SSC CHSL Tier-1 2024: Official Paper (Held On: 05 Jul, 2024 Shift 2) (Previous Year Paper)

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

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ENGLISH LANGUAGE

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

We has travelled / to many states / of India to get / an essence of its diversity.

(a) an essence of its diversity
(b) We has travelled
(c) to many states
(d) of India to get

Q2. Select the option that corrects the following sentence.

All tickets of the FIFA World Cup have been sold away.

(a) All tickets of the FIFA World Cup have been sold among.
(b) All tickets of the FIFA World Cup have been sold out.
(c) All tickets of the FIFA World Cup have been sold into.
(d) All tickets of the FIFA World Cup have been sold across.

Q3. Select the most appropriate option to fill in the blank.

The captain dropped the trophy while he _____the victory with his teammates.

(a) celebrated
(b) was celebrating
(c) is celebrating
(d) celebrates

Q4. The following sentence has been split into four segments. Identify the segment that contains a grammatical error.

The soldiers / were selected / on the section / of ‘gallantry of spirits’.

(a) were selected
(b) The soldiers
(c) of ‘gallantry of spirits’.
(d) on the section

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.

For decades, humans have tried to theorise the origin and evolution of the universe. Many theories have been proposed and rejected. However, the Big Bang theory has been the most (1)____ accepted. According to this theory, the universe began as a single point, or singularity, around 13.8 billion years ago. This singularity contained all the matter and energy that would eventually (2)__ the stars, galaxies and other structures that make up our universe today. The Big Bang theory is supported by a (3)__ of observational evidence, including the cosmic microwave background radiation, the (4)___ of light elements in the universe and the large-scale structure of the cosmos. Despite its success, the Big Bang theory is still an active area of research, with scientists seeking to better understand the earliest moments of the universe and the (5)____ of dark matter and energy.

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

(a) vastly
(b) largely
(c) loosely
(d) widely

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

(a) destroy
(b) form
(c) design
(d) prepare

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

(a) rich
(b) store
(c) wealth
(d) debt

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

(a) plenty
(b) fortune
(c) abundance
(d) success

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

(a) brand
(b) environment
(c) nature
(d) capture

Q10. Select the most appropriate meaning of the given idiom.

Bag and baggage

(a) By force
(b) With all goods
(c) Fair and honest
(d) At the service

Q11. Select the most appropriate option that can substitute the underlined segment in the given sentence.

Employers in many developing countries report that a lack of skilled workers is a major and increasing bottleneck for their operations, affected their capacity to innovate.

(a) effect their capacity
(b) affecting their capacity
(c) effecting their capacity
(d) affect their capacity

Q12. Select the most appropriate option that can substitute the underlined word in the given sentence.

The dedicated teacher laboured assiduously to aid her pupils in achieving success.

(a) committed
(b) un-biased
(c) uninvolved
(d) apathetic

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

Which _____ do you usually take to reach your office?

(a) route
(b) rude
(c) rout
(d) root

Q14. Identify the most appropriate ANTONYM of the underlined word in the given sentence.

The vendor said that the apples were of superior quality.

(a) Small
(b) Inferior
(c) Excellent
(d) Distasteful

Q15. Select the most appropriate meaning of the underlined idiom.

The United Nations is working to eliminate the vicious cycle of poverty.

(a) Strength of something
(b) Loophole of something
(c) One problem causes other
(d) The barrier of poverty

Q16. Select the most appropriate ANTONYM of the underlined word in the given sentence.

Essays must be concise.

(a) Total
(b) Precise
(c) Lengthy
(d) Excise

Q17. Read the sentence carefully and select the most appropriate option to substitute the underlined part.

The clamour distracted the priest and made him angry.

(a) loud and confused noise
(b) introduction of new things
(c) humorous deception
(d) narrow-mindedness

Q18. Select the most appropriate option that can substitute the underlined word segment in the following sentence.

The girl which is wearing a blue shirt is my sister.

(a) who is wearing a blue shirt
(b) which wear a blue shirt
(c) who wear a blue shirt
(d) which is wearing the blue shirt

Q19. The following sentence has been split into four segments. Identify the segment that contains a spelling error.

The make-up room was filled / with incadescent lights / which added to the misery / of those subjected to make-up.

(a) of those subjected to make-up
(b) The make-up room was filled
(c) with incadescent lights
(d) which added to the misery

Q20. Select the most appropriate ANTONYM of the underlined word.

No one trusts her as her reasons are always explicit.

(a) Ambiguous
(b) Exact
(c) Precise

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(d) Distant

Q21. Select the correct collocation to complete the following sentence.

He made _____ use of the opportunity to travel.

(a) entire
(b) full
(c) whole
(d) total

Q22. Select the most appropriate synonym of the given word.

Tedious

(a) Working
(b) Boring
(c) Exciting
(d) Happening

Q23. Select the most appropriate homophone to fill in the blank.

Arun knows perfectly well how to mix the food items with _____.

(a) source
(b) saws
(c) sauce
(d) sause

Q24. Select the most appropriate synonym of the given word.

Permit

(a) Flout
(b) Abandon
(c) Approve
(d) Disgrace

Q25. Select the INCORRECTLY spelt word.

(a) Immaculate
(b) Immense
(c) Irreverent
(d) Innoculate

GENERAL INTELLIGENCE

Q26. RTVX is related to SUWY in a certain way based on the English alphabetical order. In the same way, KMOQ is related to LNPR. To which of the following is FHJL related, following the same logic?

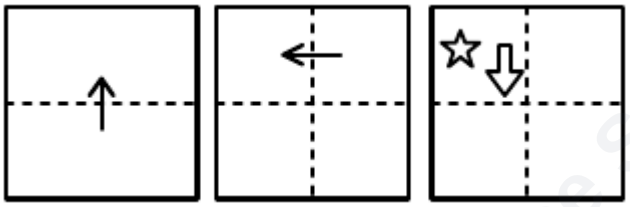
(a) GHJK
(b) GIJK
(c) GIKN
(d) GIKM

Q27. TMBF is related to ATIM in a certain way based on the English alphabetical order. In the same way, CLGP is related to JSNW. To which of the following is QEAD related, following the same logic?

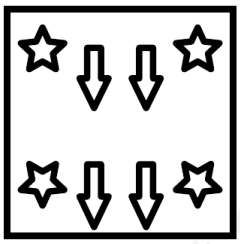
(a) XHKL
(b) XLHK
(c) XLKH
(d) XKHL

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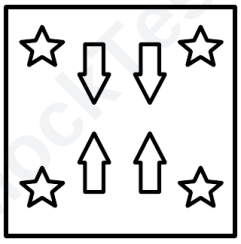
Q28. A square sheet of paper is folded along the dotted line successively along the directions shown and is then punched in the last. How would the paper look when unfolded?



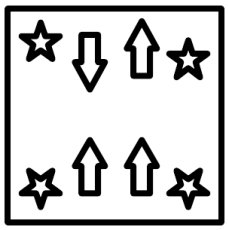
(a)



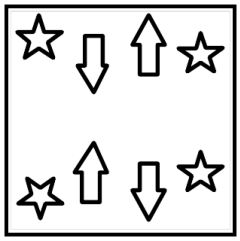
(b)



(c)



(d)



Q29. Select the set in which the numbers are related in the same way as are the numbers of the following sets.

(13, 234, 9)

(15, 180, 6)

(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.)

(a) (14, 196, 7)

(b) (12, 108, 9)

(c) (16, 240, 5)

(d) (17, 340, 5)

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Q30. In a certain code language,

A + B means ‘A is the daughter of B'

A - B means 'A is the wife of B'

A × B means 'A is the brother of B'

A ÷ B means 'A is the father of B'.

Based on the above, if 'P + Q × R - S ÷ T', which of the following is true?

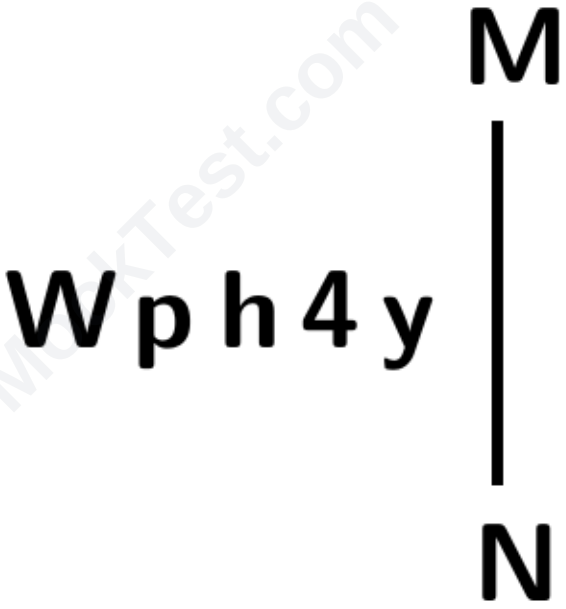
(a) P is the daughter of T's Mother's Brother.

(b) T is S's Son.

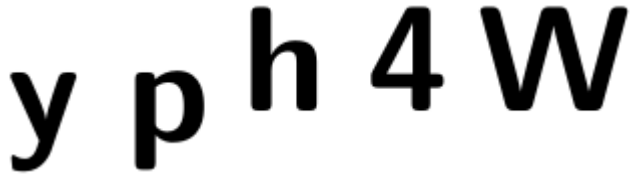
(c) Q is the brother of S.

(d) P is the sister of T.

Q31. Select the correct mirror image of the given figure when the mirror is placed at MN as shown below.



(a)



(b)



(c)



(d)



Q32. What should come in place of the question mark (?) in the given series?

63, 64, 66, 69, 73, ?

(a) 78
(b) 80
(c) 77
(d) 79

Q33. The position of how many letters will remain unchanged if all the letters in the word DIALECT are arranged in alphabetical order?

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

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

(a)



(b)



(c)

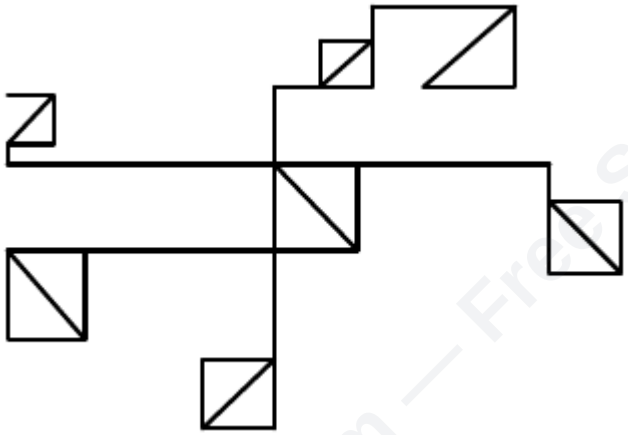


(d)



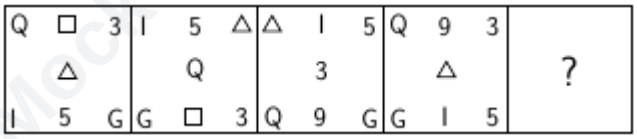
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Q35. How many triangles are there in the given figure?

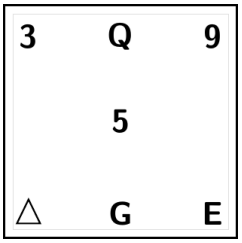


(a) 14
(b) 13
(c) 12
(d) 15

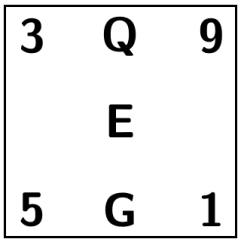
Q36. Which figure should replace the question mark (?) if the following figure series were to be continued?



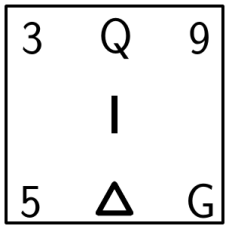
(a)



(b)

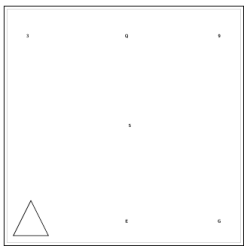


(c)



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(d)



Q37. In a certain code language, ‘pleased to meet’ is written as ‘bj sc vw’ and ‘meet and greet’ is written as ‘ih bj tf’. How is ‘meet’ written in the given language?

(a) tf
(b) ih
(c) vw
(d) bj

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

TUV RXR ? NDJ LGF

(a) VOI
(b) NAP
(c) PAN
(d) CAL

Q39. What will come in place of '?' in the following equation, if ‘+' and ‘-' are interchanged and ‘×' and ‘÷' are interchanged?

15 + 2 - 13 × 13 ÷ 3 = ?

(a) 23
(b) 18
(c) 24
(d) 16

Q40. If 19 July 2012 is Thursday, then what will be the day of the week on 11 January 2018?

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

Q41. 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:

All jams are butter.

Some nibs are ink.

Some nibs are butter.

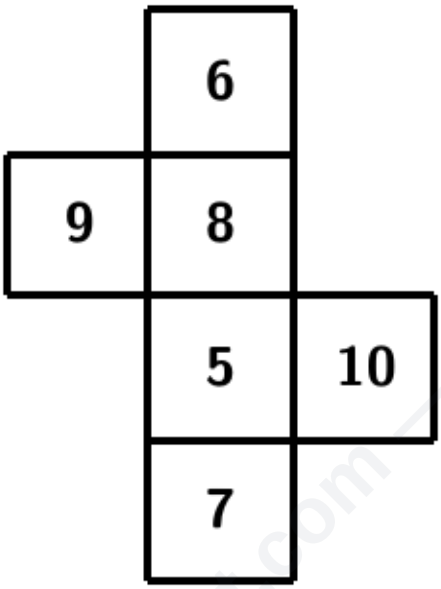
Conclusion (I): Some ink is butter.

Conclusion (II): All jams are nibs.

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

Q42. What would be the number on the opposite side of '8' if the given sheet is folded to form a cube?

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(a) 7
(b) 6
(c) 10
(d) 5

Q43. Select the correct option that when filled in the blanks in the same sequence will make the series logically complete.

GH_ST_HO_RGHOSPG_OS_

(a) OGSHN
(b) GOHNP
(c) ORHSN
(d) GORNH

Q44. 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?

17 C 69 A 3 D 22 B 1 = ?

(a) 16
(b) 12
(c) 18
(d) 14

Q45. What will come in the place of '?' in the following equation if '+' and '×' are interchanged and '–' and '÷' are interchanged?

21 – 7 × 26 + 46 ÷ 36 = ?

(a) 8667
(b) 1163
(c) 760
(d) 908

Q46. In a certain code language, 'SOAP' is coded as '4629' and 'SPOT' is coded as '9824'. How is 'A' coded in the given language?

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

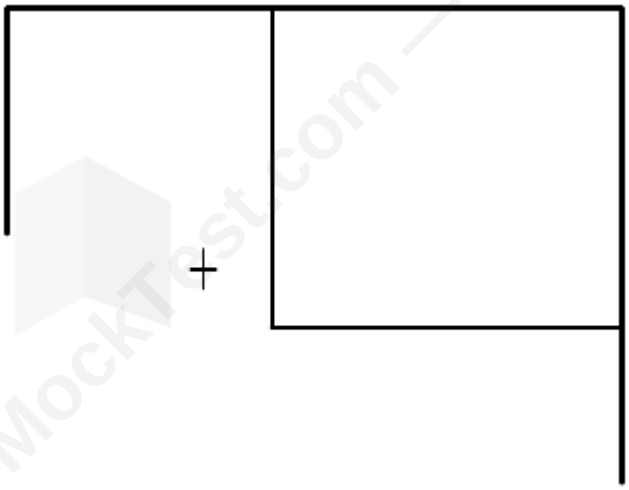
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Q47. 12 is related to 72 following a certain logic. Following the same logic, 19 is related to 114.To which of the following is 29 related following the same logic?

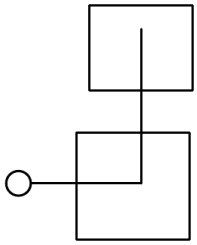
(NOTE : Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. E.g. 13 – Operations on 13 such as adding /deleting /multiplying etc., to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and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

(a) 174
(b) 170
(c) 171
(d) 173

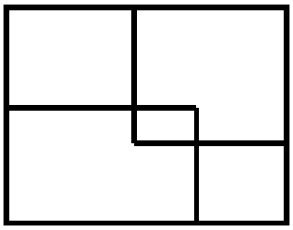
Q48. Select the option in which the given figure is embedded. (Rotation is NOT allowed.)



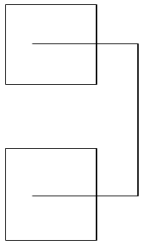
(a)



(b)

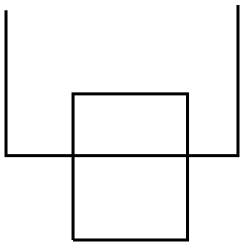


(c)



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(d)



Q49. Which of the following numbers will replace the question mark (?) in the given series?

11 4 22 20 44 100 88 500 ?

(a) 154
(b) 176
(c) 182
(d) 160

Q50. Four letter-clusters have been given, out of which three are alike in some manner and one is different. Select the one that is different.

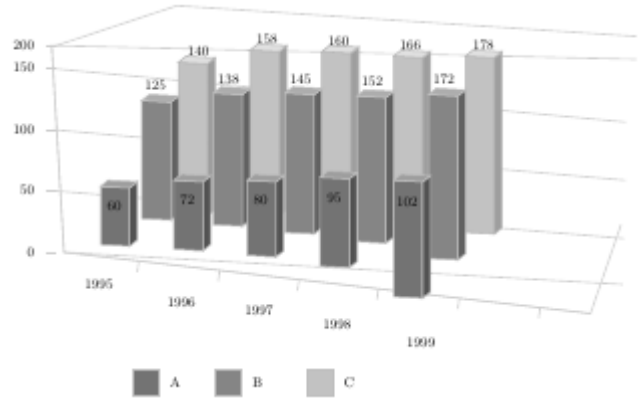
(Note: The odd one out is not based on the number of consonants/vowels or their position in the letter cluster.)

(a) PNK
(b) OMJ
(c) RTQ
(d) BZW

QUANTITATIVE APTITUDE

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

The graph shows the exports from three companies (A, B and C) over the years (in Rs. crore).



In how many given years, were the exports from company C less than the average annual exports over the given years?

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

Q52. A shopkeeper marks up his goods 32% above the cost price and gives a discount of 21% on the marked price. Find his gain percentage on the goods.

(a) 4.28%
(b) 8.24%
(c) 4.82%
(d) 8.42%

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Q53. ΔABC and ΔDEF are similar and their areas are respectively 0.64 m² and 0.0121 m². If EF = 0.154 m, then BC is:

(a) 11.2 m
(b) 1.15 m
(c) 1.12 m
(d) 2.12 m

Q54. A chord of length 12 units in a circle of radius 10 units is _____ units away from its centre.

(a) 10
(b) 8
(c) 6
(d) 9

Q55. Find the height of the triangle whose base is two-thirds of its height and whose area is 363 cm²

(a) 31 cm
(b) 27 cm
(c) 33 cm
(d) 29 cm

Q56. Raju spends 80% of his income. His income increased by 20%, while his spending rise by 10%. The percentage of increase in his savings is:

(a) 30%
(b) 40%
(c) 60%
(d) 48%

Q57. Write the smallest digit in the blank space of a number 7_7624, so that the number formed is divisible by 3.

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

Q58. The diameter of the base of a cylindrical tank is 28 cm and its height is 42 cm. Find its curved surface area.

(a) 3686 cm²
(b) 3690 cm2
(c) 3680 cm2
(d) 3696 cm2

Q59. The average age of 24 workers and their supervisor is 41 years. If the supervisor's age is excluded, the average reduces by 0.75 years. The age of the supervisor is:

(a) 49 years
(b) 59 years
(c) 40 years 9 months
(d) 41 years 9 months

Q60. Ramendra purchased some watermelons for Rs. 1,500. He sold one-fourth of them at a loss of 12%. At what gain percentage should the remaining watermelons be sold so as to gain 25% on the whole transaction (correct to two decimal places)?

(a) 37.65%
(b) 33.73%
(c) 37.33%
(d) 33.43%

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Q61. A number is first increased by 44% and then decreased by 30%. The net percentage change (rounded off to the nearest integer) in the original number is:

(a) increase by 4%
(b) decrease by 1%
(c) decrease by 4%
(d) increase by 1%

Q62. If 1/M: 1/N: 1/O=3: 4: 5, then M : N : O is equal to:

(a) 12 : 15 : 20
(b) 20 : 15 : 12
(c) 15 : 20 : 12
(d) 20 : 12 : 15

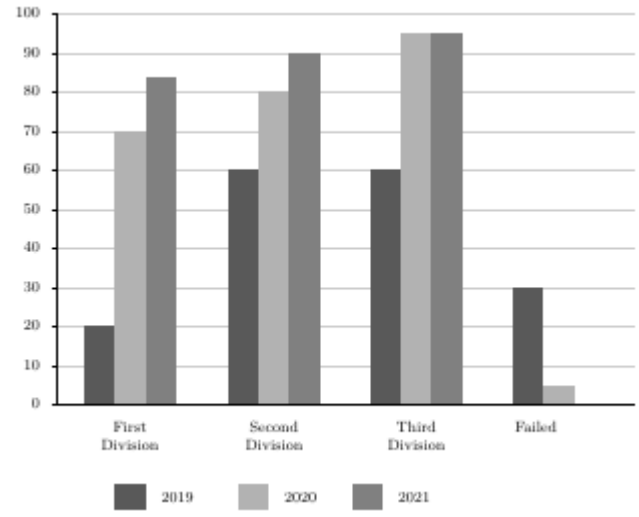
Q63. An equal sum of money was lent to P and Q at 8.6% per annum for a period of 7 years and 8 years, respectively. If the difference in interest paid by them was Rs. 172, then the sum lent to each was:

(a) Rs. 185
(b) Rs. 3,000
(c) Rs. 2,150
(d) Rs. 2,000

Q64. To reach at a destination, D takes 45 minutes if he drives at a speed of 60 km/h. Due to some urgency, he is to reach the destination in 30 minutes. What should be his speed in km/h?

(a) 80
(b) 75
(c) 90
(d) 60

Q65. The givengraph shows the higher secondary result of a particular school, from 2019 to 2021. Study the graph and answer the question that follows.



The percentage of students who passed in the year 2020 is:

(a) 98%
(b) 30%
(c) 70%
(d) 28%

Q66. PQ is a chord of a circle. The tangent XR at point X on the circle intersects the extension of PQ at point R. Given that XR = 12 cm, PQ = x cm, and QR = (x - 2) cm, find the value of x.

(a) 11 cm
(b) 9 cm
(c) 8 cm

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(d) 10 cm

Q67. If sin(X - Y) = sin X cos Y - cos X sin Y, then the value of (sin (A-B))/(cos A cos B)+(sin (B-C))/(cos B cos C) is:

(a) (cos (A+C))/(sin A sin C)
(b) (sin (C-A))/(cos A cos C)
(c) (cos (A+C))/(cos A cos C)
(d) (sin (A-C))/(cos A cos C)

Q68. Shobhita can complete a painting work in 20 hours while Saroj can complete the same work in 15 hours. In how much time (in hours) can the entire work of painting be completed, if both Shobhita and Saroj work simultaneously?

(a) 8
(b) 8 4/7
(c) 7
(d) 7 4/7

Q69. In an election between two candidates, one candidate gets 72% of the total votes cast. If the total votes are 1000, by how many votes does the winner win the election?

(a) 440
(b) 360
(c) 720
(d) 250

Q70. A solid copper sphere of radius 9 cm is drawn into a wire of radius 4 mm. Find the length of the wire.

(a) 60.75 m
(b) 70.25 m
(c) 20.75 m
(d) 65.25 m

Q71. The given table shows the number of pizzas sold by four different bakeries in 5 different months.

Bakery/Month	October	November	December	January	February
X	102	120	105	130	140
Y	98	104	115	120	136
Z	89	106	112	118	126
W	96	105	97	110	122

What is the respective ratio of the total number of pizzas sold by bakeries
Y and Z together in November to the total number of pizzas sold by bakeries X and W together in the same month?

(a) 42 : 49
(b) 42 : 45
(c) 32 : 45
(d) 34 : 37

Q72. Simplify

(1/2 ÷ 3/4 of 5/6)/(1/2 ÷ 3/4 × 5/6)+(2+2 × 2)/(2 ÷ 2 × 2)

(a) 4
(b) 121/25
(c) 111/25
(d) 75/36

Q73. The radii of two concentric circles are 35 cm and 21 cm. If the chord of the greater circle is a tangent to the smaller circle, then the length of that chord is:

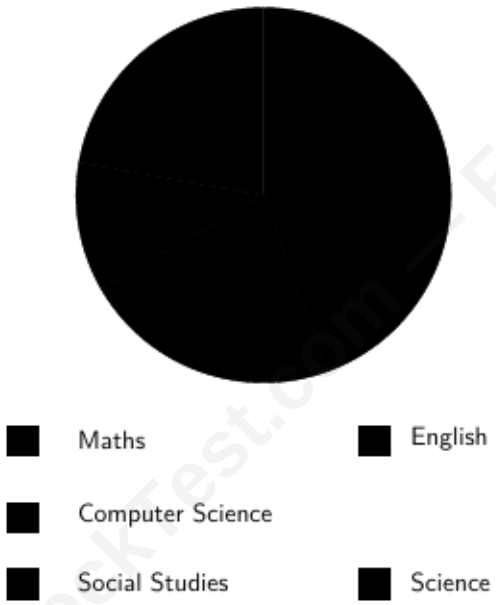
(a) 56 cm
(b) 28 cm

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(c) 70 cm
(d) 42 cm

Q74. Study the given pie chart and answer the question that follows.

The pie chart shows the marks obtained by a student in an examination. The total marks he scored is 450.



The difference between the marks obtained in (English + Maths) and (Computer Science + Science) is:

(a) 0
(b) 10
(c) 30
(d) 20

Q75. The sum of two−digit number and the number obtained by interchanging the digit is 77. If the difference of digits is 1, then the number is:

(a) 45
(b) 34
(c) 12
(d) 67

GENERAL AWARENESS

Q76. In 2026, which country will host Asian Games?

(a) Nepal
(b) China
(c) India
(d) Japan

Q77. Who is Chairman of the Union Public Service Commission as on 31 March 2024?

(a) Shri Manoj Soni
(b) Ms. Smita Nagaraj
(c) Shri BN Jha
(d) Mrs. Preeti Sudan

Q78. Who is the author of the Indian national anthem?

(a) Ishwar Chandra Vidyasagar
(b) Rabindranath Tagore
(c) Kazi Nazrul Islam
(d) Bankim Chandra Chattopadhyay

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Q79. Which of the following is a public sector owned and operated entity?

(a) Bajaj Auto Ltd
(b) BHEL
(c) Oil India Ltd.
(d) Tata Steel Ltd

Q80. The process of merging data from a data source into a main document in a word - processing application is called:

(a) data accumulation
(b) data integration
(c) mail merge
(d) data concatenation

Q81. Which MS Excel function can be used to sum up the numbers entered in a group of cells?

(a) SUM
(b) AVERAGE
(c) MAX
(d) COUNT

Q82. Who among the following was the first Sultan of Delhi to style himself as ‘Zil-i-Ilahi’?.

(a) Qutbuddin Aibak
(b) Feroz Shah
(c) Iltutmish
(d) Balban

Q83. In 1960, which isotope was used to define the standard measure of length?

(a) Krypton-83
(b) Krypton-88
(c) Krypton-90
(d) Krypton-86

Q84. Ohira folk music is primarily associated with one of the popular festivals of which of the following states?

(a) Kerala
(b) Assam
(c) Jharkhand
(d) Karnataka

Q85. Who is the Union Minister of Civil Aviation in Government of India? (As of March, 2024).

(a) Raj Kumar Singh
(b) Jyotiraditya M. Scindia
(c) Kiren Rijiju
(d) G Kishan Reddy

Q86. Marathi language is in the _____ language family.

(a) Sino-India
(b) Austro
(c) Indo Aryan
(d) Austric

Q87. The music of traditional _____ consists of thumri and other lyrical song forms.

(a) Kathak
(b) Kuchipudi
(c) Sattriya
(d) Kathakali

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Q88. Which of the Mendel's laws states that a diploid organism passes a randomly selected allele for a trait to its offspring, such that the offspring inherit one allele from each parent?

(a) Law of independent assortment
(b) Law of paired factor
(c) Law of dominance
(d) Law of segregation

Q89. According to Census of India 2011, which district in India has the lowest literacy rate in India?

(a) Rampur
(b) Madhubani
(c) Alirajpur
(d) Aizwal

Q90. Which directive principle has been implemented in establishing Handloom and Handicrafts Boards?

(a) Promote cottage industries on cooperative basis
(b) Participation of workers in management of Industries
(c) Provision for just and humane condition of work
(d) Protection and improvement of environment

Q91. Gandhi Jayanti marks the birthday of the father of the nation Mahatma Gandhi, who was born at _____.

(a) Vadodara
(b) Gandhinagar
(c) Ahmedabad
(d) Porbandar

Q92. Which of the following planets' atmosphere is made up of thick white and yellowish clouds of sulphuric acid?

(a) Jupiter
(b) Neptune
(c) Venus
(d) Mars

Q93. Which is the Standard Meridian of India?

(a) 83°30? E
(b) 82°30? E
(c) 81°30? E
(d) 84°40? E

Q94. Who was the first Indian wrestler to win Gold at the World Championships in 2010?

(a) Bajrang Punia
(b) Alka Tomar
(c) Geeta Phogat
(d) Sushil Kumar

Q95. The Tokyo Paralympics 2020 gold medal winner Krishna Nagar is associated with _____.

(a) table tennis
(b) badminton
(c) wrestling
(d) shooting

Q96. Which of the following is NOT a feature of a monopoly?

(a) One buyer and many sellers
(b) No close substitutes
(c) One seller and many buyers
(d) Full control over the price by the seller

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Q97. There is a cable manufacturing facility at HCL in Rupnarainpur. It is belong to which state?

(a) West Bengal
(b) Haryana
(c) Andhra Pradesh
(d) Assam

Q98. The Constitution of India was adopted on _____.

(a) 26 November 1949
(b) 26 January 1949
(c) 26 January 1950
(d) 24 November 1947

Q99. Due to the efforts of whom among the following social reformers was the first Hindu Widow Remarriage Act introduced and passed in 1856?

(a) Atmaram Pandurang
(b) Ishwar Chandra Vidyasagar
(c) Raja Ram Mohan Roy
(d) Radhakant Deb

Q100. Give Plastic and Take Gold scheme was launched in the village of which State/UT in year 2023?

(a) Lakshadweep
(b) Gujarat
(c) Assam
(d) Jammu and Kashmir

ANSWER KEY

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

SOLUTIONS

Q1. Answer: (b) We has travelled

The correct answer is Option 2.

Key Points

• The primary issue in the sentence is the incorrect usage of the verb "has" instead of "have" in "We has travelled."
• The subject "We" requires the verb "have" to be grammatically correct.
• The correct phrase should be "We have travelled," ensuring grammatical correctness and clarity.
• Thus, the error is located in Option 2 of the sentence.
• Therefore, the correct answer is Option 2.

Correct Sentence: "We have travelled to many states of India to get an essence of its diversity."

Additional Information

• 1: "an essence of its diversity" – This part of the sentence is grammatically correct and does not require any changes.

• 3: "to many states" – This part of the sentence is grammatically correct and does not require any changes.
• 4: "of India to get" – This part of the sentence is grammatically correct and does not require any changes.

Q2. Answer: (b) All tickets of the FIFA World Cup have been sold out.

The correct answer is Option 2.

Key Points

• The primary issue in the sentence is the use of the phrase "sold away" which is incorrect in this context.
• The correct phrase should be "sold out" which means that all tickets have been purchased.
• The phrase "sold away" is not commonly used in English and does not convey the intended meaning.
• Thus, the error is corrected by replacing "sold away" with "sold out".
• Therefore, the correct answer is Option 2.

Correct Sentence: "All tickets of the FIFA World Cup have been sold out."

Additional Information

• Option 1: "sold among" – This phrase is incorrect and does not fit the context of the sentence.
• Option 3: "sold into" – This phrase is incorrect and does not fit the context of the sentence.
• Option 4: "sold across" – This phrase is incorrect and does not fit the context of the sentence.

Q3. Answer: (b) was celebrating

The correct answer is Option 2.

Key Points

• The sentence requires the past continuous tense to indicate an action that was ongoing at the time another action occurred.
• The past continuous tense is formed using "was/were" + the present participle (verb + -ing).
• In this case, "was celebrating" correctly indicates that the celebration was in progress when the trophy was dropped.
• Therefore, the correct answer is Option 2.

Correct Sentence: "The captain dropped the trophy while he was celebrating the victory with his teammates."

Additional Information

• Option 1: "celebrated" – This is the simple past tense, which does not convey the ongoing nature of the action.
• Option 3: "is celebrating" – This is the present continuous tense, which is not appropriate for past events.
• Option 4: "celebrates" – This is the simple present tense, which is not appropriate for past events.

Q4. Answer: (d) on the section

The correct answer is Option 4.

Key Points

• The primary issue in the sentence is the incorrect use of the preposition "on" before the term "section."
• The correct preposition should be "on the basis of" to convey the intended meaning accurately.
• The correct phrase should be "on the basis of ‘gallantry of spirits’," ensuring grammatical correctness and clarity.
• Thus, the error is located in part 4 of the sentence.
• Therefore, the correct answer is Option 4.

Correct Sentence: "The soldiers were selected on the basis of ‘gallantry of spirits’."

Additional Information

• 1: "The soldiers" – This part of the sentence is grammatically correct and does not require any changes.
• 2: "were selected" – This part of the sentence is grammatically correct and does not require any changes.
• 3: "of ‘gallantry of spirits’." – This part of the sentence is grammatically correct and does not require any changes.

Q5. Answer: (d) widely

The solution is in Hindi. Read it online.

Q6. Answer: (b) form

The solution is in Hindi. Read it online.

Q7. Answer: (c) wealth

The solution is in Hindi. Read it online.

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Q8. Answer: (c) abundance

The correct answer is Option 3.

Key Points

• The word "abundance" means a very large quantity of something.

• In the context of the passage, "abundance of light elements" fits appropriately as it aligns with the scientific terminology used.

• The other options: "plenty," "fortune," and "success" do not fit the context as precisely.

Therefore, the correct answer is 'Option 3'.

Complete Sentence: The Big Bang theory is supported by a abundance of observational evidence, including the cosmic microwave background radiation, the abundance of light elements in the universe and the large-scale structure of the cosmos.

Additional Information

• Plenty: means many or enough of something.

• Fortune: means chance or luck as an arbitrary force affecting human affairs.

• Success: means the accomplishment of an aim or purpose.

Q9. Answer: (c) nature

The solution is in Hindi. Read it online.

Q10. Answer: (b) With all goods

The solution is in Hindi. Read it online.

Q11. Answer: (b) affecting their capacity

The correct answer is Option 2.

Key Points

• The primary issue in the sentence is the incorrect form of the verb "affected."

• The correct form should be "affecting" to properly convey the ongoing impact on their capacity to innovate.

• The revised phrase should be "affecting their capacity," ensuring grammatical correctness and clarity.

Therefore, the correct answer is Option 2.

Correct Sentence: "Employers in many developing countries report that a lack of skilled workers is a major and increasing bottleneck for their operations, affecting their capacity to innovate."

Additional Information

• Option 1: "effect their capacity" – This option is incorrect as "effect" is a noun, not a verb. The sentence requires a verb.

• Option 3: "effecting their capacity" – This option is incorrect because "effect" as a verb means to bring about or cause, which does not fit the context.

• Option 4: "affect their capacity" – This option is incorrect because it does not fit the sentence structure that requires a present participle form.

Q12. Answer: (a) committed

The correct answer is Option 1.

Key Points

• The word "assiduously" means showing great care and perseverance.

• The word "committed" is a suitable synonym for "assiduously" in this context, as it conveys dedication and hard work.

• The other options do not convey the same level of dedication and effort required to aid pupils in achieving success.

• Therefore, the correct answer is Option 1.

Correct Sentence: The dedicated teacher laboured committedly to aid her pupils in achieving success.

Additional Information

• Option 2: "un-biased" - This word means impartial, which does not fit the context of showing dedication.

• Option 3: "uninvolved" - This word means not taking part, which is the opposite of showing dedication.

• Option 4: "apathetic" - This word means showing no interest or enthusiasm, which is contrary to the meaning of "assiduously".

Q13. Answer: (a) route

The correct answer is Option 1.

Key Points

• The term "route" is used to describe the way or path taken to reach a destination.

• Options like "rude," "rout," and "root" are incorrect in this context.

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• "Rude" refers to impoliteness, "rout" refers to a disorderly retreat or defeat, and "root" refers to the part of a plant that is usually hidden underground.

• Thus, the correct choice is "route" as it appropriately fits the context of the sentence.

Therefore, the correct answer is Option 1.

Correct Sentence: "Which route do you usually take to reach your office?"

Additional Information

• Route: A way or course taken in getting from a starting point to a destination.

• Rude: Offensively impolite or ill-mannered.

• Rout: A disorderly retreat of defeated troops.

• Root: The part of a plant that attaches it to the ground or to a support, typically underground, conveying water and nourishment to the rest of the plant.

Q14. Answer: (b) Inferior

The solution is in Hindi. Read it online.

Q15. Answer: (c) One problem causes other

The solution is in Hindi. Read it online.

Q16. Answer: (c) Lengthy

The solution is in Hindi. Read it online.

Q17. Answer: (a) loud and confused noise

The solution is in Hindi. Read it online.

Q18. Answer: (a) who is wearing a blue shirt

The correct answer is Option 1.

Key Points

• The primary issue in the sentence is the use of the word "which" instead of "who."

• When referring to people, "who" is the correct relative pronoun.

• The correct phrase should be "who is wearing a blue shirt," ensuring grammatical correctness and clarity.

Therefore, the correct answer is Option 1.

Correct Sentence: "The girl who is wearing a blue shirt is my sister."

Additional Information

• Option 2: "which wear a blue shirt" – This option is incorrect because "which" should not be used for people, and the verb form "wear" is incorrect.

• Option 3: "who wear a blue shirt" – This option is incorrect because the verb form "wear" does not agree with the singular subject "girl."

• Option 4: "which is wearing the blue shirt" – This option is incorrect because "which" should not be used for people.

Q19. Answer: (c) with incadescent lights

The solution is in Hindi. Read it online.

Q20. Answer: (a) Ambiguous

The solution is in Hindi. Read it online.

Q21. Answer: (b) full

The solution is in Hindi. Read it online.

Q22. Answer: (b) Boring

The solution is in Hindi. Read it online.

Q23. Answer: (c) sauce

The solution is in Hindi. Read it online.

Q24. Answer: (c) Approve

The solution is in Hindi. Read it online.

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Q25. Answer: (d) Innoculate

The solution is in Hindi. Read it online.

Q26. Answer: (d) GIKM

The logic followed here is:
RTVX is related to SUWY
And,
KMOQ is related to LNPR
Similarly,
FHJL is related to
Hence, "Option 4" is the correct answer.

Q27. Answer: (b) XLHK

The logic followed here is:
TMBF is related to ATIM
And,
CLGP is related to JSNW
Similarly,
QEAD is related to
Hence, "Option 2" is the correct answer.

Q28. Answer: (b) [figure]

According to the given figure:
The figure will appear when it is opened as follows:
Hence, "Option 2" is the correct answer.

Q29. Answer: (a) (14, 196, 7)

The logic followed here is: (1st number × 3rd number × 2) = 2nd number
(13, 234, 9)
13 × 9 × 2 = 234
234 = 234 (LHS = RHS)
And,
(15, 180, 6)
15 × 6 × 2 = 180
180 = 180 (LHS = RHS)
So, checking each option one by one
Option 1) (14, 196, 7)
14 × 7 × 2 = 196
196 = 196 (LHS = RHS)
Option 2) (12, 108, 9)
12 × 9 × 2 = 108
216 ≠ 108 (LHS ≠ RHS)
Option 3) (16, 240, 5)
16 × 5 × 2 = 240
160 ≠ 240 (LHS ≠ RHS)
Option 4) (17, 340, 5)
17 × 5 × 2 = 340
170 ≠ 340 (LHS ≠ RHS)
Thus, out of all the options '(14, 196, 7)' follows the same logic as given.
Hence, "Option 1" is the correct answer.

Q30. Answer: (a) P is the daughter of T's Mother's Brother.

Decoding the Symbols:

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Symbol	•	−	×	÷
Meaning	Daughter	Wife	Brother	Father

Given: P + Q × R - S ÷ T

P + Q → P is the daughter of Q.

Q × R → Q is the brother of R.

R - S → R is the wife of S.

S ÷ T → S is the father of T.

Thus, according to the final family tree:

Option 1) P is the daughter of T's Mother's Brother → Correct

Option 2) T is S's Son → Incorrect as T can be either the son or daughter of S, therefore cannot be determined.

Option 3) Q is the brother of S → Incorrect as Q is the brother-in-law of S.

Option 4) P is the sister of T → Incorrect as P is the cousin of T.

Hence, "Option 1" is the correct answer.

Q31. Answer: (b) [figure]

The correct mirror image of the given combination when mirror is placed at MN is as shown below:

Detailed Explanation:

The line MN is the mirror

Option 1) The word "Wph4y" the second letter is "p". So, the mirror image should be

=> Option 1 is eliminated.

Option 2) The word "Wph4y", so, the mirror image should be

=> Correct

Option 3) The word "Wph4y" the third letter is "h". So, the mirror image should be

=> Option 3 is eliminated.

Option 4) The word "Wph4y" the fifth letter is "Y". So, the mirror image should be "

=> Option 4 is eliminated.

Hence, the correct answer is "Option 2".

Q32. Answer: (a) 78

The logic followed here is:

Hence, "Option 1" is the correct answer.

Q33. Answer: (a) One

Given word: DIALECT

According to the question, all the letters in the word are arranged in alphabetical order:

Word given	D	I	A	L	E	C	T
Word after arrangement	A	C	D	E	I	L	T

Thus, according to the final arrangement only position of 'T' remains unchanged.

Hence, "Option 1" is the correct answer.

Q34. Answer: (b) [figure]

The correct mirror image of the given combination when mirror is placed at MN is as shown below:

Detailed Explanation:

The line MN is the mirror

Option 1) The word "Pam@43k" the first letter is "P". So, the mirror image should be

=> Option 1 is eliminated.

Option 2) The word "Pam@43k", so, the mirror image should be

=> Correct

Option 3) The word "Pam@43k" the fifth letter is "4". So, the mirror image should be

=> Option 3 is eliminated.

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Option 4) The word "Pam@43k" the second letter is "a". So, the mirror image should be

=> Option 4 is eliminated.

Hence, the correct answer is "Option 2".

Q35. Answer: (a) 14

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

Here, as marked there are a total of 14 triangles.

Hence, "14" is the correct answer.

Q36. Answer: (d) [figure]

The logic followed here is:

1) For the first box series: Corner elements including the center element shift in the clockwise direction and rest of the elements interchange positions.

2) For the second box series:

The top elements shift in the anticlockwise direction.

The bottom center element is replaced by new elements and the rest of elements shift in the anticlockwise direction.

Thus, the final series is :

Hence, "Option 4" is the correct answer.

Q37. Answer: (d) bj

According to the given information,

Thus, according to the given codes 'bj' is the code for the word 'meet'.

Hence, the correct answer is "bj".

Q38. Answer: (c) PAN

The logic followed here is:

Hence, "Option 2" is the correct answer.

Q39. Answer: (d) 16

Given : 15 + 2 - 13 × 13 ÷ 3 = ?

After '+' and '-' are interchanged and '×' and '÷' are interchanged then,

15 + 2 - 13 × 13 ÷ 3 = ? => 15 - 2 + 13 ÷ 13 × 3 = ?

=> 15 - 2 + 13 ÷ 13 × 3 = ?

=> 15 - 2 + 1 × 3 = ?

=> 15 + 3 - 2 = ?

=> 18 - 2 = ?

=> 16 = ?

Hence, "Option 4" is the correct answer.

Q40. Answer: (d) Thursday

Given: 19 July 2012 is Thursday

The number of odd days from 19 July 2012 to 11 January 2018 :

Year	Period	Calculation	Odd days
2012	19 July 2012 - 31 December 2012	12 July + 31 August + 30 September + 31 October + 30 November + 31 December = 165 days	165 ÷ 7 = 4
2013 - 2017	Full years (4 Ordinary years + 1 Leap years)	(1 odd day × 4 Ordinary years) + (2 odd days × 1 Leap years) = 6 odd days	6
2011	1st January 2011 - 11 January 2018	11 January = 11 days	11 ÷ 7 = 4
Total odd days	(14 ÷ 7) = 0		

Therefore The number of odd days from 19 July 2012 to 11 January 2018 => 0

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=>So, Zero odd days will be added to Thursday because the day is asked in future.

Therefore Thursday was the day of the week on 11 January 2018.

Hence, "Option 4" is the correct answer.

Q41. Answer: (d) Neither conclusion (I) nor (II) follows.

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

Conclusions:

I. Some ink is butter → Does not follow (As some nibs are ink and some nibs are butter. So, it is possible but not definitely true.)

II. All jams are nibs → Does not follow (As all jams are butter and some nibs are butter. So, it is possible but not definitely true.)

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

Hence, the correct answer is "Option 4"

Q42. Answer: (a) 7

The faces opposite to each other are shown below:

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

So, opposite pairs are:

6 → 5

8 → 7

9 → 10

Therefore, '7' is the opposite of '8'.

Hence, "7" is the correct answer.

Q43. Answer: (a) OGSHN

Given series: GH_ST_HO_RGHOSPG_OS_

The logic followed here is:

Hence, "Option 1" is the correct answer.

Q44. Answer: (c) 18

Decoding letters:

Letters	A	B	C	D
Stands for	÷	×	•	•

Given: 17 C 69 A 3 D 22 B 1 = ?

After interchanging the letters,

17 C 69 A 3 D 22 B 1 = ? => 17 + 69 ÷ 3 - 22 × 1 = ?

=> 17 + 69 ÷ 3 - 22 × 1 = ?

=> 17 + 23 - 22 × 1 = ?

=> 17 + 23 - 22 = ?

=> 40 - 22 = ?

=> 18 = ?

Hence, "Option 2" is the correct answer.

Q45. Answer: (b) 1163

Given : 21 – 7 × 26 + 46 ÷ 36 = ?

After '+' and '×' are interchanged and '–' and '÷' are interchanged then,

21 – 7 × 26 + 46 ÷ 36 = ? => 21 ÷ 7 + 26 × 46 - 36 = ?

=> 21 ÷ 7 + 26 × 46 - 36 = ?

=> 3 + 26 × 46 - 36 = ?

=> 3 + 1196 - 36 = ?

=> 1199 - 36 = ?

=> 1163 = ?

Hence, "Option 2" is the correct answer.

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Q46. Answer: (c) 6

The logic followed here is:

'SOAP' is coded as '4629'

Letter	S / O / P	A
Code	4 / 2 / 9	6

And,

'SPOT' is coded as '9824'

Letter	S / O / P	T
Code	4 / 2 / 9	8

As, S, O, and P are common, therefore A is coded as:

A → 6

Hence, "Option 3" is the correct answer.

Q47. Answer: (a) 174

The logic followed here is: (1st number × 6) = 2nd number

12 is related to 72

12 × 6 = 72

72 = 72 (LHS = RHS)

And,

19 is related to 114

19 × 6 = 114

114 = 114 (LHS = RHS)

Similarly,

29 is related to

29 × 6 = ?

174 = ?

Hence, "Option 1" is the correct answer.

Q48. Answer: (b) [figure]

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

Therefore Here, Option Figure 2 is embedded in the given figure.

Hence, the correct answer is "Option 2".

Q49. Answer: (b) 176

The logic followed here is:

Hence, "Option 2" is the correct answer.

Q50. Answer: (c) RTQ

The logic followed here is:

Option 1) PNK

Option 2) OMJ

Option 3) RTQ

Option 4) BZW

Thus, out of all the options 'RTQ' is the odd one out.

Hence, "Option 3" is the correct answer.

Q51. Answer: (a) 3

Here’s the solution using the format you requested:

Given:

Exports from three companies A, B, and C over the years (in Rs. crore).

Formula used:

Average export of company C = Sum of exports of company C / Number of years
Calculation:
Sum of exports of company C = 140 + 158 + 160 + 166 + 178 = 802
Number of years = 5
Average export of company C = 802 / 5 = 160.4 crore
Exports of company C in given years:
1995: 140 crore
1996: 158 crore
1997: 160 crore
1998: 166 crore
1999: 178 crore
Years where exports were less than average: 1995, 1996, 1997
=> Number of years = 3
Therefore The correct answer is 3 years.

Q52. Answer: (a) 4.28%

Given:
A shopkeeper marks up his goods 32% above the cost price and gives a discount of 21% on the marked price.
Formula used:
Gain% = (Selling Price - Cost Price)/(Cost Price) × 100
Calculations:
Let Cost Price (CP) = Rs. 100
Marked Price (MP) = Rs. 100 + 32% of Rs. 100
=> MP = Rs. 100 + Rs. 32
=> MP = Rs. 132
Discount = 21% of Rs. 132
=> Discount = Rs. 132 × 21/100
=> Discount = Rs. 27.72
Selling Price (SP) = Rs. 132 - Rs. 27.72
=> SP = Rs. 104.28
Gain% = (Rs. 104.28 - Rs. 100)/(Rs. 100) × 100
=> Gain% = (Rs. 4.28)/(Rs. 100) × 100
=> Gain% = 4.28%
Therefore The correct answer is option (1).

Q53. Answer: (c) 1.12 m

Given:
ΔABC and ΔDEF are similar
Area of ΔABC = 0.64 m^2
Area of ΔDEF = 0.0121 m^2
EF = 0.154 m
Formula used:
If two triangles are similar, then the ratio of their areas is equal to the square of the ratio of their corresponding sides.
Calculations:
(Area of ΔABC)/(Area of ΔDEF) = $(BC/EF)^2$
=> $0.64/0.0121 = (BC/0.154)^2$
=> $64/1.21 = (BC/0.154)^2$
=> $(64 \times 100)/121 = (BC/0.154)^2$
=> $6400/121 = (BC/0.154)^2$
=> $6400/121 = (BC/0.154)^2$
=> $6400/121 = (BC/0.154)^2$
=> $BC/0.154 = \sqrt{(6400/121)}$

=> BC/0.154 = 80/11
=> BC/0.154 = 7.2727
=> BC = 0.154 × 7.2727
=> BC = 1.12 m
Therefore The correct answer is option (3).

Q54. Answer: (b) 8

Given:
A chord of length 12 units in a circle of radius 10 units
Formula used:
Using the perpendicular distance from the center to the chord formula:
$d = \sqrt{(r^2 - (l/2)^2)}$
Where, r = radius of the circle, l = length of the chord, d = distance from the center to the chord
Calculation:
Given: r = 10, l = 12
=> $d = \sqrt{(10^2 - (12/2)^2)}$
=> $d = \sqrt{(100 - 6^2)}$
=> $d = \sqrt{(100 - 36)}$
=> $d = \sqrt{64}$
=> d = 8
Therefore The correct answer is option 2.

Q55. Answer: (c) 33 cm

Given:
The base of the triangle is two-thirds of its height.
Area = 363 cm^2
Formula used:
Area of a triangle = 1/2 × base × height
Let height = h cm
Then, base = 2/3 × h cm
Calculation:
Area = 1/2 × base × height
=> 363 = 1/2 × (2/3 × h) × h
=> 363 = 1/2 × (2/3) × h^2
=> 363 = 1/3 × h^2
=> h^2 = 363 × 3
=> h^2 = 1089
=> h = √1089
=> h = 33 cm
Therefore The correct answer is option (3).

Q56. Answer: (c) 60%

Shortcut Trick
Let initial Income = 100, Spending = 80, Savings = 20.
Income ↑ 20% → 120.
Spending ↑ 10% → 80 + 8 = 88.
New Savings = 120 − 88 = 32.
Savings % increase = ((32 − 20) ÷ 20) × 100 = 60%.
60% in decimal = 0.6.
Therefore The correct option is C.
Alternate Method
Given:
Spending = 80% of Income

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Income increase = 20%

Spending increase = 10%

Formula Used:

Income = Expenditure + Savings

Percentage change = (New Value − Old Value) ÷ Old Value × 100

Initial State (Income = 100)

Spend: 80

Save: 20

New State (Income = 120)

Spend: 88 (+10%)

Save: 32

Savings Increase: 20 → 32 (60%)

Calculations:

=> Let original Income = 100 units

=> Original Expenditure = 80% of 100 = 80 units

=> Original Savings = 100 − 80 = 20 units

=> New Income = 100 × (1 + 20/100) = 120 units

=> New Expenditure = 80 × (1 + 10/100) = 80 + 8 = 88 units

=> New Savings = 120 − 88 = 32 units

=> Increase in Savings = 32 − 20 = 12 units

=> Percentage Increase = (12 ÷ 20) × 100 = 60%

=> Value in decimal = 60 ÷ 100 = 0.6

Therefore The correct option is C.

Additional Information

Income-Expenditure Alligation

This problem can also be solved using alligation between expenditure and savings where the mean value is the percentage increase in income.

Percentage Change Relation

Net Income Change % = (Exp % × Exp Change %) + (Sav % × Sav Change %). In this case: 20 = (0.8 × 10) + (0.2 × x), solving for x gives 60%.

Rule of Base

When calculating percentage increase, always use the original value as the denominator (e.g., original savings of 20).

Q57. Answer: (c) 1

Shortcut Trick

Sum of the existing digits in 7_7624 = 7 + 7 + 6 + 2 + 4 = 26.

The next multiple of 3 after 26 is 27.

Smallest digit required = 27 − 26 = 1.

Therefore The correct answer is 1.

Alternate Method

Given: The number is 7_7624. Let the missing digit be x.

Divisibility Rule of 3: A number is divisible by 3 if the sum of its digits is divisible by 3.

=> Sum of digits = 7 + x + 7 + 6 + 2 + 4

=> Sum = 26 + x

For the number to be divisible by 3, (26 + x) must be 27, 30, 33, etc.

=> Case 1: 26 + x = 27 → x = 1

=> Case 2: 26 + x = 30 → x = 4

=> Case 3: 26 + x = 33 → x = 7

The possible digits are {1, 4, 7}. Among these, the smallest digit is 1.

Therefore The correct answer is 1.

Additional Information

Divisibility Rule of 3

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A number is divisible by 3 if and only if the sum of its digits is a multiple of 3.

Divisibility Rule of 9

Similar to 3, a number is divisible by 9 if the sum of its digits is divisible by 9.

Smallest vs Largest Digit

When finding the smallest digit, test values starting from 0. For the largest digit, test values downwards from 9.

Q58. Answer: (d) 3696 cm2

Given:

Diameter of the base (d) = 28 cm

Radius (r) = d/2 = 28/2 = 14 cm

Height (h) = 42 cm

Formula used:

Curved Surface Area (CSA) of a cylinder = 2πrh

Calculations:

CSA = 2 × π × 14 × 42

=> CSA = 2 × 22/7 × 14 × 42

=> CSA = 2 × 22 × 2 × 42

=> CSA = 3696 cm^2

Therefore The correct answer is option (4).

Q59. Answer: (b) 59 years

Given:

The average age of 24 workers and their supervisor is 41 years. If the supervisor's age is excluded, the average reduces by 0.75 years.

Formula used:

Average = Total Sum / Number of Individuals

Calculation:

Let the supervisor's age be S years.

Total Sum of Ages including the supervisor = 41 × 25

=> 41 × 25 = 1025

Total Sum of Ages excluding the supervisor = 40.25 × 24

=> 40.25 × 24 = 966

Supervisor's age, S = Total Sum including the supervisor - Total Sum excluding the supervisor

=> S = 1025 - 966

=> S = 59 years

Therefore The correct answer is option (2).

Q60. Answer: (c) 37.33%

Given:

Ramendra purchased watermelons for Rs. 1,500

He sold one-fourth of them at a loss of 12%

He wants to gain 25% on the whole transaction

Formula used:

Total Cost Price (CP) = Rs. 1,500

CP of 1/4 watermelons = 1500/4 = Rs. 375

Loss on 1/4 watermelons = 12%

CP of remaining 3/4 watermelons = 1500 - 375 = Rs. 1125

Overall Gain = 25%

Total Selling Price (SP) = CP × (1 + Overall Gain%)

Calculations:

SP of 1/4 watermelons = CP - Loss

=> SP of 1/4 watermelons = 375 - (12/100 × 375)

=> SP of 1/4 watermelons = 375 - 45

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=> SP of 1/4 watermelons = Rs. 330
Total SP for 25% overall gain = 1500 × (1 + 25/100)
=> Total SP = 1500 × 1.25
=> Total SP = Rs. 1875
SP of remaining 3/4 watermelons = Total SP - SP of 1/4 watermelons
=> SP of remaining 3/4 watermelons = 1875 - 330
=> SP of remaining 3/4 watermelons = Rs. 1545
Gain on remaining 3/4 watermelons = SP - CP
=> Gain = 1545 - 1125
=> Gain = Rs. 420
Gain Percentage on remaining 3/4 watermelons = (Gain/CP) × 100
=> Gain Percentage = (420/1125) × 100
=> Gain Percentage = 37.33%
Therefore The correct answer is option 3.

Q61. Answer: (d) increase by 1%

Given:
A number is first increased by 44% and then decreased by 30%.
Formula used:
Net Percentage Change = (1 + a/100) × (1 - b/100) - 1 × 100
Where, a = 44 and b = 30
Calculation:
Net Percentage Change = (1 + 44/100) × (1 - 30/100) - 1 × 100
=> Net Percentage Change = (1 + 0.44) × (1 - 0.30) - 1 × 100
=> Net Percentage Change = (1.44) × (0.70) - 1 × 100
=> Net Percentage Change = (1.008 - 1) × 100
=> Net Percentage Change = 0.008 × 100
=> Net Percentage Change = 0.8%
Rounding off to the nearest integer, Net Percentage Change ≈ 1%
Therefore The correct answer is option (4).

Q62. Answer: (b) 20 : 15 : 12

Shortcut Trick
To find the inverse ratio M : N : O from 1/M : 1/N : 1/O = 3 : 4 : 5, use the hide-and-multiply method.
For M, hide 3 and multiply others: 4 × 5 = 20
For N, hide 4 and multiply others: 3 × 5 = 15
For O, hide 5 and multiply others: 3 × 4 = 12
Therefore The correct answer is 20 : 15 : 12.
Alternate Method
Given:
1/M : 1/N : 1/O = 3 : 4 : 5
Formula Used:
If 1/x : 1/y : 1/z = a : b : c, then x : y : z = 1/a : 1/b : 1/c.
Calculations:
=> M : N : O = 1/3 : 1/4 : 1/5
=> To convert the fractional ratio to integers, multiply by the LCM of 3, 4, and 5.
=> LCM(3, 4, 5) = 60
=> M = (1/3) × 60 = 20
=> N = (1/4) × 60 = 15
=> O = (1/5) × 60 = 12
=> M : N : O = 20 : 15 : 12
Therefore The correct answer is 20 : 15 : 12.

Additional Information

Inverse Ratio

The inverse ratio of a : b is 1/a : 1/b, which simplifies to b : a. For three terms a : b : c, it is 1/a : 1/b : 1/c.

Compound Ratio

The compound ratio of a : b and c : d is calculated by multiplying the corresponding terms, resulting in ac : bd.

Duplicate Ratio

The duplicate ratio of a : b is obtained by squaring both terms of the ratio, expressed as $a^2 : b^2$.

Ratio Property

Multiplying or dividing all terms of a ratio by the same non-zero constant does not change the value of the ratio.

Q63. Answer: (d) Rs. 2,000

Given:

An equal sum of money was lent to P and Q at 8.6% per annum for a period of 7 years and 8 years, respectively.

Difference in interest paid by them = Rs. 172

Formula used:

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

Calculation:

Interest paid by P: SI_P = (P × 8.6 × 7)/100

Interest paid by Q: SI_Q = (P × 8.6 × 8)/100

Given, SI_Q - SI_P = 172

=> (P × 8.6 × 8)/100 - (P × 8.6 × 7)/100 = 172

=> (P × 8.6 × (8 - 7))/100 = 172

=> (P × 8.6)/100 = 172

=> P × 8.6 = 172 × 100

=> P × 8.6 = 17200

=> P = 17200/8.6

=> P = 2000

Therefore The correct answer is option (4).

Q64. Answer: (c) 90

Given:

D takes 45 minutes to reach the destination at 60 km/h.

Formula used:

Speed = Distance / Time

Calculation:

Distance = Speed × Time

Distance = 60 km/h × (45/60) h

=> Distance = 60 × 0.75

=> Distance = 45 km

To reach in 30 minutes:

Speed = Distance / Time

Time = 30 minutes = 30/60 hours = 0.5 hours

=> Speed = 45 km / 0.5 h

=> Speed = 90 km/h

Therefore The correct answer is option 3.

Q65. Answer: (a) 98%

Given:

The graph shows the higher secondary result of a particular school for the years 2019, 2020, and 2021. The total percentage of students who passed in the year 2020 is required.

Formula used:

Percentage of students who passed = [(Total students passed in First, Second, and Third Divisions) / (Total students)] * 100

Calculation:

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In 2020, from the graph:
First Division: 70
Second Division: 80
Third Division: 95
Failed: 5
Total students = 70 + 80 + 95 + 5 = 250
Students who passed = 70 + 80 + 95 = 245
=> Percentage of students who passed = (245 / 250) × 100 = 98%
Therefore The correct answer is option (1), 98%.

Q66. Answer: (d) 10 cm

Given:
XR = 12 cm (the length of the tangent)
PQ = x cm (the length of the chord)
QR = x - 2 cm (the external part of the secant)
Formula used:
According to the Power of a Point Theorem:
$XR^2 = PR \times QR$
Where PR = PQ + QR = (x + (x - 2)) = 2x - 2
Substitute into the formula:
Calculations:
$12^2 = (2x - 2)(x - 2)$
=> $144 = 2x(x - 2) - 2(x - 2)$
=> $144 = 2x^2 - 4x - 2x + 4$
=> $144 = 2x^2 - 6x + 4$
Move everything to one side:
=> $2x^2 - 6x + 4 - 144 = 0$
=> $2x^2 - 6x - 140 = 0$
Simplify the equation by dividing through by 2:
=> $x^2 - 3x - 70 = 0$
Factoring the quadratic equation:
$(x - 10)(x + 7) = 0$
So, x = 10 or x = -7
Conclusion:
Since x represents the length of PQ, it must be positive, so we discard x = -7.
Therefore x = 10 cm.

Q67. Answer: (d) (sin (A-C))/(cos A cos C)

Given:
If sin(X - Y) = sin X cos Y - cos X sin Y, then the value of (sin (A-B))/(cos A cos B)+(sin (B-C))/(cos B cos C) is:
Formula used:
sin(X - Y) = sin X cos Y - cos X sin Y
Calculation:
We need to find the value of (sin (A-B))/(cos A cos B)+(sin (B-C))/(cos B cos C)
=> (sin (A-B))/(cos A cos B) + (sin (B-C))/(cos B cos C)
Using the identity sin(X - Y) = sin X cos Y - cos X sin Y, we get:
=> (sin A cos B - cos A sin B)/(cos A cos B) + (sin B cos C - cos B sin C)/(cos B cos C)
=> (sin A cos B)/(cos A cos B) - (cos A sin B)/(cos A cos B) + (sin B cos C)/(cos B cos C) - (cos B sin C)/(cos B cos C)
=> (sin A)/(cos A) - (sin B)/(cos B) + (sin B)/(cos B) - (sin C)/(cos C)
=> tan A - tan B + tan B - tan C
=> tan A - tan C
=> (sin (A-C))/(cos A cos C)

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Therefore The correct answer is option 4.

Q68. Answer: (b) 8 4/7

Given:

Shobhita can complete a painting work in 20 hours

Saroj can complete the same work in 15 hours

Formula used:

If A can complete the work in a hours and B can complete the same work in b hours, then working together they can complete the work in ab/(a+b) hours

Calculation:

Shobhita's time (a) = 20 hours

Saroj's time (b) = 15 hours

=> Time taken together = (20 × 15)/(20 + 15)

=> Time taken together = 300/35

=> Time taken together = 84/7 hours

Therefore The correct answer is option 2.

Q69. Answer: (a) 440

Shortcut Trick

Winner gets = 72%

Loser gets = 100% − 72% = 28%

Winning margin = 72% − 28% = 44% of total votes.

Margin in votes = 44% × 1000 = 440

Therefore The correct answer is 440 votes.

Alternate Method

Given:

Total votes cast = 1000

Winner's share = 72% of total votes

Winner: 72%

Loser: 28%

Total Votes = 1000 (100%)

Winning Margin = 44%

Equal to Loser (28%)

44% of 1000 = 440 votes

Calculations:

=> Total percentage of votes = 100%

=> Loser's share = 100% − 72% = 28%

=> Difference in percentage = 72% − 28% = 44%

=> Winning margin = 44% of total votes

=> Winning margin = (44 ÷ 100) × 1000

=> Winning margin = 440

Therefore The correct answer is 440 votes.

Additional Information

Majority Margin in Elections

In a two-candidate election, the majority by which the winner wins is always the difference between the winner's and loser's percentages: Margin = Winner % − Loser %.

Valid vs Invalid Votes

If an election has invalid votes, the percentages are usually calculated on the valid votes alone. Valid Votes = Total Cast Votes − Invalid Votes.

Base of Percentage

It is vital to identify the correct base on which the percentage is calculated. Here, both candidates' shares are direct percentages of the total votes cast.

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Q70. Answer: (a) 60.75 m

Given:

A solid copper sphere of radius 9 cm is drawn into a wire of radius 4 mm.

Formula used:

Volume of Sphere = Volume of Cylinder

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

Volume of Cylinder = $\pi r^2 h$

Calculation:

Volume of Sphere = Volume of Cylinder

=> $(4/3)\pi(9)^3 = \pi(0.4)^2 h$

=> $(4/3)\pi(729) = \pi(0.16)h$

=> $972 = 0.16h$

=> $h = 972/0.16$

=> $h = 6075$ cm

=> $h = 60.75$ m

Therefore The correct answer is option 1.

Q71. Answer: (b) 42 : 45

Given:

The table shows the number of pizzas sold by four different bakeries (X, Y, Z, and W) in five different months. We need to find the ratio of the total number of pizzas sold by bakeries Y and Z together in November to the total number of pizzas sold by bakeries X and W together in the same month.

Formula used:

Ratio = (Total pizzas by Y and Z in November) : (Total pizzas by X and W in November)

Calculation:

Total pizzas sold by Y and Z in November = 104 + 106 = 210

Total pizzas sold by X and W in November = 120 + 105 = 225

=> Ratio = 210 : 225

=> Simplified ratio = 42 : 45

Therefore The correct answer is option (2), 42 : 45.

Q72. Answer: (c) 111/25

Calculation:

(1/2 ÷ 3/4 of 5/6)/(1/2 ÷ 3/4 × 5/6)+(2+2 × 2)/(2 ÷ 2 × 2)

=> (1/2 ÷ 5/8)/(1/2 × 4/3 × 5/6)+(2+4)/(1× 2)

=> (1/2 × 8/5)/(1/2 × 4/3 × 5/6)+6/2

=> (4/5)/(5/9)+6/2

=> 4/5×9/5 + 3

=> 36/25 + 3

=> 111/25

Therefore The correct answer is option (3).

Q73. Answer: (a) 56 cm

Shortcut Trick

For two concentric circles, the length of the chord of the larger circle that is tangent to the smaller circle is given by:

Length of chord = $2 \times \sqrt{(R^2 - r^2)}$

Here, R = 35 cm and r = 21 cm.

=> Length = $2 \times \sqrt{(35^2 - 21^2)}$

=> Length = $2 \times \sqrt{((35 + 21) \times (35 - 21))} = 2 \times \sqrt{(56 \times 14)} = 2 \times \sqrt{(784)} = 2 \times 28 = 56$ cm.

Therefore The correct answer is 56 cm.

Alternate Method

Given: Radius of larger circle (R) = 35 cm, Radius of smaller circle (r) = 21 cm.

Formula Used: Pythagoras Theorem in a right-angled triangle: Hypotenuse² = Base² + Perpendicular².

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Let the two concentric circles have center O. Let AB be the chord of the larger circle that is tangent to the smaller circle at point M.
=> OM perpendicular to AB (Radius is perpendicular to the tangent at the point of contact).
=> In larger circle, OM perpendicular to chord AB, Therefore M bisects AB (Perpendicular from center to chord bisects the chord).
=> AM = MB and AB = 2 × AM.
=> In right-angled triangle OMA, OA = 35 cm and OM = 21 cm.
=> $OA^2 = OM^2 + AM^2$
=> $35^2 = 21^2 + AM^2$
=> $1225 = 441 + AM^2$
=> $AM^2 = 1225 - 441 = 784$
=> $AM = \sqrt{784} = 28$ cm.
=> AB = 2 × 28 = 56 cm.
Therefore The correct answer is 56 cm.
Additional Information
Concentric Circles
Circles that share the same center point but have different radii are called concentric circles.
Tangent-Radius Property
A tangent at any point of a circle is perpendicular to the radius through the point of contact.
Chord Bisection Property
The perpendicular drawn from the center of a circle to a chord bisects the chord into two equal segments.
Pythagorean Triplets
The set (21, 28, 35) is a Pythagorean triplet as they are multiples of (3, 4, 5) scaled by 7.

Q74. Answer: (a) 0

Given:
Total marks scored = 450
Angles:
• Maths = 90°
• English = 70°
• Computer Science = 80°
• Science = 80°
Formula used:
Marks for a subject = (Angle/360) × Total marks
Calculation:
Marks in Maths:
=> (90/360) × 450 = 112.5
Marks in English:
=> (70/360) × 450 = 87.5
Marks in Computer Science:
=> (80/360) × 450 = 100
Marks in Science:
=> (80/360) × 450 = 100
Maths + English:
=> 112.5 + 87.5 = 200
Computer Science + Science:
=> 100 + 100 = 200
Difference between (Maths + English) and (Computer Science + Science):
=> 200 - 200 = 0
Therefore The correct answer is 0 marks.

Q75. Answer: (b) 34

Given:
The sum of a two-digit number and the number obtained by interchanging the digits is 77. The difference of the digits is 1.

Formula used:

Let the two-digit number be 10x + y.

The number obtained by interchanging the digits = 10y + x.

Given that:

(10x + y) + (10y + x) = 77

x - y = 1

Calculation:

=> 11x + 11y = 77

=> x + y = 7

Now, x - y = 1

Solving these two equations:

=> x = 4, y = 3

The number = 10x + y = 10(4) + 3 = 43

Therefore The correct answer is option (2), 34.

Q76. Answer: (d) Japan

The correct answer is Japan

Key Points

• Japan will host the 2026 Asian Games.

• The Asian Games, also known as Asiad, is a continental multi-sport event held every four years among athletes from all over Asia.

• The event is regulated by the Olympic Council of Asia (OCA).

• Japan has previously hosted the Asian Games in 1958 and 1994.

• The 2026 Asian Games will be held in Aichi-Nagoya, Japan.

Additional Information

• The Olympic Council of Asia (OCA) is the governing body of sports in Asia, responsible for organizing the Asian Games.

• The first Asian Games were held in 1951 in New Delhi, India.

• The Asian Games feature a wide range of sports, including both Olympic sports and sports unique to Asia.

• Japan is known for its strong infrastructure and experience in hosting international sporting events.

• The selection of Japan as the host for the 2026 Asian Games was announced in 2016.

Q77. Answer: (a) Shri Manoj Soni

The correct answer is Shri Manoj Soni

Key Points

• Shri Manoj Soni is the Chairman of the Union Public Service Commission (UPSC) as of 31 March 2024.

• The Union Public Service Commission is India's premier central recruiting agency responsible for appointments to and examinations for All India services and group A & group B of Central services.

• UPSC conducts various exams including the Civil Services Examination (CSE), Engineering Services Examination (ESE), Combined Defence Services Examination (CDSE), and others.

• The Chairman and other members of the UPSC are appointed by the President of India.

• Shri Manoj Soni has a distinguished academic and administrative career, having previously served as the Vice-Chancellor of Dr. Babasaheb Ambedkar Open University and The Maharaja Sayajirao University of Baroda.

Additional Information

• UPSC was established on 1 October 1926 as Public Service Commission and later reconstituted as Federal Public Service Commission by the Government of India Act, 1935; it was later renamed as Union Public Service Commission after independence.

• The Commission is headquartered at Dholpur House, in New Delhi.

• UPSC is among the few institutions which function with both autonomy and freedom, along with the country's higher judiciary and lately the Election Commission.

• UPSC's mandate is to conduct examinations for recruitment to various services of the Union and to advise the President on disciplinary matters.

Q78. Answer: (b) Rabindranath Tagore

The correct answer is Rabindranath Tagore

Key Points

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• Rabindranath Tagore is the author of the Indian national anthem, "Jana Gana Mana".
• The anthem was originally composed in Bengali and was later translated into Hindi.
• Rabindranath Tagore was a renowned poet, writer, and the first non-European to win the Nobel Prize in Literature in 1913.
• "Jana Gana Mana" was adopted as the national anthem of India on January 24, 1950.
• The anthem reflects the unity and diversity of India, embodying the country's rich cultural heritage.

Additional Information

• Rabindranath Tagore was born on May 7, 1861, in Calcutta (now Kolkata), India.
• He was a polymath who contributed to various fields such as literature, music, and art.
• Tagore founded the Visva-Bharati University in Santiniketan, which remains a prominent educational institution.
• He was also known for his role in the Indian independence movement, although he was more of a cultural and spiritual leader than a political one.
• Tagore's works include the famous collection of poems "Gitanjali" for which he received the Nobel Prize.
• In addition to "Jana Gana Mana", he also composed the national anthem of Bangladesh, "Amar Shonar Bangla".

Q79. Answer: (b) BHEL

The correct answer is BHEL

Key Points

• BHEL (Bharat Heavy Electricals Limited) is a public sector owned and operated entity in India.
• BHEL is one of the largest engineering and manufacturing companies in India in the energy and infrastructure sectors.
• It is owned by the Government of India and operates under the Ministry of Heavy Industries and Public Enterprises.
• BHEL is engaged in the design, engineering, construction, testing, commissioning, and servicing of a wide range of products and services for the core sectors of the economy, including power, transmission, industry, transportation, renewable energy, oil & gas, and defense.
• Being a public sector entity, BHEL plays a crucial role in the industrial development of India.

Additional Information

• Public sector enterprises in India are those companies in which the majority of the shares are owned by the government.
• They are established with the aim to accelerate economic growth, create employment opportunities, and ensure the welfare of the citizens.
• Other examples of public sector enterprises include Indian Oil Corporation, Steel Authority of India Limited (SAIL), and Gas Authority of India Limited (GAIL).
• Public sector enterprises are categorized into three types: Central Public Sector Enterprises (CPSEs), State Level Public Enterprises (SLPEs), and Public Sector Banks (PSBs).

Q80. Answer: (c) mail merge

The correct answer is mail merge

Key Points

• Mail merge is a process in word-processing applications that involves merging data from a data source into a main document.
• This technique is commonly used for generating personalized letters, labels, and envelopes.
• During a mail merge, placeholders in the main document are replaced with data from the data source.
• Applications like Microsoft Word often have built-in features to facilitate mail merge operations.

Additional Information

• Data sources for mail merge can include databases, spreadsheets, or other structured data files.
• The main document typically contains static text and placeholders for dynamic data.
• Mail merge is particularly useful for businesses and organizations that need to send bulk communications.
• It helps in automating the process of creating personalized documents, saving time and reducing errors.

Q81. Answer: (a) SUM

The correct answer is SUM

Key Points

• SUM function in MS Excel is used to add up the numbers in a range of cells.
• The SUM function is written as =SUM(range), where range is the group of cells you want to sum up.
• This function can handle both individual cell references and ranges, making it versatile for various summing tasks.
• Using the SUM function simplifies the process of adding numbers, as opposed to manually entering each value.

Additional Information

• Other functions like AVERAGE, MAX, and COUNT serve different purposes:
• AVERAGE: Calculates the average of a group of numbers.
• MAX: Finds the maximum value in a range of cells.
• COUNT: Counts the number of cells that contain numbers.
• To use the SUM function, you can type =SUM(A1:A10) in a cell to sum the values from cell A1 to A10.
• The SUM function is part of the basic mathematical functions available in Excel, making it essential for data analysis and financial calculations.

Q82. Answer: (d) Balban

The correct answer is Balban

Key Points

• Balban was the first Sultan of Delhi to style himself as 'Zil-i-Ilahi' (Shadow of God).
• This title was adopted to enhance the prestige and divine status of the Sultan.
• Balban's reign was marked by his efforts to consolidate the Sultanate and establish a strong central authority.
• He implemented a series of administrative reforms and maintained a strict policy of law and order.

Additional Information

• Balban, whose full name was Ghiyas ud din Balban, ruled from 1266 to 1287.
• He was one of the most powerful and effective rulers of the Delhi Sultanate.
• Balban's policies and strong governance laid the foundation for the stability and expansion of the Sultanate in subsequent years.
• His reign is often considered a significant period in the history of medieval India, especially in terms of administrative and military organization.

Q83. Answer: (d) Krypton-86

The correct answer is Krypton-86

Key Points

• Krypton-86 was used in 1960 to define the standard measure of length.
• The length of the meter was defined based on the wavelength of the radiation emitted by Krypton-86.
• This definition was adopted by the 11th General Conference on Weights and Measures (CGPM) in 1960.
• It was later replaced in 1983 by the definition based on the speed of light.
• The use of Krypton-86 provided a more precise and reproducible standard compared to the previous definitions.

Additional Information

• The General Conference on Weights and Measures (CGPM) is the international authority responsible for uniformity in measurements.
• In 1983, the meter was redefined as the distance light travels in a vacuum in 1/299,792,458 seconds.
• This new definition ties the unit of length directly to a fundamental constant of nature, the speed of light.
• The redefinition aimed to increase the precision and universality of the meter as a unit of measure.

Q84. Answer: (c) Jharkhand

The correct answer is Jharkhand

Key Points

• Ohira folk music is intricately linked with the cultural heritage of Jharkhand.
• It is primarily performed during significant festivals and community events within the state.
• The music embodies the rich traditions and the vibrant spirit of the local communities in Jharkhand.
• Ohira folk music plays a crucial role in preserving the oral history and the unique cultural identity of the region.

Additional Information

• Jharkhand is known for its diverse tribal culture and rich traditions.
• The state celebrates various festivals such as Sarhul, Karma, and Sohrai, where traditional music and dance play a pivotal role.
• Music and dance are integral to the social and cultural fabric of Jharkhand, reflecting the state's heritage and community life.
• Efforts are being made to document and promote the traditional art forms of Jharkhand to preserve them for future generations.

Q85. Answer: (b) Jyotiraditya M. Scindia

The correct answer is Jyotiraditya M. Scindia

Key Points

• Jyotiraditya M. Scindia is the current Union Minister of Civil Aviation in Government of India as of March, 2024.

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• He assumed office on July 7, 2021, succeeding Hardeep Singh Puri.

• As the Union Minister of Civil Aviation, he is responsible for formulating national policies and programs for the development and regulation of the Civil Aviation sector in India.

• He plays a crucial role in ensuring the safety, security, and growth of the aviation industry, which includes airlines, airports, and related services.

• Under his leadership, several initiatives have been undertaken to enhance the infrastructure and operational efficiency of the aviation sector in India.

Additional Information

• Jyotiraditya M. Scindia is a member of the Bharatiya Janata Party (BJP) and represents the state of Madhya Pradesh.

• He has also served as a Member of Parliament in the Lok Sabha and has held various other significant positions in the government.

• The Ministry of Civil Aviation oversees the functioning of the Directorate General of Civil Aviation (DGCA), the Bureau of Civil Aviation Security (BCAS), and the Airports Authority of India (AAI).

• Efforts are being made to improve regional connectivity through the UDAN (Ude Desh ka Aam Naagrik) scheme, which aims to make air travel affordable and widespread.

• Jyotiraditya M. Scindia has been actively involved in promoting sustainable practices and technological advancements in the aviation sector.

Q86. Answer: (c) Indo Aryan

The correct answer is Indo Aryan

Key Points

• Marathi belongs to the Indo Aryan language family.

• It is one of the 22 scheduled languages of India and the official language of the state of Maharashtra.

• The Indo Aryan language family is a major branch of the Indo-European languages, primarily spoken in India, Pakistan, Bangladesh, Nepal, and Sri Lanka.

• Other languages in the Indo Aryan family include Hindi, Bengali, Gujarati, Punjabi, and Urdu, among others.

Additional Information

• The Indo-European language family is one of the world's largest language families, including most of the languages spoken in Europe and many in South Asia.

• The Marathi language has a rich literary tradition, dating back to over a thousand years.

• It is written in the Devanagari script, which is also used for Hindi and several other Indian languages.

• The development of Marathi language and literature has been influenced by various historical and cultural factors, including the rule of the Maratha Empire.

• As of the 21st century, Marathi is spoken by over 83 million people worldwide.

Q87. Answer: (a) Kathak

The correct answer is Kathak

Key Points

• The music of traditional Kathak consists of thumri and other lyrical song forms.

• Kathak is one of the eight major forms of Indian classical dance.

• It traces its origins to the nomadic bards of ancient northern India, known as Kathakars or storytellers.

• The name Kathak is derived from the Sanskrit word 'Katha' meaning story, and 'Kathakar' meaning the one who tells a story.

• Traditional Kathak dance often includes music that is rich in thumri, which is a semi-classical vocal form of North India.

Additional Information

• Kathak dance form has three main gharanas (schools) - Lucknow, Jaipur, and Banaras.

• Each gharana has its own unique features and emphasis on different aspects of the dance form.

• The Lucknow gharana, for instance, places a strong emphasis on the expressiveness of the dance, while the Jaipur gharana is known for its intricate footwork.

• The dance form has evolved over time and has been influenced by both Hindu and Muslim cultures, especially during the Mughal era.

• Kathak performances often include stories from Indian epics like Mahabharata and Ramayana.

Q88. Answer: (d) Law of segregation

The correct answer is Law of segregation

Key Points

• Law of segregation is one of Mendel's laws of inheritance.

• This law states that a diploid organism passes a randomly selected allele for a trait to its offspring, such that the offspring inherit one allele from each parent.

• The law explains how traits are inherited and predicts the genetic variation in offspring.

• The Law of segregation is fundamental to understanding Mendelian genetics and the inheritance of traits.

Additional Information

• Gregor Mendel is known as the father of genetics for his pioneering work in the study of inheritance patterns in pea plants.

• His experiments and observations led to the formulation of the three fundamental laws of inheritance: the Law of Segregation, Law of Independent Assortment, and Law of Dominance.

• Mendel's work laid the foundation for modern genetics and our understanding of how traits are passed from one generation to the next.

• Although Mendel's work was initially overlooked, it was rediscovered in the early 20th century and has since become a cornerstone of genetic science.

Q89. Answer: (c) Alirajpur

The correct answer is Alirajpur

Key Points

• Alirajpur district in Madhya Pradesh has the lowest literacy rate in India as per the Census of India 2011.

• The literacy rate of Alirajpur district is significantly lower compared to other districts in the country.

• The Census of India 2011 provides a comprehensive analysis of literacy rates across various districts, highlighting areas that require focused educational interventions.

• Efforts have been made to improve literacy rates in districts with lower educational attainment through various government programs and initiatives.

Additional Information

• The Census of India is conducted every ten years, providing critical data on the demographic, social, and economic characteristics of the population.

• The 2011 Census was the 15th National Census of the country, conducted by the Office of the Registrar General and Census Commissioner, India.

• Literacy rate is defined as the percentage of people aged seven years and above who can read and write with understanding.

• The government has launched several schemes such as the Saakshar Bharat Mission to improve literacy rates, especially in rural and backward regions.

• Improving literacy rates is essential for socio-economic development and empowerment of individuals.

Q90. Answer: (a) Promote cottage industries on cooperative basis

The correct answer is Promote cottage industries on cooperative basis

Key Points

• Promote cottage industries on cooperative basis is a directive principle implemented in establishing Handloom and Handicrafts Boards.

• Directive Principles of State Policy are guidelines for the framing of laws by the government. These are provided in Part IV of the Constitution of India.

• The aim of these principles is to create social and economic conditions under which the citizens can lead a good life.

• They act as a yardstick in the hands of the people to measure the performance of the government.

• Promotion of cottage industries on a cooperative basis helps in the economic development of rural areas and provides employment opportunities.

Additional Information

• Directive Principles of State Policy are borrowed from the Irish Constitution and aim to promote social and economic democracy.

• They are non-justiciable in nature, meaning they are not legally enforceable by the courts for their violation.

• However, they are considered fundamental in the governance of the country, and it is the duty of the state to apply these principles in making laws.

• Some other important directive principles include the provision for adequate means of livelihood, equal pay for equal work, protection of childhood and youth, and organization of village panchayats.

Q91. Answer: (d) Porbandar

The correct answer is Porbandar

Key Points

• Mahatma Gandhi, the father of the nation, was born on 2nd October 1869 in Porbandar.
• Porbandar is a coastal city in the Indian state of Gujarat.
• Gandhi Jayanti is celebrated annually to honor Mahatma Gandhi's contributions to India's independence movement.
• The day is marked by various activities such as prayer services, commemorative ceremonies, and cultural events across India.
• Gandhi's principles of non-violence and truth continue to inspire people globally.

Additional Information

• Mahatma Gandhi is also known for his role in leading the Salt March and the Quit India Movement.
• He was a proponent of Satyagraha, a form of non-violent resistance.
• His autobiography, "The Story of My Experiments with Truth", is a significant literary work that provides insights into his life and philosophy.
• Gandhi's legacy is honored through various institutions and memorials, including the Gandhi Ashram in Ahmedabad and the Raj Ghat in New Delhi.

Q92. Answer: (c) Venus

The correct answer is Venus

Key Points

• Venus has a very thick atmosphere composed mainly of carbon dioxide, with clouds of sulfuric acid, making it the hottest planet in the Solar System.
• The atmosphere is so dense that it creates a runaway greenhouse effect, trapping heat and raising surface temperatures to around 465 degrees Celsius (869 degrees Fahrenheit).
• The thick clouds of sulfuric acid reflect sunlight, giving Venus its characteristic yellowish-white appearance when observed from space.
• The atmospheric pressure on Venus is approximately 92 times greater than Earth's, which is equivalent to the pressure found 900 meters (3,000 feet) underwater on Earth.

Additional Information

• Venus is the second planet from the Sun and is similar in size and structure to Earth, earning it the nickname "Earth's twin."
• Despite its similarities to Earth, the conditions on Venus are extremely harsh and inhospitable.
• The planet rotates very slowly on its axis and in the opposite direction to most planets in the Solar System, including Earth.
• Venus has been explored by various spacecraft, including NASA's Magellan mission, which mapped the planet's surface using radar.
• Due to its thick cloud cover, the surface of Venus cannot be observed directly from space in visible light.

Q93. Answer: (b) 82°30? E

The correct answer is 82º30? E

Key Points

• The Standard Meridian of India is 82º30? E.
• This meridian passes through Mirzapur in Uttar Pradesh and is the reference for Indian Standard Time (IST).
• Indian Standard Time is 5 hours and 30 minutes ahead of Greenwich Mean Time (GMT+5:30).
• The selection of this meridian helps in maintaining a uniform time across India, despite its vast longitudinal extent.

Additional Information

• India spans approximately 30 degrees of longitude, from 68º7? E to 97º25? E.
• The concept of a standard meridian helps in avoiding confusion caused by having multiple local times.
• The decision to adopt 82º30? E as the Standard Meridian was made during the era of British India to ensure uniformity in timekeeping across the country.
• Before this standardization, different regions followed their own local time, leading to inconsistencies.

Q94. Answer: (d) Sushil Kumar

The correct answer is Sushil Kumar

Key Points

• Sushil Kumar was the first Indian wrestler to win Gold at the World Championships in 2010.
• This victory was a significant milestone in Indian wrestling, marking India's presence on the global stage.
• Sushil Kumar's achievement inspired many young athletes in India to take up wrestling as a sport.
• His win at the World Championships added to his illustrious career, which includes multiple Olympic medals and other international accolades.

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• Sushil Kumar's contribution to Indian wrestling has been recognized with numerous awards, including the prestigious Rajiv Gandhi Khel Ratna and the Padma Shri.

Additional Information

• The World Wrestling Championships is an annual event organized by the United World Wrestling (UWW).

• Winning a gold medal at this event is considered one of the highest achievements in the sport of wrestling.

• India has produced several world-class wrestlers, and Sushil Kumar is one of the most prominent figures among them.

• In addition to his World Championship victory, Sushil Kumar has won bronze and silver medals at the Olympics, further solidifying his legacy in the sport.

• His success has had a profound impact on the development of wrestling in India, leading to increased investment and interest in the sport.

Q95. Answer: (b) badminton

The correct answer is badminton

Key Points

• Krishna Nagar won the gold medal in badminton at the Tokyo Paralympics 2020.

• This achievement marked a significant moment in India's performance at the Paralympic Games.

• Krishna Nagar competed in the Men's Singles SH6 category.

• His victory added to India's growing success in para-badminton on the international stage.

Additional Information

• The Tokyo Paralympics 2020 saw India achieving its best-ever medal tally.

• Para-badminton was included in the Paralympic Games for the first time in Tokyo 2020.

• India's success in para-badminton at the Tokyo Paralympics has inspired many aspiring athletes with disabilities.

• The Indian government and various sports organizations have been increasingly supporting para-athletes through various initiatives and funding.

Q96. Answer: (a) One buyer and many sellers

The correct answer is One buyer and many sellers

Key Points

• A monopoly is characterized by one seller and many buyers.

• In a monopoly, there are no close substitutes for the product or service provided by the seller.

• The seller in a monopoly has full control over the price of the product or service.

• The market condition of one buyer and many sellers describes a monopsony, not a monopoly.

Additional Information

• A monopoly exists when a specific person or enterprise is the only supplier of a particular commodity.

• This contrasts with a monopsony where there is only one buyer and many sellers.

• Monopolies can be established by a government, form naturally over time, or form as a conglomerate of companies.

• Monopolies can lead to higher prices and inferior products due to the lack of competition.

• Antitrust laws in many countries regulate monopolistic practices to protect consumers.

Q97. Answer: (a) West Bengal

The correct answer is West Bengal

Key Points

• HCL's cable manufacturing facility is located in Rupnarainpur, which is in the state of West Bengal.

• Rupnarainpur is an industrial town known for its various manufacturing units, including cable manufacturing.

• West Bengal is situated in the eastern part of India and has a rich industrial history.

Additional Information

• West Bengal is bordered by Bangladesh to the east, and it is known for its cultural heritage and significant contributions to India's economy.

• The state has a diverse industrial base, including textiles, chemicals, and engineering goods.

• Rupnarainpur, in particular, has been a hub for various industries, contributing to the region's development.

Q98. Answer: (a) 26 November 1949

The correct answer is Sat Nov 26 1949 00:00:00 GMT+0530 (India Standard Time)

Key Points

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• The Constitution of India was adopted by the Constituent Assembly on 26th November 1949.

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

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

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

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

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

• The Union List has been amended several times to meet the evolving needs of the nation.

• While the Constitution was adopted on 26th November 1949, it came into effect on 26th January 1950.

Additional Information

• 97 topics are currently listed in India's Union List.

• The Union List is one of the three lists in the Seventh Schedule to the Constitution of India, granting powers to the Union government to legislate on these topics.

• Subjects under the Union List include defense, foreign affairs, railways, banking, among others, where the central government has exclusive powers to legislate.

• The list reflects the subjects that are of national importance and require uniformity of legislation across the country.

Q99. Answer: (b) Ishwar Chandra Vidyasagar

The correct answer is Ishwar Chandra Vidyasagar

Key Points

• Ishwar Chandra Vidyasagar was instrumental in the introduction and passage of the first Hindu Widow Remarriage Act in 1856.

• He was a prominent social reformer and educator in India, advocating for various social changes including the upliftment of women and education for all.

• The Hindu Widow Remarriage Act, 1856, legally permitted the remarriage of Hindu widows, which was a significant step towards improving the social status of women in India.

• Vidyasagar's efforts were crucial in challenging orthodox Hindu practices and promoting progressive reforms.

Additional Information

• Ishwar Chandra Vidyasagar was born on 26 September 1820 in Birsingha, Bengal Presidency, British India.

• He was a key figure in the Bengal Renaissance and worked tirelessly for the education and rights of women.

• Vidyasagar's contributions were not limited to widow remarriage; he also worked on promoting education, especially for girls, and improving the Bengali prose.

• His efforts laid the foundation for many subsequent social reforms in India.

Q100. Answer: (d) Jammu and Kashmir

The correct answer is Jammu and Kashmir

Key Points

• The Give Plastic and Take Gold scheme was launched in the village of Jammu and Kashmir in the year 2023.

• This innovative scheme aims to encourage the collection of plastic waste by offering gold as an incentive.

• The initiative is part of a broader effort to promote environmental sustainability and reduce plastic pollution in the region.

• Under this scheme, villagers can exchange a certain amount of collected plastic for a specified amount of gold, thus motivating them to participate actively in the cleanup drive.

• The scheme is expected to have a significant positive impact on the local environment and set an example for other regions to follow.

Additional Information

• Jammu and Kashmir has been at the forefront of various environmental initiatives aimed at preserving its natural beauty and resources.

• The region is known for its picturesque landscapes, which are often threatened by pollution and waste.

• Government and local bodies have been increasingly focusing on sustainable development and environmental conservation.

• Such innovative schemes not only help in waste management but also raise awareness among the community about the importance of environmental protection.

• This scheme aligns with the broader national goals of reducing plastic waste and promoting sustainable practices across India.

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