SSC CHSL Tier-1 2022: Official Paper (Held On: 20 March, 2023 Shift 3) (Previous Year Paper)

SSC Combined Higher Secondary Level (CHSL) • 2022 • 100 questions • 60 minutes • Answer key and solutions

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ENGLISH LANGUAGE

Q1. Read the given statements and conclusions carefully. Assuming that the information given in the statements is true, even if it appears to be at variance with commonly known facts, decide which of the given conclusions logically follow(s) from the statements.

Statement I: All hulk are thor.

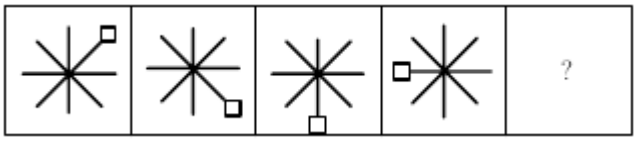
Statement II: All thor are flash.

Conclusion I: All hulk are flash.

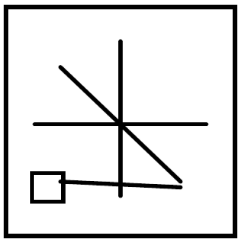
Conclusion II: No thor is a hulk.

(a) Neither I nor II follows
(b) Only I follows
(c) Only II follows
(d) Both I and II follows

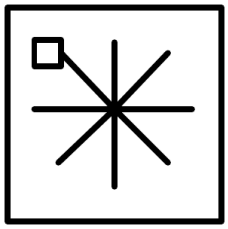
Q2. Select the figure that will come next in the following figure series.



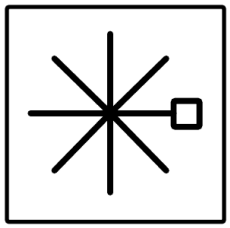
(a)



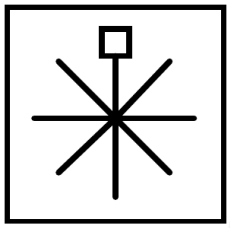
(b)



(c)



(d)



Q3. In the following question, four number pairs are given. In each pair the number on left side of(–) is related to the number of the right side of(–) with some Logic/Rule /Relation. Three pairs are similar on basis of same Logic/Rule/Relation. Select the odd one out from the given alternatives.(NOTE: Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. E.g.13 – Operations on 13 such as adding /subtracting /multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed)

(a) 64 – 4032
(b) 38 – 1444
(c) 42 – 1764
(d) 52 – 2704

Q4. Words given on the left side of (::) are related with each other by some Logic/Rule /Relation. Select the missing word/word pair on the right side of (::) from the given alternatives based on the same Logic/Rule/Relation.

View : Binocular :: ?

(a) Spade : Dig
(b) Pen : Write
(c) Shoot : Gun
(d) Feed : Spanner

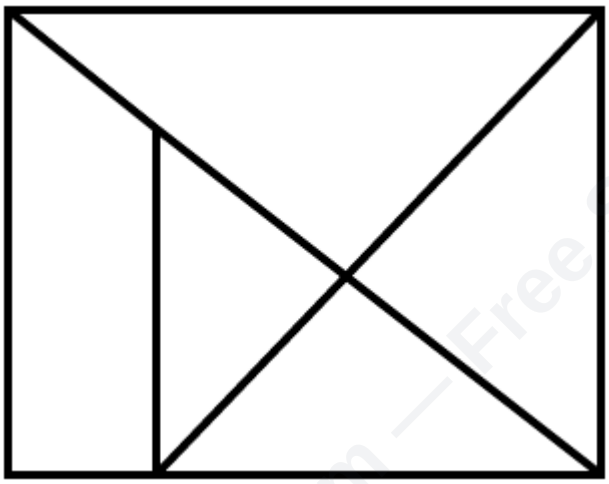
Q5. Select the option that is related to the fifth letter-cluster in the same way as the second letter-cluster is related to the first letter-cluster and the fourth letter-cluster is related to the third letter-cluster.

WIRE : RJWF :: PICK : CJPL :: IMLI : ?

(a) LIMI
(b) INMI
(c) INLJ
(d) LNIJ

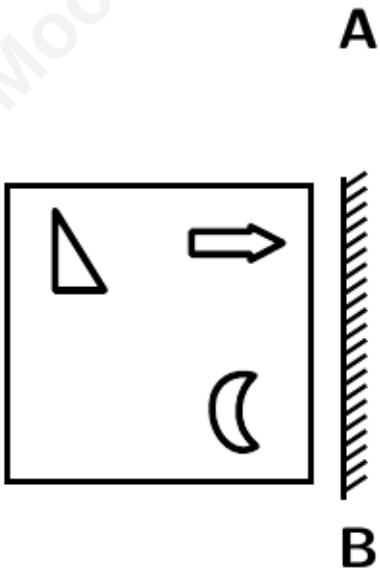
Q6. How many triangles are there in the given figure?

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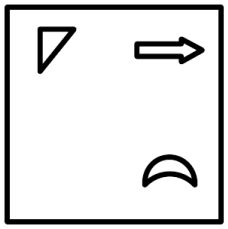


(a) 10
(b) 13
(c) 12
(d) 11

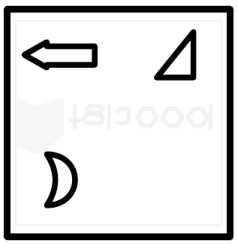
Q7. Select the correct mirror image of the given combination when the mirror is placed at line AB as shown.



(a)

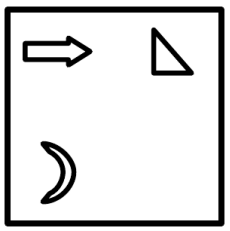


(b)

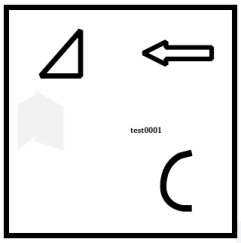


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(c)



(d)



Q8. Among seven sisters T, U, V, W, X, Y, Z; U is elder than only four other sisters. V is elder than W. T is elder than Y. X is elder than one person only that is Z who is the youngest among all sisters. U is elder than T. Given that no two sisters have the same age, find who is the eldest sister.

(a) X
(b) V
(c) U
(d) W

Q9. If in a coding system 38474 is coded as 47565, then how will 28464 be coded in the same coding system?

(a) 37337
(b) 73133
(c) 37555
(d) 37133

Q10. Select the option in which the numbers shares the same relationship in set as that shared by the numbers in the given set. (NOTE: Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. E.g.13 – Operations on 13 such as adding /subtracting /multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed)

(7, 21, 343)

(8, 24, 512)

(a) (8, 50, 512)
(b) (5, 10, 225)
(c) (11, 66, 1331)
(d) (9, 27, 729)

Q11. If Suman is the wife of the son of Rajesh's wife, then how is Suman related to Rajesh?

(a) Sister
(b) Brother's wife
(c) Wife
(d) Daughter-in-law

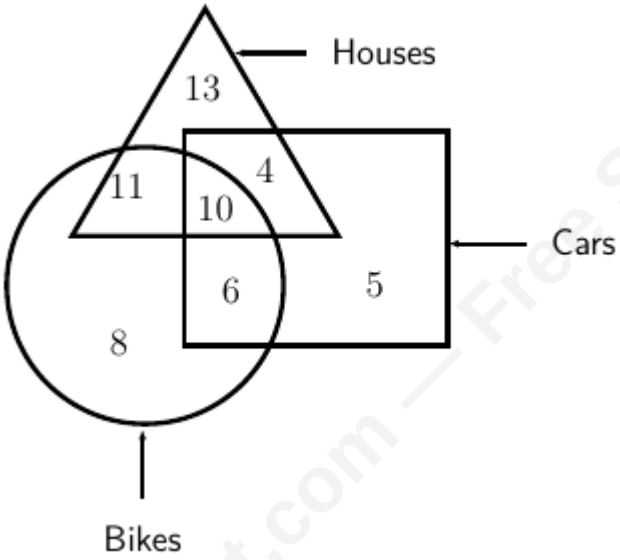
Q12. Select the option that is related to the fifth number in the same way as the first number is related to the second number and third number is related to fourth number.

12 : 36 :: 18 : 81 :: 56 : ?

(a) 784
(b) 961
(c) 841
(d) 900

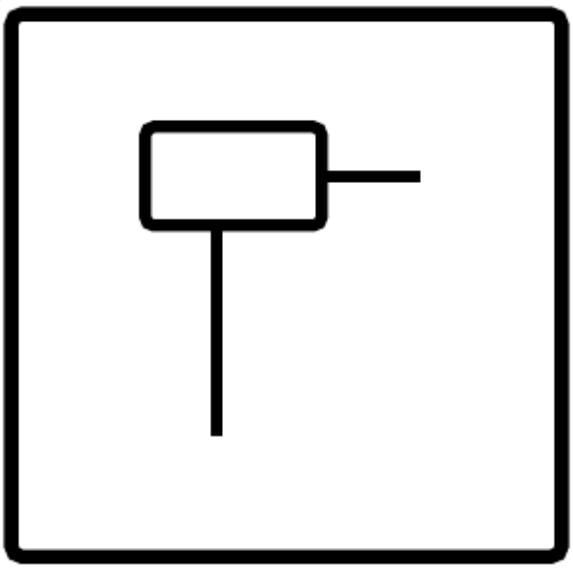
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Q13. How many houses are there which are only bikes?

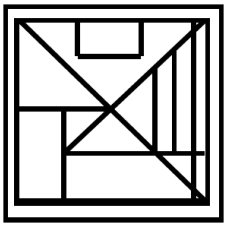


(a) 16
(b) 21
(c) 11
(d) 10

Q14. Select the option figure in which the given figure is embedded. (rotation is NOT allowed)

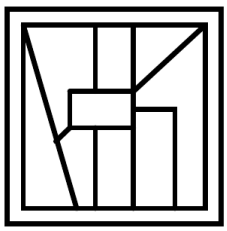


(a)

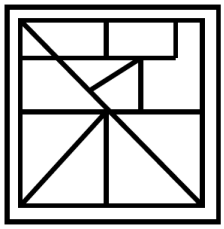


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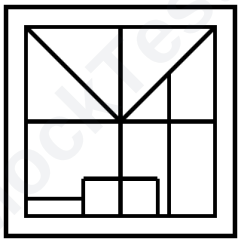
(b)



(c)



(d)



Q15. Three of the four group of words are alike in some manner. Select the odd group of words.

(a) (Knife, Needle, Plumbline)
(b) (Surgeon, Warrior, Chef)
(c) (Farmer, Mason, Doctor)
(d) (Labourer, Tailor, Sculptor)

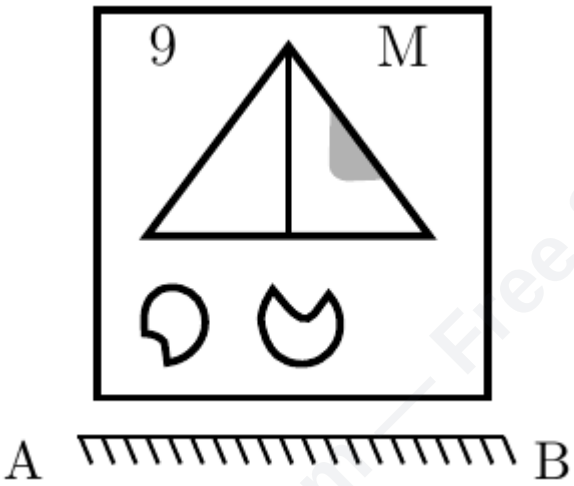
Q16. After arranging the given words according to dictionary order, which word will come at 'Third' position?

1. Periwing
2. Perilad
3. Perimeter
4. Periodic
5. Perish

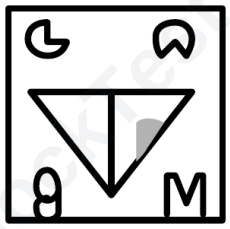
(a) Perilad
(b) Perimeter
(c) Periodic
(d) Perish

Q17. If a mirror is placed on the line AB, then out of the option figures which figure will be the right image of the question figure?

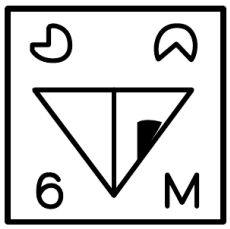
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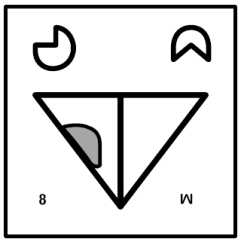
(a)



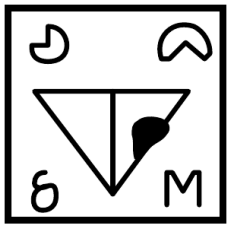
(b)



(c)



(d)

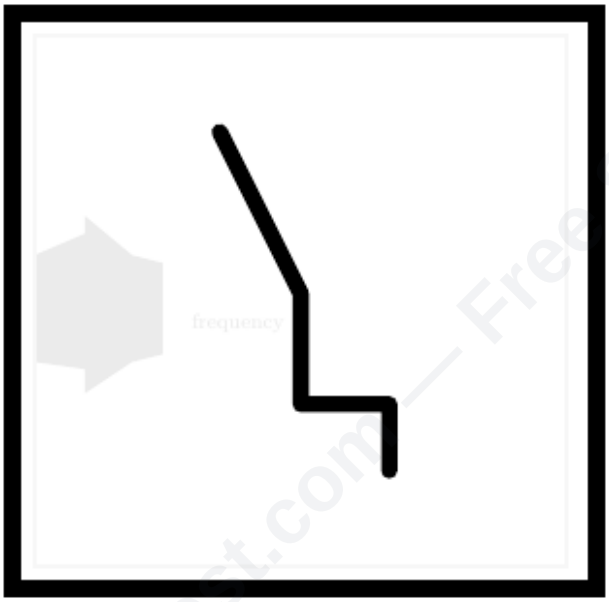


Q18. In a certain code language if GATE is written as AGET, how will BOOK be written in the same code language?

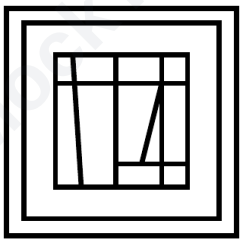
(a) OOBK
(b) OKBO
(c) OBKO
(d) OBOK

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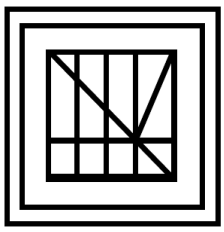
Q19. Select the option figure in which the given figure is embedded. (rotation is NOT allowed)



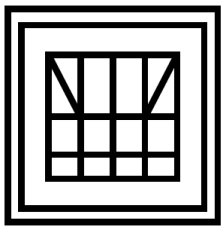
(a)



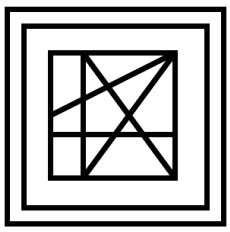
(b)



(c)



(d)



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Q20. Select the word pair in which the words are related in the same way as the words are related in the following pair.

Hygrometer : Humidity

(a) Thermometer : Blood Pressure
(b) Anemometer : Current
(c) Screw Gauge : Heat
(d) Ammeter : Electric Current

Q21. Which of the following numbers will replace the question mark(?) in the given series?

25, 42, 61, 82, ?, 130

(a) 115
(b) 105
(c) 108
(d) 112

Q22. After interchanging the given two numbers (not digits), what will be the value of the given equation?

13 and 11

48 ÷ 6 + 9 – 11 × 11 + 13

(a) –121
(b) –113
(c) –141
(d) –137

Q23. Select the combination of letters that when sequentially placed in the blanks of the given letter series will complete the series.

ab_eea_bc_eaaa_cee

(a) aecc
(b) caeb
(c) caec
(d) ccae

Q24. Four letter-clusters have been given, out of which three are alike in some manner and one is different. Select the odd letter-cluster.

(a) WC
(b) PW
(c) FM
(d) QX

Q25. In the following question, four number pairs are given. In each pair the number on left side of (–) is related to the number of the right side of (–) with some Logic/Rule /Relation. Three pairs are similar on basis of same Logic/Rule/Relation. Select the odd one out from the given alternatives. (NOTE: Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. E.g.13 – Operations on 13 such as adding /subtracting /multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed)

(a) 726 – 2278
(b) 1248 – 3744
(c) 1024 – 3072
(d) 336 – 1008

GENERAL INTELLIGENCE

Q26. Ratha Jatra, the festival of Chariots of Lord Jagannatha is celebrated every year in _____.

(a) Puri, Odisha
(b) Sarnath, Uttar Pradesh
(c) Jaipur, Rajasthan

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(d) Kolkata, West Bengal

Q27. Which of the following statements is correct regarding the production possibility frontier?

I. It gives the combinations between two goods that can be produced when the resources of the economy are fully utilised.

II. It illustrates the production possibilities of the economy.

(a) Only I
(b) Only II
(c) Both I and II
(d) Neither I nor II

Q28. Which among the following is NOT a crop as classified in India?

(a) Zaid
(b) Kharif
(c) Rabi
(d) Nisha

Q29. Which of the following statements regarding river Ganga is correct?

(a) Ghaghara is a tributary coming from peninsular uplands.
(b) Yamuna is a right bank tributary meets the Ganga at Allahabad.
(c) The length of the Ganga is over 5000 km.
(d) Betwa is a tributary of river Ganga rising from the Himalayas.

Q30. Which Article of the Indian constitution states that “The Council of States shall, as soon as may be, choose a member of the Council to be Deputy Chairman thereof and, so often as the office of Deputy Chairman becomes vacant, the Council shall choose another member to be Deputy Chairman thereof.”?

(a) Article 14
(b) Article 89
(c) Article 377
(d) Article 370

Q31. Speed of _____ printer is measured in characters per second (CPS).

(a) Dot Matrix
(b) Line
(c) Ink-Jet
(d) Laser

Q32. Intermediate Range Ballistic Missile Agni-4 has been successfully test fired in _____.

(a) Pokhran Firing Range, Rajasthan
(b) Neil Island, Andaman and Nicobar Islands
(c) Sriharikota, Andhra Pradesh
(d) APJ Abdul Kalam Island, Odisha

Q33. Article 243K of the Indian constitution is related with which of the following?

(a) Durations of panchayat, etc.
(b) Grounds of disqualification from membership of Panchayat.
(c) Reservation of seats in Panchayat.
(d) Election to the Panchayats.

Q34. In August 2022, Indian Air Force participated in a bilateral exercise named “Udarashakti” which was hosted by _____.

(a) UAE
(b) France
(c) Malaysia
(d) USA

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Q35. Tropical grasslands of Brazil are known as _____.

(a) Pampas
(b) Savanna
(c) Llanos
(d) Campos

Q36. Who is named as the Missile Man of India?

(a) Vikram Sarabhai
(b) C. V. Raman
(c) APJ Abdul Kalam
(d) Homi Bhabha

Q37. 1 terabytes per second = _____ bytes per second

(a) 2^(40)
(b) 2^(10)
(c) 2^(20)
(d) 2^(30)

Q38. Which among the following books is written by Amitav Ghosh?

(a) Back to the Roads
(b) 400 Days
(c) Jungle Nama
(d) Battlefield

Q39. Who among the following was a ruler of Shunga dynasty?

(a) Porus
(b) Pushyamitra
(c) Bindusara
(d) Ashoka

Q40. Which of the following countries did NOT qualify for the FIFA World Cup 2022?

(a) Italy
(b) Poland
(c) Mexico
(d) Senegal

Q41. Which among the following companies made an Initial Public Offering (IPO) in Indian stock market in 2022?

(a) HDFC Bank
(b) JSW Steel
(c) Avenue Supermarts
(d) Adani Wilmar

Q42. Before the Partition of Bengal in 1905, Bengal was the biggest province of British India. It consisted of parts of which of the following states?

(a) Uttar Pradesh and Orissa
(b) Uttar Pradesh and Bihar
(c) Bihar and Orissa
(d) Bihar and Chhattisgarh

Q43. Which of the following sports was NOT played at Commonwealth Games 2022?

(a) Shooting
(b) Badminton
(c) Wrestling
(d) Cricket T20

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Q44. _____ species are the species which are not found after searches of known or likely areas where they may occur.

(a) Extinct
(b) Endangered
(c) Normal
(d) Vulnerable

Q45. Which of these books is written by Shashi Tharoor?

(a) A State of Freedom
(b) Why I am Hindu
(c) Autumn
(d) Songs of a Coward

Q46. Which among the following is NOT a component of Lion Capital at Sarnath, India?

(a) Carved cow representing South direction
(b) Figures of 4 lions
(c) Dharma Chakras
(d) Lotus base bell

Q47. Which part of human brain is responsible for walking in straight line?

(a) Medulla
(b) Cerebrum
(c) Pons
(d) Cerebellum

Q48. Who among the following has been elected as the new President of the Board of Control for Cricket in India (BCCI) in October 2022?

(a) Roger Binny
(b) Sachin Tendulkar
(c) Kapil Dev
(d) Ravi Shastri

Q49. The Indira Sagar Dam is built over river Narmada in which of the following states of India?

(a) Karnataka
(b) Gujarat
(c) Madhya Pradesh
(d) Kerala

Q50. Which among the following is a surface-to-surface missile of India?

(a) Javelin
(b) AIM-120 AMRAAM
(c) Spike
(d) Agni V

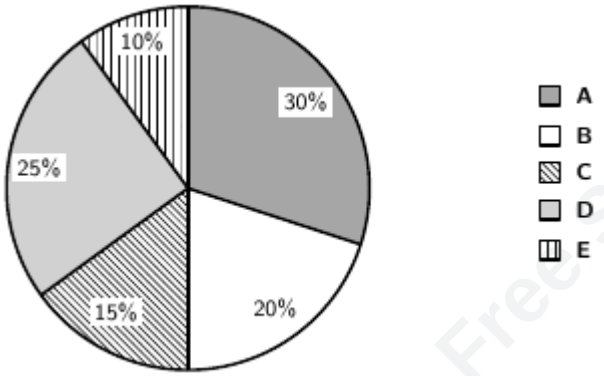
QUANTITATIVE APTITUDE

Q51. What is the value of (1+x)/(1-x²)÷(1+x)/(1-x^4)-(1-x^4)/(1-x)×(1+x)/(1-x²)

(a) 2x(1+x²)over(1-x)
(b) 2x(1+x²)over(x-1)
(c) (1-x)²
(d) (1+x²)

Q52. The pie chart given below show the runs scored by a batsman in five innings. Total runs scored by a batsman in all these five innings are 600. Runs scored by batsman in a particular inning is shown as a percentage of runs scored in all these five innings.

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Runs scored in inning A is how much percent of runs scored in inning D?

(a) 120 percent
(b) 90 percent
(c) 70 percent
(d) 150 percent

Q53. The intersection point of the medians of a triangle is called:

(a) Orthocentre
(b) Incentre
(c) Circumcentre
(d) Centroid

Q54. If $\sin(\theta + 30) = \cos 5\theta$, then what is the value of θ?

(a) 30 degree
(b) 10 degree
(c) 15 degree
(d) 20 degree

Q55. Shivam purchased two watches, first for Rs. 12000 and the second for Rs. 20,000. He sold both the watches, first one at the profit of 10 percent and the second at a loss of 20 percent. What is the overall profit or loss?

(a) Profit = Rs. 2600
(b) Loss = Rs. 2800
(c) Loss = Rs. 2400
(d) Profit = Rs. 2200

Q56. Excluding stoppages, the speed of a bus is 60 kmph and including stoppages, it is 54 kmph. For how many minutes does the bus stop per hour?

(a) 4 mins
(b) 6 mins
(c) 7 mins
(d) 5 mins

Q57. The salary of an employee increases consistently by 20% every year. If his salary today is Rs. 14,000, what will be his salary after 3 years?

(a) Rs. 24,192
(b) Rs. 31,200
(c) Rs. 42,344
(d) Rs. 31,220

Q58. If sum of squares of two real numbers is 12 and the product of the numbers is 4, find the difference between the numbers.

(a) 4
(b) 8
(c) 1

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(d) 2

Q59. Find the length of the arc if the angle at the centre of the circle of radius 7 units is 60^o.

(a) 4 units
(b) 11/4 units
(c) 22/3 units
(d) 21 units

Q60. Marked price of a computer is Rs. 80000. It is sold for Rs. 65280 after two successive discounts. If one of the discount is 15 percent, then what is the value of other discount?

(a) 7 percent
(b) 5 percent
(c) 6 percent
(d) 4 percent

Q61. The ratio of areas of two circles is 81 : 121. What will be the ratio of their circumferences?

(a) 9 : 11
(b) 121 : 81
(c) 11 : 9
(d) 81 : 121

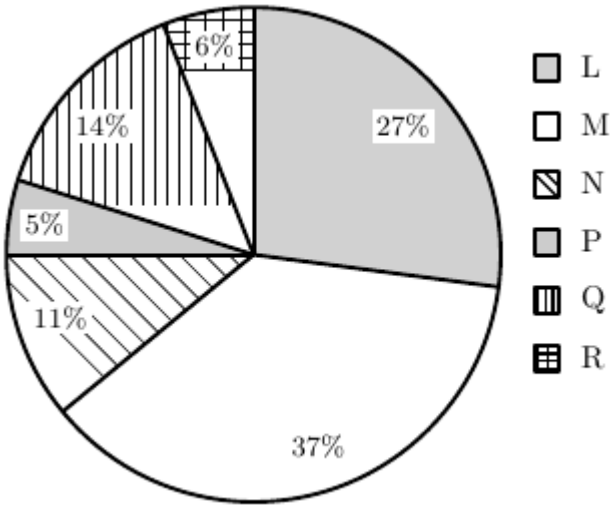
Q62. If m - 1over m = 7, then what is the value of m^2 + (1over m^2) ?

(a) 0
(b) 51
(c) 53
(d) 49

Q63. Find the area of a circle whose radius is equal to the side of a square whose perimeter is 196 m.

(a) 7457 m^2
(b) 7546 m^2
(c) 6477 m^2
(d) 8844 m^2

Q64. The pie chart given below shows the number of girls in six schools. The total number of girls in all these six schools are 8000. Number of girls in a particular school is shown as a percentage of total number of girls in all these six schools.

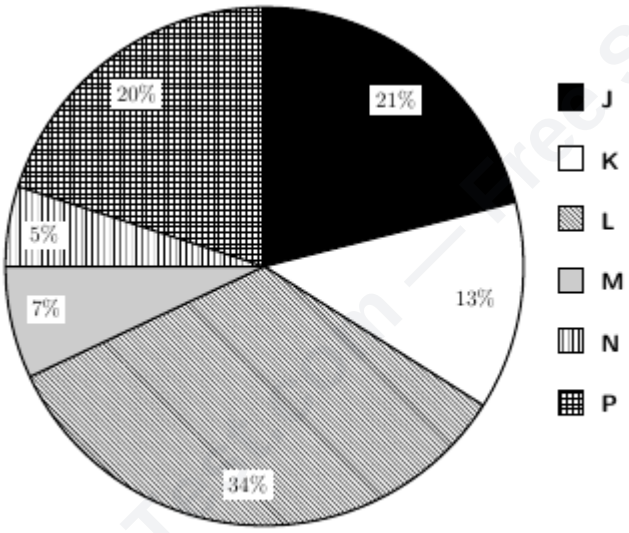


What is the difference between the central angle formed by sector M and Q?

(a) 64.3 degree
(b) 82.8 degree
(c) 74.3 degree

(d) 93.5 degree

Q65. The pie chart given below shows the number of girls in six schools. The total number of girls in all these six schools are 6000. Number of girls in a particular school is shown as a percentage of total number of girls in all these six schools.



What is the average number of girls in school K and M?

(a) 800
(b) 600
(c) 300
(d) 400

Q66. If 3 tan θ = 4, then what is the value of 7 sin θ - 2 cos θ?

(a) 12/5
(b) 4
(c) 22/5
(d) 17/5

Q67. In a cyclic quadrilateral EFGH, angle E is opposite to angle G. If angle E = 95 degree, then what is the value of angle G?

(a) 80 degree
(b) 75 degree
(c) 85 degree
(d) 105 degree

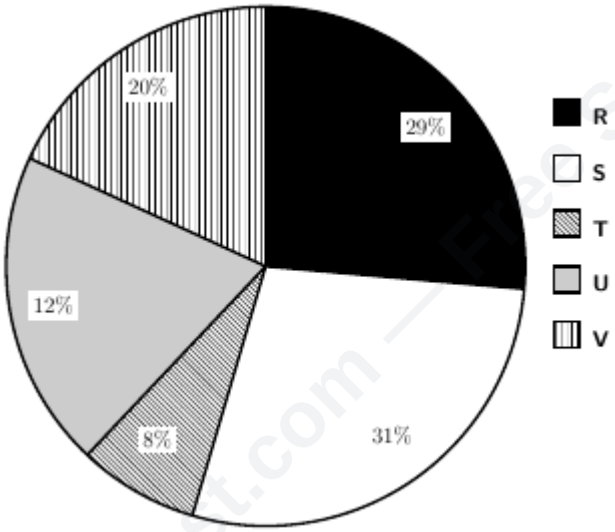
Q68. If A : B = 2 : 3, B : C = 6 : 7, C : D = 14 : 3, then find A : B : C : D

(a) 12 : 12 : 4 : 6
(b) 7 : 2 : 10 : 4
(c) 8 : 12 : 14 : 3
(d) 8 : 5 : 14 : 6

Q69. The difference between the compound interest (compounding half yearly) for 1 year and the simple interest for 1 year on a certain sum lent out at the annual rate of 10 percent is Rs. 25. What is the sum?

(a) Rs. 12000
(b) Rs. 6000
(c) Rs. 8000
(d) Rs. 10000

Q70. The pie chart given below show the runs scored by a batsman in five innings. Total runs scored by the batsman in all these five innings are 800. Runs scored by the batsman in a particular innings is shown as a percentage of runs scored in all these five innings.



What is the difference between runs scored in S and U?

(a) 174
(b) 184
(c) 142
(d) 152

Q71. A and B together can complete a work in 20 days. B and C together can complete the same work in 15 days. If A, B and C all work together, then the same work gets completed in 10 days. How many days will A and C together take to complete the same work?

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

Q72. A man spends Rs. 2,300 monthly on average for the first four months and Rs. 1,800 monthly for the next eight months and saves Rs. 12,400 a year. Find his monthly income.

(a) Rs. 3,000
(b) Rs. 2,400
(c) Rs. 2,200
(d) Rs. 2,100

Q73. The value of [(24 - 12) ÷ 4] + [81 - 48 ÷ 12 of 2] is

(a) 67
(b) 73
(c) 35
(d) 82

Q74. What is the value of 512 × 3 - 25 ÷ 15 × 9?

(a) 1521
(b) 1425
(c) 1486
(d) 1536

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Q75. If 6 sec θ = 10, then find the value of (5 cosec θ - 3 cot θ)/(4 cos θ + 3 sin θ).

(a) 2/3
(b) 3/2
(c) 5/6
(d) 6/5

GENERAL AWARENESS

Q76. Select the word that is similar in meaning (SYNONYM) to the word given below

Craven

(a) Bold
(b) Unabashed
(c) Cowardly
(d) Gallant

Q77. Choose the word that is opposite in meaning to the given word.

Coarse

(a) Devoted
(b) Buttery
(c) Unrefined
(d) Gruntled

Q78. Select the wrongly spelt word.

(a) Benign
(b) Besiege
(c) Beneficiel
(d) Bifurcate

Q79. Some parts of a sentence have been jumbled up, and labelled P, Q, R and S. Select the option that gives the correct sequence in which these parts can be rearranged to form a meaningful and grammatically correct sentence.

Many retailers have invested

P. time and money into understanding its

Q. make them healthier so they can continue to be marketed

R. promotions work, and changing product ingredients to

S. complexity, refitting shops, trialling which healthier

(a) PSRQ
(b) SRPQ
(c) PQRS
(d) QRPS

Q80. Select the wrongly spelt word.

(a) Circumspect
(b) Camor
(c) Cloying
(d) Coffer

Q81. Fill in the blank with an appropriate option.

Just one _____ of paper can lead to a whole lot of fun.

(a) sheet
(b) bunch
(c) bulk
(d) group

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Q82. Select the correct passive form of the given sentence.

The cat ate all the pastries.

(a) All the pastries is eaten by the cat.
(b) All the pastries were eaten by the cat.
(c) All the pastries had been eaten by the cat.
(d) All the pastries are eaten by the cat.

Q83. Find the part of the given sentence that has an error in it. If there is no error, choose 'No error'.

A guru is someone who does not charge you a fee because someone who is tied in greed couldn't release you.

(a) charge you a fee because someone
(b) who is tied in greed couldn't release you.
(c) A guru is someone who does not
(d) No error

Q84. Select the word that is closest in meaning (SYNONYM) to the word given below.

Buddy

(a) Stylist
(b) Foe
(c) Associate
(d) Enemy

Q85. Choose the word that means the same as the given word.

Jejune

(a) Poignant
(b) Drab
(c) Unchildlike
(d) Cosmopolitan

Q86. Given below are four jumbled sentences. Pick the option that gives their correct order.

P. The average adult gets two to four colds a year, while the average child may get six to eight.

Q. It is the most frequent infectious disease in humans.

R. They occur more commonly during the winter.

S. The common cold, also known simply as the cold, is a viral infectious disease of the upper respiratory tract that primarily affects the nose.

(a) QSRP
(b) SQPR
(c) QPSR
(d) PQRS

Q87. Select the most appropriate meaning of the given idiom.

New kid on the block

(a) Nonsense or meaningless speech.
(b) Savings set aside for future use.
(c) Don't hurt anyone that helps you.
(d) Someone new to the group or area.

Q88. In the following question, out of the given four alternatives, select the alternative which best expresses the meaning of the Idiom/Phrase.

Cast someone adrift

(a) To leave someone without any support or purpose
(b) To change plan suddenly
(c) Call someone repeatedly
(d) To blame someone for one's mistakes

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Q89. Fill in the blank with an appropriate option.

It was past the mid-hour of the night, and was quite _____ and dark.

(a) moonless
(b) glimmer
(c) flasher
(d) riding

Q90. Identify the segment in the sentence which contains a grammatical error. If there is no error, then select the option "No error".

I felt that / I was be groomed / for success in the world.

(a) No error
(b) I was be groomed
(c) I felt that
(d) for success in the world.

Q91. Choose the word that can substitute the given group of words.

A lover of good food

(a) Esoteric
(b) Chauvinist
(c) Gourmand
(d) Ergophile

Q92. Choose the option that is the correct indirect form of the sentence.

I said, 'I'm not very happy at work.'

(a) I told her that I was not very happy at work.
(b) I told her I would not be very happy at work.
(c) I told her that I had not been very happy at work.
(d) I told her I am not very happy at work.

Q93. Fill in the blank with the most suitable word.

The scientists _____ that the chefs relied on a specific motion.

(a) invented
(b) innovated
(c) planned
(d) found

Q94. Select the word segment that substitutes (replaces) the bracketed word segment correctly and completes the sentence meaningfully. In case no improvement is needed, select 'No improvement'.

Nonetheless, (many an old poets, such as Tennyson and Browning, has) kept their romances to the end.

(a) many old poets, such as Tennyson and Browning, have
(b) many old poets, such Tennyson and Browning, has
(c) No improvement
(d) many a old poets, such Tennyson and Browning, has

Q95. Fill in the blank with an appropriate option.

We are the creative force of our life, and through our own decisions rather than our conditions, if we carefully learn to do certain things, we can _____ those goals.

(a) expel
(b) accomplish
(c) torment
(d) reverberate

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Directions

In the following passage, some words have been deleted. Fill in the blanks with the help of the alternatives given. Select the most appropriate option for each blank.

Cristiano Ronaldo dos Santos Aveiro, born on February 5th, 1985 and commonly known 1. ____ Cristiano Ronaldo, is a Portuguese footballer who 2. __ as a forward for Spanish club Real Madrid and serves as captain 3. __ the Portuguese national team. Ronaldo currently holds the distinction of being the most expensive player in football history after 4. __ transferred to Real Madrid from Manchester United in a deal worth £80 million (€94m, US$132m). His contract with Real Madrid is believed to have made him the highest-paid 5. ____ player in the world.

Q96. Select the most appropriate option to fill in the blank No.1.

(a) at
(b) for
(c) in
(d) as

Q97. Select the most appropriate option to fill in the blank No.2.

(a) plays
(b) played
(c) will play
(d) has played

Q98. Select the most appropriate option to fill in the blank No.3.

(a) in
(b) with
(c) of
(d) at

Q99. Select the most appropriate option to fill in the blank No.4.

(a) been
(b) is
(c) having
(d) be

Q100. Select the most appropriate option to fill in the blank No.5.

(a) rugby
(b) football
(c) tennis
(d) cricket

ANSWER KEY

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

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SOLUTIONS

Q1. Answer: (b) Only I follows

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

Conclusions:

I. All hulk are flash → Follow (As all hulk are thor and all thor are flash. So, as whole hulk comes in thor which whole comes in flash therefore it is definitely true)

II. No thor is a hulk → Does not follow (As all hulk are thor. So, as no direct negative or cross relation is given between thor and hulk therefore it is definitely false)

Therefore Here, Only I follows.

Hence, the correct answer is "Only I follows".

Q2. Answer: (b) [figure]

The figure that will replace the question mark (?) in the following figure series is shown below:

1) For

element : The '

' part of the element is shifting to the next alternate '

' part of the element and then immediate next ''

' in the clockwise direction.

Final series is :

Hence, ‘option - (2)’ is the correct answer.

Q3. Answer: (a) 64 – 4032

Logic : Square if of 1st number = 2nd number

So,

• Option - (1) : 64 – 4032

$(64)^2 = 4032$

4096 ≠ 4032 (LHS ≠ RHS)

• Option - (2) : 38 – 1444

$(38)^2 = 1444$

1444 = 1444 (LHS = RHS)

• Option - (3) : 42 – 1764

$(42)^2 = 1764$

1764 = 1764 (LHS = RHS)

• Option - (4) : 52 – 2704

$(52)^2 = 2704$

2704 = 2704 (LHS = RHS)

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

Q4. Answer: (c) Shoot : Gun

The logic followed here is:

Logic: The Second word is a device which is used to do the first word.

View: Binocular

→ Binocular is used to view the far distant objects.

Let's check each option as per the logic,

1) Spade: Dig

→ The order of words is incorrect.

2) Pen: Write

→ The order of words is incorrect.

3) Shoot: Gun

→ Gun is used to shoot → Follow the logic.

4) Feed: Spanner

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→ Spanner is used to grip the things, not feed.
Here, we can see that only Option 3 follow the logic.
Hence, the correct answer is "Shoot: Gun".

Q5. Answer: (d) LNIJ

The logic followed here is :-
• First and third letters → Interchanged their positions.
• Second and fourth letters → (1) is added to the position value according to the English alphabetic series.
So,
• WIRE : RJWF

And,
• PICK : CJPL

Similarly,
• IMLI : ?
Hence, the correct answer is "LNIJ".

Q6. Answer: (c) 12

The number of triangles are shown below:
Thus, as marked above there are total 12 triangles in the give figure.
Hence, "12" is the correct answer.

Q7. Answer: (b) [figure]

The correct mirror image of the given combination when mirror is placed at AB is as shown below:
Detailed Explanation:
• The line AB is the mirror
• The arrow element inside the box '
' is same as in the original figure '
' but should be '
' and should be positioned at the left up corner => Option 1 is eliminated.
• The arrow element inside the box '
' is same as in the original figure '
' but should be '
' => Option 3 is eliminated..
• The arrow element inside the box '
' is positioned at right up corner but should be positioned at the left up corner => Option 4 is eliminated.
Hence, the correct answer is "Option - (2)".

Q8. Answer: (b) V

As per the given statements,
1) U is elder than only four other sisters.
→ _ > _ > U > _ > _ > _ > _
2) X is elder than one person only that is Z who is the youngest among all sisters.
→ _ > _ > U > _ > _ > X > Z
3) T is elder than Y.
4) U is elder than T.
→ _ > _ > U > T > Y > X > Z
5) V is elder than W.
→ V > W > U > T > Y > X > Z
Here, we can see that V is the eldest sister.
Hence, the correct answer is "V".

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Q9. Answer: (c) 37555

Logic : (1) is added and subtracted alternately.

So,

• 38474 is coded as 47565

Similarly,

• 28464 is coded as

Hence, "37555 " is the correct answer.

Q10. Answer: (d) (9, 27, 729)

The logic followed here is:

Logic: Second Number = (First Number) × 3

→ Third Number = (First Number)³

(7, 21, 343):

→ 21 = 7 × 3

→ 343 = (7)³

(8, 24, 512):

→ 24 = 8 × 3

→ 512 = (8)³

Let's check each option as per the logic,

1) (8, 50, 512):

→ 50 ≠ 8 × 3

2) (5, 10, 225):

→ 10 ≠ 5 × 3

3) (11, 66, 1331):

→ 66 ≠ 11 × 3

4) (9, 27, 729):

→ 27 = 9 × 3

→ 729 = (9)³ → Follow the logic.

Here, we can see that only Option 4 follow the logic.

Hence, the correct answer is "(9, 27, 729)".

Q11. Answer: (d) Daughter-in-law

Based on the table, we can draw the family tree,

As per the given information,

Here, we can see that Suman is the daughter-in-law of Rajesh.

Hence, the correct answer is "Rajesh".

Q12. Answer: (a) 784

Logic : (1st number ÷ 2) = (Square root of 2nd number)

So,

• 12 : 36

(12 ÷ 2) = √36

6 = 6 (LHS = RHS)

And,

• 18 : 81

(18 ÷ 2) = √81

9 = 9 (LHS = RHS)

• 56 : ?

(56 ÷ 2) = √(?)

$(28)^2$ = ?

784 = ?

Hence, "784" is the correct answer.

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Q13. Answer: (c) 11

Refer to the diagram as shown below:

Here, the shaded area represents houses which are only bikes i.e 11.

Hence, '11' is the correct answer.

Q14. Answer: (b) [figure]

Given:

• The image must not to be rotated.

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

Q15. Answer: (a) (Knife, Needle, Plumbline)

The logic followed here is:

Logic: All three words in a set are different professions.

Let's check each option as per the logic,

1) (Knife, Needle, Plumbline):

→ These three are different types of tools, they are not professions.

2) (Surgeon, Warrior, Chef):

→ All three are professions.

3) (Farmer, Mason, Doctor):

→ All three are professions.

4) (Labourer, Tailor, Sculptor):

→ All three are professions.

Here, we can see that Option 1 doesn't follow the logic and is different from the others.

Hence, the correct answer is "(Knife, Needle, Plumbline)".

Q16. Answer: (c) Periodic

The correct order as per the dictionary is:

2) Perilad

3) Perimeter

4) Periodic

5) Perish

1) Periwing

Here, we can see that the word at the third position is Periodic.

Hence, the correct answer is "Periodic".

Q17. Answer: (d) [figure]

The correct mirror image of the given figure is shown below:

Hence, the correct answer is "Option 4".

Q18. Answer: (c) OBKO

Logic :

• First and second letters => Interchanged their positions.

• Third and fourth letters => Interchanged their positions.

So,

• GATE is written as AGET

Similarly,

• BOOK is coded as :

Hence, "OBKO" is the correct answer.

Q19. Answer: (c) [figure]

Given:

• The image must not to be rotated

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

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Q20. Answer: (d) Ammeter : Electric Current

The logic followed here is:

Logic: The first word is an instrument which is used to measure the second word.

Hygrometer: Humidity

→ Hygrometer is used to measure Humidity.

Let's check each option,

1) Thermometer: Blood Pressure

→ Thermometer is used to measure temperature, not Blood Pressure.

2) Anemometer: Current

→ Anemometer is used to measure wind speed and direction, not Current.

3) Screw Gauge: Heat

→ Screw Gauge is used to measure the dimensions of very small objects, not Heat.

4) Ammeter: Electric Current

→ Ammeter is used to measure Electric Current. => Follow the logic.

Here, we can see that only Option 4 follow the logic.

Hence, the correct answer is "Ammeter: Electric Current".

Q21. Answer: (b) 105

Logic :

Hence, "105" is the correct answer.

Q22. Answer: (c) –141

After interchanging 13 and 11, the equation we get:

→ 48 ÷ 6 + 9 – 13 × 13 + 11 =?

→ 8 + 9 – 13 × 13 + 11 =?

→ 8 + 9 – 169 + 11 =?

→ 28 – 169 =?

→ – 141 =?

Hence, the correct answer is "– 141".

Q23. Answer: (b) caeb

Let's check each option,

1	**a**	**b**	**a**	**e**	**e**	**a**	**e**	**b**	**c**	**c**	**e**	**a**	**a**	**a**	**c**	**c**	**e**	**e**
2	a	b	c	e	e	a	a	b	c	e	e	a	a	a	b	c	e	e
3	a	b	c	e	e	a	a	b	c	e	e	a	a	a	c	c	e	e
4	a	b	c	e	e	a	c	b	c	a	e	a	a	a	e	c	e	e

Here, we can see that Option 2 follows a repetitive pattern. The base term of the series is "abcee". Then moving forward in the series, the base term gets repeated with an addition of "a" in the starting.

Hence, the correct answer is "caeb".

Q24. Answer: (a) WC

The logic followed here is:

Logic: 7 has been added in the first letter's positional value to get the second letter of the cluster.

Let's check each option as per the logic,

1) WC

→ W + 7 ≠ C => Doesn't follow the logic.

2) PW

→ P + 7 = W

3) FM

→ F + 7 = M

4) QX

→ Q + 7 = X

Here, we can see that only Option 1 doesn't follow the logic and is different from the others.

Hence, the correct answer is "WC".

Q25. Answer: (a) 726 – 2278

The logic followed here is:

Logic: Second Number = (First Number) × 3

Let's check each option as per the logic,

1) 726 – 2278

→ 2278 ≠ 726 × 3 => Doesn't follow the logic.

2) 1248 – 3744

→ 3744 = 1248 × 3

3) 1024 – 3072

→ 3072 = 1024 × 3

4) 336 – 1008

→ 1008 = 336 × 3

Here, we can see that only Option 1 doesn't follow the logic and is the odd one.

Hence, the correct answer is "726 – 2278".

Q26. Answer: (a) Puri, Odisha

Correct Answer Puri, Odisha

Key Points Origins and Significance:

• Ratha Jatra, also known as the Chariot Festival, is a significant event in Hinduism.

• It is dedicated to Lord Jagannatha, a form of Lord Vishnu, and his siblings, Lord Balabhadra and Goddess Subhadra.

• The festival symbolizes Lord Jagannatha's annual visit to his birthplace, the Gundicha Temple.

Location and Time:

• The festival takes place in Puri, a city in the Indian state of Odisha.

• It is usually held in the month of Ashadha, which falls in June or July according to the Gregorian calendar.

Chariot Construction and Procession:

• Three chariots are constructed for the festival, each representing one of the deities - Lord Jagannatha, Lord Balabhadra, and Goddess Subhadra.

• These chariots are pulled by devotees in a grand procession from the main Jagannatha temple to the Gundicha Temple.

Rituals and Celebrations:

• The festival lasts for nine days.

• The deities are bathed and adorned with new clothes and jewelry.

• They are then placed on the chariots for the procession.

• Upon reaching the Gundicha Temple, they stay there for seven days and then return to the main temple, marking the end of the festival.

Global Recognition:

• While the festival has its roots in Puri, it is now celebrated globally by the International Society for Krishna Consciousness (ISKCON) and other Hindu communities around the world.

• The festival is known for its display of devotion and the vibrant cultural heritage of Odisha.

Q27. Answer: (c) Both I and II

Correct Answer Both I and II

Key PointsProduction Possibility Frontier (PPF):

Statement 1:

• The PPF does indeed illustrate the combinations of two goods or services that can be produced when the resources of the economy are fully and efficiently utilized.

• It shows the trade-off between the production of one good and the production of another, assuming all resources are used to their fullest potential.

Statement 2:

• The PPF also illustrates the production possibilities of the economy.

• It shows the maximum possible output combinations of two goods or services an economy can achieve when all resources are fully and efficiently employed.

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• The PPF is typically depicted as a downward-sloping curve, with one good on each axis.

• Points along the curve represent efficient production levels, while points below the curve indicate inefficiency and points above the curve are unattainable with current resources and technology.

Q28. Answer: (d) Nisha

The correct answer is Nisha

Key Points:

• India has three cropping seasons — Rabi, Kharif and Zaid.

• Rabi crops are sown in winter from October to December and harvested in summer from April to June.

• Some of the important rabi crops are wheat, barley, peas, gram and mustard.

• Though these crops are grown in large parts of India, states from the north and north-western parts such as Punjab, Haryana, Himachal Pradesh, Jammu and Kashmir, Uttarakhand and Uttar Pradesh are important for the production of wheat and other rabi crops.

• Availability of precipitation during winter months due to the western temperate cyclones helps in the success of these crops.

• However, the success of the green revolution in Punjab, Haryana, western Uttar Pradesh and parts of Rajasthan has also been an important factor in the growth of the abovementioned rabi crops.

• Kharif crops are grown with the onset of monsoon in different parts of the country and these are harvested in September-October.

• Important crops grown during this season are Paddy, Maize, Jowar, Bajra, Tur(Arhar), Moong, Urad, Cotton, Jute, Groundnut and Soybean. Hence, Groundnut is the correct answer.

• Some of the most important rice-growing regions are Assam, West Bengal, coastal regions of Odisha, Andhra Pradesh, Telangana, Tamil Nadu, Kerala and Maharashtra, particularly the (Konkan coast) along with Uttar Pradesh and Bihar.

• Recently, paddy has also become an important crop of Punjab and Haryana.

• In states like Assam, West Bengal and Odisha, three crops of paddy are grown in a year. These are Aus, Aman and Boro.

• In between the rabi and the Kharif seasons, there is a short season during the summer months known as the Zaid season.

• Some of the crops produced during ‘Zaid’ are watermelon, muskmelon, cucumber, vegetables and fodder crops.

Q29. Answer: (b) Yamuna is a right bank tributary meets the Ganga at Allahabad.

The correct answer is Yamuna is a right bank tributary meets the Ganga at Allahabad.

Key Points:River Ganga

• It originates in the Himalaya Mountains at Gomukh, the terminus of the Gongotri Glacier. Here, it is known as the Bhagirathi.

• It cuts through the Central and the Lesser Himalayas in narrow gorges.

• At Devprayag, the Bhagirathi meets the Alaknanda; hereafter, it is known as the Ganga.

• The river has a length of 2,525 km. (Option 3 Incorrect)

• It is shared by Uttarakhand (110 km) and Uttar Pradesh (1,450 km), Bihar (445 km) and West Bengal (520 km).

• The river finally discharges itself into the Bay of Bengal near Sagar Island.

• Left tributaries: Gomti, Ghaghara, Gandak, Burhi Gandak, Koshi, Mahananda, Ramganga, Garra.

• Right tributaries: Yamuna, Sone, Punpun, Damodar.

Additional InformationYamuna:

• Originates from Yamunotri Glacier.

• Passes from states- Uttarakhand, Himachal Pradesh, Uttar Pradesh, Haryana, Delhi.

• Merge in Ganga at Praygraj(Allahabad). (Option 2 correct)

• The Yamuna is the second-largest tributary river of the Ganga and the longest tributary.

• Left tributaries of Yamuna are Tons, Hindon, Hanuman Ganga, Sasur, Khaderi.

• Right tributaries of Yamuna are Giri, Baghain, Chambal, Betwa, Sindh, Ken.

• Length of river 1,376 km.

River Ghaghara :

• Ghaghara River is also called the Gogra, Ghaghara or Ghagra, Nepali Kauriala or Manchu or the Karnali.

• However, the literal meaning of the river is ' holy water from the sacred mountain',

• The term Karnali also means "Turquoise River" and is a transboundary perennial river that originates on the Tibetan plateau. (Option 1 Incorrect)

• The Karnali is called K'ung-ch'iao Ho in Chinese.

• This river near Manasarovar cuts through the Himalayas in Nepal on its way to the convergence with the Sarda River at Brahmaghat in India where it forms the Ghaghara River.

• The Ghaghara River is a major left-bank tributary of the Ganges.

• It is the longest and largest river in Nepal with a length of around 507 km and one of the largest affluent of the Ganges.

River Betwa:

• It originates from the Vindhyachal Ranges of Raisen district in Madhya Pradesh.

• Betwa is an important tributary of the river Yamuna. (Option 4 Incorrect)

• The length of the river Betwa is around 590 Km.

• Important cities on the bank of the river Betwa are Vidisha, Sanchi, and Orcchaa.

• Raj Ghat Dam is situated on the river Betwa.

• Ken-Betwa river interlinking project is the proposed project to transfer the surplus water from River Ken to Betwa in order to meet the water needs of the drought-prone Bundelkhand Region of Madhya Pradesh and Uttar Pradesh.

Q30. Answer: (b) Article 89

Correct Answer Article 89

Key Points

• The Vice-President is the ex-officio chairman of the Rajya Sabha.

• The Vice-President as Chairman of the Rajya Sabha is the unchallenged guardian of the eminence and dignity of the House.

• Article 64: The Vice-President shall be ex officio Chairman of the Council of States and shall not hold any other office of profit.

• Article 89: of the Constitution provides provision for the Chairman (Vice-President of India) and the Deputy Chairman of the Rajya Sabha.

• Power and Functions:

• The Chairman of the Rajya Sabha is empowered to adjourn the House or to suspend its sitting in the event of the absence of a quorum.

• The 10th Schedule of the Constitution empowers the Chairman to determine the question as to disqualification of a member of the Rajya Sabha on the ground of defection;

• The Chairman's consent is needed to raise a question of breach of privilege in the House.

• Parliamentary Committees, regardless of whether set up by the Chairman or by the House, work under the direction of the Chairman.

• He nominates members to different Standing Committees and Department-related Parliamentary Committees.

• He is the Chairman of the Business Advisory Committee, the Rules Committee, and the General Purposes Committee.

• It is the duty of the Chairman to interpret the Constitution and rules so far as matters in or relating to the House are concerned, and no one can enter into any argument or controversy with the Chairman over such interpretation.

• He can only be removed as the chairman of Rajya Sabha when he is removed from the office of Vice-President of India.

• While the resolution is in effect for the removal of Vice-President, he cannot preside over the house as chairman, although he can be part of the house.

Additional InformationArticle 14:

• The State shall not deny to any person equality before the law or the equal protection of the laws within the territory of India, on grounds of religion, race, caste, sex, or place of birth.

Article 377:

• States about the Provision as to comptroller and auditor general of India.

Article 370:

• Article 370 of the Indian constitution gave special status to Jammu and Kashmir which has been the subject of a dispute between India, Pakistan, and China since 1947.

• Article 370 was drafted in Part XXI of the Indian constitution titled "Temporary, Transitional and Special Provisions".

• Clause 3 of Article 370 empowers the president to declare the article as inoperative.

• Instead of scrapping Article 370, the government used the power given by the same Article to the President to make the provision ineffective.

• Scrapping of Article 370 would, otherwise, require a constitutional amendment under Article 368.

• But by invoking Article 370(3), the government has cleverly bypassed the amendment route.

Q31. Answer: (a) Dot Matrix

The correct answer is Dot Matrix

Key Points

Print resolution is measured as the number of Dots Per Inch (dpi).

• It can be said that Resolution (in terms of print) is a measure of the number of dots that a device can put in one square inch of

page space.

• The higher the dot density, the higher the resolution of the print or scan.

• A printer with 600 DPI is a printer that prints 600 x 600 per square inch or 360,000 dots per inch.

• Increasing the DPI will make the size of the printed image smaller while decreasing the DPI will make the size of the printed image larger.

• Characters-per-second (cps) is a unit of measure used to describe the speed of dot-matrix and daisy-wheel printers.

• Lines-Per-Minute (LPM) is the number of lines of text a printer is capable of producing in one minute. It is affected by factors such as text size, resolution, and colour.

• Pages per minute (PPM) is a printer speed measurement standard. It is the measurement standard for how fast a printer can print a standardized page.

Q32. Answer: (d) APJ Abdul Kalam Island, Odisha

Correct Answer APJ Abdul Kalam Island, Odisha

Key Points

• A successful training launch of an Intermediate Range Ballistic Missile, Agni-4, was carried out at approximately 1930 hours on June 06, 2022, from APJ Abdul Kalam Island, Odisha.

• The successful test was part of routine user training launches carried out under the aegis of the Strategic Forces Command.

• The launch validated all operational parameters as also the reliability of the system.

• The successful test reaffirms India's policy of having a 'Credible Minimum Deterrence' Capability.

Q33. Answer: (d) Election to the Panchayats.

The correct answer is Election to the Panchayats

Key Points:

• Under Article 243 K the State Election Commission Operates the election of urban bodies.

• The State Election Commission conducts free, fair, and impartial elections to the local bodies in the state.

• The 73rd Amendment of 1992 added a new Part IX to the constitution titled “The Panchayats” covering provisions from Articles 243 to 243(O).

• Following are the articles related to Panchayat

• Article 243 – Definitions.

• Article 243A – Gram Sabha.

• Article 243B – Constitution of Panchayats.

• Article 243C – Composition of Panchayats.

• Article 243D – Reservation of seats.

• Article 243E – Duration of Panchayats, etc.

• Article 243F – Disqualifications for membership.

• Article 243G – Powers, authority and responsibilities of Panchayats.

• Article 243H – Powers to impose taxes by, and Funds of, the Panchayats.

• Article 243I – Constitution of Finance Commission to review financial position.

• Article 243J – Audit of accounts of Panchayats.

• Article 243K – Elections to the Panchayats.

• Article 243L – Application to Union territories.

• Article 243M – Part not to apply to certain areas.

• Article 243N – Continuance of existing laws and Panchayats.

• Article 243O – Bar to interference by courts in electoral matters.

Q34. Answer: (c) Malaysia

The correct answer is Malaysia.

Key Points:

• A contingent of the Indian Air Force (IAF) left for Malaysia on 12 August 2022 to participate in a bilateral exercise named 'Udarashakti'.

• This is the first bilateral exercise being conducted between Indian Air Force and Royal Malaysian Air Force (RMAF).

• IAF is participating in the exercise with Su-30 MKI and C-17 aircraft while the RMAF will be flying Su 30 MKM aircraft.

Additional Information:

• Malaysia is a country in Southeast Asia.

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• It's known for its beaches, rainforests and mix of Malay, Chinese, Indian and European cultural influences.
• Malaysia:
• Prime Minster: Ismail Sabri Yaakob
• Capital: Kuala Lumpur (Executive capital), Putrajaya (Administrative capital)
• Currency: Malaysian ringgit

Q35. Answer: (d) Campos

The correct answer is Campos.

Key Points

• Tropical Grasslands:
• These are the grasslands that are located in the tropical zones and in the interior part of the continents.
• 'Campos' in Brazil and 'Llanos' in Venezuela are examples of tropical grasslands.
• Campas in Brazil is also called Savanna grasslands.
• These are rich in plant species and are more diverse than forest ecosystems.
• Savanna grasslands lie between 24°S and 35°S, which includes Uruguay and parts of Paraguay, Brazil, and Argentina.
• In these regions, the climate is subtropical and humid and the rainfall is distributed regularly all over the year.
• Hence, from the above-mentioned points, it becomes clear that Compos in Brazil and Llanos in Venezuela are examples of Tropical grasslands.

Additional Information

• Temperate Grasslands:
• These are the grasslands that are located in the temperate zone and in the interior part of the continent.
• 'Downs' in Australia, and 'Steppes' in Europe are examples of temperate grasslands.
• The temperate grasslands of North America are called Prairies.
• The Temperate grasslands in South America are known as Pampas.
• Tundra: Tundra is a type of biome where tree growth is hindered by low temperatures and short growing seasons.
• Mediterranean regions occur between approximately 30° to 40° north and south latitudes on the west sides of continents.

Q36. Answer: (c) APJ Abdul Kalam

The correct answer is APJ Abdul Kalam.

Key Points

• APJ Abdul Kalam was known as the Missile Man of India for his important role in the nation's civilian space programme and military missile development. Also, in 1998, he made significant contributions to India's Pokhran-II nuclear tests.
• Name: Avul Pakir Jainulabdeen Abdul Kalam (Dr. A.P.J. Abdul Kalam)
• Nick Name: Missile Man
• Nationality: Indian
• Occupation: Engineer, Scientist, Author, Professor, Politician
• Born: 15-Oct -1931
• Place of Birth: Dhanushkodi, Rameswaram, Tamil Nadu, India
• Died: 27 July 2015
• Died at the age of 83
• Place of Death: Shillong, Meghalaya, India
• Famous as: Dr. A.P.J. Abdul Kalam President from 2002 to 2007
• Preceded by: Kocheril Raman Narayanan (President from 1997-2002)
• Succeeded by: Pratibha Patil (President from 2007-2012)
• He was the 11th president of India and elected against Lakshmi Sehgal in 2002.
• Before becoming the President of India, he worked with the Indian Space Research Organisation (ISRO) and Defence Research and Development Organisation (DRDO) as an aerospace engineer.

Additional Information

Option	Important Information
Vikram Sarabhai	Considered the father of India's space program. Founded the Indian Space Research Organization (ISRO) and played a key role in the establishment of various space research institutions.

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C. V. Raman	Indian physicist who won the Nobel Prize in Physics in 1930 for his discovery of the Raman effect. His work contributed to the understanding of light scattering and led to various applications.
Homi Bhabha	Indian nuclear physicist and the founding director of the Tata Institute of Fundamental Research (TIFR). Known for his significant contributions to the development of India's nuclear program.

Q37. Answer: (a) 2^(40)

The correct answer is 240.

Key Points

• A Terabyte (TB) is a measure of computer storage capacity that is approximately 2 to the 40th power, or 10 to the 12th power, which equals approximately a trillion bytes.

• A Terabyte is more precisely defined as 1,024 gigabytes (GB), while a petabyte consists of 1,024 TB.

• A tbyte, terabyte, or TB, is equal to 1,099,511,627,776 (240) bytes.

• However, the IEC defines a TB as equal to 1,000,000,000,000 (1012) bytes.

• 1024 TB = 1 petabyte.

• 1 TB = 1024 gigabytes.

• The terabyte is a multiple of the unit byte for digital information.

• The prefix term was defined for the International System of Units in 1960.

Q38. Answer: (c) Jungle Nama

The correct answer is Jungle Nama.

Key Points

• Amitav Ghosh is an esteemed Indian author, well-known for his works in English fiction.

• Jungle Nama is a book written by Amitav Ghosh and is his first attempt at a narrative in verse.

• The book is based on the legend of Bon Bibi, a traditional tale prevalent in the Sundarbans region of Bengal.

• Jungle Nama illustrates the complex relationship between humans and the natural environment, presenting it in the form of an allegory.

• The book was published in 2021.

Additional Information

Book	Year of Publication	Brief Description
The Shadow Lines	1988	The book is a beautifully written novel that explores the political and personal repercussions of the partition of India.
The Glass Palace	2000	This book is a sweeping, panoramic view of the impact of the British Empire on India and Burma.
The Hungry Tide	2004	This novel is set in the Sundarbans and explores the life of the people living there as well as the area's delicate ecology.
Sea of Poppies	2008	This is the first volume of The Ibis trilogy, set prior to the First Opium War.

Q39. Answer: (b) Pushyamitra

The correct answer is Pushyamitra.

Key Points

Shunga Dynasty

• It was founded by Pushyamitra. There were ten Shunga rulers.

• Their capital was Patliputra.

• Pushyamitra was the commander of the last Mauryan emperor Vrihadratha.

• Pushyamitra killed the last emperor Vrihadrata and occupied the whole of Magadha.

• The name of the first ruler of the Mauryan dynasty of Magadha was Chandra Gupta Maurya and the name of the last ruler was

Vrihadratha.

Additional Information Bindusara

• Bindusara was the son of Chandragupta Maurya and father of the King Ashok.

• He ascended the throne in 298 BC after his father.

Ashoka

• He was the greatest Mauryan ruler; Governor of Taxila and Ujjain previously. His rule extended to the whole of the sub-continent except the extreme south. It also included Afghanistan, Baluchistan, Kashmir, and the valleys of Nepal.

• According to Buddhist tradition, Ashoka usurped the throne after killing his 99 brothers and spared Tissa, the youngest one.

• Ashoka had himself formally crowned in 269 BC.

• Under Ashoka, the Mauryan Empire reached its climax. For the first time, the whole of the sub-continent, leaving out the extreme south, was under imperial control.

• Ashoka fought the Kalinga War in 261 BC in the 9th year of his coronation. The king was moved by the massacre in this war and, therefore, abandoned the policy of physical occupation in favor of the policy of cultural conquest. In other words, Bherighosa was replaced by Dhammaghosa.

• Ashoka was not an extreme pacifist. He retained Kalinga after his conquest and incorporated it into his empire.

• He embraced Buddhism under Upagupta.

• He sent his son Mahendra and daughter Sanghamitra to Ceylon as Buddhist missionaries with a sapling of the original peepal tree.

Q40. Answer: (a) Italy

The correct answer is Italy.

Key PointsThe following countries did not qualify for the FIFA World Cup 2022:

• Italy

• Sweden

• Nigeria

• Chile

• Scotland

Additional Information

• FIFA World Cup

• The FIFA world cup started in 1930 and is held every four years except in 1942 and 1946 when it was not held due to the Second World War.

• The 2022 FIFA World Cup is the 22nd edition of the FIFA World Cup and was held in Qatar.

• 32 teams participated in this tournament.

• Argentina defeated France 4-2 on penalties to win their third World Cup, after 36 years on 19 December 2022.

• Golden Ball was awarded to Lionel Messi.

• He also got this award in 2014.

• With eight goals, Kylian Mbappe was awarded the Golden boot.

• Enzo Fernandez is awarded the Young Player of the Tournament award.

• While the goalkeeper of the tournament was given to Emiliano Martinez.

Q41. Answer: (d) Adani Wilmar

The correct answer is Adani Wilmar.

Key Points

• Adani Wilmar made an Initial Public Offering (IPO) in the Indian stock market in 2022 and raised Rs. 3,600 crore

• Adani Wilmar is a food and FMCG company that was founded in 1991.

• The IPO was subscribed 112 times.

Additional Information Initial Public offering (IPO)

• An initial public offering (IPO) is the first time that the stock of a private company is offered to the public.

• Initial public offering is the process by which a private company can go public by sale of its stocks to general public.

• It could be a new, young company or an old company that decides to be listed on an exchange and hence goes public.

• Companies can raise equity capital with the help of an IPO by issuing new shares to the public, or the existing shareholders can sell their shares to the public without raising any fresh capital.

Q42. Answer: (c) Bihar and Orissa

The correct answer is Bihar and Orissa.

Key Points

• In 1905, Viceroy Curzon partitioned Bengal.

• At that time Bengal was the biggest province of British India and included Bihar and Orissa.

• The British argued for dividing Bengal for reasons of administrative convenience.

• The partition of Bengal angered people all over India. All sections of the Congress – the Moderates and the Radicals opposed it.

• The struggle that unfolded came to be known as the Swadeshi movement which was strongest in Bengal.

• The Swadeshi movement sought to oppose British rule and encourage the ideas of self-help, swadeshi enterprise, national education, and the use of Indian languages.

• To fight for swaraj, the radicals advocated mass mobilisation and boycott of British institutions and goods.

Additional Information

Person Name	Details
Minto	Gilbert Elliot, the fourth earl of Minto, was viceroy of India from 1905 to 1910. Minto was born on 9 July 1845, Mayfair, London, United Kingdom. Minto serving as Governor-General of Canada from 1898 to 1904.
Curzon	In January 1899 he was appointed Viceroy of India. He has created a Peer of Ireland as Baron Curzon of Kedleston, in the County of Derby, on his appointment. In 1901, he founded the Imperial Cadet Corps or ICC. Curzon became Assistant Private Secretary to Salisbury in 1885, and in 1886 entered Parliament as Member for Southport in south-west Lancashire
Chelmsford	Chelmsford was born on 12 August 1868, London, United Kingdom. Viceroy and Governor-General of India from 4 April 1916 – 2 April 1921. On 9 April 1905, he succeeded to the title of 3rd Baron Chelmsford of Chelmsford upon his father's death and in July 1905 accepted his appointment as the Governor of Queensland in Australia. He was invested as a Knight Grand Cross of the Order of the British Empire on 4 December 1917.
Irwin	Lord Irwin was born on 16 April 1881, Powderham Castle, United Kingdom On April 3, 1926, Lord Irwin was appointed 30th Viceroy and Governor-General of India. This was the most tumultuous period for the politics of India. Irwin was a senior British Conservative politician and diplomat of the 1930s.

Q43. Answer: (a) Shooting

The correct answer is Shooting.

Key Points

• The 2022 Commonwealth Games in Birmingham concluded on 8 August 2022.

• India finished fourth in the medals tally with 61 medals comprising 22 gold, 16 silver and 23 bronze in the event.

• India bagged a total of 12 medals in wrestling, the most in any sport in the 2022 Games.

• Australia topped the medals tally with a total of 178 medals.

• Except Shooting The other three sports, badminton, wrestling, and cricket T20, were all played at the 2022 Commonwealth Games.

Additional Information

• The Commonwealth Games often referred to as the Friendly Games, is an international multi-sport event.

• It involves athletes from the Commonwealth of Nations.

• The event was first held in 1930, and, with the exception of 1942 and 1946, has taken place every four years since then.

• The 2022 Commonwealth Games took place at the Alexander Stadium in Birmingham, England, from 28 July to 8 August 2022.

• Perry the Bull is Birmingham 2022's official mascot.

• Indian men's hockey team captain Manpreet Singh & shuttler PV Sindhu were India's flag-bearers for the opening ceremony of the Commonwealth Games (CWG) 2022.

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Q44. Answer: (a) Extinct

The correct answer is Extinct.

Key Points

• Extinct species:

• If we say that any species is extinct we normally mean that the last existing member has died.

• Extinction, therefore, becomes a certainty when there are no surviving individuals that can reproduce.

Additional Information

• Endangered species:

• Endangered species are the species which if not protected will become extinct in a short duration of time.

• These species are protected and bred in conserved areas like national park sanctuaries.

• These species may be at risk due to factors such as habitat loss, poaching, and invasive species.

• They have a very high risk of extinction in the wild but are still present in the wild in a few numbers.

• Endemic species:

• These are the species whose plants and animal can be found in a particular geographical region and nowhere else in the world.

Q45. Answer: (b) Why I am Hindu

The correct answer is Option 2.

Key Points

• "Why I am Hindu" is a book written by Shashi Tharoor, an Indian politician, author, and former diplomat.

• Published in 2018, the book explores the author's personal journey and reflections on his Hindu identity.

• In the book, Tharoor examines various aspects of Hinduism, including its history, philosophy, traditions, and practices.

• He delves into the complexity and diversity within Hinduism, highlighting its pluralistic nature and the multitude of interpretations and beliefs that exist within the religion.

Additional Information

• "A State of Freedom": It is actually written by Neel Mukherjee.

• Published in 2017, "A State of Freedom" is a novel that explores themes of identity, migration, and social inequality through the interconnected stories of various characters in contemporary India.

• "Autumn": It is written by Ali Smith. "Autumn" is the first installment in a four-part series of novels referred to as the "Seasonal Quartet."

• Published in 2016, it explores themes of time, memory, and political change through the friendship between an elderly man and a young girl in post-Brexit Britain.

• "Songs of a Coward": It is written by Perumal Murugan.

• "Songs of a Coward" is a collection of poems that explores various themes such as love, loss, history, and society, often drawing inspiration from Daruwalla's own experiences and observations.

Q46. Answer: (a) Carved cow representing South direction

The correct answer is Option 1.

Key Points

• The Lion Capital at Sarnath, India, does not include a carved cow representing the South direction.

• The Lion Capital at Sarnath, India, is a famous ancient monument that holds significant historical and cultural value.

• It is also known as the Ashoka Pillar because it was originally erected by the Mauryan Emperor Ashoka in the 3rd century BCE.

• The pillar is made of polished sandstone and stands at a height of approximately 12.5 meters.

• The Lion Capital is comprised of several components, each of which contributes to its overall symbolism and artistic beauty.

• Here is a detailed explanation of the components:

• Figures of 4 lions: The most prominent feature of the Lion Capital is the set of four magnificent lions placed back to back.

• Dharma Chakras: At the top of the abacus, between each pair of lions, there are four Dharma Chakras or Wheel of Law.

• Lotus base: The abacus on which the lions are seated is supported by a lotus base.

• Bell-shaped inverted lotus: Below the lotus base, there is a bell-shaped inverted lotus. This inverted lotus acts as a decorative element and adds to the overall visual appeal of the Lion Capital.

Q47. Answer: (d) Cerebellum

The correct answer is Option 4.

Key Points

• The part of the human brain that is primarily responsible for walking in a straight line is the cerebellum.

• The cerebellum is located at the back of the brain, underneath the cerebrum.

• It plays a crucial role in coordinating voluntary movements, including maintaining balance and coordination during walking.

• While other parts of the brain, such as the motor cortex in the cerebrum, also contribute to the control of walking, the cerebellum is particularly involved in fine-tuning movements and ensuring smooth, coordinated motion.

Additional Information

• Medulla: The medulla, also known as the medulla oblongata, is a part of the brainstem located between the pons and the spinal cord.

• It plays a vital role in controlling several involuntary functions of the body, including breathing, heart rate, blood pressure, and digestion.

• Cerebrum: The cerebrum is the largest part of the brain and is divided into two hemispheres.

• It is responsible for many complex functions, including conscious thought, reasoning, sensory processing, motor control, language, and memory.

• The cerebrum is involved in higher cognitive functions and is associated with the conscious perception of walking.

• Pons: The pons is a region of the brainstem located above the medulla and below the midbrain. It acts as a bridge connecting different parts of the brain.

• The pons plays a role in relaying signals between the cerebrum and the cerebellum, as well as regulating sleep, breathing, swallowing, and facial movements.

Q48. Answer: (a) Roger Binny

The correct answer is Option 1.

Key Points

• Roger Binny :

• He is unanimously elected as the 36th president of the Board of Control for Cricket in India (BCCI) on October 18, 2022.

• He replaced Sourav Ganguly, who had been on the post since 2019.

• He belongs to the state of Karnataka.

• He was the first Anglo-Indian of Scottish origin to play cricket for India.

• He is known as a cricketing all-rounder.

• He is popular for his impressive bowling performance in the 1983 Cricket World Cup where he was the highest wicket-taker (18 wickets).

Additional Information

• BCCI is the governing body for cricket in India and is under the jurisdiction of the Ministry of Youth Affairs and Sports, Government of India.

• The board was formed in December 1928 as a society, registered under the Tamil Nadu Societies Registration Act.

• It is a consortium of state cricket associations and the state associations select their representatives who in turn elect the BCCI Chief.

• Its headquarters are in Wankhede Stadium, Mumbai.

• Grant Govan was its first president and Anthony De Mello its first secretary.

• The present president is Roger Binny and the vice-president is Rajeev Shukla.(as of may 2023)

• BCCI does not depend on the Government of India for its finances.

Q49. Answer: (c) Madhya Pradesh

The correct answer is Option 3.

Key Points

• The Indira Sagar Dam is a multipurpose project built on the river Narmada in the Khandwa district of Madhya Pradesh, India. It is one of the largest dams in India and plays a crucial role in irrigation, hydroelectric power generation, and flood control.

• Here are some key details about the Indira Sagar Dam:

• Location: The dam is situated in the Narmada River Basin, near the village of Narmada Nagar in the Khandwa district of Madhya Pradesh.

• Purpose: The primary objectives of the Indira Sagar Dam project are irrigation, power generation, and flood control.

• Construction: The construction of the Indira Sagar Dam started in 1984 and was completed in 2005.

• Dam Specifications: The Indira Sagar Dam is a concrete gravity dam with a height of 92 meters and a length of 653 meters.

• Reservoir: The dam forms a large reservoir called the Indira Sagar Reservoir or Indira Sagar Lake, which is spread over an area of 958 square kilometers.

• Irrigation: The dam provides irrigation water to the agricultural fields in the surrounding areas, benefiting farmers and improving agricultural productivity.

• Power Generation: The dam has an associated powerhouse with a capacity of 1,000 megawatts.

• Environmental Impact: The construction of the dam has led to the displacement of several villages and communities residing in the submergence area.

Q50. Answer: (d) Agni V

The correct answer is Option 4.

Key Points

• Among the surface-to-surface missiles developed by India, the most prominent one is the Agni series.

• The Agni missiles are a family of medium to intercontinental range ballistic missiles developed by the Defense Research and Development Organization (DRDO) of India.

• The Agni series includes missiles such as Agni-I, Agni-II, Agni-III, Agni-IV, and Agni-V, with varying ranges and capabilities.

• These missiles are designed to be launched from land-based platforms and can deliver conventional or nuclear warheads to targets located on land.

Additional Information

• The Javelin missile is not developed by India but is actually a portable anti-tank missile system developed by the United States.

• It is a shoulder-fired, fire-and-forget missile that can be operated by a single soldier.

• The Javelin system is designed to engage and destroy enemy armored vehicles, including tanks, from various ranges and angles.

• The AIM-120 Advanced Medium-Range Air-to-Air Missile (AMRAAM) is an air-to-air missile primarily developed by the United States.

• It is designed for use by fighter aircraft to engage and destroy enemy aircraft at medium to long ranges.

• The AMRAAM missile is widely used by the U.S. Air Force and has also been exported to numerous countries around the world.

• The Spike missile is a family of multi-purpose, man-portable, anti-tank guided missiles (ATGM) developed by the Israeli company Rafael Advanced Defense Systems.

• It is designed to engage and destroy armored vehicles, including tanks, as well as other targets such as fortified positions and helicopters.

Q51. Answer: (b) 2x(1+x²)over(x-1)

Given:

(1+x)/(1-x²)÷ (1+x)/(1-x^4)-(1-x^4)/(1-x)× (1+x)/(1-x²)

Calculation:

(1+x)/(1-x²)÷ (1+x)/(1-x^4)-(1-x^4)/(1-x)× (1+x)/(1-x²)

(1+x)/(1-x²)× (1-x^4)/(1+x)-(1-x^4)/(1-x)× (1+x)/(1-x²)

1+x²-(1-x^4)/(1-x)× (1+x)/(1-x²)

1+x²-1+x²× (1+x)/(1-x)

(1-x+x²-x³-1-x-x²-x³)/(1-x)

2x(1+x²)over(x-1)

Therefore, the value of the given expression is 2x(1+x²)over(x-1).

Q52. Answer: (a) 120 percent

Calculation:

Runs scored in inning A = 30%

Runs scored in inning D = 25%

Percentage = 30/25 × 100 = 120%

Runs scored in inning A is 120 percent of runs scored in inning D.

Q53. Answer: (d) Centroid

The intersection point of the medians of a triangle is called the centroid.

Q54. Answer: (b) 10 degree

Given:

sin (θ + 30) = cos 5θ

Concept:

The sine of the complement of an angle is equal to the cosine of the angle.

Calculation:

=> sin (90 - 5θ) = cos 5θ
=> θ + 30 = 90 - 5θ
=> 6θ = 60
=> θ = 60/6
Therefore, θ = 10°

Q55. Answer: (b) Loss = Rs. 2800

Shortcut Trick
Calculate individual profit and loss values based on the respective Cost Prices.
Profit on the 1st watch = 10% of 12000 = Rs. 1200.
Loss on the 2nd watch = 20% of 20000 = Rs. 4000.
Net Result = 1200 − 4000 = −2800 (Negative sign indicates loss).
Therefore The correct answer is Loss = Rs. 2800.
Alternate Method
Given:
Cost Price of 1^(st) watch (CP1) = Rs. 12000
Cost Price of 2^(nd) watch (CP2) = Rs. 20000
Profit % on 1^(st) watch = 10%
Loss % on 2^(nd) watch = 20%
Formula: Profit or Loss = (Rate / 100) × Cost Price
=> Profit on 1^(st) watch = (10 / 100) × 12000 = Rs. 1200
=> Loss on 2^(nd) watch = (20 / 100) × 20000 = Rs. 4000
=> Overall Gain/Loss = Total Profit − Total Loss
=> Overall Gain/Loss = 1200 − 4000 = −Rs. 2800
=> Negative value implies a Loss of Rs. 2800.
Therefore The correct answer is Loss = Rs. 2800.
Additional Information
Overall Profit or Loss Percentage
It is calculated as (Net Profit or Loss ÷ Total Cost Price) × 100. In this case: (2800 ÷ 32000) × 100 = 8.75% loss.
Selling Price Calculation
SP = CP × (100 ± Profit/Loss%) ÷ 100. Here, Total SP = Rs. 13200 + Rs. 16000 = Rs. 29200.
Successive Percentage Shortcut
When two items are sold, direct subtraction of values is only possible if the Cost Price is used as the base for both calculations.

Q56. Answer: (b) 6 mins

Shortcut Trick
Stoppage time per hour = (Faster Speed − Slower Speed) ÷ Faster Speed
Stoppage time = (60 − 54) ÷ 60
Stoppage time = 6 ÷ 60 hour
Stoppage time in minutes = (1/10) × 60 = 6 minutes
Therefore The correct answer is 6 mins.
Alternate Method
Given:
Speed without stoppages = 60 kmph
Speed with stoppages = 54 kmph
Without Stoppage (Speed: 60 kmph)
Distance: 60 km in 60 mins
With Stoppage (Speed: 54 kmph)
Distance: 54 km
Stop
6 km gap
Takes 6 mins

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Formula Used:

Time = Distance ÷ Speed

Calculations:

=> In 1 hour (60 mins), without stoppages, the bus covers a distance of 60 km.

=> In 1 hour (60 mins), with stoppages, the bus covers a distance of 54 km.

=> Loss in distance due to stoppages = 60 − 54 = 6 km.

=> Time required to cover this 6 km gap at the original speed is the actual stoppage time.

=> Stoppage time = Distance ÷ Original Speed

=> Stoppage time = 6 ÷ 60 hours = 1/10 hours.

=> Stoppage time in minutes = (1/10) × 60 = 6 minutes.

Therefore The correct answer is 6 mins.

Additional Information

Average Speed

When equal distances are covered at speeds S1 and S2, Average Speed = (2 × S1 × S2) ÷ (S1 + S2). For equal time intervals, Average Speed = (S1 + S2) ÷ 2.

Relative Speed

For two bodies moving in the same direction, relative speed is |S1 − S2|. For bodies moving in opposite directions, it is S1 + S2.

Speed Unit Conversion

To convert kmph to m/s, multiply the value by 5/18. To convert m/s to kmph, multiply the value by 18/5.

Q57. Answer: (a) Rs. 24,192

Given data:

Current salary: Rs. 14000

Annual salary increase: 20%

Number of years: 3

Solution:

Calculate the salary after 3 years using compound interest formula:

Final salary = Current salary × (1 + rate)^time

Final salary = 14000 × (1 + 0.2)^3 = 14000 × 1.728

Therefore, the salary after 3 years will be Rs. 24,192.

Q58. Answer: (d) 2

Given:

Sum of squares of two numbers = 12,

Product of the numbers = 4

Solution:

Let the numbers be 'a' and 'b'.

$a^2 + b^2 = 12$

$ab = 4$

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

$(a - b)^2 = 12 - 2(4)$

$(a - b)^2 = 4$

Taking the square root of both sides, we get:

$a - b = \pm 2$

Therefore, the difference between the numbers is ±2.

Q59. Answer: (c) 22/3 units

Given data:

Radius of the circle: 7 units

Angle at the center: 60°

Formula:

Length of arc = (θ/360°) × 2πr

Solution:

Length of the arc = (60/360) × 2 × 22/7 × 7 = 22/3

Therefore, the length of the arc is 22/3 units.

Q60. Answer: (d) 4 percent

Given:

Marked price of the computer = Rs. 80,000,

Selling price after two discounts = Rs. 65,280,

First discount = 15%

Concept Used:

Concept: Successive discounts are calculated individually on the new price.

Solution:

Let the second discount be 'x' percent.

Selling price after the first discount = Marked price - (15/100) × Marked price

Selling price after the first discount = 80,000 - (15/100) × 80,000

=> 80000 - 12000 = Rs. 68000

Selling price after the second discount = Selling price after the first discount - (x/100) × Selling price after the first discount

Selling price after the second discount = 68000 - (x/100) × 68000

Selling price after the second discount = 65,280

=> 68000 - (x/100) × 68000 = 65280

=> (x/100) × 68000 = 68000 - 65280

=> x × 680 = 2720

=> x = 4

Therefore, the value of the other discount is approximately 4%.

Q61. Answer: (a) 9 : 11

Given:

Ratio of areas of two circles = 81:121

Formula:

The ratio of areas of two circles is equal to the square of the ratio of their radii, and the ratio of their circumferences is equal to the ratio of their radii.

Solution:

Let the ratio of the radii of the circles be a:b.

=> $(\pi a^2) / (\pi b^2) = 81/121$

=> $a^2 / b^2 = 81/121$

=> a/b = 9/11

Therefore, the ratio of their circumferences will also be 9:11.

Q62. Answer: (b) 51

Given:

m - 1/m = 7

Solution:

Squaring both sides of the equation, we get:

$m^2 - 2 + 1/m^2 = 49$

$m^2 + 1/m^2 = 51$

Therefore, the value of $m^2 + 1/m^2$ is 51.

Q63. Answer: (b) 7546 m²

Given:

Perimeter of the square = 196 m

Solution:

Formula: Perimeter of a square = 4 × side

Substitute the given perimeter: 196 = 4 × side

Solve for the side: side = 196/4 = 49 m

Formula: Area of a circle = π × radius²
Substitute the side as the radius: Area = π × (49)² = 2401π m²
=> 2401 × 22/7 = 7546 m²
Therefore, the area of the circle is 7546 m2.

Q64. Answer: (b) 82.8 degree

Calculation:
Difference between the central angle formed by sector M and Q = (37 - 14)/100 × 360
23/100 × 360 = 82.8°
Therefore Difference between the central angle formed by sector M and Q is 82.8°.

Q65. Answer: (b) 600

Calculation:
Average number of girls in school K and M = (13% + 7%)/2 = 10%
10/100 × 6000 = 600
Average number of girls in school K and M is 600.

Q66. Answer: (c) 22/5

Given:
3 tan θ = 4
Concept Used:
tan θ = Perpendicular/Base = P/B
sin θ = Perpendicular/Hypotenuse = P/H
cos θ = Base/Hypotenuse = B/H
Calculation:
tan θ = 4/3 = P/B
=> P = 4 and B = 3
Apply Pythagorean rule for H
=> H² = P²+ B²
=> H2 = 42 + 3² = 16 + 9
=> H = 5
=> sin θ = P/H = 4/5
=> cos θ = B/H = 3/5
=> 7 sin θ - 2 cos θ = 7 × 4/5 - 2 × 3/5
=> 28/5 - 6/5 = 22/5
Therefore 7 sin θ - 2 cos θ = 22/5

Q67. Answer: (c) 85 degree

Given:
angle E = 95°,
EFGH is a cyclic quadrilateral.
Concept Used:
In a cyclic quadrilateral, the opposite angles are supplementary.
Solution:
angle E + angle G = 180°
95° + angle G = 180°
angle G = 180° - 95° = 85°
Therefore, the value of angle G is 85°.

Q68. Answer: (c) 8 : 12 : 14 : 3

Shortcut Trick
To find the combined ratio, equalize the common terms B and C.
Multiply A : B (2 : 3) by 2 to match B in B : C (6 : 7) => 4 : 6.
Now we have A : B : C = 4 : 6 : 7.

Multiply A : B : C (4 : 6 : 7) by 2 to match C in C : D (14 : 3) => 8 : 12 : 14.
Therefore The correct answer is 8 : 12 : 14 : 3.
Alternate Method
Given:
A : B = 2 : 3
B : C = 6 : 7
C : D = 14 : 3
Calculations:
=> We have A : B = 2 : 3 and B : C = 6 : 7.
=> To make B common, multiply the first ratio by 2: A : B = (2 × 2) : (3 × 2) = 4 : 6.
=> Now, A : B : C = 4 : 6 : 7.
=> We have A : B : C = 4 : 6 : 7 and C : D = 14 : 3.
=> To make C common, multiply the combined ratio (A:B:C) by 2: (4 × 2) : (6 × 2) : (7 × 2) = 8 : 12 : 14.
=> Now, the combined ratio becomes A : B : C : D = 8 : 12 : 14 : 3.
Therefore The correct answer is 8 : 12 : 14 : 3.
Additional Information
Compound Ratio
The compound ratio of two ratios a : b and c : d is found by multiplying the corresponding terms: ac : bd.
Duplicate and Sub-duplicate Ratio
The duplicate ratio of a : b is $a^2 : b^2$, and the sub-duplicate ratio is $\sqrt{a} : \sqrt{b}$.
Continued Proportion
Three quantities a, b, and c are said to be in continued proportion if a : b = b : c, where b is the mean proportional ($b^2 = ac$).
Invertendo and Alternendo
If a : b = c : d, then b : a = d : c (Invertendo) and a : c = b : d (Alternendo).

Q69. Answer: (d) Rs. 10000

Given:
Difference between compound interest and simple interest = Rs. 25,
Annual interest rate = 10%
Concept Used:
Compound Interest for 1 year = $P[(1 + r/100)^n - 1]$, where r is the annual interest rate and n is the number of compounding periods.
Simple Interest for 1 year = (P × r × t) / 100, where r is the annual interest rate and t is the time period in years.
Solution:
Let the principal sum be 'P'.
The given difference is:
$P[(1 + 5/100)^2 - 1] - (P \times 10 \times 1) / 100 = 25$
Solving the equation, we find P = Rs. 10,000.
Therefore, the sum lent out is Rs. 10,000.

Q70. Answer: (d) 152

Calculation:
Difference between runs scored in S and U = (31 - 12)/100 × 800
19/100 × 800 = 152
Difference between runs scored in S and U is 152.

Q71. Answer: (d) 12 days

Given:
A and B together can complete a work in 20 days.
B and C together can complete the same work in 15 days.
A, B and C all work together, then the same work gets completed in 10 days.
Concept Used:
Work = Time × Efficiency
Calculation:

Total work = LCM(20, 15, 10) = 60 units

Efficiency of A and B together = 60/20 = 3 .....(i)

Efficiency of B and C together = 60/15 = 4 .....(ii)

Efficiency of A, B and C together = 60/10 = 6. .....(iii)

Solve (i) and (iii)

Efficiency of C = 6 - 3 = 3

Put in (ii)

Efficiency of B = 4 - 3 = 1

Put in (i)

Efficiency of A = 3 - 1 = 2

Efficiency of A + C = 3 + 2 = 5

A and B together can complete a work = 60/5 = 12 days

A and C together take to 12 days complete the same work.

Q72. Answer: (a) Rs. 3,000

Shortcut Trick

Monthly Income = (Total Yearly Expenditure + Yearly Savings) ÷ 12

Total Yearly Expenditure = (4 × 2300) + (8 × 1800) = 9200 + 14400 = Rs. 23,600

Total Yearly Income = 23,600 + 12,400 = Rs. 36,000

Monthly Income = 36,000 ÷ 12 = Rs. 3,000

Therefore The correct answer is Rs. 3,000.

Alternate Method

Given:

Average expenditure for first 4 months = Rs. 2,300

Average expenditure for next 8 months = Rs. 1,800

Total annual savings = Rs. 12,400

Formula Used:

Total Income = Total Expenditure + Total Savings

Monthly Income = Total Annual Income ÷ 12

=> Total Expenditure for first 4 months = 4 × 2300 = Rs. 9,200

=> Total Expenditure for next 8 months = 8 × 1800 = Rs. 14,400

=> Total Annual Expenditure = 9,200 + 14,400 = Rs. 23,600

=> Total Annual Income = Annual Expenditure + Annual Savings

=> Total Annual Income = 23,600 + 12,400 = Rs. 36,000

=> Monthly Income = 36,000 ÷ 12 = Rs. 3,000

Therefore The correct answer is Rs. 3,000.

Additional Information

Income and Expenditure Relationship

The fundamental relation is Income = Expenditure + Savings. Any change in one parameter directly affects the others when the third is constant.

Weighted Average

When calculating average for different periods, use the weighted average formula: Avg = (n1x1 + n2x2) ÷ (n1 + n2), where n represents the number of months.

Unit Consistency

Always ensure the time periods match. If savings are given annually, convert expenditures to an annual sum before calculating monthly income.

Q73. Answer: (d) 82

Given:

[(24 - 12) ÷ 4] + [81 - 48 ÷ 12 of 2]

Concept used:

Calculation:

=> [(24 - 12) ÷ 4] + [81 - 48 ÷ 12 of 2]

=> [12 ÷ 4] + [81 - 48 ÷ 24] (Of will be solved first according to BODMAS)
=> 3 + [81 - 48 ÷ 24]
=> 3 + [81 - 2]
=> 3 + 79
=> 82
Therefore Option 4 is the correct answer.

Q74. Answer: (a) 1521

Given:
512 × 3 - 25 ÷ 15 × 9
Concept Used:
Solution:
Simplifying the expression step-by-step:
=> 512 × 3 - 25 ÷ 15 × 9
=> 1,536 - (25/15) × 9
=> 1,536 - (5/3) × 9
=> 1,536 - 15
=> 1521
Therefore, the value of the expression is 1,521.

Q75. Answer: (c) 5/6

Given:
6 sec θ = 10
Concept:
Sec θ = 1/cos θ,
cosec θ = 1/sin θ,
cot θ = cos θ/sin θ
Calculation:
6 sec θ = 10
=> sec θ = 10/6
=> cos θ = 6/10 = 3/5
=> sin θ = √(1 - cos² θ) = √(1 - 9/25)
=> sin θ = √(16/25)
=> sin θ = 4/5
=> cosec θ = 1/sin θ = 5/4
=> cot θ = cos θ/sin θ = 3/5/4/5 = 3/4
Put the values in (5 cosec θ - 3 cot θ)/(4 cos θ + 3 sin θ)
=> (5 × 5/4 - 3 × 3/4)/(4 × 3/5 + 3 × 4/5)
=> (25/4 - 9/4)/(12/5 + 12/5)
=> (16/4)/(24/5)
=> 5/6
Therefore Option 3 is the correct answer.

Q76. Answer: (c) Cowardly

The solution is in Hindi. Read it online.

Q77. Answer: (b) Buttery

The solution is in Hindi. Read it online.

Q78. Answer: (c) Beneficiel

The solution is in Hindi. Read it online.

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Q79. Answer: (a) PSRQ

The correct answer is 'Option 1'.

Key Points

• The correct sequence is indeed PSRQ.

• P. time and money into understanding its

• S. complexity, refitting shops, trialling which healthier

• R. promotions work, and changing product ingredients to

• Q. make them healthier so they can continue to be marketed

• This sentence makes sense as it tells a story about the efforts of many retailers to understand the complexity of making healthier options appealing to customers.

• These efforts include refitting their shops, testing out different healthier promotions, and even altering the ingredients of their products to make them healthier, so they can continue to be marketed as such.

When we arrange the sentence as per PSRQ, we get: "Many retailers have invested time and money into understanding its complexity, refitting shops, trialling which healthier promotions work, and changing product ingredients to make them healthier so they can continue to be marketed."

Q80. Answer: (b) Camor

The solution is in Hindi. Read it online.

Q81. Answer: (a) sheet

The correct answer is 'Option 1' i.e. 'Sheet'.

Key Points

• In English, the most common way to refer to a single piece of paper is to call it a "sheet."

• This is the term used when talking about one piece of paper that is unattached to others, and is appropriate for the context of the sentence.

• It is easy to imagine various fun activities (like drawing, folding origami, writing a story, etc.) that could be done with one sheet of paper.

Therefore, the correct sentence is: 'Just one sheet of paper can lead to a whole lot of fun.'

Additional Information

• 2) "Bunch" and 3) "Bulk" are used to refer to a large quantity or collection of items, which does not fit the context of the sentence if we're talking about just one piece of paper.

• "Group" refers to a collection of individuals or things considered together, and it's not typically used to describe a single item like a piece of paper.

Q82. Answer: (b) All the pastries were eaten by the cat.

The correct answer is 'All the pastries were eaten by the cat.'.

Key Points

• In the passive voice, the subject and object in the sentence are switched.

• The object of the action in the active voice becomes the subject of the passive sentence.

• In the original sentence, "The cat" is the subject, "ate" is the verb in the past simple tense, and "all the pastries" is the object.

• When converting this to passive voice, the verb "ate" becomes "were eaten" to match with the plural form of "pastries".

Therefore, the correct sentence is: 'All the pastries were eaten by the cat.'

Additional Information

• The other options are incorrect because:

• "All the pastries is eaten by the cat" uses "is", which is incorrect because "pastries" is plural, so it should be "were".

• "All the pastries had been eaten by the cat" is incorrect because "had been" refers to the past perfect tense, not the past simple tense of the original sentence.

• "All the pastries are eaten by the cat" uses "are", which is incorrect because it refers to present tense, not the past tense of the original sentence.

Q83. Answer: (b) who is tied in greed couldn’t release you.

The correct answer is 'Option 2'.

Key Points

• The error lies in 'Option 2'.

• The given sentence is in present simple tense.

• 'Can't' will be used instead of 'couldn't.'

Therefore, the correct sentence is: 'A guru is someone who does not charge you a fee because someone who is tied in greed can't release you.'

Q84. Answer: (c) Associate

The solution is in Hindi. Read it online.

Q85. Answer: (b) Drab

The solution is in Hindi. Read it online.

Q86. Answer: (b) SQPR

The correct answer is 'Option 2'.

Key Points

• The correct order for the sentences is indeed SQPR.

• The first sentence (S) introduces the topic, which is the common cold.

• The next sentence (Q) provides more information about the prevalence of this disease.

• The third sentence (P) offers specific details about how often adults and children typically get colds.

• Finally, the last sentence (R) provides additional information about the seasonal occurrence of colds.

• This order creates a clear, logical progression of ideas about the common cold.

Therefore, the correct sentence is: 'The common cold, also known simply as the cold, is a viral infectious disease of the upper respiratory tract that primarily affects the nose (S). It is the most frequent infectious disease in humans (Q). The average adult gets two to four colds a year, while the average child may get six to eight (P). They occur more commonly during the winter (R).'

Q87. Answer: (d) Someone new to the group or area.

The solution is in Hindi. Read it online.

Q88. Answer: (a) To leave someone without any support or purpose

The solution is in Hindi. Read it online.

Q89. Answer: (a) moonless

The correct answer is 'Option 1' i.e. 'Moonless'.

Key Points

• The correct word to fill in the blank is "moonless."

• Moonless: This adjective is used to describe a night where the moon is not visible.

• It is often associated with darkness.

• This is the correct answer because it fits the context and provides a logical reason for the night being very dark.

Therefore, the correct sentence is: It was past the mid-hour of the night, and was quite moonless and dark.

Additional Information

• Glimmer: This is a faint or unsteady light, or a hint of something. It doesn't make sense to describe a night as "glimmer," because this term doesn't describe the overall lighting condition of the night.

• Flasher: This generally refers to a device that produces a flashing light or signal, and it doesn't fit grammatically or contextually in this sentence.

• Riding: This is a verb usually associated with mounting or being on top of something (like a horse, a bike, etc.) and moving along with it. It does not fit grammatically or contextually in this sentence.

Q90. Answer: (b) I was be groomed

The correct answer is 'Option 2'

Key Points

• The phrase containing a grammatical error in the given sentence is "I was be groomed".

• The sentence "I was being groomed for success in the world" is in the passive voice. This is because the subject of the sentence ("I") is receiving the action (being groomed) rather than performing the action.

• The correct usage should be "I was being groomed".

• In English, when we talk about an action that was ongoing in the past (a past continuous action), we use "was/were" + present participle (-ing form of the verb).

• So, "was be groomed" should be "was being groomed" to correctly indicate the ongoing action in the past.

Therefore, the correct sentence is: "I felt that I was being groomed for success in the world."

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Q91. Answer: (c) Gourmand

The solution is in Hindi. Read it online.

Q92. Answer: (a) I told her that I was not very happy at work.

The correct answer is 'Option 1'.

Key Points

• The correct option for converting the given direct speech into indirect (reported) speech is option 1: "I told her that I was not very happy at work."

• When we turn direct speech into indirect speech, we usually shift the tenses back. This is known as "backshift".

• In the given direct speech 'I'm not very happy at work', the verb 'am' is in the present tense.

• When converting this into indirect speech, we shift 'am' back to 'was', the past tense form of the verb 'be'.

Therefore, the correct sentence is: 'I told her that I was not very happy at work.'

Additional Information

• Option 2 is incorrect because 'would' suggests a future condition or a conditional mood, which isn't present in the original sentence.

• Option 3 is also incorrect because 'had been' is past perfect tense, suggesting an action that completed at some point in the past before something else happened. The original sentence doesn't convey this meaning.

• Option 4 maintains the present tense 'am', failing to perform the usual tense backshift in reported speech, so it's not the best choice.

Q93. Answer: (d) found

The correct answer is 'Option 4' i.e. 'Found'.

Key Points

• The correct word to fill in the blank is "found".

• Found: This verb indicates the discovery or realization of something, which fits the context of the sentence.

• Scientists can "find" or discover patterns, behaviors, or actions in their research or observations.

Therefore, the correct sentence is:

Additional Information

• Invented: This verb is used to indicate the creation of something that didn't exist before. It doesn't fit the sentence because scientists don't "invent" behaviors or actions of others.

• Innovated: This verb is used when someone introduces new methods, ideas, or products. Again, it is not the scientists' role to "innovate" the actions of the chefs.

• Planned: This verb is used when someone decides on and arranges in detail. Scientists can't "plan" the chefs' actions, particularly if they're observing them after the fact.

Q94. Answer: (a) many old poets, such as Tennyson and Browning, have

The correct answer is 'Option 1'.

Key Points

• The correct answer is "many old poets, such as Tennyson and Browning, have".

• In the original sentence, "many an old poets, such as Tennyson and Browning, has" is grammatically incorrect for two reasons.

• First, when we use "many a/an" to talk about a large number of something, it should be followed by a singular noun and a singular verb, but in the given sentence "poets" is plural.

• So the correct construction would be "many a poet has," but the sentence is referring to more than one poet (Tennyson and Browning), so this construction is not appropriate here.

• Second, when referring to multiple individuals (in this case, the poets Tennyson and Browning), the verb should also be in plural form. So "has" should be replaced with "have".

Therefore, the correct sentence is: 'Nonetheless, many old poets, such as Tennyson and Browning, have kept their romances to the end.'

Q95. Answer: (b) accomplish

The correct answer is 'Option 2' i.e. 'Accomplish'.

Key Points

• The correct word to fill in the blank in this context is "accomplish".

• Accomplish: This verb means to achieve or complete something successfully.

• This fits well in the context of achieving goals, which is the subject of the sentence.

Therefore, the correct sentence is: 'We are the creative force of our life, and through our own decisions rather than our conditions, if we carefully learn to do certain things, we can accomplish those goals.'

Additional Information

• Expel: This verb means to force out or eject, often used in the context of a person being removed from a place or organization. It doesn't make sense in the context of achieving goals.

• Torment: This verb means to cause great physical or mental suffering. It doesn't fit in this context because it contrasts with the positive tone of the sentence about achieving goals.

• Reverberate: This verb means to be repeated as an echo, a sound, or a consequence. It doesn't fit in this context as it doesn't align with the concept of achieving goals.

Q96. Answer: (d) as

The correct answer is 'Option 4' i.e. 'As'.

Key Points

• The most appropriate option to fill in blank No. 1 is "as".

• As: This preposition can be used to indicate roles or identities, which fits the context of this sentence.

• In the context of the sentence, "as" is used to indicate that Cristiano Ronaldo dos Santos Aveiro is commonly known in the role or identity of "Cristiano Ronaldo".

Therefore, the correct sentence is: 'Cristiano Ronaldo dos Santos Aveiro, born on February 5th, 1985 and commonly known as Cristiano Ronaldo, is a Portuguese footballer who 2. ____ as a forward for Spanish club Real Madrid and serves as captain 3. __ the Portuguese national team. Ronaldo currently holds the distinction of being the most expensive player in football history after 4. __ transferred to Real Madrid from Manchester United in a deal worth £80 million (€94m, US$132m). His contract with Real Madrid is believed to have made him the highest-paid 5. ____ player in the world.'

Additional Information

• At: This preposition is often used to indicate a place or event, and does not fit here since we are not talking about a location or specific event.

• For: This preposition is used to indicate the person or thing that something is sent or given to, among other meanings. It doesn't fit in this context as the sentence is about the identity of Cristiano Ronaldo, not something being given or done for him.

• In: This preposition is often used to indicate a location, medium, time, or manner. It's not appropriate here because the sentence isn't about a location or medium, but about the identity or name of a person.

Q97. Answer: (a) plays

The correct answer is 'Option 1' i.e. 'Plays'.

Key Points

• The most appropriate option to fill in blank No. 2 is "plays".

• The verb "plays" is used in the present tense to describe something that someone does regularly or typically.

• In this context, the sentence is describing Cristiano Ronaldo's current, regular role in football, which is that he is a forward for Real Madrid.

Therefore, the correct sentence is: 'Cristiano Ronaldo dos Santos Aveiro, born on February 5th, 1985 and commonly known as Cristiano Ronaldo, is a Portuguese footballer who plays as a forward for Spanish club Real Madrid and serves as captain 3. ____ the Portuguese national team. Ronaldo currently holds the distinction of being the most expensive player in football history after 4. __ transferred to Real Madrid from Manchester United in a deal worth £80 million (€94m, US$132m). His contract with Real Madrid is believed to have made him the highest-paid 5. ____ player in the world.'

Additional Information

• Played: This is the past tense of the verb "play", which would indicate that Cristiano Ronaldo used to play for Real Madrid, but does not anymore. This would contradict the information given later in the sentence.

• Will play: This is the future tense of the verb "play", which would indicate that Cristiano Ronaldo is going to play for Real Madrid in the future, but does not currently. This contradicts the context of the sentence which describes Ronaldo's current status.

• Has played: This is the present perfect tense of the verb "play", indicating an action that started in the past and has relevance to the present. However, it doesn't give the sense of an ongoing, current action as "plays" does.

Q98. Answer: (c) of

The correct answer is 'Option 3' i.e. 'Of'.

Key Points

• The most appropriate option to fill in blank No. 3 is "of".

• In English, when we are talking about someone's role or position within an organization, team, or group, we often use "of" to show possession or belonging.

• In this case, Cristiano Ronaldo is serving as the captain of the Portuguese national team, so "of" is the correct preposition to use.

Therefore, the correct sentence is: 'Cristiano Ronaldo dos Santos Aveiro, born on February 5th, 1985 and commonly known as Cristiano Ronaldo, is a Portuguese footballer who plays as a forward for Spanish club Real Madrid and serves as captain of the Portuguese national team. Ronaldo currently holds the distinction of being the most expensive player in football history after 4. ____ transferred to Real Madrid from Manchester United in a deal worth £80 million (€94m, US$132m). His contract with Real Madrid is believed to have made him the highest-paid 5. ____ player in the world.'

Additional Information

• In: This preposition typically denotes a location or a state, neither of which fits this context.

• With: This preposition often denotes accompaniment, which is not what's being expressed here.

• At: This preposition is typically used to denote a specific location or a point in time, neither of which is relevant here.

Q99. Answer: (c) having

The correct answer is 'Option 3'. i.e. 'Having'.

Key Points

• The correct option to fill in the blank No.4 is 'having'.

• In this case, 'having' is used as a present participle and it's often used to express completed actions that precede another point in time or event.

• In the context of the sentence, 'having transferred' indicates that Ronaldo's transfer from Manchester United to Real Madrid happened before the point in time when he became recognized as the most expensive player in football history.

Therefore, the correct sentence is: 'Cristiano Ronaldo dos Santos Aveiro, born on February 5th, 1985 and commonly known as Cristiano Ronaldo, is a Portuguese footballer who plays as a forward for Spanish club Real Madrid and serves as captain of the Portuguese national team. Ronaldo currently holds the distinction of being the most expensive player in football history after having transferred to Real Madrid from Manchester United in a deal worth £80 million (€94m, US$132m). His contract with Real Madrid is believed to have made him the highest-paid 5. _____ player in the world.'

Q100. Answer: (b) football

The correct answer is 'Option 2' i.e. 'Football'.

Key Points

• The most appropriate option to fill in blank No. 5 is "football".

• The entire context of the paragraph is about Cristiano Ronaldo, who is a well-known football player.

• The use of "football" completes the sentence correctly, making it clear what sport Ronaldo is paid to play.

Therefore, the correct sentence is: 'Cristiano Ronaldo dos Santos Aveiro, born on February 5th, 1985 and commonly known as Cristiano Ronaldo, is a Portuguese footballer who plays as a forward for Spanish club Real Madrid and serves as captain of the Portuguese national team. Ronaldo currently holds the distinction of being the most expensive player in football history after having transferred to Real Madrid from Manchester United in a deal worth £80 million (€94m, US$132m). His contract with Real Madrid is believed to have made him the highest-paid football player in the world.'

Additional Information

• Let's briefly look at all the options:

• Rugby: Rugby is a different sport and Cristiano Ronaldo is not associated with it. He is a footballer, not a rugby player.

• Tennis: Tennis is a different sport and Cristiano Ronaldo does not play tennis professionally. He is a footballer, not a tennis player.

• Cricket: Cricket is also a different sport and Cristiano Ronaldo does not play it. He is a footballer, not a cricket player.

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