SSC CHSL Tier-1 2024: Official Paper (Held On: 01 Jul, 2024 Shift 4) (Previous Year Paper)

SSC Combined Higher Secondary Level (CHSL) • 2024 • 100 questions • 60 minutes • Answer key and solutions

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ENGLISH LANGUAGE

Q1. The following sentence has been divided into four segments. Identify the segment that contains an error.

Throw of / the old shoes; / nobody will wear / them now.

(a) the old shoes;
(b) them now.
(c) Throw of
(d) nobody will wear

Q2. The given sentence is divided into four segments. Identify the segment that contains a grammatical error.

When it / come to football, / my brother is / an addict.

(a) my brother is
(b) When it
(c) an addict.
(d) come to football,

Q3. Select the option with the correct use of article(s).

(a) I was rude to him when I was in the fit of rage.
(b) I was rude to him when I was in fit of rage.
(c) I was rude to him when I was in an fit of rage.
(d) I was rude to him when I was in a fit of rage.

Q4. Select the option with the correct use of present tense.

(a) She has spend all her money on make-up in order to look beautiful.
(b) She spended all her money on make-up in order to look beautiful.
(c) She had spend all her money on make-up in order to look beautiful.
(d) She spends all her money on make-up in order to look beautiful.

Directions

In the following passage, some words have been deleted. Read the passage carefully and select the most appropriate option to fill in each blank.

During the days of slavery, there lived (1)___ very hard-working slave. One day, (2)_ freedom, he ran away from his masters house. As he passed a forest, he saw a lion (3) with pain, for a huge thorn had pierced its paw. The slave felt sorry for the lion and took out the thorn gently. The grateful lion licked the slaves hand. But just then, both of (4)_ were captured by the soldiers. The king ordered, “Let the runaway slave (5)___ thrown in front of a hungry lion.” But, when the slave was thrown in front of the lion, the lion licked him and quietly sat beside him. The amazed king asked the reason. The slave told the king everything. The king pardoned the slave. The lion was also freed and sent to the forest.

Q5. Select the most appropriate option to fill in blank number 1.

(a) two
(b) a
(c) an
(d) the

Q6. Select the most appropriate option to fill in blank number 2.

(a) gained
(b) gains
(c) gain
(d) to gain

Q7. Select the most appropriate option to fill in blank number 3.

(a) roars
(b) roar
(c) roared
(d) roaring

Q8. Select the most appropriate option to fill in blank number 4.

(a) us
(b) him
(c) them
(d) her

Q9. Select the most appropriate option to fill in blank number 5.

(a) being
(b) is
(c) been
(d) be

Q10. Select the most appropriate option that can substitute the underlined segment in the given sentence.

Sonam's cat used to chase the mouse into the kitchen and knock through a tower of pots and pans.

(a) knock out a tower of pots
(b) knock inside a tower of pots
(c) knock away a tower of pots
(d) knock over a tower of pots

Q11. Identify the INCORRECTLY spelt word in the following sentence and select its correct spelling from the given options.

The committee heard that he had been negliegent in his duty.

(a) hurd
(b) dutie
(c) comittee
(d) negligent

Q12. Select the most appropriate meaning of the given idiom.

Cost an arm and a leg

(a) To be very expensive
(b) To be inexpensive
(c) To be moderately priced
(d) To be affordable

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Q13. Select the most appropriate synonym of the given word.

Titanic

(a) Deep
(b) Disastrous
(c) Huge
(d) Attractive

Q14. Select the most appropriate option that can substitute the underlined segment in the given sentence. If there is no need to substitute it, select 'No improvement required'.

I am so glad that I ran into you on the way.

(a) ran away
(b) ran over
(c) No improvement required
(d) ran out of

Q15. Select the most appropriate ANTONYM of the underlined word in the given sentence.

Prajakta is a very vain girl.

(a) Humble
(b) Honourable
(c) Hopeful
(d) Honest

Q16. Select the option that will improve the underlined part of the given sentence.

Mothers have great animosity for their children.

(a) affectation
(b) absurdity
(c) affection
(d) abasement

Q17. Identify the most appropriate ANTONYM of the underlined word in the following sentence.

A boisterous horse must have a rough bridle.

(a) Bouncy
(b) Calm
(c) Rowdy
(d) Loud

Q18. Select the option that will improve the underlined part of the given sentence.

This win could enhance to be a historic turning point in the fortunes of the team.

(a) confirm
(b) prove
(c) accomplish
(d) demonstrate

Q19. Select the most appropriate idiom for the underlined segment in the following sentence.

The arrival of Pragati in the house brought disharmony among the family members.

(a) A cry in the wilderness
(b) Tenterhooks
(c) Rift in the lute
(d) Hair breadth

Q20. Select the most appropriate synonym of the given word.

Fasten

(a) Undo
(b) Bolt

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(c) Detach
(d) Loosen

Q21. Select the most appropriate ANTONYM of the underlined word in the given sentence.
Ralph's condition worsened in the hospital.
(a) Scaled
(b) Traversed
(c) Improved
(d) Changed

Q22. There is a spelling error in the given sentence. Select the option that contains the INCORRECTLY spelt word.
The precious bookshelf was carefully decorated with religiuos books.
(a) religiuos
(b) precious
(c) carefully
(d) decorated

Q23. Select the most appropriate option to fill in the blank.
The CEO's decision to cut benefits was a _____ move.
(a) laborious
(b) rigorous
(c) harsh
(d) humorous

Q24. Select the most appropriate ANTONYM of the underlined word in the given sentence.
The organisation's furtive actions must be taken into notice and dealt with accordingly.
(a) Foxy
(b) Shady
(c) Futuristic
(d) Truthful

Q25. Select the most appropriate ANTONYM of the given word.
Stingy
(a) Generous
(b) Deceitful
(c) Lascivious
(d) Humorous

GENERAL INTELLIGENCE

Q26. In a certain code language,
'M & N' means 'M is the father of N',
'M@N' means 'M is the daughter of N',
'M#N' means 'M is the brother of N',
'M % N' means 'M is the mother of N'.
Based on this, how is A related to E, if 'A & B # C @ D % E'?
(a) Father's brother
(b) Brother
(c) Son
(d) Father

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Q27. Select the set in which the numbers are related in the same way as are the numbers of the following sets.

(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)

(59, 83, 97)

(63, 87, 101)

(a) (67, 91, 115)
(b) (71, 95, 109)
(c) (51, 65, 89)
(d) (48, 82, 96)

Q28. Select the combination of letters that when sequentially placed in the blanks of the given series will complete the series.

_ n p _ r r _ p _ m m _ p q _ r q _ n m _ n p _ r r q _ n m

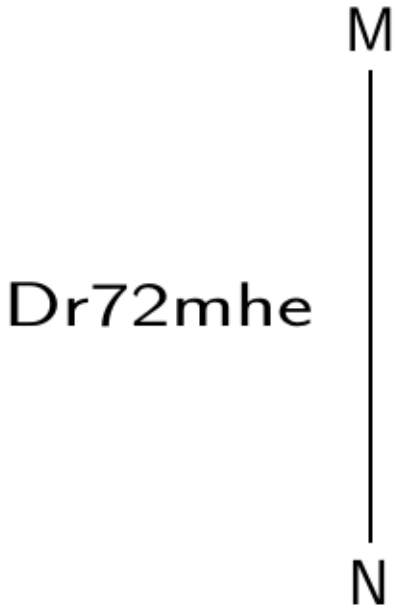
(a) mqqnnrpmqp
(b) mqqrnrpmqp
(c) mqqrnnpmqp
(d) mrqnnrmpqp

Q29. What will come in the place of '?' in the following equation, if '×' and '÷' are interchanged?

18 - 2 + 12 × 4 ÷ 7 = ?

(a) 45
(b) 37
(c) 30
(d) 49

Q30. Select the correct mirror image of the given combination when the mirror is placed at MN as shown below.



(a)



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(b)



(c)



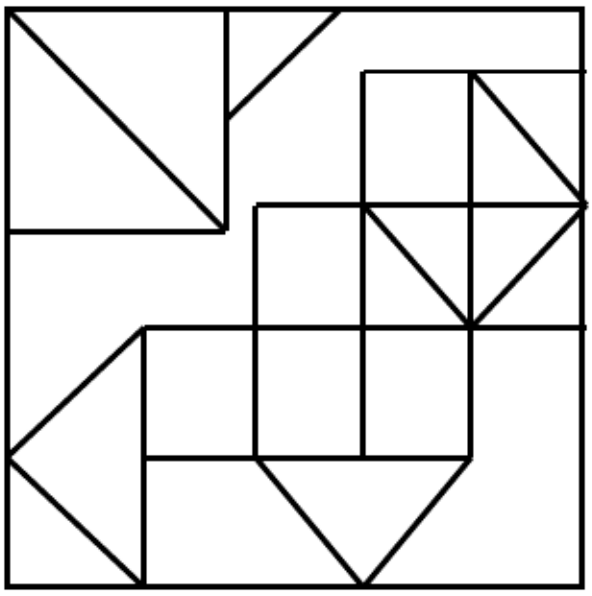
(d)



Q31. If ‘A’ stands for ‘÷’, ‘B’ stands for ‘×’, ‘C’ stands for ‘+’ and ‘D’ stands for ‘–’, then the resultant of which of the following will be 217?

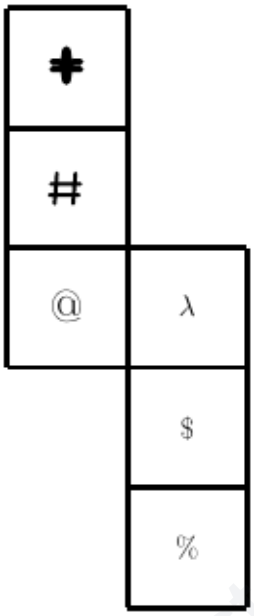
(a) 32 D 5 B 10 A 2 C 62
(b) 32 A 5 D 10 B 2 C 62
(c) 32 B 5 D 10 C 2 A 62
(d) 32 B 5 D 10 A 2 C 62

Q32. How many triangles are there in the given figure?



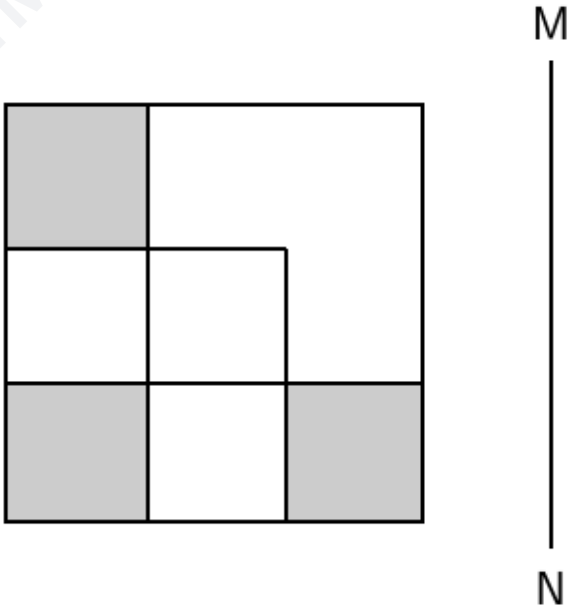
(a) 15
(b) 12
(c) 13
(d) 11

Q33. What would be the symbol on the opposite side of '@' if the given sheet is folded to form a cube?

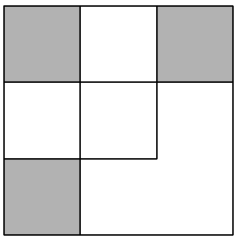


(a) $
(b) %
(c) ^
(d) *

Q34. Select the correct mirror image of the given figure when the mirror is placed at MN as shown below.

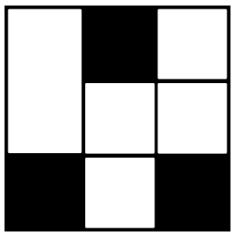


(a)



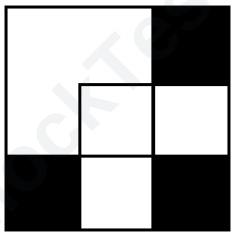
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(b)



(c)

(d)



Q35. Select the option that is related to the third number in the same way as the second number is related to the first number and the sixth number is related to the fifth number.

64 : 512 :: 169 : ? :: 225 : 3375

(a) 1852
(b) 2197
(c) 872
(d) 1026

Q36. In a certain language, 'make someone happy' is written as 'Ab Te Dp' and 'someone robbed him' is written as 'Te Ko Vi'. How is 'someone' written in the given language?

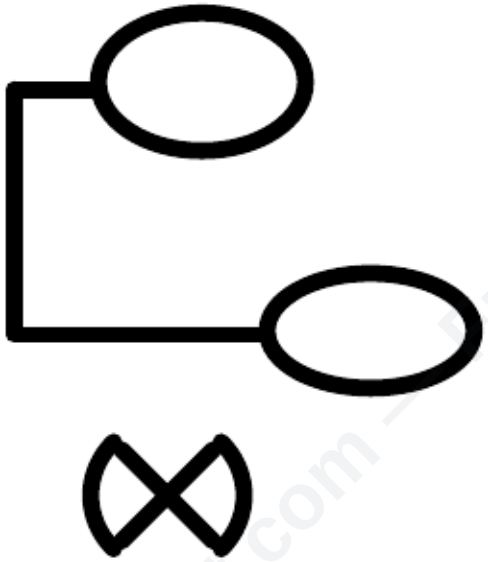
(a) Ko
(b) Te
(c) Ab
(d) Vi

Q37. FHGE is related to IKJH in a certain way based on the English alphabetical order. In the same way, HJIG is related to KMLJ. To which of the following is RTSQ related, following the same logic?

(a) UWVT
(b) VWUT
(c) UVWT
(d) TVUS

Q38. Select the option figure in which the given figure (X) is embedded as its part (rotation is NOT allowed).

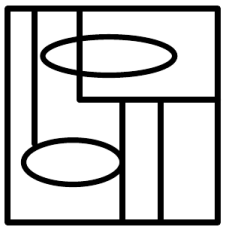
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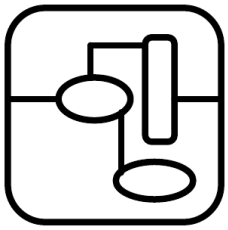
(a)



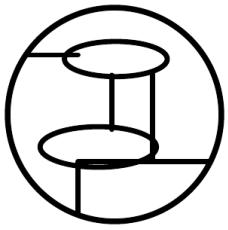
(b)



(c)



(d)

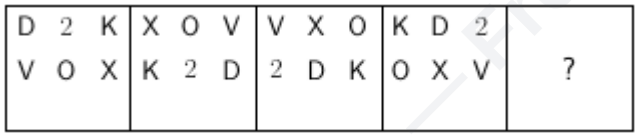


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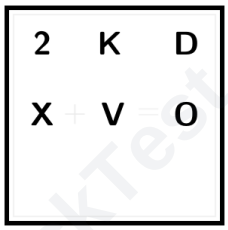
Q39. In a certain code language, 'I am boy' is coded as 'it sit pit' and 'I am girl' is coded as 'sit nit it. What is the code for 'girl' in that language?

(a) it
(b) pit
(c) sit
(d) nit

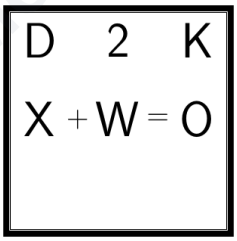
Q40. Identify the figure given in the options that when put in place of the question mark (?) will logically complete the series.



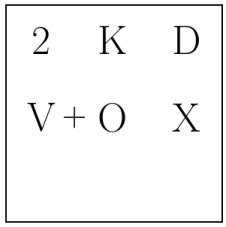
(a)



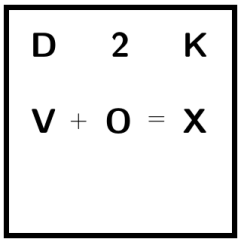
(b)



(c)



(d)



Q41. What should come in place of? in the given series based on the English alphabetical order?

DLT ZHP VDL ? NVD

(a) BLV
(b) DNX
(c) CMW
(d) RZH

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Q42. Read the given statements and conclusions carefully. Assuming that the information given in the statements is true, even if it appears to be at variance with commonly known facts, decide which of the given conclusions logically follow(s) from the statements.

Statements:

All watches are dials.

All dials are phones.

Some phones are mobiles.

Conclusions:

(I) No watch is a phone.

(II) Some dials are mobiles.

(a) Only conclusion I follows
(b) None of the conclusions follow
(c) Both conclusions I and II follow
(d) Only conclusion II follows

Q43. What should come in place of '?' in the given series?

21 60 177 528 1581 ?

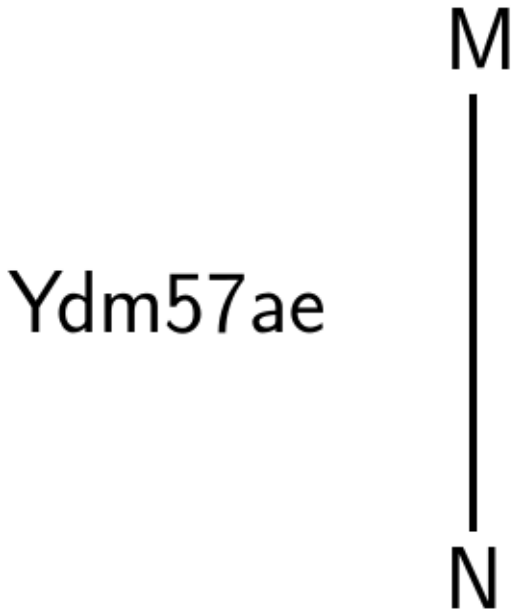
(a) 4740
(b) 4570
(c) 4892
(d) 4636

Q44. What should come in place of the question mark (?) in the given series?

4, 20, 100, 500, 2500, ?

(a) 12600
(b) 12200
(c) 12700
(d) 12500

Q45. Select the correct mirror image of the given combination when the mirror is placed at MN as shown below.



(a)



(b)



(c)



(d)



Q46. The position of how many letters will change if each of the letters in the word TROUBLEMAKING is arranged from left to right in alphabetical order?

(a) Eleven
(b) All
(c) Twelve
(d) Ten

Q47. CZ22 is related to HE33 in a certain way. In the same way, QN47 is related to VS58. To which of the following is WT7 related following the same logic?

(a) GA21
(b) BY21
(c) BY18
(d) GA18

Q48. Three of the following four are alike in a certain way and thus form a group. Which is the one that does NOT belong to that group?

(Note: The odd one out is not based on the number of consonants/vowels or their position in the letter cluster.)

(a) BEI
(b) JMP
(c) SVZ
(d) KNR

Q49. What will come in the place of the question mark (?) in the following equation, if '+' and '-' are interchanged and '×' and '÷' are interchanged?

209 ÷ 2 + 14 - 120 × 3 = ?

(a) 444
(b) 454
(c) 412
(d) 434

Q50. If 1 January 2020 was a Wednesday, then what day of the week was it on 1 January 2021?

(a) Friday
(b) Wednesday
(c) Thursday
(d) Tuesday

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QUANTITATIVE APTITUDE

Q51. Fifteen persons working 12 hours a day earn Rs. 18,000 per week. How many rupees will 18 persons working 9 hours a day earn per week?

(a) Rs. 16,200
(b) Rs. 12,060
(c) Rs. 16,020
(d) Rs. 12,600

Q52. Study the given table and answer the question that follows.

The table shows the results of half-yearly and annual examinations of three sections A, B, C of class X students in a school.

Result	Number of students		
Section A	Section B	Section C	
Students failed in both exams	39	20	12
Students failed in half- yearly but passed in annual exams	16	14	6
Students passed in half-yearly but failed in annual exams	10	12	8
Students passed in both exams	65	45	35

Find the failed percentage of section C in at least one of the two examinations.

(a) 38.23%
(b) 42.62%
(c) 30.81%
(d) 10.42%

Q53. Find the lowest positive value of (c – b) such that the 7-digit number 1738b9c is divisible by 12.

(a) 4
(b) 1
(c) 7
(d) 2

Q54. Two circles of radius 7 units each, intersect in such a way that the common chord is of length 7 units. What is the common area in square units of the intersection?

(a) 98(π/3-(√(3))/4)
(b) 98(π/6-(√(3))/4)
(c) 98(π/6-(√(3))/6)
(d) 98(π/6-(√(3))/3)

Q55. If the side of a cube is 3,which of the following options is equal to the ratio between the surface area and the volume of the cube?

(a) 2 : 7
(b) 2 : 5
(c) 2 : 3
(d) 2 : 1

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Q56. The difference between two numbers is 48. The ratio of these two numbers is 7 : 3. What is the sum of the two numbers?

(a) 120
(b) 90
(c) 100
(d) 110

Q57. Find the diameter of a spherical ball whose volume is 38.808 cm^3. (Use $\pi = 22/7$)

(a) 4.6 cm
(b) 4.8 cm
(c) 4.4 cm
(d) 4.2 cm

Q58. The simple interest on the sum for 12 years is three-fifth of the sum. The rate of interest per annum is:

(a) 6%
(b) 4%
(c) 5%
(d) 3%

Q59. If the selling price of 40 articles is equal to the cost price of 50 articles, then the percentage gain is:

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

Q60. The population of a city was 5000000 in 2020. The population grows 7.5% annually. The population in 2022 is _____.

(a) 5778125
(b) 5558875
(c) 5887125
(d) 5875215

Q61. M varies inversely as $(N^2 + 3)$. If M = 3 when N = 3, then what will be the value of M when $N^2 = 69$?

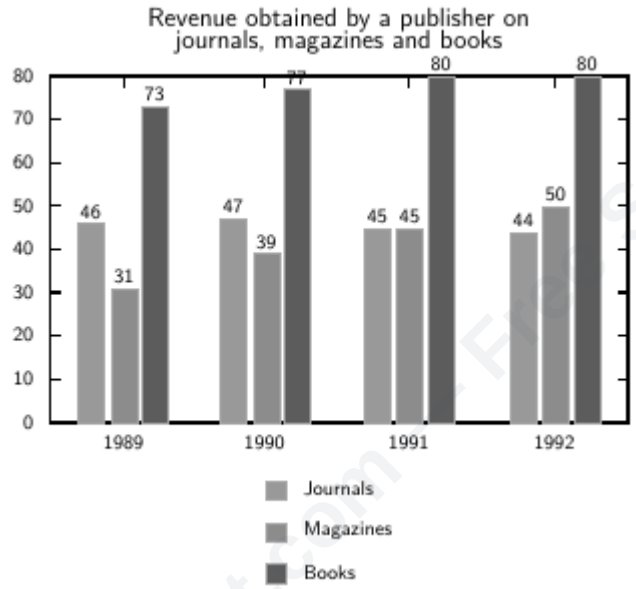
(a) 1/2
(b) 1/4
(c) $\sqrt{69}$
(d) 1

Q62. Successive division of a number by 2, 3, 5 and 7 gives remainders 1, 4, 0 and 5, respectively. What will be the sum of the remainders if the same number is divided by 7, 5, 3 and 2 successively?

(a) 17
(b) 9
(c) 10
(d) 8

Q63. Answer the following question on the basis of the bar graph given.

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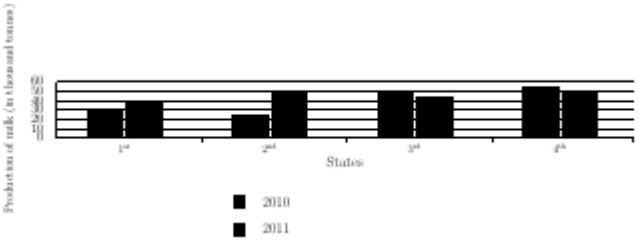
Which year shows the highest change in the revenue obtained from magazines?

(a) 1990
(b) 1991
(c) 1989
(d) 1992

Q64. 12 sin2 A + 2 cos2 A = 7, where 0 < A < 180º. Then cot A is:

(a) ± 1/2
(b) ±1
(c) ± 1/√2
(d) ± 1/√3

Q65. The following graph shows the production of milk in 4 states in 2010 and 2011.



The difference between the average production (in thousand tonnes) for all state in both years is:

(a) 6.25
(b) 6.75
(c) 7.25
(d) 7.75

Q66. The surface area of a sphere is 2464 cm². Find its volume.

(a) 11498 2/3 ~cm³
(b) 13121 1/3 ~cm³
(c) 11892 2/3 ~cm³
(d) 11621 1/3 ~cm³

Q67. One company is offering a 25% discount on a particular product. Anurag visited a store. He was trying to find a deal that would allow him to save at least Rs. 390. How many minimum items should he purchase if each item costs Rs. 340?

(a) 7
(b) 6

(c) 5
(d) 4

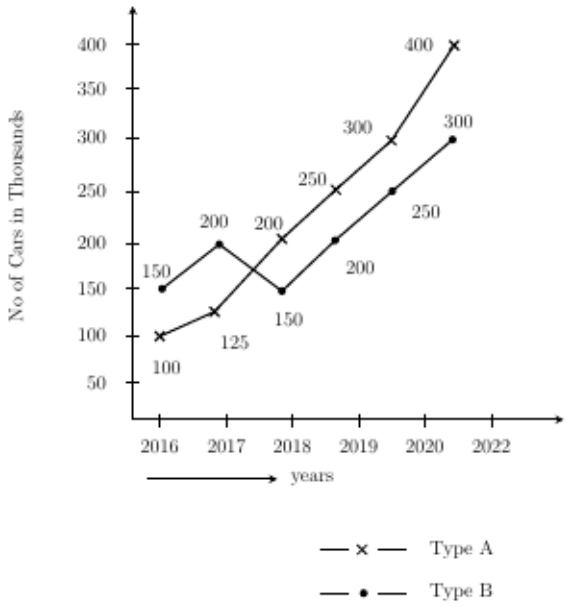
Q68. A robber steals a bag from a man at 5 p.m. and starts running at 10 km/h. A policeman is informed about the robber at 5 : 12 p.m. and he chases him on a cycle at 15 km/h. At what time is the robber caught by the policeman?
(a) 5 : 36 p.m.
(b) 5 : 40 p.m.
(c) 5 : 48 p.m.
(d) 5 : 12 p.m.

Q69. In an election, a candidate secured 41% of the votes polled and lost the election by 97,632. What is the number of votes obtained by the winning candidate?
(a) 360072
(b) 222384
(c) 542400
(d) 320016

Q70. Sumit's income in 2020 was Rs. 21,000. He gets an increment of 10% every year. What was his income in 2022?
(a) Rs. 29,100
(b) Rs. 25,410
(c) Rs. 23,100
(d) Rs. 26,530

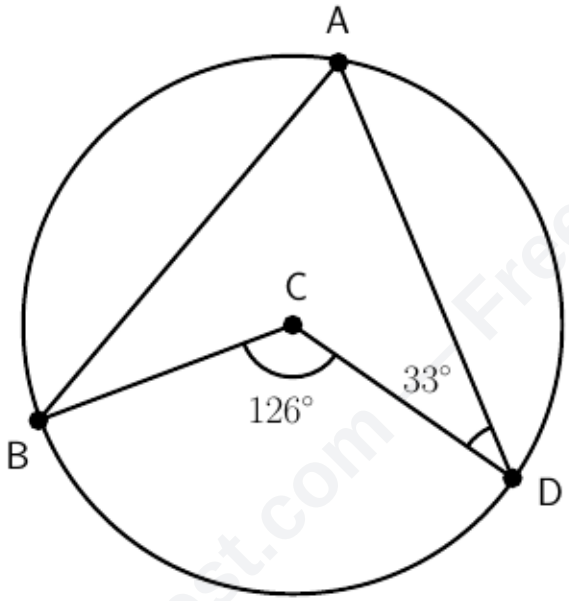
Q71. Which of the following are the sides of a right-angled triangle?
(a) 6 cm, 7 cm, 10 cm
(b) 12 cm, 16 cm, 20 cm
(c) 5 cm, 11 cm, 13 cm
(d) 16 cm, 31 cm, 34 cm

Q72. The following graph shows the production (in thousands) of two types (A and B) of cars by a company over the years 2016 to 2021.



The ratio of the total production of type A cars to type B cars over the years is:
(a) 21 : 10
(b) 11 : 10
(c) 10 : 11
(d) 10 : 21

Q73. Given is a circle with centre at C. A, B and D are the points on the circumference. Find angle ABC.



(a) 37°
(b) 33°
(c) 35°
(d) 30°

Q74. There are 12 workers in an office and the average age of all the workers is 35 1/2 years. A new worker joins the office, the average becomes 37 years. The current age of the newly joined worker is:

(a) 47 1/2 years
(b) 55 1/2 years
(c) 55 years
(d) 57 1/2 years

Q75. Diagonals of a trapezium ABCD with AB||DC, intersect each other at the point 'O'. If AB = 2.5 CD, find the ratio of the area of triangle AOB to the area of triangle COD.

(a) 25 : 4
(b) 9 : 2
(c) 5 : 2
(d) 16 : 1

GENERAL AWARENESS

Q76. Mewar festival is celebrated during the _____ festival at Udaipur

(a) Dusshera
(b) Teej
(c) Gangaur
(d) Holi

Q77. Correctly match the following.

Type of Industries	Name of Company		
i.	Public sector [figure]	a.	Tata Iron and Steel Company
ii.	Private sector	b.	Bharat Heavy Electricals Limited
iii.	Joint sector	c.	Oil India Ltd

(a) 1 - a, 2 - b, 3 - c

(b) 1 - b, 2 - c, 3 - a
(c) 1 - c, 2 - b, 3 - a
(d) 1 - b, 2 - a, 3 - c

Q78. Which of the following Articles prohibits traffic in human beings and forced labour?
(a) Article 22
(b) Article 25
(c) Article 28
(d) Article 23

Q79. Symmetric encryption is also known as:
(a) public-key encryption
(b) asymmetric encryption
(c) conventional encryption
(d) hybrid encryption

Q80. Who wrote the Indian patriotic song, ‘Sare Jahan se acchha, Hindustan hamara’?
(a) Ishwar Chandra Vidyasagar
(b) Mohammad Iqbal
(c) Rabindranath Tagore
(d) Mahatma Gandhi

Q81. In which event at the 2023 U-20 Asian Athletics Championships did Siddharth Choudhary win a gold medal for India?
(a) Triple jump
(b) Discus throw
(c) Hammer throw
(d) Shot put

Q82. In which country is the ‘Kachin Manaw Festival’ celebrated?
(a) Sri Lanka
(b) Maldives
(c) Myanmar
(d) Nepal

Q83. Mendel proposed the law of independent assortment on the basis of _____.
(a) dihybrid crosses
(b) alleles
(c) Monohybrid crosses
(d) genes

Q84. Which organisation launched the Indian Customs Compliance Information Portal (CIP) for providing free access to information on all Customs procedures and regulatory compliance for nearly 12,000 Customs Tariff items in the year 2021?
(a) Central Board for Direct Taxes
(b) Income Tax Settlement Commission
(c) Central Board for Indirect Taxes & Customs
(d) Directorate of Enforcement

Q85. On 31 October 1940, who among the following was arrested for offering individual Satyagraha to protest against India’s forced participation in Second World War?
(a) Subhas Chandra Bose
(b) Sardar Vallabhbhai Patel
(c) Saifuddin Kitchlew
(d) Jawaharlal Nehru

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Q86. April 2023, the Maharashtra government has approved how much percentage of reservation for Divyang employees in promotions?

(a) 2%
(b) 4%
(c) 5%
(d) 3%

Q87. After independence, the Census Act was enacted in India in the year _____.

(a) 1948
(b) 1962
(c) 1955
(d) 1960

Q88. Mayadhar Raut is an exponent of the Indian classical dance form _____.

(a) Bharatnatyam
(b) Kuchipudi
(c) Kathak
(d) Odissi

Q89. Which of the following is more important to promote modernisation and overall prosperity of a country?

(a) Stable export
(b) Stable unemployment
(c) Stable employment
(d) Stable import

Q90. Of the football clubs listed below, which is the oldest in India?

(a) FC Kochin
(b) Madras FC
(c) Bombay FC
(d) Calcutta FC

Q91. The zone separating the troposphere from the stratosphere is called the _____.

(a) stratospause
(b) Tropomerge
(c) Stratomerge
(d) Tropopause

Q92. Folk songs in _____ are called Raganis.

(a) Haryana
(b) Uttar Pradesh
(c) Bihar
(d) Madhya Pradesh

Q93. Who among the following was the founder of ‘Vikramshila Vishwavidyalaya’?

(a) Ramapala
(b) Govindapala
(c) Mahipala I
(d) Dharmapala

Q94. In January 2023, Captain Shiva Chouhan was in the news for being the first women officer to be deployed at which battlefield?

(a) Leh
(b) Siachen
(c) Kargil
(d) Dras

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Q95. If there is a fall in the demand of a good, the equilibrium price is expected to:

(a) fall
(b) neither fall nor rise
(c) first rise, and then fall sharply
(d) Rise

Q96. Which of the following Articles of the Constitution of India deal with citizenship?

(a) Article 12 – 18
(b) Article 8 – 15
(c) Article 10 – 17
(d) Article 5 – 11

Q97. Which of the following is NOT a domestic cricket tournament organised by the Board of Control for Cricket in India (BCCI) in India?

(a) ZR Irani Cup
(b) Vizzy Trophy
(c) Super Fours
(d) Ranji Trophy

Q98. Who discovered the atomic number based on X-ray wavelength in 1913?

(a) Dmitri Mendeleev
(b) AEB de Chancourtois
(c) RA Millikan
(d) Henry Moseley

Q99. Which technology is associated with providing high-speed wireless data transmission for communication devices?

(a) GPRS
(b) Wi-Max
(c) LTE
(d) GPS

Q100. Which sub-division of Himalayas are famous for Karewa formations?

(a) Uttarakhand Himalayas
(b) Arunachal Himalayas
(c) Kashmir Himalayas
(d) Sikkim Himalayas

ANSWER KEY

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

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SOLUTIONS

Q1. Answer: (c) Throw of

The correct answer is '3' i.e. this part of the sentence has an error.

Key Points

• In the third part of the given sentence, the preposition 'of' is incorrect.

• The correct phrase should be 'Throw away' to make sense in this context.

• Correction: 'Throw away the old shoes; nobody will wear them now.

Hence, the correct answer is option 3.

Q2. Answer: (d) come to football,

The correct answer is '4' i.e. this part of the sentence has an error.

Key Points

• In the fourth part of the given sentence, the verb 'come' is incorrect.

• The correct form should be 'comes' to match the singular subject 'it.'

• Correction: 'When it comes to football, my brother is an addict.'

Hence, the correct answer is option 4.

Q3. Answer: (d) I was rude to him when I was in a fit of rage.

The correct answer is '4' i.e. this part of the sentence is correct.

Key Points

• The fourth sentence correctly uses the indefinite article 'a' before the singular noun phrase 'fit of rage.'

• In English grammar, the indefinite article 'a' is used before words that begin with a consonant sound.

• The other options use articles incorrectly or omit them where necessary:

• Option 1 incorrectly uses 'the' instead of 'a'.

• Option 2 omits the article entirely, which is incorrect.

• Option 3 incorrectly uses 'an' instead of 'a' as 'fit' begins with a consonant sound.

Hence, the correct answer is option 4.

Q4. Answer: (d) She spends all her money on make-up in order to look beautiful.

The correct answer is '4' i.e. This sentence correctly uses the present tense.

Key Points

• The fourth sentence correctly uses the simple present tense 'spends' to describe a habitual action.

• The other options are incorrect:

• Option 1 incorrectly uses 'has spend' instead of 'has spent' or 'spends'.

• Option 2 incorrectly uses 'spended'. The correct past tense is 'spent', but the sentence requires the present tense.

• Option 3 incorrectly uses 'had spend' instead of 'had spent' or 'spends'.

Hence, the correct answer is option 4.

Q5. Answer: (b) a

The solution is in Hindi. Read it online.

Q6. Answer: (d) to gain

The solution is in Hindi. Read it online.

Q7. Answer: (d) roaring

The correct answer is 'roaring'.

Key Points

• The passage describes the lion experiencing pain at the moment when the slave finds it.

• The present participle form "roaring" is used to show the continuous action of the lion expressing its pain.

• The other options ("roars", "roar", "roared") do not fit the progressive aspect needed to describe the ongoing action.

• Using "roaring" conveys the idea that the lion was actively expressing its pain when the slave encountered it.

Therefore, the correct answer is 'Option 4'.

Complete Passage: During the days of slavery, there lived (1) a very hard-working slave. One day, (2) to gain freedom, he ran

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away from his master's house. As he passed a forest, he saw a lion (3) roaring with pain, for a huge thorn had pierced its paw. The slave felt sorry for the lion and took out the thorn gently. The grateful lion licked the slave's hand. But just then, both of (4) them were captured by the soldiers. The king ordered, “Let the runaway slave (5) be thrown in front of a hungry lion.” But when the slave was thrown in front of the lion, the lion licked him and quietly sat beside him. The amazed king asked the reason. The slave told the king everything. The king pardoned the slave. The lion was also freed and sent to the forest.

Additional Information

• “Roars” : Incorrect as it is present simple tense and does not show the ongoing action.

• “Roar” Incorrect as it is the base form and does not fit grammatically.

• “Roared” Incorrect as it is past tense and does not indicate the lion is roaring while the slave finds it.

• “Roaring” Correct as it shows the action happening at that moment.

Q8. Answer: (c) them

The correct answer is 'them'.

Key Points

• The passage refers to both the slave and the lion being captured by the soldiers.

• The plural pronoun “them” is suitable as it correctly refers to both individuals mentioned.

• Other options like “us,” “him,” and “her” do not fit the context, as they do not accurately reflect both the slave and the lion together.

• Using “them” maintains grammatical correctness and coherence in the passage.

Therefore, the correct answer is 'Option 3'.

Complete Passage: During the days of slavery, there lived (1) a very hard-working slave. One day, (2) to gain freedom, he ran away from his master's house. As he passed a forest, he saw a lion (3) roaring with pain, for a huge thorn had pierced its paw. The slave felt sorry for the lion and took out the thorn gently. The grateful lion licked the slave's hand. But just then, both of (4) them were captured by the soldiers. The king ordered, “Let the runaway slave (5) be thrown in front of a hungry lion.” But when the slave was thrown in front of the lion, the lion licked him and quietly sat beside him. The amazed king asked the reason. The slave told the king everything. The king pardoned the slave. The lion was also freed and sent to the forest.

Additional Information

• “Us”: Incorrect as it includes the speaker and others not mentioned in the scenario.

• “Him”: Incorrect as it refers to a single male individual, not capturing both the slave and the lion.

• “Her”: Incorrect as it refers to a single female individual and does not fit the scenario.

• “Them”: Correct as it accurately refers to both the slave and the lion.

Q9. Answer: (d) be

The solution is in Hindi. Read it online.

Q10. Answer: (d) knock over a tower of pots

The correct answer is '4' i.e. knock over a tower of pots is the appropriate substitute.

Key Points

• The verb phrase "knock through" in the sentence is not used correctly.

• "Knock over" is the proper phrasal verb that means to make something fall by hitting it.

• Hence the most appropriate option that correctly substitutes the underlined segment is "knock over a tower of pots".

Hence, the correct answer is option 4.

Q11. Answer: (d) negligent

The solution is in Hindi. Read it online.

Q12. Answer: (a) To be very expensive

The solution is in Hindi. Read it online.

Q13. Answer: (c) Huge

The solution is in Hindi. Read it online.

Q14. Answer: (c) No improvement required

The correct answer is '3' i.e. No improvement required.

Key Points

• The phrasal verb "ran into" is used correctly in the sentence.

• "Ran into" means to meet someone unexpectedly.

• Thus, the original sentence does not require any improvement.

Hence, the correct answer is option 3.

Q15. Answer: (a) Humble

The solution is in Hindi. Read it online.

Q16. Answer: (c) affection

The solution is in Hindi. Read it online.

Q17. Answer: (b) Calm

The solution is in Hindi. Read it online.

Q18. Answer: (b) prove

The solution is in Hindi. Read it online.

Q19. Answer: (c) Rift in the lute

The solution is in Hindi. Read it online.

Q20. Answer: (b) Bolt

The solution is in Hindi. Read it online.

Q21. Answer: (c) Improved

The solution is in Hindi. Read it online.

Q22. Answer: (a) religiuos

The solution is in Hindi. Read it online.

Q23. Answer: (c) harsh

The solution is in Hindi. Read it online.

Q24. Answer: (d) Truthful

The solution is in Hindi. Read it online.

Q25. Answer: (a) Generous

The solution is in Hindi. Read it online.

Q26. Answer: (d) Father

Preparing the family tree using the following symbols,

Given equation: A & B # C @ D % E

Sign	&	@	#	%
Means	Father	Daughter	Brother	Mother

The family tree can be drawn as per the given information,

Here, we can see that A is the father of E.

Hence, the correct answer is "Father".

Q27. Answer: (b) (71, 95, 109)

The logic followed here is:

Logic: (Second number × 2) = (First number + Third number) + 10

(59, 83, 97)

→ (83 × 2) = (59 + 97) + 10

→ 166 = 156 + 10

(63, 87, 101)

→ (87 × 2) = (63 + 101) + 10

→ 174 = 164 + 10

Now, let's check each option as per the logic,

1) (67, 91, 115)

→ (91 × 2) = (67 + 115) + 10

→ 182 ≠ 182 + 10

2) (71, 95, 109)
→ (95 × 2) = (71 + 109) + 10
→ 190 = 180 + 10 => Satisfies the logic.
3) (51, 65, 89)
→ (65 × 2) = (51 + 89) + 10
→ 130 ≠ 140 + 10
4) (48, 82, 96)
→ (82 × 2) = (48 + 96) + 10
→ 164 ≠ 144 + 10
Hence, the correct answer is "(71, 95, 109)".

Q28. Answer: (a) mqqnnrpmqp

The logic followed here is,
Here, we can see that it follows a repeating pattern of 'mnpqrrqpnm'.
Hence, the correct answer is "mqqnnrpmqp".

Q29. Answer: (b) 37

Given equation: 18 - 2 + 12 × 4 ÷ 7 = ?
After interchanging '×' and '÷' the equation, we get: 18 - 2 + 12 ÷ 4 × 7 = ?
→ 18 - 2 + 12 ÷ 4 × 7 = ?
→ 18 - 2 + 3 × 7 = ?
→ 18 - 2 + 21 = ?
→ 39 - 2 = ?
→ 37 = ?
Hence, the correct answer is "37".

Q30. Answer: (b) [figure]

The mirror image of the given figure is shown below,
Hence, the correct answer is "Option 2".

Q31. Answer: (d) 32 B 5 D 10 A 2 C 62

Letter	A	B	C	D
Stands for	÷	×	•	•

Now, let's check each option,
1) 32 D 5 B 10 A 2 C 62
→ 32 - 5 × 10 ÷ 2 + 62
→ 32 - 5 × 5 + 62
→ 32 - 25 + 62
→ 94 - 25 = 69
2) 32 A 5 D 10 B 2 C 62
→ 32 ÷ 5 - 10 × 2 + 62
→ 6.4 - 10 × 2 + 62
→ 6.4 - 20 + 62
→ 68.4 - 20 = 48.4
3) 32 B 5 D 10 C 2 A 62
→ 32 × 5 - 10 + 2 ÷ 62
→ 32 × 5 - 10 + 1/31
→ 160 - 10 + 1/31
→ 160.03 - 10 = 150.03
4) 32 B 5 D 10 A 2 C 62
→ 32 × 5 - 10 ÷ 2 + 62
→ 32 × 5 - 5 + 62

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→ 160 - 5 + 62

→ 222 - 5 = 217

Hence, the correct answer is "217".

Q32. Answer: (c) 13

Let's count the number of triangles in the given figure,

Hence, the correct answer is "13".

Q33. Answer: (d) *

Opposite surface of the open dice can be found by the below methods: -

• Alternate surfaces are opposite to each other.

• No two opposite surface are touched by side or by corners.

So, by using the above rule we can find the opposite surface of open dice.

Below are the opposite surfaces: -

Here, we can see that the opposite side of '@' is '*'.

Hence, the correct answer is "*".

Q34. Answer: (d) [figure]

The mirror image of the given figure is shown below,

Hence, the correct answer is "Option 4".

Q35. Answer: (b) 2197

The logic followed here is:

Logic: First number = Square of a number, Second number = Cube of the same number

64 : 512

→ 64 = $(8)^2$

→ 512 = $(8)^3$

225 : 3375

→ 225 = $(15)^2$

→ 3375 = $(15)^3$

Similarly,

169 : ?

→ 169 = $(13)^2$

→ ? = $(13)^3$ = 2197

Hence, the correct answer is "2197".

Q36. Answer: (b) Te

According to the given information,

Here, we can see that the code for 'someone' is 'Te'.

Hence, the correct answer is "Te".

Q37. Answer: (a) UWVT

The logic followed here is,

FHGE is related to IKJH,

HJIG is related to KMLJ,

Similarly,

RTSQ is related to,

Hence, the correct answer is "UWVT".

Q38. Answer: (c) [figure]

Let's check each option,

Hence, the correct answer is "Option 3".

Q39. Answer: (d) nit

According to the given information,

Here, we can see that the code for 'girl' is 'nit'.

Hence, the correct answer is "nit".

Q40. Answer: (a) [figure]

The logic followed here is:

Logic: Step 1 and Step 2 are being followed on alternate basis.

Hence, the correct answer is "Option 1".

Q41. Answer: (d) RZH

The logic followed here is,

Hence, the correct answer is "RZH".

Q42. Answer: (b) None of the conclusions follow

The least possible venn diagram is shown below,

Conclusions:

(I) No watch is a phone → False (All watches are dials and all dials are phones implies that all watches are phones).

(II) Some dials are mobiles → False (All watches are dials, all dials are phones and some mobiles are phones implies that some dials can be mobiles. This is possible but not definite).

Hence, the correct answer is "None of the conclusions follow".

Q43. Answer: (a) 4740

The logic followed here is,

Hence, the correct answer is "4740".

Q44. Answer: (d) 12500

The logic followed here is,

Hence, the correct answer is "12500".

Q45. Answer: (c) [figure]

The mirror image of the given image is shown below,

Hence, the correct answer is "Option 3".

Q46. Answer: (c) Twelve

According to the given information,

Letters	T	R	O	U	B	L	E	M	A	K	I	N	G
In alphabetical order	A	B	E	G	I	K	L	M	N	O	R	T	U

Here, we can see that there are 12 letters which changes its position.

Hence, the correct answer is "Twelve".

Q47. Answer: (c) BY18

The logic followed here is,

CZ22 is related to HE33,

QN47 is related to VS58,

Similarly,

WT7 is related to,

Hence, the correct answer is "BY18".

Q48. Answer: (b) JMP

Let's check each option,

1) BEI

2) JMP

3) SVZ

4) KNR

Here, we can see that Option 2 different from others.

Hence, the correct answer is "JMP".

Q49. Answer: (a) 444

Given equation: 209 ÷ 2 + 14 - 120 × 3 = ?

Sign	•	×
Interchange with	•	÷

After interchanging the signs, the equation we get: 209 × 2 - 14 + 120 ÷ 3 = ?

→ 209 × 2 - 14 + 120 ÷ 3 = ?

→ 209 × 2 - 14 + 40 = ?

→ 418 - 14 + 40 = ?

→ 458 - 14 = ?

→ 444 = ?

Hence, the correct answer is "444".

Q50. Answer: (a) Friday

The logic followed here is:

Logic: A normal year advances the day of the year by 1 day. And a leap year advances the day of the year by 2 days.

If 1 January 2020 was a Wednesday. We know 2020 is a leap year.

So, the day advances as shown below:

1 January 2021 → Wednesday + 2 = Friday.

Hence, the correct answer is "Friday".

Q51. Answer: (a) Rs. 16,200

Given:

15 persons working 12 hours a day earn Rs. 18,000 per week.

Formula Used:

Total earnings = Number of persons × Number of hours per day × Number of days per week × Earnings per hour

Calculation:

First, calculate the total number of hours worked by 15 persons in a week:

Total hours worked by 15 persons in a week = 15 × 12 × 7

Total hours = 1260 hours

Next, calculate the earnings per hour:

Earnings per hour = Total earnings / Total hours worked

Earnings per hour = 18000 / 1260

Earnings per hour = 14.29 Rs/hour

Now, calculate the total number of hours worked by 18 persons working 9 hours a day in a week:

Total hours worked by 18 persons in a week = 18 × 9 × 7

Total hours = 1134 hours

Finally, calculate the total earnings for 18 persons working 9 hours a day in a week:

Total earnings = Total hours worked × Earnings per hour

Total earnings = 1134 × 14.29

Total earnings = 16198.86

Rounded to the nearest whole number, the total earnings are Rs. 16,200

The correct answer is option 1.

Q52. Answer: (b) 42.62%

Formula used:

Failed percentage = (Number of failed students)/(Total students) × 100

Calculation:

Number of failed students in Section C = 12 + 6 + 8 = 26

Failed percentage = 26/61 × 100

=> 42.62%

Therefore The failed percentage of Section C in at least one of the two examinations is 42.62%.

Q53. Answer: (b) 1

Shortcut Trick

For a number to be divisible by 12, it must be divisible by both 3 and 4.

For divisibility by 4, the last two digits 9c must be divisible by 4 => c = 2 or c = 6.

For divisibility by 3, the sum of all digits (28 + b + c) must be a multiple of 3.

If c = 6, the digit sum is 34 + b. For this to be a multiple of 3, b can be 2, 5, or 8.

To find the lowest positive value of (c − b), we take c = 6 and b = 5 => 6 − 5 = 1.

Therefore The correct answer is 1.

Alternate Method

Given:

The 7-digit number 1738b9c is completely divisible by 12.

Concept Used:

A number is divisible by 12 if it is divisible by both 3 (sum of digits is a multiple of 3) and 4 (last two digits form a multiple of 4).

Calculation:

=> Divisibility by 4: The number formed by the last two digits is 9c.

=> The only numbers in the 90s divisible by 4 are 92 and 96. Thus, c = 2 or c = 6.

=> Divisibility by 3: The sum of digits = 1 + 7 + 3 + 8 + b + 9 + c = 28 + b + c must be divisible by 3.

=> Case 1: If c = 2, the sum = 30 + b. For the sum to be completely divisible by 3, b can be 0, 3, 6, or 9.

=> We need a positive value for (c − b), so c must be greater than b. Thus, b = 0 => (c − b) = 2 − 0 = 2.

=> Case 2: If c = 6, the sum = 34 + b. For the sum to be completely divisible by 3, b can be 2, 5, or 8.

=> For a positive value of (c − b), b can be 2 or 5.

=> If b = 2, (c − b) = 6 − 2 = 4.

=> If b = 5, (c − b) = 6 − 5 = 1.

=> Comparing all valid positive outcomes (2, 4, and 1), the lowest possible positive value is 1.

Therefore The correct answer is 1.

Additional Information

Divisibility Rule of 3 and 9

A number is divisible by 3 or 9 if the sum of all its digits is completely divisible by 3 or 9 respectively.

Divisibility Rule of 4 and 8

A number is divisible by 4 if the number formed by its last two digits is divisible by 4, and divisible by 8 if the number formed by its last three digits is divisible by 8.

Divisibility Rule of 11

A number is divisible by 11 if the difference between the sum of digits at odd places and the sum of digits at even places is either 0 or a multiple of 11.

Q54. Answer: (b) 98(π/6-(√(3))/4)

Shortcut Trick

Since radius (r) = 7 and chord (L) = 7, the triangle formed by the center and the chord is equilateral.

Central angle (θ) = 60° = π/3 radians.

Common area = 2 × (Area of Sector − Area of Equilateral Triangle)

Area = 2 × [(π × 7^2 × 60/360) − (√3/4 × 7^2)]

Area = 2 × [49π/6 − 49√3/4] = 98(π/6 − √3/4) sq. units.

Therefore The correct answer is 98(π/6 − √3/4).

Alternate Method

Given:

Radius of both circles (r) = 7 units

Length of common chord (AB) = 7 units

Formula Used:

Area of Segment = Area of Sector − Area of Triangle
Area of Sector = (θ/360°) × πr²
Area of Equilateral Triangle = (√3/4) × side²
=> In triangle O1AB, O1A = O1B = 7 (radii) and AB = 7 (given chord).
=> Since all sides are equal, triangle O1AB is an equilateral triangle.
=> Central angle θ = 60°.
=> Area of sector O1AB = (60/360) × π × 7² = 49π/6.
=> Area of triangle O1AB = (√3/4) × 7² = 49√3/4.
=> Area of segment (one side) = Area of sector − Area of triangle = (49π/6) − (49√3/4).
=> Total common area = 2 × [49π/6 − 49√3/4].
=> Total common area = 98(π/6 − √3/4) sq. units.
Therefore The correct answer is 98(π/6 − √3/4).
Additional Information
Area of Circular Segment
The area of a segment of a circle is calculated as A = (1/2) × r² × (θ − sin θ), where θ is in radians.
Common Chord Property
The common chord of two intersecting circles is perpendicular to the line joining their centers and is bisected by it.
Equilateral Triangle Area
For a triangle with side 'a', Area = (√3/4) × a² and the internal angles are all 60°.

Q55. Answer: (d) 2 : 1

Given:
Side of the cube = 3
Formula Used:
Surface Area of a Cube = 6 × side²
Volume of a Cube = side³
Ratio = Surface Area / Volume
Calculation:
Surface Area = 6 × 3²
Surface Area = 6 × 9
Surface Area = 54
Volume = 3³
Volume = 27
Ratio = Surface Area / Volume
Ratio = 54 / 27
Ratio = 2 / 1
The ratio between the surface area and the volume of the cube is 2 : 1.

Q56. Answer: (a) 120

Given:
Difference between two numbers = 48
Ratio of the two numbers = 7:3
Formula Used:
Let the two numbers be 7x and 3x.
The difference between the two numbers = 7x - 3x = 48
Calculation:
7x - 3x = 48
=> 4x = 48
=> x = 48 / 4
=> x = 12
First number = 7x = 7 × 12 = 84
Second number = 3x = 3 × 12 = 36

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Sum of the two numbers = 84 + 36

=> 120

The sum of the two numbers is 120.

Q57. Answer: (d) 4.2 cm

Given:

Volume of the spherical ball = 38.808 cm^3

$\pi = 22/7$

Formula Used:

Volume of a sphere, $V = 4/3\pi r^3$

Diameter, $D = 2r$

Calculation:

Given, $V = 38.808\ cm^3$

We use the formula for the volume of a sphere:

$4/3\ \pi\ r^3 = 38.808$

Substitute $\pi = 22/7$:

$4/3 \times 22/7 \times r^3 = 38.808$

$\Rightarrow 88/21 \times r^3 = 38.808$

$\Rightarrow r^3 = (38.808 \times 21)/88$

$\Rightarrow r^3 = 814.968/88$

$\Rightarrow r^3 = 9.26$

Taking the cube root on both sides:

$\Rightarrow r = cbrt9.26$

$\Rightarrow r \approx 2.1$ cm

So, the diameter $D = 2r = 2 \times 2.1 = 4.2$ cm

The correct answer is option 4, 4.2 cm.

Q58. Answer: (c) 5%

Given:

The simple interest on the sum for 12 years is three-fifth of the sum.

Formula Used:

Simple Interest (SI) = Principal (P) × Rate (R) × Time (T) / 100

Calculation:

Let the Principal (P) be x.

Given, SI = 3/5 of the sum (P).

So, $SI = 3/5 \times x$

Time (T) = 12 years

Using the formula for Simple Interest:

$SI = P \times R \times T / 100$

$3/5\ x = x \times R \times 12 / 100$

$\Rightarrow 3/5\ x = 12xR / 100$

$\Rightarrow 3/5 = 12R / 100$

$\Rightarrow 3/5 = 12R/100$

$\Rightarrow 3 \times 100 = 12 \times 5R$

$\Rightarrow 300 = 60R$

$\Rightarrow R = 300 / 60$

$\Rightarrow R = 5$

The rate of interest per annum is 5%.

Q59. Answer: (d) 25%

Given:

Selling price (SP) of 40 articles = Cost price (CP) of 50 articles

Formula Used:

Percentage Gain = (Gain/CP) × 100%
Calculation:
Let the cost price of 1 article be CP.
Total CP of 50 articles = 50 × CP
Total SP of 40 articles = 50 × CP
SP of 1 article = (50 × CP)/40
SP of 1 article = 5/4 × CP
Gain on 1 article = SP - CP
Gain on 1 article = 5/4 × CP - CP
Gain on 1 article = (5CP - 4CP)/4
Gain on 1 article = CP/4
Percentage Gain = ((CP/4)/CP) × 100%
Percentage Gain = (1/4) × 100%
Percentage Gain = 25%
The correct answer is option 4.

Q60. Answer: (a) 5778125

Given:
Population in 2020 = 5000000
Annual growth rate = 7.5%
Formula Used:
Population after n years = Initial Population × $(1 + \text{Growth Rate})^n$
Calculation:
Population in 2022 (after 2 years) = $5000000 \times (1 + 0.075)^2$
Population in 2022 = $5000000 \times (1.075)^2$
Population in 2022 = 5000000 × 1.155625
Population in 2022 = 5778125
The population in 2022 is 5778125.

Q61. Answer: (a) 1/2

Given:
M varies inversely as $(N^2 + 3)$.
M = 3 when N = 3.
$N^2 = 69$.
Formula Used:
$M = k / (N^2 + 3)$
Calculation:
When N = 3:
=> M = 3
=> $3 = k / (3^2 + 3)$
=> $3 = k / (9 + 3)$
=> $3 = k / 12$
=> $k = 3 \times 12$
=> k = 36
When $N^2 = 69$:
=> $M = 36 / (69 + 3)$
=> M = 36 / 72
=> M = 1 / 2
The value of M when $N^2 = 69$ is 1/2.

Q62. Answer: (b) 9

Shortcut Trick
Use the Back-calculation method starting from the last divisor: Let final quotient be 1.

Number = ((((1 × 7 + 5) × 5 + 0) × 3 + 4) × 2 + 1)

=> Number = (((12 × 5 + 0) × 3 + 4) × 2 + 1) = ((60 × 3 + 4) × 2 + 1) = (184 × 2 + 1) = 369.

New successive remainders for 369 by 7, 5, 3, 2: (369÷7 → rem 5), (52÷5 → rem 2), (10÷3 → rem 1), (3÷2 → rem 1).

Sum of remainders = 5 + 2 + 1 + 1 = 9.

Therefore The correct answer is 9.

Alternate Method

Given: Successive divisors (2, 3, 5, 7) and remainders (1, 4, 0, 5). New divisors (7, 5, 3, 2).

=> Let final quotient be 1. The number is calculated from bottom to top.

=> Q3 = 1 × 7 + 5 = 12

=> Q2 = 12 × 5 + 0 = 60

=> Q1 = 60 × 3 + 4 = 184

=> Number = 184 × 2 + 1 = 369

Now, perform successive division of 369 by 7, 5, 3, and 2:

=> 369 ÷ 7 = 52, remainder = 5 (R1)

=> 52 ÷ 5 = 10, remainder = 2 (R2)

=> 10 ÷ 3 = 3, remainder = 1 (R3)

=> 3 ÷ 2 = 1, remainder = 1 (R4)

=> Sum of remainders = 5 + 2 + 1 + 1 = 9.

Therefore The correct answer is 9.

Additional Information

Successive Division

It means dividing the original number by the first divisor, then dividing the resulting quotient by the second divisor, and so on.

General Formula for Number

Number = d1[d2{d3(q_n × d_n + r_n) + ... + r3} + r2] + r1, where d = divisors and r = remainders.

Least Number

To find the least number, always assume the final quotient (q_n) is either 0 or 1. If not specified, q_n = 0 gives the absolute minimum.

Q63. Answer: (a) 1990

Given:

Revenue from magazines in lakhs:

1989: 31

1990: 39

1991: 45

1992: 50

Formula used:

Change in revenue = Revenue of current year - Revenue of previous year

Calculation:

Change from 1989 to 1990 = 39 - 31 = 8

Change from 1990 to 1991 = 45 - 39 = 6

Change from 1991 to 1992 = 50 - 45 = 5

Therefore The year 1990 shows the highest change in the revenue obtained from magazines, with an increase of 8 lakhs.

Q64. Answer: (b) ±1

Given:

$12 \sin^2 A + 2 \cos^2 A = 7$, where $0 < A < 180^o$

Formula Used:

$\sin^2 A + \cos^2 A = 1$

$\cot A = \cos A / \sin A$

Calculation:

Given equation: $12 \sin^2 A + 2 \cos^2 A = 7$

Using $\sin^2 A + \cos^2 A = 1$, we can write $\cos^2 A$ as $1 - \sin^2 A$

Substitute $\cos^2 A$ in the given equation:

$12 \sin^2 A + 2(1 - \sin^2 A) = 7$

$\Rightarrow 12 \sin^2 A + 2 - 2 \sin^2 A = 7$

$\Rightarrow 10 \sin^2 A + 2 = 7$

$\Rightarrow 10 \sin^2 A = 5$

$\Rightarrow \sin^2 A = 1/2$

$\Rightarrow \sin A = \pm 1/\sqrt{2}$

For $0 < A < 180^o$, $\sin A = 1/\sqrt{2}$ (since sin A is positive in the first and second quadrants)

$\Rightarrow \cos A = \pm 1/\sqrt{2}$ (since $\sin^2 A + \cos^2 A = 1$)

$\cot A = \cos A / \sin A$

$\Rightarrow \cot A = \pm (1/\sqrt{2}) / (1/\sqrt{2}) = \pm 1$

$\Rightarrow \cot A = \pm 1$

The correct answer is option 2.

Q65. Answer: (a) 6.25

Calculation:

Total production in 2010 = 30 + 25 + 50 + 55 = 160

Average production in 2010 = 160 / 4 = 40

Production in 2011 (in thousand tonnes):

Total production in 2011 = 40 + 50 + 45 + 50 = 185

Average production in 2011 = 185 / 4 = 46.25

Difference in average production = 46.25 - 40 = 6.25

Therefore The difference between the average production for all states in 2010 and 2011 is 6.25 thousand tonnes.

Q66. Answer: (a) 11498 2/3 ~cm³

Given:

Surface area of the sphere = 2464 cm^2.

Formula Used:

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

Volume of a sphere = $(4/3)\pi r^3$

Calculation:

Given surface area, $4\pi r^2 = 2464$

$\Rightarrow r^2 = 2464 / 4\pi$

$\Rightarrow r^2 = 2464 / (4 \times 3.14)$

$\Rightarrow r^2 = 2464 / 12.56$

$\Rightarrow r^2 = 196$

$\Rightarrow r = \sqrt{196}$

$\Rightarrow r = 14$ cm

Now, Volume = $(4/3)\pi r^3$

$\Rightarrow$ Volume = $(4/3)\pi(14)^3$

$\Rightarrow$ Volume = $(4/3)\pi(2744)$

$\Rightarrow$ Volume = $(4/3) \times 22/7 \times 2744$

$\Rightarrow$ Volume = $4/3 \times 22 \times 392$

$\Rightarrow$ Volume ≈ 11498 2/3 ~cm^3

The volume of the sphere is approximately 11498 2/3 ~cm^3.

Q67. Answer: (c) 5

Shortcut Trick

Discount per item = 25% of 340 = 340 ÷ 4 = Rs. 85.

Required total savings ≥ Rs. 390.

Minimum items = Ceiling value of (Total Savings ÷ Savings per item).

Minimum items = 390 ÷ 85 ≈ 4.58.

Since items must be whole numbers, he must purchase at least 5 items.

Therefore The correct answer is 5 items.
Alternate Method
Given → Cost Price (Marked Price) per item = Rs. 340, Discount Rate = 25%, Target Saving = Rs. 390.
Formulas: Discount = MP × Discount% | Total Savings = Discount per item × Number of items.
=> Discount on one item = 340 × (25 ÷ 100) = Rs. 85.
=> Let 'n' be the number of items. Total savings = 85 × n.
=> According to the condition: 85n ≥ 390.
=> n ≥ 390 ÷ 85.
=> n ≥ 4.588.
=> The smallest integer greater than 4.588 is 5.
Therefore The correct answer is 5.
Additional Information
Marked Price & Discount
Discount is always calculated on the Marked Price (MP). Selling Price = MP − Discount.
Ceiling Function in Unitary Method
When solving for minimum items to meet a threshold, if the result is a decimal, always round up to the next whole integer.

Q68. Answer: (a) 5 : 36 p.m.

Given:
Speed of the robber = 10 km/h
Speed of the policeman = 15 km/h
Time when the robber starts running = 5:00 p.m.
Time when the policeman starts chasing = 5:12 p.m.
Formula Used:
Distance = Speed × Time
Calculation:
Time difference between the robber and the policeman = 12 minutes = 12/60 hours = 0.2 hours
Distance covered by the robber in 0.2 hours = 10 km/h × 0.2 hours
=> Distance = 2 km
Relative speed of the policeman with respect to the robber = 15 km/h - 10 km/h
=> Relative speed = 5 km/h
Time taken by the policeman to catch the robber = Distance / Relative speed
=> Time = 2 km / 5 km/h
=> Time = 0.4 hours = 0.4 × 60 minutes
=> Time = 24 minutes
Time when the policeman catches the robber = 5:12 p.m. + 24 minutes
=> Time = 5:36 p.m.
The correct answer is option 1.

Q69. Answer: (d) 320016

Given:
Percentage of votes secured by the losing candidate = 41%
Difference in votes = 97,632
Formula Used:
Total votes polled = (Votes of losing candidate) / (Percentage secured by losing candidate)
Votes of winning candidate = Total votes polled - Votes of losing candidate
Calculation:
Let the total votes polled be V.
Votes secured by the losing candidate = 0.41V
Difference in votes = Votes secured by winning candidate - Votes secured by losing candidate
97,632 = Votes of winning candidate - 0.41V
Votes of winning candidate = 0.59V

Given:
0.59V - 0.41V = 97,632
0.18V = 97,632
=> V = 97,632 / 0.18
=> V = 542,400
Votes of winning candidate = 0.59 × 542,400
=> Votes of winning candidate = 320,016
The number of votes obtained by the winning candidate is 320,016.

Q70. Answer: (b) Rs. 25,410

Given:
Income in 2020 = Rs. 21,000
Increment per year = 10%
Formula Used:
Income in year nnnnnnnnnn = Initial Income × $(1 + \text{Increment Rate})^n$
Calculation:
Income in 2021 = 21,000 × (1 + 0.10)
=> Income in 2021 = 21,000 × 1.10
=> Income in 2021 = 23,100
Income in 2022 = 23,100 × (1 + 0.10)
=> Income in 2022 = 23,100 × 1.10
=> Income in 2022 = 25,410
Sumit's income in 2022 was Rs. 25,410.

Q71. Answer: (b) 12 cm, 16 cm, 20 cm

Given:
Options:
1. 6 cm, 7 cm, 10 cm
2. 12 cm, 16 cm, 20 cm
3. 5 cm, 11 cm, 13 cm
4. 16 cm, 31 cm, 34 cm
Formula used:
$(\text{Hypotenuse})^2 = (\text{Base})^2 + (\text{Perpendicular})^2$
Calculation:
Option 1:
$(10)^2 = (6)^2 + (7)^2$
=> 100 = 36 + 49
=> 100 ≠ 85
Option 2:
$(20)^2 = (12)^2 + (16)^2$
=> 400 = 144 + 256
=> 400 = 400
Option 3:
$(13)^2 = (5)^2 + (11)^2$
=> 169 = 25 + 121
=> 169 ≠ 146
Option 4:
$(34)^2 = (16)^2 + (31)^2$
=> 1156 = 256 + 961
=> 1156 ≠ 1217
Therefore The correct answer is option 2: 12 cm, 16 cm, 20 cm.

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Q72. Answer: (b) 11 : 10

Total production of type A = 100 + 125 + 200 + 250 + 300 + 400 = 1375
Total production of type B = 150 + 200 + 150 + 200 + 250 + 300 = 1250
Ratio of total production of type A to type B = 1375 : 1250
Simplifying the ratio:
=> Ratio = 11 : 10
Therefore The ratio of the total production of type A cars to type B cars over the years is 11 : 10.

Q73. Answer: (d) 30°

Given:
A circle with center at C. A, B, and D are points on the circumference.
angle BCD = 126°
angle ADC = 33°
Formula used:
The angle subtended by an arc at the center is twice the angle subtended at any point on the remaining part of the circumference.
Calculation:
angle BAC is subtended by the arc BD at the center.
angle BCD is subtended by the same arc BD on the circumference.
=> angle BAD = (1/2) × angle BCD
=> angle BAD = (1/2) × 126° = 63°
Draw a line AC then,
BC = CD = AC = radius of circle.
In ΔACD, AC = CD
So, it is an isosceles triangle,
angle CAD = angle ADC = 33^?
angle BAC = angle BAD - angle CAD
angle BAC = 63^? - 33^? = 30^?
In ΔBAC, BC = CA
So, it is an isosceles triangle.
angle ABC = angle BAC = 30^?
Therefore The correct answer is 30^?

Q74. Answer: (c) 55 years

Shortcut Trick
Increase in average age = 37 − 35.5 = 1.5 years.
Age of new worker = New Average + (Initial Number of Workers × Increase in Average).
Age = 37 + (12 × 1.5) = 37 + 18 = 55 years.
Therefore The correct answer is 55 years.
Alternate Method
Given: Initial workers = 12, Initial average age = 35.5 years, Final average age = 37 years.
Formula Used: Total Age = Average Age × Number of Workers
=> Total age of 12 workers = 12 × 35.5 = 426 years.
=> Total age of 13 workers (after 1 joins) = 13 × 37 = 481 years.
=> Current age of newly joined worker = Total age of 13 workers − Total age of 12 workers
=> Age = 481 − 426 = 55 years.
Therefore The correct answer is 55 years.
Additional Information
Effect of Inclusion
When a new member is added to a group, the new member's value = New Average + (Initial Count × Change in Average).
Effect of Exclusion
When a member leaves, the left member's value = Old Average + (New Count × Change in Average).
Weighted Average

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Combined average of two groups is given by (n1A1 + n2A2) ÷ (n1 + n2), where n is the number of items and A is the average.

Q75. Answer: (a) 25 : 4

Given:

Diagonals of a trapezium ABCD with AB || DC intersect each other at the point 'O'.

AB = 2.5 × CD

Formula Used:

Area of triangle ratio when diagonals intersect in a trapezium: (Area(triangle AOB))/(Area(triangle COD)) = (AB/CD)²

Calculation:

AB = 2.5 × CD

Ratio of areas = (AB/CD)²

=> Ratio of areas = (2.5CD/CD)²

=> Ratio of areas = (2.5)²

=> Ratio of areas = 6.25

=> Ratio of areas = 25:4

The ratio of the area of triangle AOB to the area of triangle COD is 25:4.

Q76. Answer: (c) Gangaur

The correct answer is Gangaur

Key Points

• Gangaur is a festival celebrated predominantly in the Indian state of Rajasthan, particularly in Udaipur.

• The festival is dedicated to Goddess Gauri (Parvati) and is celebrated by womenfolk with great enthusiasm and devotion.

• It typically occurs in the month of March-April, marking the end of winter and the onset of spring.

• During the Gangaur festival, women worship Gauri for marital bliss, prosperity, and a long life for their husbands.

• The Mewar festival is celebrated concurrently with Gangaur, making it a significant cultural event in Udaipur.

Additional Information

• Udaipur, known as the City of Lakes, becomes a hub of cultural activities during the Mewar festival.

• The festival includes various traditional rituals, processions, folk music, dance performances, and fireworks.

• It is a time when the city is adorned with colorful decorations, and the local markets are bustling with activity.

• The celebration of Mewar festival along with Gangaur provides an insight into the rich cultural heritage and traditions of Rajasthan.

• Tourists from all over the world visit Udaipur during this time to witness the grandeur and participate in the festivities.

Q77. Answer: (d) 1 - b, 2 - a, 3 - c

The correct answer is 1 - b, 2 - a, 3 - c.

Key Points

• Public sector companies are owned and operated by the government. Bharat Heavy Electricals Limited (BHEL) is a public sector company. Hence, 1 matches with b.

• Private sector companies are owned and operated by private individuals or groups. Tata Iron and Steel Company is a private sector company. Hence, 2 matches with a.

• Joint sector companies are operated by both government and private entities. Oil India Ltd is a joint sector company. Hence, 3 matches with c.

Additional Information

• Public Sector:

• These companies are owned and operated by the government.

• Examples include Bharat Heavy Electricals Limited (BHEL), Steel Authority of India Limited (SAIL), etc.

• Private Sector:

• These companies are owned and operated by private individuals or groups.

• Examples include Tata Iron and Steel Company, Reliance Industries, etc.

• Joint Sector:

• These companies are operated by both government and private entities.

• Examples include Oil India Ltd, Maruti Suzuki India Ltd, etc.

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Q78. Answer: (d) Article 23

The correct answer is Article 23

Key Points

• Article 23 of the Indian Constitution explicitly prohibits traffic in human beings and forced labour.

• This article is a part of the Fundamental Rights enshrined in the Constitution to protect individuals against exploitation.

• It ensures that any form of human trafficking, begar (forced labour without payment), and similar forms of forced labour are punishable offenses under the law.

• The prohibition under Article 23 is absolute and applies to both the state and private individuals.

Additional Information

• Article 24 complements Article 23 by prohibiting the employment of children below the age of 14 years in factories, mines, and other hazardous employment.

• The Fundamental Rights are guaranteed by the Constitution to all individuals and are enforceable by the courts, ensuring protection against any violation.

• The Directive Principles of State Policy in the Constitution further guide the state in formulating policies to prevent exploitation and promote social welfare.

• Article 23's prohibition extends to any form of forced labour, including bonded labour which was prevalent in various parts of India.

Q79. Answer: (c) conventional encryption

The correct answer is conventional encryption

Key Points

• Conventional encryption is another term for symmetric encryption.

• In symmetric encryption, the same key is used for both encryption and decryption of data.

• This method is known for being fast and efficient, making it suitable for encrypting large amounts of data.

• However, it requires secure key management to ensure that the encryption key is not compromised.

• Examples of symmetric encryption algorithms include AES (Advanced Encryption Standard), DES (Data Encryption Standard), and 3DES (Triple DES).

Additional Information

• Public-key encryption (Option 1) is another term for asymmetric encryption, where different keys are used for encryption and decryption.

• Asymmetric encryption (Option 2) involves a pair of keys: a public key for encryption and a private key for decryption.

• Hybrid encryption (Option 4) combines both symmetric and asymmetric encryption techniques to leverage the advantages of each.

• Symmetric encryption is generally faster than asymmetric encryption but requires secure key distribution and management.

Q80. Answer: (b) Mohammad Iqbal

The correct answer is Mohammad Iqbal

Key Points

• Mohammad Iqbal wrote the Indian patriotic song, 'Sare Jahan se acchha, Hindustan hamara'.

• The song is one of the most celebrated patriotic songs in India and is often sung at various national events.

• Mohammad Iqbal, also known as Allama Iqbal, was a philosopher, poet, and politician in British India who is widely regarded as having inspired the Pakistan Movement.

• The song was written in 1904 and continues to evoke strong feelings of patriotism among Indians.

Additional Information

• Mohammad Iqbal was born on November 9, 1877, in Sialkot, Punjab (now in Pakistan).

• He is often referred to as the "Spiritual Father of Pakistan" for his contributions to the philosophical and political discourse that led to the creation of Pakistan.

• Iqbal's works are written primarily in Persian and Urdu, and his poetry is considered among the greatest in the Urdu language.

• He was knighted by King George V in 1922, giving him the title "Sir".

• Iqbal passed away on April 21, 1938, but his legacy continues to influence both India and Pakistan.

Q81. Answer: (d) Shot put

The correct answer is Shot put

Key Points

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• Siddharth Choudhary won a gold medal in the shot put event at the 2023 U-20 Asian Athletics Championships.

• This achievement highlights India's growing presence and competitiveness in the field of athletics on the international stage.

• The event saw participation from several promising young athletes from various Asian countries, making Siddharth's victory a notable accomplishment.

• Siddharth's performance in the shot put event was marked by excellent technique and strength, which secured him the top position.

Additional Information

• The U-20 Asian Athletics Championships is a biennial event that aims to provide a platform for young athletes to showcase their talents and gain international experience.

• India has consistently performed well in these championships, with several athletes winning medals in various disciplines.

• The shot put event involves athletes throwing a heavy spherical object, called a "shot," as far as possible, and it requires a combination of strength, technique, and agility.

• Siddharth Choudhary's victory adds to India's legacy in athletics and serves as an inspiration for other young athletes in the country.

Q82. Answer: (c) Myanmar

The correct answer is Myanmar

Key Points

• The Kachin Manaw Festival is celebrated in Myanmar.

• This festival is a significant cultural event for the Kachin people, one of the major ethnic groups in Myanmar.

• The festival features traditional dances, music, and rituals, and it is a time for the Kachin community to come together and celebrate their heritage.

• The Kachin Manaw Festival usually takes place in January and is marked by vibrant festivities and communal harmony.

Additional Information

• Myanmar, formerly known as Burma, is a country in Southeast Asia bordered by India, Bangladesh, China, Laos, and Thailand.

• The country has a rich cultural heritage with over 135 distinct ethnic groups, each with its own traditions and festivals.

• The Kachin people primarily inhabit the Kachin State in northern Myanmar, which is known for its mountainous terrain and rich natural resources.

• The Kachin Manaw Festival is one of the most important cultural celebrations for the Kachin people and attracts visitors from across the country and beyond.

• Myanmar's diverse cultural landscape includes a variety of other festivals such as the Thingyan Water Festival, the Tazaungdaing Festival of Lights, and the Thadingyut Festival.

Q83. Answer: (a) dihybrid crosses

The correct answer is dihybrid crosses

Key Points

• Mendel proposed the law of independent assortment based on his experiments with dihybrid crosses.

• In his experiments, Mendel crossed plants that differed in two traits and observed the inheritance patterns of these traits in the offspring.

• The results led to the conclusion that the alleles of different genes assort independently of one another during gamete formation.

• This law is one of the fundamental principles of Mendelian genetics and explains the genetic variation observed in offspring.

Additional Information

• Mendel's laws form the foundation of classical genetics.

• He conducted his experiments on pea plants (Pisum sativum) and published his findings in 1866.

• The law of independent assortment applies only to genes located on different chromosomes or far apart on the same chromosome.

• Modern genetics has expanded on Mendel's work, incorporating the understanding of genetic linkage and recombination.

• Mendel's work was largely unrecognized during his lifetime but was rediscovered in the early 20th century, leading to the establishment of the field of genetics.

Q84. Answer: (c) Central Board for Indirect Taxes & Customs

The correct answer is Central Board for Indirect Taxes & Customs

Key Points

• The Central Board for Indirect Taxes & Customs (CBIC) launched the Indian Customs Compliance Information Portal (CIP) in 2021.

• The portal provides free access to information on all Customs procedures and regulatory compliance for nearly 12,000 Customs Tariff items.

• This initiative aims to facilitate ease of doing business and improve transparency in customs processes.

• The CIP is a comprehensive repository that assists importers and exporters in understanding the requirements for their specific items.

Additional Information

• The Central Board for Indirect Taxes & Customs (CBIC) is a part of the Department of Revenue under the Ministry of Finance, Government of India.

• It is responsible for administering Customs, Central Excise, Service Tax, and Narcotics in India.

• The CBIC plays a crucial role in formulating policies related to the levy and collection of customs duties and central excise duties and in preventing smuggling.

• The launch of the CIP is part of the CBIC's ongoing efforts to enhance trade facilitation and ensure compliance with customs regulations.

Q85. Answer: (d) Jawaharlal Nehru

The correct answer is Jawaharlal Nehru

Key Points

• Jawaharlal Nehru was arrested on 31 October 1940 for offering individual Satyagraha to protest against India's forced participation in the Second World War.

• The individual Satyagraha was a non-violent protest initiated by Mahatma Gandhi to assert the right to free speech and oppose the British decision to make India a participant in the war without consulting Indian leaders.

• Jawaharlal Nehru was among the first batch of leaders to offer Satyagraha and face arrest.

• This movement highlighted the growing discontent among Indian leaders and the populace against British colonial rule and their unilateral decisions affecting India.

• The arrest of prominent leaders like Nehru drew significant attention to the Indian independence movement and the demand for self-governance.

Additional Information

• Individual Satyagraha was different from mass civil disobedience as it involved selected individuals who would openly defy the British laws and court arrest.

• The movement was part of the larger Indian independence struggle which included various phases like the Non-Cooperation Movement, Civil Disobedience Movement, and Quit India Movement.

• Jawaharlal Nehru later became the first Prime Minister of independent India and played a crucial role in shaping the newly formed nation.

• Nehru's participation in the Satyagraha demonstrated his commitment to the principles of non-violence and self-rule advocated by Mahatma Gandhi.

• The arrest of leaders like Nehru and the subsequent events contributed to the mounting pressure on the British government to consider Indian demands for independence.

Q86. Answer: (b) 4%

The correct answer is 0.04

Key Points

• The Maharashtra government has approved 0.04 (or 4%) percentage of reservation for Divyang employees in promotions as of April 2023.

• This decision aims to promote inclusivity and provide equal opportunities for Divyang (differently-abled) employees in the state government.

• The reservation policy covers various departments and positions within the state government, ensuring that differently-abled employees receive adequate representation in higher posts.

Additional Information

• Reservation for differently-abled individuals is part of the broader affirmative action policies to address historical disadvantages and discrimination faced by these groups.

• In India, the Rights of Persons with Disabilities Act, 2016, mandates various provisions to empower and protect the rights of differently-abled individuals.

• The Act also provides for reservation in education, employment, and other spheres to ensure their full and effective participation and inclusion in society.

• Such measures are crucial in fostering an inclusive environment where all individuals, regardless of their abilities, can contribute to and benefit from economic and social development.

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Q87. Answer: (a) 1948

The correct answer is 1948

Key Points

• The Census Act was enacted in India in the year 1948, soon after the country gained independence.

• This Act provides for the detailed procedures and methodologies for conducting the census in India.

• The census is a critical tool for collecting demographic data, which is used for planning and policy-making in the country.

• India's first post-independence census was conducted in 1951 under this Act.

Additional Information

• The Census of India is one of the largest administrative exercises conducted in the country, occurring every ten years.

• The census provides comprehensive data on population size, distribution, and various socio-economic and demographic characteristics.

• The data collected from the census is used for a wide range of purposes, including the allocation of resources, the planning of infrastructure, and the implementation of various government programs.

• Over the years, the Census Act has been amended to incorporate new methodologies and technologies for data collection and processing.

Q88. Answer: (d) Odissi

The correct answer is Odissi

Key Points

• Mayadhar Raut is a renowned exponent of the Indian classical dance form Odissi.

• He has played a pivotal role in reviving and popularizing Odissi dance.

• Odissi is one of the eight classical dance forms of India, originating from the state of Odisha.

• This dance form is characterized by its fluid movements, sculpturesque poses, and intricate footwork.

• Mayadhar Raut's contributions have been instrumental in bringing global recognition to Odissi.

Additional Information

• Odissi is known for its grace and expressiveness, often depicting themes from Hindu mythology.

• The dance form is performed primarily to the accompaniment of Odissi music, which is a classical music genre from Odisha.

• Mayadhar Raut has also been a distinguished teacher, mentoring many successful Odissi dancers.

• His dedication to the art form has earned him numerous awards and accolades, including the Padma Shri.

• Odissi dancers typically wear elaborate costumes and jewelry, and the performances often include both solo and group presentations.

Q89. Answer: (c) Stable employment

The correct answer is Stable employment

Key Points

• Stable employment is crucial for the modernisation and overall prosperity of a country.

• It ensures that individuals have a steady source of income, which in turn boosts consumer spending and economic growth.

• Stable employment fosters social stability and reduces poverty and inequality.

• Employment stability helps in the development of skills and human capital, which are essential for innovation and technological advancement.

• Countries with higher employment stability tend to have better health outcomes and higher standards of living.

Additional Information

• Modernisation involves the transformation of a society from rural and agrarian conditions to urban and industrial ones.

• Stable employment is a key indicator of a healthy economy and is often targeted by government policies to ensure sustainable development.

• Investments in education and vocational training can further enhance employment stability and economic resilience.

• Other factors such as stable export and import are also important, but they are secondary to the direct impact that stable employment has on the prosperity of a country.

Q90. Answer: (d) Calcutta FC

The correct answer is Calcutta FC

Key Points

• Calcutta FC is the oldest football club in India, established in 1872.

• It is one of the first football clubs formed in Asia.

• Calcutta FC has a rich history and has contributed significantly to the development of football in India.

• The club is based in Kolkata, a city known for its passionate football culture.

Additional Information

• FC Kochin was established in 1997 and was one of the first professional football clubs in India.

• Madras FC and Bombay FC are also notable football clubs but were established later compared to Calcutta FC.

• Kolkata, formerly known as Calcutta, is often referred to as the "Mecca of Indian Football" due to its historical significance in the sport.

Q91. Answer: (d) Tropopause

The correct answer is Tropopause

Key Points

• The zone separating the troposphere from the stratosphere is called the Tropopause.

• The tropopause acts as a boundary where the temperature stops decreasing with altitude and begins to increase in the stratosphere.

• This boundary is significant because it marks the limit of most weather phenomena, which occur in the troposphere below.

• The height of the tropopause varies with latitude and season, being higher at the equator and lower at the poles.

Additional Information

• The troposphere is the lowest layer of Earth's atmosphere and is where most of the Earth's weather occurs.

• The stratosphere is the layer above the troposphere and contains the ozone layer, which absorbs and scatters ultraviolet solar radiation.

• The tropopause is characterized by a temperature inversion, where the temperature ceases to decrease with altitude and may even increase slightly.

• Understanding the tropopause is crucial for meteorology and aviation, as it affects weather patterns and flight dynamics.

Q92. Answer: (a) Haryana

The correct answer is Haryana

Key Points

• Raganis are a form of folk songs native to the state of Haryana.

• These songs are an integral part of Haryanvi culture and are typically performed during various local festivals and celebrations.

• The themes of Raganis often revolve around love, valor, and the daily lives of the people in Haryana.

• They are traditionally performed in a call-and-response format between two groups or individuals.

Additional Information

• Haryana, located in the northern part of India, is known for its rich cultural heritage and vibrant traditions.

• The state has a diverse range of folk music and dance forms, with Raganis being one of the most popular.

• In addition to Raganis, Haryana is also famous for other folk art forms such as Saang, a traditional form of theater.

• The preservation and promotion of these folk traditions are crucial for maintaining the cultural identity of the region.

Q93. Answer: (d) Dharmapala

The correct answer is Dharmapala

Key Points

• Vikramshila Vishwavidyalaya was founded by Dharmapala, a ruler of the Pala dynasty in ancient India.

• Dharmapala was a significant patron of Buddhism and established Vikramshila as a major center of Buddhist learning in the late 8th or early 9th century.

• The university was renowned for its specialized training in Buddhist teachings, particularly the Vajrayana tradition.

• Vikramshila was one of the two most important centers of Buddhist learning in India during its time, the other being Nalanda.

Additional Information

• Dharmapala ruled during the 8th century and was a key figure in the establishment of several educational institutions in ancient India.

• Under his reign, the Pala dynasty saw a cultural and educational renaissance, with significant contributions to art, architecture, and learning.

• The ruins of Vikramshila University are located in the Bhagalpur district of Bihar, India.

• Vikramshila University was destroyed during the invasions of Bakhtiyar Khilji in the late 12th century, similar to the fate of Nalanda University.

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Q94. Answer: (b) Siachen

The correct answer is 2) Siachen

Key Points

• Captain Shiva Chouhan made history by becoming the first woman officer to be deployed at the Siachen Glacier, the world's highest and coldest battlefield.

• Her deployment marks a significant milestone in the Indian Army, showcasing the increasing role of women in combat roles and high-altitude postings.

• The Siachen Glacier is located in the eastern Karakoram range in the Himalayas, just northeast of the point where the Line of Control between India and Pakistan ends.

• This deployment is part of the Indian Army's ongoing efforts to enhance gender inclusivity and empower women officers by providing them with challenging and prestigious assignments.

Additional Information

• The Siachen Glacier is approximately 76 km long and is located at an average altitude of 5,400 meters (17,700 feet).

• The region is known for its extreme weather conditions, with temperatures dropping to as low as -60 degrees Celsius in winter.

• Since 1984, India and Pakistan have maintained a permanent military presence in the region, making it one of the most challenging and strategic military posts in the world.

• Captain Chouhan's deployment is a testament to the evolving dynamics of the Indian Army and its commitment to providing equal opportunities for all its personnel, regardless of gender.

Q95. Answer: (a) fall

The correct answer is fall

Key Points

• When there is a fall in the demand for a good, the equilibrium price is expected to fall.

• The equilibrium price is determined by the intersection of the demand and supply curves. A decrease in demand shifts the demand curve to the left.

• This shift results in a new equilibrium where the quantity demanded and supplied are lower, leading to a lower price.

• Other factors being constant, a fall in demand reduces the competition for the good, causing sellers to lower prices to attract buyers.

Additional Information

• The equilibrium price is the price at which the quantity of a good demanded by consumers equals the quantity supplied by producers.

• A shift in the demand or supply curve can lead to a new equilibrium price and quantity.

• Factors that can cause a fall in demand include a decrease in consumer income, changes in tastes and preferences, and the availability of substitutes.

• Understanding the dynamics of demand and supply is crucial for predicting market behavior and making informed economic decisions.

Q96. Answer: (d) Article 5 – 11

The correct answer is Article 5 – 11

Key Points

• Articles 5 – 11 in Part II of the Constitution of India deal with citizenship.

• These articles provide for the acquisition and termination of citizenship at the commencement of the Constitution.

• Article 5 lays down that every person who has his domicile in the territory of India and who was born in India, or either of whose parents was born in India, or who has been ordinarily resident in India for not less than five years immediately preceding the commencement of the Constitution, shall be a citizen of India.

• Article 6 deals with the rights of citizenship of certain persons who have migrated to India from Pakistan.

• Article 7 provides for the rights of citizenship of certain migrants to Pakistan.

• Article 8 confers rights of citizenship of certain persons of Indian origin residing outside India.

• Article 9 states that no person shall be a citizen of India if he has voluntarily acquired the citizenship of any foreign state.

• Article 10 guarantees the continuance of rights of citizenship subject to the provisions of any law that may be made by Parliament.

• Article 11 empowers Parliament to regulate the right of citizenship by law.

Additional Information

• The Constitution of India was adopted by the Constituent Assembly on 26th November 1949 and came into effect on 26th January 1950.

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• It lays down the framework defining fundamental political principles, establishes the structure, procedures, powers, and duties of government institutions, and sets out fundamental rights, directive principles, and the duties of citizens.

• The Constitution of India is the longest written constitution of any country in the world.

• It declares India a sovereign, socialist, secular, and democratic republic, assuring its citizens justice, equality, and liberty, and endeavors to promote fraternity.

• The Seventh Schedule of the Constitution contains three lists which delineate the subjects under the Union, State, and Concurrent lists.

• Amendments to the Constitution can be made through a process outlined in Article 368.

Q97. Answer: (c) Super Fours

The correct answer is Super Fours

Key Points

• Super Fours is NOT a domestic cricket tournament organised by the Board of Control for Cricket in India (BCCI).

• The domestic cricket tournaments organised by the BCCI include the ZR Irani Cup, Vizzy Trophy, and Ranji Trophy.

• The ZR Irani Cup is a first-class cricket tournament in India, named after Z. R. Irani.

• The Vizzy Trophy is a tournament for university cricket teams in India, named after Vizzy, the Maharajkumar of Vizianagram.

• The Ranji Trophy is a premier first-class cricket championship played in India, named after the famous cricketer, Ranjitsinhji.

Additional Information

• The BCCI is the national governing body for cricket in India, responsible for organizing various domestic and international cricket tournaments.

• Some other notable domestic cricket tournaments organized by the BCCI include the Vijay Hazare Trophy, Syed Mushtaq Ali Trophy, and the Duleep Trophy.

• The BCCI was formed in December 1928 and is headquartered in Mumbai, India.

• The BCCI operates under the aegis of the International Cricket Council (ICC), the global governing body for cricket.

Q98. Answer: (d) Henry Moseley

The correct answer is Henry Moseley

Key Points

• Henry Moseley discovered the atomic number based on X-ray wavelength in 1913.

• Moseley's work provided a more accurate positioning of elements in the periodic table by their atomic number rather than atomic mass.

• This discovery was crucial in the development of the modern periodic table and our understanding of the atomic structure.

• Moseley’s law, derived from his work, correlates the frequency of the X-rays emitted by an element to its atomic number.

• Unfortunately, Henry Moseley died at a young age during World War I, but his contributions to chemistry and physics remain significant.

Additional Information

• Dmitri Mendeleev is known for creating the first version of the periodic table and predicting the properties of elements yet to be discovered.

• AEB de Chancourtois was a French geologist who created an early form of the periodic table known as the "Telluric Helix".

• RA Millikan is famous for his oil-drop experiment which measured the charge of the electron.

• The discovery of the atomic number fundamentally changed the organization of the periodic table, leading to a more accurate understanding of elemental properties.

Q99. Answer: (c) LTE

The correct answer is LTE

Key Points

• LTE (Long-Term Evolution) is associated with providing high-speed wireless data transmission for mobile devices.

• LTE is a standard for wireless broadband communication for mobile devices and data terminals.

• It increases the capacity and speed using a different radio interface together with core network improvements.

• It is the upgrade path for carriers with both GSM/UMTS networks and CDMA2000 networks.

Additional Information

• GPRS (General Packet Radio Service) is a packet-oriented mobile data standard on the 2G and 3G cellular communication network's global system for mobile communications (GSM).

• Wi-Max (Worldwide Interoperability for Microwave Access) is a family of wireless communication standards based on the IEEE 802.16 set of standards, providing multiple physical layer (PHY) and Media Access Control (MAC) options.

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• GPS (Global Positioning System) is a satellite-based navigation system that provides location and time information in all weather conditions, anywhere on or near the Earth.

• LTE is often marketed as 4G LTE and is designed to provide higher data speeds and improved network efficiency compared to its predecessors.

Q100. Answer: (c) Kashmir Himalayas

The correct answer is Kashmir Himalayas

Key Points

• The sub-division of Himalayas famous for Karewa formations is the Kashmir Himalayas.

• Karewas are lacustrine deposits (deposits in lake beds) found in the Kashmir Valley.

• These formations consist of unconsolidated gravel and mud, which are important for agriculture, particularly for the cultivation of saffron.

• The Kashmir Himalayas are known for their unique geological formations and play a significant role in the region's agriculture and ecology.

Additional Information

• The Himalayas are divided into various sub-divisions based on geographical and ecological characteristics, including the Punjab Himalayas, Kumaon Himalayas, Nepal Himalayas, Assam Himalayas, and others.

• The Kashmir Valley is located between the Great Himalayas and the Pir Panjal range.

• Besides Karewas, the Kashmir Himalayas are also known for their picturesque landscapes, rich biodiversity, and cultural heritage.

• The region faces several environmental challenges, including deforestation, soil erosion, and the impacts of climate change.

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