SSC MTS 2025 Official Paper (Held On: 05 Feb, 2026 Shift 2) (Previous Year Paper)

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

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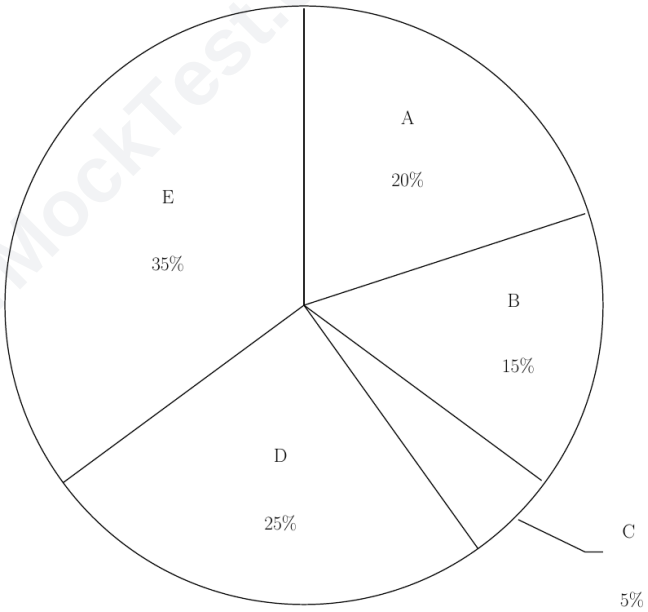
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SESSION 1

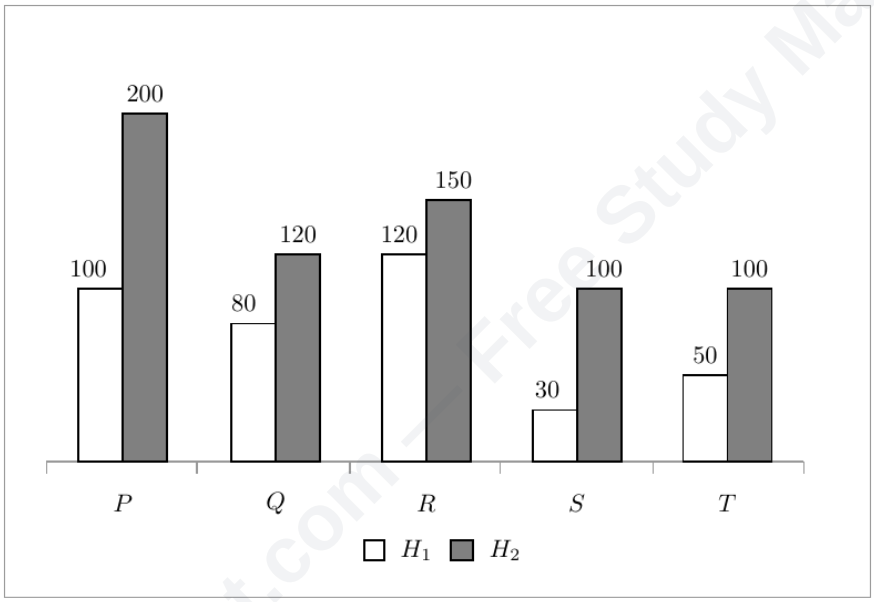
Q1. The pie chart given below shows the production of 5 mobile brands. The data is presented in the terms of percent.



What is the ratio of total production of A and B to the total production of D and E?

(a) 7 : 12
(b) 11 : 12
(c) 5 : 7
(d) 7 : 9

Q2. The bar graph given below shows the number of doctors (H1) and nurses (H2) in the given 5 hospitals.



What is the difference between number of nurses and number doctors in hospital Q ?

(a) 40
(b) 50
(c) 60
(d) 70

Q3. A and B can complete the work in 15 days and 20 days, respectively. They start together, but every 3^(rd) day, B is absent. In how many days will the work be completed?

(a) 9(6/7) days
(b) 20 days
(c) 12(2/3) days
(d) 30 days

Q4. A car travels 60 km at x km/h, 90 km at y km/h, 120 km at z km/h. If average speed = 60 km/h, x = 30 km/h, y = 45 km/h, find z.

(a) 40 km/h
(b) 140 km/h
(c) 240 km/h
(d) 340 km/h

Q5. A car travels 60 km at 30 km/h, 90 km at 45 km/h, 150 km at z km/h. If average speed = 60 km/h, find z.

(a) 100 km/h
(b) 150 km/h
(c) 200 km/h
(d) 250 km/h

Q6. A shopkeeper sells a shirt for Rs. 1200 and incurs a loss of 40%. At what price should he sell the shirt to gain 10% ?

(a) 2300
(b) 2400
(c) 2200
(d) 2500

Q7. A dealer professes to sell goods at a loss of 10% but uses a weight of 750 g instead of 1 kg. What is his real gain or loss percentage?

(a) 16.67% profit
(b) 20% profit
(c) 8% loss

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(d) 5% profit

Q8. Rs. 1250 is divided between A and B such that the amount of A to the amount of B is 12:13. What are the amounts received by A and B?

(a) Rs. 600, Rs. 650
(b) Rs. 500, Rs. 750
(c) Rs. 550, Rs. 700
(d) Rs. 450, Rs. 800

Q9. Two numbers are in the ratio 5:8, and their HCF is 6. Find the numbers.

(a) 30, 48
(b) 25, 40
(c) 20, 32
(d) 15, 24

Q10. Two candidates appeared for an examination. The marks obtained by one candidate exceeded those of the other by 75. Moreover, his score was equivalent to 80% of the combined marks of both candidates. Determine the marks obtained by each candidate.

(a) 45 and 120
(b) 55 and 130
(c) 35 and 110
(d) 25 and 100

Q11. In an election, there were only two candidates. One of the candidates secured 40% of the votes and was defeated by the other candidate by 4,65,104 votes. What is the total number of votes polled?

(a) 23,25,520
(b) 18,25,520
(c) 24,25,520
(d) 22,25,520

Q12. A sum becomes 8,400 in 3 years and 9,600 in 5 years under simple interest. Find the principal and the annual rate (in % to 3 decimal places).

(a) Principal = 6,600, Rate = 9.091%
(b) Principal = 6,300, Rate = 10.000%
(c) Principal = 7,200, Rate = 8.333%
(d) Principal = 6,400, Rate = 9.375%

Q13. A sum is divided into three parts in the ratio 2 : 3 : 5. These parts are invested for 4 years at 5% p.a., 6% p.a., and 8% p.a. simple interest respectively. If the total simple interest earned from all three investments after 4 years is 6,800, find the total sum invested.

(a) 22,500
(b) 25,000
(c) 27,500
(d) 20,000

Q14. Rohan sells a bed by giving a 65% discount on its list price. If instead, he had given only a 62% discount, the selling price would have been Rs. 6,000 more. What is the original marked price of the bed?

(a) Rs. 4,40,000
(b) Rs. 3,20,000
(c) Rs. 2,20,000
(d) Rs. 2,00,000

Q15. Manish sells a parcel of land for Rs. 2,20,000 after giving a rebate of 45% on its original listed price. What was the original valuation of the land before the rebate was applied?

(a) Rs. 3,00,000
(b) Rs. 4,40,000

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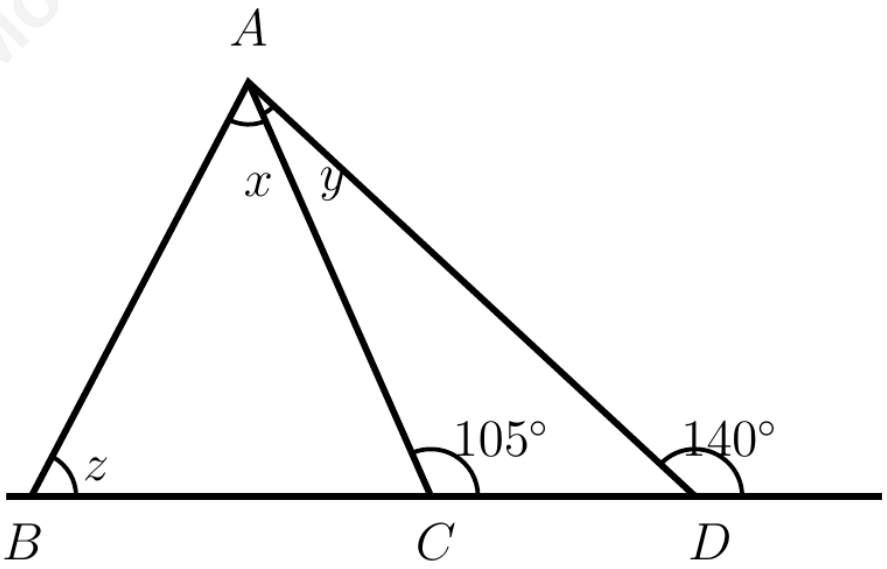
(c) Rs. 4,00,000
(d) Rs. 4,50,000

Q16. The sides of a triangle are in the ratio 3 : 4 : 5, and its perimeter is 54 cm. Find the area.
(a) 71.5 cm²
(b) 121.5 cm²
(c) 151.5 cm²
(d) 221.5 cm²

Q17. In triangle ABC, AB = 15 cm, AC = 13 cm, and angle A = 90°. Find its area.
(a) 47.5 cm²
(b) 97.5 cm²
(c) 107.5 cm²
(d) 121.5 cm²

Q18. 10 2/3 + 15 1/3 - 4 1/6 = ?
(a) 21 5/6
(b) 22 1/6
(c) 26 1/3
(d) 20 4/6

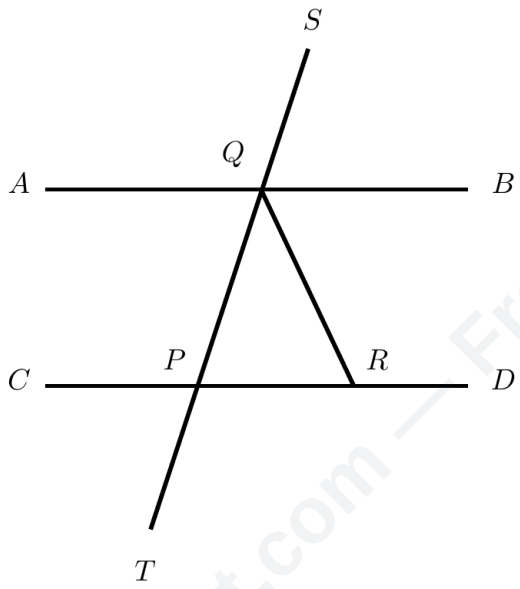
Q19. In the given figure, what is the value (in degrees) of (x + y + z) ?



(a) 135
(b) 130
(c) 140
(d) 150

Q20. In the given figure, AB is parallel to CD. PQ = QR. Angle BQS = 82 degrees. What is the value (in degrees) of angle PRQ ?

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(a) 82
(b) 98
(c) 92
(d) 102

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

264, 270, 276, 282, 288, 294, ?, 306

(a) 300
(b) 298
(c) 304
(d) 302

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

-39, -82, -168, -340, -684, ?, -2748, -5500

(a) -1371
(b) -1368
(c) -1372
(d) -1376

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

-72, -218, ?, -1970, -5912, -17738

(a) -656
(b) -653
(c) -659
(d) -658

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

M, T, A, H, ?, V, C, J

(a) L
(b) E
(c) I
(d) O

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Q25. A series is given with one term missing. Select the correct alternative from the given ones that will complete the series.

CX, GB, MG, QK, WP, ?, GY, KC

(a) AT
(b) CT
(c) BR
(d) AS

Q26. A series is given with one term missing. Select the correct alternative from the given ones that will complete the series.

PP, NL, LH, JD, HZ, ?, DR, BN

(a) GT
(b) HV
(c) FU
(d) FV

Q27. Select the option that is related to the second letter cluster in the same way as the third letter cluster is related to the fourth letter cluster and fifth letter cluster is related to sixth letter cluster.

? : VI :: DB : BY :: ZC : XX

(a) ZR
(b) WS
(c) XR
(d) XO

Q28. If the month of September 2025 started on Wednesday, then which date will be the first Monday of March 2026?

(a) 7
(b) 2
(c) 4
(d) 5

Q29. The calendar for the year 1995 will be the same as which of the following years?

(a) 2001
(b) 2007
(c) 2006
(d) 2019

Q30. 5 persons A, B, C, D and E are sitting around a circular table facing towards the centre (not necessarily in the same order). Only one person is sitting between C and D, while considering towards right of D. B is sitting second to the left of D. A is sitting to the immediate right of B. Who is sitting second to the left of E?

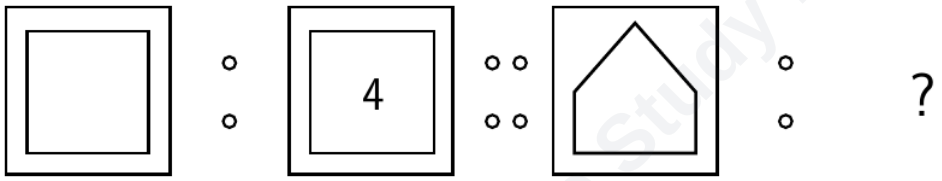
(a) A
(b) B
(c) D
(d) C

Q31. 5 persons P, B, S, V and T are sitting in a row facing north (not necessarily in the same order). V and T are not immediate neighbours. There is only one person to the right of S. P and S are immediate neighbours. No one is sitting to the left of T. P is sitting next to B. Who is sitting at the right end of the row?

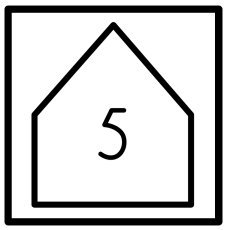
(a) S
(b) V
(c) P
(d) B

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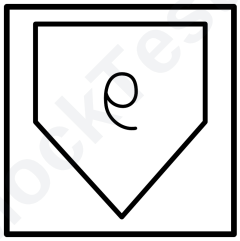
Q32. Two figures given on the left side of (::) are related with some logic/rule/relation. Select the missing figure on the right side of (::) from the given alternatives based on the same logic/rule/relation.



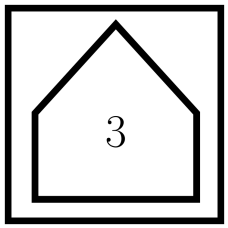
(a)



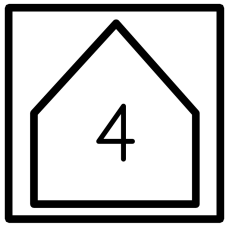
(b)



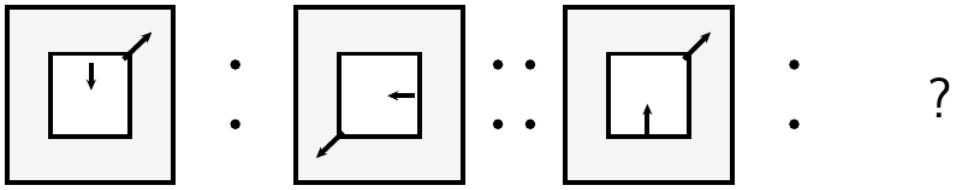
(c)



(d)

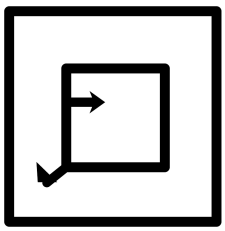


Q33. Two figures given on the left side of (::) are related with some logic/rule/relation. Select the missing figure on the right side of (::) from the given alternatives based on the same logic/rule/relation.

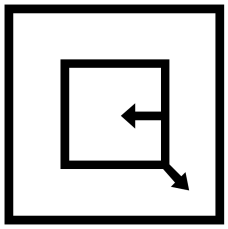


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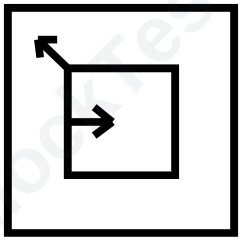
(a)



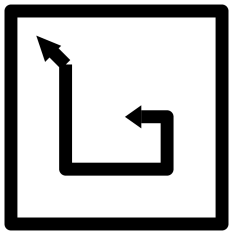
(b)



(c)



(d)



Q34. Arrange the given words in the sequence in which they occur in the dictionary.

1. Addition
2. Additive
3. Addictim
4. Addictive
5. Addict

(a) 35412
(b) 53421
(c) 35421
(d) 53412

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

1. Adoption
2. Adoptive
3. Adopter
4. Adopting
5. Adopt

(a) 35421
(b) 53421
(c) 35412

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(d) 53412

Q36. Select the option that is related to the second number in the same way as the third number is related to the fourth number and fifth number is related to sixth number.

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

? : 5694 :: 3645 : 3598 :: 2739 : 2692

(a) 5737
(b) 5747
(c) 5741
(d) 5738

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

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

4738 : 4771 :: 3927 : 3960 :: ? : 9025

(a) 8992
(b) 8994
(c) 8991
(d) 8989

Q38. In a certain code language, 'denmark and supply theory' is coded as 'pm la sa tq' and 'theory come under economy' is coded as 'ls tq sn mq'. How will 'theory' be coded in that code language?

(a) tq
(b) sa
(c) mq
(d) ls

Q39. A series is given with one term missing. Select the correct alternative from the given ones that will complete the series.

KEY50, HBV75, EYS112.5, ?, YSM253.125

(a) XPV169.80
(b) BVP168.75
(c) VPB169.75
(d) PBU168.80

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

MPL100, NRO200, ?, PVU800, QXX1600

(a) OTR400
(b) NTQ300
(c) PSR500
(d) OUS400

SESSION 2

Q41. In what form was 'Vetti' tax collected during the Chola period?

(a) Cash
(b) Gold
(c) Forced labour
(d) Grain

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Q42. Rs. 20 denomination note was introduced in which year in India?

(a) 1970
(b) 1974
(c) 1972
(d) 1976

Q43. Under the Zabt system of Mughal empire, how was tax determined?

(a) Based on land size alone
(b) Based on crop yields, prices and area cultivated
(c) Based on fixed percentage of the crop yield
(d) Based on fixed annual amount per farmer

Q44. Which of the following part of the Indian constitution deals with the Municipalities?

(a) Part – IXA
(b) Part – XIV
(c) Part - XVII
(d) Part – XII

Q45. The sun rises about _____ hour earlier in the east (Arunachal Pradesh) than in the west (Gujarat).

(a) one
(b) two
(c) three
(d) four

Q46. The longitudinal valley lying between lesser Himalaya and the Shiwaliks is known as _____.

(a) duns
(b) doabs
(c) Jabs
(d) Ranns

Q47. What is the pressure of blood of human body inside the artery during ventricular systole called?

(a) Diastolic pressure
(b) Venous pressure
(c) Systolic pressure
(d) Capillary pressure

Q48. Vanji', identified with present-day Karur in Tamil Nadu, was the capital of which dynasty?

(a) Haryanka
(b) Pallava
(c) Chera
(d) Rashtrakuta

Q49. At age of ____, Siddhārtha Gautama asked to be driven through the city in a chariot, and for the first time in his life came across an old man, a sick man, and a dead body.

(a) 42
(b) 38
(c) 33
(d) 29

Q50. Raibenshe' is a dance form of which of the following Indian state/ Union Territory?

(a) Kerala
(b) Puducherry
(c) West Bengal
(d) Maharashtra

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Q51. Theru Koothu' is a traditional night-time theatre form of which Indian state?

(a) Goa
(b) Odisha
(c) Tamil Nadu
(d) Arunachal Pradesh

Q52. Deo Deepawali celebrated at Bihar is celebrated to mark _____ nirvana.

(a) Jesus Christ's
(b) Guru Nanak's
(c) Buddha's
(d) Mahavira's

Q53. In Gujarat, the 'Rann Utsav' is held in which region?

(a) Kutch
(b) Rajkot
(c) Vadodara
(d) Gandhinagar

Q54. What happened to Bahadur Shah Zafar after the revolt of 1857 was put down by the British East India Company?

(a) He was forced to leave the kingdom.
(b) He was made a puppet ruler.
(c) He was made the emperor again.
(d) He voluntarily abdicated the throne.

Q55. Venus is the _____ brightest object in the sky.

(a) 2nd
(b) 3rd
(c) 4th
(d) 7th

Q56. In which year was the Mahalwari system of land revenue introduced by the British in India?

(a) 1765
(b) 1793
(c) 1801
(d) 1822

Q57. Sanjha', a melodious folk song usually sung by young girls in groups, is associated with which Indian state?

(a) Kerala
(b) Punjab
(c) Telangana
(d) Madhya Pradesh

Q58. The raga 'Sorathi' derives its name from the region located in _____.

(a) Punjab
(b) Tripura
(c) Gujarat
(d) Jammu and Kashmir

Q59. Why are the ceilings of concert halls, conference halls, and cinema halls generally curved?

(a) To ensure sound after reflection reaches all corners of the hall
(b) To stop sound waves
(c) To focus sound waves in one direction
(d) To absorb sound waves

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Q60. The entire northern plains of India are made of _____ soil.

(a) black
(b) laterite
(c) yellow
(d) alluvial

Q61. In the context of Balance of Payment, current account does record which of the following?

(a) Foreign institutional investment
(b) Foreign direct investment
(c) External borrowings
(d) Grants

Q62. Who is the author of the book 'Riot: A Novel'?

(a) Shashi Tharoor
(b) Samit Basu
(c) Anita Nair
(d) Shobha Rao

Q63. Who is the author of the book 'Joseph Anton: A Memoir'?

(a) Kiran Desai
(b) Chetan Bhagat
(c) Salman Rushdie
(d) Amit Chaudhuri

Q64. Which of the following best describes Chennai's architectural character?

(a) Mughal domes and minarets
(b) Rajput palaces
(c) Buddhist stupas
(d) British influence with cathedrals and tree-lined avenues

Q65. What is the other name used for Ram Setu since the colonial era?

(a) Alexander's Passage
(b) Adam's Bridge
(c) Marco's Causeway
(d) Columbus' Crossing

Q66. Which of the following idiom given in the alternatives has the meaning?
Barely in time, at the last moment?

(a) Over the schedule
(b) Under the wire
(c) Under the minute hand
(d) Over the clock

Q67. From the alternatives given below, select the correct meaning of the idiom.
A fate worse than death.

(a) A situation or experience that is very pleasant
(b) A situation or experience that is very unpleasant
(c) A situation or experience that is very new
(d) A situation or experience that is very common

Q68. Choose the correctly spelt word from the given options.

(a) Acquaintence
(b) Aquaintance
(c) Acuaintence
(d) Acquaintance

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Q69. Select the option with the correct spelling that can replace the underlined word in the given sentence. If the spelling in the given sentence is already correct, choose Option “No replacement required”.

The political imbraglio that arose over the new law left everyone confused.

(a) imbroglio
(b) imbreglio
(c) imbriglio
(d) No replacement required

Q70. Choose the word that is the closest synonym to the word "guard".

(a) Defence
(b) Attack
(c) Discard
(d) Abandon

Q71. Choose the word that is the closest synonym to the word "expectation".

(a) Surprise
(b) Disappointment
(c) Hope
(d) Memory

Q72. Choose the word that is the most appropriate synonym of the word "reliable".

(a) Trustworthy
(b) Uncertain
(c) Untrue
(d) False

Q73. Choose the word that is most opposite in meaning to "departure".

(a) Advent
(b) Exodus
(c) Exit
(d) Withdrawal

Q74. Choose the word that is the antonym of Giant.

(a) Huge
(b) Immense
(c) Enormous
(d) Tiny

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

A person who studies insects.

(a) Entomologist
(b) Zoologist
(c) Botanist
(d) Pathologist

Q76. Choose the most suitable one-word substitution for the following.

A person who studies birds.

(a) Ornithologist
(b) Zoologist
(c) Botanist
(d) Biologist

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Q77. Choose the most suitable one-word substitution for the following.

One who takes part in an activity for pleasure and not professionally.

(a) Novice
(b) Apprentice
(c) Amateur
(d) Veteran

Q78. In the given question, a sentence is divided into four parts and given in the alternatives (A), (B), (C), and (D). There is an error in one part. Choose the alternative containing that part of the sentence that has the error. Choosing the alternative with the error will be the answer.

The unprecedented decrease of direct taxes has increased the earning potential of the capitalists.

(a) The unprecedented
(b) decrease of direct taxes has
(c) increased the earning
(d) potential of the capitalists.

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

There is an irreparable problem of the ignition system of the car, which has to be addressed immediately.

(a) There is an
(b) irreparable problem
(c) of the ignition system of the car,
(d) which has to be addressed immediately.

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

The teacher pulled a book _____ the cupboard.

(a) by
(b) for
(c) out
(d) out of

Q81. Select the correct alternative to fill in the blank with the correct preposition in the following sentence.

The value of the property is not mentioned _____ the will.

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

Q82. A part of the following sentence is underlined. Choose the option which can replace the underlined part to improve the sentence. In case Options A, B and C are not found suitable, choose Option D: “No Improvement Required.”

Each of the representatives from the various states have presented their reports on healthcare reforms.

(a) have presented their report
(b) has presented their reports
(c) were presented their reports
(d) No improvement required

Q83. A part of the following sentence is underlined. Choose the option that can replace the underlined part to improve the sentence. In case Options A, B and C are not found suitable, choose Option D: “No Improvement Required.”

When scaling the Himalayas, the higher one ascends, the lesser oxygen is available.

(a) the less oxygen is available
(b) the least oxygen is available
(c) the oxygen available is lesser
(d) No improvement required

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

S1. Groholsky was still living in the same villa.

A. The poor fellow really did feel awfully happy.

B. Liza sat as before on the veranda, and unaccountably stared with bored eyes at the villa opposite and the trees near it through which there was a peep at the dark blue sea...

C. His hopes and desires, small and unexacting, were still concentrated on the same Liza, on her alone, and on nothing else!

D. As before, he could not take his eyes off her, and gloated over the thought: how happy I am!

S2. As before, she spent her days for the most part in silence, often in tears and from time to time in putting mustard plasters on Groholsky.

(a) DCAB
(b) ADBC
(c) BCDA
(d) CDAB

Q85. Given below are six sentences taken from a paragraph. The first and the last sentences are numbered $1 and S2 and are placed in the first and last positions respectively. The other four sentences between the first and last sentences are jumbled up and are numbered A, B, C, and D. Rearrange the jumbled sentences in a logical sequence keeping the unity and coherence of the paragraph intact. Choose the correct alternative that best describes the sequence.

S1. There was a woman on the station platform. A tall scrag of a woman wearing a little round hat with a brown feather that dropped in a draggled fringe over her eyes.

A. The toss and tumble, the hurrying threading rush of movement left her high and dry.

B. Brown button boots showed under the skirt and an end of white petticoat dabbled with mud.

C. Round her neck some indescribable little dead animal bit its own tail, its fur standing up wet and sticky like the fur of a drowned kitten.

D. She was dressed in a brown jacket and a narrow brown skirt and in her bare hands she clutched a broken down-looking leather bag-the outside pockets bulging with what looked like old torn-up envelopes.

S2. She stood as though she were part of the furniture of the station and had been there for years-an old automatic machine that nobody dreamed of slipping a coin into or even troubled to glance at to find out what once it contained-whether a drop of white rose perfume or a cachet or deux cigarettes a la reine d'Egypte.

(a) BDCA
(b) DCBA
(c) CABD
(d) ADCB

Directions

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

The Choice-Based Credit System (CBCS) is a dynamic framework revolutionizing the landscape of higher education in India. Inspired by international educational models, CBCS empowers students with the autonomy to shape their academic journey according to their interests and aspirations. Unlike traditional education structures, CBCS offers a diverse array of courses, including interdisciplinary and skill-based ones, alongside core subjects. This system not only enhances the quality of education but also fosters holistic development by providing students with flexibility and customization options. As the Indian education system undergoes significant reforms under the New Education Policy (NEP), CBCS emerges as a pivotal tool recommended by the UGC to align with global standards

Q86. How does the Choice-Based Credit System (CBCS) differ from the traditional higher education system?

(a) It allows students to pick courses based on their career goals.
(b) It requires students to follow a fixed curriculum with no flexibility.
(c) It limits students to a single discipline and discourages skill development.

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(d) It focuses solely on memorization and theoretical knowledge.

Q87. What factors contribute to the recognition of the Choice Based Credit System (CBCS) as a significant reform in Indian higher education?

(a) It mandates uniform subject selection and does not allow learners to choose subjects based on their interests

(b) It integrates core subjects with skill-based courses for the holistic development of the students

(c) It limits students to traditional academic disciplines and inhibits opportunities for innovation

(d) It overlooks international standards and concentrates solely on indigenous educational practices

Q88. How does CBCS fit into the vision of the New Education Policy (NEP)?

(a) It goes against NEP by sticking to rigid subject structures and limiting student choice

(b) It ignores NEP recommendations and continues with outdated, one-size-fits-all curricula and discourages learners from thinking out of the box

(c) It slows down NEP implementation by resisting reforms and discouraging skill-based education for the learners

(d) It supports NEP reforms by encouraging flexibility, interdisciplinary learning, and global alignment in higher education

Q89. Why is CBCS considered a step toward global academic standards?

(a) It separates Indian education from international standards and practices.

(b) It keeps only traditional subjects and does not focus on skill development, which makes education less competitive worldwide. This means students do not learn the skills needed for the future.

(c) It does not accept reforms and uses old teaching methods that do not meet global standards. Because of this, students lose the chance to develop creative thinking skills.

(d) It follows global models by giving students flexibility, interdisciplinary choices, and a credit-based system.

Q90. Which educational philosophy influenced the adoption of CBCS in India?

(a) Traditional Indian models emphasizing rote learning

(b) Government schemes focused solely on vocational training

(c) International frameworks advocating flexibility and learner autonomy

(d) Systems designed to reduce academic diversity and specialization

ANSWER KEY

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

SOLUTIONS

Q1. Answer: (a) 7 : 12

Given:

Mobile Brand	Production (%)
A	15%
B	20%
C	5%

D	35%
E	25%
Total	100%

Formula Used:

Required Ratio = (Production of A + Production of B) : (Production of D + Production of E)

Calculation:

According to the pie chart,

=> Total production of A and B = 15% + 20% = 35%

=> Total production of D and E = 35% + 25% = 60%

=> Required Ratio = 35 : 60

=> Dividing both terms by their common factor (5):

=> Ratio = (35 ÷ 5) : (60 ÷ 5)

=> Ratio = 7 : 12

Therefore The correct answer is 7 : 12.

Q2. Answer: (a) 40

Given:

Hospital	Doctors (H1)	Nurses (H2)
P	450	420
Q	460	500
R	400	480
S	340	440
T	410	520

The dark blue bars represent the number of doctors (H1) and the light blue bars represent the number of nurses (H2) in hospitals P, Q, R, S, and T.

Formula Used:

Difference = Number of Nurses in Q − Number of Doctors in Q

Calculation:

From the given data for hospital Q:

=> Number of doctors in hospital Q (H1) = 460

=> Number of nurses in hospital Q (H2) = 500

The difference between the number of nurses and doctors in hospital Q is:

=> Difference = 500 − 460

=> Difference = 40

Therefore The correct answer is 40.

Q3. Answer: (a) 9(6/7) days

Shortcut Trick

Total Work = LCM(15, 20) = 60 units. Efficiency of A = 4, B = 3.

Work cycle (3 days): Day 1 (A+B) + Day 2 (A+B) + Day 3 (A) = 7 + 7 + 4 = 18 units.

In 3 cycles (9 days): 18 × 3 = 54 units. Remaining work = 60 − 54 = 6 units.

Time for remaining 6 units (Day 10, A+B working): 6 ÷ 7 days.

Total time = 9 + 6/7 = 9(6/7) days.

Therefore The correct answer is 9(6/7) days.

Alternate Method

Given: A completes work in 15 days, B in 20 days. B is absent every 3^(rd) day.

Formula Used: Total Work = Efficiency × Time

Person	Days	Total Work	Efficiency

A	15	60	4
B	20	3	

=> Efficiency of (A + B) = 4 + 3 = 7 units/day

=> Day 1 Work = 7 units

=> Day 2 Work = 7 units

=> Day 3 Work (A alone) = 4 units

=> Total work in 1 cycle (3 days) = 7 + 7 + 4 = 18 units

=> Total work in 3 cycles (9 days) = 18 × 3 = 54 units

=> Remaining work = 60 − 54 = 6 units

=> Efficiency on Day 10 (A + B) = 7 units/day

=> Time taken for remaining work = 6 ÷ 7 days

=> Total time = 9 + 6/7 = 9(6/7) days

Therefore The correct answer is 9(6/7) days.

Additional Information

LCM Method in Time & Work

Taking the LCM of individual days as Total Work simplifies efficiency calculations to whole numbers. Efficiency = Total Work ÷ Individual Days.

Cyclic or Alternate Work

When workers work on rotation, calculate the total work done in one complete cycle (e.g., 2 days or 3 days) and then find the number of full cycles that fit into the total work.

Efficiency and Time Relationship

Efficiency is inversely proportional to the time taken to complete the work. If the ratio of time taken is x:y, the ratio of efficiency is y:x.

Q4. Answer: (c) 240 km/h

Shortcut Trick

Average Speed = Total Distance ÷ Total Time

Total Distance = 60 + 90 + 120 = 270 km

Total Time = 270 ÷ 60 = 4.5 hours

Time taken for first two parts = (60 ÷ 30) + (90 ÷ 45) = 2 + 2 = 4 hours

Remaining time for z = 4.5 − 4 = 0.5 hours => z = 120 ÷ 0.5 = 240 km/h

Therefore The correct answer is 240 km/h.

Alternate Method

Given:

Distance1 (d1) = 60 km, Speed1 (x) = 30 km/h

Distance2 (d2) = 90 km, Speed2 (y) = 45 km/h

Distance3 (d3) = 120 km, Speed3 (z) = ?

Average Speed (V_(avg)) = 60 km/h

Formula Used:

Time = Distance ÷ Speed

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

Calculations:

=> Total Distance = 60 + 90 + 120 = 270 km

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

=> T = 270 ÷ 60 = 4.5 hours

=> Time for 1st segment (t1) = 60 ÷ 30 = 2 hours

=> Time for 2nd segment (t2) = 90 ÷ 45 = 2 hours

=> Time for 3rd segment (t3) = T − (t1 + t2)

=> t3 = 4.5 − (2 + 2) = 4.5 − 4 = 0.5 hours

=> Speed z = Distance3 ÷ t3

=> z = 120 ÷ 0.5 = 240 km/h

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Therefore The correct answer is 240 km/h.

Additional Information

Average Speed for Equal Distances

If two equal distances are covered at speeds u and v, then Average Speed = 2uv ÷ (u + v).

Conversion of Speed Units

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

Relative Speed

If two bodies move at speeds u and v, relative speed is (u + v) in opposite directions and (u − v) in the same direction.

Q5. Answer: (b) 150 km/h

Shortcut Trick

Total distance = 60 + 90 + 150 = 300 km.

Total time required for 60 km/h average speed = 300 ÷ 60 = 5 hours.

Time consumed for first two parts = (60 ÷ 30) + (90 ÷ 45) = 2 + 2 = 4 hours.

Remaining time for third part = 5 − 4 = 1 hour.

Speed z = 150 km ÷ 1 hour = 150 km/h.

Therefore The correct answer is 150 km/h.

Alternate Method

Given:

d1 = 60 km, s1 = 30 km/h

d2 = 90 km, s2 = 45 km/h

d3 = 150 km, s3 = z km/h

Average Speed = 60 km/h

Formula Used:

Average Speed = Total Distance ÷ Total Time

Time = Distance ÷ Speed

=> Total Distance = 60 + 90 + 150 = 300 km

=> Time for first part (t1) = 60 ÷ 30 = 2 hours

=> Time for second part (t2) = 90 ÷ 45 = 2 hours

=> Time for third part (t3) = 150 ÷ z hours

=> Total Time = 2 + 2 + 150/z = 4 + 150/z

=> Average Speed = Total Distance ÷ Total Time

=> 60 = 300 ÷ (4 + 150/z)

=> 4 + 150/z = 300 ÷ 60

=> 4 + 150/z = 5

=> 150/z = 5 − 4

=> 150/z = 1

=> z = 150 km/h

Therefore The correct answer is 150 km/h.

Additional Information

Average Speed (Equal Distance)

If a journey is divided into two equal distances traveled at speeds x and y, Average Speed = 2xy ÷ (x + y).

Average Speed (Equal Time)

If an object travels at speed x for time t and speed y for the same time t, Average Speed = (x + y) ÷ 2.

Unit Conversion

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

Q6. Answer: (c) 2200

Shortcut Trick

Selling Price (SP1) = 100% − 40% loss = 60% of Cost Price (CP).

Required Selling Price (SP2) = 100% + 10% gain = 110% of CP.

Given: 60% → Rs. 1200.

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So, 1% → 1200 ÷ 60 = Rs. 20.
Therefore, 110% → 110 × 20 = Rs. 2200.
Therefore The correct answer is Rs. 2200.
Alternate Method
Given:
Initial Selling Price (SP1) = Rs. 1200
Loss Percentage = 40%
Target Gain Percentage = 10%
Formula Used:
Cost Price (CP) = SP × [100 ÷ (100 − Loss%)]
New SP = CP × [(100 + Gain%) ÷ 100]
Calculations:
=> CP = 1200 × [100 ÷ (100 − 40)]
=> CP = 1200 × [100 ÷ 60]
=> CP = 20 × 100 = Rs. 2000
=> New SP = 2000 × [(100 + 10) ÷ 100]
=> New SP = 2000 × [110 ÷ 100]
=> New SP = 20 × 110 = Rs. 2200
Therefore The correct answer is Rs. 2200.
Additional Information
Marked Price and Discount
Marked Price (MP) is the tag price. Selling Price = MP − Discount. Discount % = (Discount ÷ MP) × 100.
Profit and Loss Percentage
Profit % = (Profit ÷ CP) × 100 and Loss % = (Loss ÷ CP) × 100. Both are always calculated on CP unless stated otherwise.
Successive Discounts
If two discounts d1% and d2% are given, effective discount = [d1 + d2 − (d1 × d2)/100]%.

Q7. Answer: (b) 20% profit

Shortcut Trick
Use the effective ratio method: Price Ratio × Weight Ratio = Final Ratio
Professed Price (10% loss) → 100 : 90 => 10 : 9
Weight Deception (750g instead of 1000g) → 750 : 1000 => 3 : 4
Overall Ratio (CP : SP) → (10 × 3) : (9 × 4) => 30 : 36 => 5 : 6
Profit % = (Difference / CP) × 100 = (1 / 5) × 100 = 20% profit.
Therefore The correct answer is 20% profit.
Alternate Method
Given:
True weight = 1000 g
False weight used = 750 g
Professed loss percentage = 10%
Formula Used:
Actual CP = Cost of the weight actually given to the customer.
Actual SP = Price at which the customer buys the professed quantity.
Gain % = [(SP − CP) / CP] × 100
Let the cost price (CP) of 1000 g be Rs. 1000.
=> Professed selling price (SP) = 1000 − (10% of 1000)
=> Professed SP = 1000 − 100 = Rs. 900
=> Dealer uses a weight of 750 g instead of 1000 g.
=> Actual CP of the goods delivered = Rs. 750
=> Actual Profit = Actual SP − Actual CP = 900 − 750 = Rs. 150
=> Real Gain % = (150 / 750) × 100
=> Real Gain % = (1 / 5) × 100 = 20%

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Therefore The correct answer is 20% profit.

Additional Information

Dishonest Dealer Weight Gain

If a dealer sells at CP but uses false weight, Gain % = [Error / (True Weight − Error)] × 100.

Combined Profit/Loss Ratio

Net Ratio = (100 + Gain1% / 100) × (True Weight / False Weight). If loss, use (100 − Loss%).

Successive Percentage Change

Total Change = [x + y + (xy / 100)]% where x and y are individual percentage changes.

Q8. Answer: (a) Rs. 600, Rs. 650

Shortcut Trick

Total ratio parts = 12 + 13 = 25 units.

Given total amount: 25 units = Rs. 1250.

Value of 1 unit = 1250 ÷ 25 = 50.

A's share = 12 × 50 = Rs. 600.

B's share = 13 × 50 = Rs. 650.

Therefore The correct answer is Rs. 600, Rs. 650.

Alternate Method

Given: Total Amount = Rs. 1250, Ratio A : B = 12 : 13

Formula: Share of A = Total × [A's ratio ÷ (A's ratio + B's ratio)]

=> Total ratio = 12 + 13 = 25

=> Amount received by A = (12 ÷ 25) × 1250

=> Amount received by A = 12 × 50 = Rs. 600

=> Amount received by B = (13 ÷ 25) × 1250

=> Amount received by B = 13 × 50 = Rs. 650

Therefore The correct answer is Rs. 600, Rs. 650.

Additional Information

Ratio Distribution Rule

To divide a quantity S in the ratio a:b, the shares are S × a/(a+b) and S × b/(a+b) respectively.

Mean Proportional

The mean proportional between two numbers a and b is given by √(a × b).

Duplicate and Sub-duplicate Ratio

The duplicate ratio of a:b is $a^2:b^2$ and the sub-duplicate ratio is √a:√b.

Q9. Answer: (a) 30, 48

Shortcut Trick

Numbers in ratio = 5 : 8

HCF of numbers = 6

Numbers = Ratio parts × HCF

Required numbers = (5 × 6) and (8 × 6)

Required numbers = 30 and 48

Therefore The correct answer is 30, 48.

Alternate Method

Given:

Ratio of two numbers = 5 : 8

Highest Common Factor (HCF) = 6

Formula Used:

If two numbers are in the ratio a : b and their HCF is x, then the numbers are ax and bx.

Calculations:

=> Let the two numbers be 5x and 8x.

=> Since 5 and 8 are co-prime (their common factor is 1), the HCF of 5x and 8x is x.

=> Given that HCF = 6.

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=> Therefore x = 6

=> First number = 5x = 5 × 6 = 30

=> Second number = 8x = 8 × 6 = 48

Therefore The correct answer is 30, 48.

Additional Information

HCF and Ratio Property

When numbers are expressed in their simplest ratio a : b, the factor that was divided out is their HCF. Thus, Numbers = HCF × a and HCF × b.

LCM from HCF and Ratio

The Least Common Multiple (LCM) of two numbers in ratio a : b with HCF 'H' is given by LCM = H × a × b.

HCF × LCM Relation

For any two numbers, the product of the numbers is always equal to the product of their HCF and LCM. (n1 × n2 = HCF × LCM).

Q10. Answer: (d) 25 and 100

Shortcut Trick

Ratio of Candidate A marks to Total marks = 80% = 4 : 5

Candidate B marks = Total − Candidate A = 5 − 4 = 1 unit

Difference in marks = 4 − 1 = 3 units

Given 3 units = 75 => 1 unit = 25

Marks = 4 × 25 and 1 × 25 = 100 and 25

Therefore The correct answer is 25 and 100.

Alternate Method

Given:

Difference between marks = 75

Candidate A marks = 80% of (A + B)

Formula:

Percentage Value = (Part / Total) × 100

Calculations:

=> Let total marks of both candidates be x.

=> Marks of Candidate A = 80% of x = 0.8x

=> Marks of Candidate B = x − 0.8x = 0.2x

=> Difference = 0.8x − 0.2x = 75

=> 0.6x = 75

=> x = 75 ÷ 0.6 = 125

=> Marks of Candidate A = 0.8 × 125 = 100

=> Marks of Candidate B = 0.2 × 125 = 25

Therefore The correct answer is 25 and 100.

Additional Information

Percentage to Ratio Conversion

To simplify calculations, convert percentages to fractions (e.g., 80% = 4/5, 20% = 1/5, 60% = 3/5).

Total Sum Concept

When one part is given as a percentage of the total, the other part is (100 − given percentage) of that same total.

Base Value Identification

Always identify whether the percentage is calculated on the total or on another individual value to avoid calculation errors.

Q11. Answer: (a) 23,25,520

Shortcut Trick

Winner secured 100% − 40% = 60% of votes.

Victory margin = 60% − 40% = 20%.

20% of total votes = 4,65,104.

100% of total votes = 4,65,104 × 5 = 23,25,520.

Therefore The correct answer is 23,25,520.

Alternate Method

Given:

Percentage of votes secured by the defeated candidate = 40%

Margin of defeat = 4,65,104 votes

Formula Used:

Total Votes = (Vote Difference ÷ Percentage Difference) × 100

Calculations:

=> Let the total number of votes polled be x.

=> Votes of the defeated candidate = 40% of x = 0.40x

=> Votes of the winning candidate = (100 − 40)% of x = 60% of x = 0.60x

=> Difference in votes = 0.60x − 0.40x = 0.20x

=> 0.20x = 4,65,104

=> x = 4,65,104 ÷ 0.20

=> x = 4,65,104 × 5

=> x = 23,25,520

Therefore The correct answer is 23,25,520.

Additional Information

Winning Margin

The winning margin is the difference between the votes obtained by the winner and the runner-up. Margin = Winner's Votes − Runner-up's Votes.

Invalid Votes

If invalid votes are present, the calculation for the winner/loser is usually based on the Valid Votes. Total Votes = Valid Votes + Invalid Votes.

Percentage Change Rule

To find the total from a percentage part: Total = (Part Value ÷ Percentage of Part) × 100.

Q12. Answer: (a) Principal = 6,600, Rate = 9.091%

Shortcut Trick

SI for 2 years (5 − 3) = Rs. 9,600 − Rs. 8,400 = Rs. 1,200

SI for 1 year = Rs. 1,200 ÷ 2 = Rs. 600

Principal (P) = Rs. 8,400 − (3 × Rs. 600) = Rs. 6,600

Rate (R) = (600 ÷ 6,600) × 100 = 100 ÷ 11 ≈ 9.091%

Therefore The correct answer is Principal = Rs. 6,600, Rate = 9.091%.

Alternate Method

Given:

Amount after 3 years (A3) = Rs. 8,400

Amount after 5 years (A5) = Rs. 9,600

Formula Used:

Amount (A) = P + SI; SI = (P × R × T) ÷ 100

=> SI for 2 years = A5 − A3 = 9,600 − 8,400 = Rs. 1,200

=> SI for 1 year = 1,200 ÷ 2 = Rs. 600

=> Principal (P) = A3 − SI for 3 years

=> P = 8,400 − (3 × 600) = 8,400 − 1,800 = Rs. 6,600

=> Rate (R) = (SI for 1 year × 100) ÷ (P × 1)

=> R = (600 × 100) ÷ (6,600 × 1)

=> R = 100 ÷ 11 ≈ 9.090909...

=> R = 9.091% (rounded to 3 decimal places)

Therefore The correct answer is Principal = Rs. 6,600, Rate = 9.091%.

Additional Information

Simple Interest Nature

Simple Interest remains constant for every year as it is always calculated on the original Principal amount.

Rate of Interest Formula

Rate R = (SI × 100) ÷ (P × T). To find the annual rate, T is taken as the time period corresponding to the SI used.
Difference between SI and CI
For the first year, SI and CI (compounded annually) are equal. For 2 years, Difference = $P(R/100)^2$.

Q13. Answer: (b) 25,000

Shortcut Trick
Ratio of parts = 2 : 3 : 5 (Total parts = 10 units)
Total Interest % = (2 × 5% × 4) + (3 × 6% × 4) + (5 × 8% × 4) = 40% + 72% + 160% = 272% of 1 unit
2.72 units = 6,800
1 unit = 6,800 ÷ 2.72 = 2,500
Total Sum (10 units) = 10 × 2,500 = 25,000
Therefore The correct answer is Rs. 25,000.
Alternate Method
Given:
Ratio of three parts = 2 : 3 : 5
Time period (T) = 4 years for all parts
Rates (R) = 5%, 6%, and 8% p.a.
Total SI = Rs. 6,800
Formula Used:
Simple Interest (SI) = (P × R × T) ÷ 100
Let the three parts be 2x, 3x, and 5x respectively.
=> Total Sum = 2x + 3x + 5x = 10x
=> SI1 = (2x × 5 × 4) ÷ 100 = 40x ÷ 100 = 0.4x
=> SI2 = (3x × 6 × 4) ÷ 100 = 72x ÷ 100 = 0.72x
=> SI3 = (5x × 8 × 4) ÷ 100 = 160x ÷ 100 = 1.6x
=> Total SI = 0.4x + 0.72x + 1.6x = 6,800
=> 2.72x = 6,800
=> x = 6,800 ÷ 2.72
=> x = 2,500
=> Total Sum = 10 × 2,500 = 25,000
Therefore The correct answer is Rs. 25,000.
Additional Information
Effective Rate of Interest
Effective rate for Simple Interest is calculated as R_(eff) = (P1R1T1 + P2R2T2 + ...) ÷ (P1 + P2 + ...).
SI vs CI Difference
The difference between Compound Interest and Simple Interest for 2 years is $P \times (R/100)^2$.
Amount in Simple Interest
Total Amount (A) = Principal (P) + Simple Interest (SI) = P × [1 + (R × T) ÷ 100].

Q14. Answer: (d) Rs. 2,00,000

Shortcut Trick
The difference in discount percentages reflects the difference in selling prices.
Difference in discount % = 65% − 62% = 3%
This 3% of Marked Price corresponds to the increase in Selling Price = Rs. 6,000
=> 3% of Marked Price = Rs. 6,000
=> Marked Price = (6,000 ÷ 3) × 100 = Rs. 2,00,000
Therefore The correct answer is Rs. 2,00,000.
Alternate Method
Given:
Discount 1 = 65%
Discount 2 = 62%
Difference in Selling Price = Rs. 6,000

Formula Used:
Selling Price (SP) = Marked Price (MP) × (100 − Discount%)/100
Calculations:
Let the Marked Price of the bed be Rs. x.
=> Selling Price in first case (SP1) = x × (100 − 65)/100 = 0.35x
=> Selling Price in second case (SP2) = x × (100 − 62)/100 = 0.38x
According to the question, the difference in selling prices is Rs. 6,000:
=> SP2 − SP1 = 6,000
=> 0.38x − 0.35x = 6,000
=> 0.03x = 6,000
=> x = 6,000 ÷ 0.03
=> x = 6,00,000 ÷ 3
=> x = 2,00,000
Therefore The correct answer is Rs. 2,00,000.
Additional Information
Relationship between MP and Discount
Marked Price is the price listed on the product. Discount is always calculated on the Marked Price. Discount = MP − SP.
Successive Discounts
If two successive discounts of a% and b% are given, the equivalent single discount is given by (a + b − (a × b)/100)%.
Discount Percentage Formula
Discount % = (Discount ÷ MP) × 100. This is used to find the rate of reduction offered on the list price.

Q15. Answer: (c) Rs. 4,00,000

Shortcut Trick
Rebate 45% = 9/20 in fraction → Original = 20 units, Rebate = 9 units
Selling Price = 20 − 9 = 11 units
11 units = Rs. 2,20,000 => 1 unit = Rs. 20,000
Original Valuation = 20 units × Rs. 20,000 = Rs. 4,00,000
Therefore The correct answer is Rs. 4,00,000.
Alternate Method
Given:
Selling Price (SP) = Rs. 2,20,000
Rebate (Discount) = 45%
Formula Used:
Original Valuation = [Selling Price ÷ (100 − Rebate %)] × 100
Calculations:
=> Percentage of original price paid = 100% − 45% = 55%
=> Let Original Valuation be P.
=> 55% of P = Rs. 2,20,000
=> (55 ÷ 100) × P = 2,20,000
=> P = (2,20,000 × 100) ÷ 55
=> P = 4,000 × 100
=> P = Rs. 4,00,000
Therefore The correct answer is Rs. 4,00,000.
Additional Information
Marked Price and Selling Price
Marked Price (MP) is the listed price. After a discount (d%), Selling Price (SP) = MP × (100 − d) ÷ 100.
Successive Rebates
If two successive rebates of a% and b% are given, the single equivalent rebate = (a + b − (a × b) ÷ 100)%.
Percentage Change
To find the original value after a percentage decrease, use: Original = Final Value ÷ (1 − Decrease Rate).

Q16. Answer: (b) 121.5 cm²

Shortcut Trick

Ratio of sides 3 : 4 : 5 represents a right-angled triangle.

Sum of ratio parts = 3 + 4 + 5 = 12 parts → 54 cm.

Scaling factor = 54 ÷ 12 = 4.5 cm.

Area = 1/2 × (3 × 4.5) × (4 × 4.5) = 6 × (4.5)² = 121.5 cm².

Therefore The correct answer is 121.5 cm².

Alternate Method

Given: Ratio = 3 : 4 : 5, Perimeter = 54 cm.

Formula: Area of right triangle = 1/2 × base × height.

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

=> 3x + 4x + 5x = 54

=> 12x = 54

=> x = 54 ÷ 12 = 4.5

=> Side 1 (Height) = 3 × 4.5 = 13.5 cm

=> Side 2 (Base) = 4 × 4.5 = 18 cm

=> Side 3 (Hypotenuse) = 5 × 4.5 = 22.5 cm

=> Area = 1/2 × 13.5 × 18

=> Area = 13.5 × 9 = 121.5 cm²

Therefore The correct answer is 121.5 cm².

Additional Information

Pythagorean Triplets

A set of three positive integers a, b, c such that $a^2 + b^2 = c^2$. Common triplets include (3,4,5), (5,12,13), and (8,15,17).

Heron's Formula

For any triangle with sides a, b, c, Area = √[s(s−a)(s−b)(s−c)], where s is the semi-perimeter (a+b+c)/2.

Scaling Property of Area

If the sides of a triangle are multiplied by a factor k, the perimeter increases by factor k, while the area increases by factor k^2.

Q17. Answer: (b) 97.5 cm²

Shortcut Trick

For a right-angled triangle, the two sides containing the 90° angle act as the base and height.

Area = 1/2 × Product of legs

Area = 1/2 × 15 × 13

Area = 195 ÷ 2 = 97.5 cm².

Therefore The correct answer is 97.5 cm².

Alternate Method

Given: AB = 15 cm, AC = 13 cm, and angle A = 90°.

Formula: Area of a triangle = 1/2 × Base × Height

=> In ΔABC, angle A = 90°

=> Base (AB) = 15 cm

=> Height (AC) = 13 cm

=> Area = 1/2 × AB × AC

=> Area = 1/2 × 15 × 13

=> Area = 1/2 × 195

=> Area = 97.5 cm²

Therefore The correct answer is 97.5 cm².

Additional Information

Pythagoras Theorem

In a right-angled triangle, the square of the hypotenuse is equal to the sum of the squares of the other two sides: $BC^2 = AB^2 + AC^2$.

Heron's Formula

For a triangle with sides a, b, and c, Area = √[s(s−a)(s−b)(s−c)], where s is the semi-perimeter (a+b+c)/2.

Circumradius of Right Triangle

The radius of the circumcircle of a right-angled triangle is exactly half of its hypotenuse: R = Hypotenuse ÷ 2.

Q18. Answer: (a) 21 5/6

Shortcut Trick

Combine whole numbers: 10 + 15 − 4 = 21

Combine fractions: 2/3 + 1/3 − 1/6

=> 1 − 1/6 = 5/6

Total = 21 + 5/6 = 21 5/6

Therefore The correct answer is 21 5/6.

Alternate Method

Given: 10 2/3 + 15 1/3 − 4 1/6

Method: Convert mixed fractions to improper fractions and solve using LCM.

=> (32/3) + (46/3) − (25/6)

=> (32 × 2 / 6) + (46 × 2 / 6) − (25/6)

=> (64/6) + (92/6) − (25/6)

=> (64 + 92 − 25) / 6

=> 131 / 6

=> 21 5/6

Therefore The correct answer is 21 5/6.

Additional Information

Mixed Fraction Conversion

A b/c is converted to improper fraction as (A × c + b) / c.

LCM Method

To add or subtract fractions with different denominators, find the Least Common Multiple of the denominators to make them like fractions.

BODMAS in Fractions

Perform operations in the order of Brackets, Orders, Division, Multiplication, Addition, and Subtraction.

Q19. Answer: (c) 140

Shortcut Trick

In a concave quadrilateral (arrowhead or boomerang shape), the angle at the interior concave vertex is equal to the sum of the three interior opposite angles.

Property: Interior Angle at the dent = x + y + z

From the figure, the angle at the concave vertex is given as 140°.

Therefore x + y + z = 140°

Therefore The correct answer is 140°.

Alternate Method

Given:

A concave quadrilateral with interior angles x, y, and z at three vertices.

The interior angle at the concave vertex is labeled as 140°.

Formula:

Exterior Angle Theorem: The exterior angle of a triangle is equal to the sum of the two opposite interior angles.

Calculations:

=> Let the vertices be A, B, C, and D as shown in the diagram.

=> Extend the line segment BC to intersect the side AD at a point P.

=> In ΔABP, angle APC is an exterior angle to the triangle.

=> angle APC = angle BAP + angle ABP = x + y

=> In ΔPCD, the angle 140° (at vertex C) is an exterior angle to the triangle.

=> 140° = angle APC + angle PDC

=> 140° = (x + y) + z

=> x + y + z = 140°

Therefore The correct answer is 140°.

Additional Information

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Concave Quadrilateral Property

In any concave quadrilateral, the interior reflex angle is equal to 360° − (sum of three opposite interior angles).

Exterior Angle Theorem

The measure of an exterior angle of a triangle is equal to the sum of the measures of its two remote interior angles.

Sum of Angles in a Polygon

The sum of interior angles of any n-sided polygon is (n − 2) × 180°. For a quadrilateral (n=4), the sum is always 360°.

Q20. Answer: (a) 82

Shortcut Trick

Since AB is parallel to CD, the transversal line QR creates equal alternate interior angles.

The given angle angle BQS is an exterior angle that corresponds to the alternate interior angle at R.

By the property of parallel lines, angle PRQ = angle BQS = 82°.

The condition PQ = QR defines the triangle shape but the parallel line property directly provides the answer.

Therefore The correct answer is 82°.

Alternate Method

Given:

Line AB || Line CD

PQ = QR

angle BQS = 82°

Formula used:

For parallel lines intersected by a transversal, alternate interior angles are equal.

Calculations:

=> Given that AB || CD and QR is a transversal line.

=> angle BQS is given as 82°.

=> When two parallel lines are cut by a transversal, the alternate interior angles are equal.

=> In the geometric configuration, angle BQS and angle PRQ (where R is on CD and Q is on AB) act as alternate interior angles.

=> Therefore, angle PRQ = angle BQS

=> angle PRQ = 82°

Therefore The correct answer is 82°.

Additional Information

Parallel Line Angles

When a transversal intersects two parallel lines, alternate interior angles are equal, corresponding angles are equal, and co-interior angles sum to 180°.

Isosceles Triangle Property

In a triangle where two sides are equal (PQ = QR), the angles opposite to those sides are also equal (angle QPR = angle QRP).

Vertically Opposite Angles

Angles formed opposite each other when two lines intersect are always equal.

Q21. Answer: (a) 300

The logic followed here is:

thus, "300" will replace the question mark in the given series.

Hence, the correct option is "Option 1".

Q22. Answer: (c) -1372

The logic followed here is:

thus, "-1372" will replace the question mark in the given series.

Hence, the correct option is "Option 3".

Q23. Answer: (a) -656

The logic followed here is:

thus, "-656" will replace the question mark in the given series.

Hence, the correct option is "Option 1".

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Q24. Answer: (d) O

The logic followed here is:

So, the missing term = O

Hence, the correct answer is Option 4.

Q25. Answer: (a) AT

The logic followed here is:

So, the missing term = AT

Hence, the correct answer is Option 1.

Q26. Answer: (d) FV

The logic followed here is:

So, the missing term = FV

Hence, the correct answer is Option 4.

Q27. Answer: (c) XR

The logic followed here is:

For, DB : BY

For, ZC : XX

Now, ? : VI

So, XR → VI

Hence, the correct answer is Option 3.

Q28. Answer: (a) 7

Given: September 1, 2025 is Wednesday.

Month	Odd Days
September	2
October	3
November	2
December	3
January	3
February	0

Total odd days = 2 + 3 + 2 + 3 + 3 + 0 = 13

13 ÷ 7 = 6 odd days

So, March 1, 2026 = Wednesday + 6 days = Tuesday

Now, find the first Monday of March 2026:

March 1 = Tuesday

Date	Day
1	Tuesday
2	Wednesday
3	Thursday
4	Friday
5	Saturday
6	Sunday
7	Monday

Therefore, the first Monday of March 2026 is 7.

Hence, the correct answer is Option 1.

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Q29. Answer: (c) 2006

Given: We need to find the year which has the same calendar as 1995.

Now, condition for identical calendars:

Both years must be of the same type (both leap or both ordinary) and the total odd days between them must be a multiple of 7.

1995 is an ordinary year.

Year	Odd Days
1995	1
1996	2
1997	1
1998	1
1999	1
2000	2
2001	1
2002	1
2003	1
2004	2
2005	1

Total odd days = 14

14 ÷ 7 = 0 remainder

So, calendar repeats after 2005, meaning 2006 will match 1995.

Now, check options:

Year	Result
2001	Not matching cycle
2007	Not matching
2006	Matches
2019	Not matching

Hence, the correct answer is Option 3.

Q30. Answer: (a) A

The logic followed here is:

Given: A, B, C, D and E are sitting around a circular table facing the centre

Only one person sits between C and D (towards the right of D)

B is second to the left of D

A is immediate right of B

So, second to the left of E is A

Hence, the correct answer is Option 1.

Q31. Answer: (b) V

Given: Five persons P, B, S, V and T are sitting in a row facing north.

No one is sitting to the left of T.

Only one person is to the right of S.

P and S are immediate neighbours.

P is sitting next to B.

V and T are not immediate neighbours.

Right end = V

Hence, the correct answer is Option 2.

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Q32. Answer: (a) [figure]

The logic followed here is:

Logic: The pattern is based on identifying the number of sides of the inner geometric shape and placing that number inside the shape to represent its properties.

In the first pair, the inner shape is a square, which has 4 sides, so the number 4 is placed inside it.

Following the same rule, in the second pair, the inner shape is a pentagon, which has 5 sides, so the number 5 must be placed inside it.

Comparing all the given options, only option 1 correctly places the number 5 inside the pentagon according to the rule.

Hence, the correct answer is Option 1.

Q33. Answer: (a) [figure]

The logic followed here is:

Logic: The pattern is based on directional rotation of the arrows. The corner arrow undergoes a 135° anticlockwise rotation, while the side arrow undergoes a 90° anticlockwise rotation, shifting both their directions and positions accordingly.

From the first transformation, the corner arrow moves from pointing top-right to bottom-left, and the side arrow shifts from top to right while reversing its direction, confirming the rotational rule.

Applying the same rule to the second pair, the corner arrow in the third box (initially pointing top-right) rotates 135° anticlockwise to point bottom-left, and the side arrow (initially at the bottom pointing upward) rotates 90° anticlockwise to the left side pointing rightward.

Hence, the correct answer is Option 1.

Q34. Answer: (d) 53412

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

5. Addict

6. Addictim

7. Addictive

8. Addition

9. Additive

The correct order is ‘5, 3, 4, 1, 2’.

Hence, the correct answer is Option 4.

Q35. Answer: (d) 53412

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

5. Adopt

6. Adopter

7. Adopting

8. Adoption

9. Adoptive

The correct order is ‘5, 3, 4, 1, 2’.

Hence, the correct answer is Option 4.

Q36. Answer: (c) 5741

The logic followed here is:

Logic: The second number is obtained by subtracting 47 from the first number.

For, 3645 : 3598

3645 − 3598 = 47

For, 2739 : 2692

2739 − 2692 = 47

Now, ? : 5694

Let the missing number be X

X = 5694 + 47

X = 5741

So, ? = 5741

Hence, the correct answer is Option 3.

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Q37. Answer: (a) 8992

The logic followed here is:

Logic: The pattern is that a fixed number 33 is added to each given number to get the result.

For, 4738 : 4771

4738 + 33 = 4771

For, 3927 : 3960

3927 + 33 = 3960

Now, ? : 9025

Let the missing number be X

X + 33 = 9025

X = 9025 − 33

X = 8992

So, ? = 8992

Hence, the correct answer is Option 1.

Q38. Answer: (a) tq

The logic followed here is:

Given:

denmark and supply theory → pm la sa tq

theory come under economy → ls tq sn mq

So, theory → tq

Hence, the correct answer is Option 1.

Q39. Answer: (b) BVP168.75

The logic followed here is:

So, the missing term = BVP 168.75

Hence, the correct answer is Option 2.

Q40. Answer: (a) OTR400

The logic followed here is:

So, the missing term = OTR400

Hence, the correct answer is Option 1

Q41. Answer: (c) Forced labour

pThe correct answer is Forced labour.

Key Points

• The Chola dynasty, which ruled major parts of South India between the 9th and 13th centuries, maintained a highly sophisticated and detailed taxation system.

• Inscriptions from the Chola period, especially those found in Tamil Nadu, mention more than 400 different terms for various types of taxes levied by the state.

• The tax known as Vetti was a form of forced labour. Unlike other taxes, it was not collected in the form of cash, gold, or grain; instead, the common people were compelled to provide free labor for state projects or for the local landlords.

• Another primary tax was Kadamai, which refers to land revenue. This was the most important source of income for the Chola administration and was typically paid by the cultivators from their agricultural produce.

• The existence of Vetti highlights the administrative control of the Chola rulers over the physical labor of their subjects, which was often utilized for constructing massive temples, irrigation tanks, and roads.

Additional Information

• Chola Land Classification: The inscriptions classify land into distinct categories based on ownership and purpose. These include Vellanvagai (land held by non-Brahmana peasant proprietors), Brahmadeya (land gifted to Brahmanas), Shalabhoga (land for the maintenance of a school), and Devadana (land gifted to temples).

• Local Self-Government: The Cholas were pioneers in local self-administration. The Uttaramerur inscription provides a detailed account of how the Sabha (assembly of Brahmanas) and the Ur (village assembly) functioned, including the criteria for membership and the method of election using the Kudavolai system (pot-ticket system).

• Economic Activities: Apart from land revenue and forced labor, the state collected taxes on thatching the house, the use of ladders to climb palmyra trees, and a cess on succession to family property. These diverse taxes ensured a steady flow of wealth

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to the royal treasury.

• Imperial Expansion: Powerful rulers like Rajaraja I and Rajendra I used the empire's vast resources to build a formidable navy, which allowed them to expand their influence to the Maldives, Sri Lanka, and parts of Southeast Asia.

• Cultural Contributions: The revenue generated from taxes like Kadamai funded the construction of architectural marvels such as the Brihadisvara Temple at Thanjavur, built by Rajaraja I in 1010 AD, which stands as a symbol of Chola power and devotion.

Important Points

• The Chola inscriptions are the primary historical source for understanding their fiscal policy. They reflect a transition from a tribal-chiefdom structure to a highly centralized imperial state.

• While Vetti involved physical labor, the state also ensured that the peasantry was productive by investing heavily in irrigation projects, such as the anicut (dams) built across the Kaveri River.

• The forced labour system was not unique to the Cholas but was exceptionally well-documented in their epigraphical records, showing how the state mobilized human resources for public works and religious monuments.

Q42. Answer: (c) 1972

The correct answer is 1972.

Key Points

• The Rs. 20 denomination banknote was first introduced into circulation by the Reserve Bank of India (RBI) in June 1972.

• The introduction of this denomination was intended to facilitate smoother transactions and bridge the wide gap between the Rs. 10 and Rs. 100 notes that existed at the time.

• At its inception, the Rs. 20 note was part of the Lion Capital Series, which featured the Ashoka Pillar emblem as the primary motif on the obverse side.

• The Reserve Bank of India has the sole authority to issue banknotes in India under Section 22 of the Reserve Bank of India Act, 1934.

• The design of the currency has evolved over decades, transitioning from the Lion Capital Series to the Mahatma Gandhi Series and eventually to the current Mahatma Gandhi (New) Series.

Additional Information

• Mahatma Gandhi (New) Series:

• The latest version of the Rs. 20 note was announced by the RBI in April 2019.

• The base color of this new banknote is Greenish Yellow, distinguishing it from the reddish-orange hue of the previous series.

• The reverse side of the current Rs. 20 note features a motif of the Ellora Caves, which is a UNESCO World Heritage Site located in Maharashtra.

• The dimensions of the new Rs. 20 note are 63 mm x 129 mm.

• Currency Management in India:

• While the RBI manages the issuance of banknotes, the Government of India is responsible for the design and minting of coins under the Coinage Act, 2011.

• The one-rupee note is a unique case as it is issued by the Ministry of Finance and bears the signature of the Finance Secretary rather than the RBI Governor.

• There are four printing presses for banknotes in India: Dewas (Madhya Pradesh), Nasik (Maharashtra), Mysuru (Karnataka), and Salboni (West Bengal).

Important Points

• The first banknote issued by the Reserve Bank of India was a Rs. 5 note in January 1938, which featured the portrait of King George VI.

• The Mahatma Gandhi Series of banknotes was first introduced in 1996, which saw the replacement of the Lion Capital with the portrait of Mahatma Gandhi on the obverse of all denominations.

• The Rs. 50 note was first introduced in 1975, following the introduction of the Rs. 20 note as the economy expanded and required more denomination variety.

• The Swachh Bharat logo and slogan are featured on the reverse side of all notes in the New Series to promote the national cleanliness mission.

Q43. Answer: (b) Based on crop yields, prices and area cultivated

The correct answer is Based on crop yields, prices and area cultivated.

Key Points

• The Zabt system was a significant land revenue system introduced during the reign of the Mughal Emperor Akbar. It was primarily developed and implemented by his finance minister, Raja Todar Mal, around the year 1580.

• Under this system, the revenue was determined after a very careful survey of crop yields, market prices, and the area of land cultivated over a continuous period of ten years (from 1570 to 1580).

• Each crop had its own schedule of revenue rates, known as Dastur-i-Amal. The state's share was generally fixed at one-third of the average produce, which was converted into cash based on prevailing market prices. Hence, the statement that tax was determined based on crop yields, prices, and area cultivated is correct.

• The Zabt system was applied in those provinces where the Mughal administration could carry out land surveys and maintain detailed accounts, such as Delhi, Agra, Awadh, Allahabad, Malwa, and Lahore.

• It was also known as the Dahshala system because it relied on the average statistics of ten years (Dah meaning ten) to provide stability to both the state and the cultivators.

Additional Information

• Classification of Land: For the purpose of revenue assessment under Akbar, land was divided into four categories based on the continuity of cultivation:

• Polaj: Land which was annually cultivated for each crop in succession and never allowed to lie fallow.

• Parauti: Land left out of cultivation for a time (1 or 2 years) that it might recover its strength.

• Chachar: Land that had lain fallow for 3 or 4 years.

• Banjar: Land uncultivated for 5 years or more.

• Land Measurement: To ensure precision, Akbar replaced the old hempen rope with a new measuring unit called the Gaj-i-Ilahi (a yard of 41 digits or about 33 inches) and used a Tanab (measuring chain) made of Bamboo sticks joined by iron rings.

• Administrative Officers: The collection was overseen by officials such as the Amalguzar (revenue collector) and the Bitikchi (accountant). At the local level, the Kanungo maintained the records of area cultivated and local prices.

• Geographical Limitations: The Zabt system could not be implemented in provinces like Gujarat and Bengal because the administration found it difficult to conduct regular surveys and keep track of fluctuating crop yields in those terrains.

Important Points

• Cash Collection: Unlike earlier systems where revenue was often paid in kind, the Zabt system prioritized collection in cash. This necessitated the expansion of local markets and the monetization of the rural economy.

• Raja Todar Mal: Before serving Akbar, Raja Todar Mal had worked under Sher Shah Suri, where he gained initial experience in land measurement and revenue reforms, which he later perfected during the Mughal era.

• Impact on Peasants: While the system brought transparency, the requirement to pay in cash often forced peasants to sell their produce immediately after harvest, sometimes at lower prices, to meet the state's revenue demand.

• Mansabdari Link: The revenue collected through the Zabt system was used to pay the salaries of the Mansabdars and maintain the massive military machinery of the Mughal Empire.

Q44. Answer: (a) Part – IXA

The correct answer is Part – IXA.

Key Points

• Part IXA was added to the Constitution of India through the 74th Constitutional Amendment Act of 1992, which came into force on June 1, 1993.

• This part deals exclusively with Municipalities (Urban Local Bodies) and contains provisions from Article 243-P to Article 243-ZG. Hence, the correct answer is Part – IXA.

• The act gave constitutional status to municipalities, making them a part of the formal democratic structure of India and ensuring they are governed by mandatory constitutional provisions.

• Under this part, the 12th Schedule was added to the Constitution, which specifies 18 functional items that fall under the jurisdiction of municipalities, such as urban planning, regulation of land use, and public health.

• The amendment provides for three types of Municipalities: Nagar Panchayats for transitional areas, Municipal Councils for smaller urban areas, and Municipal Corporations for larger urban areas.

• It also mandates the reservation of seats for Scheduled Castes (SC) and Scheduled Tribes (ST) in proportion to their population, and not less than one-third of the total number of seats for women.

Additional Information

• Part XIV of the Indian Constitution:

• This part covers Services Under the Union and the States, spanning from Article 308 to Article 323.

• It includes provisions related to the All India Services, recruitment, and conditions of service for persons serving the Union or a State.

• It also establishes the Public Service Commissions (UPSC and State PSCs) under Articles 315 to 323, ensuring independent recruitment for civil services.

• Part XVII of the Indian Constitution:

• This part deals with Official Languages and consists of Articles 343 to 351.

• It specifies Hindi in Devanagari script as the official language of the Union (Article 343) and contains provisions for regional languages and the language of the Supreme Court and High Courts.

• It also includes Article 351, which provides a directive for the development and promotion of the Hindi language.

• Part XII of the Indian Constitution:

• This part is titled Finance, Property, Contracts, and Suits and covers Articles 264 to 300A.

• It manages the distribution of revenues between the Union and the States, including the establishment of the Finance Commission under Article 280.

• Importantly, Article 300A was added to this part by the 44th Amendment Act, 1978, which converted the Right to Property from a Fundamental Right into a Legal Right.

• Part IX of the Indian Constitution:

• Distinct from Part IXA, Part IX deals with the Panchayats (Rural Local Bodies).

• It was inserted by the 73rd Constitutional Amendment Act, 1992, and covers Article 243 to Article 243-O.

• It added the 11th Schedule to the Constitution, containing 29 functional items for rural self-governance.

Important Points

• State Election Commission: Under Article 243-K and 243-ZA, the superintendence, direction, and control of the preparation of electoral rolls and the conduct of all elections to the Panchayats and Municipalities are vested in the State Election Commission.

• Duration: Both Panchayats and Municipalities are provided a fixed five-year term. If dissolved earlier, elections must be held within 6 months from the date of dissolution.

• District Planning Committee: Article 243-ZD mandates the constitution of a District Planning Committee in every state to consolidate the plans prepared by the Panchayats and the Municipalities in the district.

Q45. Answer: (b) two

The correct answer is two.

Key Points

• The sun rises about two hours earlier in Arunachal Pradesh (the easternmost point) than in Gujarat (the westernmost point) due to the vast longitudinal extent of India.

• India is situated between longitudes 68°7' E and 97°25' E, which results in a longitudinal difference of approximately 30 degrees.

• The Earth takes 24 hours to complete one full rotation of 360 degrees. This means it takes 4 minutes for the sun to move across 1 degree of longitude (1440 minutes / 360 degrees = 4 minutes/degree).

• Calculating the time lag for the 30-degree difference: 30 × 4 = 120 minutes, which is equivalent to 2 hours.

• Because of this time difference, while it is sunrise in the east at Arunachal Pradesh, it is still dark in the west at Gujarat for another 120 minutes.

Additional Information

• Standard Meridian of India:

• To avoid confusion caused by different local times within the country, a Standard Meridian is chosen. For India, this is 82°30' E.

• The local time at this meridian is accepted as the Indian Standard Time (IST) for the entire country.

• This meridian passes through Mirzapur in Uttar Pradesh (and also through parts of Madhya Pradesh, Chhattisgarh, Odisha, and Andhra Pradesh).

• Geographical Extent:

• India's latitudinal extent is between 8°4' N and 37°6' N.

• The Tropic of Cancer (23°30' N) divides the country into almost two equal parts.

• The total area of the Indian landmass is about 3.28 million square km, making it the seventh largest country in the world by area.

• Greenwich Mean Time (GMT):

• Indian Standard Time (IST) is 5 hours and 30 minutes ahead of Greenwich Mean Time (GMT).

• When it is 12:00 PM at Greenwich (0° longitude), it is 5:30 PM in India.

Important Points

• The easternmost point of India is a small town called Kibithu in Arunachal Pradesh, located at approximately 97°25' E.

• The westernmost point of India is Guahar Moti in the Kutch district of Gujarat, located at approximately 68°7' E.

• Despite the two-hour time lag in sunrise and sunset between these two points, the clocks in both states show the same time because India follows a single time zone.

• There have been recurring demands for a separate time zone (often called the ChaiBagaan Time) for the North-Eastern states to save daylight and improve productivity, as the sun sets very early in those locations.

Q46. Answer: (a) duns

The correct answer is duns.

Key Points

• The longitudinal valleys that lie between the Lesser Himalayas (also known as Himachal) and the Shiwaliks (the outermost range) are locally known as Duns.

• These valleys were formed when the rivers flowing from the higher Himalayan ranges were temporarily obstructed by the rising Shiwalik range, leading to the formation of temporary lakes. Over time, these lakes were drained as the rivers cut through the ranges, leaving behind flat-bottomed valleys covered with thick gravel and alluvium.

• Some of the most prominent examples of these valleys include Dehra Dun, Kotli Dun, and Patli Dun.

• Dehra Dun is the largest of these valleys, with an approximate length of 35 to 45 km and a width ranging between 22 and 25 km. It serves as a significant administrative and educational hub in Uttarakhand.

• Geographically, these Duns are characterized by their fertile soil, making them highly suitable for agriculture and human settlement compared to the rugged slopes of the surrounding mountains.

Additional Information

• Shiwaliks (Outer Himalayas):

• This is the southernmost range of the Himalayas. It extends over a width of 10 to 50 km and has an altitude varying between 900 and 1100 metres.

• The Shiwaliks are composed of unconsolidated sediments brought down by rivers from the main Himalayan ranges located further north.

• Doabs:

• The term Doab refers to the fertile land situated between two converging rivers. In Persian, "Do" means two and "Ab" means water.

• An example is the Bari Doab, which lies between the Beas and the Ravi rivers in the Punjab region.

• Ranns:

• The term Rann typically refers to a salt marsh or saline mudflat. The most famous is the Rann of Kutch located in Gujarat, India.

• It is one of the largest salt deserts in the world and is known for its unique ecosystem and the Great Rann of Kutch festival.

• Lesser Himalayas (Himachal):

• Located north of the Shiwaliks, this range is mainly composed of highly compressed and altered rocks. The altitude varies from 3,700 to 4,500 metres.

• This region is home to famous hill stations like Shimla, Mussoorie, and Nainital.

Important Points

• The Himalayan mountains are divided into three main parallel ranges: the Great Himalayas (Himadri), the Lesser Himalayas (Himachal), and the Outer Himalayas (Shiwaliks).

• The Duns are specifically associated with the transition zone between the middle and outer ranges.

• The formation of Duns is a result of tectonic activity and fluvial erosion and deposition that occurred during the Pleistocene epoch.

• While Dehra Dun is the most famous, other smaller duns like Pinjore Dun in Haryana also exist, providing vital flat land in the hilly terrain.

Q47. Answer: (c) Systolic pressure

The correct answer is Systolic pressure.

Key Points

• Systolic pressure is defined as the maximum pressure exerted by the blood against the walls of the arteries during the contraction of the heart's ventricles.

• This phase of the cardiac cycle is known as ventricular systole, during which blood is forcefully pumped into the aorta and pulmonary artery.

• In a healthy adult human, the normal systolic pressure is approximately 120 mmHg (millimeters of mercury).

• It represents the "top number" in a standard blood pressure reading (e.g., 120/80 mmHg) and reflects the force of the heartbeat.

• The systolic pressure increases during physical activity, stress, or excitement as the heart works harder to deliver oxygenated blood to the body's tissues.

Additional Information

• Diastolic Pressure:

• This is the pressure in the arteries when the heart muscle relaxes between beats and the ventricles fill with blood.

• A normal diastolic pressure is typically around 80 mmHg. It is the "bottom number" in a blood pressure measurement.

• Venous Pressure:

• This refers to the blood pressure within the veins or the atria of the heart.

• It is significantly lower than arterial pressure because the blood has already passed through the capillary beds where much of the pressure is dissipated.

• Capillary Pressure:

• This is the hydrostatic pressure exerted by blood against the walls of the capillaries.

• It facilitates the exchange of nutrients, gases, and waste products between the blood and the surrounding interstitial fluid.

• Hypertension and Hypotension:

• Hypertension (High Blood Pressure) occurs when the systolic pressure is consistently 140 mmHg or higher, or diastolic is 90 mmHg or higher.

• Hypotension (Low Blood Pressure) is generally defined as a reading lower than 90/60 mmHg.

Important Points

• Measurement Instrument: Blood pressure is measured using an instrument called a sphygmomanometer, usually applied to the brachial artery in the upper arm.

• Factors Affecting Pressure: Several factors influence blood pressure, including cardiac output, blood volume, peripheral resistance, and blood viscosity.

• Cardiac Cycle: A single cardiac cycle includes the atrial systole, ventricular systole, and complete cardiac diastole, lasting approximately 0.8 seconds in a resting human.

• Unit of Measurement: The standard unit for blood pressure is mmHg, which stands for millimeters of mercury, a legacy from the first accurate pressure gauges.

Q48. Answer: (c) Chera

The correct answer is Chera.

Key Points

• Vanji, historically identified with modern-day Karur in Tamil Nadu, served as the inland capital of the early Chera dynasty during the Sangam Age (approx. 3rd century BCE to 3rd century CE).

• The Cheras were one of the three powerful dynasties of ancient South India, collectively known as the Muventar (Three Crowned Kings), alongside the Cholas and the Pandyas.

• Geographically, the Chera kingdom occupied the central and northern parts of Kerala and the Kongu Nadu region of Tamil Nadu. Karur is situated on the banks of the Amaravati River, which is a tributary of the Cauvery.

• The Greek geographer Ptolemy, writing in the 2nd century CE, referred to Karur as "Karoura," identifying it as an important royal residence and inland capital of the Cheras.

• Archaeological excavations at Karur have yielded a significant number of Roman coins, pottery, and inscriptions, proving its status as a flourishing center for international trade and metallurgy during antiquity.

Additional Information

• Chera Dynasty Details:

• The royal emblem of the Cheras was the Bow and Arrow.

• Apart from Vanji, their major port cities on the western coast were Musiri (Muchiri) and Tondi, which were vital for the pepper trade with the Roman Empire.

• Famous rulers include Nedunjeral Adan and Senguttuvan (the Red Chera), who is celebrated in the epic Silappadikaram for establishing the Pattini cult.

• Haryanka Dynasty:

• This was the first important ruling dynasty of Magadha in ancient North India, founded by Bimbisara around 544 BCE.

• Their capital was initially Girivraja (Rajgir) and was later shifted to Pataliputra. This dynasty is not associated with the Tamil region or Karur.

• Pallava Dynasty:

• The Pallavas emerged as a formidable power in the 4th century CE, with their capital located at Kanchipuram in northern Tamil Nadu.

• They are renowned for Dravidian architecture, particularly the rock-cut temples and the Shore Temple at Mahabalipuram.

• Rashtrakuta Dynasty:

• Founded by Dantidurga in the 8th century CE, this dynasty ruled large parts of the Deccan.

• Their capital was Manyakheta (modern-day Malkhed in Karnataka). They are famous for the monolithic Kailasa Temple at Ellora.

Important Points

• Sangam Literature: Sources like the Purananuru and Pathitrupathu provide extensive details about the Chera kings, their military exploits, and the prosperity of Vanji.

• Pugalur Inscriptions: These Brahmi inscriptions found near Karur (dated to the 1st-2nd century CE) mention three generations of Chera kings of the Irumporai line, providing epigraphic evidence for the dynasty's rule in this specific location.

• Trade Significance: Karur was a strategic point for the movement of goods between the Malabar Coast and the Coromandel Coast, making it a wealthy administrative and commercial hub.

Q49. Answer: (d) 29

The correct answer is 29.

Key Points

• Siddhartha Gautama, the founder of Buddhism, was born as a prince in the Shakya clan. For the first 29 years of his life, he lived in complete seclusion and luxury within the palace walls of Kapilavastu, shielded from the realities of human suffering.

• At the age of 29, he felt a deep curiosity to see the world outside his royal residence. He convinced his charioteer, Channa, to take him on a series of outings through the city.

• During these journeys, he encountered what are known in Buddhist tradition as the Four Sights. These sights included an old man (representing the decay of the body), a sick man (representing the fragility of health), and a dead body (representing the inevitability of death).

• The fourth sight he encountered was a wandering ascetic or monk, who appeared peaceful despite having no worldly possessions. This final sight suggested to him that there was a way to overcome the universal problem of suffering.

• These experiences led to a profound spiritual crisis, prompting him to leave his wife Yashodhara and newborn son Rahula to seek a solution to the cycle of birth, aging, and death. This event is historically referred to as the Great Renunciation or Mahabhinishkramana.

Additional Information

• Early Life and Birth: Siddhartha was born in Lumbini (in present-day Nepal) around 563 BCE. His father was King Suddhodana and his mother was Queen Maya. It was prophesied at his birth that he would either become a great king or a great spiritual leader.

• Attainment of Enlightenment: After wandering for six years as an ascetic, Siddhartha sat under a Pipal tree (later known as the Bodhi Tree) in Bodh Gaya, Bihar. At the age of 35, he attained Nirvana (enlightenment) and became the Buddha, which means the "Enlightened One" or the "Awakened One."

• The First Sermon: He delivered his first discourse at Sarnath, near Varanasi. This event is known as Dharmachakrapravartana (Setting the Wheel of Dharma in motion). He taught the Four Noble Truths and the Eightfold Path to his first five disciples.

• Teachings on Suffering: The core of his philosophy was Dukkha (suffering). He taught that desire (Tanha) is the root cause of suffering and that by following the "Middle Path"—avoiding both extreme self-indulgence and extreme self-mortification—one could achieve liberation.

• Mahaparinirvana: The Buddha spent the remaining 45 years of his life traveling across the Indo-Gangetic plain, teaching and organizing his followers into the Sangha. He passed away at the age of 80 in Kushinagar, an event known as Mahaparinirvana.

Important Points

• Significance of the Age 29: This particular year marks the transition from his life as a prince to his life as a seeker of truth. It highlights the contrast between worldly attachment and the quest for spiritual liberation.

• Cultural Impact: The story of the Four Sights is a central theme in Buddhist art and literature, serving as a powerful allegory for the awakening of human consciousness to the reality of impermanence.

• Geographical Context: Most of the key events of the Buddha's life took place in the modern-day Indian states of Bihar and Uttar Pradesh, as well as the Terai region of Nepal.

Q50. Answer: (c) West Bengal

The correct answer is West Bengal.

Key Points

• Raibenshe is a unique genre of martial folk dance that originated in the state of West Bengal.

• The dance is predominantly performed in the western districts of the state, particularly in Birbhum, Burdwan, and Murshidabad.

• The name Raibenshe is derived from the long bamboo poles (known as Raibansh) that were traditionally used as weapons by the soldiers.

• Historically, this dance was performed by the warrior classes, specifically the Bagdi and Bauri communities, to showcase their physical prowess and martial skills. Hence, the statement regarding West Bengal is correct.

• The performance is characterized by high energy, acrobatic stunts, and rhythmic movements that mimic mock combat, all performed to the accompaniment of traditional instruments like the Dhaki (drum) and Kanshi (cymbals).

Additional Information

• Cultural Heritage of West Bengal:

• Apart from Raibenshe, West Bengal is home to several other folk forms like Chhau dance (specifically the Purulia Chhau), which is a masked martial dance.

• Gambhira is another folk dance performed during the Gajan festival in Malda district, featuring masks and social themes.

• The Baul tradition, recognized by UNESCO, represents the soulful folk music and philosophy of the region.

• Folk Traditions of Kerala:

• Kerala is world-renowned for Kathakali, a classical dance-drama known for its elaborate costumes and makeup.

• The state also boasts Kalaripayattu, which is considered one of the oldest martial arts in the world, influencing various dance forms like Theyyam and Parichamuttukali.

• Folk Traditions of Maharashtra:

• The most popular folk dance of Maharashtra is Lavani, performed to the beats of the Dholki.

• Other significant forms include Tamasha (folk theatre), Koli (dance of the fisherfolk), and Dhangari Gaja performed by shepherds.

• Folk Traditions of Puducherry:

• Puducherry is known for the Garadi dance, which has its roots in the Ramayana and is performed during festivals.

• It is a vibrant dance where performers wear iron rings on their legs (Anjali) that produce a rhythmic sound during the performance.

Important Points

• Revivalist Movement: The Raibenshe dance was revived in the 1930s by Gurusaday Dutt, a civil servant and folklorist, who founded the Bratachari movement to preserve the traditional heritage of Bengal.

• Symbolism: The dance symbolsize valour and physical fitness. Unlike many other folk dances, it focuses less on narrative and more on athletic displays and agility.

• Modern Context: Today, it is performed during cultural festivals and state celebrations, serving as a reminder of the martial history of the Bengali people.

Q51. Answer: (c) Tamil Nadu

The correct answer is Tamil Nadu.

Key Points

• Theru Koothu is a traditional folk theatre form that originates from and is primarily practiced in the Indian state of Tamil Nadu.

• The name is derived from the Tamil words 'Theru', meaning street, and 'Koothu', meaning theatre or play. As the name suggests, it is traditionally performed in open streets or public squares.

• It is an extemporaneous form of art where the performers engage in a combination of songs, spoken dialogues, and dance movements to narrate mythological stories.

• The themes of Theru Koothu are mostly drawn from the Indian epics, specifically the Mahabharata and the Ramayana, along with local folk legends.

• Performances are usually held during temple festivals, particularly during the months of Panguni and Aadi (roughly March to August), and they often take place at night, lasting until dawn.

Additional Information

• Regional Theatre Forms in Other States:

• Goa: One of the most famous traditional theatre forms in Goa is Dashavatara, which focuses on the ten incarnations of Lord Vishnu. It is also prevalent in the Konkan region of Maharashtra.

• Odisha: This state is home to Jatra, a popular folk theatre, and Prahlad Natak, which is characterized by high-pitched singing and classical music. Odisha is also famous for Chhau, a semi-classical dance-drama.

• Arunachal Pradesh: The state features tribal mask dances and folk dramas like Aji Lamu (performed by the Monpa tribe), which often incorporate Buddhist themes and folklore.

• Characteristics of Tamil Folk Arts:

• Tamil Nadu has a rich history of folk performances including Karagattam (balancing pots), Kavadi Aattam (ceremonial sacrifice), and Oyilattam (dance of grace).

• In Theru Koothu, the Kattiakaran serves as the Sutradhara or narrator who introduces the play, provides comic relief, and bridges the gap between the actors and the audience.

• Instruments used in these performances typically include the Mridangam, Thalam (cymbals), and the Mukhavina (a wind instrument similar to the Nadaswaram).

Important Points

• Costumes and Makeup: The performers wear elaborate costumes, including large wooden headgears (Kiridams) and heavy makeup, to ensure they are visible and their characters are recognizable to a large crowd in an open setting.

• Ritual Significance: Theru Koothu is often associated with the cult of Draupadi Amman. In many villages, the performance is a ritualistic offering to the goddess for a good harvest or to ward off diseases.

• Duration: A typical Theru Koothu festival can span over 18 days, mirroring the 18-day Kurukshetra War described in the Mahabharata.

• Evolution: While it remains a rural folk art, modern adaptations have seen Theru Koothu being used to spread social awareness regarding health, education, and government schemes in Tamil Nadu.

Q52. Answer: (d) Mahavira's

The correct answer is Mahavira's.

Key Points

• Deo Deepawali (also referred to as Dev Deepawali in the context of Jainism) is celebrated in Bihar to mark the Nirvana (attainment of Moksha or liberation) of Lord Mahavira.

• The celebration takes place primarily in Pawapuri, located in the Nalanda district of Bihar, which is the site where Lord Mahavira attained salvation in 527 BCE.

• It coincides with the festival of Diwali, observed on the Amavasya (new moon) of the Hindu month of Kartik.

• According to Jain scriptures, when Lord Mahavira attained Nirvana, eighteen kings of Kashi and Kosala decided to light lamps (Deepak) to represent the light of his knowledge, which remains in the world even after his physical departure.

• Devotees gather at the Jal Mandir in Pawapuri to offer Nirvana Ladoo and pray, making it one of the most sacred events for the Jain community.

Additional Information

• Lord Mahavira (599–527 BCE):

• He was the 24th and last Tirthankara of Jainism. He was born as Vardhamana in Kundagrama, near Vaishali in present-day Bihar.

• He belonged to the Jnatrika clan and was a contemporary of Gautama Buddha.

• After 12 years of intense meditation and penance, he attained Kevala Jnana (omniscience) under a Sal tree.

• He preached the five great vows (Pancha Mahavrata): Ahimsa (Non-violence), Satya (Truth), Asteya (Non-stealing), Brahmacharya (Chastity), and Aparigraha (Non-attachment).

• Pawapuri and the Jal Mandir:

• Pawapuri, also known as Apapuri (the sinless town), is a major pilgrimage center for Jains.

• The Jal Mandir is a white marble temple situated in the middle of a large water tank filled with lotus flowers. It is said to be built at the spot where Lord Mahavira was cremated.

• Distinction from Varanasi Dev Deepawali:

• While the Jain Deo Deepawali in Bihar focuses on Mahavira, the Dev Deepawali celebrated in Varanasi (Uttar Pradesh) occurs on Kartik Purnima (fifteen days after Diwali).

• The Varanasi event celebrates Lord Shiva’s victory over the demon Tripurasura.

Important Points

• Jainism in Bihar: Bihar is considered the cradle of Jainism. Besides Pawapuri and Vaishali, Rajgir and Parasnath (now in Jharkhand but historically part of the region) are vital spiritual centers.

• Symbolism of Light: In the context of Mahavira’s Nirvana, the lighting of lamps during Deo Deepawali symbolizes the victory of knowledge over ignorance.

• Annual Fair: A grand three-day festival and fair are organized at Pawapuri during this time, attracting thousands of pilgrims and tourists to witness the illumination of the Jal Mandir.

Q53. Answer: (a) Kutch

The correct answer is Kutch.

Key Points

• Rann Utsav is a grand winter festival celebrated in the Kutch district of Gujarat, India.

• The festival is primarily held at Dhordo, a village that serves as the gateway to the Great Rann of Kutch, which is one of the largest salt deserts in the world.

• This cultural extravaganza was conceptualized in 2005 by the then-Chief Minister of Gujarat, Shri Narendra Modi, to promote tourism in the region after the devastating earthquake of 2001.

• The celebration typically spans from November to February or March, coinciding with the winter season when the weather is pleasant for tourists.

• The highlight of the festival is the vast expanse of the White Desert, which appears ethereal, especially during Full Moon nights, attracting thousands of domestic and international visitors.

Additional Information

• Kutch District:

• It is the largest district in India by geographical area, covering approximately 45,674 square kilometers.

• The region is divided into the Great Rann of Kutch and the Little Rann of Kutch, the latter being the only home to the Indian Wild Ass (Khur).

• In 2023, Dhordo village in Kutch was honored as one of the 'Best Tourism Villages' by the United Nations World Tourism Organization (UNWTO).

• Cultural and Tourist Attractions:

• The festival showcases local Kutchi handicrafts, including Ajrakh block printing, Rogan art, and intricate Kutchi embroidery.

• Adventure activities such as Paramotoring, ATV rides, and Camel Cart safaris are major attractions for visitors at the Tent City.

• Famous nearby sites include Kala Dungar (Black Hill), which is the highest point in Kutch, and the Vijay Vilas Palace in Mandvi.

• Other Options in Gujarat:

• Rajkot: Located in the Saurashtra region, it was the former capital of the princely state of Saurashtra and is famous for its gold jewelry and silk saris.

• Vadodara: Known as the Cultural Capital of Gujarat, it is famous for the Lakshmi Vilas Palace and is a major hub for Navratri celebrations.

• Gandhinagar: The administrative capital of Gujarat, situated on the banks of the Sabarmati River, it is a planned city known for the Akshardham Temple.

Important Points

• Tourism Promotion: The campaign "Kutch Nahin Dekha Toh Kuch Nahin Dekha", featuring Bollywood superstar Amitabh Bachchan as the brand ambassador for Gujarat Tourism, played a pivotal role in making Rann Utsav a global brand.

• Geographical Significance: The Rann of Kutch is a seasonal salt marsh located in the Thar Desert bio-geographic area. It remains underwater during the monsoon and dries up into a white salt crust during the winter.

• Wildlife: The Kutch Desert Wildlife Sanctuary is famous for being a nesting ground for Flamingos, often referred to as the "Flamingo City".

Q54. Answer: (a) He was forced to leave the kingdom.

The correct answer is He was forced to leave the kingdom.

Key Points

• Bahadur Shah Zafar, the last Mughal Emperor, was the figurehead leader of the Revolt of 1857. After the British forces successfully suppressed the uprising and recaptured Delhi in September 1857, he was captured at Humayun's Tomb.

• Following his capture by Major William Hodson, he was brought to trial at the Red Fort. He was found guilty of aiding and abetting the mutineers and for proclaiming himself the Emperor of Hindustan against the British East India Company.

• Instead of being allowed to remain in his kingdom as a puppet or a nominal head, the British decided to dismantle the Mughal Dynasty entirely. He was exiled to Rangoon (in present-day Myanmar) along with his wife, Begum Zinat Mahal. Hence, statement 1 is correct.

• The British authorities ensured he had no political power or hope of return. He lived the remainder of his life in Rangoon as a state prisoner until his death on November 7, 1862, at the age of 87. Hence, the correct answer is option 1.

Additional Information

• End of the Mughal Empire:

• The Government of India Act 1858 was passed in the aftermath of the revolt, transferring the governance of India from the East India Company to the British Crown.

• This act officially terminated the Mughal Empire. The British declared that Bahadur Shah Zafar’s successors would not be allowed to use the title of "King" or "Emperor" and would only be known as Princes.

• Fate of the Heirs:

• To ensure no future Mughal claimant could lead another uprising, Major Hodson summarily executed Zafar’s sons, Mirza Mughal and Mirza Khizr Sultan, and his grandson, Mirza Abu Bakr, at a site in Delhi now known as Khooni Darwaza.

• Significance of the Exile:

• The exile to Burma (Myanmar) was a strategic move to remove the symbolic head of Indian resistance from his home soil. It marked the definitive shift of sovereignty to the British Empire, with Queen Victoria eventually being proclaimed the Empress of India in 1876.

• Legacy of Zafar:

• Beyond politics, Bahadur Shah Zafar was a noted Urdu poet. His poetry, often written under the pen name 'Zafar', expressed his deep grief over his exile and the loss of his beloved homeland.

Important Points

• Capture Details: He was apprehended on September 21, 1857. The British commander Major Hodson was instrumental in the fall of Delhi.

• Legal Trial: His trial lasted for 21 days, and he was convicted on four charges, including rebellion and murder.

• Geographical Shift: The transition from Delhi to Rangoon symbolized the complete loss of territorial authority for the Mughal lineage.

• Historical Context: The revolt is often referred to as the First War of Indian Independence or the Sepoy Mutiny, occurring between May 1857 and July 1858.

Q55. Answer: (b) 3rd

The correct answer is 3rd.

Key Points

• Venus is the third brightest natural object in the Earth's sky, ranked only after the Sun and the Moon.

• Its maximum apparent magnitude can reach approximately -4.6 to -4.9, making it bright enough to be seen during the daytime under ideal atmospheric conditions.

• The high visibility of the planet earned it the names Morning Star and Evening Star, as it appears at its brightest shortly before sunrise or shortly after sunset.

• The primary reason for its extreme brightness is its Albedo; Venus reflects about 70% of the sunlight that hits it due to a thick, permanent cover of sulfuric acid clouds.

• It is the second planet from the Sun, orbiting at an average distance of about 108 million kilometers (approximately 0.72 Astronomical Units).

Additional Information

• Earth's Twin:

• Venus is often referred to as Earth's sister planet or twin because they are very similar in size, mass, and density.

• The diameter of Venus is roughly 12,104 kilometers, which is about 95% of Earth's diameter.

• Atmospheric Pressure and Temperature:

• It possesses the densest atmosphere of the four terrestrial planets, consisting of over 96% carbon dioxide.

• This leads to a runaway greenhouse effect, making it the hottest planet in the solar system with surface temperatures averaging 464 degrees Celsius (867 degrees Fahrenheit).

• The surface pressure is about 92 times that of Earth, equivalent to the pressure 900 meters deep in Earth's oceans.

• Unique Rotation:

• Venus exhibits retrograde rotation, meaning it rotates on its axis from East to West, which is opposite to most planets in the solar system.

• A single sidereal day on Venus lasts about 243 Earth days, which is actually longer than its orbital period (year) of 225 Earth days.

• Moons and Rings:

• Like Mercury, Venus is unique in our solar system for having no natural satellites (moons) and no planetary rings.

Important Points

• Phases of Venus: Much like the Moon, Venus goes through distinct phases. This was first observed by Galileo Galilei in 1610, providing critical evidence for the heliocentric (Sun-centered) model of the solar system.

• Space Missions: Venus was the first planet to be visited by a spacecraft (Mariner 2 in 1962) and the first to be successfully landed upon (Venera 7 by the Soviet Union in 1970).

• Surface Features: Radar mapping by NASA's Magellan mission in the 1990s revealed a surface dominated by volcanic activity, mountains (such as Maxwell Montes), and vast lava plains.

• Transits: A Transit of Venus occurs when the planet passes directly between the Earth and the Sun; these are rare events that happen in pairs separated by eight years, with intervals of more than a century between pairs. The most recent transits occurred in 2004 and 2012.

Q56. Answer: (d) 1822

The correct answer is 1822.

Key Points

• The Mahalwari system was a land revenue system introduced by the British in 1822.

• It was devised by Holt Mackenzie, who believed that the village community was an important social institution in North Indian society that needed to be preserved.

• Under this system, the unit of revenue assessment was the Mahal, which typically referred to a village or a group of villages.

• The revenue demand was not fixed permanently; instead, it was revised periodically based on a detailed survey of the land, customary rights, and productivity.

• The task of collecting the revenue and paying it to the East India Company was given to the village headman (known as the Lambardar), rather than the Zamindar.

Additional Information

• Geographical Spread: The Mahalwari system was implemented in the North-Western Provinces of the Bengal Presidency (most of which is in present-day Uttar Pradesh), parts of Central India, and the Punjab.

• Comparison with other systems:

• Permanent Settlement (1793): Introduced by Lord Cornwallis in Bengal, Bihar, and Odisha, where the revenue was fixed forever.

• Ryotwari System (1820): Introduced by Thomas Munro and Alexander Read in Southern India (Madras and Bombay), where the settlement was made directly with the Ryots (cultivators).

• Evolution of the System: Because the initial assessment in 1822 was found to be too complex and the revenue demand too high, Lord William Bentinck revised the system under the Regulation of 1833 to make it more practical.

• Impact: While it recognized the collective nature of the village, the high revenue demands often led to the impoverishment of the peasantry and the forced sale of land by those who could not meet the Company's demands.

Important Points

• Year 1765: This year marks the Treaty of Allahabad, through which the British East India Company obtained the Diwani rights (right to collect revenue) for Bengal, Bihar, and Orissa.

• Year 1793: This was the year the Permanent Settlement (Zamindari system) was enacted in Bengal, creating a class of hereditary landlords.

• Year 1801: This period saw the expansion of British territory in North India, specifically the Cession of Awadh (Oudh) territories to the East India Company, which later became part of the area under Mahalwari assessment.

• Regulation VII of 1822: This was the specific legislative act that gave legal validity to the Mahalwari system across the specified territories.

Q57. Answer: (d) Madhya Pradesh

The correct answer is Madhya Pradesh.

Key Points

• Sanjha is a melodious and traditional folk song primarily associated with the Malwa region of Madhya Pradesh.

• It is an oral musical tradition performed exclusively by young, unmarried girls in groups, usually during the evening hours.

• The celebration of Sanjha takes place for 16 days during the period of Pitru Paksha (the fortnight dedicated to ancestors) in the Hindu month of Ashwin (typically September–October).

• Along with singing, the girls create intricate wall motifs using cow dung, colorful flowers, leaves, and vermilion, representing various shapes like the Sun, Moon, and Sanjha Bai herself.

• The ritual and songs are dedicated to Sanjha Devi, a local deity, with the belief that performing these rituals will help the girls find a good husband and ensure a happy married life.

Additional Information

• Folk Traditions of Madhya Pradesh:

• The state is rich in folk music, including Nirguniyay, Faag, Bhartahari, and Lavani.

• Alha-Udal is a famous heroic ballad sung in the Bundelkhand region, narrating the bravery of two brothers.

• Pandavani, although more famous in Chhattisgarh, is also performed in border regions of MP, depicting tales from the Mahabharata.

• Folk Music of Other States:

• Kerala: Known for Sopana Sangeetham (ritual music sung at temple steps) and Pulluvan Pattu (associated with serpent worship).

• Punjab: Famous for Tappa, Heer-Ranjha (ballads), Jugni, and Giddha songs sung during weddings and festivals like Baisakhi.

• Telangana: Renowned for Oggu Katha (narrative singing) and songs associated with the Bathukamma and Bonalu festivals.

Important Points

• The Ritual of Sanjha Kot: The 16th day of the festival is known as Sanjha Kot, where the largest and most elaborate design is made on the wall, signifying the departure of the deity.

• Artistic Expression: The tradition is a unique blend of visual art (wall paintings) and performing art (singing), reflecting the rural lifestyle and social bonds among young girls in Central India.

• Linguistic Flavor: The lyrics of Sanjha songs are usually in the Malwi dialect, often describing the life, jewelry, and family of Sanjha Bai, treating her as a friend or a daughter of the house.

Q58. Answer: (c) Gujarat

The correct answer is Gujarat.

Key Points

• The raga Sorathi, also commonly referred to as Raga Sorath, is a prominent musical mode in Hindustani classical music.

• It derives its name directly from the Sorath region, which is a historical and geographical territory located in the Saurashtra peninsula of Gujarat.

• This raga is deeply embedded in the cultural fabric of Western India, particularly Gujarat, where it originated from local folk melodies before being systematized into the classical tradition.

• In the Guru Granth Sahib, the holy scripture of Sikhism, Raag Sorat appears as the ninth raga in the sequence of 31 ragas, signifying its spiritual importance since the 15th century.

• The raga is traditionally performed during the second quarter of the night, typically between 9:00 PM and 12:00 AM, to evoke a specific emotional atmosphere.

Additional Information

• Geographical Context of Sorath:

• The Sorath region in Gujarat is famous for historical sites like the Uparkot Fort in Junagadh and the Somnath Temple.

• It is also the home of the Asiatic Lion in the Gir National Park, highlighting the region's diverse ecological and cultural significance.

• Musical Characteristics:

• Raga Sorathi is classified under the Khamaj Thaat in the Bhatkande system of classification.

• It is an Audav-Sampurna raga, meaning it uses five notes in the ascent (Aroha) and all seven notes in the descent (Avaroha).

• The notes Gandhar (Ga) and Dhaivat (Dha) are generally omitted during the ascending scale to maintain its unique melodic structure.

• It employs both forms of Nishad: the Shuddha Ni in the ascent and Komal Ni in the descent.

• Mood and Application:

• The raga is known for expressing Shringar Rasa (romance/devotion) and Bhakti (spirituality).

• It is frequently used in Bhajans, Ghazals, and semi-classical forms like Thumri due to its pleasing and accessible melodic nature.

Important Points

• Vadi and Samvadi: The Vadi (most significant note) of Raga Sorathi is Rishabh (Re), and the Samvadi (second most significant note) is Dhaivat (Dha) or Pancham (Pa), depending on the specific Gharana (musical school).

• Relation to other Ragas: It bears a close resemblance to Raga Des and Raga Tilak Kamod. However, the specific movement (Chalan) and the emphasis on the Rishabh note distinguish it from others.

• Historical Evolution: The transition of Sorathi from a regional folk tune of Gujarat to a standard classical raga illustrates the "Great Tradition" of Indian music absorbing "Little Traditions" (local folk cultures).

• Regional Variants: While the classical form is standardized, various folk versions still exist in the Saurashtra and Kutch districts of Gujarat, often sung by local bards known as Charans and Gadhvis.

Q59. Answer: (a) To ensure sound after reflection reaches all corners of the hall

The correct answer is To ensure sound after reflection reaches all corners of the hall.

Key Points

• The ceilings of large venues like concert halls, conference halls, and cinema halls are generally designed with a curved shape (specifically a concave curvature) to act as a reflector for sound waves.

• When sound is produced on the stage, the waves travel upwards and strike the curved ceiling. Due to the laws of reflection, these waves are reflected downwards and spread uniformly across the entire width and length of the hall. Hence, statement 1 is correct.

• This design ensures that even the audience members seated in the furthest corners or at the back of the hall can hear the sound clearly without significant loss in intensity.

• Curved ceilings prevent the formation of "dead zones" where sound might not reach if the ceiling were flat or irregular. If the ceiling were flat, much of the sound would follow a direct path or reflect in a way that creates "hot spots" in some areas and silence in others. Hence, statement 2 is incorrect as the goal is to reflect, not stop sound.

• The curvature is calculated so that the angle of incidence and angle of reflection work together to cover the maximum area of the seating arrangement. Hence, statement 3 is partially incorrect because the goal is broad distribution, not just one narrow direction.

Additional Information

• Soundboards: In many professional auditoriums, a curved soundboard is placed behind the speaker or the musical performers. These boards are concave, and the source of sound is placed at the focus of the curve so that the reflected sound travels as a parallel beam toward the audience, enhancing clarity.

• Reverberation: This refers to the persistence of sound in an enclosed space due to multiple reflections. While a small amount of reverberation adds "warmth" to music, excessive reverberation can make speech unintelligible. Architects balance curved ceilings with absorbent materials to control the reverberation time.

• Reflection of Sound: Sound reflects off surfaces just like light. For a surface to reflect sound effectively, it must be hard and smooth. Ceilings are usually made of materials that facilitate this reflection, whereas walls might be treated differently.

• Acoustic Materials: To prevent unwanted echoes (which occur when the reflected sound reaches the ear after 0.1 seconds), the walls and seats of cinema halls are often covered with sound-absorbing materials such as compressed fiberboard, heavy curtains, or perforated acoustic panels. Hence, statement 4 is incorrect as the ceiling is specifically for reflection, while other elements are for absorption.

• Laws of Physics: The reflection of sound follows the same principles as light: the incident wave, the reflected wave, and the normal at the point of incidence all lie in the same plane, and the angle of incidence is equal to the angle of reflection.

Important Points

• Architectural Significance: The curvature of the ceiling is a critical part of architectural acoustics, a field that combines physics and engineering to optimize sound quality within buildings.

• Human Audibility: For a human to distinguish an echo from the original sound, the distance between the source and the reflecting surface must be at least 17.2 meters (assuming the speed of sound is 344 m/s at room temperature). Large halls use curved ceilings to manage these distances and ensure synchronous arrival of sound.

• Applications: This principle is not only used in modern multiplexes but was also understood by ancient civilizations, as seen in the design of Greek amphitheaters and whispering galleries (like the one in Gol Gumbaz in Karnataka, India).

Q60. Answer: (d) alluvial

The correct answer is alluvial.

Key Points

• The Northern Plains of India are primarily composed of alluvial soil, which has been deposited over millions of years by three major Himalayan river systems: the Indus, the Ganga, and the Brahmaputra, along with their numerous tributaries.

• Alluvial soil is the most widespread soil category in India, covering approximately 40 percent of the country's total land area. It is considered the most productive and fertile soil type due to its rich mineral content.

• The soil consists of varying proportions of sand, silt, and clay. As one moves inland from the river valleys, the soil particles appear larger, while in the upper reaches of the river valleys, the soil is often coarse.

• Based on its age, alluvial soil in the Northern Plains is classified into two types: Bhangar (old alluvium) and Khadar (new alluvium). Bhangar is found in the upland regions and contains calcareous deposits known as 'Kanker', whereas Khadar is found in the floodplains and is renewed annually.

• This soil is rich in essential nutrients such as potash, phosphoric acid, and lime, making it ideal for the cultivation of sugarcane, paddy (rice), wheat, and various pulse crops.

Additional Information

• Black Soil:

• Also known as Regur soil or Black Cotton Soil, it is primarily found in the Deccan Trap region (basalt region) covering Maharashtra, Saurashtra, Malwa, Madhya Pradesh, and Chhattisgarh.

• It is highly clayey, has high moisture-retention capacity, and is rich in nutrients like calcium carbonate, magnesium, and potash.

• Laterite Soil:

• Derived from the Latin word 'later' (meaning brick), this soil develops in areas characterized by high temperatures and heavy rainfall, leading to intense leaching.

• It is commonly found in Karnataka, Kerala, Tamil Nadu, and hilly regions of Odisha and Assam. It is suitable for growing cashew nuts and tea when treated with fertilizers.

• Yellow and Red Soil:

• Red soil develops on crystalline igneous rocks in areas of low rainfall in the eastern and southern parts of the Deccan Plateau.

• The soil develops a reddish color due to the diffusion of iron in crystalline and metamorphic rocks; it appears yellow when it occurs in a hydrated form.

• Arid Soil:

• These soils range from red to brown in color and are generally sandy in texture and saline in nature. They are found mostly in Western Rajasthan.

Important Points

• In the Northern Plains, the alluvial soil is also identified through regional variations like the Duars, Chos, and Terai, which are characteristic piedmont plains.

• The density of population is highest in the alluvial soil regions because the land is highly suitable for intensive agriculture, providing food security for a vast majority of the Indian population.

• Beyond the Northern Plains, this soil is also found in the eastern coastal plains, particularly in the deltas of the Mahanadi, Godavari, Krishna, and Cauvery rivers, as well as in narrow corridors in Gujarat and Rajasthan.

Q61. Answer: (d) Grants

The correct answer is Grants.

Key Points

• The Balance of Payments (BoP) is a comprehensive record of all economic transactions between the residents of a country and the rest of the world during a specific period, usually a financial year. It consists of two main components: the Current Account and the Capital Account.

• The Current Account records the export and import of goods and services, as well as unilateral transfers. Grants fall under the category of unilateral transfers because they are one-way transactions that do not involve a claim for repayment. Hence,

statement 4 is correct.

• Foreign Institutional Investment (FII) refers to investments made by foreign entities in the financial markets of a country, such as stocks and bonds. These represent changes in the ownership of financial assets and are recorded in the Capital Account. Hence, statement 1 is incorrect.

• Foreign Direct Investment (FDI) involves a long-term investment by a foreign company or individual into the productive capacity of another country, often involving management control. Since it involves capital flows that affect the assets and liabilities of a country, it is a part of the Capital Account. Hence, statement 2 is incorrect.

• External Borrowings, including External Commercial Borrowings (ECB) and loans from international organizations like the IMF or World Bank, create a liability for the country. Consequently, these transactions are recorded in the Capital Account rather than the current account. Hence, statement 3 is incorrect.

Additional Information

• Components of the Current Account:

• Visible Trade: This includes the export and import of physical goods (merchandise). The difference between these is known as the Balance of Trade (BoT).

• Invisible Trade: This involves services like banking, insurance, shipping, and tourism. It also includes income from profits, interest, and dividends earned on overseas assets.

• Unilateral Transfers: These are transfer payments received by or sent from a country without any corresponding exchange of goods or services. Examples include remittances from migrant workers, gifts, and foreign grants.

• Components of the Capital Account:

• Investments: This covers Direct Investment (FDI) and Portfolio Investment (FII/FPI).

• External Assistance: This includes concessional loans provided by foreign governments or multilateral agencies.

• Banking Capital: This refers to foreign currency assets held by commercial banks and Non-Resident Indian (NRI) deposits.

Important Points

• Deficit and Surplus: A Current Account Deficit (CAD) occurs when the total value of imports of goods, services, and transfers exceeds the total value of exports. Conversely, a surplus occurs when exports exceed imports.

• Remittances: India is historically one of the largest recipients of remittances in the world, which significantly bolsters its Current Account. These are classified as private transfers.

• Autonomous vs. Accommodating Items: Autonomous items are those transactions undertaken for economic motives (like profit), while accommodating items are transactions (like official reserve changes) carried out by the Central Bank (e.g., RBI in India) to bridge the BoP gap.

• Accounting Principle: The BoP follows a double-entry bookkeeping system. In an accounting sense, the BoP always balances (Sum of Current Account, Capital Account, and Errors and Omissions equals zero).

Q62. Answer: (a) Shashi Tharoor

The correct answer is Shashi Tharoor.

Key Points

• 'Riot: A Novel' is a critically acclaimed work of fiction written by the Indian politician and author Shashi Tharoor.

• The book was first published in the year 2001. It explores the complexities of Indian society, particularly the tensions between different religious communities.

• The narrative is set in 1989, against the backdrop of the Ram Janmabhoomi movement and the rising sectarian violence in a fictional town called Zalilgarh in Uttar Pradesh.

• The story unfolds through a series of diaries, letters, newspaper clippings, and interviews following the mysterious death of an American doctoral student named Priscilla Hart during a communal riot.

• Through this epistolary style, Shashi Tharoor examines themes of history, politics, religion, and the clash between Western and Indian perspectives.

Additional Information

• Shashi Tharoor:

• He is a prominent Indian diplomat, politician, and writer who served as the Under-Secretary-General of the United Nations.

• He is a sitting member of the Lok Sabha representing Thiruvananthapuram, Kerala since 2009.

• His other notable works include 'The Great Indian Novel' (1989), 'An Era of Darkness' (2016), and 'Why I Am a Hindu' (2018).

• He was awarded the Sahitya Akademi Award in 2019 for his book 'An Era of Darkness'.

• Anita Nair:

• She is an Indian novelist best known for her books 'Ladies Coupé' (2001), 'The Better Man', and 'Mistress'.

• Her writing often focuses on the lives of women in contemporary India and has been translated into over 30 languages.

• Samit Basu:

• He is an Indian novelist, graphic novelist, and screenwriter known for the 'GameWorld' trilogy and the superhero novel 'Turbulence'.

• He is considered a pioneer of Science Fiction and Fantasy literature in India.

• Shobha Rao:

• She is an Indian-American author known for her novel 'Girls Burn Brighter' (2018) and the short story collection 'An Unrestored Woman'.

• Her work frequently addresses themes of gender violence, migration, and survival.

Important Points

• Historical Context: The book 'Riot' provides deep insights into the 1980s political landscape of India, specifically the agitation surrounding the Babri Masjid-Ram Janmabhoomi dispute.

• Literary Style: The novel is unique because it lacks a standard linear narrative, instead using a multi-perspective approach to show how "truth" can be subjective and influenced by one's cultural or ideological background.

• Social Impact: It remains a significant text for understanding the roots of communalism and the challenges of maintaining a secular fabric in a diverse nation like India.

Q63. Answer: (c) Salman Rushdie

The correct answer is Salman Rushdie.

Key Points

• The book titled 'Joseph Anton: A Memoir' is an autobiographical work written by the world-renowned novelist Salman Rushdie, published in September 2012.

• The memoir chronicles Rushdie's life during the decade he spent in hiding following the fatwa (a religious decree calling for his death) issued by Ayatollah Khomeini, the Supreme Leader of Iran, on February 14, 1989.

• The fatwa was a response to the publication of his 1988 novel, 'The Satanic Verses', which was deemed blasphemous by some members of the Muslim community.

• The title 'Joseph Anton' refers to the pseudonym Rushdie adopted for his security and protection while living under the surveillance of the British police's Specialist Protection Command.

• He chose the name by combining the first names of two of his favorite literary figures: Joseph Conrad and Anton Chekhov.

• A unique feature of this memoir is that it is written in the third person, as Rushdie refers to himself as "he" or "Joseph Anton" throughout the narrative to reflect the sense of detachment he felt from his own life during those years. Hence, the correct answer is Salman Rushdie.

Additional Information

• Salman Rushdie:

• He was born on June 19, 1947, in Bombay (now Mumbai), India.

• He is most famous for his second novel, 'Midnight’s Children', which won the Booker Prize in 1981 and was later awarded the 'Booker of Bookers' in 1993.

• In June 2007, he was knighted by Queen Elizabeth II for his significant services to literature.

• His other notable works include 'Shame' (1983), 'The Moor’s Last Sigh' (1995), and 'Victory City' (2023).

• Kiran Desai:

• She is an Indian author and the daughter of the famous novelist Anita Desai.

• Her most celebrated novel, 'The Inheritance of Loss', won the Man Booker Prize in 2006 and the National Book Critics Circle Fiction Award.

• Chetan Bhagat:

• An Indian author and columnist known for his popular commercial fiction aimed at young urban middle-class Indians.

• His debut novel was 'Five Point Someone' (2004), which served as the basis for the movie '3 Idiots'. Other famous books include '2 States' and 'The 3 Mistakes of My Life'.

• Amit Chaudhuri:

• He is an Indian novelist, poet, and essayist who is also a trained classical musician.

• He received the Sahitya Akademi Award in 2002 for his novel 'A New World' and is known for his atmospheric prose in works like 'A Strange and Sublime Address'.

Q64. Answer: (d) British influence with cathedrals and tree-lined avenues

The correct answer is British influence with cathedrals and tree-lined avenues.

Key Points

• Chennai, formerly known as Madras, was the first major settlement of the British East India Company in India, established in 1639. This historical background heavily influenced its urban design and architectural landscape.

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• The city is renowned for its Indo-Saracenic style of architecture, which was a revivalist style used by British architects in the late 19th century. It combines Gothic, Islamic, and Hindu architectural elements.

• The presence of cathedrals and large churches, such as San Thome Basilica and St. Mary's Church (the oldest Anglican church in India), is a defining feature of the city's colonial heritage. Hence, the statement regarding British influence is correct.

• Unlike the cities of North India, Chennai does not feature Mughal domes and minarets as its primary architectural character, as the Mughal Empire's direct architectural influence was concentrated in the northern and central regions. Hence, statement 1 is incorrect.

• Rajput palaces are characteristic of the state of Rajasthan and the northwestern parts of India, known for their ornate balconies and courtyards, which are absent in Chennai's traditional skyline. Hence, statement 2 is incorrect.

• Buddhist stupas are ancient structures found in sites like Sanchi or Sarnath; while Tamil Nadu has a rich Dravidian temple history, stupa-based architecture does not define Chennai's modern character. Hence, statement 3 is incorrect.

Additional Information

• Indo-Saracenic Architecture: This style is characterized by bulbous domes, overhanging eaves, and pointed arches. Notable examples in Chennai include the Madras High Court (completed in 1892), the Chepauk Palace, and the Victoria Memorial Hall.

• Fort St. George: Founded in 1644, it is the first English fortress in India. It serves as the administrative headquarters for the Government of Tamil Nadu today and represents the transition from military to civil architecture.

• Neoclassical Style: Many British-era administrative buildings, such as the Ripon Building (built in 1913), follow the Neoclassical style, featuring white exteriors, Ionic columns, and symmetrical designs.

• Urban Planning: The British designed tree-lined avenues and "garden houses" in areas like Nungambakkam, Adyar, and Egmore. These wide roads and green canopies remain a distinct part of the city's old-world charm.

• Religious Heritage: San Thome Basilica is an important landmark built over the tomb of St. Thomas. While originally Portuguese, it was rebuilt by the British in 1893 in a grand Neo-Gothic style with tall spires.

Important Points

• Date of Establishment: The land for Madras was acquired on August 22, 1639, which is celebrated annually as Madras Day.

• Key Architects: Robert Fellowes Chisholm and Henry Irwin were the pioneers who designed many of the city's iconic Indo-Saracenic buildings.

• Madras High Court: It is the second largest judicial complex in the world after the one in London, showcasing the scale of British architectural ambition in the city.

Q65. Answer: (b) Adam's Bridge

The correct answer is Adam's Bridge.

Key Points

• Adam's Bridge is the historical and colonial name used to refer to the structure traditionally known in India as Ram Setu.

• It is a chain of natural limestone shoals that connects Pamban Island (also known as Rameswaram Island) off the southeastern coast of Tamil Nadu, India, to Mannar Island off the northwestern coast of Sri Lanka.

• The name "Adam's Bridge" became widely popular in the West during the British colonial era, following Abrahamic legends suggesting that Adam used the bridge to reach Adam's Peak in Sri Lanka after his expulsion from paradise.

• The structure is approximately 48 kilometers (30 miles) long and geographically separates the Gulf of Mannar (southwest) from the Palk Strait (northeast).

• Historical records and maps from the 18th century, including those by British cartographers, consistently used the term Adam's Bridge to identify this geographical feature.

Additional Information

• Mythological Context: In Hindu tradition, the bridge is known as Ram Setu and is believed to have been built by the Vanara Sena (monkey army) for Lord Rama to rescue his wife Sita from Ravana in Lanka, as described in the ancient epic Ramayana.

• Geological Origin: Geological evidence suggests that the bridge was a former land connection between India and Sri Lanka. Some studies indicate that the shoals are composed of sandbanks and corals that accumulated over a ridge in the Palk Strait.

• Historical Passability: Temple records from Rameswaram suggest that Ram Setu was entirely above sea level and could be crossed on foot until a violent cyclone in the year 1480 breached the ridge and deepened the channel.

• Sethusamudram Shipping Canal Project: This was a proposed project by the Government of India in 2005 aimed at creating a shipping route through the Palk Strait by dredging a portion of Adam's Bridge, which led to significant environmental and religious debates.

Important Points

• Location: It starts from Dhanushkodi at the tip of Pamban Island in India and ends at Talaimannar on Mannar Island in Sri Lanka.

• Marine Ecology: The waters around Adam's Bridge are shallow, ranging from 1 meter to 10 meters in depth, and are home to diverse marine life, including dugongs and rare sea grasses.

• International Borders: The Maritime Boundary Line between India and Sri Lanka passes through this chain of shoals, making it a

sensitive geopolitical zone.

• Scientific Studies: Various satellite imageries (like those from NASA and ISRO) have captured the bridge, confirming the presence of a continuous underwater ridge made of limestone and sand.

Q66. Answer: (b) Under the wire

The solution is in Hindi. Read it online.

Q67. Answer: (b) A situation or experience that is very unpleasant

The solution is in Hindi. Read it online.

Q68. Answer: (d) Acquaintance

The solution is in Hindi. Read it online.

Q69. Answer: (a) imbroglio

The solution is in Hindi. Read it online.

Q70. Answer: (a) Defence

The solution is in Hindi. Read it online.

Q71. Answer: (c) Hope

The solution is in Hindi. Read it online.

Q72. Answer: (a) Trustworthy

The solution is in Hindi. Read it online.

Q73. Answer: (a) Advent

The solution is in Hindi. Read it online.

Q74. Answer: (d) Tiny

The solution is in Hindi. Read it online.

Q75. Answer: (a) Entomologist

The solution is in Hindi. Read it online.

Q76. Answer: (a) Ornithologist

The solution is in Hindi. Read it online.

Q77. Answer: (c) Amateur

The solution is in Hindi. Read it online.

Q78. Answer: (b) decrease of direct taxes has

The correct answer is Option 2.

Key Points

• The error lies in the preposition "of" used after the noun "decrease."

• When referring to a reduction in the quantity, quality, or amount of something, the noun "decrease" (or "increase") is conventionally followed by the preposition "in."

• The phrase "decrease in direct taxes" is the standard idiomatic expression to describe a change within that category.

• Thus, the error is located in Option 2 of the sentence.

Therefore, the correct answer is Option 2.

Correct Sentence: "The unprecedented decrease in direct taxes has increased the earning potential of the capitalists."

Additional Information

• Option 1: "The unprecedented" – This is correct. "Unprecedented" is an adjective meaning never done or known before, and it correctly modifies the noun "decrease."

• Option 3: "increased the earning" – This part is grammatically correct; "increased" is the past participle used with "has" to form the present perfect tense.

• Option 4: "potential of the capitalists." – This is correct. "Potential of" is a standard way to show possession or relationship.

• Prepositional Rule: Words denoting a rise or fall (increase, decrease, rise, fall, drop, decline) usually take the preposition "in" when followed by the thing that is changing (e.g., "a fall in prices," "an increase in temperature").

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Q79. Answer: (c) of the ignition system of the car,

The correct answer is Option 3.

Key Points

• The error lies in the prepositional phrase "problem of" used to describe a mechanical or functional fault.

• In English, when referring to a malfunction, difficulty, or an issue related to a specific object or system, the preposition "with" is the standard idiomatic choice.

• The phrase "problem with the ignition system" correctly indicates that the fault exists within that specific part of the car.

• Thus, the error is located in Option 3 of the sentence.

Therefore, the correct answer is Option 3.

Correct Sentence: "There is an irreparable problem with the ignition system of the car, which has to be addressed immediately."

Additional Information

• Option 1: "There is an" – This part is correct. "An" is the appropriate indefinite article used before the vowel sound in "irreparable."

• Option 2: "irreparable problem" – This part is grammatically sound. "Irreparable" is an adjective modifying the noun "problem."

• Option 4: "which has to be addressed immediately." – This is correct. "Which" is a relative pronoun introducing a non-defining clause, and "addressed immediately" correctly uses the passive voice and an adverb.

• 'Problem of' vs 'Problem with': We generally use "problem of" for broad, abstract, or societal issues (e.g., "the problem of unemployment") and "problem with" for specific things that are not working correctly (e.g., "a problem with the computer").

Q80. Answer: (d) out of

The correct answer is 'out of'.

Key Points

• The preposition "out of" is used to indicate movement from the inside of a place or object to the outside.

• In the given sentence, the teacher is retrieving a book from inside the cupboard, making "out of" the correct preposition.

• Options 1, 2, and 3 do not fit the context of the sentence and are grammatically incorrect in this scenario.

Therefore, the correct answer is Option 4.

Complete Sentence: "The teacher pulled a book out of the cupboard."

Additional Information

• Option 1: "by" is incorrect because "by" is used to indicate proximity or agency, not movement.

• Option 2: "for" is incorrect as it indicates purpose or intent, which is not suitable here.

• Option 3: "out" is incorrect as it lacks the directional aspect conveyed by "out of."

Q81. Answer: (b) in

The correct answer is 'in'.

Key Points

• The correct preposition to use in the context of mentioning something within a document or text is "in".

• The sentence structure implies that the value of the property should be mentioned inside the will, making "in" the appropriate choice.

• Options 1 (out), 3 (for), and 4 (of) do not fit the grammatical or contextual requirements of the sentence.

Therefore, the correct answer is Option 2.

Complete Sentence: "The value of the property is not mentioned in the will."

Additional Information

• Option 1: "out" is incorrect because "out" does not convey the idea of inclusion within the document.

• Option 3: "for" is incorrect because "for" is used to indicate purpose or benefit, which is not applicable here.

• Option 4: "of" is incorrect because "of" indicates possession or relation, and does not fit the sentence context.

Q82. Answer: (b) has presented their reports

The correct answer is 'has presented their reports'.

Key Points

• The subject of the sentence is "Each of the representatives", which is singular.

• A singular subject requires a singular verb, so "has" is the correct verb form.

• The phrase "their reports" is correct because it refers to the individual reports presented by each representative.

• Options 1, 3, and 4 are incorrect because they either use the wrong verb form or do not align grammatically with the subject.

Therefore, the correct answer is Option 2.

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Complete Sentence: "Each of the representatives from the various states has presented their reports on healthcare reforms."

Additional Information

• Option 1: "have presented their report" is incorrect because "have" does not agree with the singular subject.

• Option 3: "were presented their reports" is incorrect because it uses the passive voice unnecessarily and does not fit the context.

• Option 4: "No improvement required" is incorrect because the original sentence has a grammatical error with "have" not agreeing with the singular subject.

Q83. Answer: (a) the less oxygen is available

The correct answer is 'the less oxygen is available'.

Key Points

• The phrase "the lesser oxygen is available" in the original sentence is incorrect because "lesser" is not appropriate in this context.

• The correct comparative form of "less" to describe a decreasing quantity is simply "less."

• The sentence is describing a comparison between the availability of oxygen at different altitudes, which requires the use of the comparative adjective "less."

Therefore, the correct answer is Option 1.

Complete Sentence: "When scaling the Himalayas, the higher one ascends, the less oxygen is available."

Additional Information

• Option 2: "the least oxygen is available" is incorrect because "least" is a superlative form and does not fit the context of comparison between altitudes.

• Option 3: "the oxygen available is lesser" is incorrect because "lesser" is used incorrectly here; "less" should be used.

• Option 4: "No improvement required" is incorrect because the original sentence contains an error and needs correction.

Q84. Answer: (d) CDAB

The correct answer is Option 4.

Key Points

• The paragraph begins with S1, which introduces Groholsky and sets the context that he is still living in the same villa.

• Sentence C is the first sentence after S1 as it focuses on Groholsky's hopes and desires, which revolve around Liza:

• "His hopes and desires, small and unexacting, were still concentrated on the same Liza, on her alone, and on nothing else!"

• Sentence D follows, as it describes Groholsky's emotions and his inability to take his eyes off Liza:

• "As before, he could not take his eyes off her, and gloated over the thought: how happy I am!"

• Sentence A is next, as it highlights Groholsky's happiness despite his poor circumstances:

• "The poor fellow really did feel awfully happy."

• Sentence B is the fourth, as it describes Liza's behavior and surroundings, connecting back to Groholsky's feelings:

• "Liza sat as before on the veranda, and unaccountably stared with bored eyes at the villa opposite and the trees near it through which there was a peep at the dark blue sea..."

• The paragraph ends with S2, which describes Liza's silence, tears, and care for Groholsky, maintaining coherence.

• The correct sequence is CDAB.

Coherent paragraph after rearrangement:

"Groholsky was still living in the same villa. His hopes and desires, small and unexacting, were still concentrated on the same Liza, on her alone, and on nothing else! As before, he could not take his eyes off her, and gloated over the thought: how happy I am! The poor fellow really did feel awfully happy. Liza sat as before on the veranda, and unaccountably stared with bored eyes at the villa opposite and the trees near it through which there was a peep at the dark blue sea... As before, she spent her days for the most part in silence, often in tears and from time to time in putting mustard plasters on Groholsky."

Q85. Answer: (b) DCBA

The correct answer is Option 2.

Key Points

• The given paragraph revolves around a vivid description of a woman on a station platform. The sentences need to be arranged logically to maintain coherence and unity.

• Sentence D is the first sentence as it describes her general appearance and belongings:

• "She was dressed in a brown jacket and a narrow brown skirt and in her bare hands she clutched a broken down-looking leather bag-the outside pockets bulging with what looked like old torn-up envelopes."

• Sentence C follows as it further elaborates on her accessories, highlighting the peculiar dead animal:

• "Round her neck some indescribable little dead animal bit its own tail, its fur standing up wet and sticky like the fur of a drowned

kitten."

• Sentence B comes next as it describes her lower clothing and footwear, which complements the details in D and C:

• "Brown button boots showed under the skirt and an end of white petticoat dabbled with mud."

• Sentence A is the last sentence as it gives a broader context to her surroundings and her isolation:

• "The toss and tumble, the hurrying threading rush of movement left her high and dry."

• The correct sequence is DCBA.

Coherent paragraph after rearrangement:

"She was dressed in a brown jacket and a narrow brown skirt and in her bare hands she clutched a broken down-looking leather bag-the outside pockets bulging with what looked like old torn-up envelopes. Round her neck some indescribable little dead animal bit its own tail, its fur standing up wet and sticky like the fur of a drowned kitten. Brown button boots showed under the skirt and an end of white petticoat dabbled with mud. The toss and tumble, the hurrying threading rush of movement left her high and dry."

Q86. Answer: (a) It allows students to pick courses based on their career goals.

The correct answer is 'Option 1'.

Key Points

• Option 1: It allows students to pick courses based on their career goals.

• The passage explicitly states that CBCS "empowers students with the autonomy to shape their academic journey according to their interests and aspirations."

• Unlike the traditional system, it offers a "diverse array of courses," including interdisciplinary and skill-based ones, providing "flexibility and customization options" that allow students to align their studies with their future career paths.

• Option 2: It requires students to follow a fixed curriculum with no flexibility.

• This is incorrect. This description applies to the traditional education structures mentioned in the text, which CBCS is designed to replace with a more "dynamic" and flexible framework.

• Option 3: It limits students to a single discipline and discourages skill development.

• This is incorrect. The text highlights that CBCS specifically includes "interdisciplinary and skill-based" courses alongside core subjects.

• Option 4: It focuses solely on memorization and theoretical knowledge.

• This is incorrect. By including "skill-based" courses and focusing on "holistic development," the system moves away from a purely theoretical or rote-learning approach.

Therefore, the correct answer is Option 1.

Additional Information

• Core, Elective, and Foundation: Under CBCS, courses are usually categorized into Core (compulsory), Elective (chosen from a pool), and Foundation (value-based or skill-enhancement) papers.

• NEP 2020: The New Education Policy emphasizes the "multidisciplinary" nature of education, and CBCS is a primary vehicle to achieve this by breaking the silos between arts, sciences, and commerce.

• UGC (University Grants Commission): This is the statutory body in India responsible for maintaining standards of higher education. The passage notes that CBCS is a pivotal tool recommended by the UGC.

Q87. Answer: (b) It integrates core subjects with skill-based courses for the holistic development of the students

The correct answer is 'Option 2'.

Key Points

• Option 2: It integrates core subjects with skill-based courses for the holistic development of the students.

• The passage identifies CBCS as a revolutionary framework because it "offers a diverse array of courses, including interdisciplinary and skill-based ones, alongside core subjects."

• It further explains that this specific integration "fosters holistic development" by allowing students the flexibility to move beyond a single rigid stream of study.

• Option 1: It mandates uniform subject selection...

• This is incorrect. The text states that CBCS "empowers students with the autonomy" to choose subjects based on their interests, which is the opposite of mandating uniform selection.

• Option 3: It limits students to traditional academic disciplines...

• This is incorrect. The framework is described as "dynamic" and specifically includes "interdisciplinary" courses to encourage innovation and broad learning.

• Option 4: It overlooks international standards...

• This is incorrect. The passage notes that the system is "Inspired by international educational models" and is intended to "align

with global standards."

Therefore, the correct answer is Option 2.

Additional Information

• Holistic Development: This refers to the comprehensive growth of a student, covering intellectual, mental, physical, and emotional facets through a balanced curriculum of theory and skills.

• UGC Recommendations: The University Grants Commission introduced CBCS to ensure that the Indian higher education system becomes student-centric rather than teacher-centric.

• Credit-Based Assessment: Under this reform, "Credits" are assigned to each course. Students must earn a specific number of credits to complete their degree, allowing for a standardized evaluation that is recognized globally.

Q88. Answer: (d) It supports NEP reforms by encouraging flexibility, interdisciplinary learning, and global alignment in hig...

The correct answer is 'Option 4'.

Key Points

• Option 4: It supports NEP reforms by encouraging flexibility, interdisciplinary learning, and global alignment in higher education.

• The passage identifies CBCS as a "pivotal tool" for the reforms currently happening under the New Education Policy (NEP).

• It aligns with the NEP vision by offering "flexibility and customization," enabling "interdisciplinary" study, and ensuring that the Indian system is "inspired by international educational models" to reach global standards.

• Option 1: It goes against NEP by sticking to rigid subject structures...

• This is incorrect. The text describes CBCS as the opposite of rigid; it is a "dynamic framework" that provides students with the "autonomy" to choose their courses.

• Option 2: It ignores NEP recommendations and continues with outdated curricula...

• This is incorrect. The passage explicitly states that CBCS is "recommended by the UGC" specifically to align with the reforms of the NEP.

• Option 3: It slows down NEP implementation by resisting reforms...

• This is incorrect. Rather than resisting, CBCS is described as "revolutionizing the landscape" and serving as a key instrument in executing the NEP's goals.

Therefore, the correct answer is Option 4.

Additional Information

• NEP 2020 Vision: The policy aims to transform India into a "global knowledge superpower" by making education more holistic, flexible, and multidisciplinary. CBCS is the structural mechanism that allows this flexibility.

• Interdisciplinary Learning: This allows a student of Science to take a course in Music or Economics, breaking the traditional "silos" of education that the NEP seeks to remove.

• Global Standards: By using a credit-based system, Indian degrees become more easily comparable to those from international universities, facilitating student mobility and global recognition.

Q89. Answer: (d) It follows global models by giving students flexibility, interdisciplinary choices, and a credit-based system.

The correct answer is 'Option 4'.

Key Points

• Option 4: It follows global models by giving students flexibility, interdisciplinary choices, and a credit-based system.

• The passage explicitly states that CBCS is "Inspired by international educational models" and is used to "align with global standards."

• It achieves this by offering "flexibility," "customization options," and a variety of "interdisciplinary" courses, which are standard features of higher education systems in many developed countries.

• Option 1: It separates Indian education from international standards...

• This is incorrect. The text mentions that the system is specifically designed to "align" with global standards, not separate from them.

• Option 2: It keeps only traditional subjects and does not focus on skill development...

• This is incorrect. The passage highlights that CBCS includes "skill-based ones, alongside core subjects," making students more competitive by teaching them practical skills.

• Option 3: It does not accept reforms and uses old teaching methods...

• This is incorrect. CBCS is described as a "dynamic framework revolutionizing" education and is a part of the "significant reforms" under the New Education Policy.

Therefore, the correct answer is Option 4.

Additional Information

• Credit System: In a credit-based system, a "credit" represents a specific number of teaching hours. This standardization allows for Credit Transfer, where a student can move from one university to another (even internationally) and have their previous work recognized.

• Global Mobility: By aligning with international models, CBCS makes it easier for Indian students to apply for higher studies or jobs abroad, as their academic records are in a format that global institutions understand.

• Interdisciplinary Choice: This allows for a "Major" and "Minor" approach similar to US or European universities, where a student can balance a core subject like Physics with an elective in Literature or Digital Marketing.

Q90. Answer: (c) International frameworks advocating flexibility and learner autonomy

The correct answer is 'Option 3'.

Key Points

• Option 3: International frameworks advocating flexibility and learner autonomy.

• The passage clearly states that CBCS is "Inspired by international educational models."

• It further elaborates that these models focus on "autonomy" for the student, allowing them to "shape their academic journey" based on individual interests.

• This philosophy shifts the focus from a rigid, one-size-fits-all approach to one characterized by "flexibility and customization," which are core tenets of modern international educational frameworks.

• Option 1: Traditional Indian models emphasizing rote learning.

• This is incorrect. The text positions CBCS as a departure from "traditional education structures," aiming for "holistic development" rather than the memorization associated with rote learning.

• Option 2: Government schemes focused solely on vocational training.

• This is incorrect. While CBCS includes "skill-based" courses, it integrates them "alongside core subjects" within a broader academic framework, rather than focusing solely on vocational training.

• Option 4: Systems designed to reduce academic diversity...

• This is incorrect. CBCS is designed to increase diversity by offering a "diverse array of courses" and "interdisciplinary" options.

Therefore, the correct answer is Option 3.

Additional Information

• Learner Autonomy: This is a philosophy where the student takes responsibility for their own learning. In CBCS, this is manifested through the ability to choose electives and "soft" subjects that align with personal career goals.

• Holistic Education: The "holistic development" mentioned in the text refers to an educational philosophy that seeks to develop all aspects of the learner—intellectual, emotional, social, and physical—rather than just academic knowledge.

• Global Comparability: By adopting international philosophies of flexibility and credit-based weights, Indian degrees become more "portable," making it easier for students to seek employment or further education in global markets.

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