SSC CHSL Tier-1 2024: Official Paper (Held On: 08 Jul, 2024 Shift 3) (Previous Year Paper)

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

Take this paper as a timed mock test

Practise under exam conditions, then review your answers after you submit.

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ENGLISH LANGUAGE

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

In this cold weather, / there's nothing / like good / cup of coffee.

(a) cup of coffee
(b) In this cold weather
(c) like good
(d) there's nothing

Q2. Parts of the following sentence have been given as options. Select the option that contains an error.

There's an quiet street down the left that you can use for your dance practice.

(a) down the left
(b) for your dance practice
(c) There's an quiet street
(d) that you can use

Q3. The given sentence is divided into four segments. Select the option that has the segment with a grammatical error.

A part / of a / apple is / rotten.

(a) apple is
(b) of a
(c) A part
(d) rotten

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

The general's address / was applauds / by all sections / of society.

(a) was applauds
(b) of society.
(c) by all sections
(d) the general's address

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.

Trees provide so many benefits (1)__ our everyday lives. They filter clean air, provide fresh drinking water, help (2)__ climate change and create homes for thousands of species of plants and animals. (3)____ a billion trees can help save the Earth from climate change and biodiversity loss. When we restore and (4)___ critical forests, we remove carbon and support biodiversity. A billion is a big number, but we know we can do it together. (5)_____ the planet by planting your tree today. This can protect and restore forests for future.

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

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

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

(a) cut
(b) crib
(c) crust
(d) curb

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

(a) In planting
(b) By planting
(c) Planting
(d) With planting

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

(a) conserve
(b) sabotage
(c) curtail
(d) observe

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

(a) Complement
(b) Sustain
(c) Supplement
(d) Denigrate

Q10. Select the most appropriate synonym of the given word.

Callous

(a) Cruel
(b) Generous
(c) Exhausting
(d) Affectionate

Q11. Select the most appropriate option to substitute the underlined segment in the following sentence.

Rohit is write to them three times.

(a) Rohit had write
(b) Rohit has written
(c) Rohit was beings written
(d) Rohit was write

Q12. Select the most appropriate synonym of the given word.

Baffle

(a) Confuse
(b) Barbarous
(c) Explicate
(d) Equalise

Q13. Select the most appropriate option to fill in the blank.

The perfume she uses has a strong _____.

(a) cent
(b) scent

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(c) send
(d) sent

Q14. Select the most appropriate option to fill in the blank.
The company's _____ commitment to sustainability is admirable.
(a) resolute
(b) strong
(c) shakeable
(d) wavering

Q15. Select the most appropriate idiom to fill in the blank.
Mala _____ by cheating on the exam to win her bet with Priya.
(a) hit below the belt
(b) get the sack
(c) fell out
(d) look down upon

Q16. The given sentence is divided into four segments. Identify the segment that contains a spelling error.
To submit a report / on the recent fire accident, / a high level commitee / has been formed.
(a) a high level commitee
(b) has been formed
(c) To submit a report
(d) on the recent fire accident

Q17. Identify the INCORRECTLY spelt word in the following sentence and select the option with the correct spelling.
Stomach sleepers were rated as being more gregairious and uncomfortable with criticism.
(a) ratedd
(b) criticicm
(c) gregarious
(d) stomac

Q18. Select the most appropriate option that can substitute the underlined segment in the given sentence.
He has grown into a beautiful youth.
(a) into a handsome youth
(b) in a handsome youth
(c) a beautiful youth
(d) in a beautiful youth

Q19. 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’.
The inspector smile after he was finished and patted Margie’s head.
(a) has smiled
(b) smiled
(c) was smiled
(d) No substitution required

Q20. Select the most appropriate synonym of the given word.
Venom
(a) Fruit juice
(b) Poison
(c) Honey
(d) Butter

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Q21. Select the most appropriate ANTONYM of the underlined word in the given sentence.

The CEO called for compulsory participation from each employee.

(a) Voluntary
(b) Obligatory
(c) Compliantly
(d) Overtly

Q22. Select the most appropriate option to substitute the underlined segment in the following sentence.

We are decorate the living - room at the moment.

(a) We are being decorating
(b) We are decorates
(c) We are being decorate
(d) We are decorating

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

Where the shoe pinches

(a) Where the shoe hurts
(b) Where the difficulty lies
(c) Unknown paths
(d) Difficult roads

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

Rosy and Nicky couldn't provide any evidence to support _____ arguments.

(a) theirs
(b) there
(c) they're
(d) their

Q25. Select the most appropriate ANTONYM of the given word.

Logical

(a) Subtle
(b) Illogical
(c) Reasonable
(d) Random

GENERAL INTELLIGENCE

Q26. What will come in the place of the question mark (?) in the following equation, if '+' and '×' are interchanged and '-' and '÷' are interchanged?

35 × 16 + 3 ÷ 156 - 12 = ?

(a) 63
(b) 64
(c) 72
(d) 70

Q27. 'A × B' means 'A is B's mother'.

'A ÷ B' means 'A is B's son'.

'A + B' means 'A is B's husband'.

'A – B' means 'A is B's sister'.

Using the same meaning of the mathematical operators as given above, in 'D + E × F – G' what is the relation of F with D?

(a) Mother
(b) Sister's daughter

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(c) Son
(d) Daughter

Q28. Which of the following numbers will replace the question mark (?) in the given series?

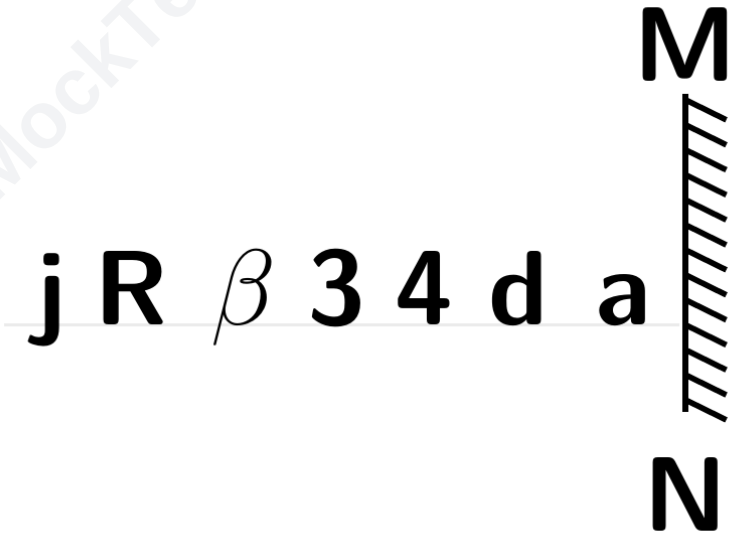
454 515 426 481 398 447 370 413 ?

(a) 313
(b) 342
(c) 326
(d) 354

Q29. In a certain code language, 'WYNK' is coded as '9243' and 'YAWN' is coded as '3941'. How is 'A' coded in the given language?

(a) 9
(b) 1
(c) 2
(d) 3

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

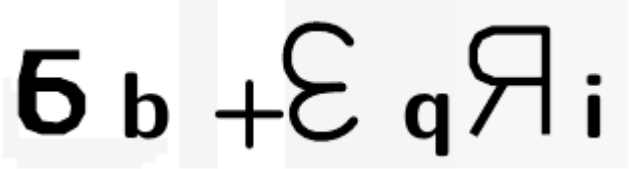


(a)



(b)

(c)



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(d)

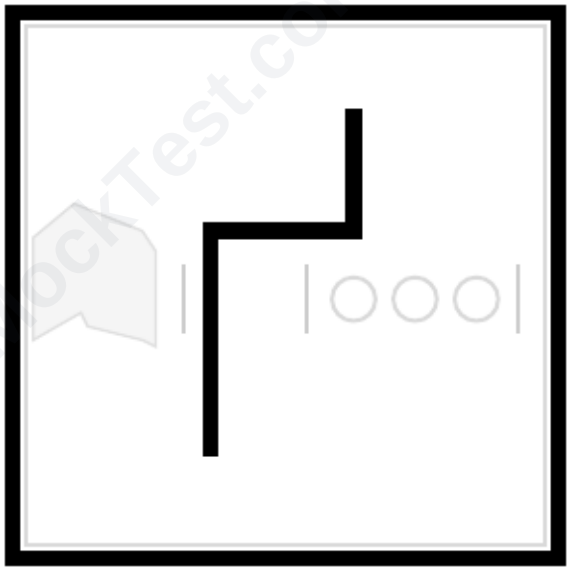
s b 4 3 d Ri

Q31. While introducing Madhav, Jihaan said, “I am the only son of one the sons of his mother.”

How is Madhav related to Jihaan?

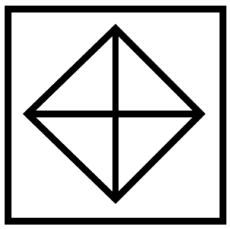
(a) Father or paternal uncle
(b) Maternal nephew or paternal nephew
(c) Cousin
(d) Son or brother

Q32. Select the option in which the given figure X is embedded (i.e. contains figure X in the same form).

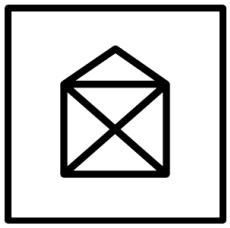


(x)

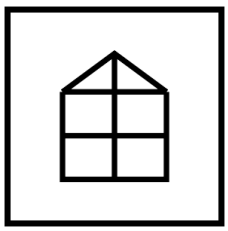
(a)



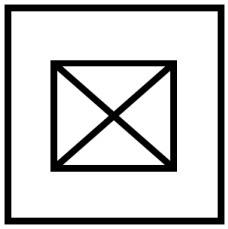
(b)



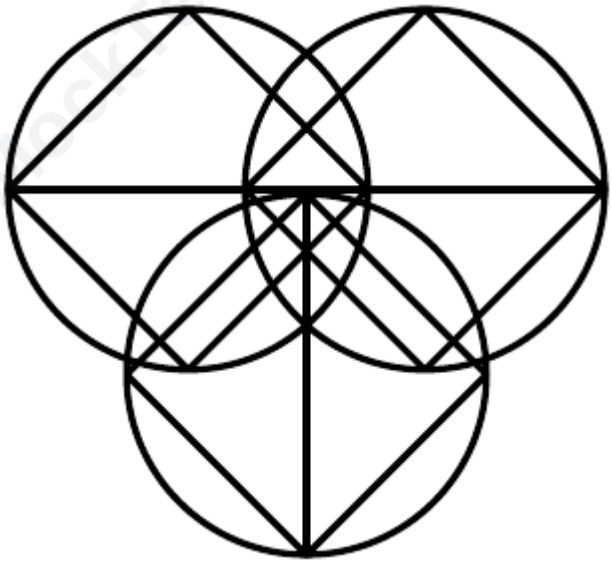
(c)



(d)



Q33. How many triangles are there in the given figure?



(a) 5
(b) 8
(c) 7
(d) 6

Q34. What should come in place of the question mark (?) in the given series?

12, 16, 25, 41, 66, ?

(a) 103
(b) 104
(c) 102
(d) 101

Q35. 13 is related to 39 following a certain logic. Following the same logic, 25 is related to 75. To which of the following is 42 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.)

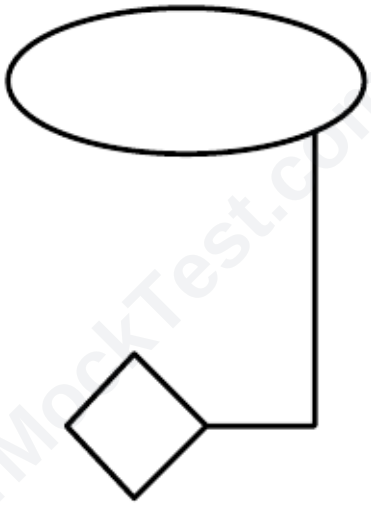
(a) 118
(b) 126

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(c) 128
(d) 120

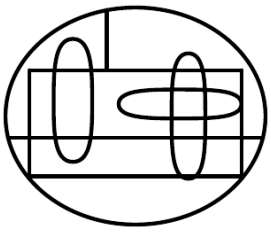
Q36. Which letter-cluster will replace the question mark (?) to complete the given series?
KLHO, LKIN, ?, QFNI, UBRE
(a) NJKM
(b) NIKL
(c) OIKM
(d) OJKL

Q37. Select the option figure in which the given figure (X) is embedded as its part (rotation is NOT allowed).

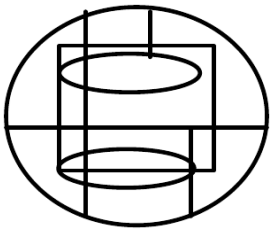


(X)

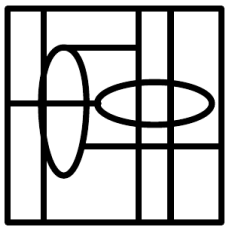
(a)



(b)

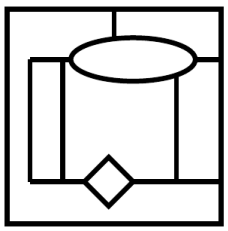


(c)



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(d)



Q38. If 05 August 2005 is Friday, then what will be the day of the week on 17 April 2011?

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

Q39. 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?

45 B 6 D 78 A 3 C 15 = ?

(a) 259
(b) 256
(c) 257
(d) 258

Q40. Select the correct mirror image of the given figure when the mirror is placed at MN as shown below.



(a)



(b)



(c)



(d)



Q41. What will come in the place of the question mark (?) in the following equation, if '+' and '-' are interchanged and '×' and '÷' are interchanged?

61 + 80 - 48 × 3 ÷ 5 = ?

(a) 62
(b) 60
(c) 61
(d) 63

Q42. In a certain code language, ‘power’ is coded as ‘45978’ and ‘rain’ is coded as ‘7312’. How is ‘r’ coded in that language?

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

Q43. Each of the letters in the word TRAMPOLINE are arranged from left to right in alphabetical order to form a new word. How many letters are there in the English alphabetical series between the alphabet which is fourth from the left and the one which is first from the right in the newly formed word?

(a) Six
(b) Five
(c) Four
(d) Seven

Q44. Three statements are followed by conclusions numbered I, II. You have to consider these statements to be true, even if they seem to be at variance with commonly known facts. Decide which of the given conclusions logically follow/s from the given statement.

Statements :

Some rivers are huts.

All streams are grass.

Some grass are rivers.

Conclusion (I) : All grass are streams.

Conclusion (II) : Some grass are huts.

(a) Only conclusion (I) follows.
(b) Both conclusions (I) and (II) follow.
(c) Neither conclusion (I) nor (II) follows.
(d) Only conclusion (II) follows.

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

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(75, 89, 103)

(98, 112, 126)

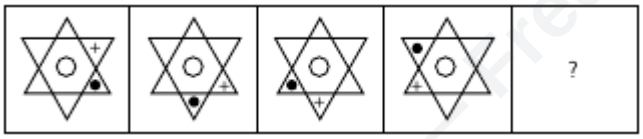
(a) (82, 96, 110)

(b) (95, 109, 118)

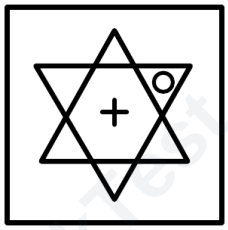
(c) (72, 91, 105)

(d) (87, 101, 125)

Q46. Identify the figure in the options that when put in place of the question mark (?) will logically complete the series?



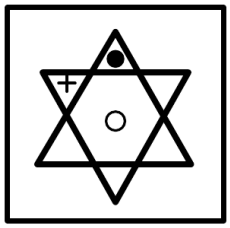
(a)



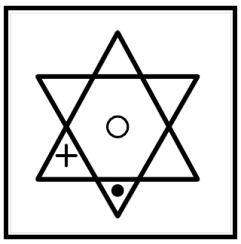
(b)



(c)



(d)



Q47. Select the combination of letters that when sequentially placed in the blanks of the given series will complete the series.

ZY_WZTX_Z_XU_JXT

(a) ZYOX

(b) XOVZ

(c) YVOZ

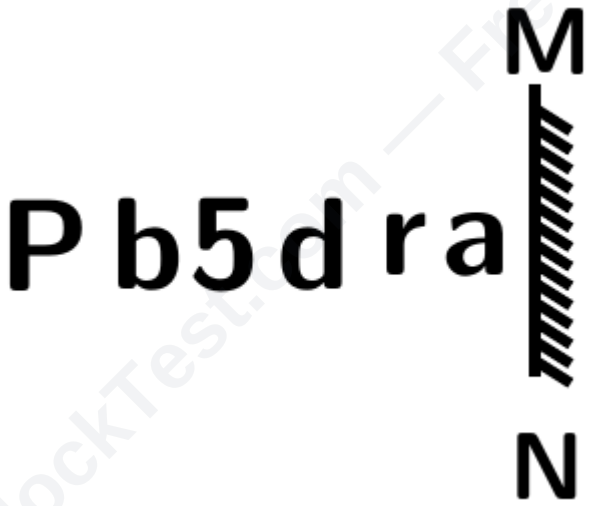
(d) XVOZ

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Q48. TOWB is related to CVDU in a certain way based on the English alphabetical order. In the same way, VKFA is related to BRMW. To which of the following is CMZU related, following the same logic?

(a) VTDG
(b) VGTD
(c) VGDT
(d) VTGD

Q49. Select the correct mirror image of the given figure when the mirror is placed at MN.



(a)



(b)



(c)



(d)



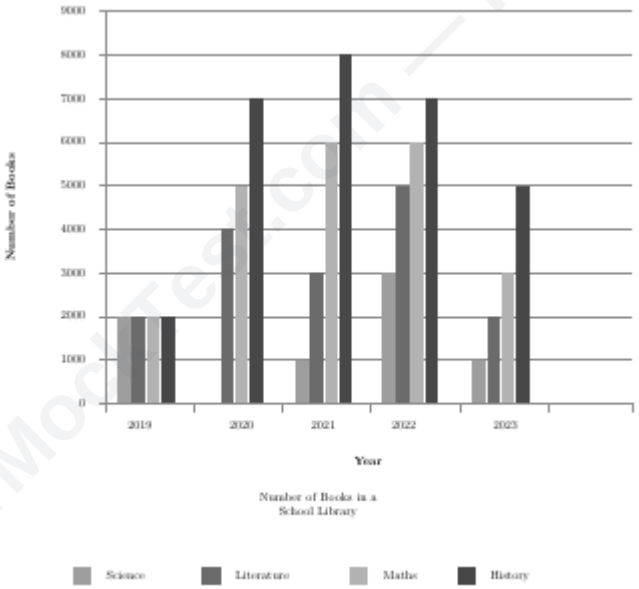
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Q50. 'YPCLY' is related to 'RIVER' in a certain way based on the English alphabetical order. In the same way. 'ZWHJL' is related to 'SPACE'. To which of the following is 'TVJRALZA' related, following the same logic?

(a) MOCKTEST
(b) MOCTTEST
(c) MOOKTEST
(d) MOXKTEST

QUANTITATIVE APTITUDE

Q51. Study the given graph carefully and answer the question that follows.



On the bases of this multiple bar graph, What is the change in the number of Literature books from the year 2020 to the year 2023.

(a) 2000 less
(b) 2000 more
(c) 1000 more
(d) No change

Q52. What is the value of the following expression?

420 ÷ [4/9 ×(1+4/5) × 5] + [5/7 of 21/25 ÷ 3/4 of 2/5]

(a) 107
(b) 89
(c) 139
(d) 127

Q53. The area of an isosceles right angled triangle is 16 m^2. Its hypotenuse is _____.

(a) 8 cm
(b) 0.8 m
(c) 4 m
(d) 8 m

Q54. The speed of a boat in still water is 12 km/h, and the speed of the stream is 3 km/h. A man goes to a place by boat, 45 km and comes back to the starting point. Find the total time taken by him.

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

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Q55. From a circular sheet of circumference 264 cm, two equal maximum - sized circular plates are cut off. What will be the circumference of each plate? (Use π = 22/7)

(a) 132 cm
(b) 264 cm
(c) 176 cm
(d) 135 cm

Q56. Simplify

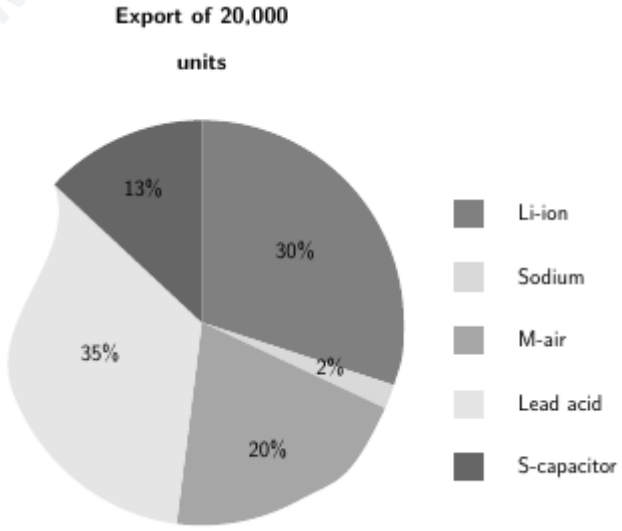
$4\ 1/4 \times 4\ 1/4 - 2 \times 4\ 1/4 \times 1/4 + 1/4 \times 1/4$

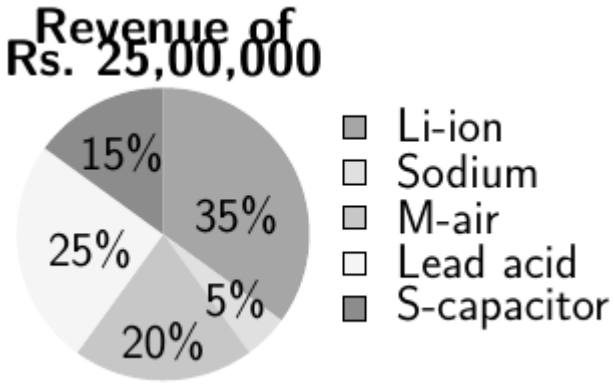
(a) 16
(b) 32
(c) 64
(d) 4

Q57. In an election a candidate secured 47% of the votes and lost to his only opponent by 276 votes. Find the total number of votes polled.

(a) 3800
(b) 4600
(c) 4200
(d) 4000

Q58. A battery manufacturer manufactures five different types of batteries. The total revenue for the year 2020 is Rs. 25,00,000 and 20,000 units were exported in 2020. The distribution of revenue and units for the five different types of batteries is shown in the charts.





Which type of battery provides the lowest revenue per unit ?

(a) Sodium
(b) Lead acid

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(c) Li-ion
(d) M-Air

Q59. Pradeep sells two fans at Rs. 480 each and by doing so he gains 20% on one fan and loses 20% on the other. His loss on the whole (in Rs.) is:
(a) 20
(b) 30
(c) 10
(d) 40

Q60. In a triangle ABC, P and Q are two points on AB and AC, respectively, such that PQ parallel to BC. If AC = 5QC, then the ratio PQ : BC is equal to:
(a) 5 : 4
(b) 4 : 3
(c) 3 : 4
(d) 4 : 5

Q61. The marked price of a battery - operated rickshaw is Rs. 90,000. It is available for sale at two successive discounts of 10% and 5%. What is the selling price (in Rs.) of the battery - operated rickshaw?
(a) 76,950
(b) 78,950
(c) 75,850
(d) 77,850

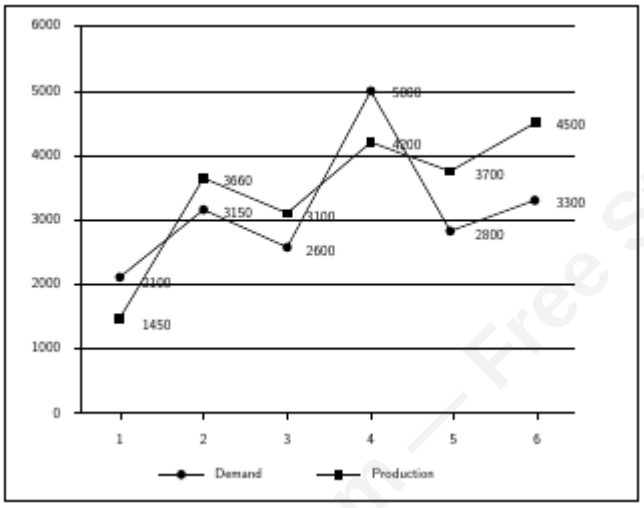
Q62. Find the altitude (in cm) of side MT of triangle MNT with side MN = 36 cm, MT = 36 cm and NT = 48 cm.
(a) 24 √3
(b) 18 √3
(c) 12 √5
(d) 16 √5

Q63. A solid metallic cylinder of base radius 6 cm and height 10 cm is melted to form small cylinders, each of height 2.5 cm and base radius 2 cm. Find the number of small cylinders.
(a) 80
(b) 32
(c) 36
(d) 360

Q64. If $\sin\theta = 11/12$, then what will be the value of $(\tan\theta + \sec\theta)$?
(a) $12/\sqrt{23}$
(b) $\sqrt{23}$
(c) 23
(d) $11/\sqrt{23}$

Q65. Study the given graph carefully and answer the question that follows. The graph shows the demand and production of different companies.

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Lowest production is what percentage of the highest demand?

(a) 29%
(b) 70%
(c) 71%
(d) 30%

Q66. A sum of money becomes five times its original value in 15 years when invested at a certain simple interest rate. If the sum was invested twice the time at the same rate of interest, what would be the final amount?

(a) The money becomes 9 times its original value
(b) The money becomes 7 times its original value
(c) The money becomes 6 times its original value
(d) The money becomes 8 times its original value

Q67. R can finish a work in 6 days if he works 10 hours a day. S can finish it in 5 days if he works 8 hours a day. If both start a work and work daily for 6 hours, the work will be finished in _____ days.

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

Q68. R and S can finish a work in 10 days, S and T can finish it in 12 days and T and R can finish in 8 days. In how many days will the work be finished if they all work simultaneously?

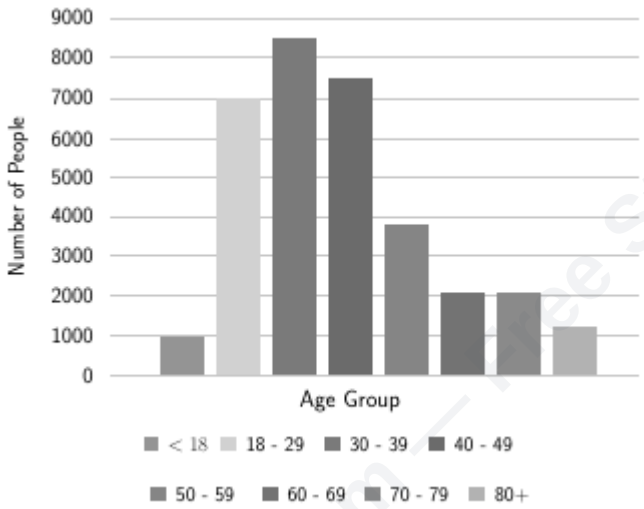
(a) 240/33
(b) 240/31
(c) 240/37
(d) 240/39

Q69. At an election involving two candidates, 68 votes are declared invalid. The winning candidate gets 52% of the valid votes and wins by 98 votes. The total number of votes polled is:

(a) 2475
(b) 2250
(c) 2518
(d) 2500

Q70. Study the given bar - graph and answer the question that follows.

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Which age group has the least number of people?

(a) 30 - 39
(b) 50 - 59
(c) 80+
(d) <18

Q71. The centres of two circles are 84 cm apart. If the radii of these two circles are 38 cm and 26 cm, respectively, then which of the following options gives the length (in cm) of a direct common tangent of these two circles?

(a) 42 √3
(b) 54 √3
(c) 48 √3
(d) 36 √3

Q72. Ramu mixes 2 litres of water at 100° C and 18 litres of water at 32° C. What temperature will the water have after mixing?

(a) 66°C
(b) 20°C
(c) 40°C
(d) 38.8°C

Q73. Ramesh's pocket money was reduced by 25%, and then the reduced pocket money was increased by 20%. Find the net increase or decrease percentage in his original pocket money.

(a) Increase 10%
(b) Increase 12%
(c) Decrease 10%
(d) Decrease 12%

Q74. Find the mean proportional between 25 and 81.

(a) 81
(b) 36
(c) 45
(d) 12

Q75. 8 apples and 10 oranges weigh 5 kg. 12 apples and 20 oranges weigh 9 kg. What is the weight (in kg, rounded off to the nearest integer) of 15 apples and 24 oranges?

(a) 10
(b) 11
(c) 16
(d) 13

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GENERAL AWARENESS

Q76. Buddh International Circuit is located at:

(a) Chennai
(b) Noida
(c) Mumbai
(d) Delhi

Q77. What is the use of Net National Product (NNP)?

(a) To calculate per capita income
(b) To calculate balance of payments
(c) To calculate imports
(d) To calculate exports

Q78. Which planet is closest to the Sun?

(a) saturn
(b) Mercury
(c) Uranus
(d) Planet Jupiter

Q79. The parliamentary standing committees have a tenure of _____ years.

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

Q80. Which military officer led the British forces in the Battle of Chinhat fought in 1857?

(a) James George Smith
(b) Robert Maclagan
(c) Henry Lawrence
(d) Charles Ellice

Q81. The Supreme Court, in May 2023, observed that it can give divorce on the ground of irretrievable breakdown of marriage by exercising its discretionary power under _____.

(a) Article 142 of the Constitution of India
(b) Article 136 of the Constitution of India
(c) Article 143 of the Constitution of India
(d) Article 32 of the Constitution of India

Q82. Which of the following is a medium - sized globular protein that acts as a pancreatic serine protease found in the digestive system of many vertebrates?

(a) Trypsin
(b) Amylase
(c) Lipase
(d) Pepsin

Q83. Citizens are NOT discriminated against on the basis of religion, caste or sex because of:

(a) Right to Freedom of Religion
(b) Right to Equality
(c) Right against Exploitation
(d) Right to Freedom

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Q84. A housemaid gets her 12 - year - old daughter to help in her work as a house cleaner at a residential colony instead of sending her to school. Which fundamental duty is violated by the housemaid?

(a) To provide opportunities for education to his/her child
(b) To defend the country and render national service
(c) To promote harmony and the spirit of common brotherhood
(d) To safeguard public property and to abjure violence

Q85. In which year did Galileo describe the regular, swinging motion of a pendulum by the action of gravity and acquired momentum?

(a) 1600
(b) 1599
(c) 1605
(d) 1602

Q86. The central stretch of the Western Coastal Plains of India is known as the:

(a) Kannad plains
(b) Konkan coast
(c) Coromandel coast
(d) Malabar coast

Q87. In MS - Word, a document may be printed using _____.

(a) Ctrl + P
(b) Ctrl + V
(c) Ctrl + X
(d) Ctrl + C

Q88. Name the Chola inscription that provided details of the way in which the sabha was organised in the local administration in the Chola empire.

(a) Darsanam Koppu inscription
(b) Uttaramerur inscription
(c) Thiruvalangadu inscription
(d) Thirunanthikarai inscription

Q89. The Kutch festival is held at _____.

(a) Rajkot
(b) Bhuj
(c) Surat
(d) Ahmedabad

Q90. Which of the following is a string instrument commonly featured in the folk music of Gujarat?

(a) bungal
(b) pava
(c) jantar
(d) turi

Q91. In which year was the first Arjuna Award given to a woman hockey player?

(a) 1964
(b) 1963
(c) 1962
(d) 1961

Q92. Match the railway zones in column A with their headquarters in column B.

Column A (Railway zones)	Column B (Headquarters)		
1.	Central	a.	New Delhi

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2.	Northern	b.	Mumbai CST
3.	Eastern	c.	Chennai
4.	Southern	d.	Kolkata

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

Q93. Which of the following Articles was amended in the Constitution (Fifth Amendment Act), 1955?
(a) Article 3
(b) Article 17
(c) Article 34
(d) Article 45

Q94. What is known to be 'ekaharya', where one dancer takes on many roles in a single performance?
(a) Kuchipudi
(b) Kathak
(c) Bharatanatyam
(d) Kathakali

Q95. As per Census of India 2011, in which of the following states was the total population less than 10 lakh?
(a) Telangana
(b) Sikkim
(c) Tripura
(d) Goa

Q96. How can you access the Step by Step Mail Merge Wizard in Microsoft Word?
(a) Clicking on the Mailings tab
(b) Clicking on the File menu
(c) Pressing Ctrl + M
(d) Pressing F12

Q97. Which of the following statements about Green Revolution is/are correct?
I. India became self-reliant after the advent of the Green Revolution.
II. Due to the Green Revolution, the soil started losing nutrients due to repeated cultivation of the same crop.
III. Green revolution caused depletion of fresh ground water.
(a) Only i and ii
(b) only i and iii
(c) only ii
(d) i, ii and iii

Q98. What was the Child Sex Ratio in the country as per the Census of India 2011?
(a) 981
(b) 911
(c) 919
(d) 189

Q99. Which of the following types of music is confined to the states of Karnataka, Andhra Pradesh, Tamil Nadu and Kerala?
(a) Hindustani
(b) Regional
(c) Classical
(d) Carnatic

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Q100. Since 1994, Winter Olympics traditionally take place _____ after the Summer Olympics.

(a) 4 years
(b) 3 months
(c) 2 years
(d) 6 months

ANSWER KEY

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

SOLUTIONS

Q1. Answer: (c) like good

The correct answer is Option 3.

Key Points

• The primary issue in the sentence is the omission of the article "a" before the term "good cup of coffee."
• Singular countable nouns typically require an article ("a" or "an").
• The correct phrase should be "like a good cup of coffee," ensuring grammatical correctness and clarity.
• Thus, the error is located in part 3 of the sentence.

Therefore, the correct answer is Option 3.

Correct Sentence: "In this cold weather, there's nothing like a good cup of coffee."

Additional Information

• 1) cup of coffee – This part of the sentence is grammatically correct and does not require any changes.
• 2) In this cold weather – This part of the sentence is grammatically correct and does not require any changes.
• 4) there's nothing – This part of the sentence is grammatically correct and does not require any changes.

Q2. Answer: (c) There's an quiet street

The correct answer is Option 3.

Key Points

• The primary issue in the sentence is the use of the article "an" before the term "quiet street."
• The article "an" is used before words that begin with a vowel sound, whereas "quiet" begins with a consonant sound.
• The correct phrase should be "a quiet street," ensuring grammatical correctness and clarity.
• Thus, the error is located in Option 3 of the sentence.

Therefore, the correct answer is Option 3.

Correct Sentence: "There's a quiet street down the left that you can use for your dance practice."

Additional Information

• Option 1: "down the left" – This part of the sentence is grammatically correct and does not require any changes.
• Option 2: "for your dance practice" – This part of the sentence is grammatically correct and does not require any changes.
• Option 4: "that you can use" – This part of the sentence is grammatically correct and does not require any changes.

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Q3. Answer: (b) of a

The correct answer is Option 2.

Key Points

• The primary issue in the sentence is the incorrect use of the article "a" before the term "apple."

• The correct article to use before "apple" is "an," not "a."

• The correct phrase should be "of an apple," ensuring grammatical correctness and clarity.

• Thus, the error is located in part 2 of the sentence.

Therefore, the correct answer is Option 2.

Correct Sentence: "A part of an apple is rotten."

Additional Information

• Part 1: "A part" – This part of the sentence is grammatically correct and does not require any changes.

• Part 3: "apple is" – This part of the sentence is grammatically correct and does not require any changes.

• Part 4: "rotten." – This part of the sentence is grammatically correct and does not require any changes.

Q4. Answer: (a) was applauds

The correct answer is Option 1.

Key Points

• The primary issue in the sentence is the incorrect verb form "applauds" used after "was".

• The verb should be in the past participle form to match the passive voice construction.

• The correct verb form should be "applauded".

• Thus, the error is located in Option 1 of the sentence.

Correct Sentence: "The general’s address was applauded by all sections of society."

Additional Information

• Option 4: "The general’s address" – This part of the sentence is grammatically correct and does not require any changes.

• Option 3: "by all sections" – This part of the sentence is grammatically correct and does not require any changes.

• Option 2: "of society." – This part of the sentence is grammatically correct and does not require any changes.

Q5. Answer: (b) to

The correct answer is Option 2.

Key Points

• The correct preposition to use here is "to" because the benefits are directed towards our everyday lives.

• "To" indicates the direction or purpose of the benefits provided by trees.

• "With," "in," and "for" are not fitting prepositions for this context.

Therefore, the correct answer is Option 2.

Q6. Answer: (d) curb

The correct answer is Option 4.

Key Points

• The word "curb" is the most appropriate choice as it means to restrain or keep in check, which fits the context of addressing climate change.

• "Cut," "crib," and "crust" do not fit the context as effectively.

• "Curb climate change" is a commonly used phrase in environmental discussions.

Therefore, the correct answer is Option 4.

Q7. Answer: (c) Planting

The correct answer is 'planting'.

Key Points

• The passage discusses the benefits and solutions associated with tree planting.

• The appropriate gerund should indicate an action that can help the environment and biodiversity.

• "Planting" fits well as it denotes an action that directly contributes to the restoration of forests and combating climate change.

• Other options ("by planting", "for planting", "with planting") do not fit the context of describing the action needed for environmental benefits.

Therefore, the correct answer is 'Option 3'.

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Complete Passage: Trees provide so many benefits (1)__ our everyday lives. They filter clean air, provide fresh drinking water, help (2)__ climate change and create homes for thousands of species of plants and animals. (3) Planting a billion trees can help save the Earth from climate change and biodiversity loss. When we restore and (4) ___ critical forests, we remove carbon and support biodiversity. A billion is a big number, but we know we can do it together. (5) _____ the planet by planting your tree today. This can protect and restore forests for future.

Additional Information

• By planting: While this phrase indicates the manner of planting, it does not fit the grammatical structure of the passage.

• For planting : This phrase indicates purpose but does not fit in the sentence structure given in the passage.

• With planting: Indicates association but is not suitable in the given context of discussing the benefits of tree planting.

Q8. Answer: (a) conserve

The correct answer is Option 1.

Key Points

• The word "conserve" is the most appropriate choice as it means to protect something, especially an environmentally important place or thing, from harm or destruction.

• "Sabotage" means to deliberately destroy or damage, which is the opposite of what is needed in this context.

• "Curtail" means to reduce or limit something, which does not fit with the positive action intended in the passage.

• "Observe" means to watch or monitor, which does not convey the action of protecting forests effectively.

Therefore, the correct answer is Option 1.

Q9. Answer: (b) Sustain

The correct answer is Option 2.

Key Points

• The word "sustain" is the most appropriate choice as it means to support, maintain, or keep something going over a period of time, which fits well with the context of encouraging ongoing efforts to protect the planet.

• "Complement" means to enhance or complete something else, which doesn't convey the idea of ongoing support in this context.

• "Supplement" means to add something to improve it or make it complete, which again doesn't convey the ongoing support contextually implied by the passage.

• "Denigrate" means to criticize unfairly, which is entirely inappropriate for this context.

Therefore, the correct answer is Option 2.

Q10. Answer: (a) Cruel

The solution is in Hindi. Read it online.

Q11. Answer: (b) Rohit has written

The solution is in Hindi. Read it online.

Q12. Answer: (a) Confuse

The solution is in Hindi. Read it online.

Q13. Answer: (b) scent

The correct answer is Option 2.

Key Points

• The word "scent" refers to a distinctive smell, which fits the context of the sentence describing perfume.

• The other options do not fit the context: "cent" refers to currency, "send" is a verb meaning to dispatch, and "sent" is the past tense of send.

Therefore, the correct answer is Option 2.

Correct Sentence: "The perfume she uses has a strong scent."

Additional Information

• Cent: A unit of currency equal to one hundredth of a dollar.

• Send: To cause something to go or be taken to a particular destination.

• Sent: The past tense of send.

Q14. Answer: (a) resolute

The solution is in Hindi. Read it online.

Q15. Answer: (a) hit below the belt

The correct answer is Option 1.

Key Points

• The idiom "hit below the belt" means to act unfairly or unscrupulously, which fits the context of cheating on an exam to win a bet.
• The other options do not fit the context as accurately as "hit below the belt."
• Therefore, the correct answer is Option 1.

Correct Sentence: Mala hit below the belt by cheating on the exam to win her bet with Priya.

Additional Information

• Hit below the belt: This idiom originates from boxing, where hitting below the belt is against the rules and considered unfair play.
• Get the sack: Used in workplace contexts, meaning to be dismissed from a job.
• Fell out: Refers to having a disagreement or argument, usually resulting in a breakdown of a relationship.
• Look down upon: Means to regard someone or something with a feeling of superiority or disdain.

Q16. Answer: (a) a high level commitee

The correct answer is Option 1.

Key Points

• The primary issue in the sentence is the spelling error in the word "commitee."
• The correct spelling should be "committee."
• The error is located in segment 1 of the sentence.
• Therefore, the correct answer is Option 1.

Correct Sentence: "To submit a report on the recent fire accident, a high level committee has been formed."

Additional Information

• Segment 2: "has been formed" – This part of the sentence is grammatically correct and does not require any changes.
• Segment 3: "To submit a report" – This part of the sentence is grammatically correct and does not require any changes.
• Segment 4: "on the recent fire accident" – This part of the sentence is grammatically correct and does not require any changes.

Q17. Answer: (c) gregarious

The solution is in Hindi. Read it online.

Q18. Answer: (a) into a handsome youth

The solution is in Hindi. Read it online.

Q19. Answer: (b) smiled

The solution is in Hindi. Read it online.

Q20. Answer: (b) Poison

The solution is in Hindi. Read it online.

Q21. Answer: (a) Voluntary

The solution is in Hindi. Read it online.

Q22. Answer: (d) We are decorating

The correct answer is Option 4.

Key Points

• The primary issue in the sentence is the incorrect verb form "are decorate."
• The correct form should be the present continuous "are decorating."
• Present continuous tense is used to indicate actions happening at the moment of speaking.
• Thus, the error is in the verb form used in the sentence.
• Therefore, the correct answer is Option 4.

Correct Sentence: "We are decorating the living-room at the moment."

Additional Information

• Option 1: "We are being decorating" – This option is incorrect because "being" is unnecessary and incorrect in this context.
• Option 2: "We are decorates" – This option is incorrect because "decorates" is not the correct form of the verb to use with "are".
• Option 3: "We are being decorate" – This option is incorrect because the structure is grammatically incorrect.
• Option 4: "We are decorating" – This is the correct option as it properly uses the present continuous tense.

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Q23. Answer: (b) Where the difficulty lies

The solution is in Hindi. Read it online.

Q24. Answer: (d) their

The correct answer is Option 4.

Key Points

• The correct possessive form of "they" is "their," which is used to indicate something that belongs to them.

• The word "theirs" is a possessive pronoun that stands alone and does not precede a noun.

• "There" is used to refer to a place or position, not possession.

• "They're" is a contraction of "they are" and is not possessive.

• Therefore, "their" is the appropriate word to indicate possession in this context.

Therefore, the correct answer is Option 4.

Q25. Answer: (b) Illogical

The solution is in Hindi. Read it online.

Q26. Answer: (d) 70

Given : 35 × 16 + 3 ÷ 156 - 12 = ?

According to the question, after '+' and '×' are interchanged and '-' and '÷' are interchanged:

35 × 16 + 3 ÷ 156 - 12 = ? => 35 + 16 × 3 - 156 ÷ 12 = ?

=> 35 + 16 × 3 - 156 ÷ 12 = ?

=> 35 + 16 × 3 - 13 = ?

=> 35 + 48 - 13 = ?

=> 83 - 13 = ?

=> 70 = ?

Hence, "Option 4" is the correct answer.

Q27. Answer: (d) Daughter

Decoding symbols:

A is				
Symbol	×	÷	•	–
Meaning	Mother	Son	Husband	Sister
to B				

Given: D + E × F – G

D + E → D is the husband of E.

E × F → E is the mother of F.

F – G → F is the sister of G.

Thus, F is D's daughter.

Hence, the correct answer is "Option 4"

Q28. Answer: (b) 342

The logic followed here is:

Hence, "Option 2" is the correct answer.

Alternate Method

Q29. Answer: (b) 1

The logic followed here is:

'WYNK' is coded as '9243'

'YAWN' is coded as '3941'

Therefore, 'A' will be coded as '1'.

Hence, "Option 2" is the correct answer.

Q30. Answer: (c) [figure]

The correct mirror image of the given figure is:

Hence, the correct answer is "Option 3".

Q31. Answer: (a) Father or paternal uncle

Given: While introducing Madhav, Jihaan said, “I am the only son of one the sons of his mother.

Case 1)

Case 2)

Thus, Madhav can be either father or paternal uncle of Jihaan.

Hence, the correct answer is "Option 1"

Q32. Answer: (c) [figure]

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

Therefore Here, the given figure is embedded in the Option Figure 3.

Hence, the correct answer is "Option 3".

Q33. Answer: (d) 6

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

Thus, as marked there are a total of 6 triangles.

Hence, "Option 4" is the correct answer

Q34. Answer: (c) 102

The logic followed here is:

Hence, "Option 3" is the correct answer.

Q35. Answer: (b) 126

The logic followed here is:

Logic: (1st number × 3) = 2nd number.

Now,

For, 13 : 39

=> (13 × 3) = 39.

For, 25 : 75

=> (25 × 3) = 75.

Similarly, for 42 : ?

=> (42 × 3) = 126.

Hence, the correct answer is "Option 2".

Q36. Answer: (b) NIKL

The logic followed here is:

Hence, "Option 2" is the correct answer.

Q37. Answer: (d) [figure]

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

Therefore Here, the given figure is embedded in the Option Figure 4.

Hence, the correct answer is "Option 4".

Q38. Answer: (d) Sunday

Given: 05 August 2005 was Friday.

Now,

2005 to 2011 = 6 Years (5 Ordinary Year and 1 Leap Year).

And, In 6 Years = 1 Leap Year and 5 Ordinary Years.

So, 1 Leap Year has 2 odd days,

And, 5 Ordinary Years have 5 odd days.

Total odd days = 2 + 5 = 7.

7 odd days → 7/7 = 1 week and 0 odd days.

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then, 05 August 2011 will be Friday + 0 = Friday.
Now, the number of days between 17 April 2011 to 05 August 2011
= 13(Apr) + 31(May) + 30(June) + 31(July) + 5(Aug) = 110 days.
= 110 days → 110/7 = 15 weeks and 5 odd day.
So, 17 April 2011 will be Friday - 5 = Sunday.
Hence, the correct answer is "Option 4".

Q39. Answer: (a) 259

Given Equation: 45 B 6 D 78 A 3 C 15 = ?
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:
=> 45 × 6 - 78 ÷ 3 + 15 = ?
=> 45 × 6 - 26 + 15 = ?
=> 270 - 26 + 15 = ?
=> 285 - 26 = 259.
Hence, the correct option is "Option 1".

Q40. Answer: (a) [figure]

The correct mirror image of the given figure is:
Hence, the correct answer is "Option 1".

Q41. Answer: (c) 61

Given : 61 + 80 - 48 × 3 ÷ 5 = ?
According to the question, after '+' and '-' are interchanged and '×' and '÷' are interchanged:
61 + 80 - 48 × 3 ÷ 5 = ? => 61 - 80 + 48 ÷ 3 × 5 = ?
=> 61 - 80 + 48 ÷ 3 × 5 = ?
=> 61 - 80 + 16 × 5 = ?
=> 61 + 80 - 80 = ?
=> 141 - 80 = ?
=> 61 = ?
Hence, "Option 3" is the correct answer.

Q42. Answer: (a) 7

The logic followed here is:
‘power’ is coded as ‘45978’
‘rain’ is coded as ‘7312’
Therefore, 'r' is coded as '7'.
Hence, "Option 1" is the correct answer.

Q43. Answer: (d) Seven

Given word: 'TRAMPOLINE'
After arranged in alphabetical order:

Alphabets	T	R	A	M	P	O	L	I	N	E
Alphabetical order	A	E	I	L	M	N	O	P	R	T

After arranged in alphabetical order,
Fourth alphabet from the left end is: L,
First alphabet from the right end is: T,

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Now,

there are 7 letters between L and T.

L	M	N	O	P	Q	R	S	T

Hence, the correct answer is "Option 4".

Q44. Answer: (c) Neither conclusion (I) nor (II) follows.

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

Conclusions:

I. All grass are streams → Does not follow (As all streams are grass. So it is possible but not definite.)

II. Some grass are huts → Does not follow (As some rivers are huts and some grass are rivers. So it is possible but not definite)

Therefore Here, Neither conclusion (I) nor (II) follows.

Hence, the correct answer is "Option 3"

Q45. Answer: (a) (82, 96, 110)

The logic followed here is:

Logic: 1st number + 14 = 2nd number; 2nd number + 14 = 3rd number.

Now,

For, (75, 89, 103):

=> 75 + 14 = 89

=> 89 + 14 = 103

For, (98, 112, 126):

=> 98 + 14 = 112

=> 112 + 14 = 126

Similarly, For, (82, 96, 110):

=> 82 + 14 = 96

=> 96 + 14 = 110

Hence, the correct answer is "Option 1".

Q46. Answer: (d) [figure]

The logic followed here is:

1) The whole element rotates 45º clockwise.

Thus, final series is:

Hence, "Option 4" is the correct answer.

Q47. Answer: (d) XVOZ

The logic followed here is:

Hence, "Option 4" is the correct answer.

Q48. Answer: (d) VTGD

The logic followed here is:

TOWB is related to CVDU

And,

VKFA is related to BRMW

Similarly,

CMZU is related to

Hence, "Option 4" is the correct answer.

Q49. Answer: (a) [figure]

The correct mirror image of the given figure is:

Hence, the correct answer is "Option 1".

Q50. Answer: (a) MOCKTEST

The logic followed here is:

'YPCLY' is related to 'RIVER'

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And,
'ZWHJL' is related to 'SPACE'
Similarly,
'TVJRALZA' is related to
Hence, "Option 1" is the correct answer.

Q51. Answer: (a) 2000 less

Given:
Number of Literature books in 2020 = 4000
Number of Literature books in 2023 = 2000
Formula used:
Change in number of books = Number of books in 2023 - Number of books in 2020
Calculation:
Change in number of books = 2000 - 4000
=> Change in number of books = -2000
Therefore The correct answer is option (1).

Q52. Answer: (a) 107

What is the value of the following expression?
420 ÷ [4/9 ×(1+4/5) × 5] + [5/7 of 21/25 ÷ 3/4 of 2/5]
Calculations:
Part 1: Calculate 4/9 × (1+4/5) × 5
=> (1+4/5) = 9/5
=> 4/9 × 9/5 × 5
=> (4 × 9 × 5)/(9 × 5) = 4
Part 2: Calculate 5/7 of 21/25 ÷ 3/4 of 2/5
=> 5/7 × 21/25 ÷ (3/4 × 2/5)
=> 3/4 × 2/5 = 6/20 = 3/10
=> 5/7 × 21/25 ÷ 3/10
=> 5/7 × 21/25 × 10/3
=> (5 × 21 × 10)/(7 × 25 × 3)
=> 1050/525 = 2
Final Expression:
=> 420/4 + 2
=> 105 + 2 = 107
Therefore The value of the expression is 107.

Q53. Answer: (d) 8 m

Given:
The area of an isosceles right-angled triangle is 16 m^2.
Formula used:
Area of an isosceles right-angled triangle = (1/2) × base × height
Since it is an isosceles right-angled triangle, base = height
Let base = height = x
So, Area = (1/2) × x × x = (1/2) × x^2
Calculation:
(1/2) × x^2 = 16
=> x^2 = 32
=> x = √32
=> x = 4√2
Hypotenuse of an isosceles right-angled triangle = x√2
=> Hypotenuse = 4√2 × √2
=> Hypotenuse = 4 × 2

=> Hypotenuse = 8 m

Therefore The correct answer is option 4.

Q54. Answer: (a) 8 hours

Given:

The speed of a boat in still water is 12 km/h, and the speed of the stream is 3 km/h. A man goes to a place by boat, 45 km and comes back to the starting point.

Formula used:

Speed downstream = (Speed of boat + Speed of stream)

Speed upstream = (Speed of boat - Speed of stream)

Time = Distance / Speed

Calculation:

Speed downstream = 12 + 3 = 15 km/h

Speed upstream = 12 - 3 = 9 km/h

Time taken to travel 45 km downstream:

=> Time_(downstream) = 45 / 15 = 3 hours

Time taken to travel 45 km upstream:

=> Time_(upstream) = 45 / 9 = 5 hours

Total time taken:

=> Total Time = Time_(downstream) + Time_(upstream)

=> Total Time = 3 + 5 = 8 hours

Therefore The correct answer is option 1.

Q55. Answer: (a) 132 cm

Given:

From a circular sheet of circumference 264 cm, two equal maximum-sized circular plates are cut off.

Formula used:

Circumference of a circle = 2πr

Calculation:

Total circumference of the sheet = 264 cm

Since two equal maximum-sized circular plates are cut off, the circumference of each plate will be half of the total circumference.

=> Circumference of each plate = 264 cm / 2

=> Circumference of each plate = 132 cm

Therefore The correct answer is option 1.

Q56. Answer: (a) 16

Simplify:

4 1/4 × 4 1/4-2 × 4 1/4 × 1/4+1/4 × 1/4

Formula used:

Convert mixed fractions to improper fractions for simplification

Calculations:

4 ¹/4 = (4 × 4 + 1) ÷ 4 = 17 ÷ 4

=> The expression becomes:

(17 ÷ 4) × (17 ÷ 4) - 2 × (17 ÷ 4) × (1 ÷ 4) + (1 ÷ 4) × (1 ÷ 4)

=> (289 ÷ 16) - (2 × 17 ÷ 16) + (1 ÷ 16)

=> (289 ÷ 16) - (34 ÷ 16) + (1 ÷ 16)

=> (289 - 34 + 1) ÷ 16

=> 256 ÷ 16

=> 16

Therefore The simplified value is 16.

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Q57. Answer: (b) 4600

Given:

Candidate secured votes = 47%

Difference in votes = 276

Formula used:

Let total votes be V.

Votes secured by the winning candidate = 53% of V

Votes secured by the losing candidate = 47% of V

Difference = 53% of V - 47% of V

Calculation:

276 = 53% of V - 47% of V

=> 276 = (53/100)V - (47/100)V

=> 276 = (6/100)V

=> 276 = 0.06V

=> V = 276 / 0.06

=> V = 4600

Therefore The correct answer is option (2).

Q58. Answer: (b) Lead acid

Given:

Total Revenue for 2020 = Rs. 25,00,000

Total Units Exported in 2020 = 20,000 units

Distribution of revenue and units for the five different types of batteries are provided in the charts.

Formula used:

Revenue per unit = Total Revenue from Type of Battery / Total Units Sold of that Type

Calculation:

Let's assume the following data based on the charts:

Type of Battery | Revenue (Rs.) | Units Sold

Li-ion | Rs. 8,75,000 | 6,000 units

Sodium | Rs. 1,25,000 | 400 units

M-Air | Rs. 5,00,000 | 4,000 units

Lead Acid | Rs. 6,25,000 | 7,000 units

S-capacitor | Rs. 3,75,000 | 2,600 units

Revenue per unit for each type:

Li-ion : Rs. 8,75,000/6000 units

=> Rs. 145.83/unit

Sodium : Rs. 1,25,000 / 400 units

=> Rs. 312.5/unit

M-air: Rs. 5,00,000/ 4,000 units

=> Rs. 125/unit

Lead acid: Rs. 6,25,000 / 7,000 units

=> Rs. 89.23/unit

S-capacitor: Rs. 3,75,000 / 2,600 units

=> Rs. 144.23/unit

Therefore The correct answer is option 2 (Lead Acid).

Q59. Answer: (d) 40

Given:

Pradeep sells two fans at Rs. 480 each and gains 20% on one fan and loses 20% on the other.

Formula used:

Loss = (Loss% × Gain% × Cost Price)/100

Calculation:

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Let the cost price of the first fan be xxxxxxxxx
and the cost price of the second fan be yyyyyyyyy
.
For the first fan:
Selling Price = Rs. 480
Gain% = 20%
Selling Price = Cost Price + Gain
=> x + 0.2x = 480
=> 1.2x = 480
=> x = 400
For the second fan:
Selling Price = Rs. 480
Loss% = 20%
Selling Price = Cost Price - Loss
=> y - 0.2y = 480
=> 0.8y = 480
=> y = 600
Total Cost Price = 400 + 600 = Rs. 1000
Total Selling Price = 480 + 480 = Rs. 960
Total Loss = Cost Price - Selling Price
=> 1000 - 960
=> 40
Therefore The correct answer is option (4).

Q60. Answer: (d) 4 : 5

Given:
In triangle ABC, PQ is parallel to BC, and AC = 5QC.
Formula used:
By the Basic Proportionality Theorem (Thales' Theorem), if a line is drawn parallel to one side of a triangle, it divides the other two sides proportionally.
AP/AB = AQ/AC = PQ/BC
Calculations:
We are given that AC = 5QC, which means:
=> AC = QC + AQ
=> AQ = AC - QC = 5QC - QC = 4QC
=> AQ/AC = 4QC/5QC = 4/5
Hence, by the Basic Proportionality Theorem:
=> PQ/BC = 4/5
Therefore The ratio PQ : BC is 4 : 5.

Q61. Answer: (a) 76,950

Given:
The marked price of a battery-operated rickshaw = Rs. 90,000
First discount = 10%
Second discount = 5%
Formula used:
Selling Price after successive discounts = Marked Price × (1 - First Discount) × (1 - Second Discount)
Calculation:
First Discount = 10% = 0.10
Second Discount = 5% = 0.05
Marked Price = Rs. 90,000
=> Selling Price = Rs. 90,000 × (1 - 0.10) × (1 - 0.05)

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=> Selling Price = Rs. 90,000 × 0.90 × 0.95

=> Selling Price = Rs. 90,000 × 0.855

=> Selling Price = Rs. 76,950

Therefore The correct answer is option 1.

Q62. Answer: (d) 16 √5

Shortcut Trick

In isosceles ΔMNT, the altitude to the unequal side NT (48 cm) bisects it into two 24 cm segments.

Height to side NT = √(36² − 24²) = √720 = 12√5 cm.

Area of ΔMNT = 1/2 × 48 × 12√5 = 288√5 cm².

Equating area for base MT: 1/2 × 36 × Altitude = 288√5 cm².

Altitude to MT = (288√5 × 2) ÷ 36 = 16√5 cm.

Therefore The correct answer is 16√5 cm.

Alternate Method

Given:

Sides of ΔMNT: MN = 36 cm, MT = 36 cm, and NT = 48 cm.

M

N

T

P

Q

36 cm

36 cm

24 cm

24 cm

Altitude NP = 16√5 cm

Formula Used:

Semi-perimeter of triangle, s = (a + b + c) ÷ 2

Area of triangle by Heron's Formula = √[s × (s − a) × (s − b) × (s − c)]

Area of triangle = 1/2 × Base × Height

Calculations:

Let the sides of the triangle be a = 36 cm, b = 36 cm, and c = 48 cm.

=> Semi-perimeter (s) = (36 + 36 + 48) ÷ 2

=> s = 120 ÷ 2 = 60 cm

Using Heron's formula for the area of ΔMNT:

=> Area = √[60 × (60 − 36) × (60 − 36) × (60 − 48)]

=> Area = √[60 × 24 × 24 × 12]

=> Area = 24 × √(60 × 12) = 24 × √720

=> Area = 24 × 12√5 = 288√5 cm²

Now, calculate the altitude (h) to the side MT (Base = 36 cm):

=> Area = 1/2 × MT × h

=> 288√5 = 1/2 × 36 × h

=> 288√5 = 18 × h

=> h = (288√5) ÷ 18

=> h = 16√5 cm

Therefore The correct answer is 16√5 cm.

Additional Information

Isosceles Triangle Properties

In an isosceles triangle, the altitude drawn to the unequal side also acts as the median, bisecting the base into two equal segments.

Heron's Formula

It is used to find the area of a triangle when all three side lengths are known: Area = √[s(s − a)(s − b)(s − c)], where s is the

semi-perimeter.

Area of a Triangle

The area can also be calculated using any base and its corresponding altitude: Area = 1/2 × Base × Altitude.

Q63. Answer: (c) 36

Shortcut Trick

Number of small cylinders (n) = (R² × H) ÷ (r² × h)

Where R, H are dimensions of the large cylinder and r, h are for the small cylinder.

n = (6 × 6 × 10) ÷ (2 × 2 × 2.5)

n = 360 ÷ 10 = 36

Therefore The correct answer is 36.

Alternate Method

Given:

Radius of large cylinder (R) = 6 cm

Height of large cylinder (H) = 10 cm

Radius of small cylinder (r) = 2 cm

Height of small cylinder (h) = 2.5 cm

The volume of a cylinder is given by the formula: V = πr²h

=> Volume of the large cylinder = π × (6)² × 10

=> Volume of the large cylinder = π × 36 × 10 = 360π cm³

=> Volume of one small cylinder = π × (2)² × 2.5

=> Volume of one small cylinder = π × 4 × 2.5 = 10π cm³

=> Number of small cylinders (n) = (Volume of large cylinder) ÷ (Volume of small cylinder)

=> n = 360π ÷ 10π

=> n = 36

Therefore The correct answer is 36.

Additional Information

Conservation of Volume

When a solid object is melted and recast into new shapes, the total volume remains the same, provided there is no wastage during the process.

Cylinder Surface Area Formulas

Curved Surface Area (CSA) = 2πrh | Total Surface Area (TSA) = 2πr(r + h).

Radius and Diameter

Always ensure the radius is used in the volume formula; if the diameter (d) is given, use r = d ÷ 2.

Q64. Answer: (b) √23

Given:

sin θ = 11/12

Formula used:

sin²θ + cos²θ = 1

tan θ = sin θ / cos θ

sec θ = 1 / cos θ

Calculation:

sin²θ + cos²θ = 1

=> (11/12)² + cos²θ = 1

=> 121/144 + cos²θ = 1

=> cos²θ = 1 - 121/144

=> cos²θ = 23/144

=> cos θ = √(23/144)

=> cos θ = √23 / 12

tan θ = sin θ / cos θ

=> tan θ = (11/12) / (√23 / 12)

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=> tan θ = 11 / √23
sec θ = 1 / cos θ
=> sec θ = 12 / √23
tan θ + sec θ = (11 / √23) + (12 / √23)
=> tan θ + sec θ = (11 + 12) / √23
=> tan θ + sec θ = 23 / √23
=> tan θ + sec θ = √23
Therefore The correct answer is option (2).

Q65. Answer: (a) 29%

Given:
Lowest production
Highest demand
Formula used:
Percentage = (Lowest production / Highest demand) × 100
Calculation:
Lowest production = 1450
Highest demand = 5000
=> Percentage = (1450 / 5000) × 100
=> Percentage = 29%
Therefore The correct answer is option (1).

Q66. Answer: (a) The money becomes 9 times its original value

Given:
A sum of money becomes five times its original value in 15 years at a certain simple interest rate.
Formula used:
Simple Interest (SI) = P × R × T / 100
Amount (A) = Principal (P) + Simple Interest (SI)
Calculation:
Let the Principal be P.
Amount after 15 years = 5P
=> 5P = P + (P × R × 15 / 100)
=> 5P = P + 15PR / 100
=> 5P - P = 15PR / 100
=> 4P = 15PR / 100
=> R = (4P × 100) / (15P)
=> R = 400 / 15
=> R = 80 / 3 %
If the sum is invested for twice the time (30 years) at the same rate of interest:
=> Amount after 30 years = P + (P × R × 30 / 100)
=> Amount after 30 years = P + (P × (80 / 3) × 30 / 100)
=> Amount after 30 years = P + (P × 800 / 10)
=> Amount after 30 years = P + 8P
=> Amount after 30 years = 9P
Therefore The money becomes 9 times its original value. The correct answer is option 1.

Q67. Answer: (c) 4

Given:
R can finish a work in 6 days if he works 10 hours a day.
S can finish it in 5 days if he works 8 hours a day.
Both start a work and work daily for 6 hours.
Formula used:
Work done per hour by R = Total work / (Number of days × Hours per day)

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Work done per hour by S = Total work / (Number of days × Hours per day)
Total work done per hour by R and S = Work done per hour by R + Work done per hour by S
Total days to complete the work = Total work / (Total work done per hour by R and S × Hours per day)
Calculations:
Work done per hour by R = 1 / (6 × 10)
=> Work done per hour by R = 1 / 60
Work done per hour by S = 1 / (5 × 8)
=> Work done per hour by S = 1 / 40
Total work done per hour by R and S = (1 / 60) + (1 / 40)
=> Total work done per hour by R and S = (2 + 3) / 120
=> Total work done per hour by R and S = 5 / 120
=> Total work done per hour by R and S = 1 / 24
Total days to complete the work = 1 / (1 / 24 × 6)
=> Total days to complete the work = 24 / 6
=> Total days to complete the work = 4
Therefore The correct answer is option 3.

Q68. Answer: (c) 240/37

Given:
R and S can finish a work in 10 days
S and T can finish a work in 12 days
T and R can finish a work in 8 days
Formula used:
Work done by R and S in 1 day = 1/10
Work done by S and T in 1 day = 1/12
Work done by T and R in 1 day = 1/8
Let work done by R, S, and T in 1 day be r, s, and t respectively
r + s = 1/10
s + t = 1/12
t + r = 1/8
Calculation:
Adding the three equations:
(r + s) + (s + t) + (t + r) = 1/10 + 1/12 + 1/8
=> 2r + 2s + 2t = 1/10 + 1/12 + 1/8
=> 2(r + s + t) = 1/10 + 1/12 + 1/8
=> r + s + t = 1/2 × (1/10 + 1/12 + 1/8)
Calculating the sum:
=> 1/10 + 1/12 + 1/8
=> 12/120 + 10/120 + 15/120
=> 37/120
So,
r + s + t = 1/2 × 37/120
=> r + s + t = 37/240
The work done by R, S, and T together in 1 day is 37/240
Therefore, the number of days required to finish the work is:
=> 240/37
Therefore The correct answer is option 3 (240/37).

Q69. Answer: (c) 2518

Shortcut Trick
Winner's share = 52% of valid votes => Loser's share = 100% − 52% = 48%
Winning margin = 52% − 48% = 4% of valid votes

We know, 4% = 98 votes => 100% (Total Valid Votes) = 98 × 25 = 2450

Total votes polled = Valid votes + Invalid votes = 2450 + 68 = 2518

Therefore The correct answer is 2518.

Alternate Method

Given:

Number of invalid votes = 68

Winning candidate gets 52% of the valid votes.

Winning margin = 98 votes.

Total Votes = ?

Valid Votes = 100%

Invalid = 68

Win: 52%

Lose: 48%

Margin: 4% = 98 votes

Calculations:

Let the total number of valid votes be x.

=> Loser's vote share = (100 − 52)% of x = 48% of x

=> Winning margin = Winner's share − Loser's share

=> Winning margin = 52% of x − 48% of x = 4% of x

According to the given condition:

=> 4% of x = 98

=> (4 ÷ 100) × x = 98

=> x = 98 × (100 ÷ 4)

=> x = 98 × 25

=> x = 2450

So, the total number of valid votes is 2450.

=> Total votes polled = Valid votes + Invalid votes

=> Total votes polled = 2450 + 68 = 2518

Therefore The correct answer is 2518.

Additional Information

Total Votes Polled

In election problems, Total Votes Polled = Valid Votes + Invalid Votes. Always calculate the valid votes using the given percentages first before adding the invalid numbers.

Winning Margin Percentage

The percentage by which a candidate wins is the difference between their vote percentage and the runner-up's vote percentage.

Base Percentage Value

To quickly find the base value (100%) when a certain percentage 'P' is known as value 'V', directly use the logic: Base = V × (100 ÷ P).

Q70. Answer: (d) <18

Given:

Bar graph showing the number of people in different age groups.

Formula used:

Identify the age group with the smallest bar height.

Calculation:

From the bar graph, we observe the number of people in each age group:

Age group 30-39: X people

Age group 50-59: Y people

Age group 80+: Z people

Age group <18: W people

Identify the smallest value among X, Y, Z, and W.

=> If W < X, Y, Z, then the age group <18 has the least number of people.

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Therefore The correct answer is option (4).

Q71. Answer: (c) 48 √3

Given:

Distance between the centers = 84 cm

Radius of first circle (r1) = 38 cm

Radius of second circle (r2) = 26 cm

Formula used:

Length of direct common tangent (L) = $\sqrt{(d^2 - (r1 - r2)^2)}$

Where d = distance between the centers, r1 and r2 are the radii of the circles.

Calculation:

=> $L = \sqrt{(84^2 - (38 - 26)^2)}$

=> $L = \sqrt{(7056 - 12^2)}$

=> $L = \sqrt{(7056 - 144)}$

=> $L = \sqrt{6912}$

=> $L = 48\sqrt{3}$ cm

Therefore The length of the direct common tangent is approximately $48\sqrt{3}$ cm.

Q72. Answer: (d) 38.8°C

Given:

Water quantities and temperatures:

• Water 1: 2 litres at 100°C

• Water 2: 18 litres at 32°C

Formula used:

Final temperature (T) after mixing = (m1 × T1 + m2 × T2) / (m1 + m2)

Where m1 and m2 are the masses (or volumes in this case, since the density of water is uniform), and T1 and T2 are the temperatures of the water.

Calculation:

=> T = (2 × 100 + 18 × 32) / (2 + 18)

=> T = (200 + 576) / 20

=> T = 776 / 20

=> T = 38.8°C

Therefore The final temperature of the water after mixing is 38.8°C.

Q73. Answer: (c) Decrease 10%

Given:

Ramesh's pocket money is first reduced by 25% and then increased by 20%.

Formula used:

Final value = Initial value × (1 - Reduction%) × (1 + Increase%)

Net percentage change = ((Final value - Initial value) / Initial value) × 100

Calculation:

Let the original pocket money be Rs. 100.

After a 25% reduction:

=> Rs. 100 × (1 - 0.25) = Rs. 100 × 0.75 = Rs. 75

Now, increase the reduced amount by 20%:

=> Rs. 75 × (1 + 0.20) = Rs. 75 × 1.20 = Rs. 90

Now, calculate the net change:

=> Net percentage change = ((90 - 100) / 100) × 100

=> Net percentage change = (-10 / 100) × 100

=> Net percentage change = -10%

Therefore There is a net decrease of 10% in Ramesh's original pocket money.

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Q74. Answer: (c) 45

Given:

The numbers are 25 and 81.

Formula used:

Mean proportional = √(first number × second number)

Calculation:

Mean proportional = √(25 × 81)

=> Mean proportional = √2025

=> Mean proportional = 45

Therefore The mean proportional between 25 and 81 is 45.

Q75. Answer: (b) 11

Shortcut Trick

Let weight of 1 apple be A and 1 orange be O.

From given: 8A + 10O = 5 and 12A + 20O = 9.

Double the first equation: 16A + 20O = 10. Subtract the second: 4A = 1 → A = 0.25 kg.

Substitute A: 8(0.25) + 10O = 5 → 2 + 10O = 5 → O = 0.3 kg.

Target: 15 × 0.25 + 24 × 0.3 = 3.75 + 7.2 = 10.95 kg.

Rounding 10.95 to the nearest integer gives 11.

Therefore The correct answer is 11 kg.

Alternate Method

Given:

Weight of 8 apples and 10 oranges = 5 kg

Weight of 12 apples and 20 oranges = 9 kg

Let the weight of one apple be x kg and one orange be y kg.

=> 8x + 10y = 5 --- (Eq. 1)

=> 12x + 20y = 9 --- (Eq. 2)

Multiplying (Eq. 1) by 2:

=> 16x + 20y = 10 --- (Eq. 3)

Subtracting (Eq. 2) from (Eq. 3):

=> (16x − 12x) + (20y − 20y) = 10 − 9

=> 4x = 1

=> x = 1/4 = 0.25 kg

Substituting x = 0.25 in (Eq. 1):

=> 8(0.25) + 10y = 5

=> 2 + 10y = 5

=> 10y = 3

=> y = 0.3 kg

Now, calculate the weight of 15 apples and 24 oranges:

=> Weight = 15x + 24y

=> Weight = 15(0.25) + 24(0.3)

=> Weight = 3.75 + 7.2

=> Weight = 10.95 kg

Rounding off to the nearest integer:

=> 10.95 ≈ 11 kg

Therefore The correct answer is 11 kg.

Additional Information

Simultaneous Linear Equations

These are a set of equations with multiple variables (like x and y) that are solved together to find a common solution using Elimination or Substitution methods.

Rounding Off Rules

When rounding to the nearest integer, look at the first decimal place. If it is 5 or greater (like .95), round up; if it is less than 5,

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round down.

Linear Combination Method

Sometimes unknown values can be found by adding or subtracting weighted versions of the given equations without solving for individual variables first.

Q76. Answer: (b) Noida

The correct answer is Noida.

Key Points

• The Buddh International Circuit is located in Greater Noida, Uttar Pradesh, India.

• It is a world-class motor racing track, around 40 kilometers from New Delhi.

• The circuit was designed by renowned German architect Hermann Tilke and was the venue for the Formula 1 Indian Grand Prix from 2011 to 2013.

• The first Indian Grand Prix was held at the Buddh International Circuit on 30 October 2011

• The inaugural race was won by Red Bull Racing's Sebastian Vettel.

Additional Information

• Other important Sports Institutions are:

Institutions	Location
National Sports Academy	Prayagraj
Major Dhyan Chand Sports College	Saifai
Guru Govind Singh Sports College	Lucknow
Bir Bahadur Singh Sports College	Gorakhpur

Q77. Answer: (a) To calculate per capita income

The correct answer is To calculate per capita income

Key Points

• Net National Product (NNP) is an important economic indicator that reflects the total value of all goods and services

• produced by a country's citizens and businesses, both domestically and abroad

• The use of Net National Product is to calculate per capita income.

• Net National Product (NNP):

• NNP is obtained by subtracting depreciation value (i.e. capital stock consumption) from GNP.

• NNP reflects the true net income of an economy, it helps governments and businesses in planning for the long term.

Additional Information

• Gross Domestic Product (GDP):

• It is the total money value of all final goods and services produced within the geographical boundaries of the country during a given period of time.

• GDP = C + G + I

• C = Consumption expenditure

• G = Government expenditure

• I = Investment expenditure

• Gross National Product (GNP):

• It refers to the money value of the total output of production of final goods and services produced by the nationals of a country during a given period of time, generally a year.

• National Income (NI):

• When NNP is calculated at factor cost (FC) it is called National Income.

• The measure is calculated by deducting indirect taxes and adding subsidies in NNP at Market Price (MP).

• In India, the Wholesale Price Index (WPI) is the weighted average price of 676 items with the base year 2017-18.

Q78. Answer: (b) Mercury

The correct answer is Mercury Planet.

Key Points

• Mercury is the smallest planet in our solar system and is closest to the Sun.

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• Its orbital period around the Sun is about 88 Earth days, making it the fastest planet.
• Because of its proximity to the Sun, Mercury experiences extreme temperature variations.
• It has no natural satellites or moons.

Additional Information

• Saturn
• Saturn is the sixth planet from the Sun and is known for its prominent ring system.
• It has a total of 146 moons, with Titan being the largest.
• Saturn is a gas giant composed primarily of hydrogen and helium.
• Uranus
• Uranus is the seventh planet from the Sun and has a unique blue-green color due to methane in its atmosphere.
• It has a tilted axis, causing extreme seasonal variations.
• Uranus has 27 known moons, with Titania being the largest.
• Jupiter
• Jupiter is the largest planet in our solar system and the fifth from the Sun.
• It has a strong magnetic field and at least 79 moons, with Ganymede being the largest.
• Jupiter is known for its Great Red Spot, a giant storm that has been raging for centuries.

Q79. Answer: (b) one

The correct answer is one

Key Points

• The Parliamentary Standing Committees in India have a tenure of one year
• Parliamentary Standing Committees in India are permanent committees that work throughout the year
• to scrutinize and oversee various aspects of legislation, government policies, and administration.
• They play a crucial role in enhancing the efficiency of parliamentary work by focusing on specific areas in detail.
• These committees are divided based on different ministries and departments, such as Finance, Defense, Health, etc.
• There are currently 24 DRSCs, with members drawn from both the Lok Sabha (lower house) and the Rajya Sabha (upper house).

Q80. Answer: (c) Henry Lawrence

The correct answer is Henry Lawrence

Key Points

• The British forces in the Battle of Chinhat were led by Brigadier General Henry Lawrence.
• However, the actual British force on the battlefield was commanded by Colonel William Goldby,
• who led a contingent of British troops and loyal sepoys.
• The battle resulted in a decisive defeat for the British, and following this, the British forces retreated to the Residency in Lucknow,
• where they faced a prolonged siege (known as the Siege of Lucknow)

Additional Information

• The Battle of Chinhat
• The Battle of Chinhat, fought on June 30, 1857, was a significant early engagement during the Indian Rebellion of 1857.
• It took place near the town of Chinhat, on the outskirts of Lucknow.
• The rebellion against British rule had spread across northern India, and Lucknow, the capital of the province of Oudh (Awadh), became a key center of resistance
• The Battle of Chinhat was a decisive victory for the Indian rebels, and it marked the beginning of the Siege of Lucknow.

Q81. Answer: (a) Article 142 of the Constitution of India

The correct answer is Article 142 of the Constitution of India

Key Points

• In May 2023, the Supreme Court of India used Article 142(1) of the Indian Constitution to grant couples the right to divorce based on 'irretrievable breakdown of marriage'.
• Article 142(1) of the Indian Constitution reads, "The Supreme Court in the exercise of its jurisdiction may pass such decree or make such order as is necessary for doing complete justice in any cause or matter pending before it...".
• The Supreme Court's decision expanded the grounds on which divorce can be sought in India.
• Previously, the grounds for divorce were outlined in individual personal laws and did not include the concept of 'irretrievable

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breakdown of marriage' as it was not explicitly listed as grounds for divorce in any specific legislation. The 2023 ruling made it a valid reason to seek a divorce.

• The court used its discretionary powers to take cognizance of the realities of irreparable marriages and rule in favor of allowing legal terminations in such cases. This action sets a significant precedent for future cases involving such marital situations.

• This step by the Supreme Court could potentially pave the way for broader legal reform, rooting the law more firmly in the changing social context and conditions of the country.

Additional Information

• Article 136 – Special Leave to Appeal to the Supreme Court

• It Grants the Supreme Court discretionary power to allow special leave to appeal against any judgment, decree, or order in any cause or matter, passed by any court or tribunal.

• This article applies to both civil and criminal cases, giving broad powers to the Supreme Court to ensure justice.

• It cannot be used for appeals from judgments of military courts or tribunals.

• Article 143 – Power of the President to Consult the Supreme Court

• It Empowers the President of India to seek the advisory opinion of the Supreme Court on any question of law or fact of public importance.

• The Supreme Court's advice is not binding on the President; it is a consultative process.

• It is Used to clarify constitutional or legal issues, like the Ayodhya case and the Berubari case.

• Article 32 – Right to Constitutional Remedies

• It is one of the Fundamental Rights.

• It is the Heart and Soul of the Constitution.

• It Empowers individuals to move the Supreme Court directly for the enforcement of fundamental rights guaranteed by the Constitution.

Q82. Answer: (a) Trypsin

The correct answer is Trypsin

Key Points

• The medium-sized globular protein you're referring to is trypsin

• Trypsin is a pancreatic serine protease, meaning it belongs to the class of enzymes that cleave peptide bonds in proteins.

• It is found in the digestive systems of many vertebrates and plays a crucial role in protein digestion by breaking down proteins into smaller peptides

• It is produced in the pancreas as an inactive precursor, trypsinogen, which is activated in the small intestine.

Additional Information

• Amylase

• It Breaks down starch into sugars (maltose and dextrin) during digestion.

• It is Found in saliva (salivary amylase) and pancreas (pancreatic amylase).

• It Begins working in the mouth and continues in the small intestine.

• It is Vital for carbohydrate digestion and energy production.

• Lipase

• It Breaks down fats (lipids) into fatty acids and glycerol.

• It is produced in Pancreas (pancreatic lipase) and also in smaller amounts in the stomach.

• It Primarily acts in the small intestine.

• It is Essential for fat digestion and absorption of fat-soluble vitamins.

• Pepsin

• It Breaks down proteins into smaller peptides (proteolysis).

• It is produced in Stomach cells as an inactive precursor, pepsinogen, which is activated by stomach acid.

• It Works in the acidic environment of the stomach.

• It is Critical for initiating protein digestion in the stomach.

Q83. Answer: (b) Right to Equality

The correct answer is Right to Equality.

Key Points

• Citizens are not discriminated against on the basis of religion, caste, or sex primarily because of the Right to Equality.

• This right, primarily covered under Articles 14 to 18 of the Indian Constitution

• It ensures that every individual is treated equally before the law and prohibits discrimination on grounds of religion, race, caste, sex, or place of birth.
• Article 15, specifically, prohibits discrimination against any citizen and is the primary safeguard against such discrimination.
• Articles 14- Equality Before Law
• States that the state shall not deny to any person equality before the law or the equal protection of the laws within the territory of India.
• Article 16-Equality of Opportunity in Matters of Public Employment
• Ensures equality of opportunity for all citizens in matters relating to employment or appointment to any office under the state.
• Article 17-Abolition of Untouchability
• Abolishes untouchability and forbids its practice in any form
• Article 18: Abolition of Titles
• Prohibits the state from conferring any titles, except military or academic distinctions.

Additional Information

• Right to Freedom of Religion
• This right, enshrined in Articles 25 to 28 of the Indian Constitution, guarantees individuals the freedom to practice, profess, and propagate their religion.
• Right against Exploitation
• This right, detailed in Articles 23 and 24, prohibits human trafficking and forced labor
• Right to Freedom
• The Right to Freedom in the Indian Constitution is enshrined in Articles 19 to 22 and guarantees various freedoms to citizens.
• This set of rights is crucial for ensuring individual liberty and democratic governance

Q84. Answer: (a) To provide opportunities for education to his/her child

The correct answer is To provide opportunities for education to his/her child

Key Points

• She violates the fundamental duty under Article 51A of the Indian Constitution, specifically 51A(k),
• It states that it is the duty of every citizen to provide opportunities for education to his or her child or,
• as the case may be, to work toward the achievement of the same.
• By making her 12-year-old daughter work as a house cleaner instead of sending her to school,
• the housemaid is neglecting her duty to ensure that her child receives an education.
• Education is essential for the development and empowerment of children,
• It is considered a fundamental responsibility of parents or guardians to facilitate this.
• This situation not only contravenes the fundamental duty of providing education but also raises concerns about child labor,
• which is prohibited under various laws in India, including the Child Labour (Prohibition and Regulation) Act, 1986.

Additional Information

• Article 51A
• Article 51A of the Indian Constitution outlines the Fundamental Duties of citizens.
• It was added by the 42nd Amendment in 1976
• It serves to remind citizens of their responsibilities toward the nation.
• Article 51A enumerates a set of fundamental duties that every citizen is expected to uphold.
• Some of these duties include:
• To abide by the Constitution and respect its ideals and institutions.
• To promote harmony and the spirit of common brotherhood among all the people of India.
• To safeguard public property and to abjure violence.
• To protect and improve the natural environment, including forests, lakes, rivers, and wildlife.

Q85. Answer: (d) 1602

The correct answer is 1602

Key Points

• Galileo Galilei discovered the law that describes the regular swinging motion of a pendulum in 1602
• In the early 17th century, the study of motion was evolving.
• Before Galileo, the prevailing theories were primarily based on Aristotle's ideas, which did not accurately describe how objects moved under the influence of gravity.

• A pendulum consists of a mass (or bob) attached to a string or rod that swings back and forth under the influence of gravity.

• Galileo discovered that the time taken for a pendulum to swing back and forth is constant, regardless of the as long as the angle is small.

• This property is known as isochronism.

• He formulated ideas about acceleration due to gravity, which later influenced Isaac Newton's laws of motion.

Additional Information

• Galileo Galilei

• Galileo was born on February 15, 1564, in Pisa, Italy.

• Galileo improved the design of the telescope and used it for astronomical observations. In 1610,

• He discovered:

• The Moons of Jupiter:

• He observed the four largest moons (Io, Europa, Ganymede, and Callisto), which provided evidence against the geocentric model of the universe.

• Phases of Venus:

• He documented the phases of Venus, supporting the heliocentric model proposed by Nicolaus Copernicus,

• which stated that the Earth and planets revolve around the Sun.

Q86. Answer: (a) Kannad plains

The correct answer is Kannad plains

Key Points

• The central stretch is called the Kannad Plain

• It is primarily located in the state of Karnataka.

• It extends from the Arabian Sea in the west to the foothills of the Western Ghats in the east.

• The Kannada Plain is characterized by a mix of flat land and low-lying hills, making it less rugged compared to the adjacent Western Ghats.

• The soil in the Kannada Plain is primarily alluvial and lateritic, conducive to farming

Additional Information

• The Peninsular plateau is flanked by stretch of narrow coastal strips, running along the Arabian Sea on the west and the Bay of Bengal on the east.

• The Western Coastal Plains

• The western coast, sandwiched between the Western Ghats and the Arabian Sea, is a narrow plain.

• It consists of three sections; the northern part of the coast is called the Konkan (Mumbai – Goa),

• while the southern stretch is referred to as the Malabar Coast.

• The rivers flowing through this coastal plain do not form any delta.

• The Eastern Coastal Plains

• The eastern coast are the plains along the Bay of Bengal are wide and level.

• In the northern part, it is referred to as the Northern Circar, while the southern part is known as the Coromandel Coast.

• There are well-developed deltas here, formed by the rivers flowing eastward in to the Bay of Bengal and include the deltas of the Mahanadi, the Godavari, the Krishna and the Kaveri.

Q87. Answer: (a) Ctrl + P

The correct answer is Ctrl+P

Key Points

• Ctrl+P is the short key used to print a document in MS Word.

• Print Preview in MS Word is used to View how the document will appear when printed.

• Print preview refers to formatting a document for the printer.

• Print preview is commonly called preview or previewing.

Additional Information

• Ctrl + C (Copy)

• Copies the selected text, image, or object to the clipboard.

• When you press Ctrl + C, the selected content remains in its original location, but a copy is stored in the clipboard.

• This allows you to paste it elsewhere without affecting the original content.

• Ctrl + X (Cut)

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• Cuts the selected text, image, or object and moves it to the clipboard.

• Ctrl + V (Paste)

• Pastes the content from the clipboard to the current cursor location

Q88. Answer: (b) Uttaramerur inscription

The correct answer is the Uttaramerur inscription

Key Points

• The Uttaramerur Inscription is the Chola inscription that provides detailed information about the organization of the sabha (village assembly) in the local administration during the Chola Empire

• It outlines the criteria for becoming a member of the assembly, the qualifications required for candidates, the process of electing members,

• and the responsibilities of different committees.

• The inscription is found in Uttaramerur, a village in present-day Tamil Nadu.

• The inscription mentions the system of kudavolai (lottery) for electing members to the various committees of the sabha

• The Uttaramerur inscription showcases the highly decentralized administrative structure of the Chola Empire

Additional Information

• Darsanam Koppu Inscription

• It refers to an inscription found during the reign of the Cholas.

• It is notable for its reference to land grants or donations made to temples or religious institutions.

• This type of inscription typically provides insights into the administrative setup during the Chola period

• It highlights the practice of temple endowments (land grants given to temples), 4

• showing the interrelationship between rulers and religious bodies in medieval India.

• Thiruvalangadu Inscription

• The Thiruvalangadu inscription is one of the most famous Chola inscriptions, commissioned by Rajaraja Chola I,

• who ruled in the 11th century. It is located in the Thiruvalangadu temple, near Kanchipuram in Tamil Nadu.

• This inscription provides a detailed eulogy of the Chola king Rajaraja I, tracing the lineage of the Chola dynasty and celebrating his military achievements.

• It includes references to his conquests in South India, Sri Lanka, and the Maldives.

• Thirunanthikarai Inscription

• The Thirunanthikarai inscription shows the influence of the Ay dynasty in the region,

• providing evidence of land ownership, local governance, and religious endowments.

• It also highlights the cultural and economic exchanges between the different South Indian kingdoms during this period

• The inscription, written in Vattezhuthu script, records a land grant made during the reign of the Ay kings.

Q89. Answer: (b) Bhuj

The correct answer is Bhuj.

Key Points

• The Kutch festival is held at Bhuj, Gujarat.

• Rann Utsav is a festival in Kutch, Gujarat, India.

• Rann Utsav is a 3 month-long Carnival of Music, Dance, nature beauty of White Rann, and much more than that when visiting under the full Moon.

• The Rann festival proudly showcases the myriad arts and crafts of Gujarat, its folk songs and dance, and the Rann's natural beauty.

• The Rann festival dates run from October till the third week of February each year.

• The Rann Utsav festival of Gujarat state was inaugurated by Gujarat Tourism Minister Saurabh Patel in the year 2013.

• The present tourism minister of Gujarat is Jawahar Chavda.

Additional Information Some Important Festivals of Gujarat

Rath Yatra	**• A grand chariot procession dedicated to Lord Jagannath, celebrated in Ahmedabad. - The festival involves large processions with deities on elaborately decorated chariots. - Celebrated it in June - July**

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Navratri	• A nine-night festival celebrating Goddess Durga with traditional folk dances like Garba and Dandiya Raas. - It is one of the most significant festivals in Gujarat. - Celebrated in September - October
Modhera Dance Festival	• Held at the Sun Temple in Modhera, this festival showcases classical dance performances from across India, celebrating the ancient heritage of Gujarat. - Celebrated in January

Q90. Answer: (c) jantar

The correct answer is Jantar

Key Points

• Jantar is a string instrument commonly featured in the folk music of Gujarat.

• It is often used in traditional performances and folk songs.

• It is made from bamboo and has a simple design with strings stretched across a resonating box, which produces sound when the strings are plucked.

• The Jantar is often played by folk musicians, especially in rural areas, and is typically used to accompany singing or storytelling.

• It has a deep, resonant sound and is closely associated with tribal and nomadic communities.

Additional Information

• Bungal, Pava, and Turi are wind instruments

• Bungal

• It is a traditional wind instrument, often associated with nomadic and pastoral communities of Gujarat.

• It is a long, curved trumpet made from copper or brass and produces a loud, piercing sound.

• Bungal is typically used in ceremonial music or during martial events.

• Pava

• It is a folk wind instrument similar to a flute.

• It is made from bamboo and is played by blowing air across one end while covering the finger holes to produce different notes.

• It is used in various folk performances and devotional music in Gujarat.

• Turi

• It is another wind instrument, commonly used in Gujarat's folk traditions.

• It is a horn-like instrument that produces a loud sound and is often played during festive or ceremonial occasions.

Q91. Answer: (d) 1961

The correct answer is 1961

Key Points

• The first woman hockey player to receive the Arjuna Award was Anne Lumsden in 1961.

• It is bestowed by the Government of India (Ministry of Youth Affairs and sports) to sportspersons for their outstanding performance in international

• as well as national events and also holds leadership qualities with good morals.

• The award was launched in 1961 with a cash prize of Rs 5 lakh, a bronze statue of Arjuna, and

• a scroll and is presented by the President of India every year to the sportspersons of different categories.

• Now the Prize money is increased to 15 lakhs.

• The honour is named on Prince Arjuna, the protagonist of the Indian epic Mahabharata.

• He must have shown qualities of leadership sportsmanship and a sense of discipline.

• From 2001, the award is given in disciplines falling under the following categories:

• Olympic Games/Commonwealth Games/Asian Games

• World Cup/World Championship disciplines and cricket;

• Indigenous games; and

• Sports for the physically challenged.

• The Arjuna Award was first presented in 1961 to six people.

• Meena Shah (Badminton) was the first woman to get the Arjuna award in 1962.

• The first recipient of the Arjuna Award in the field of Archery was Krishna Das awarded in 1961.

Additional Information

Arjuna Awards Winner of 2023:

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Arjuna Award Winner	Sports
Ojas Pravin Deotale	Archery
Parul Chaudhary	Athletics
Aditi Gopichand Swami	Archery
Mohammad Hussamuddin	Boxing
R Vaishali	chess
Mohammed Shami	Cricket
Anush Agarwalla	Equestrian
Divyakriti Singh	Equestrian Dressage
Diksha Dagar	Golf
Krishan Bahadur Pathak	Hockey
Sushila Chanu	Hockey
Pawan Kumar	Kabaddi
Ritu Negi	Kabaddi
Nasreen	Kho-Kho
Pinki	Lawn Bowls
Aishwary Pratap Singh Tomar	Shooting
Esha Singh	Shooting
Harinder Pal Singh Sandhu	Squash
Ayhika Mukherjee	Table Tennis
Sunil Kumar	Wrestling
Antim Panghal	Wrestling
Naorem Roshibina Devi	Wushu
Sheetal Devi	Para Archery
Illuri Ajay Kumar Reddy	Blind Cricket
Prachi Yadav	Para Canoeing
Murali Sreeshankar	Athletics

Q92. Answer: (b) 1 - b, 2 - a, 3 - d, 4 - c

The correct answer is 1 - b, 2 - a, 3 - d, 4 - c.

Key Points The correct Matching Pairs are

1) Central	b) Mumbai CST
2) Northern	a) New Delhi
3) Eastern	d)Kolkata
4) Southern	c) Chennai

Additional Information

• Central Railway – Headquarters: Mumbai CST (Chhatrapati Shivaji Terminus)
• one of the largest and oldest zones in the Indian Railway network.
• Its headquarters is located at Chhatrapati Shivaji Maharaj Terminus (CST)
• A UNESCO World Heritage Site in Mumbai, Maharashtra.
• It covers a large part of Maharashtra and Madhya Pradesh, and some parts of Karnataka.

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• Northern Railway – Headquarters: New Delhi

• The largest railway zone in terms of route kilometres.

• Northern Railway covers several important states like Delhi, Haryana, Punjab, Jammu & Kashmir, Himachal Pradesh, and Uttar Pradesh.

• Eastern Railway – Headquarters: Kolkata

• The oldest railway zones in India.

• Its headquarters is located in Kolkata, West Bengal.

• This zone primarily covers West Bengal and Jharkhand, and its network includes important rail routes like the Howrah–Delhi and Howrah–Mumbai routes.

• Southern Railway – Headquarters: Chennai

• Southern Railway covers the southern part of India, including Tamil Nadu, Kerala, parts of Karnataka, and Puducherry.

• Its headquarters is in Chennai, Tamil Nadu.

• It operates important rail routes connecting major southern cities and is known for operating several key passenger and freight services in the region.

Q93. Answer: (a) Article 3

The correct answer is Article 3

Key Points

• The Constitution (Fifth Amendment) Act, 1955 amended several articles of the Indian Constitution.

• One significant change was the amendment to Article 3.

• It deals with the procedure for the formation of new states and alteration of areas, boundaries, or names of existing states.

• The amendment clarified and reinforced the process by which the Parliament could enact changes concerning the states.

• It made it explicit that the President of India could initiate the process of reorganization, and the Parliament would then have the final say.

Additional Information

• Article 17: Abolition of Untouchability

• Abolishes the practice of untouchability, making it illegal in India.

• It states that the enforcement of any disability arising out of untouchability is a punishable offense under the law.

• The article promotes social equality by ensuring that all individuals have the right to equality before the law, irrespective of caste.

• Article 34: Restriction on Rights Conferred by Part III While Martial Law is in Force

• Allows the Parliament to restrict the rights conferred by Part III (Fundamental Rights) of the Constitution during the enforcement of martial law in any area.

• Article 45: Provision for Early Childhood Care and Education

• Directs the state to provide for early childhood care and education for all children until they complete the age of six years.

• Emphasizes the importance of early childhood education in the holistic development of children,

• addressing their physical, mental, and social needs.

Q94. Answer: (c) Bharatanatyam

The correct answer is Bharatanatyam

Key Points

• Bharatnatyam dance is a dance form of Tamil Nadu which is also known to be as ekaharya, where one dancer takes on several roles in a single performance.

• It is also known as Dasiattam.

• The Brihadeeswara Temple at Thanjavur has been a centre for Bharatanatyam since 1000 CE.

• In its usual form, the dance is generally divided into seven main parts – Alarippu, Jatiswaran, Shabda, Varna, Pada, Thillana and Sloka.

• Mrinalini Sarabhai, Shobhana, Yamini Krishnamurthy, Padma Subrahmanyam, and Chithra Vishveshwaran

• are some of the famous contemporaries of the Bharatnatyam Dance form.

Additional Information

• Kathak:

• This dance originated in North India.

• It was largely a temple or village performance wherein the dancers narrated stories from ancient scriptures.

• Kuchipudi:

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• Kuchipudi is the name of a village in the Krishna district of Andhra Pradesh which has a long custom of dance-drama.
• Kathakali:
• Kathakali is a blend of dance, music, and acting and dramatizes stories, which are mostly adapted from Indian epics
• Different facial colors indicate different mental stages & characters, e.g. green – nobility, black – wicked, red patches – combining royalty & evil.

Q95. Answer: (b) Sikkim

The correct answer is Sikkim.

Key Points

• Sikkim has a population of 6.11 Lakhs.
• The Sikkim census of 2011 says the population of Sikkim is the lowest in all of India.
• Prem Singh Tamang, better known as P. S. Golay, is an Indian politician of Sikkim and leader and founder of the Sikkim Krantikari Morcha (SKM)

Additional Information

• According to the Census of India 2011, the populations of Telangana, Tripura, and Goa
• Telangana: The population was approximately 35,193,978.
• Tripura: The population was approximately 3,671,032.
• Goa: The population was approximately 1,457,723.

Important Points

The highest population as per the 2011 census is observed in UP.

State	Population (Census 2011)
UP	199,812,341
Maharashtra	112,372,972
Bihar	103,804,637
West Bengal	91,347,736
Madhya Pradesh	72,597,565

Q96. Answer: (a) Clicking on the Mailings tab

The correct answer is Clicking on the Mailings tab

Key Points

• Step by Step Instructions
• Open Microsoft Word:
• Launch Microsoft Word on your computer.
• Go to the Mailings Tab:
• At the top of the window, find and click on the "Mailings" tab in the ribbon.
• Start Mail Merge:
• In the "Mailings" tab, look for the "Start Mail Merge" group.
• Click on "Start Mail Merge" to see a dropdown menu.
• Select Step by Step Mail Merge Wizard:
• From the dropdown menu, select "Step by Step Mail Merge Wizard...".
• This will open the Mail Merge task pane on the right side of your Word window.
• Follow the Wizard:
• The wizard guide you through the mail merge process with clear steps,
• including selecting the document type, choosing recipients, writing the letter, and completing the merge.

Q97. Answer: (d) i, ii and iii

The correct answer is i, ii and iii.

Key Points

• The Green Revolution in India led to self-reliance in terms of food grain production, transforming the country from a food-deficient nation to one that could sustain itself.
• Repetitive cultivation of the same high-yield variety (HYV) crops led to soil nutrient depletion, as these crops absorbed specific

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nutrients in large quantities.

• The Green Revolution intensified the use of water resources for irrigation, leading to the depletion of fresh groundwater levels, especially in regions like Punjab and Haryana.

• The use of chemical fertilizers and pesticides increased significantly during the Green Revolution, contributing to environmental degradation and impacting soil health.

Additional Information

• Green Revolution:

• The Green Revolution refers to the period during the 1960s and 1970s when agriculture in many developing countries was transformed by the adoption of high-yielding variety (HYV) seeds, chemical fertilizers, and advanced irrigation techniques.

• It aimed to increase food production to combat hunger and improve food security.

• Countries like India and Mexico saw significant increases in crop production, particularly in wheat and rice.

• Despite its success in increasing food production, the Green Revolution also led to environmental issues, including soil degradation, water scarcity, and loss of biodiversity.

• Soil Nutrient Depletion:

• Continuous cultivation of the same crop without crop rotation can lead to the depletion of specific nutrients in the soil.

• This results in reduced soil fertility, necessitating the increased use of chemical fertilizers to maintain crop yields.

• Over time, this can lead to soil degradation and reduced agricultural sustainability.

• Groundwater Depletion:

• Intensive irrigation practices, particularly in regions with limited water resources, can lead to the over-extraction of groundwater.

• This can cause a decline in water tables, making it more difficult and expensive to access water for irrigation in the long term.

• Regions like Punjab and Haryana in India have experienced significant groundwater depletion due to the Green Revolution.

• Environmental Impact:

• The increased use of chemical fertilizers and pesticides associated with the Green Revolution has led to environmental pollution.

• These chemicals can contaminate soil and water bodies, adversely affecting plant and animal life.

• There are also health concerns for humans exposed to these chemicals through food and water.

Q98. Answer: (c) 919

The correct answer is 919.

Key Points

• In the census 2001, the child sex ratio of India was 927 which declined to 919 in the census 2011.

• Child sex ratio:

• The Child Sex Ratio is defined as the number of females per 1000 males in the age group 0–6 years.

• As per the census 2011, Arunachal Pradesh has the highest child sex ratio among the Indian states i.e. 972 while Haryana has the lowest child sex ratio i.e., 834 per thousand males.

• Among the Union Territories of India; Andaman and Nicobar Islands has the highest child sex ratio i.e., 968 per thousand males.

Additional Information

• The responsibility of conducting the decennial Census rests with the Office of the Registrar General and Census Commissioner, India under Ministry of Home Affairs, Government of India.

• Census Act was enacted in 1948 to provide for the scheme of conducting population census with duties and responsibilities of census officers.

• Government of India decided in May 1949 to initiate steps for developing systematic collection of statistics on the size of the population, its growth, etc., and established an organisation in the Ministry of Home Affairs under Registrar General and ex-Officio Census Commissioner, India.

Q99. Answer: (d) Carnatic

The correct answer is Carnatic

Key Points

• Carnatic Music

• Carnatic music is one of the forms of Indian classical music.

• It is confined to southern India, the states of Andhra Pradesh, Karnataka, Tamilnadu, and Kerala

• while the classical music of the rest of the country is under the name of Hindustani.

• The main emphasis in Carnatic music is on the vocals.

• The music is created in the traditional octave form and the music is Kriti-based

• and focuses more on the Sahithya or the lyric quality of the musical piece.

Additional Information

• Hindustani Music

• Hindustani music is a major form of classical music practised primarily in North India, dating back to the Vedic times.

• It is based on ragas (melodic frameworks) and talas (rhythmic cycles) with a strong emphasis on improvisation by the performer.

• Renowned figures like Pandit Ravi Shankar, Ustad Zakir Hussain, and Kishori Amonkar have popularized Hindustani music globally.

• Common instruments include the sitar, tabla, sarod, and tanpura.

• Regional Music

• Regional music refers to folk and traditional music from different parts of India, reflecting the cultural diversity of various regions.

• Bihu (Assam), Baul (Bengal), Lavani (Maharashtra), and Garba (Gujarat) are popular forms of regional music.

• Unlike classical music, regional music often has simpler structures, with repetitive rhythms and lyrics rooted in everyday life

• Classical Music

• Indian classical music is divided into two main traditions: Hindustani (North Indian) and Carnatic (South Indian).

• Classical music often has spiritual undertones, used in temples and courts historically, and is meditative in nature.

• Well-known classical musicians include MS Subbulakshmi (Carnatic), Bismillah Khan (Shehnai), and Zakir Hussain (Tabla).

Q100. Answer: (c) 2 years

The correct answer is 2 years

Key Points

• Since 1994, the Winter Olympics traditionally take place two years after the Summer Olympics.

• This change was introduced to alternate the Winter and Summer Olympics every two years, instead of holding them in the same year as was done earlier.

• It is a sporting event that occurs every four years.

• The first celebration of the Winter Olympics was held in Chamonix, France, in 1924.

• The original sports were alpine and cross-country skiing, figure skating, ice hockey, Nordic combined, ski jumping, and speed skating.

• The Games were held every four years from 1924 until 1936, after which they were interrupted by World War II.

• The Olympics resumed in 1948 and were celebrated every four years.

• The Winter and Summer Olympic Games were held in the same years until 1992, after a 1986 decision by the International Olympic Committee (IOC) to place the Summer and Winter Games on separate four-year cycles in alternating even-numbered years.

• Because of the change, the next Winter Olympics after 1992 was in 1994.

• The 2022 Winter Olympics, officially known as the XXIV Olympic Winter Games and commonly known as Beijing 2022, is an international winter multi-sport event that is scheduled to take place from 4 to 20 February 2022, in Beijing and towns in the neighboring Hebei province in the People's Republic of China.

Additional Information

• The 2020 Summer Olympics commonly known as Tokyo 2020, is to be held in Tokyo, Japan.

• Hockey, Badminton, and Archery are the summer Olympic sports.

• Karate, roller sport, climbing, surfing, baseball, and softball are the recent sports added for 2020.

• Beijing is due to host the 2022 Winter Olympics, which will make it the first city to host both the Summer and Winter Games.

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