SSC CHSL Tier-1 2023: Official Paper (Held On: 17 Aug, 2023 Shift 1) (Previous Year Paper)

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

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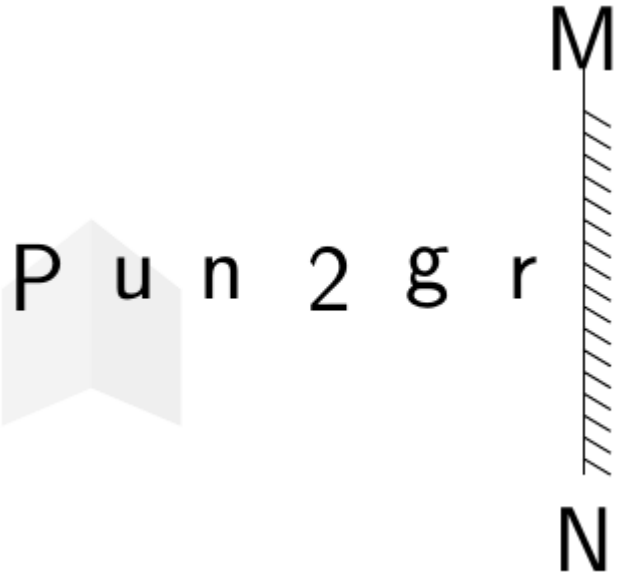
ENGLISH LANGUAGE

Q1. The second number in the given number pairs is obtained by performing certain mathematical operation(s) on the first number. The same operation(s) are followed in all the number pairs except one. Find that odd number pair.

(NOTE: Operations should be performed on whole numbers, without breaking down the numbers into their 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) 32 : 99
(b) 42 : 123
(c) 24 : 75
(d) 64 : 195

Q2. Select the correct mirror image of the given figure when the mirror is placed at MN as shown below.



(a)



(b)



(c)



(d)



Q3. 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.

Statement:

Some clowns are scary.

All scary are ghosts.

Some ghosts are friendly.

Conclusion (I): All ghosts are friendly.

Conclusion (II): All clowns are ghosts.

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

Q4. Select the combination of letters which when sequentially placed in the blanks of the given series will complete the series.

LMN _ LMN _ LM _ NL _ MMNN

(a) LMLM
(b) LLML
(c) LMNL
(d) LLLM

Q5. The position of which letter will be exactly at the centre of the arrangement if each of the letters in the word TOUCHED is arranged in reversed alphabetical order, i.e. starting from the last letter (Z)?

(a) E
(b) T
(c) O
(d) H

Q6. Which number will replace the question mark (?) to complete the given series?

6, 11, 21, 36, 56, ?

(a) 91
(b) 81

(c) 86
(d) 76

Q7. What will come in the place of '?' in the following equation, if '+' and '-' are interchanged and '×' and '÷' are interchanged?

55 + 42 × 7 ÷ 11 - 30 = ?

(a) 25
(b) 11
(c) 22
(d) 19

Q8. In the following number-pairs, the second number is obtained by applying certain mathematical operations to the first number. Select the option in which the numbers are related in the same way as are the numbers of the following pairs.

(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/ substracting /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.)

8, 108

14, 186

(a) 5, 73
(b) 11, 147
(c) 16, 204
(d) 9, 107

Q9. In a certain code language, ‘towards the main gate’ is written as ‘nt zb ps cq’ and ‘main purpose of this' is written as ‘rq kl bt zb'. How is ‘main’ written in the given language?

(a) ps
(b) kl
(c) rq
(d) zb

Q10. In a certain code language,

A + B means 'A is the mother of B'

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

A × B means 'A is the wife of B'

A ÷ B means 'A is the father of B'

Based on the above, how is F related to J if 'F + G × H ÷ I - J'?

(a) Mother's mother
(b) Daughter
(c) Wife's Father
(d) Mother's husband

Q11. 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?

43 B 2 C 12 D 82 A 2 = ?

(a) 55
(b) 58
(c) 56
(d) 57

Q12. Select the number from among the given options that can replace the question mark (?) in the following series.

172, 175, 184, 211, 292, ?

(a) 535
(b) 537
(c) 534

(d) 532

Q13. Identify the figure given in the options which when put in place of the question mark (?) will logically complete the series.



(a)



(b)



(c)



(d)



Q14. The second number in the given number pairs is obtained by performing certain mathematical operations(s) on the first number. The same operation(s) are followed in all the number pairs except one. Find that odd number pair.

(a) 9 : 26
(b) 5 : 17
(c) 3 : 13
(d) 8 : 23

Q15. 'NPQS' is related to 'JLMO' in a certain way based on the English alphabetical order. In the same way, 'JLMO' is related to 'FHIK'. To which of the following is 'PRSU' related, following the same logic?

(a) LQON
(b) LQNO
(c) LNOQ
(d) LOQN

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Q16. Three of the following four are alike in a certain way and thus form a group. Which is the one that does NOT belong to that group?

(a) SRP
(b) JIG
(c) HGE
(d) FCB

Q17. BEGC is related to ILNJ in a certain way based on the English alphabetical order. In the same way, LOQM is related to SVXT. To which of the following is DGIE related to, following the same logic?

(a) MPRN
(b) KNQM
(c) KNPL
(d) KMPN

Q18. The position of how many letters will remain unchanged if each of the letter in the word ‘GASOLINE’ is arranged in alphabetical order?

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

Q19. Select the combination of letters that when sequentially placed in the blanks of the given series will make the series logically complete.

A_CCD_BCCDA_CCDABC_D

(a) CACB
(b) DACB
(c) BABC
(d) BBBB

Q20. In a certain code language,

A + B means 'A is the mother of B'

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

A × B means 'A is the wife of B'

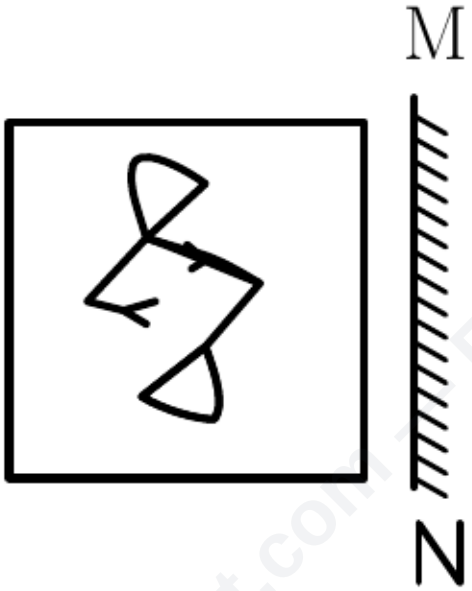
A ÷ B means 'A is the father of B'

Based on the above, how is Q related to T if ' P + Q - R × S ÷ T'?

(a) Wife's father
(b) Brother's wife
(c) Mother's brother
(d) Daughter

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

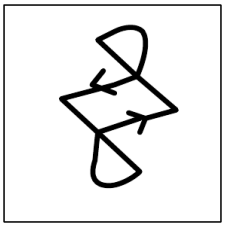
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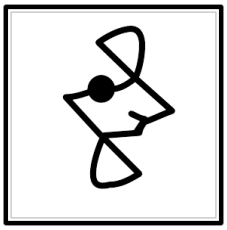
(a)



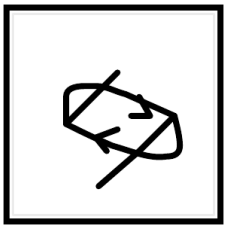
(b)



(c)



(d)



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Q22. GB 13 is related to HD 17 in a certain way. In the same way, DK 18 is related to EM 22. To which of the following is RE 16 related following the same logic?

(a) TF 20
(b) TG 19
(c) SG 20
(d) SF 18

Q23. Select the set in which the numbers are related in the same way as are the numbers of the following sets.

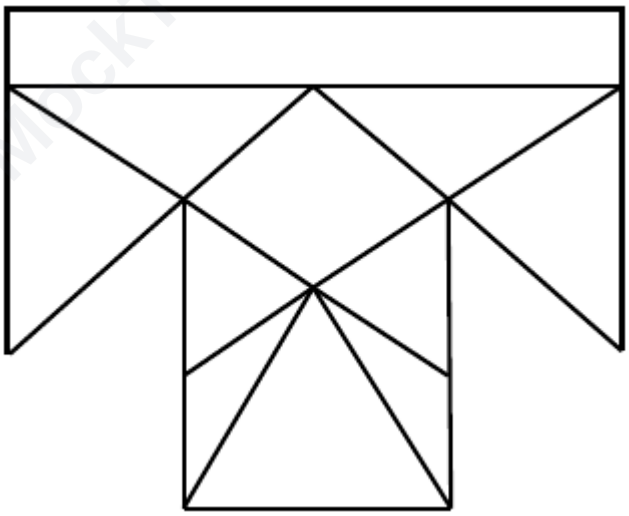
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(377, 13, 29)

(564, 12, 47)

(a) (227, 25, 9)
(b) (304, 19, 16)
(c) (475, 28, 17)
(d) (274, 9, 31)

Q24. How many triangles are there in the given figure?



(a) 14
(b) 15
(c) 16
(d) 13

Q25. In a certain code language, ‘come with me’ is written as ‘mx zt rq’ and ‘with your permission’ is written as ‘pr sn zt’. How is ‘with’ written in the given language?

(a) zt
(b) mx
(c) sn
(d) rq

GENERAL INTELLIGENCE

Q26. Revenue expenditure minus revenue receipts is _____.

(a) revenue deficit
(b) budget deficit
(c) always negative
(d) always positive

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Q27. Which of these is NOT one of the direct outcomes that can be attributed to a good industrial sector?

(a) Provision of relatively stable employment
(b) Doubling of farmers' income
(c) Promotion of modernisation
(d) Provision of mass consumption manufactured goods

Q28. Rast-Goftar, a newspaper, propagated the messages of socio-religious reforms for which of the following societies?

(a) Hindu
(b) Muslim
(c) Sikh
(d) Parsi

Q29. Which of the following states topped the medals tally in the Northeast Olympic Games 2022?

(a) Assam
(b) Tripura
(c) Arunachal Pradesh
(d) Manipur

Q30. Which of the following is the most widespread forest type in India?

(a) Littoral and Swamp Forests
(b) Tropical Thorn Forests
(c) Montane Forests
(d) Tropical Deciduous Forests

Q31. What is the number of players in a Kho Kho team?

(a) 12
(b) 13
(c) 10
(d) 11

Q32. Which of the following is a plantation crop found abundantly in Assam?

(a) Tea
(b) Wheat
(c) Rice
(d) Maize

Q33. Which of the following statement(s) is/are FALSE?

A) The impact of externality is always positive.
B) Real national income means national income at constant prices

(a) Only B
(b) Only A
(c) Neither A nor B
(d) Both A and B

Q34. Which of the following grains contain oryzenin?

(a) Barley
(b) Wheat
(c) Soyabean
(d) Rice

Q35. With reference to Sonepur Cattle Fair, consider the following statements and select the correct option.

a) It is associated with the Hariharanatha temple.
b) It begins on Purnima (full moon night) and Kartik month.
c) It is celebrated in the Madhya Pradesh state.

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(a) Both a and b
(b) Both a and c
(c) Both b and c
(d) a, b, c

Q36. Which of the following is the proper number of electrons in 1 A of current?
(a) 6.25×10^{21}
(b) 6.25 × 10^(18)
(c) 6.25 × 10^(19)
(d) 6.25 × 10^(15)

Q37. In 2023, the Ministry of Consumer Affairs, Government of India unveiled guidelines titled 'Endorsements Know-Hows!' that are meant for _____.
(a) junk food producers
(b) instant food producers
(c) consumers of products
(d) social media influencers

Q38. In India which of the following statements is NOT correct about Fundamental Duties?
(a) To encourage common brotherhood
(b) To develop scientific temper
(c) To organise village panchayat
(d) To protect country

Q39. Which of these is NOT one of the rationales behind microfinance?
(a) Many innovative institutional mechanisms have developed across the world to enhance credit to the poor even in the absence of formal mortgages.
(b) More than access to credit poor need subsidies
(c) The absence of formal employment makes the poor non 'bankable'.
(d) More than subsidies poor need access to credit

Q40. In 2006, Ileana Citaristi, an Italian Odissi dancer, was awarded with the _____.
(a) Padma Bhushan
(b) Bharat Ratna
(c) Padma Shri
(d) Padma Vibhushan

Q41. Which essential amino acid is necessary for the production of our brain's chemical messengers including melatonin, dopamine, noradrenaline and thyroxine?
(a) Leucine
(b) Phenylalanine
(c) Tryptophan
(d) Valine

Q42. Which of the following is NOT included in the category of Directive Principles of State Policy of the Indian Constitution?
(a) Liberal
(b) Nehruvian
(c) Socialist
(d) Gandhian

Q43. The music legend Jagjit Singh is associated with:
(a) Ghazal
(b) Classical Music
(c) Western Music
(d) Instrument

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Q44. What is the classical dance of Assam?

(a) Sattriya Nritya
(b) Bharatnatyam
(c) Kathak
(d) Kuchipudi

Q45. The Pala Dynasty rulers were primarily patrons of which religion?

(a) Buddhist
(b) Jain
(c) Hindu
(d) Islam

Q46. Those engaged in agriculture in India suffer from which of these unemployment types?

(a) Frictional Unemployment
(b) Technological Unemployment
(c) Structural Unemployment
(d) Disguised Unemployment

Q47. Which Indian state was the first to make it mandatory for all homes to have rooftop rainwater harvesting structures?

(a) Sikkim
(b) Tamil Nadu
(c) Odisha
(d) Haryana

Q48. In which year did the Central Statistical Office adopt the GVA concept in India?

(a) 2012
(b) 2015
(c) 1993
(d) 2010

Q49. Who among the following Indian sportswomen has received the BBC Indian Sportswoman of The Year 2022 award?

(a) Nikhat Zareen
(b) PV Sindhu
(c) Saina Nehwal
(d) Mirabai Chanu

Q50. As of 1 April 2023, how many national laboratories does the Council of Scientific & Industrial Research (CSIR) have in India?

(a) 37
(b) 47
(c) 27
(d) 17

QUANTITATIVE APTITUDE

Q51. A cask having a capacity of 600 litres is initially filled with wine. From this cask y litres of wine are first drawn and replaced with water. From this mixture, 120 litres are drawn and replaced with water. From this further diluted mixture, 120 litres are drawn again and replaced with water. The ratio of wine to water in the cask is now 12 : 13. What is the value of y?

(a) 125
(b) 150
(c) 200
(d) 100

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Q52. The simple interest on a sum of Rs. 7,400 for 36 months is Rs. 888. What is the rate percentage of interest per annum?

(a) 3%
(b) 8%
(c) 5%
(d) 4%

Q53. Sourabh purchased an article for Rs. 48,000 and sold it at a loss of 12%. With that amount, she purchased another item and sold it at a gain of 20%. What is the overall gain or loss in Rs. ?

(a) Rs. 2,688 loss
(b) Rs. 14,208 loss
(c) Rs. 2,688 gain
(d) Rs. 14,208 gain

Q54. If sin θ cos θ = √2/3, then the value of (sin^6 θ + cos^6 θ) is:

(a) 1/3
(b) 4/3
(c) 2/3
(d) 5/3

Q55. If (d + e + f) = 14, ($d^2 + e^2 + f^2$) = 96, then find the value of (de + ef + fd).

(a) 75
(b) 25
(c) 50
(d) 100

Q56. A shopkeeper sells a chair for Rs. 2,325 after allowing a discount of 22.5% on the marked price. The discount offered was:

(a) 675
(b) 1,257
(c) 880
(d) 1,050

Q57. In ΔCAB, angle CAB = 90° and AD ⊥ BC. If AC = 24 cm, AB = 10 cm, then find the value of AD (in cm).

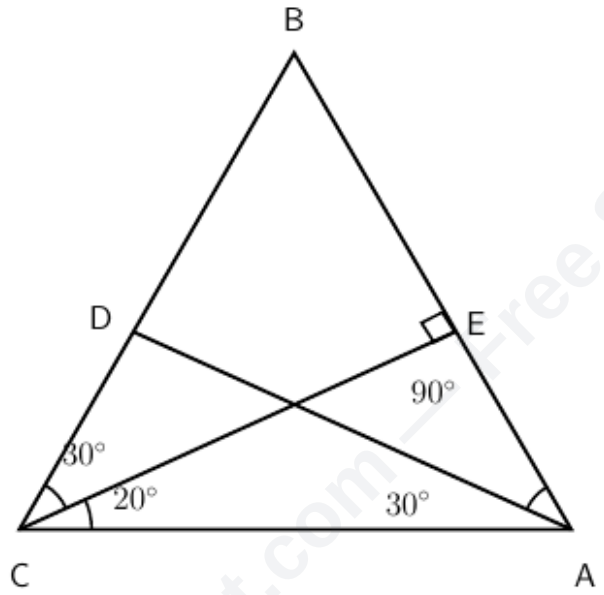
(a) 9.23
(b) 8.23
(c) 7.14
(d) 10.23

Q58. If A is an acute angle and 8 sec A = 17, find the value of tan A.

(a) 15/17
(b) 15/8
(c) 8/15
(d) 8/17

Q59. In figure, angle ADB is equal to:

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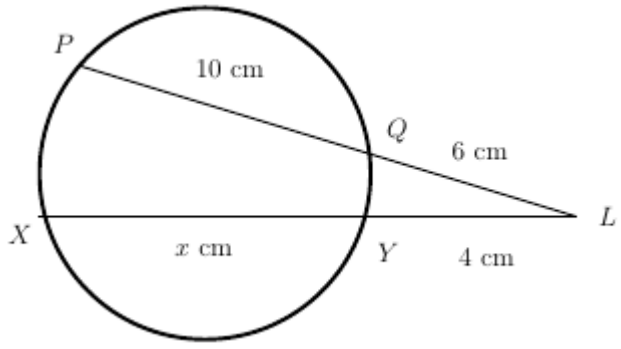


(a) 40°
(b) 60°
(c) 80°
(d) 50°

Q60. If g = (2 - √3), what will be the value of (g^3-1/(g^3)) ?
(a) -30√3
(b) 52
(c) 30√3
(d) -52

Q61. A man offers a 40% discount on an item which has been marked 50% above the cost price. If the selling price of the item is Rs. 1,305, then the cost price is:
(a) Rs. 1,360
(b) Rs. 1,450
(c) Rs. 1,680
(d) Rs. 1,560

Q62. In the figure, chords XY = x cm and PQ = 10 cm are intersecting each other at point L. Find the length of XY (in cm).



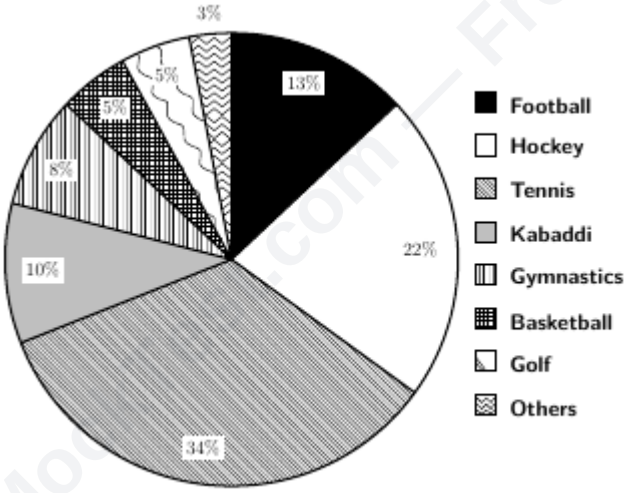
(a) 22
(b) 21
(c) 20
(d) 23

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Q63. A cylindrical pillar is 84 cm in diameter and 5 m in height. Find the cost of painting the curved surface of the pillar at the rate of Rs. 15 per m². (Use π = 22/7)

(a) Rs. 198
(b) Rs. 184
(c) Rs. 208
(d) Rs. 216

Q64. The following pie chart gives the budget allocation for various sports mentioned. The numbers shown are percentages over 360 degrees.



If the total amount for all the sports is Rs. 42,76,80,000 then the allocation for Hockey, Basketball, and Gymnastics together exceeds the amount allocated to Football, Kabaddi, and Golf together by:

(a) 9524000
(b) 7453000
(c) 29937600
(d) 8316000

Q65. $\cot^2 \theta - \operatorname{cosec}^2 \theta$ equals to:

(a) 0
(b) tan θ
(c) 1
(d) -1

Q66. In an election between two candidates, 85% of the electorate cast their votes 6% of the votes polled were declared invalid. If the winning candidate secured 60% of the valid votes, how many votes did the winning candidate receive if the number of eligible voters was 10000?

(a) 4784
(b) 4804
(c) 4794
(d) 4824

Q67. Classification of 100 students based on the marks obtained by them in Mathematics and Physics in an examination is given below.

	Marks out of 50				
Subject	40 and above	30 and above	20 and above	10 and above	0 and above
Mathematics	9	32	80	92	100
Physics	4	21	66	81	100

How many students have got marks less than 10 in Mathematics?

(a) 8
(b) 19
(c) 12
(d) 20

Q68. Refer to the given data table and answer the following question:

Course	Boys	Girls
B.Sc.	82	90
B.A.	48	102
B. Com.	84	96
B. Ag.	58	48
B. tech.	58	42

What percentage of students who are pursuing B. Ag. are girls?

(a) 47.92%
(b) 54.71%
(c) 52.28%
(d) 45.28%

Q69. The difference between the simple and compound interest on a certain sum of money at an 8% rate of interest per annum for two years is Rs. 56. Find the sum.

(a) Rs. 8,750
(b) Rs. 7,058
(c) Rs. 7,805
(d) Rs. 8,057

Q70. Simplify the expression:

(2x + 13 - y) (2x - 13 - y)

(a) $4x^2 - y^2 - 4xy - 169$
(b) 4x2 + y2 + 4xy - 169
(c) 4x2 + y2 - 4xy - 169
(d) 4x2 + y2 - 4xy + 169

Q71. In an isosceles triangle, if the unequal angle is 4 times the sum of the equal angles, then each equal angle is:

(a) 25°
(b) 30°
(c) 21°
(d) 18°

Q72. The six-digit number N = 4a6b9c is divisible by 99, then the maximum sum of the digits of N is:

(a) 18
(b) 36
(c) 45
(d) 27

Q73. Given that x varies directly as y and x = 45 when y = 9. What is the value of x when y = 50?

(a) 225
(b) 190
(c) 175
(d) 250

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Q74. Two trains that are 125 metres and 99 metres in length, respectively, are running in opposite directions at the speeds of 40 km/h and 32 km/h, respectively. In how much time will they be completely clear of each other from the moment they meet?

(a) 10.2 sec
(b) 11.2 sec
(c) 9.2 sec
(d) 12.2 sec

Q75. Raju and Ramu together can do a piece of work in 8 days, and Raju alone can do it in 12 days. In how many days can Ramu alone do it?

(a) 18 days
(b) 20 days
(c) 22 days
(d) 24 days

GENERAL AWARENESS

Q76. Select the most appropriate idiom for the underlined segment in the given sentence.

When he made fun of the sage, who was already infuriated, it made a bad situation worse.

(a) Made them at the loggerheads
(b) Pulled someone's legs
(c) Added fuel to the fire
(d) Budged up

Q77. Select the most appropriate synonym of the given word.

Quell

(a) Invite
(b) Beseech
(c) Encourage
(d) Suppress

Q78. Select the most appropriate idiom for the following sentence.

The recent strike of the employees left the factory and its machinery in disorder.

(a) Need of the hour
(b) Out of gear
(c) Pin-money
(d) Lock and key

Q79. Select the option that can be used as a one-word substitute for the underlined group of words.

'A Red, Red Rose' by Robert Burns is a poem that tells a story and has a regular rhythm and rhyme scheme.

(a) epic
(b) haiku
(c) ballad
(d) sonnet

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

Should we go shopping for a ____ fan for our new house?

(a) ceiling
(b) sealink
(c) sealing
(d) selling

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Q81. The following sentence has been divided into parts. One of them may contain an error. Select the part that contains the error from the given options. If you don't find any error, mark 'No error' as your answer.

A crocodile / was swimming / in a river.

(a) A crocodile
(b) was swimming
(c) No error
(d) in a river

Q82. Select the most appropriate option that can substitute the underlined segment in the given sentence.

The performance of the musicians was rather worst than expected by the audience.

(a) worst than expectation
(b) worse was expected
(c) worse than expected
(d) bad as expected

Q83. Select the most appropriate synonym of the given word from the following sentence.

Damage

Every war in the history originates because of the greed of the rulers which was satisfied after mass destruction.

(a) Satisfied
(b) Destruction
(c) Greed
(d) Originates

Q84. Select the most appropriate synonym of the given word.

Repercussion

(a) Duplication
(b) Consequence
(c) Recusation
(d) Apprehension

Q85. Select the option that expresses the given sentence in active voice.

It will be done by me.

(a) I will do it.
(b) I do it.
(c) I did it.
(d) I have done it.

Q86. Select the most appropriate synonym of the underlined word in the given sentence.

Let us adjourn the meeting here, as it is lunchtime now.

(a) Postpone
(b) Prohibit
(c) Stimulate
(d) Expedite

Q87. Parts of a sentence are given below in jumbled order, except the first part. Arrange the parts in the correct order to form a meaningful sentence.

As for the first historical fallacy,…

A. only some specialists can unravel its inscrutable mysteries

B. that the past was so different

C. from the present that

D. many people wrongly believe

(a) BCDA
(b) DCBA

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(c) DBCA
(d) ABCD

Q88. Select the most appropriate synonym of the given word.

Hideous

(a) Repulsive
(b) Pretty
(c) Attractive
(d) Plain

Q89. The following sentence has been split into four segments. Identify the segment that contains a grammatical error.

An old man whom / we met while coming back / from our college lives / at my uncle's place.

(a) An old man whom
(b) at my uncle's place
(c) we met while coming back
(d) from our college lives

Q90. Select the INCORRECTLY spelt word from the given sentence.

The crowd jerred and laughed, but the young prince sprang to the gate with his face flushed.

(a) Prince
(b) Laughed
(c) Sprang
(d) Jerred

Q91. Sentences of a paragraph are given below in jumbled order. Arrange the sentences in the correct order to form a meaningful and coherent paragraph.

A. Despite numerous setbacks and rejections, he refused to give up on his dream of making it big.

B. John had always been a talented musician, but he struggled to find his place in the competitive and cutthroat music industry.

C. With the help of a supportive community of fellow musicians and fans, John continued to hone his craft and develop his own unique sound.

D. Eventually, his hard work paid off and he landed a record deal with a major label.

(a) BACD
(b) DCAB
(c) BDAC
(d) CBAD

Q92. Select the option that can be used as a one-word substitute for the given group of words.

One who eats human flesh

(a) Mammal
(b) Vegetarian
(c) Carnivore
(d) Cannibal

Q93. Select the INCORRECTLY spelt word.

(a) Acknowledgement
(b) Accomodate
(c) Address
(d) Acquire

Q94. Choose the correct meaning of the underlined word in the given sentence.

My friend works as a florist at the shop down the street.

(a) A person who sells and arranges cut flowers
(b) A person who sells sweets

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(c) Someone who grows flowers
(d) Someone who works in a bank

Q95. Select the option that expresses the given sentence in active voice.

My pencils have been stolen.

(a) Somebody have stolen my pencils.
(b) Somebody steals my pencils.
(c) Somebody has stolen my pencils.
(d) Somebody stole my pencils.

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.

Harry Potter was first introduced in the novel, 'Harry Potter and the Philosopher's Stone', as an orphan who is (1)_____ by his guardian aunt and uncle and their son. On his 11th birthday Harry discovers that his parents were a witch and a wizard and that he, a wizard himself, has been invited to (2)__ Hogwarts School of Witchcraft and Wizardry. He also learns that his parents had not (3)___ in a car accident, as his aunt and uncle had told him, but that they instead had been murdered by an evil wizard named Voldemort. Harry was the only person to have ever (4) __ an attack by Voldemort—by somehow (5)_____ the latter's 'killing curse'—which left him with a lightning-bolt-shaped scar on his forehead.

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

(a) crushed
(b) mistreated
(c) dispirited
(d) bowed

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

(a) see
(b) escort
(c) accompany
(d) attend

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

(a) perished
(b) departed
(c) lost
(d) vanished

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

(a) survived
(b) thrived
(c) continued
(d) tolerated

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

(a) rallying
(b) recovering
(c) failing
(d) rebounding

ANSWER KEY

1	b	2	a	3	b	4	b	5	d	6	b	7	d	8	b	9	d	10	a
11	d	12	a	13	c	14	a	15	c	16	d	17	c	18	d	19	c	20	c

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

SOLUTIONS

Q1. Answer: (b) 42 : 123

The logic followed here is:

Logic: (First number + 1) × 3 = Second number.

Now,

Option 1) 32 : 99

=> (32 + 1) × 3 = 99

=> 33 × 3 = 99

=> 99 = 99

Option 2) 42 : 123

=> (42 + 1) × 3 = 123

=> 43 × 3 = 123

=> 132 ≠ 123

Option 3) 24 : 75

=> (24 + 1) × 3 = 75

=> 25 × 3 = 75

=> 75 = 75

Option 4) 64 : 195

=> (64 + 1) × 3 = 195

=> 65 × 3 = 195

=> 195 = 195

Thus, Odd pair is 42 : 123.

Hence, the correct answer is " Option 2".

Q2. Answer: (a) [figure]

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

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

Q3. Answer: (b) Neither conclusion (I) nor (II) follow.

Given statements:

Some clowns are scary.

All scary are ghosts.

Some ghosts are friendly.

The least possible Venn diagram for the given statement is:

Conclusions:

All ghosts are friendly - False (Because, some ghosts are friendly. So, all ghosts are friendly can be possible only).

All clowns are ghosts - False (Because, some clowns are ghosts. So, all clowns are ghosts can be possible only).

Thus, neither conclusion (I) nor (II) follows.

Hence, the correct answer is "Option 2".

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Q4. Answer: (b) LLML

The logic followed here is:

Given Sequence: LMN _ LMN _ LM _ NL _ MMNN

Now, putting the letters in the blank spaces given in the option one by one:

Option 1) LMLM → L M N / L L M N / M L M L N / L M M M N N

Option 2) LLML → L M N / L LM N / L LM M N / L L M M N N

Here, L L M Followed the pattern.

Option 3) LMNL → L M N / L LM N / M L M N N / L L M M N N

Option 4) LLLM → L M N / L LM N / L LM L N /L M M M N N

Hence, the correct answer is " Option 2".

Q5. Answer: (d) H

Given word: 'TOUCHED'

After arranged in alphabetical order:

Alphabets	T	O	U	C	H	E	D
Alphabetical order	U	T	O	H	E	D	C

After arranged in alphabetical reversed order,

Letter at the Centre is " H ".

There are three letters at the left of H (U T O) and three letters are at the right of H (C D E).

Hence, the correct answer is " Option 4".

Q6. Answer: (b) 81

The logic followed here is:

Hence, the correct answwer is "Option 2".

Q7. Answer: (d) 19

BODMAS Table:

Given equation: 55 + 42 × 7 ÷ 11 - 30 = ?

Now, if '+' and '-' and '×' and '÷' are interchanged, then:

=> 55 - 42 ÷ 7 × 11 + 30 = ?

=> 55 - 6 × 11 + 30 = ?

=> 55 - 66 + 30 = ?

=> 85 - 66 = 19

Hence, the correct answer is "Option 4".

Q8. Answer: (b) 11, 147

The logic followed here is:

Logic: (1st number × 13) + 4 = 2nd number

• 8, 108 → 8 × 13 + 4 = 104 + 4 = 108

• 14, 186 → 14 × 13 + 4 = 182 + 4 = 186

Now,

Option 1) 5, 73

=> 5 × 13 + 4 = 65 + 4 = 69

=> 69 ≠ 73

Option 2) 11, 147

=> 11 × 13 + 4 = 143 + 4 = 147

=> 147 = 147

Option 3) 16, 204

=> 16 × 13 + 4 = 208 + 4 = 212

=> 212 ≠ 204

Option 4) 9, 107

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=> 9 × 13 + 4 = 117 + 4 = 121

=> 121 ≠ 107

So, the correct pair is '11, 147'.

Hence, the correct answer is "Option 2".

Q9. Answer: (d) zb

The logic followed here is:

'towards the main gate' is written as 'nt zb ps cq',

'main purpose of this' is written as 'rq kl bt zb'.

Here, The code for 'main' is 'zb'.

Hence, the correct answer is "Option 4".

Q10. Answer: (a) Mother's mother

Family Chart:

Decoding the Symbols:

Symbol	•	•	×	÷
Meaning	Mother	Brother	Wife	Father

Given: F + G × H ÷ I - J

It means: F is Mother of G, G is wife of H, H is Father of I, I is Brother of J.

So, F is the 'Mother's mother' of J.

Hence, the correct answer is "Option 1".

Q11. Answer: (d) 57

Given equation: 43 B 2 C 12 D 82 A 2 = ?

BODMAS Rule:

Decoding the given information:

Alphabet	A	B	C	D
Meaning	÷	×	•	•

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

=> 43 × 2 + 12 - 82 ÷ 2 = ?

=> 43 × 2 + 12 - 41 = ?

=> 86 + 12 - 41 = ?

=> 98 - 41 = 57

Hence, the correct answer is "Option 04".

Q12. Answer: (a) 535

The logic followed here is:

So, '535' is the missing number in the given series.

Hence, the correct answer is "Option 1".

Q13. Answer: (c) [figure]

The logic followed here is:

Logic: The curve line rotated one place anticlockwise

and the curve line increased by 1 every time.

Hence, the correct answer is "Option 3".

Q14. Answer: (a) 9 : 26

The logic followed here is:

Logic: (1st number × 2) + 7 = 2nd number

Now,

Option 1) 9 : 26

→ (9 × 2) +7

→ 18 + 7 = 25 ≠ 26.

Option 2) 5 : 17

→ (5 × 2) + 7

→ 10 + 7 = 17.

Option 3) 3 : 13

→ (3 × 2) + 7

→ 6 + 7 = 13.

Option 4) 8 : 23

→ (8 × 2) + 7

→ 16 + 7 = 23.

So, odd number pair is '9 : 26'.

Hence, the correct option is "Option 1".

Q15. Answer: (c) LNOQ

The logic followed here is:

For, 'NPQS is written as JLMO',

For, 'JLMO is written as FHIK',

Similarly, for 'PRSU'

So, 'PRSU' will be written as 'LNOQ'.

Hence, the correct answer is "Option 3".

Q16. Answer: (d) FCB

The logic followed here is:

Option 1) SRP

Option 2) JIG

Option 3) HGE

Option 4) FCB

Here, 'FCB' is odd among the given options.

Hence, the correct answer is "Option 4".

Q17. Answer: (c) KNPL

The logic followed here is:

For, BEGC is written as ILNJ.

For, LOQM is written as SVXT.

Similarly,

For, DGIE is written as '?'.

Q18. Answer: (d) One

Given word: 'GASOLINE'.

After arranged in alphabetical order:

Alphabets	G	A	S	O	L	I	N	E
Alphabetical order	A	E	G	I	L	N	O	S

After arranged in alphabetical order,

Only one letter is remained unchanged that is " L ".

Hence, the correct answer is "Option 4".

Q19. Answer: (c) BABC

The logic followed here is:

Given Sequence: A_CCD_BCCDA_CCDABC_D

Now, put the letters in the blank spaces given in the option one by one:

Option 1) CACB → ACCCD / ABCCD / ACCCD / ABCBD

Option 2) DACB → ADCCD / ABCCD / ACCCD / ABCBD

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Option 3) BABC → ABCCD / ABCCD / ABCCD / ABCCD
Here, 'ABCCD' followed a pattern.
Option 4) BBBB → ABCCD / BBCCD / ABCCD / ABCBD
Hence, the correct answer is "Option(3)".

Q20. Answer: (c) Mother's brother

Given: T if ' P + Q - R × S ÷ T'

Symbols	•	•	÷	×
Coded	Mother	Brother	Father	Wife

Given:' P + Q - R × S ÷ T'.
It means: P is mother of Q. Q is the brother of R. R is the wife of S. S is the father of T.
So, Q is the mother's brother of T.
Hence, the correct answer is "Option 3".

Q21. Answer: (b) [figure]

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

Q22. Answer: (c) SG 20

The position and positional values or English Alphabets are:
The logic followed here is:
For, 'GB 13 is related to HD 17'
For, 'DK 18 is related to EM 22'
Similarly, for 'RE 16'
So, 'RE 16' will be related to 'SG 20'
Hence, the correct answer is "Option (3)".

Q23. Answer: (b) (304, 19, 16)

The logic followed here is:
Logic: 2nd number × 3rd number = 1nd number.
Given,
(377, 13, 29)
=> 13 × 29 = 377
(564, 12, 47)
=> 12 × 47 = 564
Now, checking the options:
Option 1): (227, 25, 9),
=> 25 × 9 = 225 ≠ 227
Option 2): (304, 19, 16),
=> 19 × 16 = 304
Option 3): (475, 28, 17),
=> 28 × 17 = 476 ≠ 475
Option 4): (274, 9, 31),
=> 9 × 31 = 279 ≠ 274
Hence, the correct answer is "Option (2)".

Q24. Answer: (a) 14

Let's count the number of triangles in the figure,
So, there are '14' triangles in the given figure.
Hence, the correct answer is "Option (1)".

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Q25. Answer: (a) zt

The logic followed here is:

'Come with me' is written as 'mx zt rq'

'With your permission' is written as 'pr sn zt'

So, 'With' will be written as 'zt'.

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

Q26. Answer: (a) revenue deficit

The correct answer is revenue deficit.

Key Points

• Revenue deficit arises when a government's revenue expenditure surpasses its revenue receipts.

• Revenue expenditure encompasses spending on items like salaries, pensions, and interest payments, while revenue receipts comprise income from taxes and fees.

• This deficit serves as a crucial gauge of the government's fiscal condition, with elevated deficits potentially triggering issues like inflation and economic instability.

• Various strategies exist to alleviate revenue deficits, including augmenting revenue receipts through tax hikes or fee adjustments, as well as curbing expenditure by implementing cost-saving measures or terminating certain programs.

Important Points

• A budget deficit occurs when a government's total expenditures surpass its total revenues over a specified period, usually a fiscal year.

• This signifies that the government is spending more funds than it is generating through diverse channels like taxes, fees, and other revenue sources.

• Revenue receipts denote the income a business garners from its routine operations.

• They are recurrent and have an impact on the business's profit and loss as reflected in the income statement.

Q27. Answer: (b) Doubling of farmers' income

The correct answer is Doubling of farmers' income.

Key Points

• "Doubling of farmers' income," is not directly related to the industrial sector.

• Increasing farmers' income typically involves agricultural policies, improvements in farming techniques, infrastructure development in rural areas, and market reforms to ensure fair prices for agricultural products.

• While industrialization may indirectly contribute to overall economic growth and development, specifically doubling farmers' income is not a direct outcome attributed to the industrial sector.

Important Points

• The industrial sector primarily focuses on manufacturing goods and providing employment opportunities in factories and production facilities.

• The outcomes typically associated with a strong industrial sector include:

• Provision of relatively stable employment: A robust industrial sector often leads to the creation of jobs in manufacturing industries, providing stable employment opportunities for workers.

• Promotion of modernization: Industrialization drives technological advancements and promotes modernization by encouraging the adoption of new production techniques, machinery, and processes.

• Provision of mass consumption manufactured goods: A well-developed industrial sector produces a wide range of manufactured goods, including consumer products, which are essential for meeting the demands of the population and driving economic growth through increased consumption.

Q28. Answer: (d) Parsi

The correct answer is Parsi.

Key Points

• The newspaper Rast Goftar, also known as Truthteller, advocated for social and religious reforms within the Parsi community.

• Founded in 1854 as an Anglo-Gujarati newspaper by Dadabhai Naoroji and Kharshedji Cama, its primary aim was to promote social reform initiatives among Parsis in Western India and to elucidate Zoroastrian concepts.

• Acting as the primary voice of the Rahnumai Mazdayasnan Sabha, a Religious Reform Association established in 1851, the paper was supported by influential figures such as Naoroji Furdonji, Dadabhai Naoroji, K.R. Cama, and S.S. Bengalee.

• The movement spearheaded by these leaders sought to rejuvenate social conditions and restore religion to its original purity.

Important Points

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• The socio-religious reform movements in India were driven by the objectives of advocating for social justice, advancing women's education, and combating prevalent social ills.

• These movements actively confronted bigotry, superstitions, and the entrenched influence of the priestly class within society.

• Rooted in religious beliefs, they were committed to rectifying inhumane practices and dispelling superstitions. Moreover, these movements espoused the principle of religious unity, emphasizing the commonalities and interconnectedness among various faiths.

Additional Information

• The Parsi community, alternatively spelled Parsee, comprises individuals residing in India who adhere to the Zoroastrian faith.

• The term "Parsi" translates to "Persians," reflecting the community's Persian origins.

• These individuals trace their ancestry to Zoroastrian migrants who sought refuge in India, fleeing religious persecution inflicted by Muslims in Persia.

Q29. Answer: (d) Manipur

The correct answer is Manipur.

Key Points

• Manipur secured the top spot in the Northeast Olympic Games for the second consecutive time, clinching a total of 237 medals, with an impressive tally of 85 golds.

• Assam closely followed in second place, accumulating 201 medals, including 81 golds.

• The event, featuring athletes from eight states in the northeast region, took place on November 10.

• This victory marks Manipur's continued dominance in the Games, building upon their previous success when they hosted the inaugural edition in October 2018 and topped the medal tally with 80 golds.

• Renowned for producing Olympic medalists like boxer MC Mary Kom and weightlifter Mirabai Chanu, Manipur further solidified its position by securing an additional 17 medals, including seven golds, on the final day of competition.

Important Points

• Arunachal Pradesh secured the third position, while the host state Meghalaya claimed the fourth spot with a total of 149 medals (36 gold, 35 silver, 78 bronze).

• This performance marked a significant improvement for Meghalaya compared to their sixth-place finish in the first edition, where they secured only 39 medals.

• Meanwhile, as preparations for the "Manipur Olympic Games 2022" were underway, Manipur's Chief Minister Nongthombam Biren Singh unveiled the official mascot of the event, named Nongin after the state bird of Manipur, Mrs. Hume's pheasant.

• Recognizing the importance of preserving this bird species and raising public awareness in Manipur, the Government of Manipur, led by Chief Minister Biren, officially adopted Nongin as the mascot for the sports event.

Q30. Answer: (d) Tropical Deciduous Forests

The correct answer is Tropical Deciduous Forests.

Key Points

• Tropical deciduous forests, also referred to as monsoon forests, thrive in regions receiving an annual rainfall ranging from 70 to 200 cm.

• These forests exhibit lush greenery and dense vegetation during the wet summer months but transform during the dry winters, characterized by leaf shedding and a drier landscape.

• Found in regions such as India, northern Australia, and central America, tropical deciduous forests are particularly widespread in India, covering vast areas including Madhya Pradesh, Uttar Pradesh, Bihar, Chhattisgarh, Orissa, and parts of Maharashtra.

• In India, these forests hold significant economic importance as they serve as abundant sources of valuable timber species like teak, sal, sandalwood, and rosewood.

• These trees are extensively utilized in the lumber industry for various purposes such as construction, railway infrastructure, and furniture manufacturing.

Important Points

• Littoral and swamp forests, commonly referred to as wetland forests, thrive in coastal regions, along seashores, creeks, river estuaries, and deltas. They can also be observed at the edges of swampy islands and along sandy beaches.

• Tropical thorn forests, characterized by scrub-like vegetation, are typically found in desert regions. These forests are prevalent in tropical and subtropical areas and thrive in semi-arid regions receiving less than 70 cm of annual rainfall.

• Montane ecosystems are situated on mountain slopes, where the alpine climate significantly influences the ecosystem. As elevation increases, temperatures drop, leading to distinct stratification within the ecosystem due to varying environmental conditions.

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Q31. Answer: (a) 12

The solution is in Hindi. Read it online.

Q32. Answer: (a) Tea

The correct answer is Tea.

Key Points

• Tea is a plantation crop found abundantly in Assam.

• Tea cultivation is a prominent industry in Assam, one of India's northeastern states.

• The region's favourable climate, with abundant rainfall and rich, loamy soil, provides optimal conditions for tea cultivation.

• Additionally, the low elevation and high humidity levels further contribute to the ideal environment for tea plantations. Assam's tea plantations are typically situated in the Brahmaputra River valley, where the lush greenery of the landscape is dotted with tea estates. These estates cultivate varieties of the Camellia sinensis plant, from which black tea, Assam's most renowned tea variety, is produced.

• The tea industry plays a significant role in Assam's economy, employing a large number of people, both directly and indirectly.

• Additionally, Assam's tea estates attract tourists interested in exploring the scenic beauty and heritage of tea cultivation in the region.

Important Points

• Uttar Pradesh holds the distinction of being the largest producer of wheat in India.

• In the year 2021, the state produced an impressive quantity of over 35 million metric tons of wheat. West Bengal stands out as the leading rice-producing state in India, annually yielding approximately 146.05 lakh tons of rice.

• As of July 2023, Karnataka has emerged as the top maize-producing state in India, making a significant contribution of 16.45% to the nation's total maize yield.

Q33. Answer: (b) Only A

The correct answer is Only A.

Key Points

• An externality refers to the occurrence of a cost or benefit resulting from the actions of one party, yet borne or enjoyed financially by another.

• These effects may impact individuals or entire organizations and can be classified as either private or societal.

• Positive externalities arise when they provide a benefit to a third party. For instance, the construction of infrastructure like flyovers or highways can decrease transportation expenses and travel duration for users.

• Conversely, negative externalities occur when they impose a cost on third parties. For example, the construction of roads may lead to erosion and chemical runoff, subsequently polluting water sources downstream.

Important Points

• Real national income, also referred to as national income at constant prices, denotes the total income of a country adjusted for inflation.

• This measure, also known as nominal or money national income, reflects the actual purchasing power of a currency at a particular juncture.

• Constant prices, representing real value, are adjusted for price fluctuations concerning a baseline or reference point.

• In contrast, current prices, denoting nominal value, are those prevailing at a specific moment.

• Real national income offers a more precise evaluation of the real shifts in production and economic activity over time, enhancing the accuracy of comparisons.

Q34. Answer: (d) Rice

The correct answer is Rice.

Key Points

• Oryzenin, a storage protein present in rice grains, constitutes the primary glutelin found in rice, comprising approximately 75–90% of the total protein content in rice grains.

• Extracting oryzenin from rice grains and rice flour involves the process of sonification.

• Renowned for its high quality, oryzenin boasts a complete amino acid profile.

• Widely utilized across various food and beverage sectors, including sports nutrition, meat substitutes, bakery, and confectionery, oryzenin serves as a versatile ingredient.

• It emerges as an appealing option for individuals seeking lactose-free and non-allergenic protein sources.

• Moreover, it is favoured by those susceptible to gluten sensitivity, as it does not induce digestive complications.

Additional Information

• Rice, a cereal grain, serves as the primary dietary staple for more than half of the global population, especially prevalent in Asia and Africa.

• It originates from the seeds of two grass species: Oryza sativa (Asian rice) and, less frequently, O. glaberrima (African rice).

• Asian rice was cultivated in China approximately 13,500 to 8,200 years ago, while African rice saw domestication in Africa around 3,000 years ago. Rice has gained widespread acceptance across diverse cultures worldwide.

• In 2021, global rice production reached 787 million tons, ranking it fourth among agricultural crops, following sugarcane, maize, and wheat.

Q35. Answer: (a) Both a and b

The correct answer is Both a and b.

Key Points

• The Sonepur Cattle Fair, also known as Harihar Kshetra Mela, takes place on Kartik Poornima (the full moon day) spanning the months of November and December in Sonepur, Bihar, situated at the confluence of the Ganges and Gandak rivers.

• Originally, the fair was held in Hajipur, with only the puja performed at the Harihar Nath temple in Sonpur.

• However, during the reign of Mughal Emperor Aurangzeb, the fair's location shifted to Sonpur.

• Legend suggests that the Harihar Nath temple was initially constructed by Lord Rama during his journey to King Janak's court to seek Mata Sita's hand.

• Subsequently, Raja Man Singh undertook repairs to the temple, while its current form owes to the efforts of Raja Ram Narain, a prominent figure during the late Mughal era.

Important Points

• Currently, the Sonepur Cattle Fair stands as one of the largest such fairs in Asia, extending from fifteen days to a month in duration.

• Its roots trace back to ancient times when Chandragupta Maurya (340-297 BCE) engaged in the procurement of elephants and horses across the Ganges River. Over time, it has evolved into a blend of traditional and contemporary activities.

• These include historical rituals like snan (ritual bathing) at various ghats and temple visits, alongside the addition of modern elements such as stalls and amusement parks.

• The fair encompasses a diverse array of attractions, featuring stalls representing various government departments, as well as exhibitions showcasing the talents of local artists and the merchandise of cattle traders.

Q36. Answer: (b) 6.25 × 10^(18)

The correct answer is 6.25 × 10^(18).

Key Points

• The proper number of electrons in 1 ampere (1 A) of current can be calculated using the elementary charge, which is the charge carried by a single electron.

• The elementary charge is approximately 1.602×10^(−19) coulombs.

• To find the number of electrons, we need to divide the total charge (which is 1 coulomb for 1 ampere of current) by the elementary charge:

Number of electrons= Elementary charge/Total charge

Number of electrons = 1 C/1.602×10^(−19) C/electron

Number of electrons = 1 C/1.602×10^(−19) C/electron

Number of electrons ≈ 6.25 × 10^(18) electrons

So, the proper number of electrons in 1 ampere of current is approximately 6.25 × 1018 electrons.

Q37. Answer: (d) social media influencers

The correct answer is social media influencers.

Key Points

• The Ministry of Consumer Affairs, Food, and Public Distribution, through the Department of Consumer Affairs, has issued a guide titled 'Endorsements Know-hows!' targeting celebrities, influencers, and virtual influencers active on social media platforms.

• The guide's primary objective is to ensure transparency and prevent audience deception during product or service endorsements.

• It emphasizes adherence to the Consumer Protection Act and relevant regulations.

• It addresses individuals or groups with the ability to influence their audience's purchasing decisions or opinions due to their authority, expertise, position, or relationship with their followers.

• The guide particularly highlights situations where there exists a material connection between an advertiser and a celebrity/influencer, potentially impacting the credibility or significance of the endorsement made by the celebrity/influencer.

Important Points

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• Social media influencers are individuals who have established credibility and expertise in a particular subject matter.

• Through consistent posts on their preferred social media platforms, they attract sizable followings of enthusiastic and engaged individuals who value their opinions.

• Brands often favour social media influencers due to their ability to initiate trends and persuade their followers to purchase the products they endorse.

Q38. Answer: (c) To organise village panchayat

The correct answer is To organise village panchayat.

Key Points

• The Fundamental Rights, Directive Principles of State Policy, and Fundamental Duties are integral sections of the Constitution of India, delineating the essential obligations of the state towards its citizens, as well as the rights and duties of citizens towards the State.

• These sections are regarded as fundamental components of the constitution, which was crafted by the Constituent Assembly of India between 1947 and 1949.

• The Fundamental Duties encompass the moral obligations of all citizens to foster patriotism and uphold India's unity, as outlined in Part IV–A of the Constitution.

• These duties, akin to the Directive Principles, are not directly enforceable by courts unless enacted into law by the legislature, impacting both individuals and the nation as a whole.

Important Points

• List of Fundamental Duties:

• Abide by the Constitution and respect the national flag & National Anthem

• Follow the ideals of the freedom struggle

• Protect the sovereignty & integrity of India

• Defend the country and render national services when called upon

• Spirit of common brotherhood

• Preserve composite culture

• Preserve natural environment

• Develop scientific temper

• Safeguard public property

• Strive for excellence

• Duty fo all parents/guardians to send their children in the age group of 6-14 years to school.

Q39. Answer: (b) More than access to credit poor need subsidies

The correct answer is More than access to credit poor need subsidies.

Key Points

• Microfinance services cater to unemployed or low-income individuals who often lack access to traditional financial institutions due to poverty or limited financial resources, enabling them to secure small business loans safely and ethically.

• While microfinance initiatives are global, the majority are concentrated in developing nations like Bangladesh, Cambodia, India, Afghanistan, Democratic Republic of Congo, Indonesia, and Ecuador, where they play a crucial role in fostering economic empowerment and poverty alleviation.

• The advantages of microfinance extend beyond merely providing capital to individuals; entrepreneurs who establish successful businesses through microfinance can further contribute to their communities by generating employment opportunities and facilitating trade, thereby fostering overall socio-economic development.

Important Points

• While certain microfinance interest rates may be lower compared to traditional banks, critics argue that some operations are profiting from the impoverished population.

• Moreover, the involvement of major financial institutions and large corporations in launching for-profit microfinance departments has raised concerns that higher interest rates imposed by these entities could potentially lead to a debt trap for low-income borrowers, overshadowing the intended benefits.

• Nevertheless, microfinance serves as a crucial form of banking service for low-income individuals or groups who lack access to conventional financial services.

Q40. Answer: (c) Padma Shri

The correct answer is Padma Shri.

Key Points

• In 2006, Ileana Citaristi, an Italian Odissi dancer, was awarded with the Padma Shri.

• Ileana Citaristi, an Italian dancer proficient in Odissi and Chhau, as well as a dance instructor based in Bhubaneswar, India, was honored with the 43rd National Film Award for Best Choreography for her work in the film Yugant in 1995.

• Notably, in 2006, she became the first dancer of foreign origin to receive the Padma Shri award for her remarkable contributions to Odissi.

• Additionally, she has been bestowed with the 'Raseshwar Award' by the Sur Singar Sansad, Mumbai.

• Recognizing her significant impact on Odissi, the Government of India conferred upon her the Padma Shri in 2006.

• Furthermore, in 2008, the Italian government bestowed upon her the title of a member of the Order of the Star of Italian Solidarity.

Important Points

• Padma Bhushan is a distinguished civilian award bestowed by the Government of India to individuals for their exceptional service and contributions in various fields.

• Bharat Ratna, India's highest civilian award, is conferred upon individuals for their outstanding achievements and contributions to the nation's progress and welfare.

• Padma Shri, a prestigious civilian honour, is awarded by the Government of India to individuals in recognition of their distinguished service and significant accomplishments in various spheres.

• Padma Vibhushan, one of India's highest civilian honours, is bestowed upon individuals for their exceptional contributions and achievements in diverse fields, recognizing their outstanding impact on the nation's development and welfare.

Q41. Answer: (b) Phenylalanine

The correct answer is Phenylalanine.

Key Points

• Phenylalanine is a type of amino acid, which exists in three forms: L-, D-, and DL-phenylalanine. L-phenylalanine is naturally occurring and can be found in foods like meat and eggs.

• Amino acids serve as the fundamental building blocks of proteins, with L-phenylalanine being classified as an essential amino acid. It is the sole form of phenylalanine present in proteins.

• Conversely, D-phenylalanine is not considered an essential amino acid, and its physiological role remains unclear.

• DL-phenylalanine is synthesized in laboratory settings. Phenylalanine is utilized by individuals for various purposes, including the treatment of vitiligo (a condition characterized by white patches on the skin), attention-deficit hyperactivity disorder (ADHD), chronic pain, signs of aging skin, depression, and numerous other conditions.

Important Points

• Leucine is among the three essential branched-chain amino acids. These amino acids play a crucial role in providing energy to skeletal muscle during exercise.

• Tryptophan is an essential amino acid vital for normal growth in infants and for the synthesis and maintenance of the body's proteins, muscles, enzymes, and neurotransmitters.

• Valine, another essential branched-chain amino acid, is utilized by the body to aid in energy production.

Q42. Answer: (b) Nehruvian

The correct answer is Nehruvian.

Key Points

• Nehruvian is NOT included in the category of Directive Principles of State Policy of the Indian Constitution.

• The Directive Principles of State Policy in India are categorized into several groups: Economic and Socialistic, Political and Administrative, Justice and Legal, Environmental, Protection of Monuments, Peace and Security.

• These principles serve as guidelines for the governance of the country by the government of India.

• While not enforceable by any court, they are deemed fundamental in the administration of the nation, making it the responsibility of the State to incorporate these principles into the formulation of laws to establish a fair society.

• These principles draw inspiration from similar directives outlined in the Constitution of Ireland, which pertain to social justice, economic welfare, foreign policy, and legal and administrative affairs.

Important Points

• In 1928, the Nehru Commission, which included representatives from all Indian political parties, put forward constitutional reforms for India.

• These reforms advocated for dominion status for India, elections conducted through universal suffrage, and the assurance of fundamental rights.

• Additionally, the proposals aimed to provide representation for religious and ethnic minorities while also restraining the powers of the government.

• In 1931, the Indian National Congress, the predominant political party at the time, adopted resolutions affirming its commitment to safeguarding fundamental civil rights.

• Furthermore, the Congress pledged to promote socio-economic rights such as establishing a minimum wage and abolishing untouchability and serfdom. These resolutions demonstrated the Congress's dedication to the principles of socialism.

Q43. Answer: (a) Ghazal

The correct answer is Ghazal.

Key Points

• Jagjit Singh was a renowned Indian composer, singer, and musician recognized for his contributions across multiple languages.

• He is widely credited with revitalizing and popularizing ghazal, a traditional Indian art form, by selecting poetry that resonated with the masses and composing it in a manner that emphasized the significance of words and the melodies they invoked.

• His approach to composing and singing, characterized by a focus on lyrical content, is regarded as Bol-pradhan in the realm of Indian classical music.

• In recognition of his outstanding achievements, Jagjit Singh was honoured with the Padma Bhushan, one of India's highest civilian awards, bestowed upon him by the government in 2003.

• Additionally, in February 2014, the government released a commemorative set of two postal stamps as a tribute to his enduring legacy and contributions to music.

Important Points

• The ghazal, originating from Arabic poetry, is a form of amatory poem or ode. These poetic compositions typically explore themes of spiritual and romantic love, offering a nuanced reflection on the complexities of human emotions.

• Classical music typically denotes the sophisticated and complex art music of the Western world, which is traditionally distinguished from Western folk music or popular music traditions.

• Western music, also known as Western or cowboy music, is a genre of music that originated in the Western United States and Western Canada, reflecting the experiences, lifestyles, and landscapes of the people who settled and worked in these regions.

Q44. Answer: (a) Sattriya Nritya

The correct answer is Sattriya Nritya.

Key Points

• Sattriya Nritya is the classical dance of Assam.

• Sattriya Nritya holds a significant position among Indian classical dances. Initially conceived as part of Bhaona, performances of Ankiya Nat, one-act plays, the art form was pioneered by Sankardev, a polymath from Assam during the 15th-16th century.

• These dances are integral to the living traditions of Sattra communities, which comprise devotees adhering to the Ekasarana Dharma, a Hindu sect established by Sankardev.

• The themes depicted in Sattriya Nritya revolve around Krishna, along with other avatars of Vishnu like Rama, and narratives from revered epics such as the Mahabharata and the Ramayana.

• In a significant recognition, the Sangeet Natak Akademi of India conferred classical status upon Sattriya on November 15, 2000, thereby acknowledging it as one of the eight classical dances of India.

• Modern iterations of Sattriya delve into various themes and narratives, and its performances enjoy global stages, captivating audiences worldwide.

Important Points

• Bharatanatyam is a revered Indian classical dance form with its origins rooted in Tamil Nadu. Recognized by the Sangeet Natak Akademi, it serves as a medium for conveying South Indian religious themes and spiritual concepts.

• Kathak, another esteemed ancient Indian classical dance, is believed to have evolved from the wandering bards of North India known as Kathakars, or storytellers.

• Kuchipudi, one of the eight major Indian classical dances, traces its roots to the village of Kuchipudi in the Indian state of Andhra Pradesh.

Q45. Answer: (a) Buddhist

The correct answer is Buddhist.

Key Points

• The Pala Dynasty rulers were primarily patrons Buddhist.

• The Pāla Empire emerged as a dominant force in the Indian subcontinent during the post-classical period, with its roots in the Bengal region.

• Named after its ruling dynasty, characterized by rulers bearing names ending with the suffix Pāla, which signifies "protector" in Prakrit, the empire's foundation can be traced back to the late eighth century CE, with the ascension of Gopāla as the emperor of Gauda.

Important Points

• The Pāla Empire exerted its influence primarily in Bengal and eastern Bihar, encompassing key cities such as Gauda,

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Vikramapura, Pātaliputra, Monghyr, Somapura, Ramavati (Varendra), Tāmralipta, and Jaggadala.

• This period is regarded as one of the golden eras in Bengali history, marked by stability and prosperity brought forth by the Palas after centuries of internal strife and civil war among rival factions.

• Under Pāla rule, there was significant advancement in various aspects of Bengali civilization, with notable contributions to arts and architecture.

• The Palas not only built upon the achievements of preceding Bengali civilizations but also produced remarkable works of art and architectural marvels, further enriching the cultural heritage of the region.

Q46. Answer: (d) Disguised Unemployment

The correct answer is Disguised Unemployment.

Key Points

• Disguised unemployment refers to a situation where a portion of the labour force either remains jobless or is employed in a manner that contributes negligibly to productivity.

• Despite being technically unemployed, these workers do not impact the overall output of the economy.

• This phenomenon arises when productivity levels are low, and an excessive number of workers are engaged in jobs that do not require their full capacity.

• Disguised unemployment is commonly observed in developing countries, where the sizeable population results in a surplus of labour.

• It is typically associated with low productivity and often coincides with informal and agricultural labour markets, which can absorb a significant number of workers.

Important Points

• Frictional unemployment arises from the transition period between leaving one job voluntarily and securing another. It reflects the time gap between job changes, during which individuals actively seek new employment opportunities.

• Technological unemployment occurs when advancements in technology, such as automation and artificial intelligence (AI), lead to the displacement of human workers from their jobs.

• Structural unemployment is a type of involuntary unemployment caused by a fundamental mismatch between the skills possessed by the workforce and the demands of the job market.

Q47. Answer: (b) Tamil Nadu

The correct answer is Tamil Nadu.

Key Points

• Tamil Nadu set a pioneering precedent in India by instituting mandatory rooftop rainwater harvesting in 2001, a policy that remains unique to the state.

• Amendments were introduced to the Tamil Nadu District Municipalities Act of 1920 and the Building Rules of 1973, mandating the incorporation of rainwater harvesting structures in all new constructions.

• Furthermore, the Ministry of Urban Affairs and Poverty Alleviation has extended this mandate nationally, requiring rainwater harvesting for new buildings with a roof area exceeding 100 square meters and plots larger than 1,000 square meters.

• The implementation of Tamil Nadu's rainwater harvesting model has yielded notable results, evidenced by a 50% increase in water levels in Chennai within five years.

Additional Information

• Tamil Nadu, situated in the southernmost part of India, stands as the tenth-largest state in terms of area and the sixth-largest in terms of population.

• It is predominantly inhabited by the Tamil people, who speak the Tamil language—a language of ancient lineage and official status.

• The capital and largest city of Tamil Nadu is Chennai.

• Geographically, Tamil Nadu is positioned on the southeastern coast of the Indian peninsula. It is bordered by the Western Ghats and Deccan Plateau to the west, the Eastern Ghats to the north, and the Eastern Coastal Plains along the Bay of Bengal to the east.

• To the southeast, it is bounded by the Gulf of Mannar and the Palk Strait, while the southernmost tip is washed by the Laccadive Sea. The river Kaveri traverses the state, dividing it into distinct regions.

Q48. Answer: (b) 2015

The correct answer is 2015.

Key Points

• The concept of Gross Value Added (GVA) at basic prices originates from the United Nations System of National Accounts (SNA), which was introduced in 1993 and maintained in the SNA 2008 revision as part of the overhaul of compilation and classification systems.

• This framework was subsequently adopted by the Central Statistical Office (CSO) during its base revision in January 2015.

• Gross Value Added (GVA) is defined as the value of output minus the value of intermediate consumption.

• It represents the contribution of both labour and capital to the production process.

• When taxes on products (net of subsidies on products) are included, the sum of value added across all resident units yields the Gross Domestic Product (GDP) of a nation.

• Hence, the GDP of any country reflects the total Gross Value Added (GVA) across all sectors of the economy during the specified year, adjusting for taxes and subsidies, without accounting for capital consumption or depreciation.

Important Points

• In India, the estimation of Gross Domestic Product (GDP) is undertaken by the Central Statistical Office (CSO).

• The Ministry of Finance utilizes the GDP figures (at current prices) to establish fiscal targets by the Fiscal Responsibility and Budget Management Act of 2003 and its associated regulations.

• As part of this process, the Ministry of Finance formulates its projections regarding GDP for the upcoming two years while delineating future fiscal objectives.

• Gross Value Added (GVA) at basic prices is delineated as the output valued at basic prices minus the intermediate consumption valued at purchasers' prices. In this context, GVA is identified by the price at which the output is appraised.

Q49. Answer: (d) Mirabai Chanu

The correct answer is Mirabai Chanu.

Key Points

• Mirabai Chanu, the silver-medallist weightlifter from the Tokyo Olympic Games, has clinched the prestigious 2022 'BBC Indian Sportswoman of the Year award, securing the honour through a public voting process.

• Remarkably, Chanu, hailing from Manipur and aged 28, has achieved the distinction of winning this award for the second consecutive year, having also claimed the title in 2021.

• The 'BBC Indian Sportswoman of the Year award, established in 2019, aims to recognize and celebrate the accomplishments of Indian sportswomen who have left a significant impact on the global stage.

• In addition to Chanu's achievement, table tennis player Bhavina Patel emerged victorious in the inaugural 'BBC Para Sportswoman of the Year' category, introduced this year.

Important Points

• Furthermore, Pritam Siwach, former captain of the Indian women's hockey team, was honoured with the esteemed 'BBC Lifetime Achievement Award for her substantial contributions to Indian sports and her role in inspiring generations of players.

• Finally, boxer Nitu Ghanghas was bestowed with the title of 'BBC Emerging Player of the Year'.

Additional Information

• Nikhat Zareen is an Indian boxer renowned for her achievements, having clinched the title of world champion twice. Notably, she secured a gold medal at the 2011 AIBA Women's Youth & Junior World Boxing Championships held in Antalya.

• Pusarla Venkata Sindhu, a prominent figure in Indian badminton, is celebrated as one of the nation's most accomplished athletes. With an impressive track record, Sindhu has garnered medals at prestigious events like the Olympics and various tournaments on the BWF circuit, including a noteworthy gold at the 2019 World Championships.

• Saina Nehwal, another stalwart in Indian badminton, boasts an illustrious career as a professional player. Formerly ranked as world no. 1, Nehwal has secured an impressive tally of 24 international titles, among which are ten Superseries titles, marking her as one of the most successful players in the sport.

Q50. Answer: (a) 37

The correct answer is 37.

Key Points

• The Council of Scientific & Industrial Research (CSIR), renowned for its forefront research and development (R&D) expertise across various scientific and technological domains, stands as a modern R&D institution.

• CSIR boasts a vibrant network comprising 37 national laboratories, 39 outreach centers, 1 Innovation Complex, and three units with a widespread presence throughout India.

• Encompassing a broad spectrum of scientific and technological fields, CSIR's areas of focus span from oceanography, geophysics, chemicals, and drugs to genomics, biotechnology, and nanotechnology, as well as extending to mining, aeronautics, instrumentation, environmental engineering, and information technology.

• CSIR plays a crucial role in providing significant technological advancements across numerous societal domains, including environment, health, drinking water, food, housing, energy, and both farm and non-farm sectors.

• Moreover, CSIR contributes significantly to the development of human resources in science and technology, underscoring its pivotal role in shaping the landscape of scientific and technological innovation.

Additional Information

• According to the Scimago Institutions Ranking World Report 2021, CSIR is distinguished as the sole Indian institution ranked within the top 100 global government institutions, securing the 37th position out of 1,587 government organizations worldwide.
• In the Asian region, CSIR holds an impressive 7th rank, solidifying its leadership within India as the top-ranked institution.

Q51. Answer: (b) 150

Given:
Capacity of cask (total mix) = 600 litres
First replacement = y litres
Second replacement = 120 litres
Third replacement = 120 litres
After final replacement, the ratio of wine to water = 12 : 13
Formula used :
Remaining quantity = Initial quantity(1 - Replaced quantity/ Total mix)^n
Where, n = no of replacement performed
Calculation :
Let the remaining quantity of wine = 12x, and quantity of water = 13x
So, Initial quantity of mixture = 12x + 13x = 25x
According to the formula,
12x = 25x (1 - y/600)(1- 120/600)(1- 120/600)
=> 12 = 25 (1 - y/600)(1- 1/5)(1- 1/5)
=> 25 ((600-y)/600) × 4/5× 4/5 = 12
=> ((600-y)/24) × 16/25 = 12
=> (600 - y) ×16 = 12 × 24 × 25
=> (600 - y) = (12 × 24 × 25)/16
=> 600 - y = 3 × 6 × 25
=> 600 - y = 450
=> y = 600 - 450
=> y = 150 litres
Therefore The value of y is 150 litres.
Shortcut Trick

Q52. Answer: (d) 4%

Given :
Simple Interest (SI) = Rs. 888
Time (t) = 36 months = 3 years
Amount (P) = Rs. 7400
Formula used :
SI = P × r × t/100
Where, P = Principal, t = Time (in years), r = rate of interest
Calculation :
According to the question,
=> 888 = 7400 × 3 × r /100
=> 888 = 222 × r
=> r = 4
Therefore The rate percentage of interest per annum is 4%

Q53. Answer: (c) Rs. 2,688 gain

Given:
CP of 1st article = Rs. 48,000
Loss on 1st article = 12%
CP of 2nd article = SP of 1st article
Gain on 2nd article = 20%
Formula used:

SP = CP × (100 + Profit)/100
SP = CP × (100 - Loss)/100
Calculation :
SP of 1st article = 48000 × (100 - 12)/100
=> 48000 × 88/100 = Rs. 42240
SP of 2nd article = 42240 × (100 + 20)/100
=> 42240 × 120/100 = Rs.50688
So, Overall gain = 50688 - 48000 = Rs. 2668
Therefore The overall gain is Rs. 2688
Shortcut Trick
12% = 3/25
20% = 1/5

CP	SP
25	25 - 3 = 22
5	5 + 1 = 6
(25 × 5) = 125	(22 × 6) = 132

Overall gain = 132 - 125 = 7 unit
=> 125 unit = 48000
=> 1 unit = 48000/125 = 384
=> 7 unit = 7 × 384 = Rs. 2688
Therefore The overall gain is Rs. 2688

Q54. Answer: (a) 1/3

Formula used:
$(\sin^6\theta + \cos^6\theta) = 1 - 3\sin^2\theta\cos^2\theta$
Calculation:
$\sin\theta\cos\theta = \sqrt{2}/3$
Squaring both sides and multiplying both sides by 3,
$=> 3 \times \sin^2\theta\cos^2\theta = 3 \times (\sqrt{2}/3)^2 = 3 \times 2/9 = 2/3$
According to the formula,
$=> (\sin^6\theta + \cos^6\theta) = 1 - 3\sin2\theta\cos2\theta$
=> 1- 2/3 = 1/3
Therefore The required value is 1/3.

Q55. Answer: (c) 50

Given:
(d + e + f) = 14
(d2 + e2 + f2) = 96
Formula Used:
$(a + b + c)^2 = 2 \times (ab + bc + ca) + a2 + b2 + c2$
Calculation:
=> (d + e + f)2 = 2 × (de + ef + fd) + d2 + e2 + f2
$=> (14)^2 = 2\times (de + ef + fd) + 96$
=> 2 × (de + ef + fd) = 196 - 96 = 100
=> (de + ef + fd) = 100/2 = 50
Therefore The value of (de + ef + fd) is 50.

Q56. Answer: (a) 675

Given:
Selling price = Rs. 2325
Discount = 22.5 %

Concept used:

Selling price = Marked price – Discount

Calculations:

Let the marked price be X

=> 2325 = X – (X × 22.5/100)

=> 2325 = 77.5X/100

=> 2325 × 100 = 77.5X

=> X = (2325 × 100)/77.5 = 3000

So, Discount = 3000 – 2325 = Rs. 675

Therefore The discount offered is Rs. 675

Q57. Answer: (a) 9.23

Given:

angle CAB = 90°

AD perpendicular to BC.

AC = 24 cm, AB = 10 cm

Calculation:

$BC^2 = AC^2 + AB^2$

$\Rightarrow BC^2 = (24)^2 + (10)^2$

$\Rightarrow BC = \sqrt{(576+100)} = \sqrt{676}$

$\Rightarrow BC = 26$ cm

Now,

Area of Δ ABC = 1/2 × AC × AB

=> 1/2 × BC × AD = 1/2 × 24 × 10

=> 26 × AD = 24 × 10

=> AD = 240/26 = 120/13

=> AD = 9.23 cm

Therefore The correct answer is option (1).

Q58. Answer: (b) 15/8

Calculation:

By Pythagoras theorem,

$AC^2 = AB^2 + BC^2$

$\Rightarrow (17)^2 = (8)^2 + (BC)^2$

$\Rightarrow (BC)^2 = 225$

$\Rightarrow BC = 15$ cm

Therefore tan A = 15/8

Correct Answer:2)15/8

Q59. Answer: (c) 80°

Shortcut Trick

According to the Circle Geometry Theorem, angles subtended by the same arc at the circumference (in the same segment) are always equal.

From the given figure, angle ACB and angle ADB are subtended by the same arc AB.

Given: angle ACB = 80°ree;

Therefore angle ADB = angle ACB = 80°ree;.

Therefore The correct answer is 80°ree;.

Alternate Method

Given:

Points A, B, C, and D lie on the circumference of the circle.

angle ACB = 80°ree;.

Theorem Used:

The angles in the same segment of a circle are equal to each other.

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Calculation:

=> Arc AB subtends angle ACB and angle ADB on the major segment of the circle.

=> By the property of angles in the same segment:

=> angle ADB = angle ACB

=> Given that angle ACB = 80°ree;

=> Therefore angle ADB = 80°ree;

Therefore The correct answer is 80°ree;.

Additional Information

Angle at Center Theorem

The angle subtended by an arc at the center of a circle is double the angle subtended by it at any point on the remaining part of the circle (angle AOB = 2 × angle ACB).

Angle in a Semicircle

The angle subtended by a diameter at the circumference is always a right angle (90°ree;).

Cyclic Quadrilateral Property

In a cyclic quadrilateral (where all four vertices lie on the circle), the sum of the opposite angles is 180°ree; (angle A + angle C = 180°ree; and angle B + angle D = 180°ree;).

Q60. Answer: (a) -30√3

Given:

g = (2 - √3)

Formula Used:

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

Calculation:

g = 2 - √3

=> 1/g = 2 + √3

According to the formula,

$g^3 - 1/g^3$

=> $(g - 1/g)^3 + 3 \times g \times 1/g (g - 1/g)$

=> $(2 - √3 - 2 - √3)^3 + 3 (2-√3 - 2 - √3)$

=> $(-2√3)3 + 3(-2√3)$

=> - 24√3 - 6√3

=> -30√3

Therefore The correct answer is option 1

Q61. Answer: (b) Rs. 1,450

Given:

A 40% discount is offered on an item that is marked 50% above the cost price

The selling price of the item is Rs. 1305

Concept Used:

Selling Price (SP) = (100-d)/100 × MP

Where ' d ' is discount and ' MP ' is Marked Price

Calculation:

Let, the cost price (CP) is 100a

The marked price (MP) is 50% above the CP

So, MP = 150a

Now a 40% discount is offered

So, SP = 150a × (100 - 40) / 100 = 90a

According to the question,

90a = 1305

=> 100a = 100 × 1305 / 90 = 1450

Therefore The cost price of the article is Rs. 1450

Q62. Answer: (c) 20

Given:

XY = x cm and PQ = 10 cm

Concept Used:

When two chords of a circle intersect externally then,

LP × LQ = LX × LY

Calculation:

LP = (10 + 6) = 16 cm and, LQ = 6 cm

LX = (x + 4) cm and LY = 4 cm

According to the formula,

=> 16 × 6 = (x + 4) × 4

=> x = 20 cm

Therefore The length of XY is 20 cm.

Q63. Answer: (a) Rs. 198

Given:

Height of cylindrical pillar = 5m

Diameter of cylindrical pillar = 84cm

Formula used:

The curved surface area of the cylinder = 2πrh

Diameter = 2r

Calculation:

The curved surface area of the cylindrical pillar

=> 2 × (22/7)× (84/200) × 5 Therefore 1m = 100cm

=> 13.2 m

Total cost = 13.2 × 15 = Rs. 198

Q64. Answer: (c) 29937600

Calculation:

Total percentage of pie chart = 100%

According to the given data,

=> 100% = 42,76,80,000

=> 1% = 427680000 / 100 = 4276800

Total allocation of percents for Hockey, Basketball, and Gymnastics

=> 22% + 5% + 8% = 35%

Total allocation of percent for Football, Kabaddi, and Golf

=> 13% + 10% + 5% = 28%

(Total allocation of percent for Hockey, Basketball, and Gymnastics) - (Total allocation of percent for Football, Kabaddi, and Golf)

=> 35% - 28% = 7%

Now, 7% = 4276800× 7% = 29937600

Therefore The answer is option (3).

Q65. Answer: (d) -1

Concept used:

cosec2θ - cot2θ = 1

Calculation:

=> $\cot^2\theta - \operatorname{cosec}^2\theta$

=> cot2θ - (1 + cot2θ)

=> cot2θ - 1 - cot2θ

=> - 1

Therefore The simplified value is (- 1)

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Q66. Answer: (c) 4794

Given:

Total number of eligible voter = 10000

Total casted votes = 85% of eligible voter

Total invalid votes = 6% of casted votes

Votes received by winning candidate = 60% of valid votes.

Calculation:

Total casted votes = 85% of eligible voter = (85 × 10000)/100 = 8500

Total invalid votes = 6% of casted votes = (8500 × 6)/100 = 510

Total valid votes = casted votes - invalid votes = 8500 - 510 = 7990

Votes received by winning candidate = 60% of valid votes = (60 × 7990)/100 = 4794 votes

Therefore The correct answer is 4794 votes.

Q67. Answer: (a) 8

Given:

Number of students getting more than 10 marks in mathematics = 92

Calculation:

Total number of students = 100

Number of students getting more than 10 marks in mathematics = 92

Number of students getting less than 10 marks in mathematics = Total Students - Number of students getting more than 10 marks in mathematics

=> 100 - 92 = 8

Therefore Number of students getting less then 10 marks in mathematics is 8.

Q68. Answer: (d) 45.28%

Given:

Total number of boys pursuing B. Ag = 58

Total number of girls pursuing B. Ag = 48

Formula Used:

Percentage = (Given value/Whole value) × 100

Calculation:

Total number of students pursuing B. Ag = 58 + 48 = 106

Percentage of B. Ag students that are girls = (Number of girls/total number of students) × 100

=> (48/106) × 100 = 45.28%

Therefore The correct answer is 45.28%.

Q69. Answer: (a) Rs. 8,750

Given:

Rate = 8%

CI - SI = 56

Formula Used:

CI - SI = $(PR^2)/100^2$

Calculation:

=> $56 = (P \times 8 \times 8)/100^2$

=> $P = (56 \times 100 \times 100)/(8 \times 8)$

=> P = 8,750

Therefore The sum = 8,750. Option 1) is correct.

Q70. Answer: (c) 4x2 + y2 - 4xy - 169

Calculation:

=> (2x + 13 - y) (2x - 13 - y)

=> $4x^2 - 26x - 2xy + 26x - 169 - 13y - 2xy + 13y + y^2$

=> $4x^2 + y^2 - 4xy - 169$

Therefore The correct answer is Option 3)

Q71. Answer: (d) 18°

Concept used:

In a Δ ABC, A + B + C = 180°

Calculation:

Let ΔABC be an isosceles triangle, where side AB = AC

So, angle B = angle C

Let angle B = angle C = x

According to the given data,

angle A = 4 (x + x) = 4 × 2x = 8x

according to the concept,

=> 8x + x + x = 180?

=> 10x = 180?

=> x = 18?

Therefore The value of each equal angle is 18°

Q72. Answer: (d) 27

Shortcut Trick

Number N = 4a6b9c must be divisible by 9 and 11.

Sum of digits (4 + a + 6 + b + 9 + c) = 19 + a + b + c must be a multiple of 9.

Maximum possible sum of digits for any six-digit number is 54, but here it is 19 + a + b + c.

Since a, b, c ≤ 9, max (19 + a + b + c) = 19 + 27 = 46. Possible sums divisible by 9 are 27, 36, 45.

For divisibility by 11: (c + b + a) − (9 + 6 + 4) = (a + b + c) − 19 must be 0 or a multiple of 11.

If (a + b + c) − 19 = 0 => a + b + c = 19. Total sum = 19 + 19 = 38 (not divisible by 9). If (a + b + c) − 19 = 11 => a + b + c = 30. Total sum = 19 + 30 = 49 (not divisible by 9). If (a + b + c) − 19 = −11 => a + b + c = 8. Total sum = 19 + 8 = 27.

Therefore The correct answer is 27.

Alternate Method

Given: Number N = 4a6b9c is divisible by 99.

Formula: For divisibility by 99, the number must be divisible by 9 and 11.

=> Divisibility by 9: 4 + a + 6 + b + 9 + c = 19 + a + b + c must be divisible by 9.

=> Divisibility by 11: Sum of digits at odd places − Sum of digits at even places = (c + b + a) − (9 + 6 + 4) = (a + b + c) − 19.

=> For divisibility by 11, (a + b + c) − 19 must be 0, 11, 22... or −11, −22...

=> Case 1: a + b + c − 19 = 0 => a + b + c = 19. Sum of digits = 19 + 19 = 38 (Not divisible by 9).

=> Case 2: a + b + c − 19 = 11 => a + b + c = 30. Sum of digits = 19 + 30 = 49 (Not divisible by 9).

=> Case 3: a + b + c − 19 = −11 => a + b + c = 8. Sum of digits = 19 + 8 = 27 (Divisible by 9).

=> Maximum possible value for (a + b + c) is 27. Checking if sum of digits can be 36 or 45: if sum = 36, a+b+c = 17. 17−19 = −2 (not div by 11). If sum = 45, a+b+c = 26. 26−19 = 7 (not div by 11).

Therefore The correct answer is 27.

Additional Information

Divisibility Rule of 9

A number is divisible by 9 if the sum of its digits is divisible by 9.

Divisibility Rule of 11

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

Composite Divisibility

If a number is divisible by two co-prime numbers a and b, then it is also divisible by their product (a × b).

Q73. Answer: (d) 250

Concept:

When two quantities are directly proportional to each other, then their ratio is constant.

x prop. to y

=> x / y = k

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where k is the constant of proportionality.
Calculation:
As per the given data,
=> 45/9 = k
=> k = 5
So, x/y = 5 ---(1)
Putting y = 50 in equation (1),
=> x/50 = 5
=> x = 250
Therefore The value of x when y is 50 is 250.

Q74. Answer: (b) 11.2 sec

Given:
Length of trains = 125 m and 99 m
Speed of trains = 40 km/h and 32 km/h
Formula used:
Speed = Distance/Time
1 km/h = 5/18 m/s
Calculations:
Total distance travelled by both the trains = 125 + 99 = 224 m
Total speed of both the trains (km/h) = 40 + 32 = 72 m
=> Total speed of both the trains (m/s) = 72 × 5/18
=> Total speed of both the trains (m/s) = 20
Time taken = (Total Distance)/(Total Speed)
=> Time taken = 224/20
=> Time taken = 11.2 s
Therefore The time taken is 11.2 seconds.

Q75. Answer: (d) 24 days

GIVEN:
Raju and Ramu together can do a piece of work = 8 days
Raju alone can do it = 12 days
CALCULATION:
(Raju + Ramu) → 8
Raju → 12
The LCM of 8 and 12 is 24 (24 is the total work)
=>Work efficiency of Raju and Ramu = 24/8 = 3
=>Work efficiency of Raju = 24/12 =2
=>The work efficiency of Ramu = 3-2 = 1
Now, Ramu can alone do it = 24/1 = 24 days.
Option 4 is the correct.

Q76. Answer: (c) Added fuel to the fire

The solution is in Hindi. Read it online.

Q77. Answer: (d) Suppress

The solution is in Hindi. Read it online.

Q78. Answer: (b) Out of gear

The solution is in Hindi. Read it online.

Q79. Answer: (c) ballad

The solution is in Hindi. Read it online.

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Q80. Answer: (a) ceiling

The correct answer is 'Option 1' i.e. ceiling is the correct homonym to fill in the blank.

Key Points

• The word "ceiling" refers to the upper interior surface of a room or other similar compartment.

• It makes logical sense in the context of shopping for a household item, as fans are often mounted on the ceiling.

• The other options are not homonyms that fit the context of the sentence related to household items or installations.

• Homonyms are words that sound alike but have different meanings, and "ceiling" is the correct choice because it sounds like the other options but is the only one that fits the context of installing a fan.

Therefore, the correct answer is- Correct answer

Additional Information

• "Sealink" is a fabricated term and does not relate to the context of home improvement or fans.

• "Sealing" refers to the act of making something airtight or watertight, which is unrelated to the type of fan being discussed.

• "Selling" is the act of giving or handing over something in exchange for money, which does not fit the context of specifying a type of fan.

Q81. Answer: (c) No error

The correct answer is '3' i.e. No error in the sentence.

Key Points

• The sentence is grammatically correct as it stands.

• The subject 'A crocodile' is singular, and it correctly uses the singular form of the verb 'was swimming'.

• The prepositional phrase 'in a river' correctly indicates the location of the action.

• There is no error with verb tense, subject-verb agreement, or prepositional use in the sentence.

Hence, the correct answer is option 3.

Correct sentence: 'A crocodile was swimming in a river.'.

Additional Information

• Option 1 'A crocodile' is the subject of the sentence and is correctly used.

• Option 2 'was swimming' correctly matches the singular subject 'A crocodile' in number and is in the past continuous tense, indicating an action that was happening at a specific time in the past.

• Option 4 'in a river' correctly provides additional information about the location of the action, using the preposition 'in' to indicate where the swimming was taking place.

Q82. Answer: (c) worse than expected

The correct answer is 'Option 3' i.e. worse than expected is the correct usage.

Key Points

• The original sentence uses "rather worst than expected," which is grammatically incorrect.

• The comparative form "worse" should be used instead of the superlative form "worst" when making comparisons between two states.

• "Worse than expected" correctly conveys that the performance did not meet the audience's expectations.

• The correction maintains the meaning of the original sentence while correcting its grammatical structure.

Therefore, the correct answer is- Correct answer

Additional Information

• "Worst than expectation" is incorrect because "worst" is a superlative form and the phrase is awkwardly constructed.

• "Worse was expected" changes the sentence structure unnecessarily and does not fit grammatically into the original sentence.

• "Bad as expected" does not convey the comparative degree that is needed to show that the performance was below expectations.

• The correct usage of comparative and superlative forms is crucial for maintaining the grammatical integrity of a sentence.

Q83. Answer: (b) Destruction

The solution is in Hindi. Read it online.

Q84. Answer: (b) Consequence

The solution is in Hindi. Read it online.

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Q85. Answer: (a) I will do it.

Key Points

• The given sentence is in the passive voice, indicated by the structure "It will be done by me."

• To convert it into active voice, the subject who performs the action (in this case, "I") should be placed at the beginning of the sentence.

• The main verb should change from "be done" (passive) to "do" (active), and the object of the action ("it") follows the verb.

• The correct active voice conversion maintains the future tense, as indicated by "will do."

Hence, the correct answer is option 1.

Correct sentence: I will do it.

Additional Information

• Option 2: "I do it." suggests a general or habitual action in the present tense, which doesn't convey the future aspect of the original sentence.

• Option 3: "I did it." changes the sentence to past tense, which is not consistent with the future intention of the original sentence.

• Option 4: "I have done it." uses the present perfect tense, which indicates an action completed at an unspecified time before now, not a future action.

Q86. Answer: (a) Postpone

The solution is in Hindi. Read it online.

Q87. Answer: (c) DBCA

The correct answer is 'Option 3' i.e. DBCA forms a coherent sentence.

Key Points

• The correct arrangement starts with the observation about a common historical fallacy.

• Option D provides the subject of the sentence, "many people wrongly believe," which is a logical continuation.

• Option B provides a contrasting statement, "that the past was so different," which adds to the argument.

• Option C provides a reason, "from the present that," which builds upon the contrast introduced in Option B.

• Option A concludes the sentence with a specific detail, "only some specialists can unravel its inscrutable mysteries," which finalizes the thought process initiated in the first part of the sentence.

Hence, the correct answer is option 3.

Correct sentence: "As for the first historical fallacy, many people wrongly believe that the past was so different from the present that only some specialists can unravel its inscrutable mysteries."

Additional Information

• Option 1 (BCDA): This order does not logically follow because it places the detail about "some specialists" too early in the sentence, before establishing the main premise.

• Option 2 (DCBA): This order disrupts the logical flow by concluding the sentence with the belief statement, which should instead introduce the fallacy.

• Option 4 (ABCD): This sequence fails to create a meaningful sentence as it does not logically build up the argument regarding the historical fallacy.

Q88. Answer: (a) Repulsive

The solution is in Hindi. Read it online.

Q89. Answer: (a) An old man whom

The correct answer is 'Option 1'

Key Points

• The error in the sentence is related to the use of the relative pronoun "whom."

• "Whom" is used as the object of a verb or preposition, but in this sentence, the requirement is for a subject pronoun due to the absence of a preposition directly before it.

• The correct pronoun to be used in this context is "who" because it serves as the subject of the verb "lives."

• Therefore, the sentence should correctly be "An old man who we met while coming back from our college lives at my uncle's place."

Hence, the correct answer is Option 1.

Correct sentence: "An old man who we met while coming back from our college lives at my uncle's place."

Additional Information

• The segments "we met while coming back" and "from our college lives" do not contain any grammatical errors and correctly use

verbs and prepositions to describe the situation.

• "At my uncle's place" correctly indicates the location where the old man lives, using the preposition "at" to specify a place.

• The error solely lies in the incorrect use of the relative pronoun "whom" instead of "who," which is a common mistake when distinguishing between subjects and objects in a sentence.

Q90. Answer: (d) Jerred

The solution is in Hindi. Read it online.

Q91. Answer: (a) BACD

Key Points

• The given sentences when arranged logically form a coherent paragraph about John's journey in the music industry.

• The logical sequence starts with B, introducing John as a talented musician struggling in the industry.

• It is followed by A, highlighting his perseverance despite setbacks and rejections.

• C shows the support he received from his community, which is crucial for his growth.

• Lastly, D concludes the story with his success in securing a record deal.

Therefore, the correct answer is 'Option 1'.

Additional Information

• Options 2, 3, and 4 do not provide a logical sequence for the paragraph. They start with sentences that either introduce the outcome before the struggle or mix the order of events in a way that disrupts the narrative flow.

• It's important in narrative paragraphs to build up the story in a way that introduces the protagonist, presents their challenges, shows their efforts, and then reveals the outcome.

Q92. Answer: (d) Cannibal

The solution is in Hindi. Read it online.

Q93. Answer: (b) Accomodate

The solution is in Hindi. Read it online.

Q94. Answer: (a) A person who sells and arranges cut flowers

The solution is in Hindi. Read it online.

Q95. Answer: (c) Somebody has stolen my pencils.

The correct answer is Somebody has stolen my pencils.

Key Points

• In the active voice, the subject acts as the verb. In the given sentence, "Somebody has stolen my pencils," the subject "Somebody" is acting like stealing, making it an active construction.

• This contrasts with the passive voice, where the subject receives the action of the verb. In the original sentence, "My pencils have been stolen," the pencils are the subject receiving the action of being stolen, making it a passive construction.

• Therefore, "Somebody has stolen my pencils" correctly expresses the same idea in active voice. Thank you for your patience.

Q96. Answer: (b) mistreated

The correct answer is 'Option 2' i.e. mistreated is the most appropriate option to fill in blank number 1.

Key Points

• The context of the passage indicates that Harry Potter was not treated well by his relatives.

• The word 'mistreated' correctly conveys the idea of being treated badly or unfairly, which fits the narrative described.

• Other options such as 'crushed', 'dispirited', and 'bowed' do not accurately describe the specific nature of Harry's treatment by his relatives.

• 'Mistreated' specifically refers to harsh and unfair treatment, aligning with the information given about Harry's life before discovering he is a wizard.

Hence, the correct answer is option 2.

Correct sentence: Harry Potter was first introduced in the novel, 'Harry Potter and the Philosopher's Stone', as an orphan who is mistreated by his guardian aunt and uncle and their son.

Additional Information

• Crushed implies being pressed or squeezed with a force that destroys or deforms, not suitable for describing the treatment by relatives.

• Dispirited means having lost enthusiasm and hope; disheartened, which could be a result of mistreatment but does not directly describe the action of the relatives.

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• Bowed can mean to bend under pressure or in a submissive manner, which doesn't specifically address the nature of Harry's mistreatment.

Q97. Answer: (d) attend

The correct answer is 'Option 4' i.e. attend Harry Potter was first introduced in the novel, ‘Harry Potter and the Philosopher’s Stone’, as an orphan who is (1)_____ by his guardian aunt and uncle and their son. On his 11th birthday Harry discovers that his parents were a witch and a wizard and that he, a wizard himself, has been invited to (2)____ Hogwarts School of Witchcraft and Wizardry..

Key Points

• The passage talks about Harry Potter discovering his magical heritage and receiving an invitation to Hogwarts.

• The word needed to fill the blank should indicate Harry's action in response to the invitation.

• "Attend" is the correct term as it means to go to or be present at an event or institution, which in this context is Hogwarts School of Witchcraft and Wizardry.

• The other options (see, escort, accompany) do not appropriately describe the action of accepting an invitation to join an institution.

Hence, the correct answer is option 4.

Correct sentence: Harry discovers that he, a wizard himself, has been invited to attend Hogwarts School of Witchcraft and Wizardry.

Additional Information

• See: To perceive with the eyes; to observe. Not suitable as it does not imply participation.

• Escort: To accompany someone somewhere, especially for protection or as a formality. Not suitable as it suggests accompanying someone else rather than attending oneself.

• Accompany: To go along with; to go together with. Not suitable as it implies going with someone rather than attending an institution on one's own.

Q98. Answer: (a) perished

The correct answer is 'Option 1' i.e. perished is the most suitable option to fill in the blank number 3.

Key Points

• The term 'perished' accurately conveys the sense of death under tragic circumstances, fitting the context of Harry's parents' death due to Voldemort.

• 'Perished' is specifically used to denote death in a sudden, violent, or untimely manner, which aligns with the narrative of the story.

• The context of the sentence is about revealing the true cause of death of Harry's parents, which was hidden from him, making 'perished' the most contextually appropriate choice.

• The word 'perished' also carries a weight of finality and tragedy, which is suitable for the gravity of the situation described in the passage.

Hence, the correct answer is option 1.

Additional Information

• 'Departed' often implies leaving, especially in a non-tragic context, and lacks the connotation of death necessary for the passage.

• 'Lost' could imply death but is more ambiguous and might suggest disappearance or being unable to find rather than death itself.

• 'Vanished' strongly suggests disappearance without a trace rather than death, making it unsuitable for the context of Harry's parents being murdered.

Q99. Answer: (a) survived

The correct answer is 'Option 1' i.e. survived is the correct fill for blank number 4.

Key Points

• The context of the passage is about Harry Potter learning about his true heritage and the circumstances surrounding his parents' deaths.

• The sentence describes how Harry was the only person to have ever 'survived' an attack by Voldemort, which is significant to the plot of the series.

• The word 'survived' correctly conveys the idea that Harry managed to live through an event that was meant to be lethal, aligning with the story's narrative.

• Other options such as 'thrived', 'continued', and 'tolerated' do not accurately describe the nature of Harry's encounter with Voldemort's attack, making 'survived' the most appropriate choice.

Hence, the correct answer is option 1.

Additional Information

• 'Thrived' implies doing well or prospering, which does not fit the context of surviving a deadly attack.

• 'Continued' suggests ongoing action, which doesn't accurately describe the one-time event of surviving Voldemort's attack.

• 'Tolerated' means to endure something unpleasant, which underplays the severity and significance of surviving a killing curse.

Q100. Answer: (d) rebounding

The correct answer is 'Option 4' i.e. rebounding is the most appropriate word to fill in the blank.

Key Points

• The term "rebounding" in this context refers to Harry's miraculous survival and counteraction against Voldemort's killing curse.

• "Rebounding" suggests a bounce back or recovery from a negative event, which aligns with Harry's experience of surviving a curse meant to kill him.

• The narrative of Harry Potter involves magical combat and survival against dark forces, making "rebounding" a fitting description of his encounter with Voldemort.

• The use of "rebounding" also hints at the supernatural resilience or protective magic that saved Harry, which is a central theme in the Harry Potter series.

Hence, the correct answer is option 4.

Additional Information

• "Rallying" often implies gathering or coming together for a cause, which does not fit the context of surviving a curse.

• "Recovering" suggests a process of healing or getting back to a normal state after an injury or illness, but it does not adequately capture the instantaneous survival of a lethal attack.

• "Failing" is opposite to the intended meaning, as it would suggest that Harry did not survive the attack, which contradicts the storyline.

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