SSC CHSL Tier-1 2024: Official Paper (Held On: 08 Jul, 2024 Shift 4) (Previous Year Paper)

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

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ENGLISH LANGUAGE

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

How long are you working / for your current employer / and why don't you / look for better opportunities?

(a) and why don't you
(b) look for better opportunities
(c) for your current employer
(d) How long are you working

Q2. The given sentence is divided into three segments. Select the option that has the segment with a grammatical error. If there is no error, select 'No error'. The judges eliminated the / classical singer, as she dropped of / in the middle of the competition.

(a) in the middle of the competition.
(b) The judges eliminated the
(c) No error
(d) classical singer, as she dropped of

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

All the players from this athletic club participated in the tournament and _____ one of them got a medal.

(a) each
(b) none
(c) they
(d) all

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

The sun rises / in an east / and sets / in the west.

(a) in an east
(b) and sets
(c) in the west.
(d) the sun rises

Directions

A few months after Conrads death, the nobles met at Aix-la-Chapelle and elected Henry to be their king. At this time, it was the (1)_____ in Europe to hunt various birds, such as the wild duck and partridge, with falcons. The falcons were long-winged birds of prey, (2)____ hawks. They were trained to (3)____ on their masters wrist and wait patiently until they were told to fly. Then they would swiftly (4) ____ at their prey and bear it to the ground. Henry was very fond of falconry and hence was known as Henry the Fowler, or Falconer. As soon as the other dukes had elected him king, a messenger was sent to Saxony to (5)_____ him of the honour done for him. After a search of some days, he was at last found, far up in the Hartz Mountains, hunting with his falcons.

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

(a) motive
(b) custom
(c) conventions
(d) ritualistic

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

(a) resembling
(b) favouring
(c) echoing
(d) subjugating

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

(a) perch
(b) sitting
(c) lurch
(d) chirp

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

(a) flight
(b) dashed
(c) dart
(d) leapt

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

(a) nullify
(b) communicate
(c) inform
(d) convey

Q10. Select the most appropriate option that can replace the bracketed word segment in the following sentence.

Men (allowed) for Olympic artistic swimming for the first time at the 2024 Paris Games, the IOC confirmed on Thursday.

(a) are eligible
(b) will approve
(c) have permitted
(d) are likely

Q11. Select the INCORRECTLY spelt word.

(a) Consciencious
(b) Conscience
(c) Conscious
(d) Conspicuous

Q12. Select the most appropriate meaning of the given idiom.

To read between the lines

(a) To read aloud
(b) To whisper
(c) To read without concentration
(d) To grasp the hidden meaning

Q13. Select the most appropriate ANTONYM of the underlined word in the given sentence.

His industrious attitude was the reason for his promotion.

(a) Hazy
(b) Efficient

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(c) Lazy
(d) Pricey

Q14. Select the most appropriate ANTONYM of the given word.
Terminate
(a) Begin
(b) Mark
(c) Conclude
(d) Die

Q15. Select the most appropriate option that can substitute the underlined segment in the given sentence.
The player was declared fit and in excellent health to play the final matches.
(a) left out in cold
(b) right as rain
(c) up in the arms
(d) on cloud nine

Q16. Select the most appropriate homophone to fill in the blank.
These people are artists. _____ skills are extraordinary.
(a) There
(b) Their
(c) They’re
(d) They or

Q17. There is a spelling error in the given sentence. Select the option that contains the INCORRECTLY spelt word.
They adressed the special gathering perfectly.
(a) adressed
(b) special
(c) gathering
(d) perfectly

Q18. Select the most appropriate option to fill in the blank.
The _____ purpose of the coaching was to identify the talented players.
(a) mane
(b) main
(c) mean
(d) mine

Q19. Select the most appropriate option that can substitute the underlined segment in the given sentence.
As there was no one to look thorough the orphan, he had to take refuge in the orphanage.
(a) look through
(b) look upon
(c) look down upon
(d) look after

Q20. Select the most appropriate option that can substitute the underlined words in the following sentence.
I cannot go out tonight because I will preparing of my interview tomorrow.
(a) I had to prepare to
(b) I have been prepare to
(c) I have to prepare for
(d) I will have prepare for

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Q21. Select the most appropriate option that can substitute the underlined word in the given sentence.

Loud noise effects our ability to concentrate.

(a) intensifies
(b) bestows
(c) affects
(d) results

Q22. Complete the following sentence.

He _____ to the manager about the terrible food in the hostel.

(a) He said a complaint.
(b) He said a big complaint.
(c) He made a complaint.
(d) He terribly complained.

Q23. Select the most appropriate pair of words to fill in the blanks.

Shyam has reserved a _____ in the train for his wife as she will be giving _____ to his child soon.

(a) birth; berth
(b) berth; birth
(c) birth; birth
(d) berth; berth

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

Peace

(a) Turmoil
(b) Refusal
(c) Strange
(d) Harmony

Q25. Select the most appropriate homonym to fill in the blank.

The prince is the _____to the throne.

(a) air
(b) ere
(c) err
(d) heir

GENERAL INTELLIGENCE

Q26. Which two numbers should be interchanged to make the given equation correct?

79 – 43 + (23 + 75) × 3 – (30 ÷ 15) × 4 = 175

(NOTE: Numbers must be interchanged and not the constituent digits e.g. if 2 and 3 are to be interchanged in the equation 43 × 3 + 4 ÷ 2, then interchanged equation is 43 × 2 + 4 ÷ 3)

(a) 3 and 4
(b) 23 and 43
(c) 75 and 30
(d) 75 and 79

Q27. In a certain code language, 'DEAL' is coded as '0368' and 'DEAF' is coded as '2630'. What is the code for 'F' in that language?

(a) 2
(b) 8
(c) 3
(d) 0

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Q28. 'STAUNCH' is related to 'WXEYRGL' in a certain way based on the English alphabetical order. In the same way. 'BLISS' is related to 'FPMWW'. To which of the following is 'COWARD' related, following the same logic?

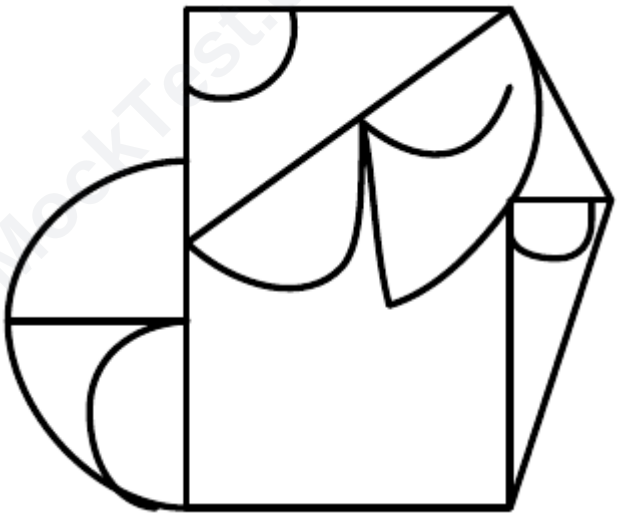
(a) GSAEVH
(b) GTAEVH
(c) GSAFVH
(d) GSZEVH

Q29. Four letter-clusters have been given, out of which three are alike in some manner and one is different.

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

(a) ZABX
(b) KPQJ
(c) NMNM
(d) TGHS

Q30. How many semi circles are there in the given figure?



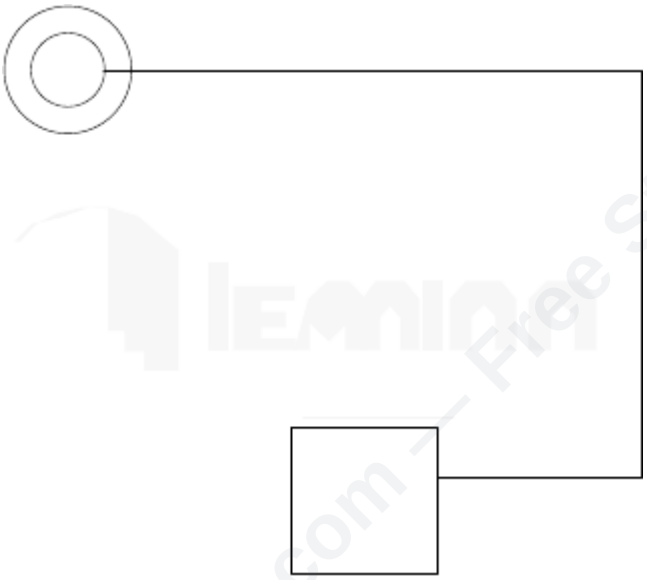
(a) 4
(b) 5
(c) 7
(d) 6

Q31. The position of how many letters will remain unchanged if each of the letters in the word PRAISE is arranged in the alphabetical order?

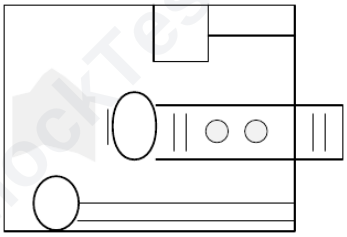
(a) Two
(b) Three
(c) None
(d) One

Q32. Select the option in which the given figure is embedded. (Rotation is NOT allowed.)

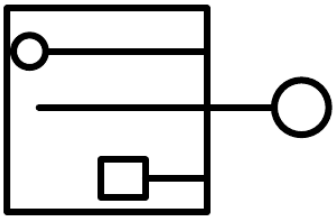
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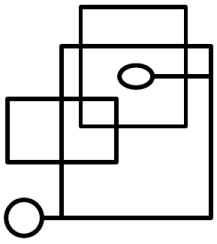
(a)



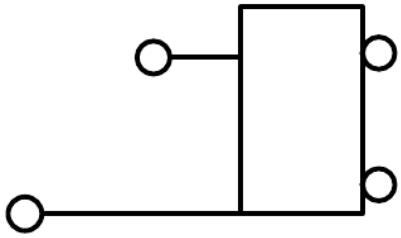
(b)



(c)



(d)



Q33. Select the correct mirror image of the given figure when the mirror is placed at MN as shown below.



(a)



(b)



(c)



(d)



Q34. The position of how many letters will remain unchanged if each of the letters in the word CHEMISTRY is arranged in alphabetical order?

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

Q35. In a certain language,

A # B means A is the sister of B,

A @ B means A is the son of B,

A & B means A is the wife of B and

A % B means A is the father of B.

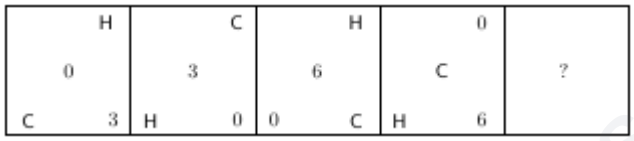
E & P @ D% K # L

Based on the above, how is E related to K?

(a) Sister
(b) Brother's wife
(c) Mother
(d) Mother's mother

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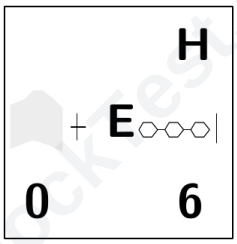
Q36. Identify the figure given in the options that when put in place of the question mark (?) will logically complete the series.



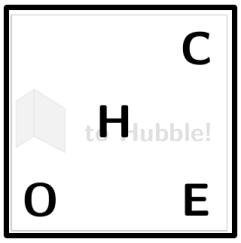
(a)



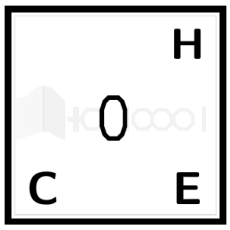
(b)



(c)



(d)



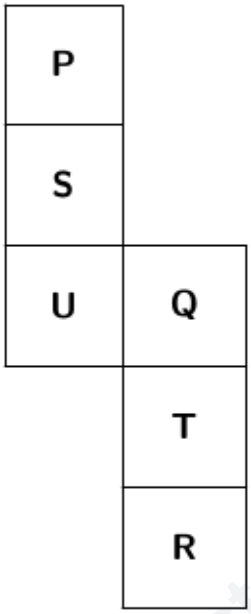
Q37. What should come in place of the question mark (?) to complete the following letter cluster series?

YBP, WDS, TGQ, OLT, ?

(a) HTR
(b) HSP
(c) HSR
(d) LSR

Q38. What would be the letter on the opposite side of 'S' if the given sheet is folded to form a cube?

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(a) Q
(b) R
(c) P
(d) T

Q39. In a certain code language. 'LDWR' is coded as 'NGUQ' and 'BFKZ' is coded as 'DIIY'. What is the code for 'YTGX' in the given code language?

(a) AWEW
(b) BWFV
(c) ZVFV
(d) YWFV

Q40. Three statements are followed by conclusions numbered I, II. You have to consider these statements to be true, even if they seem to be at variance with commonly known facts. Decide which of the given conclusions logically follow/s from the given statement.

Statements:

All shoes are ties.

Some ties are pants.

All pants are buttons.

Conclusion (I): Some buttons are shoes.

Conclusion (II): No ties are buttons.

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

Q41. What should come in place of the question mark (?) in the given series based on the English alphabetical order?

FHB, KMG, PRL, UWQ,?

(a) ZBV
(b) ZCV
(c) ZDV
(d) ZVB

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Q42. 21 is related to 59 by certain logic. Following the same logic, 32 is related to 81. To which of the following is 29 related, following the same logic?

(NOTE: Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. E.g. 13 – Operations on 13 such as adding/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) 62
(b) 75
(c) 60
(d) 58

Q43. If 'A' stands for '÷', 'B' stands for '×', 'C' stands for '+' and 'D' stands for '-', what will come in place of the question mark (?) in the following equation?

404 B 2 D 101 A 101 C 6 = ?

(a) 831
(b) 803
(c) 813
(d) 830

Q44. What should come in place of the question mark (?) in the given series?

138, 137, 140, 139, 142, ?

(a) 143
(b) 141
(c) 140
(d) 142

Q45. Which two numbers should be interchanged to make the given equation correct?

(86 ÷ 43) + (66 ÷ 33) × 2 + 72 – 6 × 4 = 177

(NOTE: Numbers must be interchanged and not the constituent digits e.g. if 2 and 3 are to be interchanged in the equation 43 × 3 + 4 ÷ 2, then interchanged equation is 43 × 2 + 4 ÷ 3)

(a) 43 and 2
(b) 2 and 72
(c) 2 and 4
(d) 2 and 6

Q46. Select the correct mirror image of the given figure when the mirror is placed at MN as shown below.



(a)



(b)



(c)



(d)



Q47. This question consists of a pair of words which have a certain relationship to each other. Select the pair which does NOT have the same relationship.

Adhere : Comply

1) Accord : Harmony

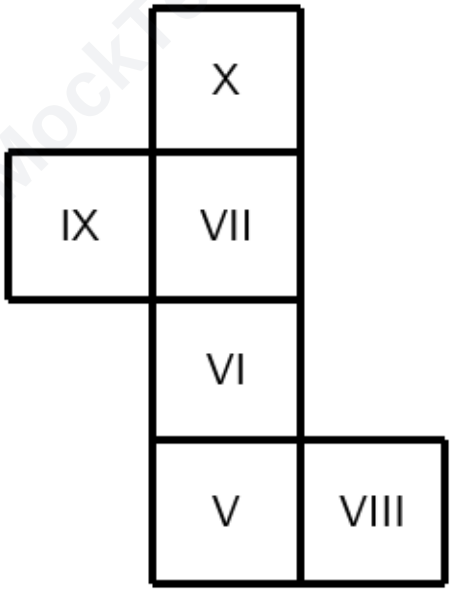
2) Busy : Engaged

3) Eager : Keen

4) Jubilant : Depressed

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

Q48. What would be the Roman numeral on the opposite side of 'IX' if the given sheet is folded to form a cube?



(a) VI
(b) V
(c) X
(d) VIII

Q49. Select the set in which the numbers are related in the same way as are the numbers of the following sets.

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

(60, 15, 5)

(96, 24, 8)

(a) (156, 39, 11)
(b) (150, 36, 13)
(c) (159, 39, 13)
(d) (156, 39, 13)

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Q50. What will come in the place of the question mark (?) in the following equation, if '+' and '-' are interchanged and '×' and '÷' are interchanged?

34 + 56 × 8 ÷ 2 - 16 = ?

(a) 30
(b) 36
(c) 23
(d) 38

QUANTITATIVE APTITUDE

Q51. The distance between the centres of two circles is 81 cm, and their radii are 42 cm and 51 cm. What is the length (in cm) of the direct common tangent to the circles?

(a) 36√5
(b) 40√2
(c) 31√3
(d) 51√6

Q52. Ram is 20 years older than Rahul. 'n' years ago Ram was thrice as old as Rahul. '2n' years from now the ratio of the ages of Ram and Rahul will be 15 : 11. What is the value of 'n'?

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

Q53. Side BC of a ΔABC is extended upto D such that CD = AC. If angle BAD = 118º and angle ACB = 80º, then the value of angle ABC is equal to:

(a) 32º
(b) 36º
(c) 22º
(d) 27º

Q54. The value of a machine depreciates every year by 5%. If the present value of the machine is Rs. 80,000, what will be its value after 2 years?

(a) Rs. 74,400
(b) Rs. 72,200
(c) Rs. 72,000
(d) Rs. 74,000

Q55. Which of the following statements is INCORRECT about the circle?

(a) The radius of an incircle of an equilateral triangle of side 's' is s/2 √(3)
(b) The area of a sector = (1)/(2) (arc length × {R}).
(c) The length of an arc = (central angle made by the arc)/(360^(°)) × π r².
(d) Circles are congruent if they have same radii while similar circles may have different radii.

Q56. If cos^4 θ - sin^4θ = 4/5, then find the value of sin 4θ.

(a) 16/25
(b) 24/25
(c) 18/25
(d) 21/25

Q57. The inner and outer radii of a hemispherical wooden bowl are 6 cm and 8 cm, respectively. Its entire surface has to be polished and the cost of polishing π cm² is Rs. 50. How much will it cost to polish the bowl?

(a) Rs. 11,400
(b) Rs. 10,000
(c) Rs. 12,000

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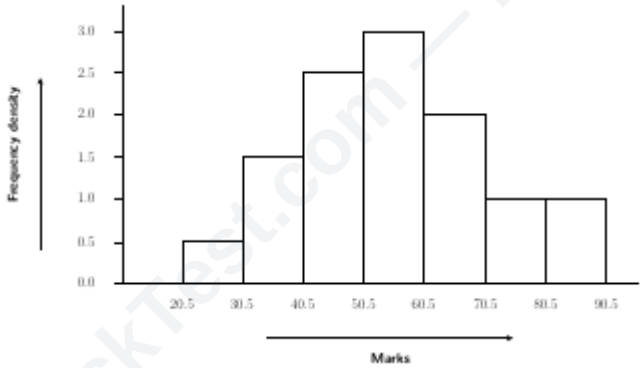
(d) Rs. 11,600

Q58. Find the cost of painting a ball that is in the shape of a sphere with a radius of 14 cm. The painting cost of the ball is Rs. 5 per square centimetre (take π =22/7).

(a) Rs. 12,320
(b) Rs. 12,230
(c) Rs. 13,220
(d) Rs. 13,022

Q59. Study the given histogram and answer the questions that follow.

The histogram shows the distribution of marks obtained by 115 students in a college.



A student is marked as qualified if he/she obtains marks above 40.5. Here, the ratio of the number of qualified students to that of students who are not qualified is:

(a) 5 : 1
(b) 19 : 4
(c) 9 : 2
(d) 17 : 4

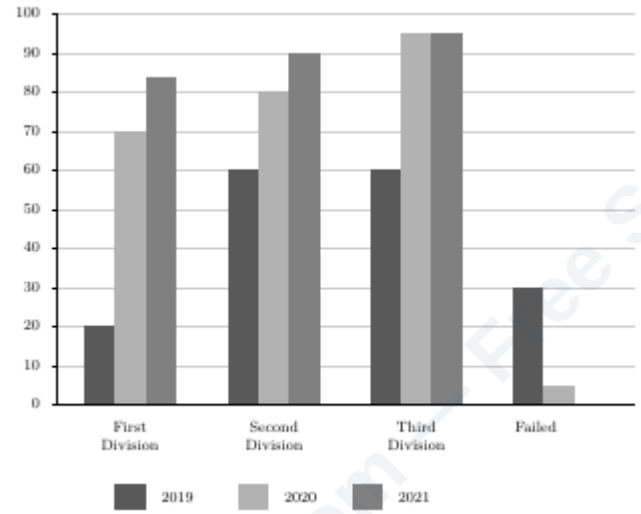
Q60. Ram invested a certain sum of money at simple interest. It amounted to (5/4) of itself in 3 years. What will be its rate per cent per annum?

(a) 8.20%
(b) 9.12%
(c) 8.33%
(d) 7.25%

Q61. 5% of 2% of 3 is equal to:

(a) 3
(b) 0.3
(c) 0.003
(d) 0.03

Q62. The givengraph shows the higher secondary result of a particular school, from 2019 to 2021. Study the graph and answer the question that follows.

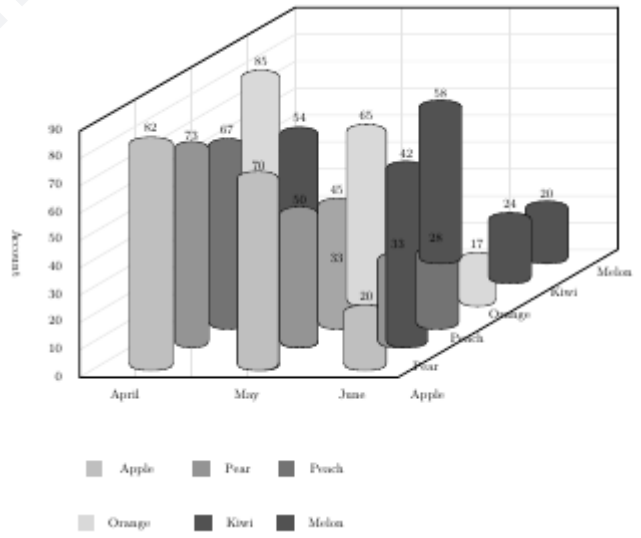


The ratio of the number of students who passed with first division in all the 3 years to the total number of students in 2020 is:

(a) 7 : 13
(b) 17 : 10
(c) 7 : 10
(d) 7 : 15

Q63. Study the given three-dimensional chart and answer the question that follows.

The chart details the sale of fruits in different months.



Which fruit was the most sold in the month of May and how much more than the lowest-sold fruit in that month?

(a) Orange, 23
(b) Apple, 28
(c) Kiwi, 23
(d) Kiwi, 22

Q64. On buying 24 bangles Meena gets 6 bangles free of cost. By what percentage does Meena get a discount?

(a) 5%
(b) 20%
(c) 15%
(d) 10%

Q65. If A : B = 2 : 3 and B : C = 7 : 8, find A : C.

(a) 12 : 7
(b) 4 : 7
(c) 7 : 2
(d) 7 : 12

Q66. The following table shows admitted students in an institute during the academic years 2015 to 2020 in different courses.

Academic year	Engineering	Science	Arts	Management
2015	1200	850	450	240
2016	1362	821	525	275
2017	1351	870	624	286
2018	1409	921	615	293
2019	1421	931	795	300
2020	1400	950	750	320

Which of the following course had either a consistent growth or a consistent decline in the admissions from 2015 to 2020?

(a) Arts
(b) Management
(c) Science
(d) Engineering

Q67. Two cubes, each of edge 5 cm, are joined face to face. Find the surface area of the cuboid thus formed.

(a) 200 cm2
(b) 250 cm2
(c) 300 cm2
(d) 125 cm2

Q68. Tanvi can do a work in 25 days, and Tai can complete the same work in 30 days. They started the work together for 5 days. How much work is left?

(a) 1/12
(b) 19/30
(c) 11/12
(d) 11/30

Q69. The average weight of 35 students in a class is 40 kgs. Five of the students of this class whose average weight is 42 kgs left the class. Find the average weight of the remaining 30 students.

(a) 29 (2/3) kgs
(b) 49 (2/3) kgs
(c) 39 (2/3) kgs
(d) 19 (2/3) kgs

Q70. In an election contested by two candidates, one candidate got 42% of the total votes and still lost by 800 votes. Find the total number of votes that were cast.

(a) 5000
(b) 8000
(c) 2000
(d) 7000

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Q71. A sells an object to B at 10% profit, B sells it to C at 60% profit and C sells it to D at 12 (1/2)% profit. If D paid Rs. 59.40, then at what price did A buy it?

(a) Rs. 30
(b) Rs. 32
(c) Rs. 28
(d) Rs. 34

Q72. Two triangles ABC and DEF are similar. The smallest side of ABC is equal to 15 units. If the sides of ABC are in the ratio 3 : 4 : 5, and the area of DEF is half of the area of ABC, then what is the largest side of DEF (in units)?

(a) 25/(√3
(b) 25 √3
(c) 25/(√2
(d) 25 √2

Q73. Simplify the expression 720 + 48 ÷ 8 × 5 - 6 × 3.

(a) (112)/(5)
(b) 732
(c) 161
(d) 242

Q74. A man can row a boat at speed 8 km/h in still water. It takes thrice as long to row upstream as it does to row downstream. Find the speed of the stream (in km/h).

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

Q75. Solve (2 × 2+2)/(2 ÷ 2 × 2) ÷ (1/2 ÷ 1/2 of 1/2)/(1/2+1/2 of 1/2)

(a) 1 1/8
(b) 4 1/8
(c) 3 1/8
(d) 2 1/8

GENERAL AWARENESS

Q76. Which of the following is NOT compulsory equipment for a football referee?

(a) White flag
(b) Watch(es)
(c) Whistle(s)
(d) Red and yellow cards

Q77. Which of the following is NOT one of the classical languages of India?

(a) Magahi
(b) Kannada
(c) Malayalam
(d) Odiya

Q78. Select the natural habitat of the Asiatic Lion from the following.

(a) Gir forest
(b) Kanha National Park
(c) Sundarbans
(d) Saranda forest

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Q79. Select the olfactory indicator from among the given options.

(a) Clove oil
(b) Turmeric
(c) Petunia
(d) Cabbage juice

Q80. Which of the following is NOT related to the 'Trinity of Carnatic Music'?

(a) Syama Shastri
(b) Tyagaraja
(c) Purandara Das
(d) Muthuswami Dikshitar

Q81. Which statement about Classical Carnatic Music is correct?

(a) The compositions are either in Malayalam, Marathi, Tamil or Bengali.
(b) The compositions are either in Marathi, Odia, Konkani or Bengali.
(c) The compositions are either in Telugu, Malayalam, Hindi or Sanskrit.
(d) The compositions are either in Telugu, Kannada, Tamil or Sanskrit.

Q82. Price control and rationing are direct control measures to check _____.

(a) reflation
(b) disinflation
(c) deflation
(d) inflation

Q83. As of March 2020, which of the following solar power plants is the biggest plant in the world, with total installed capacity of 2,245 MW?

(a) Sakri photovoltaic solar energy project
(b) Kamuthi solar power project
(c) Bhadla solar park
(d) Dhirubhai Ambani solar park

Q84. As per the Census-2011, the total absolute increase in population during the decade is _____.

(a) 17.21 crore
(b) 15.23 crore
(c) 18.19 crore
(d) 16.41 crore

Q85. As of March, 2024, who is the Executive Chairman of the National Legal Services Authority of India?

(a) Justice Ranjan Gogoi
(b) Justice Sharad Bobde
(c) Justice Sanjiv Khanna
(d) Justice UU Lalit

Q86. Khelo India Winter Games 2023 was held at _____.

(a) Himachal Pradesh
(b) Uttarakhand
(c) Leh
(d) Jammu and Kashmir

Q87. To create a new MS Word document, which of the following steps is correct?

(a) File Tab → New
(b) File Tab → Recent
(c) File Tab → Start
(d) File Tab → Open

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Q88. How many Fundamental Rights were initially provided in the Constitution of India?

(a) Nine
(b) Seven
(c) Six
(d) Eight

Q89. According to Koeppen's Scheme of classification of climate, which of the following characteristics is associated with 'Group E'?

(a) The average temperature for all months is below 10°C
(b) The average temperature of the coldest month is 18°C or higher
(c) The average temperature of the coldest month is –3°C or below
(d) The average temperature of the coldest month is higher than –3°C but below 18°C

Q90. Which of the following committees was associated with Industrial Licensing Policy Inquiry?

(a) Hazari Committee
(b) Dutt Committee
(c) Sen Committee
(d) Gadgil Committee

Q91. Which of the following is the correct relationship?

(a) F = a/m
(b) F = m/a
(c) F = m^2a
(d) F = ma

Q92. Doljatra is a festival of which state from followings?

(a) Haryana
(b) Uttar Pradesh
(c) Rajasthan
(d) Assam

Q93. At which place did Raja Ram Mohan Roy form a reform association called Brahmo Sabha in the year 1828?

(a) Pune
(b) Calcutta
(c) Madras
(d) Bombay

Q94. The Assam government observed the birthday of _____ on 31 March 2023, as Students Day in the state.

(a) Bhrigu Kumar Phukan
(b) Bodofa Upendra Nath Brahma
(c) Biraj Kumar Sarma
(d) Prafulla Kumar Mahanta

Q95. Which of the following dances is listed in the UNESCO List of Intangible Cultural Heritage of India since 2010?

(a) Kalbelia
(b) Garba
(c) Matki
(d) Ghumar

Q96. Which sport is NOT played in mixed doubles?

(a) Handball
(b) Tennis
(c) Table tennis
(d) Badminton

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Q97. _____ of the Constitution of India has provisions for legal enforcement of the fundamental rights.

(a) Article 32
(b) Article 29
(c) Article 19
(d) Article 28

Q98. Lal Thanhawla holds the record for the longest-serving Chief Minister of _____, occupying the position for five terms.

(a) Mizoram
(b) Meghalaya
(c) Sikkim
(d) Manipur

Q99. Application software includes a variety of programs that are designed to meet the information processing needs of _____.

(a) end users
(b) programmers
(c) customers
(d) team leaders

Q100. Which amongst the following Sultans shifted his capital from Delhi to Daulatabad?

(a) Muhammad Bin Tughlaq
(b) Ibrahim Lodhi
(c) Sikandar Lodhi
(d) Feroz Shah Tughlaq

ANSWER KEY

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

SOLUTIONS

Q1. Answer: (d) How long are you working

The correct answer is Option 4)

Key Points

• In the given sentence, the present continuous form of the verb 'are working' is incorrect.

• The correct tense to use here is the present perfect continuous tense to indicate the duration of an action that started in the past and is still continuing.

• Therefore, the correct form should be 'have been working' instead of 'are working'.

Hence, the correct statement is: How long have you been working for your current employer and why don't you look for better opportunities?

Additional Information

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• The present perfect continuous tense is used to show that something started in the past and has continued up until now. The structure is subject + have/has + been + verb-ing.

• Example: I have been reading this book for two hours.

• The present continuous tense is used to describe actions that are happening at the moment of speaking. The structure is subject + am/is/are + verb-ing.

• Example: She is reading a book now.

Q2. Answer: (d) classical singer, as she dropped of

The correct answer is Option 4)

Key Points

• In the fourth part of the given sentence, the phrase 'dropped of' is incorrect.

• The correct phrase should be 'dropped off'.

• The term 'dropped off' means to fall asleep or to leave something at a specific place.

• Therefore, the correct form should be used in place of the incorrect phrase 'dropped of'.

Hence, the correct statement: The judges eliminated the classical singer, as she dropped off in the middle of the competition.

Additional Information

• The term 'dropped off' can be used in different contexts:

• Example: I dropped off the package at the post office.

• Example: He dropped off to sleep during the movie.

• Ensure the correct usage of phrases to maintain grammatical accuracy in sentences.

Q3. Answer: (a) each

The solution is in Hindi. Read it online.

Q4. Answer: (a) in an east

The correct answer is Option 1)

Key Points

• In the second part of the given sentence, the use of the article 'an' is incorrect.

• The correct article to use with 'east' is 'the' because 'east' is a specific direction.

• Therefore, the correct form should be 'in the east' instead of 'in an east'.

Hence, the correct statement is: The sun rises in the east and sets in the west.

Additional Information

• In English grammar, directions (north, south, east, west) are usually preceded by the definite article 'the' when referring to a specific region or direction.

• Example: He traveled to the north of the country.

Q5. Answer: (b) custom

The correct answer is Option 2)

Key Points

• The word "custom" best fits in the context, referring to a traditional practice or a usual way of doing things in Europe at that time.

Therefore, the correct answer is Option 2)

Additional Information

• The word "motive" refers to a reason for doing something, which doesn't fit the context here.

• The word "conventions" refers to widely accepted ways or standards, which is close but not as precise as "custom".

• "Ritualistic" refers to the characteristic of rituals, which implies more ceremonial actions rather than just traditional practices.

Q6. Answer: (a) resembling

The correct answer is Option 1)

Key Points

• Context of the Sentence: The text describes the falcons as "long-winged birds of prey".

• Meaning of 'Resembling': The word "resembling" means 'looking like' or 'similar to'.

• Relevance to the Sentence: By saying falcons are resembling hawks, it clarifies that falcons look similar to hawks.

• Simplification for Understanding: Many readers may not know what long-winged birds of prey are by specific names, so the comparison to hawks helps visualize their appearance better.

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• Logical Fit: The sentence makes sense with "resembling" as it seamlessly integrates the similarity for better comprehension.

Therefore, the correct answer is 'Option 1'.

Additional Information

• 'Favouring': Would imply preference, which is not the intended meaning here.

• 'Echoing': This means to repeat or imitate sound, contextually irrelevant.

• 'Subjugating': Means bringing under control, which does not fit the description context.

Q7. Answer: (a) perch

The correct answer is Option 1)

Key Points

• Context of the Sentence: The text describes the behavior of falcons trained to stay on their masters' wrists.

• Meaning of 'Perch': The word "perch" means to rest or sit on something, typically used for birds sitting on branches or similar objects.

• Relevance to Falcons: Falcons are birds, so "perching" is a suitable term describing their trained behavior.

• Visual Accuracy: Using "perch" helps readers accurately visualize a bird sitting calmly on a person's wrist, a common practice in falconry.

• Behavior Description: "Perch" implies a stable and patient position, aligning with the falcon's trained behavior of waiting for commands.

• Clarity and Precision: "Perch on their master's wrist" conveys the intended meaning clearly and precisely.

Therefore, the correct answer is 'Option 1'.

Additional Information

• 'Sitting': Too generic and does not specifically describe the bird's behavior.

• 'Lurch': Means to make an abrupt, unsteady movement, which is not relevant here.

• 'Chirp': Refers to the sound birds make, not their sitting behavior.

Q8. Answer: (c) dart

The correct answer is Option 3)

Key Points

• Context of the Sentence: The text describes the falcons' action of quickly attacking their prey.

• Meaning of 'Dart': The word "dart" means to move swiftly or suddenly, which is commonly used to describe the fast movement of birds or other swift creatures towards their target.

• Relevance to Falcons: Falcons are known for their speed and precision when hunting, making "dart" an ideal term to describe their rapid attack.

• Visual Accuracy: "Dart" vividly portrays the quick, sharp movement of a falcon closing in on its prey.

• Hunting Behavior: The use of "dart" reflects the characteristic hunting style of falcons, emphasizing their agility and swiftness.

• Clarity and Precision: "Dart at their prey" provides a clear and precise description of the falcons' action, enhancing the reader's understanding of their hunting method.

Therefore, the correct answer is 'Option 3'.

Additional Information

• 'Flight': Refers to the act of flying, which is too general and does not capture the specific action of attacking prey.

• 'Dashed': Means to run or move quickly, but is less precise and commonly used for ground movement.

• 'Leapt': Implies a jumping action, which is not suitable for the aerial dive of a falcon.

Q9. Answer: (c) inform

The correct answer is Option 3)

Key Points

• Context of the Sentence: The text describes the action of a messenger being sent to let Henry know about his election as king.

• Meaning of 'Inform': The word "inform" means to tell someone about something in a straightforward manner, particularly relevant when imparting important news.

• Relevance to the Situation: "Inform" is appropriately used to describe the act of conveying crucial and official news, such as being elected king.

• Clarity: "Inform" clearly denotes the act of communicating significant information.

• Tone: Using "inform" maintains the formal tone of the historical context.

• Direct Communication: "Inform" signifies a direct and clear way of conveying essential information, which suits the narrative.

Therefore, the correct answer is 'Option 3'.

Additional Information

• 'Nullify': Means to make something invalid, which is unrelated to informing someone of an event.

• 'Communicate': Although it means to share information, it is broader and less direct than "inform".

• 'Convey': While it can mean to communicate, its usage here would be less direct than "inform" and can imply a wider range of activities.

Q10. Answer: (a) are eligible

The correct answer is Option 1)

Key Points

• In the second part of the given sentence, the word 'allowed' is incorrect.

• The sentence context implies a future event, hence a future tense form should be used.

• The correct form should indicate that men will be eligible to participate for the first time in the 2024 Paris Games.

• Therefore, the correct phrase should be 'are eligible' instead of 'allowed'.

Hence, the correct statement is: Men are eligible for Olympic artistic swimming for the first time at the 2024 Paris Games, the IOC confirmed on Thursday.

Additional Information

• When indicating future events, it is crucial to use the appropriate tense to avoid confusion.

• The term 'are eligible' is suitable for indicating a state that will be true in the future, aligning with the context of the 2024 Paris Games.

Q11. Answer: (a) Consciencious

The solution is in Hindi. Read it online.

Q12. Answer: (d) To grasp the hidden meaning

The solution is in Hindi. Read it online.

Q13. Answer: (c) Lazy

The solution is in Hindi. Read it online.

Q14. Answer: (a) Begin

The solution is in Hindi. Read it online.

Q15. Answer: (b) right as rain

The solution is in Hindi. Read it online.

Q16. Answer: (b) Their

The solution is in Hindi. Read it online.

Q17. Answer: (a) adressed

The solution is in Hindi. Read it online.

Q18. Answer: (b) main

The solution is in Hindi. Read it online.

Q19. Answer: (d) look after

The correct answer is Option 4)

Key Points

• The phrase 'look thorough' is incorrect.

• The correct phrase that fits the context is 'look after', which means to take care of someone.

• Look after is a phrasal verb commonly used to denote taking care of someone or something.

• Example: She looks after her younger brother when her parents are at work.

• Therefore, the correct phrase is 'look after'.

Hence, the correct statement is: As there was no one to look after the orphan, he had to take refuge in the orphanage.

Additional InformationThe other options do not fit the context:

• look through: to examine or read something quickly.

• look upon: to regard or consider.

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• look down upon: to regard with contempt.
• Using the correct phrasal verb is essential for conveying the intended meaning accurately.

Q20. Answer: (c) I have to prepare for

The correct answer is Option 3)
Key Points
• In the given sentence, the phrase "I will preparing of" is incorrect.
• The correct phrase should be "I have to prepare for".
• Using the correct form of the verb "prepare" and the correct preposition "for" is essential for proper grammar.
Hence, the correct statement is: I cannot go out tonight because I have to prepare for my interview tomorrow.
Additional Information
• It is important to use the correct verb form and preposition in sentences to convey the intended meaning clearly and correctly.
• In this case, "prepare" is the correct verb form to use, and "for" is the appropriate preposition.

Q21. Answer: (c) affects

The correct answer is Option 3)
Key Points
• The word 'effects' is commonly misused in place of 'affects'.
• 'Affects' is a verb meaning to have an impact or influence on something.
• 'Effects' is a noun meaning the result or outcome of a particular influence.
• Therefore, 'affects' should be used in the given sentence.
Hence, the correct answer is 'option 3.'

Q22. Answer: (c) He made a complaint.

The correct answer is Option 3)
Key Points
• The phrase 'made a complaint' is the correct and commonly used expression in English.
• Options 1 and 2 are incorrect because we do not "say" a complaint; we "make" a complaint.
• Option 4 is incorrect because "terribly complained" is not a standard or grammatically correct expression.
Hence, the correct statement is: He made a complaint to the manager about the terrible food in the hostel.
Additional Information
• The verb "make" is commonly used with nouns like "complaint", "decision", "effort", etc.
• Example: She made an effort to improve her grades.
• Using the correct verb-noun collocation is essential for proper grammar and clear communication in English.

Q23. Answer: (b) berth; birth

The solution is in Hindi. Read it online.

Q24. Answer: (a) Turmoil

The solution is in Hindi. Read it online.

Q25. Answer: (d) heir

The solution is in Hindi. Read it online.

Q26. Answer: (c) 75 and 30

Given : 79 – 43 + (23 + 75) × 3 – (30 ÷ 15) × 4 = 175
According to the question, after replacing the numbers :
Option - (1): 3 and 4
79 – 43 + (23 + 75) × 3 – (30 ÷ 15) × 4 = 175 => 79 – 43 + (23 + 75) × 4 – (30 ÷ 15) × 3 = 175
79 – 43 + (23 + 75) × 4 – (30 ÷ 15) × 3 = 175
79 – 43 + 98 × 4 – 2 × 3 = 175
79 + 392 - 43 - 6 = 175
471 - 43 - 6 = 175
422 ≠ 175 (LHS ≠ RHS)
Option - (2): 23 and 43

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79 – 43 + (23 + 75) × 3 – (30 ÷ 15) × 4 = 175 => 79 – 23 + (43 + 75) × 3 – (30 ÷ 15) × 4 = 175
79 – 23 + (43 + 75) × 3 – (30 ÷ 15) × 4 = 175
79 – 23 + 118 × 3 – 2 × 4 = 175
79 + 354 - 23 - 8 = 175
433 - 23 - 8 = 175
402 ≠ 175 (LHS ≠ RHS)
Option - (3): 75 and 30
79 – 43 + (23 + 75) × 3 – (30 ÷ 15) × 4 = 175 => 79 – 43 + (23 + 30) × 3 – (75 ÷ 15) × 4 = 175
79 – 43 + (23 + 30) × 3 – (75 ÷ 15) × 4 = 175
79 – 43 + 53 × 3 – 5 × 4 = 175
79 + 159 - 43 - 20 = 175
238 - 43 - 20 = 175
175 = 175 (LHS = RHS)
Option - (4): 75 and 79
79 – 43 + (23 + 75) × 3 – (30 ÷ 15) × 4 = 175 => 75 – 43 + (23 + 79) × 3 – (30 ÷ 15) × 4 = 175
75 – 43 + (23 + 79) × 3 – (30 ÷ 15) × 4 = 175
75 – 43 + 102 × 3 – 2 × 4 = 175
75 + 306 - 43 - 8 = 175
381 - 43 - 8 = 175
330 ≠ 175 (LHS ≠ RHS)
Hence, "Option 3" is the correct answer.

Q27. Answer: (a) 2

The logic followed here is: No specific pattern is followed here, random digits are assigned to each letter of the word.
'DEAL' is coded as '0368'

Letters	D / E / A	L
Codes	0 / 3 / 6	8

And,
'DEAF' is coded as '2630'

Letters	D / E / A	F
Codes	0 / 3 / 6	2

As 'D', 'E', and 'A' are common, therefore it can be concluded that :
F is coded as → 2
So, the code for 'F' is '2'.
Hence, "Option 1" is the correct answer.

Q28. Answer: (a) GSAEVH

Logic: (4) is added to the position values according to the English alphabetic series.
So,
'STAUNCH' is related to 'WXEYRGL'

And,
'BLISS' is related to 'FPMWW'

Similarly,
'COWARD' is related to

Hence, "Option 1" is the correct answer.

Q29. Answer: (a) ZABX

The logic followed here is:

Option (1): ZABX

Option (2): KPQJ

Option (3): NMNM

Option (4): TGHS

Thus, out of all the options "ZABX" is the odd one out.

Hence, "Option 1" is the correct answer.

Q30. Answer: (b) 5

The number of semi-circles in the given figure is shown below :

Here, as marked there are a total of 5 semi-circles.

Hence, "5" is the correct answer.

Q31. Answer: (c) None

Given word: 'PRAISE'

After arranged in alphabetical order:

Alphabets	P	R	A	I	S	E
Alphabetical order	A	E	I	P	R	S

Now,

there are no alphabets that will remain unchanged if each of the letters in the word 'PRAISE' is arranged in English alphabetical order.

Hence, the correct answer is "Option 3".

Q32. Answer: (b) [figure]

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

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

Hence, the correct answer is "Option 2".

Q33. Answer: (d) [figure]

The correct mirror image of the given figure is:

Hence, the correct answer is "Option 4".

Q34. Answer: (c) Two

Given word: 'CHEMISTRY'

After arranged in alphabetical order:

Alphabets	C	H	E	M	I	S	T	R	Y
Alphabetical order	C	E	H	I	M	R	S	T	Y

Now,

there are Two alphabets "C" and "Y" that will remain unchanged if each of the letters in the word 'CHEMISTRY' is arranged in English alphabetical order.

Hence, the correct answer is "Option 3".

Q35. Answer: (b) Brother's wife

Decoding the Symbols:

Symbol	#	@	&	%
Meaning	Sister	Son	Wife	Father

Given: E & P @ D% K # L

E & P → E is the wife of P.

P @ D → P is the son of D.

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D% K → D is the father of K.

K # L → K is the sister of L.

Here, E is the sister-in-law or brother's wife of K.

Hence, the correct answer is "Option 2".

Q36. Answer: (a) [figure]

The logic followed here is :

1) First box alternate series → Diagonal elements interchange positions.

2) Second box alternate series → Elements shift in the clockwise direction at the corners and the center element is replaced by a new element.

Thus, the final series is :

Hence, "Option 1" is the correct answer.

Q37. Answer: (c) HSR

Logic:

1st letter:- Prime number series is subtracted from the positional value of the 1st letter,

2nd letter:- Prime number series is added from the positional value of the 2nd letter,

3rd letter:- (3) is added then (2) is subtracted from the positional value of the 3rd letter.

So,

Hence, "Option 3" is the correct answer.

Q38. Answer: (d) T

The faces opposite to each other are shown below:

\

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

So, opposite pairs are:

P → U

S → T

Q → R

Therefore, 'T' is the opposite of 'S'.

Hence, "T" is the correct answer.

Q39. Answer: (a) AWEW

Logic:

First and second letters → (2) and (3) are added to the position value respectively.

Third and fourth letters → (2) and (1) are added to the position value respectively.

So,

'LDWR' is coded as 'NGUQ'

And,

'BFKZ' is coded as 'DIIY'

Similarly,

'YTGX' is coded as

Hence, "Option 1" is the correct answer.

Q40. Answer: (b) Neither conclusion (I) nor (II) follows.

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

Conclusions:

I. Some buttons are shoes → Does not follow (As all shoes are ties, some ties are pants and all pants are buttons. So it is possible but not definite.)

II. No ties are buttons → Does not follow (As some ties are pants and all pants are buttons. So, no direct relation is given between

ties and buttons therefore it is false.)

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

Hence, the correct answer is "Neither conclusion (I) nor (II) follows"

Q41. Answer: (a) ZBV

Logic: (5) is added to the position values according to the English alphabetic series.

So,

Hence, "Option 1" is the correct answer.

Q42. Answer: (b) 75

The logic followed here is:

Logic: (1st number × 2) + 17 = 2nd number.

Now,

For, 21 : 59

=> (21 × 2) + 17 = 42 + 17 = 59.

For, 32 : 81

=> (32 × 2) + 17 = 64 + 17 = 81.

Similarly, for 29 : ?

=> (29 × 2) + 17 = 58 + 17 = 75.

Hence, the correct answer is "Option 2".

Q43. Answer: (c) 813

Given Equation: 404 B 2 D 101 A 101 C 6 = ?

BODMAS Rule:

Decoding the given information:

Alphabet	A	B	C	D
Meaning	÷	×	•	•

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

=> 404 × 2 - 101 ÷ 101 + 6 = ?

=> 404 × 2 - 1 + 6 = ?

=> 808 - 1 + 6 = ?

=> 814 - 1 = 813.

Hence, the correct option is "Option 3".

Q44. Answer: (b) 141

Logic : Alternately (1) and (3) are subtracted and added respectively.

Hence, "141" is the correct answer.

Q45. Answer: (a) 43 and 2

Given : (86 ÷ 43) + (66 ÷ 33) × 2 + 72 – 6 × 4 = 177

According to the question, after replacing the numbers :

Option - (1): 43 and 2

(86 ÷ 43) + (66 ÷ 33) × 2 + 72 – 6 × 4 = 177 => (86 ÷ 2) + (66 ÷ 33) × 43 + 72 – 6 × 4 = 177

(86 ÷ 2) + (66 ÷ 33) × 43 + 72 – 6 × 4 = 177

43 + 2 × 43 + 72 – 6 × 4 = 177

43 + 86 + 72 - 24 = 177

201 - 24 = 177

177 = 177 (LHS = RHS)

Option - (2): 2 and 72

(86 ÷ 43) + (66 ÷ 33) × 2 + 72 – 6 × 4 = 177 => (86 ÷ 43) + (66 ÷ 33) × 72 + 2 – 6 × 4 = 177

(86 ÷ 43) + (66 ÷ 33) × 72 + 2 – 6 × 4 = 177

2 + 2 × 72 + 2 – 6 × 4 = 177

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2 + 144 + 2 - 24 = 177
148 - 24 = 177
144 ≠ 177 (LHS ≠ RHS)
Option - (3): 2 and 4
(86 ÷ 43) + (66 ÷ 33) × 2 + 72 – 6 × 4 = 177 => (86 ÷ 43) + (66 ÷ 33) × 4 + 72 – 6 × 2 = 177
(86 ÷ 43) + (66 ÷ 33) × 4 + 72 – 6 × 2 = 177
2 + 2 × 4 + 72 – 6 × 2 = 177
2 + 8 + 72 - 24 = 177
82 - 24 = 177
58 ≠ 177 (LHS ≠ RHS)
Option - (4): 2 and 6
(86 ÷ 43) + (66 ÷ 33) × 2 + 72 – 6 × 4 = 177 => (86 ÷ 43) + (66 ÷ 33) × 6 + 72 – 2 × 4 = 177
(86 ÷ 43) + (66 ÷ 33) × 6 + 72 – 2 × 4 = 177
2 + 2 × 6 + 72 – 2 × 4 = 177
2 + 12 + 72 - 8 = 177
86 - 8 = 177
78 ≠ 177 (LHS ≠ RHS)
Hence, "Option 1" is the correct answer.

Q46. Answer: (b) [figure]

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

Q47. Answer: (c) 4

The logic followed here is:
Logic: Synonym relationship.
Here,
Adhere : Comply → Adhere is a synonym of Comply.
Similarly,
Accord : Harmony → Accord is a synonym of Harmony.
Busy : Engaged → Busy is a synonym of Engaged.
Eager : Keen → Eager is a synonym of Keen.
However,
Jubilant : Depressed → Jubilant is not a synonym of Depressed; in fact, they are antonyms.
Hence, the correct answer is "Option 3".

Q48. Answer: (d) VIII

The faces opposite to each other are shown below:
=> As the alternate positions become opposite to each other, the remaining two faces become opposite to each other.
So, opposite pairs are:
X → VI
VII → V
IX → VIII
Therefore, 'VIII' is the opposite of 'IX'.
Hence, "VIII" is the correct answer.

Q49. Answer: (d) (156, 39, 13)

The logic followed here is:
Logic: (2nd number + 3rd number) × 3 = 1st number.
Now,
For, (60, 15, 5)
=> (15 + 5) × 3 = 20 × 3 = 60.
For, (96, 24, 8)

=> (24 + 8) × 3 = 32 × 3 = 96.
Similarly, for (156, 39, 13)
=> (39 + 13) × 3 = 52 × 3 = 156.
Hence, the correct answer is "Option 4".

Q50. Answer: (b) 36

Given : 34 + 56 × 8 ÷ 2 - 16 = ?
According to the question, after replacing the signs :
'+' and '-' are interchanged
'×' and '÷' are interchanged
So,
34 - 56 ÷ 8 × 2 + 16 = ?
34 - 7 × 2 + 16 = ?
34 + 16 - 14 = ?
50 - 14 = ?
36 = ?
Hence, "36" is the correct answer.

Q51. Answer: (a) 36√5

Given:
Distance between the centers of two circles (d) = 81 cm
Radius of the first circle (r1) = 42 cm
Radius of the second circle (r2) = 51 cm
Formula used:
Length of the direct common tangent (L) is given by:
$L = \sqrt{(d^2 - (r1 - r2)^2)}$
Calculations:
Substitute the given values:
$=> L = \sqrt{(81^2 - (51 - 42)^2)}$
$=> L = \sqrt{(6561 - (9)^2)}$
$=> L = \sqrt{(6561 - 81)}$
$=> L = \sqrt{6480}$
$=> L = \sqrt{6480}$ cm
$=> L = 36\sqrt{5}$ cm
Therefore The length of the direct common tangent is $36\sqrt{5}$.

Q52. Answer: (b) 15

Shortcut Trick
The age difference between Ram and Rahul remains constant at 20 years.
n years ago: Ratio is 3 : 1 => Difference = 2 units = 20 years => 1 unit = 10 years. (Rahul = 10)
2n years hence: Ratio is 15 : 11 => Difference = 4 units = 20 years => 1 unit = 5 years. (Rahul = 55)
The total time gap between n years ago and 2n years hence is 3n.
Gap in Rahul's age = 55 − 10 = 45 => 3n = 45 => n = 15.
Therefore The correct answer is 15.
Alternate Method
Given:
Current age difference = 20 years.
Ratio n years ago = 3 : 1.
Ratio 2n years later = 15 : 11.
Let current ages of Ram and Rahul be R and r.
=> R − r = 20 => R = r + 20
From the condition n years ago:
=> (R − n) = 3 × (r − n)

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=> (r + 20 − n) = 3r − 3n
=> 2n + 20 = 2r => r = n + 10 --- (Eq. 1)
From the condition 2n years later:
=> (R + 2n) ÷ (r + 2n) = 15 ÷ 11
=> 11 × (r + 20 + 2n) = 15 × (r + 2n)
=> 11r + 220 + 22n = 15r + 30n
=> 220 − 8n = 4r => r = 55 − 2n --- (Eq. 2)
Equating Eq. 1 and Eq. 2:
=> n + 10 = 55 − 2n
=> 3n = 45
=> n = 15
Therefore The correct answer is 15.
Additional Information
Constant Age Difference
The difference between the ages of two persons always remains constant, regardless of the number of years passed or gone by.
Ratio Scaling in Ages
If the age difference is D and the ratio is a : b, then 1 ratio unit = D ÷ (a − b). This helps find individual ages quickly.
Time Gap Calculation
The total time interval between x years ago and y years hence is calculated as (x + y) years.

Q53. Answer: (c) 22º

Given:
angle BAD = 118º
angle ACB = 80º
CD = AC (so ΔACD is isosceles)
Solution:
Step 1: Use the exterior angle theorem in ΔACD
Since ΔACD is isosceles, we have:
=> angle CAD = angle CDA
From the exterior angle theorem:
angle ACB = angle CAD + angle CDA
Given angle ACB = 80º, and since angle CAD = angle CDA:
=> 80º = 2angle CAD
=> angle CAD = 40º
Step 2: Find angle BAC using the exterior angle theorem
We are given angle BAD = 118º. From the exterior angle theorem in ΔABC:
angle BAD = angle BAC + angle CAD
=> 118º = angle BAC + 40º
=> angle BAC = 118º - 40º = 78º
Step 3: Use the angle sum property in ΔABC
In ΔABC, the sum of interior angles is 180º:
angle BAC + angle ABC + angle ACB = 180º
Substitute the known values:
78º + angle ABC + 80º = 180º
=> angle ABC = 180º - 158º = 22º
Therefore The value of angle ABC is 22º.

Q54. Answer: (b) Rs. 72,200

Given:
Present value of the machine = Rs. 80,000
Depreciation rate per year = 5%
Formula Used:

Value after n years = Present Value × (1 - Depreciation Rate)^n
Calculation:
Depreciation Rate = 5% = 0.05
n = 2 years
Value after 2 years = 80,000 × (1 - 0.05)^2
=> Value after 2 years = 80,000 × (0.95)^2
=> Value after 2 years = 80,000 × 0.9025
=> Value after 2 years = 72,200
The value of the machine after 2 years will be Rs. 72,200.

Q55. Answer: (c) The length of an arc = (central angle made by the arc)/(360^(°)) × π r².

Calculation:
1. For the radius of an incircle of an equilateral triangle:
Radius = s/(2 √3)
This statement is correct as it matches the formula.
2. For the area of a sector:
Area = 1/2 × (arc length × R)
This statement is correct as it matches the formula.
3. For the length of an arc:
Length of an arc = (central angle made by the arc)/(360°) × 2 π r
Given statement: Length of an arc = (central angle made by the arc)/(360°) × π r²
This statement is incorrect because the given formula is for the area of a sector, not the length of an arc.
4. For congruent and similar circles:
Circles are congruent if they have the same radii while similar circles may have different radii.
This statement is correct.
The correct answer is option 3.

Q56. Answer: (b) 24/25

Given:
cos^4θ - sin^4θ = 4/5
Formula used:
1. Difference of squares identity: cos^4θ - sin^4θ = (cos²θ - sin²θ)(cos²θ + sin²θ)
2. cos²θ + sin²θ = 1
3. cos 2θ = cos²θ - sin²θ
4. sin 4θ = 2sin 2θ cos 2θ
Calculation:
cos^4θ - sin^4θ = (cos²θ - sin²θ)(cos²θ + sin²θ)
=> cos^4θ - sin^4θ = cos²θ - sin²θ (since cos²θ + sin²θ = 1)
So, cos²θ - sin²θ = 4/5
cos 2θ = cos²θ - sin²θ
=> cos 2θ = 4/5
Find sin 2θ using the Pythagorean identity
sin² 2θ + cos² 2θ = 1
Substitute cos 2θ = 4/5:
sin² 2θ + (4/5)² = 1
sin² 2θ + 16/25 = 1
sin² 2θ = 1 - 16/25 = 9/25
=> sin 2θ = 3/5
sin 4θ = 2sin 2θ cos 2θ
Substitute sin 2θ = 3/5 and cos 2θ = 4/5:
=> sin 4θ = 2 × (3/5) × (4/5) = 24/25
Therefore The value of sin 4θ is 24/25.

Q57. Answer: (a) Rs. 11,400

Shortcut Trick

Total Surface Area (TSA) of a hollow hemispherical bowl = $3\pi R^2 + \pi r^2$

Given: Outer radius (R) = 8 cm and Inner radius (r) = 6 cm.

TSA = $\pi(3 \times 8^2 + 6^2) = \pi(192 + 36) = 228\pi$ cm².

Cost of polishing π cm² = Rs. 50 => Total Cost = 228 × 50 = Rs. 11,400.

Therefore The correct answer is Rs. 11,400.

Alternate Method

Given:

Inner radius (r) = 6 cm

Outer radius (R) = 8 cm

Polishing rate = Rs. 50 per π cm²

Formula Used:

Total Surface Area = Outer CSA + Inner CSA + Area of the Ring

TSA = $2\pi R^2 + 2\pi r^2 + \pi(R^2 - r^2)$

Calculations:

=> Outer CSA = $2 \times \pi \times 8^2 = 128\pi$ cm²

=> Inner CSA = $2 \times \pi \times 6^2 = 72\pi$ cm²

=> Area of Top Ring = $\pi(8^2 - 6^2) = \pi(64 - 36) = 28\pi$ cm²

=> Total Surface Area = $128\pi + 72\pi + 28\pi = 228\pi$ cm²

=> Cost of polishing π cm² = Rs. 50

=> Total Polishing Cost = $(228\pi / \pi) \times 50$

=> Total Polishing Cost = 228 × 50 = Rs. 11,400

Therefore The correct answer is Rs. 11,400.

Additional Information

Volume of a Hollow Hemisphere

The volume of the material of a hollow hemispherical bowl is given by $V = (2/3)\pi(R^3 - r^3)$, where R is the outer radius and r is the inner radius.

Surface Area of a Solid Hemisphere

For a solid hemisphere of radius R, the total surface area is TSA = $3\pi R^2$, which includes the curved surface ($2\pi R^2$) and the flat circular base (πR^2).

Surface Area of a Sphere

The total surface area of a complete sphere is $4\pi R^2$, and its volume is $(4/3)\pi R^3$.

Q58. Answer: (a) Rs. 12,320

Given:

Radius of the sphere (r) = 14 cm

Painting cost per square centimetre = Rs. 5

Formula Used:

Surface area of a sphere = $4\pi r^2$

Total cost = Surface area × Painting cost per square centimetre

Calculation:

Surface area of the sphere = $4\pi r^2$

=> Surface area = $4 \times (22/7) \times 14^2$

=> Surface area = $4 \times (22/7) \times 196$

=> Surface area = $4 \times 22 \times 28$

=> Surface area = 2464 cm²

Total cost = Surface area × Painting cost per square centimetre

=> Total cost = 2464 × 5

=> Total cost = Rs. 12,320

The cost of painting the ball is Rs. 12,320.

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Q59. Answer: (b) 19 : 4

Given:

Total number of students = 115

Frequency densities and intervals:

Marks 20.5 to 30.5: Frequency density ≈ 0.5

Marks 30.5 to 40.5: Frequency density ≈ 1.5

Marks 40.5 to 50.5: Frequency density ≈ 2.5

Marks 50.5 to 60.5: Frequency density ≈ 3.0

Marks 60.5 to 70.5: Frequency density ≈ 2.0

Marks 70.5 to 80.5: Frequency density ≈ 1.0

Marks 80.5 to 90.5: Frequency density ≈ 1.0

Formula used:

Frequency = Frequency density × Width of the bar

Qualified students: Marks > 40.5

Non-qualified students: Marks ≤ 40.5

Calculation:

Step 1: Calculate the number of qualified students (marks above 40.5)

Marks 40.5 to 50.5: Frequency = 2.5 × 10 = 25

Marks 50.5 to 60.5: Frequency = 3.0 × 10 = 30

Marks 60.5 to 70.5: Frequency = 2.0 × 10 = 20

Marks 70.5 to 80.5: Frequency = 1.0 × 10 = 10

Marks 80.5 to 90.5: Frequency = 1.0 × 10 = 10

Total number of qualified students = 25 + 30 + 20 + 10 + 10 = 95

Step 2: Calculate the number of non-qualified students (marks ≤ 40.5)

Marks 20.5 to 30.5: Frequency = 0.5 × 10 = 5

Marks 30.5 to 40.5: Frequency = 1.5 × 10 = 15

Total number of non-qualified students = 5 + 15 = 20

Step 3: Calculate the ratio of qualified to non-qualified students

=> Ratio = Number of qualified students / Number of non-qualified students

=> Ratio = 95 / 20

=> Ratio = 19 : 4

Therefore The ratio of the number of qualified students to the number of non-qualified students is 19 : 4.

Q60. Answer: (c) 8.33%

Given:

Ram invested a certain sum of money at simple interest.

It amounted to 5/4 of itself in 3 years.

Formula Used:

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

Amount (A) = Principal (P) + Simple Interest (SI)

Calculation:

Let the Principal be P.

Amount after 3 years = 5/4 × P

Simple Interest (SI) = Amount - Principal = 5/4P - P

SI = P/4

We know:

SI = P × R × 3 / 100

=> P/4 = P × R × 3 / 100

=> 1/4 = R × 3 / 100

=> 100/4 = 3R

=> 25 = 3R

=> R = 25/3

=> R = 8.333

The rate per cent per annum is 8.33%.

Q61. Answer: (c) 0.003

Given:

5% of 2% of 3

Formula Used:

Percentage Formula: (a)/(100) × b

Calculation:

5% of 2% of 3

First, calculate 2% of 3:

2% of 3 = (2)/(100) × 3

=> 0.02 × 3

=> 0.06

Next, calculate 5% of 0.06:

5% of 0.06 = (5)/(100) × 0.06

=> 0.05 × 0.06

=> 0.003

5% of 2% of 3 is equal to 0.003.

Q62. Answer: (c) 7 : 10

First Division students:

2019: 20 students

2020: 70 students

2021: 85 students

Total number of students in 2020 (from the graph):

First Division: 70 students

Second Division: 80 students

Third Division: 95 students

Failed: 5 students

Total number of students in 2020 = 70 + 80 + 95 + 5 = 250 students

Total First Division students in 2019, 2020, and 2021 = 20 + 70 + 85 = 175 students

=> Ratio = 175 / 250

=> Ratio = 7/10

Therefore The ratio of the number of students who passed with first division in all three years to the total number of students in 2020 is 7 : 10.

Q63. Answer: (b) Apple, 28

Given:

Month: May

The chart provides the sales of various fruits in the month of May:

Pear: 50 units

Apple: 70 units

Orange: 65 units

Kiwi: 42 units

Melon: 58 units

Peach: 45 units

Formula used:

Difference = Most sold fruit - Lowest sold fruit

Calculation:

Most sold fruit = Apple (70 units)

Lowest sold fruit = Kiwi (42 units)

=> Difference = 70 - 42 = 28 units

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Therefore The most sold fruit in May is Apple, and it sold 28 units more than the lowest-sold fruit, which is Kiwi.

Q64. Answer: (b) 20%

Given:

Meena buys 24 bangles and gets 6 bangles free.

Formula Used:

Discount Percentage = (Free Items / Total Items Purchased) × 100

Calculation:

Total Items Purchased = 24 + 6 = 30

Free Items = 6

Discount Percentage = (6 / 30) × 100

=> Discount Percentage = (1 / 5) × 100

=> Discount Percentage = 0.2 × 100

=> Discount Percentage = 20%

The correct answer is option 2.

Q65. Answer: (d) 7 : 12

Given:

A : B = 2 : 3

B : C = 7 : 8

Calculation:

A/C = A/B × B/C

=> A/C = 2/3 × 7/8

=> A/C = 7/12

So, A : C = 7 : 12

The correct answer is option 4.

Q66. Answer: (b) Management

Given:

The table shows the number of students admitted to different courses over the years 2015 to 2020.

Calculation:

We need to check whether any course had a consistent growth or decline in admissions over the years.

Engineering does not have consistent growth or decline.

Science does not have consistent growth or decline due to the decrease from 2015 to 2016.

Arts does not have consistent growth or decline.

Management shows consistent growth in admissions from 2015 to 2020.

Engineering:

2015: 1200

2016: 1362 (increase)

2017: 1351 (slight decrease)

2018: 1409 (increase)

2019: 1421 (increase)

2020: 1400 (slight decrease)

Science:

2015: 850

2016: 821 (decrease)

2017: 870 (increase)

2018: 921 (increase)

2019: 931 (increase)

2020: 950 (increase)

Arts:

2015: 450

2016: 525 (increase)

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2017: 624 (increase)
2018: 615 (slight decrease)
2019: 795 (increase)
2020: 750 (slight decrease)
Management:
2015: 240
2016: 275 (increase)
2017: 286 (increase)
2018: 293 (increase)
2019: 300 (increase)
2020: 320 (increase)
Therefore The Management course had consistent growth in admissions from 2015 to 2020.

Q67. Answer: (b) 250 cm2

Shortcut Trick
When two cubes are joined face to face, the two faces at the junction are hidden from the total surface.
A single cube has 6 faces, so two separate cubes have 12 faces. Joining them removes 2 faces.
Total faces in the cuboid = 12 − 2 = 10 faces.
Area of one face = edge² = 5 × 5 = 25 cm².
Total Surface Area = 10 × 25 = 250 cm².
Therefore The correct answer is 250 cm².
Alternate Method
Given:
Edge of each cube (a) = 5 cm.
Formula Used:
Total Surface Area (TSA) of a cuboid = 2 × (lb + bh + hl)
Calculations:
When two cubes are joined face to face, the length increases while breadth and height remain constant.
=> Length of the cuboid (l) = 5 cm + 5 cm = 10 cm
=> Breadth of the cuboid (b) = 5 cm
=> Height of the cuboid (h) = 5 cm
=> Total Surface Area = 2 × (10 × 5 + 5 × 5 + 5 × 10)
=> Total Surface Area = 2 × (50 + 25 + 50)
=> Total Surface Area = 2 × (125)
=> Total Surface Area = 250 cm²
Therefore, the correct answer is option (2).
Therefore The correct answer is 250 cm².
Additional Information
Volume of Cuboid
The total space occupied by the cuboid is given by V = l × b × h. For this cuboid, V = 10 × 5 × 5 = 250 cm³.
Lateral Surface Area
The area of the four side walls of the cuboid is 2h(l + b). For this cuboid, LSA = 2 × 5(10 + 5) = 150 cm².
Diagonal of Cuboid
The length of the longest diagonal is given by √(l² + b² + h²). Here, diagonal = √(100 + 25 + 25) = √150 = 5√6 cm.

Q68. Answer: (b) 19/30

Given:
Tanvi can do a work in 25 days.
Tai can complete the same work in 30 days.
They started the work together for 5 days.
Formula Used:
Work done by Tanvi in one day = 1/25

Work done by Tai in one day = 1/30
Total work done in one day by both = (1/25) + (1/30)
Calculation:
Work done by Tanvi and Tai together in one day:
1/25 + 1/30 = (6 + 5)/150 = 11/150
Work done by Tanvi and Tai together in 5 days:
=> 5 × 11/150 = 55/150 = 11/30
Work left:
=> 1 - 11/30 = 30/30 - 11/30 = 19/30
Therefore, the amount of work left is 19/30.

Q69. Answer: (c) 39 (2/3) kgs

Given:
The average weight of 35 students in a class = 40 kgs.
Average weight of 5 students who left = 42 kgs.
Formula Used:
Average weight = Total weight / Number of students
Calculation:
Total weight of 35 students = 35 × 40
=> Total weight of 35 students = 1400 kgs
Total weight of 5 students who left = 5 × 42
=> Total weight of 5 students who left = 210 kgs
Total weight of remaining 30 students = Total weight of 35 students - Total weight of 5 students who left
=> Total weight of remaining 30 students = 1400 - 210
=> Total weight of remaining 30 students = 1190 kgs
Average weight of remaining 30 students = Total weight of remaining 30 students / 30
=> Average weight of remaining 30 students = 1190 / 30
=> 1190/30 = 39 2/3 kgs
The average weight of the remaining 30 students is 39 (2/3) kgs.

Q70. Answer: (a) 5000

Given:
One candidate got 42% of the total votes and lost by 800 votes.
Formula Used:
Total votes = Number of votes for the losing candidate / Percentage of votes for the losing candidate
Calculation:
Let total votes be V.
Votes for the losing candidate = 42% of V = 0.42V
Votes for the winning candidate = 0.42V + 800
Total votes = Votes for the losing candidate + Votes for the winning candidate
V = 0.42V + (0.42V + 800)
V = 0.84V + 800
=> V - 0.84V = 800
=> 0.16V = 800
=> V = 800 / 0.16
=> V = 5000
The total number of votes that were cast is 5000.

Q71. Answer: (a) Rs. 30

Given:
Profit by A = 10%
Profit by B = 60%
Profit by C = 12 (1/2)% = 12.5%

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D paid = Rs. 59.40

Formula Used:

Let the initial cost price be x.

Final Price = Initial Price × (1 + Profit/100)

Calculation:

Let the price at which A buys it be x.

Price after A's sale = x × 1.10

Price after B's sale = x × 1.10 × 1.60

Price after C's sale = x × 1.10 × 1.60 × 1.125

D paid Rs. 59.40, so:

=> x × 1.10 × 1.60 × 1.125 = 59.40

=> x × 1.98 = 59.40

=> x = 59.40/1.98

=> x = 30

The price at which A bought it is Rs. 30.

Q72. Answer: (c) 25/(√2

Given:

Two triangles ABC and DEF are similar.

The smallest side of ABC is equal to 15 units.

The sides of ABC are in the ratio 3 : 4 : 5.

The area of DEF is half of the area of ABC.

Formula Used:

Ratio of sides of similar triangles = Ratio of corresponding sides

Ratio of areas of similar triangles = (Ratio of corresponding sides)²

Calculation:

Let the sides of triangle ABC be 3x, 4x, and 5x.

Given the smallest side of ABC is 15 units:

3x = 15

=> x = 15 / 3

=> x = 5

So, the sides of triangle ABC are 3×5 = 15 units, 4×5 = 20 units, and 5×5 = 25 units.

Let the sides of triangle DEF be a, b, and c, where c is the largest side.

Since the area of DEF is half of the area of ABC:

Ratio of areas of ABC and DEF = 2:1

So, (Ratio of corresponding sides)² = 2

=> Ratio of corresponding sides = √2

Thus, the ratio of sides of ABC to DEF is 1: √2

The largest side of DEF:

25 / √2

=> 25/√2

The largest side of DEF is 25/√2 units.

Q73. Answer: (b) 732

Given:

Expression: 720 + 48 ÷ 8 × 5 - 6 × 3

Formula Used:

Follow the order of operations (PEMDAS/BODMAS): Parentheses, Exponents (i.e. powers and square roots, etc.), Multiplication and Division (left-to-right), Addition and Subtraction (left-to-right).

Calculation:

First, perform the division and multiplication:

48 ÷ 8 = 6

6 × 5 = 30

6 × 3 = 18

Now, substitute these values back into the expression:

=> 720 + 30 - 18

Next, perform the addition and subtraction:

=> 720 + 30 = 750

=> 750 - 18 = 732

The simplified expression is 732.

Q74. Answer: (b) 4

Shortcut Trick

Ratio of time taken (Upstream : Downstream) = 3 : 1

Since distance is constant, Speed ratio (Upstream : Downstream) = 1 : 3

=> Ratio of (Boat speed : Stream speed) = (3 + 1) : (3 − 1) = 4 : 2 = 2 : 1

Given Boat speed = 8 km/h (2 parts) → Stream speed (1 part) = 4 km/h.

Therefore The correct answer is 4 km/h.

Alternate Method

Given:

Speed of boat in still water (u) = 8 km/h

Let the speed of the stream be v km/h.

Formula Used:

Downstream Speed (S_(down)) = u + v

Upstream Speed (S_(up)) = u − v

Distance = Speed × Time

Calculations:

Let the distance be D km and the downstream time be t hours.

=> Downstream speed = 8 + v km/h

=> Upstream speed = 8 − v km/h

=> Time taken upstream = 3t hours

Since the distance D is the same in both cases:

=> (8 + v) × t = (8 − v) × 3t

=> 8 + v = 3 × (8 − v)

=> 8 + v = 24 − 3v

=> v + 3v = 24 − 8

=> 4v = 16

=> v = 4 km/h

Therefore The correct answer is 4 km/h.

Additional Information

Downstream and Upstream Speed

Downstream Speed (D) = u + v, where u is boat speed in still water and v is stream speed. Upstream Speed (U) = u − v.

Calculating Component Speeds

Boat speed in still water: u = (D + U) ÷ 2. Stream speed: v = (D − U) ÷ 2.

Speed-Time Inverse Relationship

When the distance traveled is constant, speed is inversely proportional to time: S1 ÷ S2 = T2 ÷ T1.

Q75. Answer: (a) 1 1/8

Given:

The expression: (2 × 2+2)/(2 ÷ 2 × 2) ÷ (1/2 ÷ 1/2 of 1/2)/(1/2+1/2 of 1/2)

Step 1: Solve the first part

(2 × 2 + 2)/(2 ÷ 2 × 2)

=> Numerator = 2 × 2 + 2 = 4 + 2 = 6

=> Denominator = 2 ÷ 2 × 2 = 1 × 2 = 2

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=> First part = 6 / 2 = 3

Step 2: Solve the second part

(1/2 ÷ 1/2 of 1/2)/(1/2 + 1/2 of 1/2)

First, we simplify each part:

Numerator: 1/2 ÷ 1/2 of 1/2 = 1/2 × 4 = 2

Denominator: 1/2 + 1/2 of 1/2 = 1/2 + 1/4 = 2/4 + 1/4 = 3/4

=> Second part = 2 / (3/4) = 2 × 4/3 = 8/3

Step 3: Combine the results

=> First part ÷ Second part = 3 ÷ 8/3 = 3 × 3/8 = 9/8

=> Final answer = 1 1/8

Therefore The value of the expression is 1 1/8.

Q76. Answer: (a) White flag

The correct answer is White flag

Key Points

• A White flag is not a compulsory piece of equipment for a football referee.

• Essential equipment for a football referee includes items such as watch(es), whistle(s), and red and yellow cards.

• These tools help the referee manage the game, keep time, and enforce the rules effectively.

• Other non-compulsory items may be used at the referee's discretion but are not mandated by the official regulations.

Additional Information

• The Laws of the Game are established by the International Football Association Board (IFAB) and specify the required equipment for referees.

• Referees must carry a whistle to signal the start and stop of play, and red and yellow cards to discipline players.

• They must also have a watch to keep track of the match time and any additional time to be added.

• While other items like notebooks, pens, and coin for the toss are commonly used, they are also not strictly compulsory.

Q77. Answer: (a) Magahi

The correct answer is Magahi

Key Points

• Magahi is not one of the classical languages of India.

• The classical languages of India include Kannada, Malayalam, Odiya, Tamil, Sanskrit, and Telugu.

• A language is declared as a classical language based on its rich heritage and independent tradition.

• The criteria for classical language status include antiquity of early texts/recorded history over a period of 1500-2000 years and a body of ancient literature or texts, which is considered a valuable heritage by generations of speakers.

• Recognition as a classical language also involves a distinction between the classical language and its modern form.

Additional Information

• Kannada was declared a classical language in 2008.

• Malayalam received its classical language status in 2013.

• Odiya was granted classical language status in 2014.

• The first language to be declared as classical in India was Tamil in 2004.

• Sanskrit and Telugu are also recognized as classical languages, having been declared in 2005 and 2008 respectively.

• The Union Cabinet approved the inclusion of Marathi, Assamese, Bengali, Pali, and Prakrit, raising the count from six to eleven. These additions reflect the expanding understanding of India's rich linguistic heritage in October 2024.

Q78. Answer: (a) Gir forest

The correct answer is Gir forest

Key Points

• The Gir forest is the only natural habitat of the Asiatic Lion (Panthera leo persica).

• Located in the state of Gujarat, India, the Gir National Park and Wildlife Sanctuary is the last refuge of the Asiatic Lion.

• The park was established in 1965 and covers a total area of 1,412 square kilometers.

• Conservation efforts in Gir have been successful in increasing the population of Asiatic Lions from a mere 20 in the early 20th century to over 500 today.

• The ecosystem of Gir forest is unique, supporting a rich biodiversity that includes leopards, deer, antelopes, and numerous bird species.

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Additional Information

• The Asiatic Lion once roamed across the Middle East and India but is now restricted to the Gir forest.

• The Government of India and the Gujarat state government have implemented several conservation programs to protect the Asiatic Lion.

• In addition to Gir, there are efforts to identify and establish alternative habitats to ensure a healthy and genetically diverse population.

• The Gir forest is also a significant cultural and historical site, attracting numerous tourists and wildlife enthusiasts from around the world.

Q79. Answer: (a) Clove oil

The correct answer is Clove oil

Key Points

• Clove oil is an olfactory indicator.

• Olfactory indicators are substances whose smell varies depending on whether they are in acidic or basic solutions.

• Clove oil changes its smell in different pH conditions, making it useful for detecting acidity or basicity.

Additional Information

• Turmeric is a natural indicator but not an olfactory one; it changes color in acidic and basic solutions.

• Petunia and cabbage juice are also used as pH indicators but are not olfactory indicators.

• Olfactory indicators are particularly useful in scenarios where visual indicators might not be practical or available.

Q80. Answer: (c) Purandara Das

The correct answer is Purandara Das

Key Points

• Syama Shastri, Tyagaraja, and Muthuswami Dikshitar are considered the 'Trinity of Carnatic Music'.

• They are renowned composers and are highly revered in the Carnatic music tradition.

• Purandara Das is not part of this trinity. Although he is a significant figure in Carnatic music, he lived earlier and is often referred to as the "father of Carnatic music."

• The contributions of the 'Trinity of Carnatic Music' have had a profound influence on the development and propagation of Carnatic music.

• Their compositions are still widely performed and form a crucial part of the Carnatic music repertoire.

Additional Information

• Syama Shastri (1762–1827), Tyagaraja (1767–1847), and Muthuswami Dikshitar (1775–1835) were contemporaries and their works have been foundational in Carnatic music.

• They have composed thousands of kritis (songs) that are still sung and cherished by Carnatic musicians and enthusiasts alike.

• Their compositions are known for their intricate melodies, rich rhythmic patterns, and deep devotion.

• Purandara Das (1484–1564) is credited with systematizing the teaching of Carnatic music and composing thousands of devotional songs known as "Devaranamas".

Q81. Answer: (d) The compositions are either in Telugu, Kannada, Tamil or Sanskrit.

The correct answer is The compositions are either in Telugu, Kannada, Tamil or Sanskrit

Key Points

• The compositions in Classical Carnatic Music are either in Telugu, Kannada, Tamil, or Sanskrit.

• Carnatic music, known for its intricate and complex compositions, primarily uses these languages for its lyrics and vocal performances.

• These languages have a rich history and are deeply embedded in the cultural and musical traditions of South India.

• The compositions often reflect religious themes, devotional content, and classical poetry.

Additional Information

• Carnatic music is a major system of Indian classical music that originated in the southern part of India.

• It is known for its fixed compositions and a high degree of improvisation within the structure of the raga (melodic framework) and tala (rhythmic cycles).

• The compositions are usually set to a specific raga and tala, and are performed with a high level of technical proficiency and emotional expression.

• Some of the most renowned composers in Carnatic music include Tyagaraja, Muthuswami Dikshitar, and Syama Sastri.

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Q82. Answer: (d) inflation

The correct answer is inflation

Key Points

• Price control and rationing are direct measures used by governments to manage and control inflation.

• Inflation refers to the general increase in prices and the fall in the purchasing value of money.

• Price control involves setting a maximum price level for essential goods to prevent them from becoming unaffordable during high inflation periods.

• Rationing ensures the equitable distribution of scarce resources by limiting the amount of goods each individual can purchase.

• These measures are typically used in situations where inflation is driven by supply shortages or excessive demand.

Additional Information

• Inflation control is crucial for maintaining economic stability and ensuring the affordability of goods and services.

• Other measures to control inflation include monetary policy adjustments, such as increasing interest rates, and fiscal policies like reducing government spending.

• Governments may also use subsidies and tax reductions to offset the impact of rising prices on consumers.

• Effective inflation management helps in sustaining economic growth and protecting the purchasing power of the currency.

• Long-term inflation control strategies involve improving production efficiency and increasing the supply of goods and services.

Q83. Answer: (c) Bhadla solar park

The correct answer is Bhadla solar park

Key Points

• Bhadla solar park is the biggest solar power plant in the world as of March 2020, with a total installed capacity of 2,245 MW.

• Located in Rajasthan, India, the park spreads across more than 14,000 acres in the Jodhpur district.

• The park has been developed in multiple phases by various developers, making it a significant contributor to India's renewable energy capacity.

• It plays a crucial role in India's efforts to increase the share of renewable energy in its total energy mix.

• The project has helped in reducing the carbon footprint and promoting sustainable development in the region.

Additional Information

• India has set an ambitious target to achieve 175 GW of renewable energy capacity by 2022, out of which 100 GW is expected to come from solar power.

• The National Solar Mission, launched in 2010, is a major initiative of the Indian government to promote solar energy.

• Besides Bhadla solar park, other significant solar projects in India include the Pavagada Solar Park in Karnataka and the Rewa Solar Park in Madhya Pradesh.

• The development of solar parks and large-scale solar projects has attracted substantial investments and technological advancements in the renewable energy sector.

• India's solar energy sector has witnessed rapid growth, positioning the country as a global leader in solar power generation.

Q84. Answer: (c) 18.19 crore

The correct answer is 18.19 crore

Key Points

• As per the Census-2011, the total absolute increase in population during the decade is 18.19 crore.

• The Census of India, conducted every ten years, is the most comprehensive source of demographic data in the country.

• The 2011 Census was the 15th National census since 1871 and the 7th after independence.

• It provides critical data that helps in planning and policy-making for the government.

• The census data is used to allocate resources, plan for infrastructure development, and implement social programs.

Additional Information

• The Census-2011 was conducted in two phases: the House Listing and Housing Census phase and the Population Enumeration phase.

• India's population as per the 2011 Census was approximately 1.21 billion.

• The Census-2011 also included data on literacy rates, sex ratio, urbanization, and more.

• The data from the census is essential for understanding demographic changes and trends over time.

• It helps in identifying areas that need more attention and resources for development and welfare programs.

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Q85. Answer: (c) Justice Sanjiv Khanna

The correct answer is Justice Sanjiv Khanna

Key Points

• Justice Sanjiv Khanna is the Executive Chairman of the National Legal Services Authority of India as of March 2024.

• The National Legal Services Authority (NALSA) was constituted under the Legal Services Authorities Act, 1987 to provide free legal services to the weaker sections of the society and to organize Lok Adalats for amicable settlement of disputes.

• The authority is responsible for laying down policies and principles for making legal services available under the provisions of the Act and to frame the most effective and economical schemes for the purpose.

• NALSA also disburses funds and grants to State Legal Services Authorities and NGOs for implementing legal aid schemes and programs.

Additional Information

• The Legal Services Authorities Act, 1987 was enacted to provide free and competent legal services to the weaker sections of the society to ensure that opportunities for securing justice are not denied to any citizen by reason of economic or other disabilities.

• The Executive Chairman of NALSA is usually a senior judge of the Supreme Court of India.

• The Chief Justice of India is the Patron-in-Chief of NALSA.

• NALSA also works towards spreading legal literacy and awareness among the masses.

Q86. Answer: (d) Jammu and Kashmir

The correct answer is Jammu and Kashmir

Key Points

• Khelo India Winter Games 2023 was held in Jammu and Kashmir.

• This event is part of the Khelo India initiative, aimed at promoting sports at the grassroots level in India.

• The games included various winter sports such as skiing, snowboarding, ice hockey, and more.

• The event saw participation from numerous athletes across different states, showcasing their talents in winter sports.

• Jammu and Kashmir has been a popular destination for winter sports, making it an ideal location for these games.

Additional Information

• The Khelo India program was launched by the Ministry of Youth Affairs and Sports to revive the sports culture in India at the grassroots level.

• It aims to build a strong framework for all sports played in our country and establish India as a great sporting nation.

• The initiative also focuses on the development of sports infrastructure, talent identification, and long-term athlete development.

• In addition to winter games, Khelo India encompasses a variety of sports disciplines, including traditional and indigenous games.

• The program also provides financial assistance to talented athletes for their training and development.

Q87. Answer: (a) File Tab → New

The correct answer is File Tab → New

Key Points

• To create a new MS Word document, you need to follow the steps: File Tab → New.

• This action opens a new blank document or allows you to select from various templates.

• The File Tab is located at the top-left corner of the MS Word interface.

• After clicking on the File Tab, a menu appears where you can select the New option to create a new document.

Additional Information

• In addition to creating a new document, the File Tab also provides options like Open, Save, Print, and more.

• The New option allows users to select from various pre-designed templates or start with a blank document.

• MS Word offers various templates such as resumes, letters, reports, and more to help users get started quickly.

• Using templates can save time and ensure that documents have a professional appearance.

Q88. Answer: (b) Seven

The correct answer is Seven

Key Points

• Seven Fundamental Rights were initially provided in the Constitution of India.

• These Fundamental Rights are enshrined in Part III of the Constitution, from Articles 12 to 35.

• They are considered essential for the protection of individual liberties and democratic principles in India.

• The original seven Fundamental Rights included the Right to Equality, Right to Freedom, Right against Exploitation, Right to Freedom of Religion, Cultural and Educational Rights, Right to Property, and Right to Constitutional Remedies.

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• The Right to Property was later removed from the list of Fundamental Rights by the 44th Amendment Act of 1978 and was made a constitutional legal right under Article 300A.

Additional Information

• The Constitution of India was adopted by the Constituent Assembly on 26th November 1949 and came into effect on 26th January 1950.

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

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

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

• Fundamental Rights are justiciable, meaning that individuals can approach the courts to seek enforcement of these rights.

• The Supreme Court and High Courts have the power to issue writs for the enforcement of Fundamental Rights.

• Fundamental Rights are subject to certain restrictions and can be suspended during a state of emergency, except the rights guaranteed under Articles 20 and 21.

Q89. Answer: (a) The average temperature for all months is below 10°C

The correct answer is The average temperature for all months is below 10ºC

Key Points

• The average temperature for all months is below 10ºC is the characteristic associated with 'Group E' in Koeppen's Scheme of classification of climate.

• Koeppen's classification is a widely used system for categorizing the world's climates based on the annual and monthly averages of temperature and precipitation.

• 'Group E' represents polar climates, which are characterized by extremely low temperatures throughout the year.

• These climates are typically found in the polar regions, including Antarctica and the Arctic.

• Due to the harsh conditions, these regions have very limited vegetation and are often covered in ice and snow.

Additional Information

• Koeppen's Scheme was developed by Wladimir Koeppen, a German climatologist, in the early 20th century.

• The classification system divides the world into five main climate groups: A (tropical), B (dry), C (temperate), D (continental), and E (polar).

• Each group is further divided based on specific criteria related to temperature and precipitation patterns.

• Koeppen's classification is still widely used in climatology, geography, and environmental studies due to its simplicity and effectiveness in describing climate zones.

Q90. Answer: (b) Dutt Committee

The correct answer is Dutt Committee

Key Points

• The Dutt Committee was associated with the Industrial Licensing Policy Inquiry.

• This committee was set up to examine the existing industrial licensing policy and suggest reforms to improve industrial growth and efficiency.

• The committee's recommendations played a significant role in shaping India's industrial policy.

Additional Information

• Industrial licensing in India was a mechanism to regulate the establishment and expansion of industries in the country.

• The licensing policy was initially introduced to ensure balanced regional development and to control monopolistic practices.

• Over time, the policy underwent several changes to liberalize the economy and promote private sector participation.

• The Dutt Committee's work was instrumental in identifying the challenges and opportunities in the industrial sector, leading to policy adjustments that facilitated economic growth.

Q91. Answer: (d) F = ma

The correct answer is F = ma

Key Points

• Option 4 correctly represents the relationship as per Newton's second law of motion, which states that Force (F) is the product of Mass (m) and Acceleration (a).

• The formula F = ma is fundamental in classical mechanics and is used to calculate the force applied to an object when its mass and acceleration are known.

• Understanding this relationship is crucial for solving many problems in physics and engineering related to motion and force.

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Additional Information

• Newton's second law of motion can be mathematically represented as F = ma, where:

• F is the force applied to the object.

• m is the mass of the object.

• a is the acceleration of the object.

• This law implies that the acceleration of an object is directly proportional to the net force acting on it and inversely proportional to its mass.

• It is a vector equation, meaning it considers both the magnitude and direction of the force and acceleration.

Q92. Answer: (d) Assam

The correct answer is Assam

Key Points

• Doljatra is a festival celebrated in the state of Assam.

• This festival is also known as Dol Purnima or Holi in other parts of India.

• It is celebrated on the full moon day in the month of Phalguna (February-March).

• The festival marks the arrival of spring and is celebrated with colors, music, and dance.

• It holds significant cultural and religious importance in Assam.

Additional Information

• Holi is celebrated across India, but it is known by different names in various regions.

• In West Bengal and Odisha, it is celebrated as Dol Jatra or Dola Purnima.

• During Doljatra, idols of Lord Krishna are placed on decorated palanquins and taken out in processions.

• People sing and dance to the tunes of traditional songs and throw colors at each other to celebrate the festival.

• The festival signifies the victory of good over evil and the arrival of spring.

Q93. Answer: (b) Calcutta

The correct answer is Calcutta

Key Points

• Raja Ram Mohan Roy formed a reform association called Brahmo Sabha in 1828.

• This association was formed at Calcutta (now Kolkata).

• The Brahmo Sabha played a crucial role in the socio-religious reform movements in India.

• It aimed at reforming the prevailing social customs and promoting values like rationalism and humanism.

Additional Information

• Raja Ram Mohan Roy is often called the "Father of the Indian Renaissance" for his efforts in transforming Indian society.

• He was a key figure in the abolition of the practice of Sati in India.

• His efforts also led to the founding of the Brahmo Samaj in 1830, an influential socio-religious reform movement.

• Raja Ram Mohan Roy advocated for the rights of women and promoted modern education.

Q94. Answer: (b) Bodofa Upendra Nath Brahma

The correct answer is Bodofa Upendra Nath Brahma

Key Points

• The Assam government observed the birthday of Bodofa Upendra Nath Brahma on 31 March 2023, as Students Day in the state.

• Bodofa Upendra Nath Brahma was a prominent Bodo leader and social activist.

• He played a significant role in advocating for the rights and development of the Bodo community in Assam.

• The observance of his birthday as Students Day aims to inspire and motivate students by commemorating his contributions and dedication to education and social upliftment.

Additional Information

• Upendra Nath Brahma is often referred to as "Bodofa," meaning "Father of the Bodos."

• He was born on 31 March 1956 and passed away on 1 May 1990.

• His efforts were instrumental in the Bodo community's struggle for recognition and rights within the state of Assam.

• The Assam government has taken various steps to honor his legacy, including the declaration of his birthday as Students Day.

• Educational institutions across Assam participate in events and activities to commemorate this day and promote the values he stood for.

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Q95. Answer: (a) Kalbelia

The correct answer is Kalbelia

Key Points

• Kalbelia dance is listed in the UNESCO List of Intangible Cultural Heritage of India since 2010.

• Kalbelia dance is associated with the Kalbelia tribe of Rajasthan, India, and is known for its graceful movements and traditional music.

• It is often referred to as the "snake charmer dance" due to its fluid and sinuous movements that resemble those of a serpent.

• The dance is performed by both men and women, with women wearing traditional black swirling skirts adorned with silver jewelry and embroidery.

• Musical accompaniment typically includes instruments like the 'pungi' (a woodwind instrument), 'dholak' (a two-headed hand drum), and 'khanjari' (a tambourine-like instrument).

• Kalbelia dance is an integral part of the cultural heritage of Rajasthan and reflects the nomadic lifestyle of the Kalbelia community.

Additional Information

• The UNESCO List of Intangible Cultural Heritage aims to ensure the better protection of important cultural practices and expressions around the world.

• India has several other elements inscribed on the list, including Yoga, Kumbh Mela, and the tradition of Vedic chanting.

• The inclusion of cultural elements in the UNESCO list helps in the preservation and promotion of these traditions, ensuring they are passed down to future generations.

• Efforts are made by various organizations and the government to support and sustain these cultural practices through various initiatives and programs.

Q96. Answer: (a) Handball

The correct answer is Handball

Key Points

• Handball is not played in mixed doubles format.

• Mixed doubles is a format where teams are made up of one male and one female player.

• Sports such as tennis, table tennis, and badminton have mixed doubles events.

• Handball, on the other hand, is typically played in single-gender teams or mixed teams, but not in a mixed doubles format.

Additional Information

• Tennis mixed doubles is played in major tournaments like Wimbledon, the US Open, etc.

• Table tennis mixed doubles is an event in the Olympics and World Championships.

• Badminton mixed doubles is also featured in the Olympics and other major international competitions.

• The concept of mixed doubles promotes gender inclusivity and teamwork in sports.

Q97. Answer: (a) Article 32

The correct answer is Article 32

Key Points

• Article 32 of the Constitution of India provides for the legal enforcement of the fundamental rights.

• It grants the right to individuals to approach the Supreme Court for the enforcement of these rights.

• This article is often referred to as the "heart and soul" of the Constitution by Dr. B.R. Ambedkar, one of the principal architects of the Constitution.

• Under Article 32, the Supreme Court has the power to issue writs, including habeas corpus, mandamus, prohibition, quo warranto, and certiorari, for the enforcement of fundamental rights.

• It ensures that the fundamental rights of individuals are protected and can be enforced through the judiciary.

Additional Information

• Fundamental rights are enshrined in Part III of the Constitution of India.

• These rights are considered essential for the overall development of individuals and are guaranteed against state actions.

• Article 32 is a crucial aspect of the Constitution as it provides a direct remedy for the violation of fundamental rights.

• Dr. B.R. Ambedkar emphasized the importance of Article 32, stating that without it, the Constitution would be a nullity.

• The Supreme Court of India, through its power under Article 32, acts as the protector and guarantor of fundamental rights.

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Q98. Answer: (a) Mizoram

The correct answer is Mizoram

Key Points

• Lal Thanhawla holds the record for the longest-serving Chief Minister of Mizoram, occupying the position for five terms.

• He served as the Chief Minister of Mizoram from 1984 to 1986, 1989 to 1998, and again from 2008 to 2018.

• During his tenure, he played a significant role in the development and political stability of Mizoram.

• Lal Thanhawla is a prominent leader of the Indian National Congress in Mizoram.

• His leadership has been instrumental in various peace negotiations and developmental projects in the state.

Additional Information

• Mizoram became the 23rd state of India on 20th February 1987.

• The state is known for its high literacy rate and vibrant cultural heritage.

• Lal Thanhawla was awarded the Padma Bhushan in 2015 for his contributions to public affairs.

• Mizoram shares borders with the states of Assam, Manipur, and Tripura, as well as with the neighboring countries of Bangladesh and Myanmar.

• The state is predominantly inhabited by various tribes who are ethnically distinct from the majority of the Indian population.

Q99. Answer: (a) end users

The correct answer is end users

Key Points

• End users are the primary beneficiaries of application software.

• Application software is designed to help end users perform specific tasks such as word processing, web browsing, and managing data.

• Other roles like programmers and team leaders may use application software, but the software is generally created with the needs of the end users in mind.

• Examples of application software include Microsoft Office, Adobe Photoshop, and Google Chrome, which are used by end users for various personal and professional activities.

Additional Information

• System software differs from application software in that it is designed to manage system resources and provide a platform for application software to run.

• Examples of system software include operating systems like Windows, macOS, and Linux.

• Application software is generally more user-friendly and accessible to non-technical users compared to system software.

• With the rise of cloud computing, many application software solutions are now available as Software as a Service (SaaS), which allows end users to access software applications over the internet.

Q100. Answer: (a) Muhammad Bin Tughlaq

The correct answer is Muhammad Bin Tughlaq

Key Points

• Muhammad Bin Tughlaq was the Sultan who shifted his capital from Delhi to Daulatabad.

• This decision was made during his reign in the early 14th century.

• The move was intended to help control the Deccan region more effectively and to protect the capital from Mongol invasions.

• However, the decision proved to be a failure due to logistical issues and the hardships it caused to the people.

• Eventually, the capital was moved back to Delhi.

Additional Information

• Muhammad Bin Tughlaq ruled from 1325 to 1351 and is known for his ambitious but often impractical projects.

• He was the second ruler of the Tughlaq dynasty.

• His reign is marked by several bold experiments in governance, including the introduction of token currency and tax reforms.

• Despite his intelligence and vision, many of his policies were considered ahead of their time and failed due to poor execution.

• His decision to shift the capital is often cited as a classic example of his ambitious but flawed administrative decisions.

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