SSC CHSL Tier-1 2023: Official Paper (Held On: 14 Aug, 2023 Shift 2) (Previous Year Paper)

SSC Combined Higher Secondary Level (CHSL) • 2023 • 100 questions • 60 minutes • Answer key and solutions

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ENGLISH LANGUAGE

Q1. Select the triad in which the numbers are related in the same way as are the numbers of the following triads.

3 - 4 - 24

4 - 7- 56

(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) 9 - 12 - 54
(b) 8 - 7 - 53
(c) 2 - 3 - 18
(d) 5 - 8 - 80

Q2. Read the given statements and conclusions carefully. You have to take the given statements to be true even if they seem to be at variance from commonly known facts. You have to decide which conclusion/s logically and definitely follow/s from the given statements.

Statements: Some Salts are Baths. All Tubs are Drums. Some Baths are Tubs.

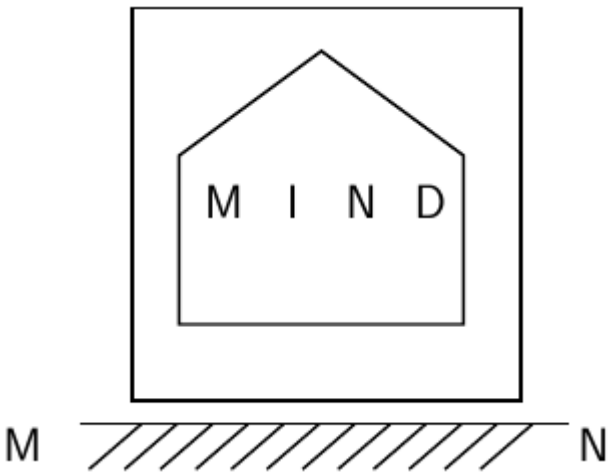
Conclusions:

(I) Some Salts are Tubs.

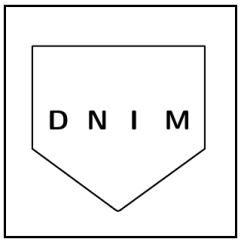
(II) Some Drums are Baths.

(a) Both conclusions (1) and (II) follow.
(b) Both conclusions (1) and (II) do not follow.
(c) Only conclusion (1) follows.
(d) Only conclusion (II) follows.

Q3. Select the mirror image of given figure when the mirror is placed at MN as shown.



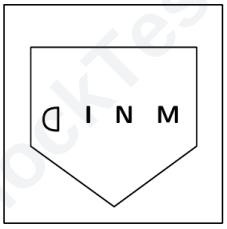
(a)



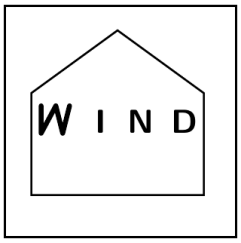
(b)



(c)



(d)



Q4. If 14 March 2007 is Wednesday, then what will be the day of the week on 17 June 2013?

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

Q5. Three of the following number triads are alike in some manner and one is different. Select the odd number triads.

(NOTE: The second and third numbers in the given number triads are formed by performing a certain operation on the first number. The same operation is followed in all the number triads except one. Find that odd number triads.)

(a) 4 : 16 :12
(b) 15 : 225 : 210
(c) 11 : 121 : 110
(d) 7 : 49 : 40

Q6. What will come in place of the question mark (?) in the following equation if '+' and '÷' are interchanged and '-' and '×' are interchanged?

14 ÷ 6 - 4 × 15 + 5 = ?

(a) 25
(b) 43
(c) 13
(d) 35

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Q7. Select the option in which the letter-clusters share the same relationship as that shared by the given pair of letter-clusters.

NCZ : UIV

BIL: IOH

(a) IUN : PAJ
(b) TAP : AET
(c) PIL : IOP
(d) AOR : JUM

Q8. In a certain code language. 'KARAN' is coded as 'OCVCR' and 'STAPLE' is coded as 'WVERPG. What is the code for JOYFUL' in the given code language?

(a) NQCHWN
(b) NPCHYN
(c) NQAHYN
(d) NQCHYN

Q9. What should come in place of the question mark (?) in the given series?

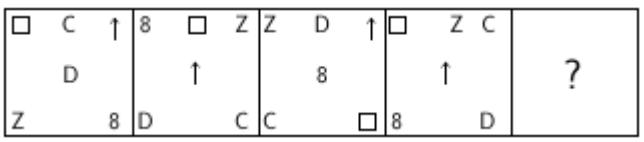
18, 72, ?, 1152, 4608

(a) 274
(b) 218
(c) 304
(d) 288

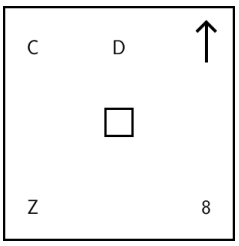
Q10. DJM is related to BHK in a certain way based on the English alphabetical order. In the same way, JNP is related to HLN. To which of the following is HFD related following the same logic?

(a) ECA
(b) JHF
(c) FDB
(d) DFH

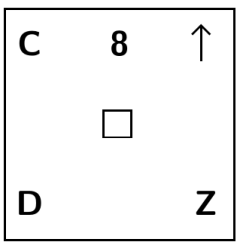
Q11. Identify the figure given in the options that when put in place of the question mark (?) will logically complete the series.



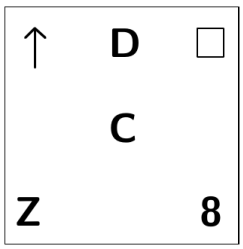
(a)



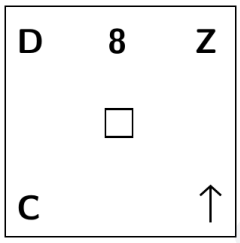
(b)



(c)



(d)



Q12. Three of the following number triads are alike in some manner and one is different. Select the odd number triad.

(NOTE: The second and third numbers in the given number triads are formed by performing a certain operation on the first number. The same operation is followed in all the number triads except one. Find that odd number triads.)

(a) 3 : 21 : 147
(b) 8 : 56 : 3100
(c) 1 : 7 : 49
(d) 10 : 70 : 490

Q13. Select the term from among the given options that can replace the question mark (?) in the following series based on the English alphabetical order.

MVJ, OYN, QBR, SEV, ?

(a) THY
(b) TGY
(c) UHZ
(d) UGX

Q14. Which of the following four options can replace the question mark (?) in the following series?

66, 87, 110, ?, 162, 191

(a) 120
(b) 125
(c) 146
(d) 135

Q15. In a certain code language,

A + B means 'A is the sister of B',

A - B means 'A is the mother of B',

A × B means 'A is the husband of B' and

A ÷ B means 'A is the father of B'.

Based on the above, how is Q related to R if S + Q ÷ L × H - R'?

(a) Father's father
(b) Father's son
(c) Mother's father
(d) Brother's father

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Q16. Select the word-pair that best represents a similar relationship to the one expressed in the pair of words given below. (The words must be considered as meaningful English words and must not be related to each other based on the number of letters/number of consonants/vowels in the word.)

Big - Small

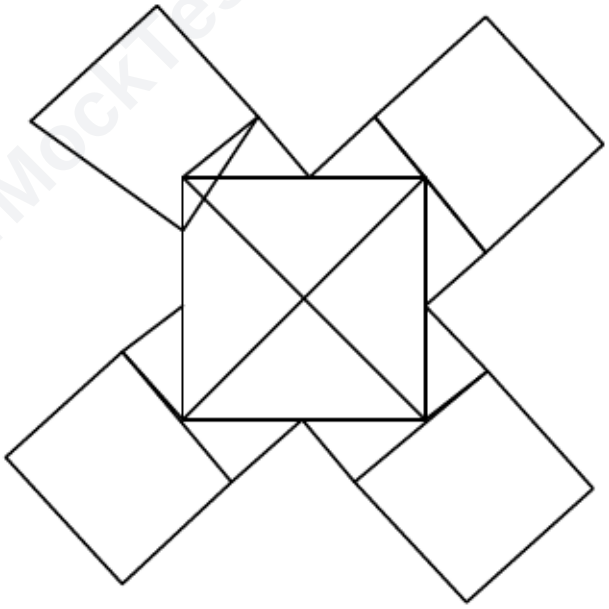
(a) Old - Young
(b) Present - Gift
(c) Crow - Black
(d) Rich - Wealthy

Q17. Select the combination of letters that when sequentially placed in the blanks of the given series will make the series logically complete.

_TCUBH_VB_QWBJX_

(a) BOJY
(b) VJBX
(c) ADCB
(d) BJVX

Q18. How many triangles are there in the given figure?



(a) 14
(b) 12
(c) 15
(d) 16

Q19. In a certain code language, 'BROW' is coded as '5064' and 'WORN' is coded as '4705. What is the code for 'B' in the given code language?

(a) 0
(b) 4
(c) 5
(d) 6

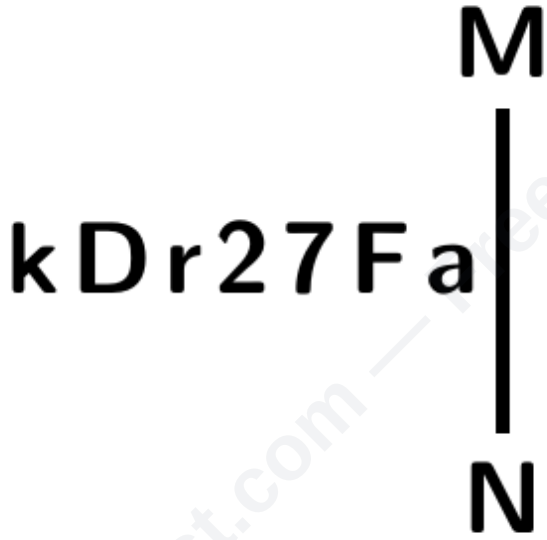
Q20. What will come in the place of '?' in the following equation, if '+' and '-' are interchanged with '÷' and '×' respectively?

24 - 3 ÷ 4 × 45 + 5 = ?

(a) 70
(b) 63
(c) 72
(d) 67

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Q21. Select the correct mirror image of the given figure when the mirror is placed at MN as shown below.



(a)



(b)



(c)



(d)



Q22. Read the given statements and conclusions carefully. You have to take the given statements to be true even if they seem to be at variance from commonly known facts. You have to decide which conclusion's logically follow/s from the given statements.

Statements: All forests are deserts. Some deserts are valleys. All valleys are hills.

Conclusion (I): No hill is a forest.

Conclusion (II): Some deserts are hills.

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

Q23. F is the father of G's father. G is married to H. H is the mother of I. J is the sister of G. K is the father of J. J is married to L, M is the brother of I and married to N. How is J related to I?

(a) Father's sister
(b) Sister
(c) Father's brother

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(d) Mother's mother

Q24. Based on the alphabetical order, three of the following four letter-clusters are alike in a certain way and thus form a group. Which of the following does NOT belong to that group?

(a) SVT
(b) KML
(c) DGE
(d) NQO

Q25. What will come in the place of '?' in the following equation, if '+' and '-' are interchanged and '×' and '÷' are interchanged?

300 + 242 × 11 - 15 ÷ 9 = ?

(a) 324
(b) 143
(c) 413
(d) 341

GENERAL INTELLIGENCE

Q26. When did the Government of India bring the gender sensitivities of the budgetary allocation in its statement for the first time?

(a) 2004 - 05
(b) 2007 - 08
(c) 2006 - 07
(d) 2005 - 06

Q27. Which of these measures of money supply is referred to as the aggregate monetary resources?

(a) M4
(b) MI
(c) M2
(d) M3

Q28. _____ is/are an item for which both, GST and central excise duty are applicable in India.

(a) Alcohol for human consumption
(b) Tobacco and tobacco products
(c) Petroleum products
(d) All the agricultural commodities

Q29. Who among the following was the Governor General of India when the Permanent Settlement was introduced in Bengal for revenue collection by the East India Company?

(a) Lord Cornwallis
(b) Lord Wellesly
(c) Lord Dalhousie
(d) Lord Canning

Q30. The length of the playing surface for Table Tennis is _____.

(a) 2.74 m
(b) 3.74 m
(c) 4.74 m
(d) 5.74 m

Q31. Which state appointed Robin Uthappa as brand ambassador for the Brain Health Initiative in 2022?

(a) Tamil Nadu
(b) West Bengal
(c) Odisha

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(d) Karnataka

Q32. Who among the following long jumpers won the first-ever silver medal for India in the long jump at Commonwealth Games 2022?

(a) Niraj Upadhyay
(b) Saurav Ghoshal
(c) Murali Sreeshankar
(d) Prashnata Sahoo

Q33. Which of the following universities was founded by the Pala rulers?

(a) Vikramasila
(b) Nalanda
(c) Valabhi
(d) Taxila

Q34. Gaan-Ngai is a five-day festival primarily celebrated in which part of India?

(a) Northern
(b) North-Eastern
(c) Western
(d) Southern

Q35. What is the aim of fundamental rights mentioned in the Indian Constitution?

(a) To establish a welfare state
(b) To have an absolute independence
(c) To promote economic justice
(d) To establish political democracy

Q36. What is the type of soil composed of silt and dust?

(a) Loam
(b) Marl
(c) Loess
(d) Podsol

Q37. Which of the following is NOT a fundamental duty mentioned in the Indian Constitution?

(a) To bring reform
(b) To develop humanism
(c) To develop the spirit of inquiry
(d) To develop the spirit of harmony

Q38. Which is an inherited blood disorder that affects the hemoglobin gene and results in ineffective erythropoiesis.

(a) Somatostatinoma
(b) Thalassemia
(c) Venous Thromboembolism
(d) Polycythemia vera

Q39. Padayani is a folk dance from which state?

(a) Kerala
(b) Karnataka
(c) Andhra Pradesh
(d) Tamil Nadu

Q40. Under which Ministry does the Indian Antarctic Act, 2022 aim at having India's own national measures for protecting the Antarctic environment along with the dependent and associated ecosystems and proposes to set up Indian Antarctic Authority (IAA)?

(a) Ministry of Power
(b) Ministry of Earth Sciences

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(c) Ministry of Textiles
(d) Ministry of Science and Technology

Q41. Ustad Bismillah Khan is associated with which of the following instruments?
(a) Shehnai
(b) Veena
(c) Flute
(d) Violin

Q42. Sociologist Jan Breman described the change in the nature of the relationship between landlords, belonging to the dominant class, and agricultural workers, belonging to the low caste, as a shift from _____.
(a) tenant to tiller
(b) patronage to exploitation
(c) exploitation to patronage
(d) bonded labour to free labour

Q43. Who first introduced the idea of a relationship between molecular geometry and the number of valence electrons in the 1940s?
(a) Bent and Nyholm
(b) Hendricus and Nicol
(c) Sidgwick and Powell
(d) Heitler and Gillespie

Q44. According to the Ministry of Power, Government of India, which is the largest energy source of India? (as of March 2023)
(a) Hydro power
(b) Tidal energy
(c) Coal
(d) Solar energy

Q45. Jayalakshmi Eshwar won the Sangeet Natak Akademi Award 2021 for her contribution to which Indian classical dance form?
(a) Bharatanatyam
(b) Kathakali
(c) Kathak
(d) Odissi

Q46. Which state in India had the lowest sex ratio according to the 2011 census?
(a) Punjab
(b) Rajasthan
(c) Bihar
(d) Haryana

Q47. In India, the financial year runs from _____ to _____.
(a) April 1, March 31
(b) February 1, January 31
(c) July 1, June 31
(d) January 1, December 31

Q48. The dimensions of force are:
(a) [M^0 L3 TO]
(b) [M L-3 T0]
(c) [M^0 L T-1]
(d) [M L T-2]

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Q49. Who among the following was one of the founders of the Indian Association, established in 1876?

(a) Dadabhai Naoroji
(b) Surendranath Banerjee
(c) Mahadev Govind Ranade
(d) Sisir Kumar Ghosh

Q50. What is the phenomenon called when rain fails to occur for one or more weeks during the southwest monsoon period?

(a) Withdrawal of the monsoon
(b) Break in the monsoon
(c) El Nino
(d) Monsoon depression

QUANTITATIVE APTITUDE

Q51. Suhas, a 3.15 m tall tree, and a building are positioned such that their feet on the ground are collinear and the tree is located between Suhas and the building. The tree is located at a distance of 7.5 m from Suhas and at a distance of 45 m from the building. Further, the eyes of Suhas, the top of the tree, and the top of the building fall in one line, and the eyes of Suhas are at a height of 1.8 m from the ground. Find the height (in m) of the building.

(a) 11.25
(b) 11.50
(c) 10.25
(d) 10.75

Q52. If $3\cot A = 4$ and A is an acute angle, then find the value of sec A.

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

Q53. The number 76050 is NOT divisible by which of the following numbers?

(a) 4
(b) 9
(c) 3
(d) 13

Q54. A merchant marked his goods 20% above the cost price and sold the goods at a profit of 8%. The rate of discount is:

(a) 15%
(b) 10%
(c) 12%
(d) 8%

Q55. The radius of a circle is increased by 20%. Find the percentage increase in the circumference of the circle.

(a) 30%
(b) 20%
(c) 15%
(d) 40%

Q56. Simplify: $(0.83^3) - (0.1^3)/((0.83^2) + 0.083 + 0.01) = ?$

(a) 0.98
(b) 0.27
(c) 0.93
(d) 0.73

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Q57. If x + 1/x = 2, then find the value of x^5 + 1/(x^5).

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

Q58. Two circles touch each other externally at P. AB is a direct common tangent to the two circles, A and B are points of contact and angle PAB = 22°. The measure of angle ABP is:

(a) 72°
(b) 68°
(c) 70°
(d) 44°

Q59. 9 cm long perpendicular is drawn from the center of the circle to a 24 cm long chord. Find the radius of the circle.

(a) 17 cm
(b) 18 cm
(c) 16 cm
(d) 15 cm

Q60. A man borrowed a certain sum of money at the rate of 10% per annum simple interest for the first three years and 15% per annum simple interest for the period beyond three years. If he pays a total interest of Rs. 2884.50 at the end of 7 years, then the sum of money (in Rs.) that he borrowed is:

(a) 3,860
(b) 3,090
(c) 4,550
(d) 3,205

Q61. Find the value of Sin 47° Cos 33°- Cos 43° Sin57°.

(a) -1
(b) 1
(c) 0
(d) 1/2

Q62. Simplify the given expression. $((4.2)^3 - 0.008)/((4.2)^2 + 0.84 + 0.04)$

(a) 4
(b) • 2
(c) 2
(d) • 4

Q63. If two qualities of a fruit costing Rs. 20 per kg and Rs. 38 per kg are mixed in the ratio of 5 : 4, then find the cost of the mixture per kg (in Rs.).

(a) 30
(b) 31
(c) 29
(d) 28

Q64. The total surface area of a cylinder whose radius is 6 cm and height is 8 cm is (use π = 22/7):

(a) 528 cm2
(b) 575 cm2
(c) 658 cm2
(d) 625 cm2

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Q65. In an election, a candidate who got 73% of the total valid votes is elected by a majority of 1426 votes. If 20% of votes are invalid, then what is the total number of votes polled?

(a) 1878
(b) 4824
(c) 2865
(d) 3875

Q66. A shopkeeper earns 15% profit on his goods. He loses 10% of his goods during transportation. What is his overall profit/loss percentage?

(a) Profit, 3.5%
(b) Profit, 5%
(c) Loss, 3.5%
(d) Loss, 5%

Q67. A can finish a work in 25 days, and B can do the same work in 15 days. B worked for 10 days and left the job. A alone can finish the remaining work in how many days?

(a) 71/3 days
(b) 61/3 days
(c) 81/3 days
(d) 51/3 days

Q68. If $\sec\theta + \tan\theta = 4$, then $\sec\theta - \tan\theta =$ _____.

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

Q69. The table given below shows the number of aerated drinks - A, B, C, D - manufactured (in thousands) by a company over the years.

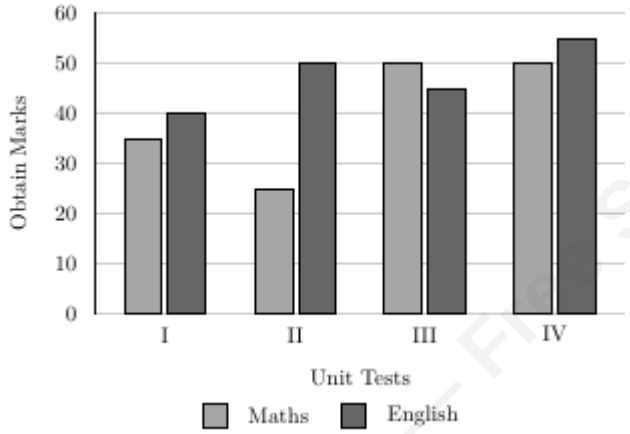
YEAR	Aerated Drinks			
A	B	C	D	
2019	250	200	140	115
2020	200	230	170	120
2021	260	210	195	135
2022	275	175	190	155

The manufacturing numbers of which aerated drink saw a continuous decrease from 2020 to 2022?

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

Q70. The graph shows the marks obtain by the four students in mathematics and English in four Unit Tests.

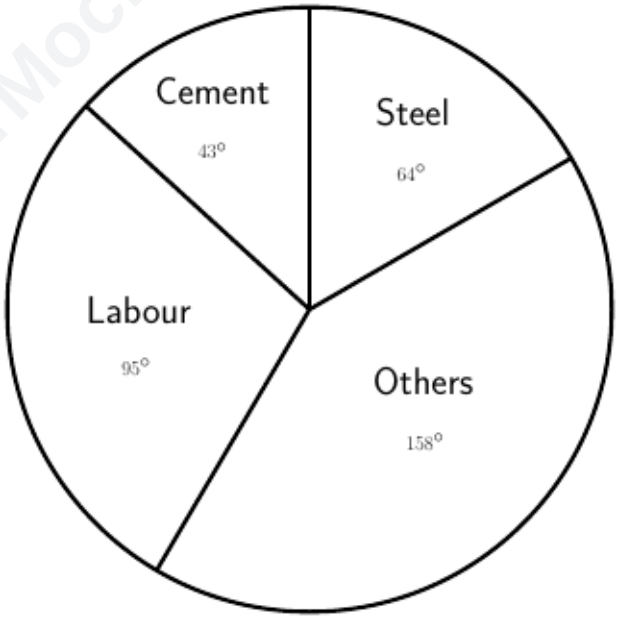
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The difference between the average marks obtain for all unit tests in both subject is:

(a) 7.25
(b) 7.50
(c) 7.40
(d) 7.75

Q71. Break-up of the cost of construction of a house is shown in the following pie chart. The total cost of the construction of a house is Rs. 3,79,800.



What is the amount spent on steel?

(a) Rs. 1,36,728
(b) Rs. 67,520
(c) Rs. 6,75,200
(d) Rs. 67,52,000

Q72. The speed of a car going from A to B is 110 km/h, while coming back, its speed is 76 km/h. What is the average speed during the entire journey?

(a) 8781/99 km/h
(b) 8389/93 km/h
(c) 8983/93 km/h
(d) 8291/97 km/h

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Q73. What is the third proportional of 2√3 and 6√5?

(a) 50 √6
(b) 40 √3
(c) 20 √6
(d) 30 √3

Q74. The marked price on a fancy item is Rs. 250 but there is an 18% discount during festival season. The price of the fancy item after discount is:

(a) Rs. 204
(b) Rs. 205
(c) Rs. 202
(d) Rs. 208

Q75. Two persons A and B are running around a circular track of length 1200 m with respective speeds of 27 kmph and 36 kmph. They started at the same time from the same point and are running in the same direction. When will they meet for the first time on the track (in seconds)?

(a) 420
(b) 240
(c) 480
(d) 360

GENERAL AWARENESS

Q76. Select the most appropriate option that can substitute the underlined words in the given sentence.

One of them who were hidings at the back of a rock fired at the villagers.

(a) One of them who were hiding behind a rock
(b) One of them who was hide behind a rock
(c) One of them who hiding behind a rock
(d) One of them who was hiding behind a rock

Q77. Select the word which means the same as the group of words underlined in the given sentence.

I can’t believe that I am doing this ordinary and dull task.

(a) immoral
(b) tenacious
(c) mundane
(d) destitute

Q78. Select the option that expresses the given sentence in superlative degree of comparison.

It was probably the happy afternoon of her life.

(a) This afternoon of her life was the happy
(b) It was an happier afternoon in their life before that.
(c) No change needed
(d) It was probably the happiest afternoon of her life.

Q79. Parts of a sentence are given below in jumbled order. Arrange the parts in the correct order to form a meaningful sentence.

P. but results in widespread hunger, death and social unrest

Q. some of the causes of famine in that region

R. drought, floods, war and economic instability are

S. which not only causes severe shortage of food

(a) RQSP
(b) RSQP
(c) QRSP
(d) QPSR

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Q80. Select the most appropriate option to fill in the blank.

The _____ age for retirement is 65 years in India.

(a) mendatory
(b) mendetory
(c) mendaytory
(d) mandatory

Q81. Parts of the following sentence have been given as options. Select the option that contains an error.

The news is very good to be true.

(a) to be true
(b) very good
(c) The news
(d) is

Q82. The following sentence has been split into four segments. Identify the segment that contains a spelling error.

They need to / wave the participation / fees for people / with disabilities.

(a) wave the participation
(b) with disabilities.
(c) fees for people
(d) They need to

Q83. Select the option that can be used as a one-word substitute for the underlined segment.

The child was not guilty of any wrongdoing and lacked knowledge or awareness of wrongdoing.

(a) ignorant
(b) inexperienced
(c) innocent
(d) cruel

Q84. Parts of a sentence are given below in jumbled order. Select the option that arranges the parts in the correct order to form a meaningful sentence.

A. Looks first to his own profit
B. And then to the king's,
C. Or destroys the king's gain altogether
D. The chief collector of revenue

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

Q85. Select the most appropriate synonym of 'potential' in the given sentence.

I have seen Radhya growing in the last few years; she now has the capability to fight worse situations.

(a) Worse
(b) Situations
(c) Growing
(d) Capability

Q86. Select the most appropriate synonym for the given word.

Strength

(a) Recluse
(b) Weakness
(c) Power
(d) Disability

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Q87. Select the most appropriate synonym of the given word.

Feasibility

(a) Sustainability
(b) Impropriety
(c) Heavy
(d) Probability

Q88. Select the option that expresses the given sentence in active voice.

Would pizza or burger rather be eaten by you?

(a) Would you rather eat pizza or burger?
(b) Would you rather eaten pizza or burger?
(c) Would you rather ate pizza or burger?
(d) Would you eat pizza or burger?

Q89. Select the most appropriate option that can substitute the underlined words in the given sentence.

She's been beating around the bush all afternoon - I just wish she would come out and tell us what she really thinks.

(a) avoiding to talk directly about a topic or issue
(b) trying to be overprotective
(c) denying to have her head in the clouds
(d) there to give the cold shoulder

Q90. Select the most appropriate synonym of the given word.

Elaborate

(a) Easy
(b) Complex
(c) Simple
(d) Plain

Q91. Select the most appropriate option that can substitute the underlined words in the given sentence.

It's not polite to blow your own trumpet in front of others.

(a) brag one’s own accomplishment
(b) criticise someone unfairly
(c) play a musical instrument
(d) give someone a compliment

Q92. Select the most appropriate option that can be used as a one-word substitute for the underlined segment in the following sentence.

After the scandal, the king was left with no choice but to announce his act of renouncing the throne.

(a) coronation
(b) extradition
(c) exoneration
(d) abdication

Q93. Select the most appropriate ANTONYM of the given word.

Ambivalent

(a) Unpredictable
(b) Legitimate
(c) Unequivocal
(d) Irresistible

Q94. Select the most appropriate option that expresses the given sentence in active voice.

The package was delivered by the courier to the recipient's doorstep.

(a) The recipient received the package delivered by the courier.
(b) The package was being delivered by the courier to the recipient's doorstep.

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(c) The courier delivered the package to the recipient's doorstep.

(d) The package was delivered to the recipient's doorstep by the courier.

Q95. Select the most appropriate option that can replace the underlined word in the following sentence.

The incorrigible optimism displayed by Aishwarya in difficult situations turned out her to be a favourite among her friends.

(a) translucent

(b) illustrious

(c) unchanged

(d) barefooted

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.

Climatic disasters are (1)_____ increasingly common due to the effects of climate change. These disasters include extreme weather events such as hurricanes, tornadoes, floods and droughts. To mitigate the effects of these disasters, it is essential to invest in disaster preparedness and (2)_____. The impact of climatic disasters is not limited to the loss of life and property damage. For example, hurricanes can disrupt the oil and gas industry, leading to higher fuel prices and (3)_____. Floods can damage crops and infrastructure, leading to food shortages and disruptions to transportation systems. Rising temperatures can lead to more frequent heat waves, while changes in precipitation patterns can lead to more (4)_____ droughts and floods. Climatic disasters disproportionately affect vulnerable populations. Collaboration among governments, communities and businesses is crucial for effective disaster preparedness and response. This involves investing in early warning systems, improving infrastructure and emergency services and planning for post-disaster recovery. By taking a (5)_____ approach to disaster management, we can reduce the impacts of climatic disasters and build more resilient communities.

Q96. Select the most appropriate option to fill in blank 1.

(a) became

(b) becoming

(c) become

(d) becomes

Q97. Select the most appropriate option to fill in blank 2.

(a) regeneration

(b) response

(c) evaluation

(d) manifestation

Q98. Select the most appropriate option to fill in blank 3.

(a) fatigue

(b) shortages

(c) failure

(d) drought

Q99. Select the most appropriate option to fill in blank 4.

(a) fast

(b) rare

(c) frequent

(d) speedy

Q100. Select the most appropriate option to fill in blank 5.

(a) proactive

(b) productive

(c) bioactive

(d) inactive

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ANSWER KEY

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

SOLUTIONS

Q1. Answer: (d) 5 - 8 - 80

Logic: Third no. = [(First no. × Second no.) × 2]

Given:

3 - 4 - 24 →

=> [(3 × 4) × 2]

=> (12 × 2) = 24

4 - 7- 56 →

=> [(4 × 7) × 2]

=> (28 × 2) = 56

Checking the given options:

(1) 9 - 12 - 54 →

=> [(9 × 12) × 2]

=> (108 × 2) = 216

(2) 8 - 7 - 53 →

=> [(8 × 7) × 2]

=> (56 × 2) = 112

(3) 2 - 3 - 18 →

=> [(2 × 3) × 2]

=> (6 × 2) = 12

(4) 5 - 8 - 80 →

=> [(5 × 8) × 2]

=> (40 × 2) = 80

Here, '5 - 8 - 80' is similar to the given sets of numbers.

Hence, the correct answer is "Option (4)".

Q2. Answer: (d) Only conclusion (II) follows.

Statements:

(I) Some Salts are Baths.

(II) All Tubs are Drums.

(III) Some Baths are Tubs.

The Venn diagram as per the given statements:

Conclusions:

(I) Some Salts are Tubs. → False (There is no direct relation between salts and tubs, so some salts are tubs is not definitely true but it can be possible only)

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(II) Some Drums are Baths. → True (Because all Tubs are Drums and some baths are tubs, which means some drums are baths is definitely true)

Hence, the correct answer is "Only conclusion (II) follows".

Q3. Answer: (b) [figure]

The mirror image of the given figure is:

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

Q4. Answer: (c) Monday

Given:

14 March 2007 = Wednesday

17 June 2013 = ?

As we know odd days in a normal year and a leap year are '1' and '2'.

Odd days up to 17 June 2013 = (2 + 1 + 1 + 1 + 2 + 1 + 17 + 30 + 31 + 17) = 103

Odd days up to 17 June 2013 = (103 ÷ 7) = 5 (Thursday, Friday, Saturday, Sunday and Monday)

17 June 2013 = Monday

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

Q5. Answer: (d) 7 : 49 : 40

Logic: [First no.] : [(First no.)²] : [First no. × (First no. - 1)]

Checking the given options:

(1) 4 : 16 :12

=> [4] : [(4)²] : [4 × (4 - 1)]

=> [4] : [(4)2] : [4 × 3]

(2) 15 : 225 : 210

=> [15] : [(15)2] : [15 × (15 - 1)]

=> [15] : [(15)2] : [15 × 14]

(3) 11 : 121 : 110

=> [11] : [(11)2] : [11 × (11 - 1)]

=> [11] : [(11)2] : [11 × 10]

(4) 7 : 49 : 40

=> [7] : [(7)2] : [(7 × 5) + 5]

Here, '7 : 49 : 40' is different from the others.

Hence, the correct answer is "Option (4)".

Q6. Answer: (d) 35

Here, we use the BODMAS table given below:

Given:

=> 14 ÷ 6 - 4 × 15 + 5 = ?

After interchanging '+' and '÷' and '-' and '×' →

=> 14 + 6 × 4 - 15 ÷ 5

Apply BODMAS rule:

=> 14 + 6 × 4 - 3

=> 14 + 24 - 3

=> 38 - 3 = 35

=> '14 + 6 × 4 - 15 ÷ 5 = 35'

Here, the value of the equation is '35'.

Hence, the correct answer is "Option (4)".

Q7. Answer: (a) IUN : PAJ

Here, we use the table given below:

Logic: '7' and '6' are added to the positional values of the first and second alphabet and '4' is subtracted from the positional value of the third alphabet.

Given:
NCZ : UIV →
BIL: IOH →
Checking the given options:
1. IUN : PAJ →
2. TAP : AET →
3. PIL : IOP →
4. AOR : JUM →
Here, 'IUN : PAJ' is similar to the given sets of the alphabet.
Hence, the correct answer is "Option (1)".

Q8. Answer: (d) NQCHYN

Here, we use the table given below:

Logic: '4' and '2' are added alternatively to the positional value of the alphabet.
'KARAN' is coded as 'OCVCR' →
'STAPLE' is coded as 'WVERPG' →
Similarly, 'JOYFUL' will be coded as:
Here, 'JOYFUL' is coded as 'NQCHYN'.
Hence, the correct answer is "Option (4)".

Q9. Answer: (d) 288

Given:
18, 72, ?, 1152, 4608
The logic followed in the given series is:
Here, the missing term is '288'.
Hence, the correct answer is "Option (4)".

Q10. Answer: (c) FDB

Here, we use the table given below:

Logic: '2' is subtracted from the positional value of each alphabet.
DJM is related to BHK →
JNP is related to HLN →
Similarly, 'HFD' will be related to:
Here, 'HFD' is related to 'FDB'.
Hence, the correct answer is "Option (3)".

Q11. Answer: (b) [figure]

The logic followed in the given figure series is:
From Figure (1) to (2):
The symbols move as shown below.
From Figure (2) to (3):
The symbols move as shown below.
From Figure (3) to (4):
The symbols move as shown below.
From Figure (4) to Answer Figure:
The symbols move as shown below.
Hence, the correct answer is "Option (2)".

Q12. Answer: (b) 8 : 56 : 3100

Logic: [First no.] : [First no. × 7] : [First no. × 7 × 7]
Checking the given options:
(1) 3 : 21 : 147 →

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=> [3] : [3 × 7] : [3 × 7 × 7]
(2) 8 : 56 : 3100 →
=> [8] : [8 × 7] : [31 × 10 × 10]
(3) 1 : 7 : 49 →
=> [1] : [1 × 7] : [1 × 7 × 7]
(4) 10 : 70 : 490 →
=> [10] : [10 × 7] : [10 × 7 × 7]
Here, '8 : 56 : 3100' is different from the others.
Hence, the correct answer is "Option (2)".

Q13. Answer: (c) UHZ

Here, we use the table given below:

Given:
MVJ, OYN, QBR, SEV,?
Logic: '2', '3' and '4' are added to the positional value of the first, second and third alphabet.
Here, the missing term is 'UHZ'.
Hence, the correct answer is "Option (3)".

Q14. Answer: (d) 135

Given:
66, 87, 110, ?, 162, 191
The logic followed in the given series is:
Here, the missing term is '135'.
Hence, the correct answer is "Option (4)".

Q15. Answer: (a) Father's father

Preparing the family tree diagram by using the following symbols:
As per the given information:

A is				
Symbol	•	•	×	÷
Means	Sister	Mother	Husband	Father
of B				

Given expression: 'S + Q ÷ L × H - R'
S is the sister of Q, Q is the father of L, L is the husband of H and H is the mother of R.
Here, Q is the father's father of R.
Hence, the correct answer is "Option (1)".

Q16. Answer: (a) Old - Young

Given:
Big : Small → Small is the antonym of big.
Checking the given options:
1. Old - Young → Antonym
2. Present - Gift → Synnonym
3. Crow - Black → Black is the colour of a crow.
4. Rich - Wealthy → Synnonym
Here, 'Old - Young' is similar to the 'Big - Small'
Hence, the correct answer is "Option (1)".

Q17. Answer: (d) BJVX

Here, we use the table given below:

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Given:

_TCUBH_VB_QWBJX_

Logic: '14', '7' and '1' are added to the positional value of the second, third and fourth alphabet.

Here, 'BJVX' make the series logically complete.

Hence, the correct answer is "Option (4)".

Q18. Answer: (d) 16

The number of triangles in the given figure is:

Here, the number of triangles is '16'.

Hence, the correct answer is "Option (4)".

Q19. Answer: (d) 6

As per the given information:

The letters 'R', 'O' and 'W' are common in the given code language.

The code for the letter 'B' is '6'.

Hence, the correct answer is "Option (4)".

Q20. Answer: (d) 67

Here, we use the BODMAS table given below:

Given Equation: 24 - 3 ÷ 4 × 45 + 5 = ?

if '+' and '-' are interchanged with '÷' and '×' respectively:

=> 24 × 3 + 4 - 45 ÷ 5 = ?

Apply BODMAS rule:

=> 24 × 3 + 4 - 9

=> 72 + 4 - 9

=> 76 - 9 = 67.

Hence, the correct answer is "Option (4)".

Q21. Answer: (d) [figure]

The mirror image of the given figure is:

Hence, the correct answer is "Option (4)".

Q22. Answer: (a) Only conclusion II follows.

Statements:

(I) All forests are deserts.

(II) Some deserts are valleys.

(III) All valleys are hills.

The Venn diagram as per the given statements:

Conclusions:

(I) No hill is a forest. → False (There is no direct relation between forests and hills, so it can be possible only but not definitely true)

(III) Some deserts are hills. → True (Because some deserts are valleys and all valleys are hills, which means some deserts are hills is definitely true)

Hence, the correct answer is "Only conclusion II follows".

Q23. Answer: (a) Father's sister

Preparing the family tree diagram by using the following symbols:

As per the given information:

1. F is the father of G's father and G is married to H.

2. H is the mother of I and J is the sister of G.

3. K is the father of J and J is married to L.

4. M is the brother of I and married to N.

Here, J is the father's sister of I.

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

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Q24. Answer: (b) KML

Here, we use the table given below:

Logic: '3' is added to the positional value of the first alphabet and '2' is subtracted from the positional value of the second alphabet.

Checking the given options:

1. SVT →
2. KML →
3. DGE →
4. NQO →

Here, 'KML' is different from the rest.

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

Q25. Answer: (c) 413

Here, we use the BODMAS table given below:

Given:

=> 300 + 242 × 11 - 15 ÷ 9 = ?

After interchanging '+' and '-' and '×' and '÷' →

=> 300 - 242 ÷ 11 + 15 × 9

Apply BODMAS rule:

=> 300 - 22 + 15 × 9

=> 300 - 22 + 135

=> 435 - 22 = 413

=> '300 - 242 ÷ 11 + 15 × 9 = 413'

Here, the value of the equation is '413'.

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

Q26. Answer: (d) 2005 - 06

The correct option is 2005 - 06.

Key Points

• The Government of India brought gender sensitivities of budgetary allocation in its statement for the first time in 2005-06.

• This reflects the government's recognition of the importance of gender in budgetary allocation and the need to address gender inequalities in the allocation of resources.

Additional Information

• Gender budgeting aims to improve women's access to public resources and mainstream their concerns in all activities by keeping an eye on spending and public service delivery from a gender viewpoint.

• The increased knowledge of gender sensitivity has given rise to this phrase.

• The gender budget allocation for 2019–20 will be increased from Rs 121,961 crore to Rs 131,700 crore per the Finance Minister's proposal.

• The Minister advocated for women-led development to become the government's catchphrase in place of "women's development," emphasizing programs for women's employment, nutrition, and anganwadi.

Q27. Answer: (d) M3

The correct answer is M3.

Key Points

• M3 is the measure of money supply that includes all the components of M2 (currency, demand deposits, and time deposits) as well as large-time deposits, repurchase agreements, and institutional money market funds.

• M3 is often referred to as the aggregate monetary resource because it represents the broadest measure of money supply.

• M4 is another measure of money supply that includes all the components of M3 as well as holdings of money market instruments, such as commercial paper and treasury bills.

• MI, or monetary base, is the narrowest measure of money supply and includes only currency in circulation and reserves held by banks at the central bank.

• M2 is a broader measure of money supply than MI.

Additional Information

• M4 is not as commonly used as the other measures of money supply.

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• MI is often used as a tool for monetary policy, as changes in the monetary base can affect the amount of lending and borrowing in the economy.

• M2 is often used as an indicator of economic activity, as the level of deposits in the economy can indicate the level of consumer and business spending.

• M3 is often used as an indicator of inflationary pressures, as an increase in the money supply can lead to an increase in prices.

Q28. Answer: (b) Tobacco and tobacco products

The correct answer is Tobacco and tobacco products.

Key Points

• On Tobacco and tobacco products, GST and central excise duty are applicable in India.

• GST (Goods and Services Tax) is a consumption tax that is levied on the sale of goods and services in India.

• Central excise duty is a tax on the production or manufacture of goods in the country.

Additional Information

• GST is a digital version of VAT that allows you to track products and services.

• The tax slabs for GST and VAT are the same.

• A shop or an intermediary collects central excise duty from a client as an indirect type of taxation.

• When the products are moved from the production line to a warehouse, they get paid.

• The Central Excise Tariff Act of 1985 and the Central Excise Act of 1944 both oversee this specific tax.

• Even though liquor hasn't been brought under the purview of Goods and Services Tax, it still falls under other taxes that contribute to its rising prices. These taxes are:

• Excise Duty

• VAT (Value Added Tax)

• Petroleum products, on the other hand, are subject to GST and a different type of excise duty called the Central Excise Duty and Additional Excise Duty, but not the central excise duty mentioned in the question.

• All agricultural commodities are exempt from GST, but some of them may be subject to other taxes or duties depending on their nature and usage.

Q29. Answer: (a) Lord Cornwallis

The correct answer is Lord Cornwallis.

Key Points

• Lord Cornwallis was the Governor General of India when the Permanent Settlement was introduced in Bengal for revenue collection by the East India Company.

• It was introduced in 1793.

• The Permanent Settlement was an agreement between the East India Company and the zamindars (landlords) of Bengal, under which the zamindars were given the right to collect revenue from the peasants in return for a fixed annual payment to the Company.

Additional Information

• Lord Wellesley was the Governor General of India from 1798 to 1805.

• He is known for his policy of Subsidiary Alliance, which aimed to establish British supremacy in India by making Indian rulers dependent on the Company for military protection.

• Lord Dalhousie was the Governor General of India from 1848 to 1856.

• He is known for his policy of Doctrine of Lapse, which aimed to annex Indian states if they did not have a natural heir.

• Lord Canning was the Governor General of India during the Indian Rebellion of 1857.

• He is known for his efforts to suppress the rebellion and for his subsequent policy of liberalization and reform.

Q30. Answer: (a) 2.74 m

The correct answer is 2.74 m.

Key Points

• The playing surface for Table Tennis is a rectangular shape with a length of 2.74 m and a width of 1.525 m.

• The playing surface, or table, is matte and consistently dark in color.

• A net that is 15.25 cm tall divides the table into two halves.

• Only hardwood tables or their derivatives are approved by the ITTF.

• It is important to note that the playing surface for Table Tennis is also commonly referred to as the Table Tennis table or simply the Table.

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Additional Information

• Table tennis is a racquet sport that originated from tennis, although it differs from the game in that participants play on a stationary table rather than a court.

• Players work in teams of two or individually, taking turns using small rackets to return a light, hollow ball over the table's net and onto the other half of the court.

• If they are unable to do so, the other team scores a point.

• With event categories for men's and women's singles as well as men's and women's teams since doubles were replaced in 2008, table tennis has been an Olympic sport since 1988.

• The International Table Tennis Federation (ITTF), established in 1926, is in charge of overseeing table tennis.

• There are presently 226 member associations in the ITTF globally.

Q31. Answer: (d) Karnataka

The correct answer is Karnataka.

Key Points

• Robin Uthappa was appointed as the brand ambassador for the Brain Health Initiative in 2022 by the state of Karnataka.

• The Brain Health Initiative is a program aimed at promoting mental health and well-being in the state.

• Robin Uthappa is a well-known cricketer who has played for the Indian national team and the Karnataka state team.

• As a brand ambassador, Uthappa will be expected to promote the Brain Health Initiative and raise awareness about the importance of mental health.

Additional Information

• Tamil Nadu is a state in southern India known for its rich culture, history, and cuisine.

• It has a population of over 72 million people and is home to several famous landmarks and tourist attractions.

• West Bengal is a state in eastern India known for its diverse culture, art, and literature.

• It has a population of over 91 million people and is home to several famous landmarks and tourist attractions, including the Victoria Memorial and the Sundarbans.

• Odisha is a state in eastern India known for its rich history, culture, and natural beauty.

• It has a population of over 46 million people and is home to several famous landmarks and tourist attractions, including the Konark Sun Temple and the Chilika Lake.

Q32. Answer: (c) Murali Sreeshankar

The correct answer is Murali Sreeshankar.

Key Points

• Murali Sreeshankar won the first-ever silver medal for India in the long jump at commonwealth games 2022.

• He achieved a jump of 8.22 meters in the final round, which was his personal best.

• Sreeshankar had previously won a gold medal at the 2016 South Asian Games in the long jump event.

• He is considered one of the most promising athletes in India and has been training under the guidance of his father, who is also a former long jumper.

Additional Information

• Niraj Upadhyay is a javelin thrower.

• He won a silver medal at the 2022 Commonwealth Games in the men's javelin throw event.

• Saurav Ghoshal is a squash player who has represented India at various international tournaments and won several medals.

• After winning the 77th National Squash Championship, he was crowned the national champion in 2020.

Q33. Answer: (a) Vikramasila

The correct answer is Vikramasila.

Key Points

• Vikramasila University was founded by the Pala dynasty rulers in the 8^(th) century CE, in present-day Bihar, India.

• The university was a major center for Buddhist studies, attracting scholars from all over India and other countries like Tibet, China, and Korea.

• The university had several faculties, including philosophy, logic, grammar, and medicine, and its curriculum emphasized both theoretical and practical aspects of learning.

• Vikramasila University declined in the 12^(th) century CE due to invasions by Turkish armies and a shift in patronage towards other centers of learning like Nalanda and Odantapuri.

Additional Information

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• Nalanda University is located in present-day Bihar, India.

• It was founded in the 5^(th)century CE and became a renowned center for Buddhist studies and other disciplines like astronomy, mathematics, and logic.

• It had a vast campus, with several temples, libraries, and lecture halls, and attracted scholars and students from all over Asia.

• The university was destroyed by Turkish invaders in the 12th century CE, and its ruins were rediscovered in the 19th century CE.

• Valabhi University is located in present-day Gujarat, India.

• It was founded in the 6^(th) century CE and became a major center for Jain studies and other disciplines like grammar, medicine, and astronomy.

• It had a well-organized curriculum and a large library and attracted students from all over India and other countries like Sri Lanka and China.

• The university declined in the 8^(th) century CE due to political instability and invasions by Arab armies.

• Taxila University is located in present-day Pakistan.

• It was founded in the 5^(th) century BCE and became a renowned center for Buddhist and Hindu studies, as well as other disciplines like medicine, astronomy, and philosophy.

• It had several faculties and a diverse student population, including Greeks, Persians, and Chinese.

• The university declined in the 5th century CE due to political turmoil and invasions by Huns and other nomadic tribes.

Q34. Answer: (b) North-Eastern

The correct answer is North-Eastern.

Key Points

• Gaan-Ngai is a post-harvest festival celebrated by the Zeliangrong tribe of Manipur, Nagaland, and Assam in North-Eastern India.

• The festival usually falls in December or January and is a time of feasting, dancing, and merry-making.

• The festival marks the end of the old year and the beginning of a new one and is dedicated to the deity Tingkao Ragwang, who is believed to bring prosperity and good fortune.

• The festival involves rituals such as the burning of bamboo torches, offering of rice beer to the deity, and playing traditional musical instruments like gongs and drums.

Additional Information

• Famous festivals of Northern India are Kumbh Mela, Pushkar Mela, Desert Festival, Rann Utsav, and Sindhu Darshan.

• Western India is known for its vibrant culture and festivals like Diwali, Holi, and Navratri.

• Southern India is home to many unique festivals like Pongal, Onam, and Dussehra.

Q35. Answer: (d) To establish political democracy

The correct answer is To establish political democracy.

Key Points

• The aim of fundamental rights mentioned in the Indian Constitution is to establish political democracy.

• Fundamental rights are the basic rights that every citizen of India is entitled to.

• These rights are essential for the development of a democratic society.

• The fundamental rights are enshrined in the Constitution to ensure that the citizens have the freedom to express their views, form associations, and participate in the governance of the country.

• The aim of fundamental rights is to establish political democracy by ensuring that every citizen has the right to vote, and the right to participate in the decision-making process of the government.

• The fundamental rights also ensure that the citizens have the right to life, liberty, and equality before the law, which are essential for the functioning of a democratic society.

Additional Information

• To establish a welfare state:

• While the aim of fundamental rights is to establish a welfare state, it is not the primary aim.

• The primary aim is to establish political democracy.

• To have absolute independence:

• This option is not correct as the aim of fundamental rights is not to promote absolute independence but to ensure that citizens have the freedom to express their views and participate in the governance of the country.

• To promote economic justice:

• While economic justice is an important aspect of fundamental rights, it is not the primary aim.

• The primary aim is to establish political democracy.

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Q36. Answer: (c) Loess

The correct answer is Loess.

Key Points

• Loess is a type of soil composed of silt and dust that is formed from wind-blown deposits.
• It is typically found in areas with a dry climate and sparse vegetation.
• Loess is known for its high fertility, making it a desirable soil for agriculture.
• This type of soil is also prone to erosion, which can lead to problems like landslides and dust storms.

Additional Information

• Loam is a type of soil that is a mixture of sand, silt, and clay.
• It is considered ideal for plant growth.
• Marl is a type of soil that is composed of clay and calcium carbonate.
• It is often used in agriculture to improve soil quality.
• Podsol is a type of soil that is found in cold, moist climates.
• It is characterized by a thin layer of organic matter and a layer of iron and aluminum compounds.

Q37. Answer: (a) To bring reform

The correct answer is To bring reform.

Key Points

• "To bring reform" is not a fundamental duty mentioned in the Indian Constitution.
• "To develop humanism" is a fundamental duty mentioned in the Indian Constitution.
• "To develop the spirit of inquiry" is a fundamental duty mentioned in the Indian Constitution.
• "To develop the spirit of harmony" is a fundamental duty mentioned in the Indian Constitution.

Additional Information

• Fundamental duties are the moral obligations of all citizens to help promote a spirit of patriotism and to uphold the unity of India.
• Fundamental Duties were recommended by the Swaran Singh Committee in 1976, and their importance became apparent during the internal emergency of 1975–1977.
• The fundamental duties were added to the Indian Constitution by the 42^(nd) Amendment Act in 1976.
• Both people and the country are subject to the obligations outlined in Part IV–A of the Constitution.
• There are 11 fundamental duties mentioned in the Indian Constitution.

Q38. Answer: (b) Thalassemia

The correct answer is Thalassemia.

Key Points

• Thalassemia is a genetic disorder that affects the production of hemoglobin, leading to anemia.
• Symptoms include fatigue, weakness, pale skin, and jaundice.
• Treatment may include blood transfusions, iron chelation therapy, and bone marrow transplants.
• Thalassemia is most commonly found in people of Mediterranean, Middle Eastern, and Southeast Asian descent.

Additional Information

• Somatostatinoma:
• Somatostatinoma is a rare type of pancreatic neuroendocrine tumor.
• Symptoms may include abdominal pain, diarrhea, weight loss, and diabetes.
• Treatment may include surgery, chemotherapy, and somatostatin analogs.
• Venous Thromboembolism:
• Venous thromboembolism (VTE) is a condition in which blood clots form in the veins, usually in the legs.
• Symptoms may include swelling, pain, and redness in the affected area.
• Treatment may include blood thinners and compression stockings.
• Polycythemia vera:
• Polycythemia vera is a rare blood disorder in which the body produces too many red blood cells.
• Symptoms may include fatigue, headache, dizziness, and itching.
• Treatment may include phlebotomy, medication, and radiation therapy.

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Q39. Answer: (a) Kerala

The correct answer is Kerala.

Key Points

• Padayani is a traditional folk dance that originated in the central Travancore region of Kerala.

• It is performed during the annual festival of Onam and is also associated with the worship of the goddess Bhadrakali.

• The dance is characterized by the use of colorful masks and elaborate headgear made of plantain leaves.

• The performers also wear ankle bells and carry decorated sticks or swords while dancing to the rhythm of drums and cymbals.

• The dance is believed to have originated as a form of ritualistic worship and has now become a popular cultural attraction in Kerala.

Additional Information

• The state of Karnataka has several traditional dance forms, including Yakshagana, which is a blend of dance, music, and drama.

• Other popular dances from Karnataka include Dollu Kunitha, a percussion-based dance, and Kamsale, which involves the use of metallic discs as musical instruments.

• Andhra Pradesh is known for its classical dance forms such as Kuchipudi and Vilasini Natyam.

• Folk dances from the state include Dappu, a percussion-based dance, and Lambadi, a tribal dance form.

• Tamil Nadu has several classical dance forms, including Bharatanatyam and Koothu.

• Folk dances from the state include Karagattam, a dance involving balancing pots on the head, and Mayil Attam, a peacock dance.

Q40. Answer: (b) Ministry of Earth Sciences

The correct answer is the Ministry of Earth Sciences.

Key Points

• The Indian Antarctic Act, 2022 aims to protect the Antarctic environment and its dependent and associated ecosystems.

• The act proposes to set up the Indian Antarctic Authority (IAA) to implement national measures for protecting the environment.

• The Ministry of Earth Sciences is responsible for the implementation of the act.

• Kiren Rijiju is the Union Cabinet Minister in place right now.

• India has been a signatory to the Antarctic Treaty since 1983 and has been conducting scientific expeditions to the continent since then.

Additional Information

• The Ministry of Power is responsible for the development of electrical power in the country.

• Raj Kumar Singh is the Union Cabinet Minister in place right now.

• The Ministry of Textiles is responsible for the development of textiles and the welfare of workers in the textile industry.

• Piyush Goyal is the Union Cabinet Minister in place right now.

• The Ministry of Science and Technology is responsible for the development of scientific research and technology in the country.

• Its headquarters is in New Delhi.

Q41. Answer: (a) Shehnai

The correct answer is Shehnai.

Key Points

• Ustad Bismillah Khan is a renowned Indian musician who is primarily associated with playing the shehnai, a wind instrument.

• He is considered to be one of the greatest shehnai players of all time.

• India's highest civilian award, the Bharat Ratna, was given to Bismillah Khan in 2001.

In 2006, the nation marked a national day of mourning in his honor.

Additional Information

• The veena is a stringed instrument that is commonly used in Carnatic music from South India.

• A famous veena player from India is Asad Ali Khan.

• The flute is another wind instrument that is popular in Indian classical music.

• Pt. Ronu Majumdar is regarded as the most illustrious figure in contemporary Indian flute playing.

• The violin is a Western classical instrument that is not typically used in Indian classical music.

• Hindustani violinists like N. Rajam and Sangeeta Shankar are extremely skilled worldwide performers.

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Q42. Answer: (b) patronage to exploitation

The correct answer is patronage to exploitation.

Key Points

• The shift from patronage to exploitation refers to a change in the relationship between landlords and agricultural workers, where landlords used to provide support and protection to workers but now exploit them for their labor.

• The rise in migrant agricultural labor was a result of the commercialization of agriculture.

• A pattern of seasonal migration developed, with thousands of workers moving between their homes and more prosperous areas where there is a demand for labor and higher wages, as traditional bonds between laborers or tenants and landlords broke down and as seasonal demand for agricultural laborers increased in prosperous areas.

• Workers also leave rural areas due to rising inequality that began in the mid-1990s and pushed many households to work several jobs in order to make ends meet.

• This change is significant because it reflects a shift in power dynamics between the dominant class and low castes.

Additional Information

• Tenant to tiller does not reflect a change in the nature of the relationship between landlords and workers, but rather a change in the type of labor arrangement.

• Farmers, or land tillers, have the legal right to acquire land ownership under the "Land to Tiller" law.

• Exploitation to patronage contradicts the description provided by Jan Breman and does not reflect a shift in power dynamics.

• Bonded labor to free labor refers to a specific type of labor arrangement rather than a change in the nature of the relationship between landlords and workers.

Q43. Answer: (c) Sidgwick and Powell

The correct answer is Sidgwick and Powell.

Key Points

• Sidgwick and Powell were the first to introduce the idea of a relationship between molecular geometry and the number of valence electrons in the 1940s.

• This idea is now known as the VSEPR (Valence Shell Electron Pair Repulsion) theory.

• Based on the number of valence shell electron bond pairs between the atoms in a molecule or ion, the valence shell electron pair repulsion (VSEPR) theory serves as a model to predict 3-D molecular shape.

• According to this hypothesis, electron pairs will orient themselves to reduce mutual repulsion.

Additional Information

• Bent and Nyholm were also notable chemists who made contributions to the understanding of molecular geometry and chemical bonding.

• He is honored by Bent's rule, which states that the orbital hybridization of a core atom depends on the electronegativities of the substituents bonded to it.

• Throughout the 1950s and 1960s, Australian chemist Nyholm was a prominent player in the field of inorganic chemistry.

• Hendricus van 't Hoff established the principles of stereochemistry and developed the hypothesis of the tetrahedral carbon atom in his pamphlet from 1874.

• In 1828, Nicol created the Nicol prism, which was the first tool for getting plane-polarized light.

• German physicist Walter Heinrich Heitler made advances in quantum field theory and quantum electrodynamics.

• Through his theory of valence bonding, he brought chemistry under the purview of quantum mechanics.

• British scientist Gillespie was an expert in the area of molecular geometry.

• Molecular geometry refers to the three-dimensional arrangement of atoms in a molecule.

• Valence electrons are the electrons in the outermost shell of an atom that participate in chemical reactions.

Q44. Answer: (c) Coal

The correct answer is Coal.

Key Points

• According to the Ministry of Power, Government of India, the largest energy source of India as of March 2023 is coal.

• Coal has been a primary source of energy for India for many decades, and it still accounts for a significant share of the country's energy mix.

• Jharkhand is the state that produces the most coal in India, followed by Odisha and Chhattisgarh.

• There are over 83.15 billion tonnes of coal reserves in this state.

• As per the Ministry of Power, the share of coal in India's power generation capacity was around 70% in 2020.

• India has abundant coal reserves, which makes it a reliable and cost-effective energy source for the country.

• However, the use of coal has also led to environmental concerns such as air pollution and greenhouse gas emissions.

Additional Information

• Hydropower:

• India has a large potential for hydroelectric power generation, but the actual utilization of this resource has been limited due to various factors such as high upfront costs, environmental and social impacts, and technical challenges.

• Gujarat is the Indian state that produces the most hydroelectricity as of 2022.

• Gujarat has the largest power-generating capacity (43.6 GW), followed by Maharashtra (42.3 GW) and Tamil Nadu (36.3 GW) according to data as of July 31, 2022.

• Tidal energy:

• Tidal energy is a relatively new and underutilized source of renewable energy in India.

• The largest tidal range in Gujarat's Gulf of Kutch is 8 meters, while the average is 5.23 meters.

• Solar energy:

• Solar power has been growing rapidly in India in recent years, thanks to supportive government policies and declining costs of solar panels.

• Of all the states in the nation, Rajasthan has the most potential for producing solar power.

• About 17.8 GW of solar energy were produced by Rajasthan's operational solar power facilities as of August 2023.

Q45. Answer: (a) Bharatanatyam

The correct answer is Bharatanatyam.

Key Points

• Jayalakshmi Eshwar has won the Sangeet Natak Akademi Award 2021 for her contribution to Bharatanatyam, an Indian classical dance form that originated in the southern state of Tamil Nadu.

• Bharatanatyam is known for its intricate footwork, expressive gestures, and graceful movements.

• It is usually performed by female dancers and often depicts stories from Hindu mythology.

Additional Information

• Kathakali is a classical dance form from the southern state of Kerala that is known for its elaborate makeup, costumes, and facial expressions.

• It often depicts stories from the Hindu epics of Ramayana and Mahabharata.

• Other artists: Kalamandalam Gopi, Kottakkal Sivaraman, Kalamandalam Ramankutty Nair.

• Kathak is a North Indian classical dance form that combines storytelling, footwork, and facial expressions to convey emotions and moods.

• It is often performed by both male and female dancers.

• Other artists: Birju Maharaj, Pandit Durga Lal, Shovana Narayan.

• Odissi is a classical dance form from the eastern state of Odisha that is known for its fluid movements, intricate footwork, and graceful gestures.

• It often depicts stories from Hindu mythology and is usually performed by female dancers.

• Other artists: Kelucharan Mohapatra, Sanjukta Panigrahi, Ileana Citaristi.

Q46. Answer: (d) Haryana

The correct answer is Haryana.

Key Points

• According to the 2011 census, Haryana had the lowest sex ratio among all states in India.

• The sex ratio in Haryana was 879 females per 1000 males, which was much lower than the national average of 943 females per 1000 males.

• This low sex ratio in Haryana can be attributed to various factors such as female infanticide, gender-based discrimination, and a preference for male children.

Additional Information

• Punjab had a sex ratio of 895 females per 1000 males in the 2011 census, which was higher than Haryana but still lower than the national average.

• Rajasthan had a sex ratio of 926 females per 1000 males in the 2011 census, which was higher than both Haryana and Punjab but still lower than the national average.

• Bihar had a sex ratio of 918 females per 1000 males in the 2011 census, which was lower than both Punjab and Rajasthan but higher than Haryana.

• The proportion of women to men in a population is known as the sex ratio.

• In 2023, there will be 1,020 girls for every 1,000 males in India.

• In rural areas, there are 949 females for every 1,000 men, while in urban areas, there are 929 females for every 1,000 males.

Q47. Answer: (a) April 1, March 31

The correct answer is April 1, March 31.

Key Points

• India's financial year starts on April 1 and ends on March 31 of the following year.

• This is the most widely accepted and followed financial year cycle in India.

• It is also known as the fiscal year and is used for accounting, budgeting, and taxation purposes.

Additional Information

• To put it simply, the Financial Year is the twelve months during which revenue is earned.

• Revenue earned during the current Fiscal Year (FY) 2022–2023 will be evaluated starting on April 1, 2022, and ending on March 31, 2023.

• Financial reporting by companies and other organizations is another use for it.

Q48. Answer: (d) [M L T-2]

The correct answer is [M L T^(-2)].

Key Points

• The dimensions of force are typically represented as [M L T^(-2)] because force is directly proportional to mass and acceleration, and acceleration is represented as [L T^(-2)].

• According to physics, a force is an influence that, in the absence of other forces, has the capacity to cause an object to change its velocity, or accelerate.

• The everyday idea of pushing or pulling is made mathematically by the concept of force.

• [M0 L3 TO] = Dimensional formula for volume.

• [M L-3 T0] = Dimensional formula for density.

• [M0 L T-1] =Dimensional formula for speed.

Additional Information

• The term "dimensions" in this context refers to the fundamental physical quantities that are used to describe a particular physical quantity.

• [M^1 L^2 T^(-2)] represents the dimensions of torque, which is the twisting force that causes rotation.

• The source of an angular acceleration is torque.

• Thus, torque can be thought of as linear force's rotating equivalent.

• [M^1 L^(-1) T^(-2)] represents the dimensions of pressure, which is the force applied perpendicular to a surface per unit area.

• The International System of Units (SI) uses the Pascal (Pa) as the measure of pressure or stress.

• [M0 L^1 T-1] represents the dimensions of velocity, which is the rate of change of position with respect to time.

• In kinematics, the area of classical mechanics that studies how bodies move, velocity is a basic idea.

Q49. Answer: (b) Surendranath Banerjee

The correct answer is Surendranath Banerjee.

Key Points

• Surendranath Banerjee was one of the founders of the Indian Association, established in 1876.

• The Indian Association was a political organization formed to represent the interests of the Indian community and to promote political and social reforms in India.

• He was one of the founding members of the Indian National Congress.

Additional Information

• Dadabhai Naoroji was a prominent Indian nationalist leader who was associated with the Indian National Congress.

• He is known as the "Grand Old Man of India."

• Mahadev Govind Ranade was a social reformer and a founder of the Indian National Congress.

• He worked for the upliftment of women and the lower castes in India.

• Sisir Kumar Ghosh was a journalist and a political leader.

• He founded the Bengali-language newspaper "Amrita Bazar Patrika."

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Q50. Answer: (b) Break in the monsoon

The correct answer is Break in the monsoon.

Key Points

• A break in the monsoon refers to a period of one or more weeks during the southwest monsoon season when there is a significant reduction in rainfall activity.

• This phenomenon is common in regions that experience the monsoon climate, such as India and Southeast Asia.

• A break in the monsoon can have serious consequences for agriculture, as crops may suffer from drought and water scarcity.

• The occurrence of a break in the monsoon is influenced by various factors, including the El Nino-Southern Oscillation (ENSO) and the Madden-Julian Oscillation (MJO).

Additional Information

• The withdrawal of the monsoon refers to the gradual retreat of the monsoon winds from their summer position.

• El Nino is a climate pattern that occurs when sea surface temperatures in the central and eastern Pacific Ocean become abnormally warm.

• This can affect global weather patterns, including the monsoon, by altering atmospheric circulation patterns.

• A monsoon depression is a weather system that forms over the Bay of Bengal or the Arabian Sea and can bring heavy rainfall to coastal areas.

• They are usually accompanied by strong winds and can cause flooding and landslides.

• The term "monsoon" refers to a seasonal wind system that brings heavy rainfall to certain regions during a specific time of year.

• The south-west monsoon is the most significant monsoon in India and usually occurs from June to September.

Q51. Answer: (a) 11.25

Concept used

Height and distance; Similarity of triangles

Calculation

According to the above diagram,

$h/(45 + 7.5 + x) = 3.15/(7.5 + x) = 1.8/x$,

Where,

h = height of the building,

x = distance to the point along the ground from the tree aline with the tips of the building, the tree and the eye level of the observer

Hence, $3.15/(7.5 + x) = 1.8/x$

$\Rightarrow 3.15x - 1.8x = 1.8 \times 75$

$\Rightarrow 1.35x = 1.8 \times 75$

$\Rightarrow x = 10$

$h/(45 + 7.5 + x) = 1.8/x$

$\Rightarrow h = 0.18 \times 62.5$

$h = 11.25$ m

Hence, the height of the building = 11.25 m

Q52. Answer: (b) 5/4

Given

$3\cot A = 4$

Formula used

$\cot A = B/P$

Calculation

$\cot A = B/P = 4/3$

$H = \sqrt{(4^2 + 3^2)}$

$H = 5$

$\text{Sec } A = H/B = 5/4$

The answer is 5/4.

Q53. Answer: (a) 4

Concept used

Divisibility of 9: The sum of digits of the number is divisible by 9.

Divisibility of 4: The last two digits of the number is divisible by 4.

Divisibility of 3: The sum of digits of the number is divisible by 3.

Divisibility of 13: Multiply its unit place digit by 4, then add the product obtained to the number formed by the rest of the digits of the number.

Calculation

76050 = 7 + 6 + 0 + 5 + 0 = 18

Since 18 is divisible by 9 it is also divisible by 3.

76050 is not divisible by 4 because the last two digits of the number is not divisible by 4

Q54. Answer: (b) 10%

Given:

Marked price = 20% above the cost price

Profit% = 8%

Formula used:

Profit % = (Profit / Cost Price) x 100

Profit = SP - CP

Selling price = [1 - Discount% / 100] x MP

Solution:

First of all, let's find a profit,

8% = Profit/CP x 100

Profit = 0.08CP

Selling price = 0.08CP + CP = 1.08CP

M.P = C.P + 0.2 C.P = 1.2 CP

Now, let's find Dicount%,

1.08CP = [1 - Discount%/100] x 1.2CP

Discount% = 100 - 90 = 10%

Hence, the discount = 10%.

Shortcut TrickDiscount% = (120 - 108)/120 × 100

=> 10%

Therefore The discount is 10%.

Q55. Answer: (b) 20%

Given:

Increased radius = 120% of the Original radius

Formula used:

Circumference of circle = 2πr

Calculation:

Let the original radius be 5r.

Increased radius = 120% of Original radius

=> R = 120/100 × 5r

=> R = 6/5 × 5 = 6r

Original circumference = 2π(5r)

Increased circumference = 2π(6r)

Increased circumference = 2πr

Required percentage = (Increased circumference – Original circumference)/Original circumference × 100

= 2πr/2π(5r) × 100

=> 20%

The percentage increase in the circumference of the circle is 20%.

Q56. Answer: (d) 0.73

Formula used

$a^3 - b^3 = (a - b)(a2 + ab + b2)$

Calculation

Let a = 0.83 and b = 0.1

After simplifying the above expression we get:

=> a3 - b3 =(a - b)(a2 + ab + b2)

Applying the above-mentioned formula:

=> (a3 - b3)/(a2 + ab + b2)

= a - b

= 0.83 - 0.1

= 0.73

The answer is 0.73.

Q57. Answer: (d) 2

Given:

x + 1/x = 2,

Concept used:

Using the concept of factorization (split the middle terms)

Calculation:

x + 1/x = 2

=> $x^2 + 1 = 2x$

=> x2 + 1 – 2x = 0

=> $(x – 1)^2 = 0$

=> x – 1 = 0

=> x = 1

(x5 + 1/x5) = (15 + 1/15)

=> (1 + 1)

=> 2

The answer is 2.

Q58. Answer: (b) 68°

Given:

Two circles touch each other externally at P.

AB is a direct common tangent to the two circles, A and B are points of contact, and angle PAB = 22°.

Concept used:

If two circles touch each other externally at some point and a direct common tangent is drawn to both circles, the angle subtended by the direct common tangent at the point where two circles touch each other is 90°.

Calculation:

According to the concept, angle APB = 90°

Considering ΔABP,

angle ABP

=> 90° - angle PAB

=> 90° - 22° = 68°

Therefore The measure of angle ABP is 68°.

Q59. Answer: (d) 15 cm

Given:

A 9-cm-long perpendicular is drawn from the circle's centre to a chord of length 24 cm.

Concept used:

The perpendicular drawn from the centre of the circle to the chord bisects the chord

Calculation:

=> AM = MB = 24/2 = 12 cm

In Right triangle AMO,

$AO^2 = OM2 + AM^2 = 9^2 + 12^2 = 225$

=> $AM^2 = 225$

=> AM = 15 cm

Q60. Answer: (d) 3,205

Shortcut Trick

Total Interest % = (Rate1 × Time1) + (Rate2 × Time2)

Total Interest % = (10% × 3) + (15% × (7 − 3)) = 30% + 60% = 90%

Given: 90% of Sum = Rs. 2884.50

Sum (100%) = (2884.50 ÷ 90) × 100 = 32.05 × 100 = Rs. 3205

Therefore The correct answer is Rs. 3205.

Alternate Method

Given:

First rate (R1) = 10%, Time (T1) = 3 years

Second rate (R2) = 15%, Time (T2) = 7 − 3 = 4 years

Total Interest = Rs. 2884.50

Formula Used:

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

Start 3 yrs 7 yrs 10% p.a. 15% p.a. Interest1 = 30% of P Interest2 = 60% of P Total Interest (90%) = Rs. 2884.50

Calculations:

=> Let the borrowed sum be P.

=> SI for first 3 years = (P × 10 × 3) ÷ 100 = 30P ÷ 100

=> SI for next 4 years = (P × 15 × 4) ÷ 100 = 60P ÷ 100

=> Total SI = (30P ÷ 100) + (60P ÷ 100) = 90P ÷ 100

=> 90P ÷ 100 = 2884.50

=> 0.9P = 2884.50

=> P = 2884.50 ÷ 0.9

=> P = 28845 ÷ 9 = 3205

Therefore The correct answer is Rs. 3205.

Additional Information

Variable Rate Simple Interest

When interest rates change over time, the total interest is the sum of interest for each period: Total SI = P × (R1T1 + R2T2 + R3T3 + ...) ÷ 100.

Principal and Amount Relationship

The total amount (A) is the sum of the Principal (P) and the Total Simple Interest (SI): A = P + SI.

Simple Interest vs Compound Interest

Simple interest is calculated only on the principal amount, whereas compound interest is calculated on the principal plus any accumulated interest from previous periods.

Q61. Answer: (c) 0

Formula Used:

If (A + B) = 90°, then

sin A = cos B

Calculations:

sin47°cos33°- cos43°sin57°

=> sin47°sin57°- sin47°sin57°

=> 0

Therefore The value of (Sin 47°Cos 33°- Cos 43°Sin57°) is 0.

Q62. Answer: (a) 4

Formula used

$a^3 - b^3 = (a - b)(a^2 + ab + b^2)$

Calculation

After simplifying the above expression we get:

=> $(4.2^3 - 0.2^3)/(4.2^2 + 4.2 \times 0.2 + 0.2^2)$

Applying the above-mentioned formula:

=> (4.23 - 0.23)/(4.22 + 4.2 × 0.2 + 0.22)

= (4.2 - 0.2)

= 4

The answer is 4.

Q63. Answer: (d) 28

Given

The ratio of a fruit costing Rs. 20 per kg and Rs. 38 per kg = 5 : 4.

The cost of fruits = Rs. 20 per kg

The cost of fruits= Rs. 38 per kg

Formula used

Total value = Quantity × price

Solution

Let the two types of oil be 5x and 4x.

Total cost of the mixture = (5x × 20) + (4x × 38)

=> 100x + 152x = 252x

The cost per kg of the resulting mixture:

=> 252x/9x

=> 28

The answer is Rs. 28 per kg.

Q64. Answer: (a) 528 cm2

Given:

Height of cylinder (h) = 8 cm

Radius of cylinder (r) = 6 cm

Formula:

Total surface area of cylinder = 2πr (r + h)

Calculation:

Total surface area of cylinder = 2πr (r + h)

=> 2 × [22/7] × 6 × (6 + 8)

=> 2 × 22 × 6 × 2

=> 528 cm²

The answer is 528 cm2

Q65. Answer: (d) 3875

Given:

20% votes declare invalid votes.

The winner gets 73% of the valid votes.

The difference of votes of winner and looser votes is 1426.

Concept Used:

Total no. of votes = Valid Votes + Invalid Votes

Calculation:

Let the total number of votes be 100x.

The valid votes = (100 - 20)x = 80x

Now, the winner gets 73% of valid votes and the loser gets 27%

Therefore, the difference between the winner and loser votes

=> (73% - 27%) of 80x

=> 46% of 80x

=> 4.6 × 80x = 1426

=> x = 38.75

Then, no. of voters = 100x

=> 100 × 38.75

=> 3875

Therefore The no. of voters is 3875.

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Alternate Method

Let the total number of votes be y

Difference in the votes received by the winning candidate and losing candidate = 73% - 27% = 46%

Total valid votes = 100% - 20% = 80%

=> y × 80% × 46% = 1426

=> y × 4/5 × 23/50 = 1426

=> y = (1426 × 125) = 3875

Q66. Answer: (a) Profit, 3.5%

Given

Profit = 15%

Loss = 10% of his goods

Formula used:

Net profit/Loss = x + y + (xy/100)

Calculation:

Profit% = +15 - 10 + [15 × (- 10)]/100

Profit% = +5 - (150/100)

Profit% = 5 - 1.5 = +3.5%

Therefore His profit percentage is 3.5%

Alternate Method

Let the CP be "100"

=> 100 × 115% × 90%

=> 103.5

Profit % = 103.5 - 100 = 3.5%

Q67. Answer: (c) 81/3 days

Shortcut Trick

Total Work = LCM(25, 15) = 75 units.

Efficiency of A = 75 ÷ 25 = 3 units/day; Efficiency of B = 75 ÷ 15 = 5 units/day.

Work completed by B in 10 days = 10 × 5 = 50 units.

Remaining work = 75 − 50 = 25 units.

Time taken by A = 25 ÷ 3 = 8 1/3 days.

Therefore The correct answer is 8 1/3 days.

Alternate Method

Given:

Time taken by A = 25 days

Time taken by B = 15 days

B leaves after working for 10 days.

Formula Used:

Total Work = Efficiency × Time

Person	Days	Total Work	Efficiency
A	25	75	3
B	15	5	

Calculations:

=> Total Work = LCM of 25 and 15 = 75 units

=> Work done by B in 10 days = 10 × 5 = 50 units

=> Remaining Work = 75 − 50 = 25 units

=> Time taken by A to finish the remaining work = Remaining Work ÷ Efficiency of A

=> Time = 25 ÷ 3 = 8 1/3 days

Therefore The correct answer is 8 1/3 days.

Additional Information

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Pipes and Cisterns

Works on the same principle as time and work, where inlet pipes perform positive work and outlet pipes (leaks) perform negative work.

Work and Wages

Wages are distributed in the ratio of the total work done by each individual (Efficiency × Time), not just their individual efficiencies.

Alternate Day Work

When individuals work on alternate days, calculate the combined work in one cycle (e.g., 2 days) and then find the total cycles required.

Q68. Answer: (a) 1/4

Given

sec θ + tan θ = 4

Formula used

sec2 θ - tan2 θ = 1

Calculation

sec θ + tan θ = 4

sec2 θ - tan2 θ = (sec θ + tan θ)(sec θ - tan θ)

tan θ + sec θ = 1/tan θ - sec θ

sec θ - tan θ = 1/4

The answer is 1/4.

Q69. Answer: (b) B

Calculation

We can clearly conclude from the given chart that the manufacturing numbers of B's aerated drink saw a continuous decrease from 2020 to 2022.

As aerated drink B decreased from 230 in 2020 to 210 in 2021 to finally 175 in 2022.

The answer is B.

Q70. Answer: (b) 7.50

Concept used:

Average = Sum of all values/No. of values

Calculation

The marks obtained by the four students in mathematics in four Unit Tests = 35 + 25 + 50 + 50

= 160

The marks obtained by the four students in English in four Unit Tests = 40 + 50 + 45 + 55

= 190

The average of marks in mathematics in four Unit Tests = 160/4

= 40

The average of marks in English in four Unit Tests = 190/4

= 47.5

The difference between the average marks obtained for all unit tests in both subjects = 47.5 - 40

= 7.5

The answer is 7.5.

Q71. Answer: (b) Rs. 67,520

Calculation:

From the pie chart,

The total cost of the construction of a house = Rs. 3,79,800

The total cost of the steel = 64°

Total Central angle of circle = 360°

=> 360° → 3,79,800

=> 64° → (3,79,800/360) × 64

= 1055 × 64

= Rs. 67,520

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The amount spent on steel is Rs. 67,520.

Q72. Answer: (c) 8983/93 km/h

Given:
The speed of a car going from A to B = 110 km/h
The speed of a car going from B to A = 76 km/h
Concept:
Average speed = Total distance / Total time
Calculation:
Let, the distance between A and B = x km
Time taken to go from A to B = x/110 hours
Time taken to go from B to A = x/76 hours
Total time = (x/110 + x/76)
Total distance covered = 2x km
His average speed = 2x/(x/110 + x/76)
=> 2x/(186x/110 × 76)
=> (110 × 76)/93
=> 89(83/93) km/hr
Therefore The car's average speed is 89(83/93) km/hr.
Shortcut Trick
Average speed = 2 × (a × b)(a + b)
where a and b are the two speeds to cover the same distance.
=> 2 × (110 × 76)(110 + 76)
=> (110 × 76)/93
=> 89(83/93)

Q73. Answer: (d) 30 √3

Concept used:
The third proportional proportion is the second term of the mean terms.
For example, if we have a : b = c : d, then the term ‘c’ is the third proportional to ‘a’ and ‘b’.
Represented as:
a : b ? b : c
Calculation:
Let the third proportion to 2√3 and 6√5 be x
=> 2√3/6√5 = 6√5/x
=> x = (6√5 × 6√5)/2√3
=> x = 90/√3
= 30√3
Therefore The third proportional to 2√3 and 6√5 is 30√3.

Q74. Answer: (b) Rs. 205

Given:
The marked price of a fancy item = Rs. 250
Discount = 18%.
Formula:
S.P = M.P × (100 - D%)/100
Where,
S.P = Selling price
M.P = Marked price
D = Discount%
Calculation:
S.P = M.P × (100 - D%)/100
=> 250 × (100 - 18)/100

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=> 250 × 0.82 = 205

Therefore The selling price of a fancy item is Rs. 205.

Q75. Answer: (c) 480

Given :

Two persons A and B are running around a circular track of length 1200 m.

Speeds of 27 kmph and 36 kmph.

Formula Used :

Time = Distance/ Speed

Calculation :

Time = 1200/(9 × 5/18)

=> 1200 × 2/5

=> 2400/5

=> 480 seconds

Therefore The correct answer is 480 seconds.

Q76. Answer: (a) One of them who were hiding behind a rock

The correct answer is: "One of them who were hiding behind a rock."

Key Points

• In the construction "One of + Plural Noun/Pronoun + Relative Pronoun", the relative pronoun (who) refers to the plural antecedent (them).

• Since the relative pronoun refers to a plural antecedent, it requires the plural verb "were" instead of "was".

• "Hidings" is grammatically incorrect; the correct continuous form is "hiding."

• The phrase "at the back of a rock" is replaced by "behind a rock," which is more idiomatic for describing position relative to an object.

Thus, option 1 is the correct answer.

Q77. Answer: (c) mundane

The solution is in Hindi. Read it online.

Q78. Answer: (d) It was probably the happiest afternoon of her life.

The correct answer is: It was probably the happiest afternoon of her life

Key Points

• A superlative degree of comparison is used to compare more than two things or people and show which one is the highest or lowest in degree.

• To form the superlative degree, we add '-est' to the end of the adjective or use 'most' before the adjective.

• In this sentence, we need to compare the level of happiness in different afternoons of the person's life and show which one was the highest.

• 'Happiest' is the superlative form of the adjective 'happy'.

Hence Option 4 is the correct answer.

Q79. Answer: (a) RQSP

The correct answer is: RQSP

Key Points

• The sentence talks about the causes and consequences of famine in a region.

• The correct order of the sentence is: causes (R), specific causes (Q), consequence (S), and further consequence (P).

• The sentence uses a parallel structure to list the causes of famine: drought, floods, war, and economic instability.

• The sentence also uses a contrast conjunction "but" to introduce the consequence of famine, which includes hunger, death, and social unrest.

Therefore, the correct answer is option 1.

Q80. Answer: (d) mandatory

The solution is in Hindi. Read it online.

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Q81. Answer: (b) very good

The correct answer is: very good

Key Points

• The error is in the adjective used to describe the news.

• The correct phrase should be "too good to be true", indicating scepticism or doubt.

• Using "very good" instead implies that the news is positive and believable, which contradicts the intended meaning.

• The word "too" indicates an extreme degree of goodness, suggesting that the news seems almost unbelievably good.

• In contrast, "very" in the original sentence does not convey the same sense of extremity in this context.

• This is an example of a common English idiom that requires specific phrasing.

Therefore, the correct answer is option 2.

Corrected sentence: The news is too good to be true.

Q82. Answer: (a) wave the participation

The correct answer is: "Wave the participation".

Key Points

• The correct spelling is "waive", which means to cancel or refrain from enforcing something.

• Example: The school decided to waive the late fee for students who submitted their assignments a day after the deadline.

• "Wave" is a different word that refers to a gesture or a disturbance in a body of water.

• Example 1: As a sign of greeting, she gave a friendly wave to her neighbour across the street.

• Example 2: The strong wind caused a massive wave on the surface of the ocean, creating a spectacular sight.

Therefore, the correct answer is option 1.

Corrected sentence: They need to waive the participation fees for people with disabilities.

Q83. Answer: (c) innocent

The solution is in Hindi. Read it online.

Q84. Answer: (b) D, A, B, C

The correct answer is: D, A, B, C.

Key Points

• Part D: This part introduces the subject of the sentence, establishing who is being referred to.

• Part A: This part provides information about the chief collector's primary focus - his own profit.

• Part B: This part adds a subsequent action, indicating that after looking at his own profit, the chief collector turns his attention to the king's profit.

• Part C: This part presents an alternative outcome, suggesting that if not managed properly, the chief collector may even cause harm to the king's gain.

• The correct sequence maintains coherence and logical flow, providing a clear understanding of the chief collector's priorities and potential consequences.

Thus, option 2 is the correct answer.

Q85. Answer: (d) Capability

The solution is in Hindi. Read it online.

Q86. Answer: (c) Power

The solution is in Hindi. Read it online.

Q87. Answer: (d) Probability

The solution is in Hindi. Read it online.

Q88. Answer: (a) Would you rather eat pizza or burger?

The correct answer is: "Would you rather eat pizza or burger?"

Key Points

• Original Passive Sentence: "Would pizza or burger rather be eaten by you?"

• Identify: Subject = pizza or burger, Verb = be eaten, Object = you.

• Switch Positions: Subject (original object) becomes the new subject; Object (original subject) becomes the new object.

• Modify Verb: Adjust the verb form to match the new subject.

• Rephrase the Sentence: Construct a new sentence in active voice.

• In this case, the transformation results in an active sentence that is more direct and concise: "Would you rather eat pizza or burger?"

Therefore, the correct answer is option 1.

Q89. Answer: (a) avoiding to talk directly about a topic or issue

The solution is in Hindi. Read it online.

Q90. Answer: (b) Complex

The solution is in Hindi. Read it online.

Q91. Answer: (a) brag one's own accomplishment

The solution is in Hindi. Read it online.

Q92. Answer: (d) abdication

The solution is in Hindi. Read it online.

Q93. Answer: (c) Unequivocal

The solution is in Hindi. Read it online.

Q94. Answer: (c) The courier delivered the package to the recipient's doorstep.

The correct answer is: The courier delivered the package to the recipient's doorstep.

Key Points

• Passive Voice Structure: Subject + Verb + Agent + Object

• In passive voice, the focus is on the action and the receiver of the action, which is the package in this case.

• Subject: The package, Verb: was delivered, Agent (doer of the action): by the courier, Object: to the recipient's doorstep.

• Active Voice Structure: Subject + Verb + Object + Indirect Object

• Subject: The courier, Verb: delivered, Object: the package, Indirect Object: to the recipient's doorstep.

• In active voice, the focus is on the doer of the action (the courier) and the action itself.

• It typically results in a more direct and concise sentence compared to the passive voice.

• It emphasizes the doer of the action, making the sentence more dynamic and straightforward.

Therefore, the correct answer is option 3.

Q95. Answer: (c) unchanged

The solution is in Hindi. Read it online.

Q96. Answer: (b) becoming

The correct answer is: Becoming

Key Points

• The sentence is in present tense, so the correct verb form would be present participle (-ing form).

• "Becoming" is the present participle of "become".

• Example: "I am becoming more confident in my abilities."

Thus, option 2 is the correct answer.

Additional Information

• Became is the past tense of 'become'.

• Become is the base form of the verb.

• Becomes is the third person singular present tense form.

Q97. Answer: (b) response

The solution is in Hindi. Read it online.

Q98. Answer: (b) shortages

The solution is in Hindi. Read it online.

Q99. Answer: (c) frequent

The solution is in Hindi. Read it online.

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Q100. Answer: (a) proactive

The solution is in Hindi. Read it online.

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