SSC CHSL Tier-1 2024: Official Paper (Held On: 04 Jul, 2024 Shift 1) (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 a grammatical error.

My students are / waiting for / their flights / at the gate no. 6.

(a) waiting for
(b) at the gate no. 6
(c) My students are
(d) their flights

Q2. The following sentence has been split into four segments. Identify the segment that contains a grammatical error.

I am very much / obliged of my friend / for the help / he rendered to me.

(a) he rendered to me
(b) for the help
(c) I am very much
(d) obliged of my friend

Q3. Parts of the following sentence have been underlined and given as options. Select the option that contains an error.

She will being studying for her exams tomorrow.

(a) will being
(b) studying
(c) exams
(d) tomorrow

Q4. The given sentence is divided into four segments. Select the option that has the segment with a grammatical error.

I am sure / that he will praying / for a good crop / this year.

(a) I am sure
(b) this year.
(c) for a good crop
(d) that he will praying

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.

Oil is almost certainly one of the ocean's greatest resources. 33% of the world's oil comes from seaward fields in seas. Oils are liquids that easily burn and do not (1)____ in water. Most of the time, they are made of chains of carbon and hydrogen atoms. There are three (2)__ types of oils: mineral, essential and fixed oils. From plants, essential oils are thin, scented oils. Because they frequently have an odour, essential oils are (3)__ in perfumery and food flavouring. Aromatic extraction processes like cold pressing, distillation and extraction are typically used to prepare essential oils. Fatty acids are used by animals and plants to make fixed oils. They are especially non-volatile oils that are found in the seeds of cotton, corn, flax, sunflowers, peanuts, coconuts and olives, as well as in fatty animal tissues. Mineral oils are (4)___ from petroleum which has been underground for millions of years from sea organism skeletons. Mineral oils are one of the petroleum by-products with the lowest prices. Mineral oils are colourless and transparent. They are made up of a (5)___ of hydrocarbons.

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

(a) dissolve
(b) evaporate
(c) melt
(d) diffuse

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

(a) early
(b) initial
(c) primary
(d) original

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

(a) operated
(b) employed
(c) applied
(d) utilized

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

(a) fabricated
(b) renewed
(c) produced
(d) invented

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

(a) association
(b) collaboration
(c) cooperation
(d) combination

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

If you are thinking about investing in share markets, isn't it make sense to find an expert?

(a) doesn't it
(b) did it
(c) do it
(d) is it

Q11. Select the INCORRECTLY spelt word.

(a) Advertisment
(b) Adulterous
(c) Astounding
(d) Amendment

Q12. 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 substitution required'.

Applications are to be sent to the school's e-mail ID before 30^(th) June.

(a) would be send to
(b) No substitution required
(c) is sending
(d) will be send to

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

Merit

(a) Tumult
(b) Result

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(c) Fault
(d) Occult

Q14. Select the correct spelling of the underlined word in the following sentence.
I am contant with my day's work.
(a) contint
(b) contante
(c) cuntent
(d) content

Q15. Select the most appropriate option to fill in the blank.
A sailor was _____through the high tides.
(a) swelling
(b) selling
(c) ceiling
(d) sailing

Q16. Fill in the blank with the most appropriate ANTONYM of the underlined word.
Gentlemen always go for a lawful approach, but rouges choose _____ ways to solve problems.
(a) sophisticated
(b) illicit
(c) legitimate
(d) legal

Q17. Select the most appropriate option to fill in the blank.
The crowd gave them a _____ of applause.
(a) yell
(b) load
(c) round
(d) laugh

Q18. Select the most appropriate ANTONYM of the given word.
Important
(a) Productive
(b) Significant
(c) Recurring
(d) Trivial

Q19. Select the most appropriate meaning of the underlined idiom in the following sentence.
Independence Day is considered as a red-letter day in the history of India.
(a) Uneventful day
(b) Unimportant day
(c) Memorable day
(d) Regular day

Q20. Select the most appropriate homophone to fill in the blank.
Namita still cannot _____ the pain of her cat's untimely demise.
(a) bier
(b) bear
(c) beer
(d) bare

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Q21. Select the most appropriate option that can substitute the underlined segment in the given sentence.

The painting look good in this room.

(a) had look
(b) looking
(c) looks
(d) have looking

Q22. Select the most appropriate option that can substitute the underlined segment in the given sentence.

He lived on the bank of a mighty river, broad and deep, that have always silently rolling on to a vast undiscovered ocean.

(a) that were always silently rolling
(b) which was always silently rolling
(c) what has always silently rolling
(d) which were always silently rolling

Q23. Select the most appropriate meaning of the underlined idiom.

Vishnu and Vignesh are always like two peas in a pod.

(a) Very similar to each other
(b) Happy and compassionate
(c) Smart and intelligent
(d) Good in every way

Q24. Select the most appropriate option to fill in the blank.

The _____ in my shoelace created a lot of trouble.

(a) not
(b) naught
(c) knot
(d) nought

Q25. Replace the underlined word in the given sentence with an appropriate synonym from the options listed below.

They gave us the impression that Clara was a cold and calculating woman, who was only after power.

(a) callous
(b) manipulative
(c) unscrupulous
(d) unsympathetic

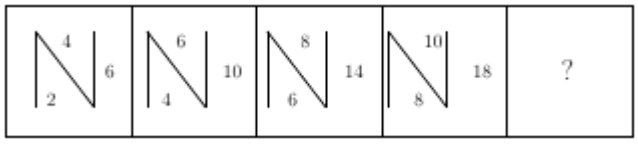
GENERAL INTELLIGENCE

Q26. What should come in place of the question mark (?) in the given series?

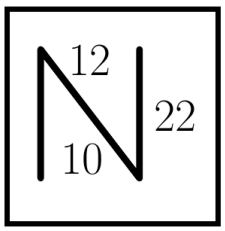
22, 24, 28, 30, 34, ?

(a) 38
(b) 37
(c) 36
(d) 35

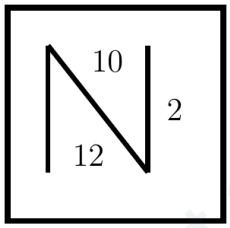
Q27. Identify the figure in the options that when put in place of the question mark (?) will logically complete the series?



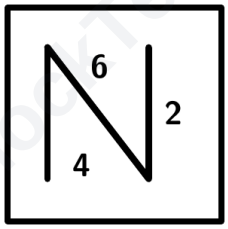
(a)



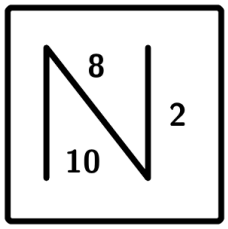
(b)



(c)



(d)



Q28. Select the correct mirror image of the given figure when the mirror is placed at MN as shown below.

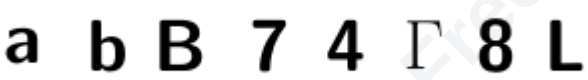


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(a)



(b)



(c)



(d)



Q29. Select the word-pair that best represents a similar relationship to the one expressed in the pair of words given below.
(The words must be considered as meaningful English words and must not be related to each other based on the number of letters/number of consonants/vowels in the word)

India: Mango

(a) Greece : Banana
(b) France : Apple
(c) New Zealand : Kiwi
(d) Australia : Grapes

Q30. If 'A' stands for '÷', 'B' stands for '×', 'C' stands for '+' and 'D' stands for '-', what will come in place of the question mark (?) in the following equation?

32 B 4 D 116 A 2 C 13 = ?

(a) 82
(b) 81
(c) 84
(d) 83

Q31. What will come in the place of the question mark (?) in the following equation, if '+' and '×' are interchanged and '-' and '÷' are interchanged?

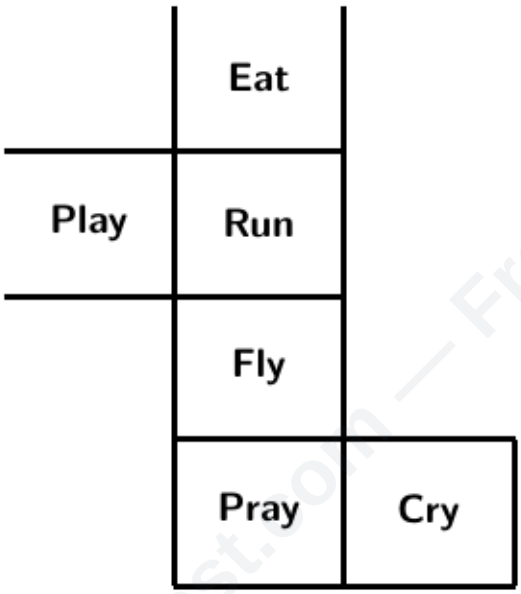
35 × 96 - 8 + 3 ÷ 11 = ?

(a) 42
(b) 55
(c) 60
(d) 40

Q32. The position of how many letters will remain unchanged if each of the letters in the word SOUNDBAR is arranged in alphabetical order?

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

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



(a) Play
(b) Cry
(c) Fly
(d) Pray

Q34. In a certain code language, MOAT' is coded as '8652' and 'TRAM' is coded as '4256'. What is the code for 'R' in the given code language?

(a) 4
(b) 8
(c) 6
(d) 2

Q35. Select the combination of letters that when sequentially placed in the blanks of the given series will logically complete the series.

_ F _ G E E _ E _ E E F _ G E E _ E G _

(a) EEFGEFE
(b) EFFGFEF
(c) EFGFEEF
(d) FEFGFFE

Q36. Select the word-pair that best represents a similar relationship to the one expressed in the pair of words given below.

(The words must be considered as meaningful English words and must not be related to each other based on the number of letters/number of consonants/vowels in the word.)

Palate : Mouth

(a) Rivulet : Dam
(b) Hill : Range
(c) Rainbow : Sky
(d) Ceiling : Room

Q37. What should come in place of the question mark (?) in the given series?

13, 22, 33, 46, ?, 78, 97

(a) 65
(b) 60
(c) 56
(d) 61

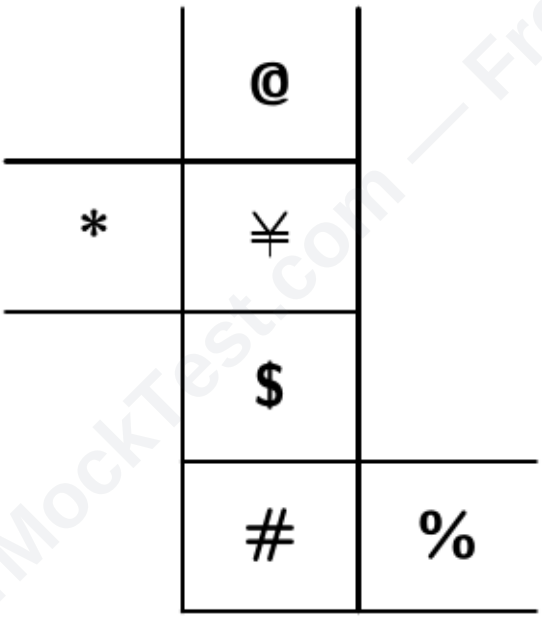
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Q38. What should come in place of? in the given series based on the English alphabetical order?

RST VZW ZGZ DNC ?

(a) COD
(b) HUF
(c) ALF
(d) MOC

Q39. What would be the symbol on the opposite side of '*' if the given sheet is folded to form a cube?



(a) ¥
(b) #
(c) %
(d) $

Q40. If ‘J’ stands for ‘÷’, ‘V’ stands for ‘×’, ‘K’ stands for ‘+’ and ‘A’ stands for ‘–’, what will come in place of the question mark (?) in the following equation?

12 J 2 K 17 A 15 V 19 = ?

(a) –776
(b) –75
(c) –262
(d) –76

Q41. In a certain code language. 'I missed breakfast' is written as 'nl zn kq' and 'train is missed' is written as 'zm kg nl'. How is 'missed' written in the given language?

(a) zn
(b) nl
(c) zm
(d) kq

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 rings are bangles.

Some bangles are anklets.

No anklet is a pendant.

Conclusions:

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(I) All rings being anklets is a possibility.

(II) All bangles can never be pendants.

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

Q43. 529 is related to 23 following a certain logic. Following the same logic, 324 is related to 18. To which of the following is 625 related following the same logic?

(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 /deleting /multiplying etc., to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed.)

(a) 35
(b) 23
(c) 27
(d) 25

Q44. Based on the alphabetical order, three of the following four letter-clusters are alike in a certain way and thus form a group. Which letter-cluster 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) GIM
(b) PRV
(c) HJN
(d) EGJ

Q45. Select the set in which the numbers are related in the same way as are the numbers of the following sets.

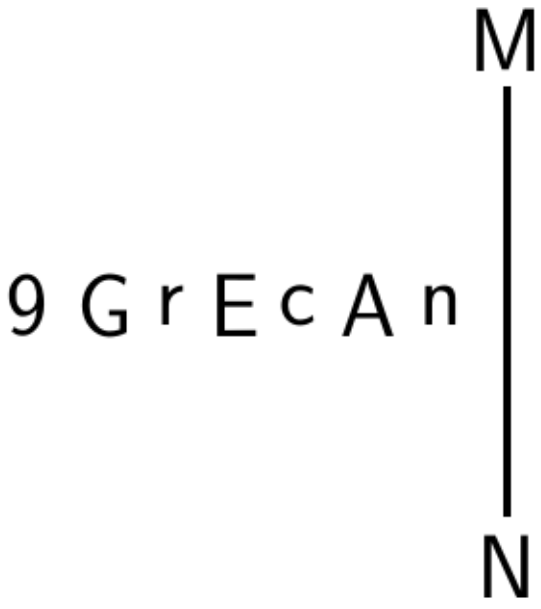
(NOTE: Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. E.g. 13 – Operations on 13 such as adding/deleting/multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is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

(5, 25, 50)

(8, 64, 128)

(a) (12, 144, 288)
(b) (12, 144, 278)
(c) (12, 134, 288)
(d) (12, 144, 298)

Q46. Select the correct mirror image of the given combination when the mirror is placed at 'MN' as shown below.



(a)



(b)



(c)



(d)



Q47. If 16 July 2001 is Monday, then what will be the day of the week on 23 December 2006?

(a) Saturday
(b) Thursday
(c) Wednesday
(d) Monday

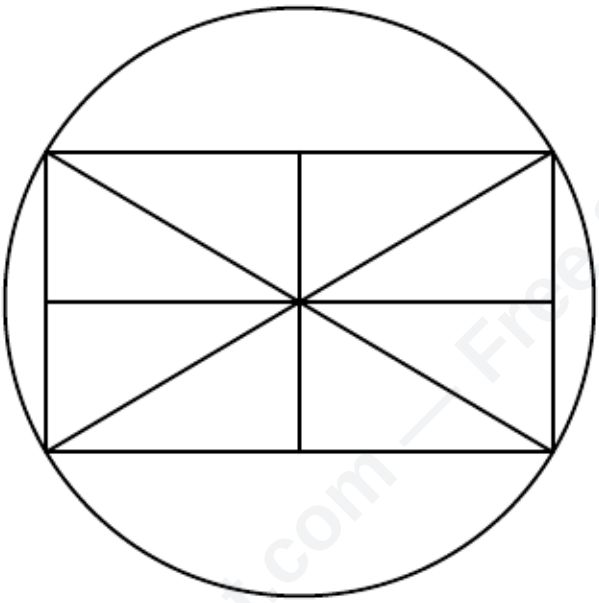
Q48. In a certain code language,

‘M & N’ means ‘M is the wife of N’,
‘M @ N’ means ‘M is the brother of N’,
‘M $ N’ means ‘M is the father of N’,
‘M # N’ means ‘M is the son of N’.
Based on the above, how is T related to G if ‘T @ S # M & N $ G’?

(a) Son
(b) Father
(c) Brother
(d) Father’s brother

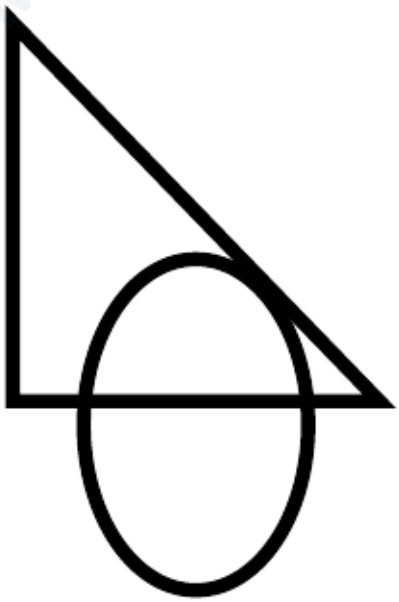
Q49. How many rectangles are there in the given figure?

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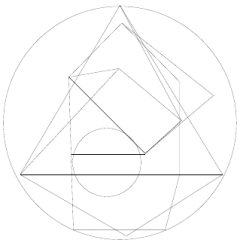


(a) 7
(b) 9
(c) 8
(d) 6

Q50. Select the option figure in which the given figure (X) is embedded as its part (rotation is NOT allowed).

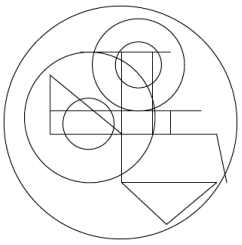


(a)

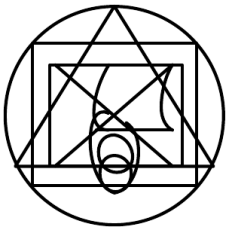


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(b)



(c)



(d)



QUANTITATIVE APTITUDE

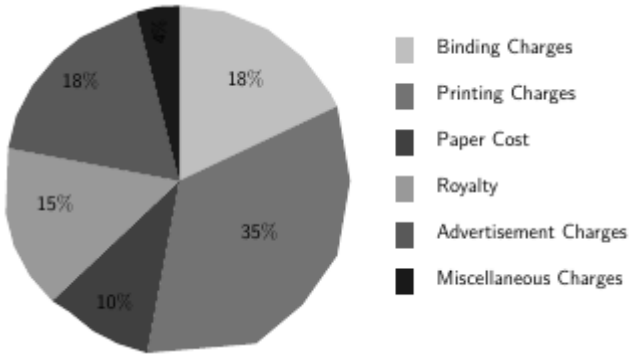
Q51. In the year 2000, Monu was 3 times his sister's age. In 2010, he was 24 years older than her. Find Monu's age in 2010.

(a) 38 years
(b) 52 years
(c) 62 years
(d) 46 years

Q52. The number nearest to 7658 and exactly divisible by 45 is:

(a) 7650
(b) 7640
(c) 7645
(d) 7660

Q53. The pie chart, given here, shows the various expenses of a publisher in the production of a magazine.



What is the difference between the measures of the central angles of sectors for binding charges and paper cost?

(a) 27.6°

(b) 27.2°
(c) 28.8°
(d) 28.6°

Q54. A man looks at the reflection of the top of the lamp-post on the mirror that is 6.6 m away from the foot of the lamppost. The man's height is 1.25 m and he is standing 2 m away from the mirror. Assuming that the mirror is placed on the ground, facing the sky and the man, and that the mirror and the lamp-post are in a same line, find the height of the lamp-post (in metres).

(a) 4.28
(b) 3.97
(c) 4.45
(d) 4.13

Q55. Find the average of natural numbers from 1 to 69. (both included)

(a) 31
(b) 33
(c) 35
(d) 37

Q56. If the diameter of the base and curved surfaced area of a cylinder are 14cm and 352 cm^2 ,respectively, then the total surface area of the cylinder is equal to:

(a) 760 cm2
(b) 654 cm2
(c) 660 cm2
(d) 754 cm2

Q57. Shankar covers a certain distance by a car driving at 40 km/h and he returns to the starting point riding on a scooter with a speed of 20 km/h. Find the average speed of the whole journey.

(a) 26 (2/3) km/h
(b) 22 (2/3) km/h
(c) 24 (2/3) km/h
(d) 29 (2/3) km/h

Q58. Convert 28% into the form of ratio.

(a) 7 : 25
(b) 7 : 18
(c) 25 : 7
(d) 18 : 7

Q59. Which of the following numbers is divisible by 22?

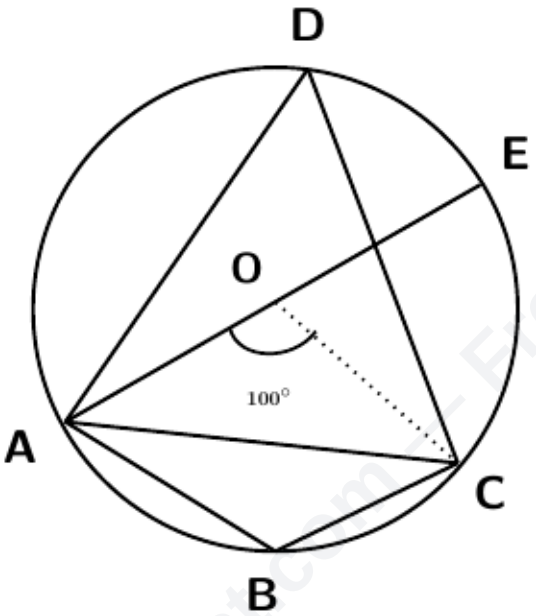
(a) 645372
(b) 893002
(c) 654320
(d) 602351

Q60. A person spends 10% of his income on groceries, 10% on medicines, 20% on children's education, 15% on house rent, and he saves the remaining amount. If his monthly income is Rs. 30,000, find his savings.

(a) Rs. 12,500
(b) Rs. 15,500
(c) Rs. 13,500
(d) Rs. 16,500

Q61. In the given figure, O is the centre of the circle, AE is the diameter and angle AOC = 100°.

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The value of angle CDE + angle CEA is:

(a) 60°
(b) 100°
(c) 90°
(d) 80°

Q62. Given below is the observed data of the ages of various children.

Age in years	Number of children
6	8
7	3
8	7
9	2
10	20

What is the mean of the ages of the children?

(a) 6.575 years
(b) 5.575 years
(c) 8.575 years
(d) 7.575 years

Q63. If 70% of the cost price of an article is equal to 40% of its selling price, what is the profit percentage?

(a) 75%
(b) 85%
(c) 80%
(d) 70%

Q64. What is the value of tan 570º?

(a) 1/√3
(b) -√3
(c) √3
(d) -1/√3

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Q65. In a state election between two parties, 83% of the voters cast their votes, out of which 4% of the votes were declared invalid. Party A got 156611 votes which were 83% of the total valid votes. Find the total number of votes enrolled in that election. (Consider integer part only)

(a) 23,46,807
(b) 2,36,807
(c) 2,58,233
(d) 2,34,888

Q66. ΔABC is a right-angled triangle where angle ABC = 90°. If m(AB) = 15 cm, m(BC) = 20 cm, and (BD) perpendicular to (AC), intersecting AC at the point D, find m (BD) (in cm).

(a) 9
(b) 10
(c) 12
(d) 12.5

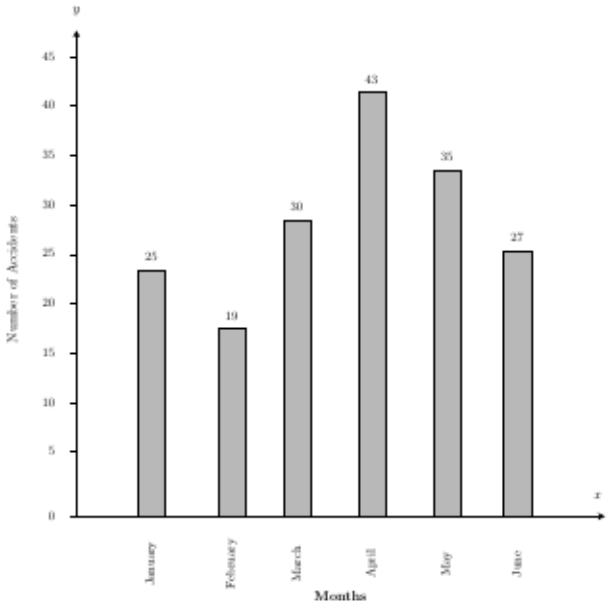
Q67. A box filled with gift articles weighs 25 kg. If the weight of the box and the gift articles, respectively, are in the ratio 1 : 9, then the weight of the articles (in grams) is:

(a) 21500
(b) 22500
(c) 23500
(d) 24500

Q68. The edges of a rectangular box are in the ratio of 3 : 5 : 8, and its surface area is 632 cm². What will be the volume of the box?

(a) 960 cm3
(b) 801 cm3
(c) 990 cm3
(d) 510 cm3

Q69. The given bar graph shows the number of accidents in a city during the first 6 months of a year. Examine the bar graph and answer the question.



What is the percentage of accidents in the month of April with respect to the total accidents in the city during six months? (Correct to nearest integer)

(a) 20%
(b) 22%
(c) 24%
(d) 15%

Q70. Gaurav marks his goods 50% above the cost price and offers a discount of 30% on the marked price to his customers. What is his percentage gain?

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

Q71. A and B can complete a piece of work in 15 days. B and C in 30 days and C and A in 45 days. In how many days will they complete the work if they start working together?

(a) 11 (1/3)
(b) 16 (4/11)
(c) 8 (3/11)
(d) 11 (2/3)

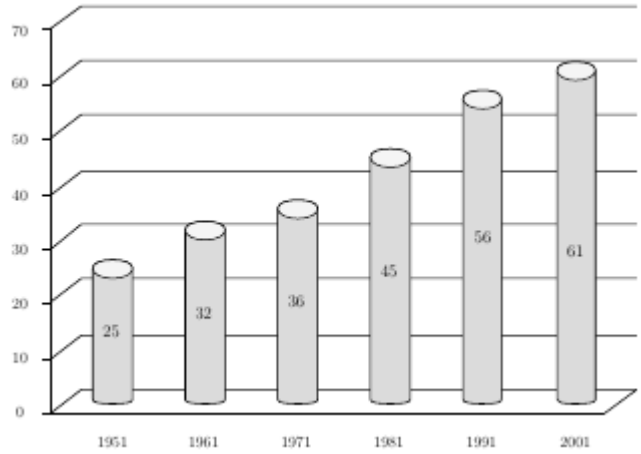
Q72. A clock is sold for Rs. 550 cash or in the instalment scheme, for Rs. 250 cash down payment and Rs. 310 after one month. Find the rate of interest charged in the instalment scheme.

(a) 20%
(b) 40%
(c) 45%
(d) 35%

Q73. There is a circle with a centre T and a radius of 8 cm. Two tangents KE and KI are drawn from point K, which is 17 cm from the centre. The area of the quadrilateral TEKI is:

(a) 136 sq.cm
(b) 120 sq.cm
(c) 130 sq.cm
(d) 127.5 sq.cm

Q74. The following bar graph represents the population of a city (in lakhs) as per the census across different years.



What is the per cent increase in population from 1951 to 2001?

(a) 22%
(b) 144%
(c) 35%
(d) 120%

Q75. Three solid cubes of metal have sides 6 cm, 8 cm and 10 cm, respectively. They are melted to form a new cube. What is the surface area of this new cube?

(a) 864 cm2
(b) 812 cm2
(c) 915 cm2
(d) 950 cm2

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GENERAL AWARENESS

Q76. Which of the following statement(s) is/are INCORRECT vis-à-vis Fundamental Duties?

1) The 44^(th) amendment Act introduced Fundamental duties in the Constitution.
2) Fundamental Duties were expanded by the 86^(th) amendment act.
3) Article 51A (a) entails respect its ideals and institutions, national flag and the national anthem.
4) Fundamental Duty obliges parents to provide opportunities for education to their child between 6-14 years of age.

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

Q77. In February 2023, Shiv Pratap Shukla was appointed governor of which state?

(a) Bihar
(b) Tamil Nadu
(c) Himachal Pradesh
(d) Haryana

Q78. Who is the Indian batsman after whom the Ranji Trophy is named?

(a) Ranjit Wadekar
(b) Ranjit Patel
(c) Ranjit Singh Bedi
(d) Ranjit Sinhji

Q79. What is the minimum over rate per hour in a test match?

(a) 10 overs per hour
(b) 17 overs per hour
(c) 15 over per hour
(d) 13 overs per hour

Q80. Where is the Save button in Microsoft Word?

(a) Bottom right corner of a Word window
(b) Top left corner of a Word window
(c) Top right corner of a Word window
(d) Bottom left corner of a Word window

Q81. What is the name of the scheme aimed at conservation of wetlands, which was announced in the Union Budget 2023-24?

(a) Amrit Dharohar
(b) Paryavaran Suraksha
(c) Dharohar
(d) Paryavaran Prahari

Q82. Who among the following Delhi Sultanate rulers took the policy of ‘blood and iron’ to deal with the Mewati community?

(a) Balban
(b) Rajiya
(c) Qutubuddin Aibak
(d) Iltutmish

Q83. Which of the following occupies less memory when saving an MS-Word file?

(a) docx
(b) docm
(c) doc

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(d) docc

Q84. Which is the natural habitat of the Asiatic Lion in India?

(a) Kaziranga National Park
(b) Dudhwa National Park
(c) Sundarbans
(d) Gir Forest

Q85. Hemis festival is associated with which of the following religions?

(a) Hinduism
(b) Jainism
(c) Buddhism
(d) Sikhism

Q86. Which of the following contains small droplets of liquid or particles of solid dispersed in a gas?

(a) Gel
(b) Aerosol
(c) Foam
(d) Vapour

Q87. Identify the INCORRECT statement regarding invertebrates from the options given below.

(a) They possess a backbone and an internal skeleton.
(b) They have radial or bilateral body symmetry.
(c) They have a pair of solid nerve cords, situated ventrally and bearing segmentally arranged ganglia.
(d) They have open circulatory system as there is no organisation in the distribution.

Q88. In which year was the Konkan Railway constructed?

(a) 2008
(b) 1988
(c) 1998
(d) 1978

Q89. Where is the ITC Sangeet Research Academy located?

(a) Delhi
(b) Bengaluru
(c) Indore
(d) Kolkata

Q90. Which Governor General of India issued the famous Regulation XVII in 1829, which declared the practice of Sati illegal and punishable by the courts?

(a) Lord William Bentinck
(b) Lord Minto
(c) Lord Ellenborough
(d) Lord Napier

Q91. Giddha dance is a folk dance of which of the following states?

(a) Odisha
(b) Nagaland
(c) Manipur
(d) Punjab

Q92. Which of the following currency note was discarded by the Government of India in November 2016?

(a) Rs. 100
(b) Rs. 500
(c) Rs. 200

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(d) Rs. 2,000

Q93. Who introduced the concept of virtual water?

(a) John Anthony Allan
(b) Norman Borlaug
(c) MS Swaminathan
(d) Glubler Triplets

Q94. Which of the following is the second nearest star to Earth?

(a) Proxima Centauri
(b) Polaris
(c) Delta Velorum
(d) Sirius

Q95. The Office of the Registrar General and Census Commissioner, India comes under the:

(a) Ministry of Corporate Affairs
(b) Ministry of Rural Development
(c) Ministry of Home Affairs
(d) Ministry of Finance

Q96. According to the International Football Association Board (IFAB), which colour must the football goal post be?

(a) White
(b) Black
(c) Red
(d) Blue

Q97. Secularism is a feature of the Indian Constitution, which means:

(a) The State promotes the religion of the majority community.
(b) The State does not promote any religion.
(c) The State can promote any religion.
(d) The State promotes the religion of the minority community.

Q98. Bharat Muni, in his Natya Shastra, categorises musical instruments into four different parts. What is the categorisation of musical instruments by Bharat Muni based on?

(a) Different sounds of the musical instruments
(b) The shape of the musical instruments
(c) The uses of the musical instruments in different occasions, such as wedding, festivals and public gathering
(d) Different materials used in the musical instruments

Q99. Which of the following is the official language of Tripura?

(a) Mizo
(b) Khasi
(c) Kokborak
(d) Garo

Q100. Ajit Kumar Mohanty took over the charge of Chairman, _____, in May 2023.

(a) National Commission for Backward Classes
(b) Atomic Energy Commission
(c) National Human Rights Commission of India
(d) Bhabha Atomic Research Centre

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ANSWER KEY

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

SOLUTIONS

Q1. Answer: (b) at the gate no. 6

The solution is in Hindi. Read it online.

Q2. Answer: (d) obliged of my friend

The correct answer is Option 4)

Key Points

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

• In the given sentence, the correct preposition should be 'to' instead of 'of'.

• The correct phrase is 'obliged to my friend' rather than 'obliged of my friend'.

• Therefore, the correct sentence should be 'I am very much obliged to my friend for the help he rendered to me.'.

Hence, the correct statement is: I am very much obliged to my friend for the help he rendered to me.

Q3. Answer: (a) will being

The correct answer is Option 1)

Key Points

• In the given sentence, the phrase 'will being' is incorrect.

• The correct phrase should be 'will be studying' to indicate a future continuous action.

• The structure for future continuous tense is 'will be' + present participle (verb+ing).

• Example: She will be studying for her exams tomorrow.

• Therefore, the correct phrase should be 'will be studying' instead of 'will being'.

Hence, the correct statement is: She will be studying for her exams tomorrow.

Additional Information

• The future continuous tense is used to describe actions that will be happening at a specific time in the future.

• Example: At this time next week, I will be traveling to Paris.

• It is formed using the auxiliary verb 'will' followed by 'be' and the present participle form of the main verb.

Q4. Answer: (d) that he will praying

The correct answer is Option 4)

Key Points

• In the fourth part of the given sentence, the verb form 'will praying' is incorrect.

• In the given sentence, the correct form should be 'will be praying' to indicate future continuous tense.

• The future continuous tense is used to describe actions that will be happening at a specific moment in the future.

• Example: She will be traveling to London next week.

• Therefore, the correct form is 'will be praying'.

Hence, the correct sentence is: I am sure that he will be praying for a good crop this year.

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Additional Information

• The future continuous tense is used to indicate that an action will be in progress at a specific time in the future.

• Example: At this time tomorrow, I will be working on my project.

• It is formed using the structure: will be + present participle (verb + ing).

• Example: They will be attending the meeting next week.

Q5. Answer: (a) dissolve

The solution is in Hindi. Read it online.

Q6. Answer: (c) primary

The correct answer is Option 3)

Key Points

• The passage discusses the dangers and consequences associated with forest fires.

• The appropriate adjective should indicate something fundamental or principal in the context of forest fires.

• "Primary" fits well as it denotes something of chief importance, which aligns with the context of forest fires being a major concern.

• Other options ("early", "initial", "original") do not fit the context of describing the main impact of forest fires on forests and biodiversity.

• The correct word for fill in the blanks no. 2 is 'primary.'

Therefore, the correct statement from the passage is "There are three primary types of oils: mineral, essential and fixed oils. From plants, essential oils are thin, scented oils."

Additional Information

• Early: "Early" suggests something happening near the beginning of a particular time period, which does not fit the context.

• Initial: "Initial" means existing or occurring at the beginning, which does not reflect the main impact of forest fires.

• Original: "Original" means existing from the beginning, which does not align with describing the primary impact of forest fires.

Q7. Answer: (d) utilized

The solution is in Hindi. Read it online.

Q8. Answer: (c) produced

The solution is in Hindi. Read it online.

Q9. Answer: (d) combination

The solution is in Hindi. Read it online.

Q10. Answer: (a) doesn’t it

The correct answer is Option 1)

Key Points

• In the second part of the given sentence, the singular form of the verb 'isn’t it' is incorrect.

• In the given sentence, the correct phrase should be "doesn’t it" to match the auxiliary verb form.

• Therefore, the correct form of the verb 'doesn’t it' should be used in place of the incorrect form 'isn’t it'.

Hence, the correct sentence is: If you are thinking about investing in share markets, doesn’t it make sense to find an expert?.

Additional Information

• If the sentence structure is a question and involves an auxiliary verb, use the correct form of the auxiliary verb to match the subject.

• Example: It makes sense to find an expert, doesn’t it?

• If the sentence structure is a statement and involves an auxiliary verb, use the correct form of the auxiliary verb to match the subject.

• Example: It makes sense to find an expert, does it?

Q11. Answer: (a) Advertisment

The solution is in Hindi. Read it online.

Q12. Answer: (b) No substitution required

The correct answer is Option 2)

Key Points

• In the given sentence, the phrase 'Applications are to be sent' is correctly structured.

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• The sentence uses the correct passive voice construction to indicate that the applications need to be sent to the specified email address.
• The phrase 'before 30th June' correctly specifies the deadline for sending the applications.
• Therefore, there is no need for substitution in the given sentence.

Hence, the correct statement is: Applications are to be sent to the school's e-mail ID before 30th June.

Additional Information

• When using passive voice to indicate an action that needs to be completed by a certain deadline, the structure 'are to be sent' is appropriate.
• This structure clearly communicates the requirement and the deadline without ambiguity.

Q13. Answer: (c) Fault

The solution is in Hindi. Read it online.

Q14. Answer: (d) content

The solution is in Hindi. Read it online.

Q15. Answer: (d) sailing

The correct answer is Option 4)

Key Points

• The given sentence describes an action performed by a sailor.
• The word that fits correctly in the context of the sentence is 'sailing'.
• The other options 'swelling', 'selling', and 'ceiling' do not fit the context of the sentence.

Hence, the correct statement is: A sailor was sailing through the high tides.

Additional Information

• The word 'sailing' is a present participle form of the verb 'sail' which means to travel on water in a boat or ship.
• The verb 'swelling' means to become larger or rounder in size, typically as a result of an accumulation of fluid.
• The verb 'selling' means to exchange a commodity for money.
• The noun 'ceiling' refers to the upper interior surface of a room.

Q16. Answer: (b) illicit

The solution is in Hindi. Read it online.

Q17. Answer: (c) round

The correct answer is Option 3)

Key Points

• The phrase "a round of applause" is a common expression used to describe the act of clapping hands in appreciation or approval.
• The other options ("yell", "load", "laugh") do not fit the context of giving applause.
• A "round" in this context refers to a burst or session of applause, making it the most appropriate choice.

Hence, the correct statement is: The crowd gave them a round of applause.

Additional Information

• In English, certain expressions are fixed and commonly used in specific contexts. "A round of applause" is one such fixed expression.
• Understanding common expressions and idioms is crucial for mastering the nuances of the language.

Q18. Answer: (d) Trivial

The solution is in Hindi. Read it online.

Q19. Answer: (c) Memorable day

The solution is in Hindi. Read it online.

Q20. Answer: (b) bear

The correct answer is Option 2)

Key Points

• The word "bear" is a homophone that means to endure or tolerate.
• The other options are incorrect as they do not fit the context of the sentence:

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• "bier" refers to a frame or stand on which a corpse or coffin is placed.
• "beer" is an alcoholic beverage.
• "bare" means to be uncovered or exposed.
• Therefore, the correct homophone to fill in the blank is "bear".
Hence, the correct statement is: Namita still cannot bear the pain of her cat's untimely demise.
Additional Information
• Homophones are words that sound the same but have different meanings and spellings.
• Example: "Write" and "Right" are homophones.

Q21. Answer: (c) looks

The correct answer is Option 3)
Key Points
• In the second part of the given sentence, the singular form of the verb 'look' is incorrect.
• In the given sentence, the subject 'The painting' is singular and therefore requires a singular verb.
• Therefore, the singular form of the verb 'looks' should be used in place of the plural form 'look'.
Hence, the correct statement is: The painting looks good in this room.
Additional Information
• When the subject of a sentence is singular, the verb must also be singular to maintain subject-verb agreement.
• Example: The cat sits on the mat.
• When the subject of a sentence is plural, the verb must also be plural to maintain subject-verb agreement.
• Example: The cats sit on the mat.

Q22. Answer: (b) which was always silently rolling

The solution is in Hindi. Read it online.

Q23. Answer: (a) Very similar to each other

The solution is in Hindi. Read it online.

Q24. Answer: (c) knot

The solution is in Hindi. Read it online.

Q25. Answer: (b) manipulative

The solution is in Hindi. Read it online.

Q26. Answer: (c) 36

Logic : Alternately (2) and (4) are added to each number subsequently.
Hence, "36" is the correct answer.

Q27. Answer: (a) [figure]

The logic followed here is :
1) For the left top number series → (2) is added to each number subsequently.
2) For the left bottom corner number series → (2) is added to each number subsequently.
3) For the right corner number series → (4) is added to each number subsequently.
4) For '
' element → No change.
Thus, the final series is :
Hence, "Option - (1)" is the correct answer.

Q28. Answer: (d) [figure]

The correct mirror image of the given figure is:
Hence, the correct answer is "Option 4".

Q29. Answer: (c) New Zealand : Kiwi

The logic followed here is:
Logic: National fruits of countries.
Here,

India : Mango → Mango is the national fruit of India.

Similarly,

New Zealand : Kiwi → Kiwi is the national fruit of New Zealand.

Hence, the correct answer is "Option 3".

Q30. Answer: (d) 83

Given Equation: 32 B 4 D 116 A 2 C 13 = ?

BODMAS Rule:

Decoding the given information:

Alphabet	A	B	C	D
Meaning	÷	×	•	•

Now replacing the sign from left to right using BODMAS Rule, we get:

=> 32 × 4 - 116 ÷ 2 + 13 = ?

=> 128 - 116 ÷ 2 + 13 = ?

=> 128 - 58 + 13 = ?

=> 70 + 13 = 83.

Hence, the correct option is "Option 4".

Q31. Answer: (c) 60

Given : 35 × 96 - 8 + 3 ÷ 11 = ?

According to the question, after replacing the signs :

'+' and '×' are interchanged and,

'-' and '÷' are interchanged

So,

35 × 96 - 8 + 3 ÷ 11 = ? => 35 + 96 ÷ 8 × 3 - 11 = ?

35 + 96 ÷ 8 × 3 - 11 = ?

35 + 12 × 3 - 11 = ?

35 + 36 - 11 = ?

71 - 11 = ?

60 = ?

Hence, "60" is the correct answer.

Q32. Answer: (a) One

Given word: 'SOUNDBAR'

After arranged in alphabetical order:

Alphabets	S	O	U	N	D	B	A	R
Alphabetical order	A	B	D	N	O	R	S	U

Now,

there is One alphabet "N" will remain unchanged if each of the letters in the word 'SOUNDBAR' is arranged in English alphabetical order.

Hence, the correct answer is "Option 1".

Q33. Answer: (c) Fly

The faces opposite to each other are shown below:

=> As the alternate positions become opposite to each other, the remaining two faces become opposite to each other.

So, opposite pairs are:

Eat → Fly

Run → Pray

Play → Cry

Therefore, 'Fly' is the opposite of 'Eat'.

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Hence, "Y" is the correct answer.

Q34. Answer: (a) 4

The logic followed here is: No specific pattern is followed here, random digits are assigned to each letter of the word.

'MOAT' is coded as '8652'

Letters	M / T / A	O
Codes	2 / 6 / 5	8

And,

'TRAM' is coded as '4256'

Letters	M / T / A	R
Codes	2 / 6 / 5	4

As, 'M', 'T', and 'A' are common, therefore it can be concluded that :

O is coded as → 8

R is coded as → 4

So, the code for 'R' is '4'.

Hence, "Option - (1)" is the correct answer.

Q35. Answer: (a) EEFGEFE

Given : _ F _ G E E _ E _ E E F _ G E E _ E G _

By checking options :

1. EEFGEFE → E F E G E E F E G E E F E G E E F E G E → (It follows the pattern of : EFEGE - EFEGE - EFEGE - EFEGE)
2. EFFGFEF → E F F G E E F E G E E F F G E E E E G F → (It doesn't Follow the pattern)
3. EFGFEEF → E F F G E E G E F E E F E G E E E E G F → (It doesn't Follow the pattern)
4. FEFGFFE → F F E G E E F E G E E F F G E E F E G E → (It doesn't Follow the pattern)

So, out of all the options "Option - (1)" follows the pattern.

Hence, "EEFGEFE" is the correct answer.

Q36. Answer: (d) Ceiling : Room

The logic followed here is:

Logic: Part-Whole Relationship.

Here,

Palate : Mouth → Palate is a part of the Mouth.

Similarly,

Ceiling : Room → Ceiling is a part of the Room.

Hence, the correct answer is "Option 4".

Q37. Answer: (d) 61

Logic: Odd number series starting with (9) is added subsequently.

Hence, "61" is the correct answer.

Q38. Answer: (b) HUF

Logic: (4), (7), and (3) are added to the first, second, and third letters position values according to the English alphabetic series respectively.

So,

Hence, "Option - (2)" is the correct answer.

Q39. Answer: (c) %

The faces opposite to each other are shown below:

=> As the alternate positions become opposite to each other, the remaining two faces become opposite to each other.

So, opposite pairs are:

@ → $

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¥ → #

• → %

Therefore, '%' is the opposite of '*'.

Hence, "Option - (3)" is the correct answer.

Q40. Answer: (c) –262

Given Equation: 12 J 2 K 17 A 15 V 19 = ?

BODMAS Rule:

Decoding the given information:

Alphabet	J	V	K	A
Meaning	÷	×	•	•

Now replacing the sign from left to right using BODMAS Rule, we get:

=> 12 ÷ 2 + 17 - 15 × 19 = ?

=> 6 + 17 - 15 × 19 = ?

=> 6 + 17 - 285 = ?

=> 23 - 285 = -262.

Hence, the correct option is "Option 3".

Q41. Answer: (b) nl

According to the given information,

Thus, according to the given codes 'nl' is the code for the word 'missed'.

Hence, the correct answer is "nl".

Q42. Answer: (d) Both conclusions I and II follow

The least possible Venn diagram for the given statements is as shown below :

Conclusions:

I. All rings being anklets is a possibility → Follow (As all rings are bangles and some bangles are anklets. As whole rings comes in bangles which have some common part with anklets, therefore rings beings can be a possibility.)

II. All bangles can never be pendants → Follow (As some bangles are anklets and no anklet is a pendant. As some part of bangles is common with anklets which can not be pendant, therefore all bangles can not be pendants is true)

Therefore Here, Both conclusions I and II follow.

Hence, the correct answer is "Both conclusions I and II follow"

Q43. Answer: (d) 25

The logic followed here is:

Logic: √1st number = 2nd number.

Now,

For, 529 : 23

=> √529 = 23.

For, 324 : 18

=> √324 = 18.

Similarly, for 625 : ?

=> √625 = 25.

Hence, the correct answer is "Option 4".

Q44. Answer: (d) EGJ

Logic:

First and second letter → (2) is added to the position values according to the English alphabetic series.

Second and third letter → (4) is added to the position values according to the English alphabetic series.

So, checking the options one by one :

Option - (1) : GIM

Option - (2) : PRV

Option - (3) : HJN

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Option - (4) : EGJ
Thus, out of all options "EGJ" is the odd one out.
Hence, "Option - (4)" is the correct answer.

Q45. Answer: (a) (12, 144, 288)

The logic followed here is:
Logic: (1st number)² = 2nd number; 2nd number × 2 = 3rd number.
Now,
For, (5, 25, 50)
=> ($5^2 = 25$) and ($25 \times 2 = 50$).
Similarly, for (8, 64, 128)
=> ($8^2 = 64$) and ($64 \times 2 = 128$).
Similarly, for (12, 144, 288)
=> ($12^2 = 144$) and ($144 \times 2 = 288$).
Hence, the correct answer is "Option 1".

Q46. Answer: (a) [figure]

The correct mirror image of the given figure is:

Hence, the correct answer is "Option 1".

Q47. Answer: (a) Saturday

Given: 16 July 2001 was Monday.
Now,
2001 to 2006 = 5 Years (4 Ordinary Year and 1 Leap Year).
And, In 5 Years = 1 Leap year and 4 Ordinary Year.
So, 1 Leap Year has 2 odd days,
And, 4 Ordinary Year has 4 odd days.
Total odd days = 2 + 4 = 6.
then, 16 July 2006 will be Monday + 6 = Sunday.
Now, the number of days between 16 July 2006 to 23 December 2006
= 15(July) + 31(August) + 30(September) + 31(October) + 30(November) + 23(December) = 160 days.
= 160 days → 160/7 = 22 weeks and 6 odd days.
So, 23 December 2006 will be Sunday + 6 = Saturday.
Hence, the correct answer is "Option 1".

Q48. Answer: (c) Brother

Decoding the Symbols:

M is				
Symbol	&	@	$	#
Meaning	Wife	Brother	Father	Son
to Q				

Given : T @ S # M & N $ G
T @ S → T is the brother of S.
S # M → S is the son of M.
M & N → M is the wife of N.
N $ G → N is the father of G.
So, T is the brother of G.
Hence, the correct answer is "Option - (3)".

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Q49. Answer: (b) 9

The number of rectangles in the given figure is shown below :

Here, as marked there are a total of 9 rectangles.

Hence, "9" is the correct answer.

Q50. Answer: (a) [figure]

The image embedded in the given figure is as shown below :

Therefore Here, the given figure is embedded in option Figure - 1.

Hence, the correct answer is "Option- (1)".

Q51. Answer: (d) 46 years

Given:

In the year 2000:

Monu's age = 3 times his sister's age

In the year 2010:

Monu's age = Sister's age + 24 years

Formula Used:

Let Monu's age in 2000 be M and his sister's age be S.

In 2000, M = 3S

In 2010, M + 10 = (S + 10) + 24

Calculation:

From the first equation:

M = 3S

Substitute M in the second equation:

3S + 10 = S + 34

Simplify:

=> 3S + 10 = S + 34

=> 3S - S = 34 - 10

=> 2S = 24

=> S = 12

Now, find M:

=> M = 3S

=> M = 3 × 12

=> M = 36

Monu's age in 2010:

=> M + 10 = 36 + 10

=> 46 years

Monu's age in 2010 is 46 years.

Q52. Answer: (a) 7650

Given:

Number to be checked: 7658

Divisor: 45

Formula Used:

Nearest number divisible by a given number = (Given number / Divisor) × Divisor

Calculation:

First, find the quotient when 7658 is divided by 45:

Quotient = 7658 / 45

=> Quotient = 170.1778 (approximately)

Now, multiply the integer part of the quotient by 45:

Nearest lower number divisible by 45 = 170 × 45

=> 170 × 45 = 7650

Next, check the next number by adding 1 to the integer part of the quotient and multiplying by 45:

Nearest higher number divisible by 45 = 171 × 45
=> 171 × 45 = 7695
Now, compare the differences:
Difference with 7650 = 7658 - 7650 = 8
Difference with 7695 = 7695 - 7658 = 37
Since 8 < 37, the number nearest to 7658 and exactly divisible by 45 is: 7650

Q53. Answer: (c) 28.8°

Given:
Binding Charges = 18%
Paper Cost = 10%
Total Angle of Pie Chart = 360°
Formula used:
Central Angle = (Percentage × 360°) / 100
Calculation:
Central Angle for Binding Charges = (18 × 360°) / 100
=> Central Angle for Binding Charges = 64.8°
Central Angle for Paper Cost = (10 × 360°) / 100
=> Central Angle for Paper Cost = 36°
Difference = 64.8° - 36°
=> Difference = 28.8°
Therefore The correct answer is 28.8°.

Q54. Answer: (d) 4.13

Given:
Distance from the mirror to the foot of the lamppost = 6.6 m
Man's height = 1.25 m
Distance from the man to the mirror = 2 m
Formula Used:
Using similar triangles:
Height of lamppost / Distance from lamppost to mirror = Man's height / Distance from man to mirror
Calculation:
Let the height of the lamppost be h meters.
Using the similar triangles property:
h/6.6 = 1.25/2
=> h = 6.6 ×
=> h = 6.6 × 0.625
=> h = 4.125 meters
Since the closest option is 4.13, we round off to 4.13 meters.
The height of the lamppost is 4.13 meters.

Q55. Answer: (c) 35

Shortcut Trick
For any Arithmetic Progression (consecutive numbers), the Average is the middle term.
Shortcut Formula: Average = (First Term + Last Term) ÷ 2
=> Average = (1 + 69) ÷ 2
=> Average = 70 ÷ 2 = 35
Therefore The correct answer is 35.
Alternate Method
Given: Natural numbers from 1 to 69.
Formula: Average = Sum of all observations ÷ Number of observations (n)
Sum of first n natural numbers = [n × (n + 1)] ÷ 2
=> Here, n = 69

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=> Sum = [69 × (69 + 1)] ÷ 2
=> Sum = (69 × 70) ÷ 2 = 69 × 35 = 2415
=> Average = 2415 ÷ 69
=> Average = 35
Therefore The correct answer is 35.
Additional Information
Sum of First n Natural Numbers
The sum is calculated using the formula S_n = n(n + 1) ÷ 2.
Average of First n Even Numbers
The average of the first n consecutive even numbers starting from 2 is simply (n + 1).
Average of First n Odd Numbers
The average of the first n consecutive odd numbers starting from 1 is always equal to n.
Average of Square of First n Natural Numbers
The formula for the average of squares is [(n + 1)(2n + 1)] ÷ 6.

Q56. Answer: (c) 660 cm2

Given:
Diameter of the base of the cylinder = 14 cm
Curved Surface Area (CSA) of the cylinder = 352 cm²
Formula Used:
1. Radius of the base (r) = Diameter / 2
2. Curved Surface Area (CSA) = 2πrh
3. Total Surface Area (TSA) = 2πr(r + h)
Calculation:
1. Calculate the radius:
Radius, r = 14 / 2
=> r = 7 cm
2. Use CSA to find the height (h) of the cylinder:
CSA = 2πrh
=> 352 = 2 × 22/7 × 7 × h
=> 352 = 44h
=> h = 352 / 44
=> h = 8 cm
3. Calculate the Total Surface Area (TSA):
TSA = 2πr(r + h)
=> TSA = 2 × 22/7 × 7 × (7 + 8)
=> TSA = 2 × 22/7 × 7 × 15
=> TSA = 2 × 22 × 15
=> TSA = 660 cm²
The total surface area of the cylinder is 660 cm².

Q57. Answer: (a) 26 (2/3) km/h

Shortcut Trick
When the distance covered is the same for two parts of a journey, use the formula:
Average Speed = (2 × S1 × S2) ÷ (S1 + S2)
Average Speed = (2 × 40 × 20) ÷ (40 + 20) = 1600 ÷ 60 = 80/3 km/h
Average Speed = 26 2/3 km/h
Therefore The correct answer is 26 2/3 km/h.
Alternate Method
Given:
Speed during onward journey (S1) = 40 km/h
Speed during return journey (S2) = 20 km/h

Formula Used:
Average Speed = Total Distance ÷ Total Time
=> Let the distance between the starting point and the turning point be d km.
=> Time taken to travel from A to B (t1) = d ÷ 40 hours.
=> Time taken to travel from B back to A (t2) = d ÷ 20 hours.
=> Total distance covered = d + d = 2d km.
=> Total time taken = (d ÷ 40) + (d ÷ 20) = (d + 2d) ÷ 40 = 3d ÷ 40 hours.
=> Average Speed = 2d ÷ (3d ÷ 40)
=> Average Speed = (2d × 40) ÷ 3d = 80 ÷ 3 km/h.
=> Average Speed = 26 2/3 km/h.
Therefore The correct answer is 26 2/3 km/h.
Additional Information
Average Speed for Different Distances
If distances d1, d2 are covered with speeds s1, s2, then Average Speed = (d1 + d2) ÷ (d1/s1 + d2/s2).
Harmonic Mean Property
When distances are equal, the average speed is the Harmonic Mean of the individual speeds.
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.
Average Speed for Three Equal Distances
If three equal distances are covered with speeds x, y, and z, then Average Speed = 3xyz ÷ (xy + yz + zx).

Q58. Answer: (a) 7 : 25

Given:
Percentage = 28%
Calculation:
Convert 28% into a fraction:
28% = 28/100
Simplify the fraction:
28/100 => 7/25
Therefore, the ratio is 7 : 25.
The correct option is 1.

Q59. Answer: (b) 893002

Given:
Numbers: 645372, 893002, 654320, 602351
Formula Used:
A number is divisible by 22 if it is divisible by both 2 and 11.
Calculation:
1. Checking 645372:
Divisibility by 2: 645372 is even (last digit is 2) => Divisible by 2
Divisibility by 11: Sum of digits at odd places = 6 + 5 + 7 = 18
Sum of digits at even places = 4 + 3 + 2 = 9
Difference = 18 - 9 = 9 (Not Divisible by 11) => Not Divisible by 11
645372 is divisible by 22.
2. Checking 893002:
Divisibility by 2: 893002 is even (last digit is 2) => Divisible by 2
Divisibility by 11: Sum of digits at odd places = 8 + 3 + 0 = 11
Sum of digits at even places = 9 + 0 + 2 = 11
Difference = 11 - 11 = 0 (Divisible by 11) => Divisible by 11
893002 is divisible by 22.
3. Checking 654320:
Divisibility by 2: 654320 is even (last digit is 0) => Divisible by 2

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Divisibility by 11: Sum of digits at odd places = 6 + 4 + 2 = 12

Sum of digits at even places = 5 + 3 + 0 = 8

Difference = 12 - 8 = 4 (Not divisible by 11) => Not divisible by 11

654320 is not divisible by 22.

4. Checking 602351:

Divisibility by 2: 602351 is odd (last digit is 1) => Not divisible by 2

602351 is not divisible by 22.

Correct Option: 2 (893002)

Q60. Answer: (c) Rs. 13,500

Shortcut Trick

Total Expenditure % = 10% + 10% + 20% + 15% = 55%

Total Savings % = 100% − 55% = 45%

Savings Amount = 45% of Rs. 30,000 = 0.45 × 30,000

Savings = Rs. 13,500

Therefore The correct answer is Rs. 13,500.

Alternate Method

Given:

Monthly Income = Rs. 30,000

Groceries = 10% | Medicines = 10% | Children's Education = 20% | House Rent = 15%

Calculations:

=> Total Expenditure = 10% + 10% + 20% + 15% = 55% of Income

=> Savings Percentage = 100% − 55% = 45%

=> Savings in Value = (45 ÷ 100) × 30,000

=> Savings = 45 × 300

=> Savings = Rs. 13,500

Therefore The correct answer is Rs. 13,500.

Additional Information

Percentage Expenditure

When expenditures are given as simple percentages of the total income, they are additive: Total % = P1 + P2 + ... + P_n.

Remaining Balance Method

If the question says '% of the remaining amount', we use the multiplying factor: Savings = Income × (1 − r1) × (1 − r2)...

Income Formula

Income = Total Expenditure + Savings. This basic identity is used to find any one unknown variable.

Q61. Answer: (c) 90°

Given:

O is the center of the circle.

AE is the diameter.

angle AOC = 100°

Formula used:

1. The angle subtended by a chord at the center is twice the angle subtended by the same chord at the circumference.

2. The sum of opposite angles in a cyclic quadrilateral is 180°.

Calculation:

For angle CDE:

Consider chord CE

angle COE is the angle subtended by the chord CE at centre and angle CDE is the angle subtended by the same chord at the circumference.

So, angle CDE = 1/2 × angle COE = 1/2 × 80 = 40°

For angle CEA:

Consider chord AC

angle AOC is the angle subtended by the chord AC at centre and angle CEA is the angle subtended by the same chord at the circumference.

So, angle CEA = 1/2 × angle AOC = 1/2 × 100 = 50°
Thus, angle CDE + angle CEA = 40 + 50 = 90°
Therefore The correct answer is option (3).

Q62. Answer: (c) 8.575 years

Formula used:
The formula to calculate the mean is:
Mean = (Σ(f × x)) / Σf
Where:
f = Number of children (frequency)
x = Age in years
Calculation:
Σ(f × x) = (6 × 8) + (7 × 3) + (8 × 7) + (9 × 2) + (10 × 20)
=> Σ(f × x) = 48 + 21 + 56 + 18 + 200
=> Σ(f × x) = 343
Σf = 8 + 3 + 7 + 2 + 20 = 40
Mean = 343 / 40
=> Mean = 8.575
Therefore The mean age of the children is 8.575 years.

Q63. Answer: (a) 75%

Given:
70% of the cost price (CP) = 40% of the selling price (SP)
Formula Used:
Profit Percentage = (SP - CP)/(CP) × 100
Calculation:
Let the cost price (CP) be x.
70% of CP = 40% of SP
=> 0.7 × x = 0.4 × SP
=> SP = (0.7 × x)/(0.4)
=> SP = 1.75 × x
Profit = SP - CP
Profit = 1.75 × x - x
Profit = 0.75 × x
Profit Percentage = (0.75 × x)/(x) × 100
Profit Percentage = 0.75 × 100
Profit Percentage = 75%
The profit percentage is 75%.

Q64. Answer: (a) 1/√3

Given:
Angle to find tan value = 570º
Formula Used:
tan(θ + 360º) = tan(θ)
Calculation:
To find tan 570º, we reduce the angle by subtracting multiples of 360º until we get an equivalent angle between 0º and 360º.
570º - 360º = 210º
Therefore, tan(570º) = tan(210º)
Now, tan(210º) = tan(180º + 30º)
Using the formula tan(180º + θ) = tan(θ), we get:
tan(210º) = tan(30º)
And we know:
tan(30º) = 1/√3

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However, since 210º is in the third quadrant where tan is positive, we have:
tan(210º) = tan(30º) = 1/√3
Therefore, the value of tan(570º) is 1/√3.

Q65. Answer: (b) 2,36,807

Given:
Total votes cast = 83%
Invalid votes = 4% of total votes cast
Votes for Party A = 156611
Votes for Party A = 83% of total valid votes
Formula Used:
Total votes cast = (Total votes enrolled) × (83 / 100)
Invalid votes = (Total votes cast) × (4 / 100)
Valid votes = Total votes cast - Invalid votes
Votes for Party A = (Valid votes) × (83 / 100)
Calculation:
Let the total number of votes enrolled be x.
Total votes cast = x × (83 / 100)
Invalid votes = x × (83 / 100) × (4 / 100)
Invalid votes = x × (0.83) × (0.04)
Invalid votes = x × 0.0332
Valid votes = Total votes cast - Invalid votes
Valid votes = x × 0.83 - x × 0.0332
Valid votes = x × (0.83 - 0.0332)
Valid votes = x × 0.7968
Votes for Party A = (Valid votes) × (83 / 100)
156611 = x × 0.7968 × (83 / 100)
156611 = x × 0.7968 × 0.83
156611 = x × 0.661344
=> x = 156611 / 0.661344
=> x ≈ 236807
The total number of votes enrolled in that election is 2,36,807.

Q66. Answer: (c) 12

Given:
In ΔABC, angle ABC = 90°
m(AB) = 15 cm
m(BC) = 20 cm
BD perpendicular to AC, where D is the point of intersection of BD and AC
Formula used:
Using the Pythagorean theorem to find the hypotenuse AC:
AC = √(AB² + BC²)
Then, using the formula for the length of the perpendicular from the right angle to the hypotenuse:
m(BD) = (AB × BC) / AC
Calculation:
AC = √(15² + 20²)
=> AC = √(225 + 400)
=> AC = √625
=> AC = 25 cm
Now, find m(BD):
m(BD) = (15 × 20) / 25
=> m(BD) = 300 / 25

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=> m(BD) = 12 cm

Therefore The length of BD is 12 cm.

Q67. Answer: (b) 22500

Given:

Total weight of the box filled with gift articles = 25 kg

Ratio of the weight of the box to the weight of the gift articles = 1 : 9

Formula Used:

Weight of gift articles = (Total weight × Ratio of gift articles) / (Sum of ratio parts)

Calculation:

Total ratio parts = 1 + 9 = 10

Weight of gift articles = (25 kg × 9) / 10

=> Weight of gift articles = 225 / 10

=> Weight of gift articles = 22.5 kg

Convert the weight into grams:

1 kg = 1000 grams

Weight of gift articles in grams = 22.5 kg × 1000

=> Weight of gift articles in grams = 22500 grams

The weight of the articles is 22500 grams.

Q68. Answer: (a) 960 cm3

Shortcut Trick

Ratio of edges = 3 : 5 : 8

Ratio of surface area = 2 × (3×5 + 5×8 + 8×3) = 2 × (15 + 40 + 24) = 158 units²

Given area 158 units² = 632 cm² => 1 unit² = 4 cm² => 1 unit = 2 cm

Actual edges are (3×2), (5×2), (8×2) = 6 cm, 10 cm, 16 cm

Volume = 6 × 10 × 16 = 960 cm³

Therefore The correct answer is 960 cm³.

Alternate Method

Given:

Ratio of edges of the rectangular box = 3 : 5 : 8

Total Surface Area (TSA) = 632 cm²

Formula Used:

TSA of a cuboid = 2(lb + bh + hl)

Volume of a cuboid = l × b × h

Calculations:

Let the length (l), breadth (b), and height (h) be 3x, 5x, and 8x respectively.

=> 2(3x × 5x + 5x × 8x + 8x × 3x) = 632

=> 2(15x² + 40x² + 24x²) = 632

=> 2(79x²) = 632

=> 158x² = 632

=> x² = 632 ÷ 158 = 4

=> x = √4 = 2

=> Dimensions: l = 3×2 = 6 cm, b = 5×2 = 10 cm, h = 8×2 = 16 cm

=> Volume = 6 × 10 × 16 = 960 cm³

Therefore The correct answer is 960 cm³.

Additional Information

Total Surface Area (TSA)

The total area of all six faces of the cuboid, calculated as 2(lb + bh + hl).

Volume of a Cuboid

The space occupied by the box, calculated by the product of its three dimensions: l × b × h.

Diagonal of a Cuboid

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The longest rod that can be placed inside the box, given by $\sqrt{(l^2 + b^2 + h^2)}$.

Lateral Surface Area (LSA)

The area of the four vertical walls of the box, calculated as $2h(l + b)$.

Q69. Answer: (c) 24%

Formula used:

Percentage of accidents in April = (Number of accidents in April / Total number of accidents) × 100

Calculation:

Total number of accidents = 25 + 19 + 30 + 43 + 35 + 27

=> Total number of accidents = 179

Percentage of accidents in April = (43 / 179) × 100

=> Percentage of accidents in April ≈ 24.02%

Therefore The percentage of accidents in April is approximately 24%.

Q70. Answer: (a) 5%

Given:

Cost Price (CP) of the goods = C

Marked Price (MP) = 1.5 × C

Discount offered = 30% of Marked Price

Formula Used:

Selling Price (SP) = Marked Price - Discount

Percentage Gain = ((SP - CP))/(CP) × 100

Calculation:

Marked Price (MP) = 1.5 × C

Discount = 30% of MP = 0.3 × 1.5 × C = 0.45 × C

Selling Price (SP) = MP - Discount

=> SP = 1.5 × C - 0.45 × C

=> SP = 1.05 × C

Percentage Gain = ((SP - CP))/(CP) × 100

=> Percentage Gain = ((1.05 × C - C))/(C) × 100

=> Percentage Gain = (0.05 × C)/(C) × 100

=> Percentage Gain = 0.05 × 100

=> Percentage Gain = 5%

The percentage gain is 5%.

Q71. Answer: (b) 16 (4/11)

Given:

A and B can complete a piece of work in 15 days.

B and C can complete a piece of work in 30 days.

C and A can complete a piece of work in 45 days.

Formula Used:

Work rate of A + B + C = 1/(Work rate of A and B) + 1/(Work rate of B and C) + 1/(Work rate of C and A)

Time taken when A, B, and C work together = 1 / (Work rate of A + B + C)

Calculation:

Let the work rates of A, B, and C be A, B, and C respectively.

A + B = 1/15

B + C = 1/30

C + A = 1/45

Adding these three equations:

(A + B) + (B + C) + (C + A) = 1/15 + 1/30 + 1/45

=> 2A + 2B + 2C = 1/15 + 1/30 + 1/45

=> 2(A + B + C) = (6 + 3 + 2) / 90

=> 2(A + B + C) = 11 / 90

=> A + B + C = 11 / 180

Time taken when A, B, and C work together = 1 / (A + B + C)

=> Time = 1 / (11 / 180)

=> Time = 180 / 11

=> Time = 16 (4/11) days

The correct answer is option 2.

Q72. Answer: (b) 40%

Given:

Cash price of the clock = Rs. 550

Down payment = Rs. 250

Amount paid after one month = Rs. 310

Time = 1 month = 1/12 year

Formula used:

Principal (P) = Cash price - Down payment

Interest (I) = Amount paid - Principal

Simple Interest formula: I = (P × R × T) / 100

Calculation:

Principal (P) = Rs. 550 - Rs. 250 = Rs. 300

Interest (I) = Rs. 310 - Rs. 300 = Rs. 10

I = (P × R × T) / 100

=> 10 = (300 × R × 1/12) / 100

=> 10 = (300R) / 1200

=> 10 = R / 4

=> R = 10 × 4 = 40%

Therefore The rate of interest charged in the installment scheme is 40%.

Q73. Answer: (b) 120 sq.cm

Given:

Radius of the circle, r = 8 cm

Distance from point K to the center T, KT = 17 cm

Two tangents KE and KI are drawn from point K

Formula Used:

Area of Quadrilateral TEKI = 2 × Area of Triangle TEK

Area of Triangle = 1/2 × base × height

For right-angled triangles:

Pythagoras theorem: $a^2 + b^2 = c^2$

Calculation:

In the right-angled triangle TEK:

TE = Radius = 8 cm

KT = Hypotenuse = 17 cm

Using Pythagoras theorem:

=> $KE^2 = KT^2 - TE^2$

=> $KE^2 = 17^2 - 8^2$

=> $KE^2 = 289 - 64$

=> $KE^2 = 225$

=> KE = √225

=> KE = 15 cm

Area of Triangle TEK:

=> Area = (1/2) × TE × KE

=> Area = (1/2) × 8 × 15

=> Area = 60 sq.cm

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Since TEKI is symmetrical:

Area of Quadrilateral TEKI = 2 × Area of Triangle TEK

=> Area of TEKI = 2 × 60

=> Area of TEKI = 120 sq.cm

The area of the quadrilateral TEKI is 120 sq.cm.

Q74. Answer: (b) 144%

Given:

The population of the city (in lakhs) for the years 1951 and 2001 is as follows:

Population in 1951 = 25 lakhs

Population in 2001 = 61 lakhs

Formula used:

Percentage Increase = [(Final Population - Initial Population) / Initial Population] × 100

Calculation:

Percentage Increase = [(61 - 25) / 25] × 100

=> Percentage Increase = (36 / 25) × 100

=> Percentage Increase = 1.44 × 100

=> Percentage Increase = 144%

Therefore The percentage increase in population from 1951 to 2001 is 144%.

Q75. Answer: (a) 864 cm2

Given:

Side of the first cube = 6 cm.

Side of the second cube = 8 cm.

Side of the third cube = 10 cm.

Formula Used:

Volume of a cube = $side^3$

Surface area of a cube = $6 \times side^2$

Calculation:

Volume of the first cube = $6^3 = 216\ cm^3$

Volume of the second cube = $8^3 = 512\ cm^3$

Volume of the third cube = $10^3 = 1000\ cm^3$

Total volume = 216 + 512 + 1000

=> Total volume = $1728\ cm^3$

Let the side of the new cube be x cm.

Volume of the new cube = x^3

Since the volume of the new cube is equal to the total volume of the three cubes:

$x^3 = 1728$

=> x = 12 cm

Surface area of the new cube = 6×12^2

=> Surface area = 6 × 144

=> Surface area = $864\ cm^2$

The surface area of the new cube is $864\ cm^2$.

Q76. Answer: (a) 1

The correct answer is 1

Key Points

• Option 1 is incorrect because the Fundamental Duties were introduced by the 42nd Amendment Act, 1976, not the 44th Amendment Act.

• Option 2 is correct. The 86th Amendment Act, 2002, expanded the Fundamental Duties to include the duty of parents to provide opportunities for education to their children between the ages of 6 and 14.

• Option 3 is correct. Article 51A (a) entails respecting the ideals and institutions, the National Flag, and the National Anthem.

• Option 4 is correct. The Fundamental Duty obliges parents to provide opportunities for education to their child between 6-14

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years of age.

Additional Information

• The Fundamental Duties are enshrined in Part IVA of the Constitution of India under Article 51A.

• They were added to the Constitution by the 42nd Amendment Act, 1976, based on the recommendations of the Swaran Singh Committee.

• Initially, 10 Fundamental Duties were listed, and the 86th Amendment Act added an 11th duty.

• The Fundamental Duties are non-justiciable, meaning they are not enforceable by the courts for their violation.

Q77. Answer: (c) Himachal Pradesh

The correct answer is Himachal Pradesh

Key Points

• In February 2023, Shiv Pratap Shukla was appointed as the governor of Himachal Pradesh.

• The appointment was part of a series of gubernatorial appointments and reshuffles made by the President of India.

• Shiv Pratap Shukla is a senior politician and a member of the Bharatiya Janata Party (BJP).

• His appointment reflects the ongoing administrative changes and appointments at the state level in India.

Additional Information

• The position of Governor in India is largely ceremonial, but it is an important constitutional office.

• Governors are appointed by the President of India and serve as the constitutional head of a state.

• The Governor's role includes overseeing the functioning of the state government and ensuring it operates within the framework of the Constitution.

• Shiv Pratap Shukla has previously held various political positions and has a long-standing career in Indian politics.

Q78. Answer: (d) Ranjit Sinhji

The correct answer is Ranjit Sinhji

Key Points

• The Ranji Trophy is named after Ranjit Sinhji, who was one of the first Indian cricketers to gain international fame.

• Ranjit Sinhji, also known as "Ranji," played for the English cricket team and is considered one of the greatest batsmen of all time.

• He was the ruler of the princely state of Nawanagar and was known for his unique batting style and contributions to cricket.

• The Ranji Trophy, India's premier domestic cricket competition, was established in 1934 to honor his legacy.

Additional Information

• Ranjit Sinhji was born on 10th September 1872 and passed away on 2nd April 1933.

• He played for Sussex in English county cricket and for Cambridge University.

• Ranjit Sinhji was the first Indian to play Test cricket, debuting for England in 1896.

• His innovative technique and prolific run-scoring made him a cricketing legend.

• The Ranji Trophy continues to be a crucial platform for aspiring cricketers in India to showcase their talent.

Q79. Answer: (c) 15 over per hour

The correct answer is 15 overs per hour

Key Points

• The minimum over rate in a test match is 15 overs per hour.

• Over rates are a crucial aspect of maintaining the game's pace and ensuring that spectators get to watch a fair amount of play.

• Teams must adhere to this rate to avoid penalties, including fines or point deductions in the World Test Championship.

• Effective over-rate management involves strategic planning and efficient field placements to minimize time wastage between deliveries.

Additional Information

• The International Cricket Council (ICC) monitors over rates in international matches and can impose sanctions on teams falling short.

• In recent years, various measures such as time limits for innings and penalties for slow over rates have been introduced to speed up the game.

• Maintaining a good over rate not only keeps the game engaging but also demonstrates the professionalism and discipline of the team.

• Technological advancements, such as the use of digital timers and improved communication systems, have also helped in managing over rates more effectively.

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Q80. Answer: (b) Top left corner of a Word window

The correct answer is Top left corner of a Word window

Key Points

• The top left corner of a Word window is where the Save button is located in Microsoft Word.

• The Save button is part of the Quick Access Toolbar, which provides easy access to common commands.

• In addition to using the Save button, you can also save a document by pressing Ctrl + S on your keyboard.

• The Save button allows you to save your current document quickly and efficiently without navigating through the File menu.

• Regularly saving your work helps to prevent data loss due to unexpected issues such as power outages or software crashes.

Additional Information

• Microsoft Word is a word processing application developed by Microsoft.

• Word offers a variety of tools and features to create and edit text documents, including formatting options, templates, and collaborative tools.

• The Quick Access Toolbar can be customized to include additional commands that you use frequently.

• Other common commands on the Quick Access Toolbar include Undo, Redo, and Open.

• Microsoft Word is available as part of the Microsoft Office suite, which includes other applications such as Excel, PowerPoint, and Outlook.

Q81. Answer: (a) Amrit Dharohar

The correct answer is Amrit Dharohar

Key Points

• Amrit Dharohar is the name of the scheme aimed at the conservation of wetlands, which was announced in the Union Budget 2023-24.

• The scheme is designed to enhance the protection and management of wetlands across India.

• Wetlands are crucial ecosystems that support a wide range of biodiversity and provide numerous environmental benefits such as water filtration, flood control, and carbon sequestration.

• The initiative is part of the government's broader efforts to promote sustainable development and environmental conservation.

Additional Information

• Wetlands are areas where water covers the soil, or is present either at or near the surface of the soil all year or for varying periods during the year, including during the growing season.

• India is a signatory to the Ramsar Convention, an international treaty for the conservation and sustainable use of wetlands.

• The Ramsar Convention aims to halt the worldwide loss of wetlands and to conserve, through wise use and management, those that remain.

• India has 94 Ramsar sites, covering an area of over 1.3 million hectares.

• Conserving wetlands can also help in achieving several Sustainable Development Goals (SDGs), including those related to water, climate action, and life on land.

Q82. Answer: (a) Balban

The correct answer is Balban

Key Points

• Balban adopted the policy of 'blood and iron' to deal with the Mewati community during his reign.

• Balban was one of the most powerful rulers of the Delhi Sultanate and served as Sultan from 1266 to 1287.

• His policy was characterized by strict administration and military actions to suppress rebellions and maintain order.

• Balban's reign marked significant efforts to consolidate the Sultanate's power and curb internal and external threats.

Additional Information

• Balban's full name was Ghiyas ud din Balban, and he belonged to the Mamluk dynasty.

• He initially served as a noble under Sultan Nasiruddin Mahmud before ascending to the throne.

• Balban is known for his strict enforcement of law and order and his efforts to strengthen the central authority of the Sultanate.

• He established a network of spies to keep an eye on the nobles and ensure loyalty to the Sultanate.

• Balban's reign laid the foundation for a more centralized and disciplined administration, which was crucial for the stability of the Delhi Sultanate.

Q83. Answer: (a) docx

The correct answer is docx

Key Points

• docx files typically occupy less memory compared to other MS-Word file formats.
• The docx format is a compressed file format, which makes it more storage-efficient.
• Introduced in Microsoft Word 2007, docx is an XML-based file format that reduces file size and improves data recovery options.
• In contrast, doc files, which were used in versions of Microsoft Word prior to 2007, are generally larger because they are not compressed.
• The docm format is similar to docx but includes macros, which can increase the file size.
• The docc format is not a standard MS-Word file format.

Additional Information

• Using the docx format can improve file-sharing and storage efficiency.
• It also supports a variety of advanced features such as improved graphics and better integration with other Microsoft Office applications.
• Due to its widespread adoption, docx files are highly compatible with various word processing software.
• Converting older doc files to docx can help in saving storage space.

Q84. Answer: (d) Gir Forest

The correct answer is Gir Forest

Key Points

• The Gir Forest is the only natural habitat of the Asiatic Lion in India.
• Located in the state of Gujarat, the Gir Forest National Park and Wildlife Sanctuary is home to the last remaining population of Asiatic Lions.
• The Asiatic Lion, also known as Panthera leo persica, once roamed from the Middle East to India, but now they are confined to this single location due to habitat loss and hunting.
• Conservation efforts in the Gir Forest have been crucial in increasing the population of these lions from the brink of extinction.
• The Gir Forest covers an area of approximately 1,412 square kilometers and comprises diverse flora and fauna.

Additional Information

• The Gir National Park was established in 1965 and has since been a protected area for wildlife conservation.
• The Government of Gujarat and various wildlife organizations have implemented several measures to protect and increase the population of Asiatic Lions.
• Tourism in the Gir Forest is regulated to ensure minimal disturbance to the wildlife and their natural habitat.
• The Asiatic Lion differs from its African counterpart by being slightly smaller with a less developed mane.
• Efforts are ongoing to explore potential sites for reintroducing the Asiatic Lion to reduce the risk of the entire population being confined to a single area.

Q85. Answer: (c) Buddhism

The correct answer is Buddhism

Key Points

• The Hemis festival is a significant religious festival in Buddhism, celebrated in the Hemis Monastery in Ladakh, India.
• This festival marks the birth anniversary of Guru Padmasambhava, who is believed to be the founder of Tibetan Buddhism.
• The celebrations include colorful masked dances, traditional music, and various cultural performances that attract both locals and tourists.
• The festival is held annually in the fifth month of the Tibetan lunar calendar, which usually falls in June or July.

Additional Information

• The Hemis Monastery is one of the largest and wealthiest monasteries in Ladakh, founded by King Sengge Namgyal in 1672.
• The monastery is known for its rich collection of ancient relics, thangkas (Tibetan Buddhist paintings), and statues.
• The Hemis festival provides a glimpse into the rich cultural heritage and religious traditions of the Tibetan Buddhist community in Ladakh.
• Visitors to the festival can also explore the beautiful landscapes and unique architecture of the region.

Q86. Answer: (b) Aerosol

The correct answer is Aerosol

Key Points

• Aerosol is a colloidal system where small droplets of liquid or particles of solid are dispersed in a gas.
• Aerosols can be naturally occurring, like mist or volcanic ash, or man-made, such as smoke or spray from aerosol cans.
• The term aerosol encompasses both the particles and the gas in which they are suspended.

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• Aerosols play a significant role in various environmental and health-related issues, such as air pollution and respiratory diseases.

Additional Information

• Aerosols are used in various industries, including pharmaceuticals, agriculture, and consumer products.

• They can affect climate by scattering or absorbing sunlight and by acting as nuclei for cloud formation.

• Inhalation of certain aerosols can be harmful, leading to respiratory issues or other health problems.

• Technological advancements have led to the development of more environmentally friendly aerosol products.

Q87. Answer: (a) They possess a backbone and an internal skeleton.

The correct answer is They possess a backbone and an internal skeleton

Key Points

• Invertebrates do not possess a backbone or an internal skeleton.

• They exhibit either radial or bilateral body symmetry.

• They have a pair of solid nerve cords, situated ventrally and bearing segmentally arranged ganglia.

• They typically have an open circulatory system as there is no organization in the distribution.

Additional Information

• Invertebrates constitute a vast majority of animal species on Earth, covering groups such as insects, arachnids, mollusks, crustaceans, and more.

• Despite lacking a backbone, many invertebrates have specialized adaptations that allow them to thrive in diverse environments.

• The study of invertebrates is crucial for understanding ecological interactions, evolutionary biology, and the development of medical and technological innovations.

• Invertebrates play key roles in ecosystems, including pollination, decomposition, and serving as food for other animals.

Q88. Answer: (c) 1998

The correct answer is 1998

Key Points

• 1998 is the year when the Konkan Railway was constructed.

• The Konkan Railway is one of the most significant railway projects in India, connecting the western coast of India with the rest of the country.

• It covers the regions of Maharashtra, Goa, and Karnataka, providing a crucial link for transportation and trade.

• The construction of the Konkan Railway involved numerous engineering challenges, including the construction of numerous tunnels and bridges.

Additional Information

• The Konkan Railway project was initiated to reduce the travel time between Mumbai and Mangalore.

• It is considered a marvel of modern engineering due to the difficult terrain and the extensive use of tunnels and viaducts.

• The railway line significantly boosted the economy of the Konkan region by improving connectivity and transportation of goods and passengers.

• The Konkan Railway Corporation Limited (KRCL) was established in 1990 to oversee the construction and operation of the railway line.

Q89. Answer: (d) Kolkata

The correct answer is Kolkata

Key Points

• ITC Sangeet Research Academy is located in Kolkata.

• The academy is renowned for its contribution to Indian classical music, particularly in the field of research and training.

• It provides a platform for talented musicians to be trained under the guidance of eminent gurus.

• The institution has played a significant role in preserving and promoting the rich heritage of Indian classical music.

Additional Information

• ITC Sangeet Research Academy was established in 1977 by ITC Limited, one of India's foremost private sector companies.

• The academy follows the ancient 'Gurukul' system where students (scholars) live and learn from their gurus.

• It has produced many renowned musicians who have made significant contributions to Indian classical music.

• The academy is located in the Tollygunge area of Kolkata, West Bengal.

• ITC SRA also organizes concerts, seminars, and workshops to promote Indian classical music.

Q90. Answer: (a) Lord William Bentinck

The correct answer is Lord William Bentinck

Key Points

• Lord William Bentinck was the Governor General of India from 1828 to 1835.

• He issued the famous Regulation XVII in 1829, which declared the practice of Sati illegal and punishable by the courts.

• Regulation XVII was a significant step towards social reform in India, aiming to abolish the inhumane practice of Sati, where a widow was compelled to self-immolate on her husband's funeral pyre.

• This regulation was a result of persistent efforts by social reformers like Raja Ram Mohan Roy, who campaigned against the practice.

Additional Information

• Lord William Bentinck is also known for various other reforms, including the suppression of Thuggee and the introduction of English education in India.

• His tenure marked the beginning of several progressive changes in the Indian administrative system.

• The abolition of Sati was a landmark decision that highlighted the British administration's commitment to social reform and the protection of human rights.

• Regulation XVII faced opposition from orthodox sections of society, but it was upheld and enforced rigorously.

• Lord William Bentinck's efforts in abolishing Sati were later recognized as a pivotal moment in the history of Indian social reform.

Q91. Answer: (d) Punjab

The correct answer is Punjab

Key Points

• Giddha is a popular folk dance of Punjab, India.

• The dance is performed exclusively by women.

• It is known for its high energy and graceful movements, often accompanied by traditional folk songs.

• Giddha is traditionally performed during festive occasions and celebrations.

• The dance is characterized by its vibrant costumes and rhythmic clapping.

Additional Information

• Punjab is a state in northern India.

• The state is known for its rich cultural heritage and vibrant traditions.

• Besides Giddha, another famous dance form from Punjab is Bhangra, which is performed by men.

• Punjab's traditional attire for women includes the salwar kameez and dupatta, often adorned with colorful embroidery.

• The state is also renowned for its cuisine, including dishes like butter chicken, sarson da saag, and makki di roti.

Q92. Answer: (b) Rs. 500

The correct answer is Rs. 500

Key Points

• The Government of India announced the demonetization of the Rs. 500 and Rs. 1,000 currency notes on 8th November 2016.

• This move was aimed at curbing black money, counterfeit currency, and corruption.

• New Rs. 500 and Rs. 2,000 notes were introduced after the demonetization.

• Citizens were given a limited time to exchange or deposit their old currency notes in banks.

• The demonetization led to a significant impact on the economy, affecting daily transactions and liquidity.

Additional Information

• Demonetization refers to the act of stripping a currency unit of its status as legal tender.

• The Reserve Bank of India (RBI) played a crucial role in the implementation of the demonetization policy.

• The move was part of a broader strategy to digitize the economy and encourage cashless transactions.

• Several measures were introduced to alleviate the inconvenience caused to the public, including increased limits on cash withdrawals.

• Demonetization has been used in other countries as well, with varying degrees of success and impact.

Q93. Answer: (a) John Anthony Allan

The correct answer is John Anthony Allan

Key Points

• John Anthony Allan introduced the concept of virtual water.

• Virtual water refers to the hidden flow of water if food or other commodities are traded from one place to another.

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• This concept helps in understanding the amount of water used in the production and trade of goods.

• It is a crucial concept for water-scarce regions and for global water management strategies.

Additional Information

• John Anthony Allan was awarded the Stockholm Water Prize in 2008 for his contribution to the concept of virtual water.

• The concept of virtual water has significant implications for understanding water use in agricultural and industrial processes.

• By considering virtual water, countries can make better decisions regarding water resource management and trade policies.

Q94. Answer: (a) Proxima Centauri

The correct answer is Proxima Centauri.

Key Points

• Proxima Centauri:

• Proxima Centauri is a red dwarf star located in the constellation of Centaurus.

• At approximately 4.24 light-years from Earth, it is the closest known star to the Solar System.

• Despite its proximity, Proxima Centauri is not visible to the naked eye due to its faintness.

• This star is part of the Alpha Centauri star system, which includes Alpha Centauri A and Alpha Centauri B, two brighter stars.

• Proxima Centauri hosts at least one planet in its habitable zone, called Proxima Centauri b, which has generated significant interest in the potential for extraterrestrial life.

Additional Information

• Sirius:

• Sirius is the brightest star in the night sky, located in the constellation Canis Major.

• It is approximately 8.6 light-years away from Earth, making it relatively close but not as close as Proxima Centauri.

• Sirius is a binary star system consisting of Sirius A, a main-sequence star, and Sirius B, a faint white dwarf companion.

• Its brightness and relative proximity have made it important in various mythologies and cultures throughout history.

• Polaris:

• Polaris, also known as the North Star, is located in the constellation Ursa Minor.

• It is approximately 433 light-years away from Earth, making it much farther than Proxima Centauri.

• Polaris is a Cepheid variable star, meaning its brightness varies over time.

• It has been historically significant for navigation due to its nearly fixed position in the sky, directly aligned with the Earth's rotational axis.

• Delta Velorum:

• Delta Velorum is a star system in the constellation Vela.

• It is located about 80 light-years from Earth.

• This system comprises at least three stars, including a spectroscopic binary.

• It is not as well-known as Polaris or Sirius and is much farther than Proxima Centauri.

Important Points

• The Alpha Centauri star system, which includes Proxima Centauri, is the nearest star system to the Solar System.

• Proxima Centauri b, the exoplanet orbiting Proxima Centauri, has been a focal point for scientific research due to its location in the star's habitable zone.

• Efforts like the Breakthrough Starshot initiative aim to explore Proxima Centauri and its planetary system using ultra-light spacecraft propelled by light sails.

Q95. Answer: (c) Ministry of Home Affairs

The correct answer is Ministry of Home Affairs

Key Points

• The Office of the Registrar General and Census Commissioner, India comes under the Ministry of Home Affairs.

• This office is responsible for conducting the decennial Census of India and providing vital statistics on population, birth, and death rates.

• The Census data is crucial for planning and policy-making at various levels of government.

• It plays a significant role in the allocation of resources and the implementation of welfare programs across the country.

Additional Information

• The Ministry of Home Affairs is a key ministry in the Government of India, responsible for internal security, border management, and administration of Union Territories.

• It also oversees disaster management, the Central Armed Police Forces, and the implementation of the official languages policy.

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• The Registrar General and Census Commissioner office was established in 1949, and it has been conducting the Census since then.

• The Census is conducted every ten years, with the last Census being held in 2011 and the next scheduled for 2021.

Q96. Answer: (a) White

The correct answer is White

Key Points

• According to the International Football Association Board (IFAB), the football goal post must be white.

• The color specification ensures that the goalposts are clearly visible during matches.

• This rule is part of the Laws of the Game, which are maintained by IFAB to standardize football regulations globally.

Additional Information

• The International Football Association Board (IFAB) was founded in 1886 and is responsible for overseeing the Laws of the Game of football.

• IFAB consists of representatives from the football associations of England, Scotland, Wales, Northern Ireland, and FIFA.

• The Laws of the Game cover all aspects of football including the field of play, the ball, the players, and the equipment used.

• Goalposts and crossbars must be made of approved materials and have a consistent color, which is mandated to be white for clarity and uniformity.

Q97. Answer: (b) The State does not promote any religion.

The correct answer is The State does not promote any religion.

Key Points

• Secularism in the Indian Constitution means that the State does not promote any religion.

• This ensures that there is no official state religion and that all religions are treated equally by the state.

• It is a fundamental aspect that protects the rights of individuals to practice and propagate their religion without any state interference.

• Secularism helps in maintaining the principle of separation of religion from the state, thus ensuring that religious groups do not interfere in government affairs and the government does not interfere in religious affairs.

Additional Information

• The concept of secularism is enshrined in the Preamble of the Indian Constitution, which declares India to be a sovereign, socialist, secular, and democratic republic.

• The Constitution guarantees the right to freedom of religion to all its citizens under Articles 25 to 28.

• Article 25 provides for freedom of conscience and free profession, practice, and propagation of religion.

• Article 26 ensures freedom to manage religious affairs.

• Article 27 ensures that no person shall be compelled to pay any taxes for the promotion or maintenance of any particular religion.

• Article 28 allows educational institutions maintained by the state to impart religious instruction.

Q98. Answer: (a) Different sounds of the musical instruments

The correct answer is Different sounds of the musical instruments

Key Points

• Bharat Muni, in his Natya Shastra, categorizes musical instruments based on the different sounds they produce.

• The categorization includes four types of instruments: stringed instruments (Tata), percussion instruments (Avanaddha), wind instruments (Sushira), and solid instruments (Ghana).

• This classification reflects the diverse ways in which sound can be produced in musical instruments.

• The Natya Shastra is an ancient Indian treatise on performing arts, encompassing theatre, dance, and music.

Additional Information

• The Natya Shastra is attributed to Bharata Muni and is believed to have been composed between 200 BCE and 200 CE.

• It is a comprehensive guide to the theory and practice of the performing arts in ancient India.

• The text is considered the foundation of Indian classical music and dance traditions.

• It includes detailed instructions on the techniques of acting, stage design, music, dance, and makeup.

• The Natya Shastra has had a profound influence on the cultural and artistic traditions of India.

Q99. Answer: (c) Kokborak

The correct answer is Kokborak

Key Points

• Kokborak is the official language of Tripura.

• It is one of the languages spoken by the Tripuri people in the Indian state of Tripura.

• Kokborak is also known as Tripuri or Tipra and is a Tibeto-Burman language.

• The language has its own script known as the "Koloma" script, although the Bengali script is also widely used.

• Efforts have been made to promote and preserve Kokborak through educational programs and cultural initiatives.

Additional Information

• Tripura is a state in northeastern India, bordered by Bangladesh to the north, south, and west, and the Indian states of Assam and Mizoram to the east.

• The state has a rich cultural heritage with various indigenous communities, each having its own distinct language and traditions.

• In addition to Kokborak, Bengali is also widely spoken and understood in Tripura.

• Tripura became a full-fledged state of India on January 21, 1972.

• The state is known for its scenic beauty, diverse culture, and historical significance, including palaces, temples, and wildlife sanctuaries.

Q100. Answer: (b) Atomic Energy Commission

The correct answer is Atomic Energy Commission

Key Points

• Ajit Kumar Mohanty took over the charge of Chairman, Atomic Energy Commission in May 2023.

• The Atomic Energy Commission is responsible for the administration of the Atomic Energy Act, 1962, and it oversees the development and implementation of policies related to atomic energy in India.

• It plays a critical role in the planning and execution of nuclear power projects and research in the field of nuclear science and technology.

• The commission ensures the safe and secure use of nuclear energy for peaceful purposes, such as power generation, medical applications, and scientific research.

Additional Information

• The Atomic Energy Commission was established in 1948 to spearhead India's nuclear program.

• It functions under the Department of Atomic Energy, which is directly under the Prime Minister of India.

• The commission has been instrumental in the establishment of several nuclear power plants and research facilities across the country.

• It also collaborates with international organizations to promote the peaceful use of nuclear energy and to ensure adherence to global safety standards.

• India is committed to using nuclear energy as a means to achieve energy security and to reduce carbon emissions in line with its climate goals.

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