Indian monuments but she did not receive the Shanti Swarup Bhatnagar Prize.

• Sudipta Sengupta: A distinguished geologist who received the prize in 1983 for her work in Earth Sciences. However, she was not the first female recipient.

• Archana Bhattacharyya: A physicist who received the prize in 1998 for her contributions to space physics but was not the first woman to receive it.

Important Points

• Gender Representation in Science:

• Women's contributions in STEM (Science, Technology, Engineering, Mathematics) fields in India have historically been underrepresented.

• Awards like the Shanti Swarup Bhatnagar Prize encourage greater participation and recognition of women in scientific research.

• Efforts by institutions like CSIR to promote diversity and inclusion in science are crucial for breaking gender barriers.

• Encouragement for Research:

• Such prestigious awards provide motivation for young scientists to pursue innovative research.

• They also highlight the importance of focusing on indigenous scientific advancements.

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Q81. Answer: (a) Pritam

The correct answer is Pritam.

Key Points

• Pritam, one of India's leading music directors, won the Best Music Direction (Songs) award at the National Film Awards 2024 for his remarkable work in the Hindi movie Brahmastra - Part 1: Shiva.

• Pritam is known for his versatile music composition and has been instrumental in delivering chart-topping songs in Bollywood. His work in Brahmastra was widely appreciated for blending modern and traditional musical elements seamlessly.

• The soundtrack of Brahmastra - Part 1: Shiva featured several hit songs such as Kesariya, Deva Deva, and Rasiya, which became instant favorites among audiences and critics alike.

• This award adds to Pritam's illustrious career, which includes multiple awards like Filmfare Awards, IIFA Awards, and Zee Cine Awards for his exceptional contributions to Indian cinema.

• The National Film Awards, considered one of the most prestigious awards in Indian cinema, recognize excellence across various categories, including acting, direction, cinematography, and music composition.

Additional Information

• Pritam Chakraborty:

• Pritam was born on 14 June 1971 in Kolkata, West Bengal, India. He is a prominent Indian composer and playback singer.

• He is known for his ability to experiment with diverse genres, including pop, rock, classical, and traditional Indian music.

• Pritam has worked on numerous blockbuster movies such as Barfi!, Yeh Jawaani Hai Deewani, Dilwale, and Jab We Met.

• He is often praised for his ability to connect with audiences across different age groups through his memorable and melodious compositions.

• Brahmastra - Part 1: Shiva:

• It is a Hindi-language fantasy adventure movie directed by Ayan Mukerji and produced by Karan Johar under the banner of Dharma Productions.

• Released in 2022, the film stars Ranbir Kapoor, Alia Bhatt, Amitabh Bachchan, Nagarjuna Akkineni, and Mouni Roy.

• The movie revolves around the concept of astras (weapons of power) and combines elements of Indian mythology with modern-day storytelling.

• The music of the film played a pivotal role in enhancing its narrative and emotional appeal.

• National Film Awards:

• The National Film Awards are presented annually by the Directorate of Film Festivals, an organization under the Ministry of Information and Broadcasting, Government of India.

• Established in 1954, these awards aim to encourage and honor excellence in Indian cinema across various languages and categories.

• Winners are selected by a national jury consisting of eminent personalities from the Indian film industry.

• The awards include categories like Best Actor, Best Actress, Best Director, Best Feature Film, and Best Music Direction, among others.

• Other Nominees for the Category:

• While Pritam won the award, other notable music directors like Mahesh Bhuvanend, Niki Joshi, and Ravi Varman were also recognized for their contributions in different films.

• However, Pritam's work stood out for its innovation, emotional depth, and widespread popularity.

Important Points

• Kesariya:

• The song Kesariya from Brahmastra became a massive hit and garnered millions of views on YouTube within days of its release.

• Its soulful lyrics and melodious composition contributed significantly to the film's popularity.

• Recognition of Music in Indian Cinema:

• Music plays a crucial role in Indian films, often driving the narrative and connecting emotionally with audiences.

• The National Film Awards honor exceptional contributions in music direction, highlighting its importance in the cinematic experience.

Q82. Answer: (a) Sikkim

The correct answer is Sikkim.

Key Points

• Sikkim celebrated its 50th Statehood Day in May 2025, marking five decades since it officially became a part of India.

• Sikkim was granted statehood on May 16, 1975, through the 36th Constitutional Amendment Act, 1975, making it the 22nd state of India.

• The current Chief Minister of Sikkim is Prem Singh Tamang, also known as P.S. Golay. He has been serving as the Chief Minister since May 2019.
• Prior to its statehood, Sikkim was a protectorate of India and governed as per the Indo-Sikkim Treaty of 1950.
• Sikkim is renowned for being India's smallest state by population and for its unique geographical and cultural diversity.

Additional Information

• Historical Background of Sikkim:
• Sikkim was ruled by the Namgyal dynasty before becoming a protectorate under India in 1950.
• The Indo-Sikkim Treaty of 1950 ensured that India controlled its defense, communication, and external affairs.
• In 1975, a referendum was held, and the majority of Sikkimese people voted to abolish the monarchy and merge with India.
• Geographical Significance:
• Sikkim is located in the northeastern part of India, bordered by Nepal, Bhutan, China, and West Bengal.
• It is home to Kangchenjunga, the third-highest mountain in the world and a sacred peak for the Sikkimese people.
• Despite being the second smallest state by area, Sikkim is known for its biodiversity, hosting a wide range of flora and fauna.
• Prem Singh Tamang (P.S. Golay):
• Prem Singh Tamang is the leader of the Sikkim Krantikari Morcha (SKM) party.
• He took office as the Chief Minister of Sikkim on May 27, 2019, after his party won the state elections.
• Golay has been pivotal in implementing several developmental projects in Sikkim, focusing on tourism, education, and environmental conservation.
• Sikkim's Achievements:
• Sikkim was declared India's first organic state in 2016, promoting sustainable agricultural practices.
• The state is also recognized for its high literacy rate and efforts in preserving its indigenous culture.
• It is a popular tourist destination due to its natural beauty, monasteries, and adventure opportunities.

Important Points

• 36th Constitutional Amendment Act, 1975:
• This amendment officially integrated Sikkim into India as a full-fledged state.
• It added Article 371F to the Indian Constitution, providing special provisions to protect Sikkim's cultural and social heritage.
• Tourism in Sikkim:
• Sikkim attracts tourists with destinations like Tsomgo Lake, Nathula Pass, Rumtek Monastery, and Yumthang Valley.
• The state actively promotes eco-tourism and sustainable travel practices.
• Sikkim's Role in India:
• Sikkim serves as a strategic location due to its proximity to international borders, especially with China.
• The Indian Army maintains a significant presence in Sikkim to safeguard national security.

Q83. Answer: (c) Russia

The correct answer is Russia.

Key Points

• Prime Minister Narendra Modi was recently conferred with Russia's highest civilian honor, "The Order of St. Andrew the Apostle," in recognition of his exceptional contributions towards strengthening bilateral relations between India and Russia.
• The Order of St. Andrew the Apostle is one of the most prestigious awards in Russia, established in the year 1698 by Tsar Peter the Great to honor outstanding achievements and contributions to the state.
• The award acknowledges Prime Minister Modi's efforts in fostering closer ties between India and Russia, particularly in areas such as defense, trade, energy, and cultural exchange.
• Notably, this honor has previously been conferred upon eminent international figures and Russian citizens who have made significant contributions to the nation's development and global diplomacy.
• India and Russia share a long-standing strategic partnership, and this recognition highlights the deep-rooted diplomatic and cultural ties between the two nations.

Additional Information

• The Order of St. Andrew the Apostle:
• This civilian honor is named after St. Andrew, one of the apostles and the patron saint of Russia.
• It is considered one of the oldest and most prestigious awards in Russia, awarded to both Russian citizens and international figures for exceptional service to the nation.
• The insignia includes a badge with a blue-and-gold cross and a sash worn over the shoulder.
• India-Russia Relations:

• India and Russia have maintained a strong strategic partnership since the Cold War era, with cooperation in areas such as defense, space exploration, nuclear energy, and trade.

• Both nations are members of key multilateral organizations like BRICS and the Shanghai Cooperation Organisation (SCO), promoting regional and global cooperation.

• Russia has consistently supported India on international platforms, including its bid for a permanent seat in the United Nations Security Council (UNSC).

• Other International Honors Received by PM Modi:

• PM Modi has previously been awarded the Legion of Merit by the United States, the Order of Abdulaziz Al Saud by Saudi Arabia, and the Champions of the Earth Award by the United Nations.

• These recognitions underline his efforts in global diplomacy, environmental conservation, and fostering international collaboration.

• Significance of Civilian Honors:

• Civilian awards like "The Order of St. Andrew the Apostle" serve as a testament to the recipient's contributions towards advancing bilateral relations, global peace, and mutual cooperation.

• These honors also strengthen diplomatic ties and promote cultural exchange between nations.

Important Points

• PM Modi's Contributions:

• Under PM Modi's leadership, India has emerged as a key player in global diplomacy, fostering relations with major powers, including Russia.

• His initiatives, such as the International Solar Alliance (ISA) and active participation in forums like G20, have further elevated India's role on the global stage.

• Russia's Recognition:

• The conferment of "The Order of St. Andrew the Apostle" to PM Modi reflects Russia's appreciation for his leadership in advancing India-Russia relations.

• This recognition underscores the historical and strategic partnership between the two nations.

Q84. Answer: (d) 41.7%

The correct answer is 0.417.

Key Points

• The Periodic Labour Force Survey (PLFS) 2023-24 is a comprehensive survey conducted by the National Statistical Office (NSO) of India under the Ministry of Statistics and Programme Implementation (MoSPI). It monitors employment and labour force trends.

• According to the PLFS 2023-24, the female labour force participation rate (FLFPR) in India has increased to 41.7% (0.417). This marks a significant improvement in women's participation in the workforce.

• The FLFPR refers to the proportion of women aged 15 years and above who are either working (employed) or seeking work (unemployed) relative to the total female population in the same age group.

• This increase highlights the positive impact of government initiatives, skill development programs, and increased awareness of gender equality in workplaces.

• Despite this growth, India's FLFPR is still lower than the global average, indicating the need for further policy measures and reforms to enhance women's employment opportunities.

Additional Information

• Periodic Labour Force Survey (PLFS):

• The PLFS was launched in April 2017 to provide annual estimates of employment, unemployment, and labour force indicators for both rural and urban areas.

• It replaced the earlier Employment-Unemployment Surveys conducted by the National Sample Survey Office (NSSO).

• PLFS collects data on key indicators such as Worker Population Ratio (WPR), Labour Force Participation Rate (LFPR), and Unemployment Rate (UR).

• Factors Influencing FLFPR:

• Social factors such as cultural norms and family obligations often restrict women's participation in the workforce.

• Economic factors, including wage disparity and lack of job opportunities in rural areas, also impact the FLFPR.

• Government initiatives like Beti Bachao Beti Padhao, Skill India Mission, and Stand-Up India aim to address these challenges and encourage women's participation in various sectors.

• Global Comparison:

• According to the World Bank, the global average FLFPR stands at approximately 47%, significantly higher than India's rate.

• Countries like Bangladesh and Vietnam have FLFPRs exceeding 50%, showcasing the potential for India's improvement in this

area.

• Government Policies to Improve FLFPR:

• Maternity Benefit (Amendment) Act 2017: Provides 26 weeks of paid maternity leave to women employees.

• Mahila Shakti Kendra: Aims to empower rural women through skill development and employment opportunities.

• Deen Dayal Upadhyaya Grameen Kaushalya Yojana (DDU-GKY): Focuses on skill training and placement for rural youth, with a special emphasis on women.

Important Points

• Challenges in Improving FLFPR:

• Lack of access to safe and affordable childcare services is a significant barrier to women's workforce participation.

• Gender stereotypes and occupational segregation often limit women's entry into high-paying, formal job sectors.

• Unpaid care work, which disproportionately falls on women, reduces their availability for paid employment opportunities.

• Significance of FLFPR Growth:

• Higher FLFPR contributes to economic growth by utilizing the untapped potential of women in the labour force.

• Improved women's participation in the workforce promotes gender equality and economic empowerment.

• It enhances household incomes and reduces poverty levels in both urban and rural settings.

Q85. Answer: (a) 120

The correct answer is 120.

Key Points

• As per the Union Budget 2025-26, the government of India has announced a revamped version of the UDAN (Ude Desh ka Aam Nagrik) initiative. The initiative is aimed at enhancing regional air connectivity.

• The revamped UDAN initiative will add 120 new destinations to its network, further expanding the accessibility of air travel to remote and underserved areas of the country.

• The original UDAN scheme, launched in 2016, sought to make flying affordable for the common man and improve the regional aviation infrastructure.

• The new destinations under the revamped initiative will focus on underserved and unserved airports across India, promoting economic development and tourism in these regions.

• Special emphasis will be placed on connecting Tier-2 and Tier-3 cities, thereby reducing travel time and enhancing regional development.

Additional Information

• UDAN Scheme Overview:

• The UDAN scheme was launched by the Ministry of Civil Aviation in 2016 under the Regional Connectivity Scheme (RCS).

• It aims to connect unserved and underserved airports across India and make air travel affordable for the public.

• Under the scheme, financial incentives are provided to airlines in the form of Viability Gap Funding (VGF), ensuring affordable ticket pricing.

• Original Impact of the UDAN Scheme:

• Since its inception, the UDAN scheme has connected over 70 airports, with 1 crore passengers benefitting from affordable flights.

• Key routes have been established connecting Tier-2 and Tier-3 cities to major metropolitan hubs.

• Budgetary Allocation for the Revamped Scheme:

• The Union Budget 2025-26 has allocated significant funding for the revamped UDAN initiative to ensure the expansion of regional aviation infrastructure.

• The government has promised to enhance airport infrastructure and operational capabilities in smaller cities.

• Economic and Social Benefits:

• The addition of 120 new destinations is expected to boost regional tourism and create new opportunities for employment and economic development.

• Improved air connectivity will benefit industries such as agriculture, trade, and logistics, fostering growth in remote areas.

Important Points

• Viability Gap Funding (VGF):

• VGF is a financial support mechanism provided by the government to compensate for the shortfall in revenue for airlines operating under the UDAN scheme.

• This ensures that ticket prices remain affordable for passengers while airlines remain financially viable.

• Unserved and Underserved Airports:

• Unserved airports are those with no scheduled commercial flights, while underserved airports have limited connectivity.

• The revamped UDAN scheme prioritizes the development and operationalization of these airports.

• Focus on Sustainable Aviation:

• The government is also promoting green aviation practices by introducing energy-efficient airport infrastructure and low-emission aircraft under the revamped scheme.

Q86. Answer: (d) Yuva

The correct answer is Yuva.

Key Points

• The Pradhan Mantri Mudra Yojana (PMMY) was launched on 8th April 2015 by Prime Minister Narendra Modi to provide financial support to small and micro businesses.

• Under PMMY, loans are categorized into three categories: Shishu, Kishor, and Tarun, based on the size and stage of the business.

• Shishu: Loans up to Rs. 50,000 for budding entrepreneurs aiming to start a small business.

• Kishor: Loans ranging from Rs. 50,001 to Rs. 5,00,000 for businesses looking to expand.

• Tarun: Loans ranging from Rs. 5,00,001 to Rs. 10,00,000 for well-established businesses seeking higher financial assistance.

• Yuva is not a recognized category under PMMY. The three categories focus on different stages of business development, but "Yuva" is not included in the official framework.

Additional Information

• Objectives of PMMY:

• To promote entrepreneurship among small and micro businesses in India.

• To provide financial inclusion to the unbanked segments of society.

• To create employment opportunities through the growth of small businesses.

• Eligibility Criteria:

• Any Indian citizen with a viable business plan in the non-farm sector can apply for a Mudra loan.

• The applicant must not have defaulted on any previous loans.

• Key Features of PMMY:

• Loans are offered without the need for collateral.

• The loans are provided through commercial banks, regional rural banks, NBFCs, and microfinance institutions.

• The scheme covers activities such as manufacturing, trading, and services.

• Impact of PMMY:

• PMMY has significantly contributed to the growth of small and micro-enterprises, especially in rural areas.

• It has helped bridge the gap in access to formal credit for entrepreneurs.

Important Points

• MUDRA Bank:

• The Micro Units Development and Refinance Agency (MUDRA) Bank was established to regulate and refinance microfinance institutions.

• MUDRA Bank plays a pivotal role in ensuring the success of PMMY by providing financial assistance to banks and NBFCs.

• PMMY Statistics:

• As of 2023, PMMY has disbursed loans to over 30 crore beneficiaries, with a majority being women entrepreneurs.

• It has contributed significantly to the development of MSMEs and created numerous job opportunities.

• Focus on Women and SC/ST Entrepreneurs:

• PMMY prioritizes loans for women entrepreneurs and individuals from SC/ST communities.

• This aligns with the government’s focus on inclusive growth and empowerment.

Q87. Answer: (c) Both I and II

The correct answer is Both I and II.

Key Points

• Narcotics are substances that act on the central nervous system to relieve pain or induce sleep but have a high potential for abuse and addiction. Examples include Morphine and Methadone.

• Morphine: It is a potent opioid analgesic derived from the opium plant and is widely used for pain relief in medical settings. It also falls under the category of narcotics and is banned in sports as it enhances performance by masking pain. Hence, statement I is correct.

• Methadone: Methadone is a synthetic opioid used to treat severe pain and as part of drug addiction detoxification. It is classified as a narcotic and is prohibited in sports due to its potential for abuse and performance-enhancing effects. Hence, statement II is

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correct.

• Narcotics are listed as prohibited substances under the guidelines of the World Anti-Doping Agency (WADA).

• The use of narcotics in sports violates fair play principles and poses significant health risks to athletes.

Additional Information

• Characteristics of Morphine:

• Morphine is derived from the resin of the opium poppy (Papaver somniferum).

• It is used for managing severe pain in conditions like post-surgery recovery or terminal illnesses such as cancer.

• Morphine binds to opioid receptors in the brain and spinal cord, altering the perception of pain.

• It can cause side effects such as sedation, respiratory depression, and addiction.

• Characteristics of Methadone:

• Methadone is a synthetic opioid developed in Germany during World War II.

• It is used for pain management and as a substitute for heroin in drug addiction treatment.

• Methadone works by blocking the euphoric effects of narcotics, thereby reducing cravings and withdrawal symptoms.

• It is administered under strict medical supervision due to its high addiction potential.

• Regulations in Sports:

• The World Anti-Doping Agency (WADA) maintains a list of prohibited substances, including narcotics, to ensure fair competition.

• Athletes found using banned substances face consequences such as disqualification, suspension, or fines.

• Doping tests are conducted during competitions and training to detect the use of narcotics.

• Health Risks of Narcotics:

• Narcotics can lead to addiction, tolerance, and dependence, making them hazardous for long-term use.

• Overdose can cause respiratory failure, coma, or even death.

• Prolonged use may result in psychological issues such as depression or anxiety.

Important Points

• World Anti-Doping Agency (WADA):

• WADA was established in 1999 to combat doping in sports globally.

• It publishes the Prohibited List annually, which includes narcotics, stimulants, and other performance-enhancing substances.

• WADA promotes education and awareness to discourage athletes from engaging in doping.

• Examples of Narcotics Prohibited in Sports:

• Morphine

• Methadone

• Heroin

• Codeine (in certain concentrations)

• Consequences of Doping:

• Disqualification from competitions

• Damage to reputation

• Legal penalties in certain jurisdictions

• Long-term health complications

Q88. Answer: (c) 21

The correct answer is 21 points.

Key Points

• A badminton match generally consists of games played up to 21 points under the rally scoring system.

• In the rally scoring system, a point is awarded for every rally, regardless of which player serves.

• The player or team that first reaches 21 points wins the game, provided they have a lead of at least two points over their opponent.

• If the score reaches 20-20, the game continues until one player/team achieves a lead of two points, but the maximum score limit is 30 points. This means the first player/team to reach 30 points wins the game.

• A badminton match typically consists of three games, and the player or team that wins two out of three games is declared the winner.

Additional Information

• Scoring System:

• The rally scoring system was introduced in 2006 by the Badminton World Federation (BWF) to make the game faster and more

exciting.

• Under this system, players can score points regardless of who is serving.

• Each game is played to 21 points, with the winner requiring at least a two-point lead unless the score reaches 30-29.

• Badminton Match Format:

• A standard badminton match consists of three games, referred to as the best of three.

• The player or team that wins two games first is declared the match winner.

• The match can end in straight sets if one player/team wins the first two games.

• Historical Context:

• Prior to 2006, the scoring system varied, with games played to 15 points for men's singles and doubles, and 11 points for women's singles.

• The transition to the rally scoring system was made to increase the pace of the game and improve its appeal for spectators and broadcasters.

• Major Badminton Championships:

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

• Prominent tournaments include the All England Championships, the Olympic Games, and the BWF World Championships.

• Badminton is immensely popular in countries such as China, India, Indonesia, and Denmark.

Important Points

• Key Rules:

• A player/team changes sides at the end of each game and during the third game when one side reaches 11 points.

• The interval between games lasts two minutes, and players are allowed a 60-second break when one side scores 11 points in a game.

• Strategic Insights:

• Players often adjust their strategy based on the rally scoring system to maximize points during service and return.

• Game pace and endurance play a vital role, as matches can be physically demanding under the 21-point system.

• Sportsmanship:

• Players are expected to adhere to fair play principles and respect the umpire's decisions.

• Badminton emphasizes agility, precision, and tactical gameplay, making it a sport of both physical and mental skill.

Q89. Answer: (a) Maharashtra

The correct answer is Maharashtra.

Key Points

• The Majhi Vasundhara Campaign is an initiative launched by the Maharashtra state government to strengthen efforts towards environmental conservation.

• This campaign aims to involve citizens and local governing bodies in adopting sustainable practices and taking actionable steps to protect the environment.

• The campaign is an integral part of Maharashtra's commitment to address climate change, promote afforestation, and conserve natural resources.

• The campaign focuses on the "5 elements of nature"—Earth, Water, Air, Fire, and Space—to create awareness and encourage environmental responsibility.

• The Majhi Vasundhara Abhiyan emphasizes participation from every sector, including government institutions, local communities, and private organizations, to ensure a collective effort toward sustainable development.

Additional Information

• Objective of Majhi Vasundhara Campaign:

• The campaign seeks to promote environmentally friendly initiatives such as tree plantation, waste management, water conservation, and the use of renewable energy.

• It encourages citizens to adopt eco-friendly lifestyles and reduce their carbon footprint.

• This campaign also aims to enhance public awareness regarding the adverse effects of climate change and the importance of taking proactive measures.

• Key Strategies:

• The campaign works through initiatives such as Green Maharashtra and Clean Maharashtra, focusing on sustainable urban and rural development.

• Local governing bodies are incentivized for their contributions to environmental conservation under the campaign.

• Promotional activities include workshops, public rallies, and social media campaigns to drive widespread awareness.

• Achievements:

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• The campaign has successfully engaged over 2,000 local governing bodies in Maharashtra to adopt sustainable practices.

• Numerous initiatives such as mass tree plantations, rainwater harvesting, and waste segregation have been implemented under this campaign.

• The state government has set ambitious targets for increasing the green cover and reducing pollution levels across Maharashtra.

• Importance of Environmental Campaigns:

• Such campaigns play a crucial role in addressing global environmental challenges, including climate change and biodiversity loss.

• They help inculcate a sense of environmental responsibility among citizens and promote sustainable practices at the grassroots level.

• By involving local communities, these campaigns ensure a more inclusive approach to environmental conservation.

Important Points

• Other States and Their Environmental Initiatives:

• Jharkhand: The state has focused on afforestation and tribal inclusion in conservation efforts but is not associated with the Majhi Vasundhara Campaign.

• Sikkim: Known for being India's first organic state, Sikkim emphasizes sustainable agriculture practices and biodiversity conservation.

• Manipur: Environmental efforts in Manipur include initiatives to protect Loktak Lake and promote eco-tourism.

• Maharashtra's Environmental Challenges:

• Maharashtra faces significant environmental concerns, including deforestation, urban pollution, and water scarcity.

• The Majhi Vasundhara Campaign is a step toward tackling these challenges through public participation and sustainable practices.

Q90. Answer: (a) Qatar

The correct answer is Qatar.

Key Points

• FIFA World Cup 2022 was hosted by Qatar, making it the first time the tournament was held in the Middle East region.

• The tournament took place from 20 November to 18 December 2022, coinciding with Qatar's National Day on the final match day.

• It was a unique edition as it was the first FIFA World Cup to be held during the winter months (November-December) due to the extreme summer heat in Qatar.

• Qatar invested heavily in infrastructure, spending approximately $220 billion to prepare for the tournament, including building eight state-of-the-art stadiums, transportation systems, and accommodations.

• Argentina, led by captain Lionel Messi, emerged as the champion after defeating France in the final, which ended in a dramatic penalty shootout (3-3 in regular time, 4-2 in penalties).

Additional Information

• Key Features of Qatar’s FIFA World Cup:

• The tournament featured 32 teams from across the globe, competing in 64 matches.

• Qatar constructed 8 new stadiums, including the famous Lusail Iconic Stadium, which hosted the final match.

• Sustainability was a priority, with the Stadium 974 being the first fully demountable stadium in World Cup history, made from shipping containers.

• Qatar showcased its rich culture and traditions, blending football with its heritage to offer a unique experience for fans worldwide.

• Notable Moments:

• The 2022 edition saw several upsets, including Saudi Arabia’s historic win against Argentina in the group stage.

• Morocco became the first African team to reach the semi-finals, creating history and inspiring the continent.

• Lionel Messi won the Golden Ball for being the best player of the tournament, while Kylian Mbappé was awarded the Golden Boot for scoring the most goals (8).

• Economic Impact:

• Hosting the FIFA World Cup boosted Qatar’s global image and economy, attracting tourists and investments.

• The tournament led to significant growth in the hospitality and transportation sectors, with millions of visitors attending the event.

• Other Host Countries in FIFA History:

• Russia hosted the FIFA World Cup in 2018, where France won the championship.

• Brazil hosted in 2014, with Germany emerging as the winner.

• Future hosts include Canada, Mexico, and the USA in 2026, marking the first tri-nation World Cup.

Important Points

• Why Qatar's Selection Was Historic:

• Qatar was chosen to host the tournament in 2010 by the FIFA Executive Committee.

• This marked the first time the FIFA World Cup was held in the Arab world, promoting inclusivity and regional representation in football.

• The decision faced scrutiny and criticism over human rights concerns and working conditions for migrant laborers. However, Qatar implemented reforms to address these issues.

• Technological Innovations:

• The 2022 World Cup introduced the semi-automated offside technology for more accurate and faster referee decisions.

• State-of-the-art cooling systems were used in stadiums to ensure comfortable conditions for players and fans.

Q91. Answer: (a) Qatar

The correct answer is Qatar.

Key Points

• The FIFA Men's U-17 World Cup 2025 will be hosted by Qatar, a nation known for its strong football culture and state-of-the-art sports infrastructure.

• Qatar has already established itself as a major player in hosting global sporting events, such as the FIFA World Cup 2022, which was hailed for its excellent organization and facilities.

• The decision to award Qatar the hosting rights aligns with FIFA's efforts to promote football in the Middle East and encourage regional participation in the sport.

• Qatar's hosting of the U-17 World Cup is part of its long-term vision to use sports as a platform for cultural exchange, as reflected in its Qatar National Vision 2030.

• The tournament will feature the best U-17 teams from across the globe, providing a platform for young talent to showcase their skills on the international stage.

Additional Information

• Qatar's Sports Infrastructure:

• Qatar boasts world-class stadiums such as the Lusail Iconic Stadium and the Al Janoub Stadium, which were extensively used during the FIFA World Cup 2022.

• The country's investment in infrastructure includes advanced training facilities, transportation networks, and accommodations tailored for athletes and fans.

• FIFA U-17 World Cup History:

• The FIFA U-17 World Cup is a biennial tournament organized by FIFA, aimed at promoting young football talent globally.

• It was first held in 1985 and has since been a stepping stone for many players who later achieved success in senior football.

• Qatar National Vision 2030:

• This is a strategic framework launched by Qatar to transform the nation into an advanced society capable of sustainable development by 2030.

• Sports development is a key pillar of this vision, with a focus on hosting international events and promoting grassroots sports.

• FIFA's Role in Youth Development:

• FIFA organizes tournaments like the U-17 World Cup to foster global football talent and provide young players with exposure to competitive international football.

• This initiative helps in creating a pipeline of skilled players who can represent their countries at the senior level in the future.

Important Points

• Qatar's Global Sporting Events:

• Besides football, Qatar has hosted other significant sporting events such as the Asian Games (2006) and the IAAF World Athletics Championships (2019).

• The country is also set to host the FIBA Basketball World Cup 2027, further solidifying its reputation as a global sports hub.

• FIFA's Middle East Engagement:

• The allocation of the FIFA U-17 World Cup 2025 to Qatar reflects FIFA's commitment to promoting football in regions like the Middle East.

• Such initiatives aim to inspire the youth in the region to take up football, contributing to the global growth of the sport.

Q92. Answer: (a) Kerala

The correct answer is Kerala.

Key Points

• Guruvayur Festival is a famous cultural and religious festival celebrated in the state of Kerala, India.

• This festival is organized annually at the Guruvayur Temple, which is a renowned shrine dedicated to Lord Krishna, considered

an incarnation of Lord Vishnu.

• The temple is located in the town of Guruvayur, in the Thrissur district of Kerala.

• The festival is marked by various cultural events, religious rituals, and traditional performances such as Kathakali, Chenda Melam, and Panchavadyam, showcasing Kerala's rich heritage.

• The highlight of the festival is the Ekadasi celebrations, which are observed with great devotion and grandeur, attracting thousands of devotees from across the country.

Additional Information

• Guruvayur Temple:

• The Guruvayur Temple is one of the most significant pilgrimage sites in South India and is referred to as the “Dwarka of the South”.

• The temple deity, Lord Krishna, is worshipped in the form of a child, referred to as Guruvayurappan.

• The temple's history dates back over 5,000 years, and it is an important center for Vaishnavism.

• Ekadasi Festival:

• The Guruvayur Ekadasi falls in the Malayalam month of Vrischikam (November-December).

• It is considered one of the most auspicious days, and devotees observe fasting and special prayers.

• The day is associated with the Geetha Jayanti, the day when Lord Krishna is believed to have delivered the Bhagavad Gita to Arjuna.

• Other Cultural Highlights:

• The festival includes traditional art forms like Ottanthullal, Thayambaka, and Koodiyattam.

• The procession of the temple elephants, particularly the decorated main elephant named Guruvayur Kesavan, is a major attraction.

• Kerala as a Cultural Hub:

• Kerala is known for its rich traditions, diverse festivals, and unique art forms.

• Other notable festivals of Kerala include Onam, Thrissur Pooram, and Vishu.

• The state is often referred to as “God’s Own Country” for its natural beauty and cultural heritage.

Important Points

• Temple Timings: The Guruvayur Temple opens early in the morning and remains open till late evening to allow devotees to perform rituals and offer prayers.

• Dress Code: Visitors must adhere to a strict dress code, with traditional attire being mandatory for entry into the temple premises.

• Accessibility: Guruvayur is well-connected by road and rail, with the nearest airport being Cochin International Airport, located about 80 km away.

Q93. Answer: (c) Karnataka

The correct answer is Karnataka.

Key Points

• Gol Gumbaz is located in Bijapur, a city in the state of Karnataka, India.

• It is the mausoleum of Mohammed Adil Shah, the Sultan of Bijapur, who ruled between 1627 and 1656.

• The structure is renowned for its exceptional architectural design, particularly its massive dome, which is one of the largest unsupported domes in the world.

• Gol Gumbaz is built using Deccan Indo-Islamic architecture, showcasing the influence of Persian and Indian styles.

• The tomb is famous for its whispering gallery, where even the faintest sound can be heard clearly across the gallery due to its unique acoustic design.

Additional Information

• Location: Gol Gumbaz is situated in Bijapur, Karnataka, a historic city known for its architectural heritage.

• Architectural Features:

• The dome of Gol Gumbaz is 44 meters (144 feet) in diameter, making it one of the largest domes globally.

• The tomb rests on a square base, and the corners are adorned with octagonal minarets.

• The structure is built using dark grey basalt and is a testament to advanced engineering techniques of the era.

• Whispering Gallery:

• The whispering gallery inside the dome allows sound to travel across the gallery due to its acoustic brilliance.

• This feature has made Gol Gumbaz a popular tourist destination.

• Historical Significance:

• Gol Gumbaz was built during the reign of the Adil Shahi dynasty, which ruled Bijapur.

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• It serves as the of Mohammed Adil Shah, his wives, and other family members.

• Other Attractions in Bijapur:

• Bijapur is home to several other architectural marvels, such as the Jama Masjid, Ibrahim Rauza, and Malik-e-Maidan (the largest medieval cannon).

• The city represents the rich cultural and architectural legacy of the Deccan Sultanates.

Important Points

• Architect: Gol Gumbaz was designed by Yaqut of Dabul, a Persian architect.

• Construction Year: The tomb was constructed in 1656.

• Bijapur: Bijapur was a prominent city under the Adil Shahi dynasty, known for its significant contributions to art and architecture.

• Tourism: Gol Gumbaz is a popular tourist attraction in Karnataka, drawing visitors from across the globe due to its historical and architectural importance.

Q94. Answer: (c) New Glenn

The correct answer is New Glenn.

Key Points

• New Glenn is the first orbital-class rocket developed by Blue Origin, a private aerospace manufacturer and spaceflight services company founded by Jeff Bezos in the year 2000.

• The rocket is named after John Glenn, the first American astronaut to orbit the Earth, signifying its mission to achieve orbital spaceflight capabilities.

• Blue Origin launched the New Glenn rocket in January 2025, marking a major milestone in its efforts to compete with other spaceflight companies like SpaceX.

• The rocket is a two-stage launch vehicle designed for a wide range of missions, including satellite deployment and interplanetary exploration.

• New Glenn features a reusable first stage that is capable of landing on a ship at sea, reducing costs and making spaceflight more sustainable.

• The rocket is powered by BE-4 engines, developed in-house by Blue Origin, and uses liquefied natural gas (LNG) and liquid oxygen (LOX) as propellants.

Additional Information

• New Shepard:

• New Shepard is a suborbital rocket developed by Blue Origin for space tourism and scientific payloads.

• It is named after Alan Shepard, the first American astronaut to travel to space.

• The rocket is designed to carry passengers and experiments to the Kármán line, the boundary of space, and return safely to Earth.

• Unlike New Glenn, it is not intended for orbital missions but focuses on short-duration suborbital flights.

• New Horizon:

• New Horizon is not related to Blue Origin but is a NASA spacecraft launched in 2006.

• It was designed for the exploration of Pluto and the Kuiper Belt, making it one of NASA's most successful interplanetary missions.

• This option is unrelated to the orbital capabilities of Blue Origin rockets.

• Blue Moon:

• Blue Moon is a lunar lander developed by Blue Origin as part of its goal to support NASA's Artemis program for returning humans to the Moon.

• It is designed to deliver cargo and possibly crew to the lunar surface, focusing on lunar exploration and development.

• It is not an orbital rocket but a specialized lander for Moon missions.

• Features and Capabilities of New Glenn:

• The rocket has a massive payload capacity of up to 45 metric tons to low Earth orbit (LEO), making it suitable for heavy payloads.

• Its reusable first stage can perform up to 25 missions, significantly reducing operational costs.

• The rocket's design includes a seven-meter fairing, providing ample space for satellites and other payloads.

• New Glenn's first stage recovery mechanism is similar to SpaceX's Falcon 9, enabling it to land on a floating platform at sea.

Important Points

• BE-4 Engine:

• The BE-4 engine is a state-of-the-art rocket engine developed by Blue Origin to power both New Glenn and United Launch Alliance's Vulcan Centaur.

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• It uses methane as fuel, making it more efficient and environmentally friendly compared to traditional kerosene-based engines.

• Competition:

• New Glenn is positioned to compete with SpaceX's Falcon Heavy and Starship, as well as ULA's Vulcan Centaur, in the commercial spaceflight market.

• Its large payload capacity and reusability make it attractive for satellite deployment and interplanetary missions.

• Blue Origin's Vision:

• Blue Origin aims to create a future where millions of people live and work in space, focusing on reusability and sustainability in space exploration.

• New Glenn is a stepping stone toward achieving this vision, aligning with the company's motto: "Gradatim Ferociter" (Step by Step, Ferociously).

Q95. Answer: (d) Because the pressure inside our body balances the outside pressure

The correct answer is Because the pressure inside our body balances the outside pressure..

Key Points

• The atmospheric pressure at sea level is approximately 101.3 kPa (kilopascals) or 1 atmosphere (atm). This is a significant force, yet humans do not feel crushed under it because the pressure inside the body matches this external atmospheric pressure.

• The human body is equipped with fluid-filled organs, tissues, and cells that maintain an internal pressure equal to the external atmospheric pressure. This balance prevents any crushing effect.

• Our bodies are not rigid; they are flexible and adaptive. The fluids and gases inside our body, such as blood and air in the lungs, exert an outward pressure that counterbalances the atmospheric pressure.

• When there is a sudden change in atmospheric pressure, such as during high-altitude travel or deep-sea diving, the body may feel discomfort (e.g., ear popping), but it usually adjusts to the new pressure over time. This is due to mechanisms like the Eustachian tube in the ear.

• The concept of pressure balancing is a fundamental principle in physics and biology. Without this balance, humans would not be able to survive under such high atmospheric pressure.

Additional Information

• Atmospheric Pressure:

• It is the force exerted by the weight of the atmosphere on any surface.

• Standard atmospheric pressure at sea level is approximately 101,325 Pascals (Pa) or 760 mmHg (millimeters of mercury).

• It decreases with increasing altitude and increases with depth in water or other fluids.

• Internal Body Pressure:

• The human body maintains an internal pressure that matches the external atmospheric pressure, preventing any imbalance.

• This equilibrium is maintained by the circulatory system, respiratory system, and tissue fluids.

• Decompression and Pressure Variations:

• Sudden changes in external pressure can lead to conditions like barotrauma or decompression sickness.

• For example, divers ascending too quickly may experience "the bends" due to nitrogen bubbles forming in their blood.

• Applications of Pressure Balancing:

• Pressure-suited environments, such as spacesuits or submarines, are designed to mimic atmospheric conditions to keep the human body safe.

• Medical devices like hyperbaric oxygen chambers utilize controlled pressure to treat certain conditions.

Important Points

• Option 1: "Because we are very strong" – This is incorrect because physical strength has no influence on resisting atmospheric pressure. The balance is due to internal and external pressure equilibrium.

• Option 2: "Because gravity pulls it away" – Incorrect as gravity plays a role in the existence of atmospheric pressure but does not pull it away to prevent crushing.

• Option 3: "Because atmospheric pressure is very low" – Incorrect because atmospheric pressure is not low; it is significant (101.3 kPa at sea level). The body's internal pressure balances it out.

• Option 4: "Because the pressure inside our body balances the outside pressure" – Correct as the internal and external pressures are in equilibrium, preventing any crushing effect.

Q96. Answer: (c) Lohagarh Fort

The correct answer is Lohagarh Fort.

Key Points

• Lohagarh Fort, located in Bharatpur, Rajasthan, was built by Maharaja Suraj Mal, the founder of Bharatpur. It is renowned for its strength and resilience against enemy attacks.

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• Constructed in the 18th century, Lohagarh Fort stands as a symbol of the Jat dynasty's valour. It is often referred to as the “Iron Fort” due to its impenetrable design.

• This fort successfully withstood multiple attacks by the British forces, including those led by Lord Lake in 1805, making it historically significant.

• The fort features two imposing gates, the Ashtadhatu Gate and the Chhatrapati Gate, showcasing intricate craftsmanship and historical narratives.

• Lohagarh Fort houses several important monuments such as the Jama Masjid, Vikram Mahal, Kesar Palace, and the Government Museum, which preserve the rich history and culture of the region.

Additional Information

• Amer Fort:

• Located in Jaipur, Rajasthan, Amer Fort was built by Raja Man Singh I in 1592.

• The fort is known for its Rajput architectural style and includes attractions like the Sheesh Mahal (Mirror Palace) and Diwan-e-Aam.

• Amer Fort is a UNESCO World Heritage Site and part of the Hill Forts of Rajasthan.

• Agra Fort:

• Agra Fort is located in Agra, Uttar Pradesh, and was built by Akbar the Great in 1565.

• This fort served as the main residence of the Mughal emperors and is known for its red sandstone architecture.

• Agra Fort is also a UNESCO World Heritage Site.

• Red Fort:

• Located in Delhi, the Red Fort was constructed by Shah Jahan in 1648.

• It served as the political and ceremonial center of the Mughal Empire and is famous for its massive red sandstone walls.

• The Red Fort is also a UNESCO World Heritage Site and a symbol of India’s independence, where the Prime Minister hoists the national flag every year on Independence Day.

• Historical Significance of Lohagarh Fort:

• Lohagarh Fort stands apart as a rare fort in India that was never conquered by enemies despite repeated invasions.

• Its design and construction reflect the Jat community's focus on military strength and practicality rather than ornamental architecture.

• The fort played a crucial role in defending Bharatpur during the British colonial era.

Important Points

• Suraj Mal: Known as the “Plato of the Jat community”, Maharaja Suraj Mal was a visionary leader who established Bharatpur State and expanded his kingdom significantly during the 18th century.

• Architectural Features: Lohagarh Fort’s strength lies in its mud walls, which absorbed cannon fire during invasions. This unique feature sets it apart from other forts built with stone.

• Historical Preservation: Efforts are underway to restore and maintain the fort to preserve its cultural and historical significance for future generations.

Q97. Answer: (c) Both I and II

The correct answer is Both I and II.

Key Points

• Mahalwari Settlement:

• The Mahalwari Settlement was introduced in the year 1833 during British rule in India.

• Holt Mackenzie devised this system, and it was later modified by R.M. Bird.

• The system was aimed at ensuring revenue collection from villages or "mahals" as a collective entity, where the responsibility of tax payment was on the village as a whole.

• This system was implemented mainly in the regions of North-Western Provinces, Central India, and Punjab.

• Hence, Statement I is correct.

• Ryotwari System:

• The Ryotwari system was introduced by the British in parts of Madras, Bombay, and Assam.

• It was devised by Alexander Read and later developed by Thomas Munro in the early 19th century.

• Under this system, the settlement was made directly with the ryots (cultivators), and they were recognized as the owners of the land.

• The cultivators paid land revenue directly to the government, which was typically fixed for a period of 30 years.

• Hence, Statement II is correct.

Additional Information

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• Zamindari Settlement:

• The Zamindari system was introduced by Lord Cornwallis in 1793 under the Permanent Settlement Act.

• It was prevalent in Bengal, Bihar, Orissa, and parts of Madras and Varanasi.

• Under this system, the zamindars were made the owners of the land, and they were responsible for collecting land revenue from the peasants.

• The land revenue was fixed permanently, meaning it would not increase in the future.

• Key Differences Between Mahalwari, Ryotwari, and Zamindari Systems:

• Mahalwari System: Revenue was collected from the entire village or mahal, and the responsibility was shared collectively by the village community.

• Ryotwari System: Revenue was collected directly from the individual cultivators, who were recognized as the owners of the land.

• Zamindari System: Revenue was collected by zamindars, who acted as intermediaries between the government and the peasants.

• Impact of Revenue Systems:

• All three systems were introduced to maximize revenue collection for the British government.

• These systems often led to exploitation of peasants, as they were burdened with high taxes.

• The Mahalwari and Ryotwari systems attempted to reduce the role of intermediaries, unlike the Zamindari system.

• Significance of Land Revenue Systems in India:

• These systems played a crucial role in shaping the agrarian economy of India during British rule.

• They had long-lasting impacts on land ownership patterns, rural socio-economic structures, and the livelihoods of Indian peasants.

Q98. Answer: (b) 30

The correct answer is 30 years.

Key Points

• Article 84(b) of the Indian Constitution states that the minimum age for a person to qualify for membership of the Rajya Sabha is 30 years.

• The Rajya Sabha, also known as the Council of States, is the upper house of the Parliament of India and represents the states and union territories.

• Members of the Rajya Sabha are indirectly elected by the elected members of the Legislative Assemblies of States and Union territories, using a system of proportional representation by means of the single transferable vote.

• The Rajya Sabha has a total of 250 seats, of which 238 members are elected, and 12 members are appointed by the President for their expertise in specific fields such as literature, science, art, and social services.

• The minimum age requirement ensures that candidates have sufficient maturity and experience to understand and deliberate on national-level issues effectively.

Additional Information

• Eligibility Criteria for Rajya Sabha Membership:

• A candidate must be a citizen of India.

• The minimum age to qualify is 30 years as per Article 84(b) of the Constitution.

• The candidate must possess such other qualifications as prescribed by Parliament from time to time.

• Comparison with Lok Sabha:

• The minimum age to contest for membership of the Lok Sabha is 25 years, as per Article 84(a).

• While the Rajya Sabha represents the states and union territories, the Lok Sabha represents the people directly.

• Composition of Rajya Sabha:

• The maximum strength is 250 members, of which 238 are elected and 12 are nominated by the President.

• These nominated members are experts in fields like literature, science, art, and social services.

• Tenure of Members:

• Rajya Sabha is a permanent body and is not subject to dissolution.

• However, one-third of its members retire every two years, and elections are held to fill these vacant seats.

• Key Role of Rajya Sabha:

• Acts as a review body for legislation passed by the Lok Sabha.

• Represents the interests of the states and union territories in the federal structure of India.

Important Points

• First Rajya Sabha Session: The first session of Rajya Sabha was held on 13 May 1952.

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• Vice President as Chairman: The Vice President of India is the ex-officio Chairman of the Rajya Sabha.

• Special Powers: The Rajya Sabha has special powers to pass resolutions for the creation of new All-India Services under Article 312 of the Constitution.

• Notable Members: Eminent personalities like Dr. B.R. Ambedkar, Rukmini Devi Arundale, and Shyam Benegal have served as members of the Rajya Sabha.

Q99. Answer: (a) Fore brain

The correct answer is Fore brain.

Key Points

• The forebrain is the largest part of the brain and is responsible for processing sensory information such as hearing, smell, sight, and touch. It houses specialized areas for these functions.

• The forebrain includes structures such as the cerebrum, thalamus, and hypothalamus, which are crucial for sensory perception, voluntary actions, cognition, and emotional responses.

• Occipital lobe: Located in the cerebrum, it is specialized for processing visual information. It interprets signals from the eyes to form images.

• Temporal lobe: This area processes auditory information and is involved in recognizing sounds, speech, and language. It also contributes to memory formation.

• Olfactory bulb: Found in the forebrain, it processes smell signals received from the nose. It plays a critical role in detecting and identifying odors.

• Other regions like the somatosensory cortex in the forebrain are responsible for processing tactile sensations from the skin.

Additional Information

• Midbrain:

• The midbrain acts as a relay station for auditory and visual signals, but it does not house areas specialized for hearing, smell, or sight.

• It is responsible for regulating motor movements and reflexes associated with vision and hearing.

• Examples of midbrain components include the superior colliculi (visual reflexes) and inferior colliculi (auditory reflexes).

• Hindbrain:

• The hindbrain includes structures such as the cerebellum, pons, and medulla oblongata, which are primarily involved in balance, coordination, and autonomic functions like breathing.

• While essential for survival functions, the hindbrain does not specialize in sensory processing areas like the forebrain does.

• For example, the cerebellum helps in motor control but not in sensory perception.

• Spinal Cord:

• The spinal cord is part of the central nervous system and acts as a conduit for transmitting signals between the brain and the body.

• It does not process sensory information directly but relays it to the brain for interpretation.

• Its primary function includes reflex actions and communication between various body parts and the brain.

• Important Points:

• The forebrain is divided into lobes—frontal, parietal, occipital, and temporal—each with specialized functions.

• It is the most evolved part of the brain and responsible for higher-order cognitive functions such as thinking, decision-making, and memory.

• Disorders affecting the forebrain, such as Alzheimer's disease, can impair sensory processing and cognitive abilities.

• The forebrain is unique to vertebrates and is more developed in humans compared to other animals, enabling complex behaviors and advanced reasoning.

Q100. Answer: (c) 4000

The correct answer is 4000.

Key Points

• Panini, an ancient Indian scholar, composed one of the most comprehensive and scientific grammatical frameworks for the Sanskrit language.

• The grammar system developed by Panini is called Ashtadhyayi, which translates to "Eight Chapters."

• The Ashtadhyayi consists of approximately 4000 sutras (grammatical rules) that systematically describe the structure, phonetics, and syntax of Sanskrit.

• Panini's grammar is widely regarded as the foundation of linguistic studies and has influenced both ancient and modern language sciences.

• The rules are written in concise aphoristic style, making them compact yet highly detailed, suitable for oral transmission in

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ancient India.

Additional Information

• Panini's Life:

• Panini is believed to have lived in ancient India around the 5th to 4th century BCE.

• He hailed from the region near present-day Gandhara (modern Pakistan and Afghanistan).

• Ashtadhyayi's Structure:

• The Ashtadhyayi is divided into eight chapters, each containing several sections.

• It covers phonology, morphology, and syntax, providing a complete linguistic framework.

• The sutras are organized to ensure minimal redundancy and maximum clarity.

• Scientific Approach:

• Panini's grammar employs a highly formalized structure, resembling modern computational linguistics.

• It uses meta-rules and auxiliary markers to simplify complex grammatical patterns.

• Influence on Linguistics:

• Panini’s work has had a profound impact on linguistic theories, including the development of formal language theory.

• His methodologies have inspired modern linguists like Noam Chomsky.

• Application of Ashtadhyayi:

• The grammar is still studied and used by scholars of Sanskrit, linguistics, and computational language modeling.

• It serves as a cornerstone for understanding classical texts and teaching Sanskrit.

Important Points

• Legacy: Panini’s grammar remains one of the earliest and most sophisticated examples of linguistic analysis.

• Historical Context: The Ashtadhyayi was composed during a time when oral traditions dominated, emphasizing brevity and precision.

• Global Recognition: Panini is often referred to as the "father of linguistics" due to his pioneering work.

• Modern Studies: Scholars continue to explore Panini’s methods to enhance computational linguistics and artificial intelligence.

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