SSC CHSL Tier-1 2024: Official Paper (Held On: 04 Jul, 2024 Shift 2) (Previous Year Paper)

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

Take this paper as a timed mock test

Practise under exam conditions, then review your answers after you submit.

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Scan the QR code or click the link to open it.

ENGLISH LANGUAGE

Q1. Select the grammatically correct sentence.

(a) Ragini plays the guitar with a melody.
(b) Ragini plays the guitar melodiously.
(c) Ragini plays the guitar with melodiousness.
(d) Ragini plays the guitar melodious.

Q2. The following sentence has been split into four segments. Identify the segment that contains an INCORRECT preposition.

I am writing to invite you / to give a presentation / for our Jobs and Careers Conference / for engineering graduates.

(a) I am writing to invite you
(b) for engineering graduates
(c) to give a presentation
(d) for our Jobs and Careers Conference

Q3. The following sentence has been divided into four parts. Identify the part that contains an error.

(A) I am hearing / (B) that the heat wave / (C) is going to be / (D) worse this year.

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

Q4. Select the option with the correct use of future tense.

(a) I hope your health is getting better by next week.
(b) I hope your health will get better by next week.
(c) I hope your health have been getting better by next week.
(d) I hope your health is get better by next week.

Directions

In the following passage, some words have been deleted. Read the passage carefully and select the most appropriate option to fill in each blank.

Once upon a time, there was a man (1)_____ used to tell the fortunes of people. One day, he was telling the fortune as usual when a man came to him and said, "Somebody (2)___ broken the door of your house and has stolen many valuables. Go home at once!" The fortune teller was (3)___ shocked to hear the news. He could not utter a word out of shock. He just ran to his house as fast as he could. He was in such a hurry that he left all his things behind. Now, one of his customers saw him rushing and (4)___, "Every day he (5)_____ the fortunes of so many people but today he could not see his own future!" The fortune teller felt very embarrassed.

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

(a) whom
(b) whose
(c) by whom
(d) who

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

(a) have
(b) has
(c) shall have
(d) had

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

(a) many
(b) quite
(c) so less
(d) so more

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

(a) comments
(b) commented
(c) comment
(d) commenting

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

(a) tell
(b) telling
(c) told
(d) tells

Q10. Select the most appropriate option that can substitute the underlined word in the following sentence.

His flight departs in 5:00 pm.

(a) from
(b) for
(c) at
(d) of

Q11. Select the most appropriate ANTONYM of the given word.

Resourceful

(a) Incompetent
(b) Immaculate
(c) Ingenious
(d) Impeccable

Q12. Fill in the blank using the correct collocation.

We need to _____ a decision on the housing project tomorrow morning.

(a) make
(b) frame
(c) build
(d) draw

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

There is also an increase in juvenile delinquency

(a) Minor
(b) Teenage

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(c) Puerile
(d) Adult

Q14. Identify the INCORRECTLY spelt word in the following sentence and select its correct spelling from the given options.

The boy found the project to be a peice of cake because it was incredibly easy.

(a) praject
(b) incrediblly
(c) piece
(d) foaund

Q15. Select the option that will most suitably substitute the underlined part of the given sentence.

I gave my best dress to her on condition that she return it the very next day in a clean condition.

(a) on the condition that she return
(b) on the conditions that she had return
(c) on the condition that she would return
(d) on condition that she returned

Q16. Select the most appropriate option that can substitute the underlined segment in the given sentence.

The boy watched a sci-fi movie in the lieu of playing in the game zone.

(a) in lieu off playing
(b) in lieu of play
(c) on lieu of playing
(d) in lieu of playing

Q17. Select the most appropriate synonym of the given word.

Lousy

(a) Pitiful
(b) Funny
(c) Moral
(d) Praiseworthy

Q18. Select the most appropriate synonym of the given word.

Peculiar

(a) Usual
(b) Strange
(c) Frequent
(d) Revolutionary

Q19. Select the most appropriate meaning of the underlined idiom.

Prakash could not make up his mind about what to do with the project.

(a) Decide
(b) Think
(c) Abandon
(d) Abide

Q20. Select the most appropriate option that can substitute the underlined segment in the given sentence.

The novel highlights the place of the endangered species in the rainforest.

(a) plight
(b) perspective
(c) position
(d) prowess

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Q21. Select the most appropriate ANTONYM of the given word.

Alluring

(a) Enticing
(b) Fascinating
(c) Repulsive
(d) Glamourous

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

Agile

(a) Active
(b) Energetic
(c) Sluggish
(d) Apathetic

Q23. Select the most appropriate option that can substitute the underlined part in the following sentence.

My entire family left me in the lurch when I went to them after I divorced my husband.

(a) attempted to harass me
(b) blamed only me for my failure
(c) refused to help me in my distress
(d) scorned me for committing mistakes

Q24. Select the most appropriate synonym that can replace the underlined word in the given sentence.

It did not take her very long to ascend to power.

(a) arise
(b) grab
(c) reach
(d) climb

Q25. Select the INCORRECTLY spelt word in the given sentence.

The west Africans have a heritage of produsing sculpture using wax and bronze.

(a) Bronze
(b) Produsing
(c) Heritage
(d) Sculpture

GENERAL INTELLIGENCE

Q26. If 23 January 2002 was Wednesday, then what was the day of the week on 26 January 2007?

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

Q27. Which letter-cluster will replace the question mark (?) to complete the given series?

UTHS, VRKO, ?, XNQG, YLTC

(a) WPMN
(b) TONK
(c) WONJ
(d) WPNK

Q28. 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/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.)

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(3, 12, 26)

(7, 9, 53)

(a) (4, 9, 16)
(b) (12, 4, 114)
(c) (7, 5, 25)
(d) (5, 15, 45)

Q29. 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 space is wind.

Some wind is earth.

Some fire is earth.

Conclusion (I) : All earth is space.

Conclusion (II) : Some wind is fire.

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

Q30. 11 is related to 121 by certain logic. Following the same logic, 21 is related to 441. To which of the following is 31 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) 428
(b) 960
(c) 356
(d) 961

Q31. If 26 November 2013 was Tuesday, then what was the day of the week on 29 November 2018?

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

Q32. Which of the following numbers will replace the question mark (?) in the given series?

93 111 139 157 185 203 ?

(a) 211
(b) 215
(c) 231
(d) 227

Q33. Select the pair which follows the same pattern as that followed by the two set of pairs given below. Both pairs follow the same pattern.

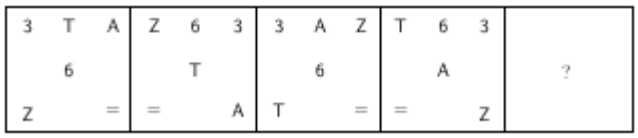
FJK : KOP

MQR : RVW

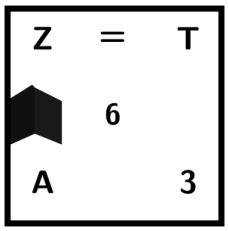
(a) GMN : FLM
(b) JMP : ORU
(c) ADE : ZWV
(d) PRS : SRP

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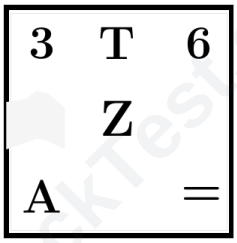
Q34. Which figure should replace the question mark (?) if the following figure series were to be continued?



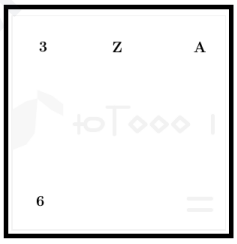
(a)



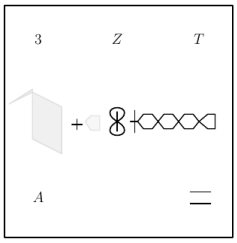
(b)



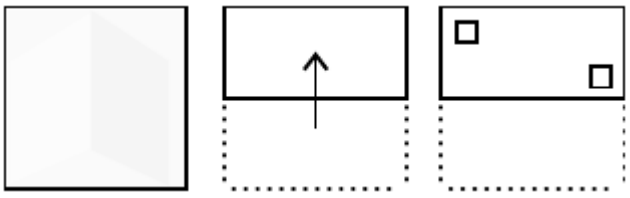
(c)



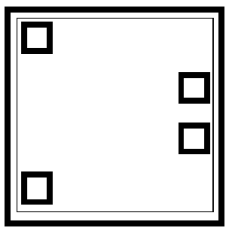
(d)



Q35. A paper is folded and cut as shown below. How will it appear when unfolded?



(a)

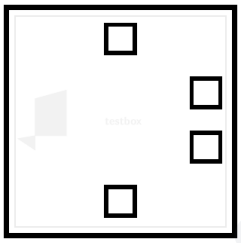


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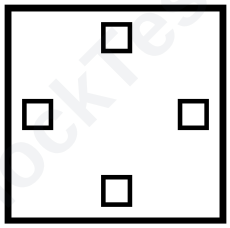
(b)



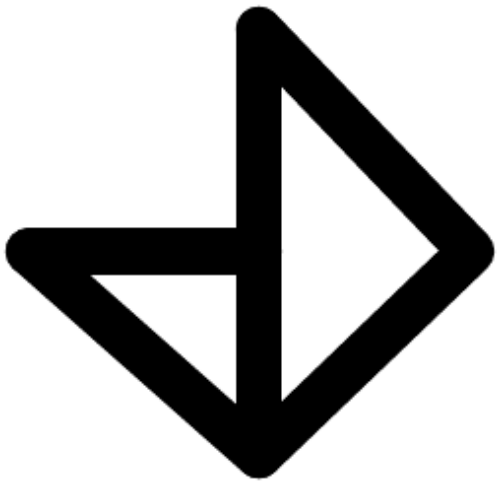
(c)



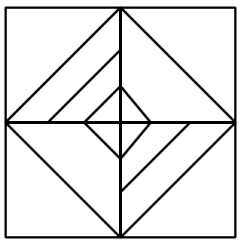
(d)



Q36. Select the option figure in which the given figure is embedded as its part (rotation is NOT allowed).

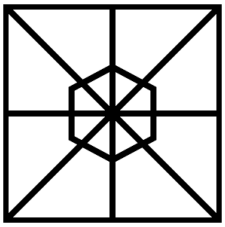


(a)

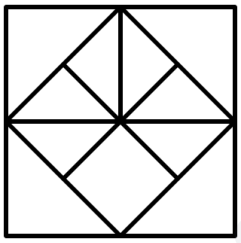


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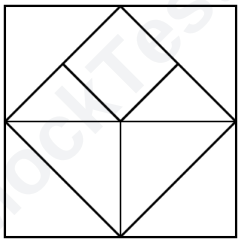
(b)



(c)



(d)



Q37. What should come in place of the question mark (?) in the given series based on the English alphabetical order?

MKH, PNK, SQN, VTQ,?

(a) WYT
(b) WTY
(c) YTW
(d) YWT

Q38. If ‘E’ stands for ‘÷’, ‘U’ stands for ‘×’, ‘A’ stands for ‘+’ and ‘C’ stands for ‘-’, what will come in place of the question mark (?) in the following equation?

16 A 24 C 30 E 15 U 9 = ?

(a) 78
(b) 22
(c) 32
(d) 66

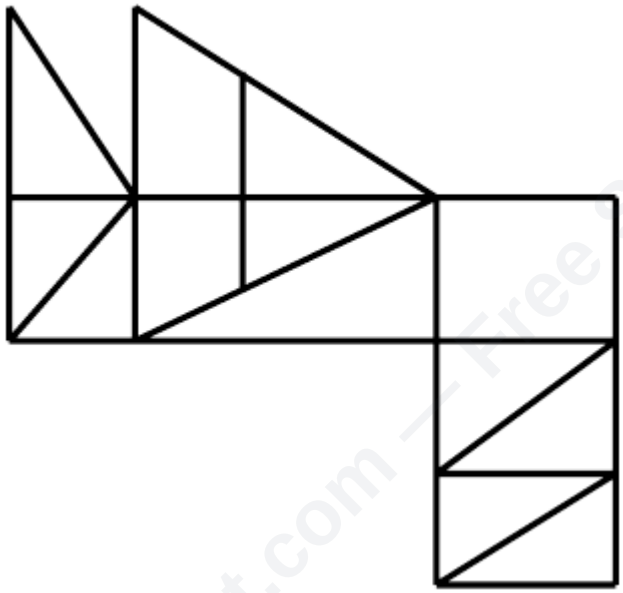
Q39. If 'A' stands for '÷', 'B' stands for '×', 'C' stands for '+' and 'D' stands for '-', what will come in place of the question mark (?) in the following equation?

16 B 8 D 51 A 3 C 57 = ?

(a) 168
(b) 188
(c) 128
(d) 148

Q40. How many triangles are there in the given figure?

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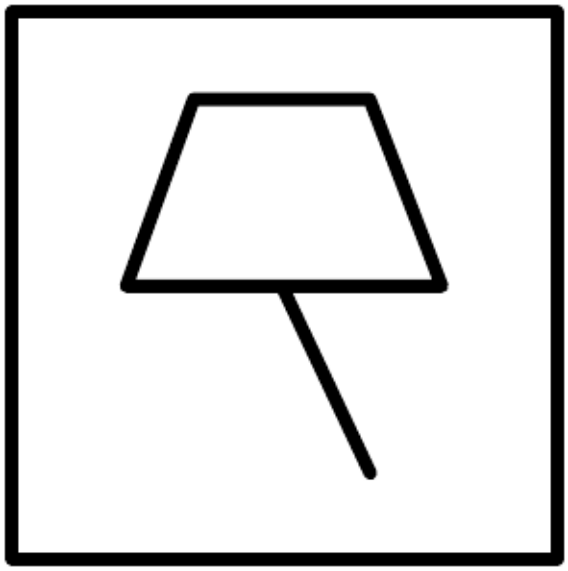
(a) 16
(b) 9
(c) 12
(d) 14

Q41. What should come in place of the question mark (?) in the given series?

77, 88, 101, 116, ?

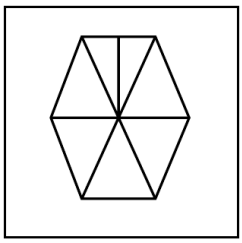
(a) 131
(b) 313
(c) 331
(d) 133

Q42. Select the option in which the given figure is embedded (rotation is not allowed).

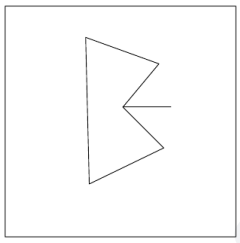


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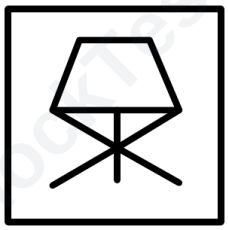
(a)



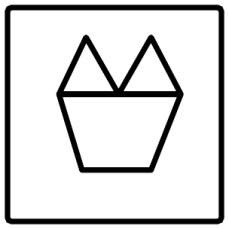
(b)



(c)



(d)



Q43. Three of the following four are alike in a certain way and thus form a group. Which is the one that does NOT belong to that group?

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

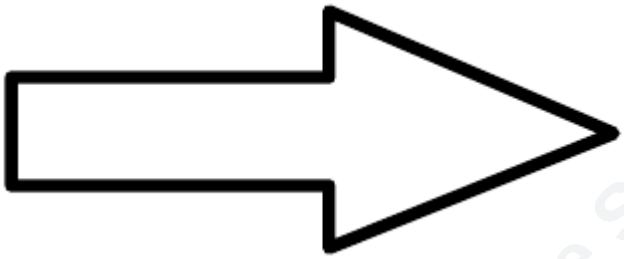
(a) BEH
(b) RUX
(c) KMP
(d) NQT

Q44. In a certain code language, 'hands are dirty' is written as 'ca bx vp' and 'dirty things flies' is written as 'by vp cb'. How is 'dirty' written in the given language?

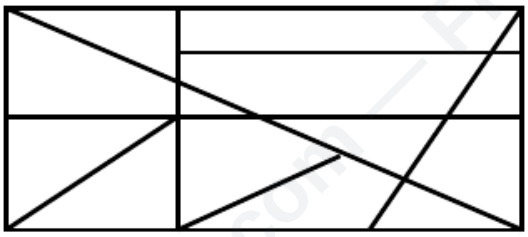
(a) bx
(b) by
(c) vp
(d) cb

Q45. Select the option in which the given figure is embedded. (Rotation is NOT allowed).

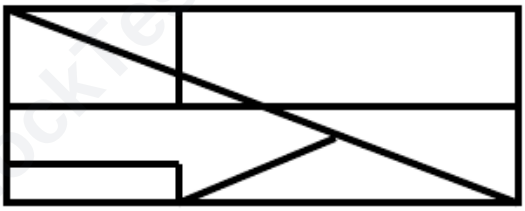
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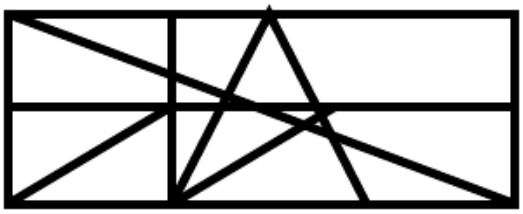
(a)



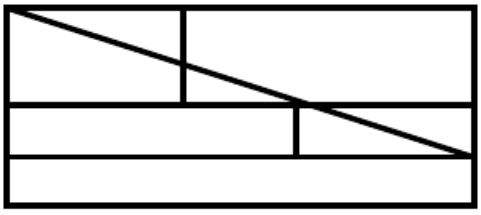
(b)



(c)



(d)



Q46. In a certain code language

A + B means ‘A is the mother of B’

A – B means ‘A is the sister of B’

A × B means ‘A is the wife of B’

A ÷ B means ‘A is the son of B’

Based on the above, how is Z related to W if ‘Z × Y ÷ X − V + W’?

(a) Mother’s brother’s son’s wife

(b) Mother’s sister’s daughter

(c) Mother’s sister’s son’s wife

(d) Mother’s sister’s son’s daughter

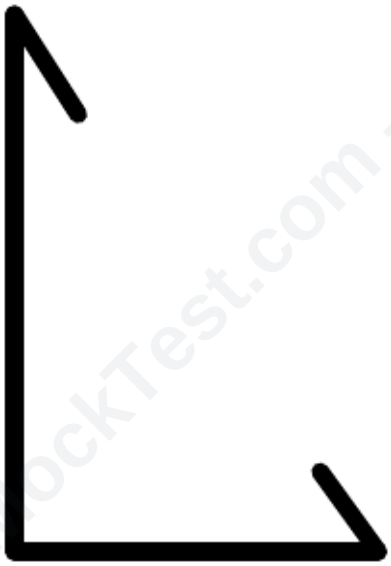
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Q47. What should come in place of the question mark (?) in the given series?

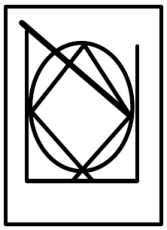
77, 79, 83, 89, 97, ?

(a) 106
(b) 105
(c) 108
(d) 107

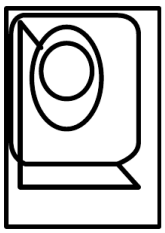
Q48. Select the option figure in which the given figure is embedded as its part (rotation is NOT allowed).



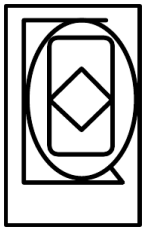
(a)



(b)

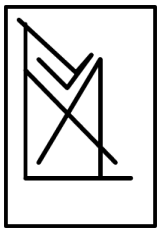


(c)



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(d)



Q49. Which two numbers should be interchanged to make the given equation correct?

17 × 7 + (21 ÷ 3) × 5 – 28 + 34 = 72

(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) 21 and 28
(b) 7 and 3
(c) 5 and 7
(d) 17 and 28

Q50. AQLZ is related to SIDR in a certain way based on the English alphabetical order. In the same way, CPDV is related to UHVN. To which of the following is EBRY related, following the same logic?

(a) WTJQ
(b) WTQJ
(c) WQJT
(d) WQTJ

QUANTITATIVE APTITUDE

Q51. Last year, Ranjan's monthly salary was Rs. 34,500 and this year his monthly salary is Rs. 38,640. What is the percentage increase in Ranjan's monthly salary this year over his monthly salary last year?

(a) 13%
(b) 15%
(c) 12%
(d) 20%

Q52. Kamlesh offers the following two discount schemes to his customers on the sale of an article: (i) Two successive discounts of 25% and 5% (ii) Two successive discounts of 20% and 10% What is the difference between the selling price (in Rs.) of the article under these two discount schemes if its marked price is Rs. 1,000?

(a) 7.0
(b) 7.5
(c) 8.0
(d) 6.5

Q53. Study the given table and select the most appropriate option to fill in the blanks.

Consider the data of sales of products, A, B and C, by three companies, X, Y and Z, in the table given below.

Product → Company ↓	A	B	C
X	2750	3250	2250
Y	2500	3000	1750
Z	3500	3150	2400

The highest average sale per company is for the product _____ and the lowest average sale per product is for the company _____.

(a) B; Y
(b) B; Z

(c) A; Y
(d) A; X

Q54. Find the fourth proportional to 2, 6, 8.

(a) 24
(b) 12
(c) 36
(d) 48

Q55. Arun and Bhaskar run a race of 3 km. First, Arun gives Bhaskar a head start of 400 m and beats him by 30 seconds. While coming back, Arun gives Bhaskar a lead of 2.5 minutes and gets beaten by 500 m. What is the difference between the times in minutes in which Arun and Bhaskar can run the race for one side separately?

(a) 1.5 min
(b) 2.5 min
(c) 3 min
(d) 2 min

Q56. 10 years ago, a man's age was 5 times of his son's age. 2 years hence, twice his age will be equal to 4 times the age of his son. What is the present age (in years) of the son?

(a) 16
(b) 14
(c) 18
(d) 20

Q57. Find the area of a rhombus whose diagonals are of lengths 10 cm and 8.2 cm.

(a) 40 cm^2
(b) 41 cm2
(c) 43 cm2
(d) 42 cm2

Q58. In ΔABC, P and Q are the middle points of the sides AB and AC, respectively. R is a point on the segment PQ such that PR : RQ = 1 : 5. If PR = 6 cm, then BC = _____.

(a) 70 cm
(b) 68 cm
(c) 72 cm
(d) 66 cm

Q59. In a college, the average weight of 40 boys in a section among 72 students is 33 kg and that of the remaining students is 15 kg. What is the average weight of all the students in the section?

(a) 25 kg
(b) 18 kg
(c) 22 kg
(d) 24 kg

Q60. The centers of two circles of radii 25 cm and 35 cm are 80 cm apart. What is the ratio of the lengths of the transverse common tangent to the direct common tangent to these circles?

(a) 2 : √7
(b) √7 : 3
(c) 3√7 : 2
(d) 2 : 3

Q61. A can complete a piece of work in 20 days and B can complete the same work in 10 days. With the help of C, working together they completed the work in 5 days. The number of days in which C alone can complete the work is:

(a) 25
(b) 10
(c) 15

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(d) 20

Q62. The radius of a sphere is increased by 25%. What is the increase per cent in surface area?

(a) 15.55%
(b) 56.25%
(c) 25.25%
(d) 36.45%

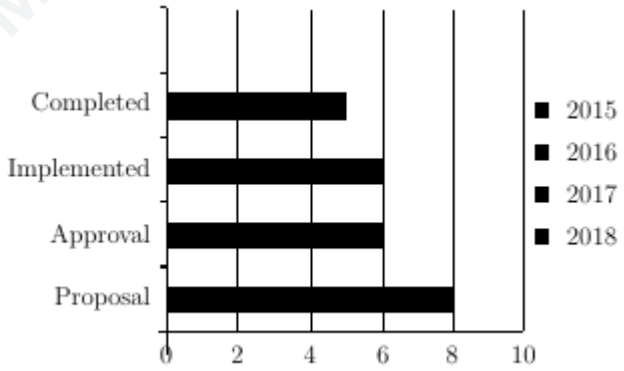
Q63. In right triangle ABC with right angle at C, M is the mid-point of hypotenuse AB. C is joined to M and produced to a point D, such that DM = CM. Point D is joined to B. If CD = 10 cm, and BD = 6 cm, find the value of CM.

(a) 9.5 cm
(b) 5 cm
(c) 11.4 cm
(d) 8 cm

Q64. A company sells goods at a markup of 25% above the cost price. During a sale, the company offers a 10% discount on the marked price. If the customer pays Rs. 540 after the discount, then what was the original cost price of the goods?

(a) Rs. 470
(b) Rs. 480
(c) Rs. 460
(d) Rs. 450

Q65.



A company starts constructing buildings for a college. The constructions have 4 stages.

1. buildings proposals
2. proposals approval
3. constructions implemented
4. buildings completed

The above 3D-bar graph indicates the status of constructions for 4 years 2015 to 2018.

The X-axis scale 0, 2, 4, 6, 8, 10 indicates 0, 20%, 40%, 60%, 80%, 100%.

Study the bar graph carefully and answer the following question.

Find the total percentage of buildings completed during the total period, 2015 to 2018.

(a) 30%
(b) 60%
(c) 50%
(d) 40%

Q66. If two numbers are each divided by the same divisor, then the remainders are 6 and 7, respectively. If the sum of the two numbers be divided by the same divisor, then the remainder is 5. The divisor is:

(a) 13
(b) 8
(c) 6

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(d) 4

Q67. The cost of rice is increased by 25% but its consumption is decreased by 30%. Find the percentage increase or decrease in the expenditure of money.

(a) Decrease 12(1/2)%
(b) Decrease 13(1/3)%
(c) Increase 12(1/2)%
(d) Increase 13(1/3)%

Q68. What is the value of 1/(sin ^4(90° - 2α)) + 1/(cos²(90° - 2α) - 1) ?

(a) sin²2α + tan² 2 α
(b) sec2 2α + cot2 2 α
(c) cos2 2α cot2 2 α
(d) sec2 2α tan2 2 α

Q69. The measures of the three angles of a triangle are such that the smallest angle measures 42º less than the greatest angle, while the measure of the remaining angle is 24º more than the measure of the smallest angle. Find the measure of the smallest angle of the triangle.

(a) 40º
(b) 42º
(c) 36º
(d) 38º

Q70. Rahul spends 70% of his income. His income increased by 15% and his expenditure increased by 7.5%. What is the percentage increase in his savings?

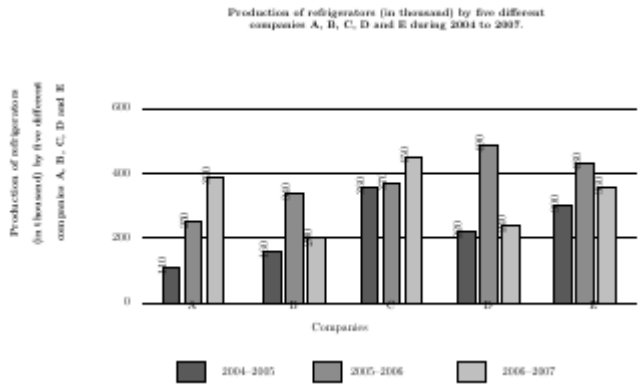
(a) 25.5%
(b) 30.5%
(c) 50%
(d) 32.5%

Q71. The value of 10 + 33/5 ÷ [22/3 ÷ {71/6 - (21/2 + 2/3)}] is equal to :

(a) 77/5
(b) 55/27
(c) 5/77
(d) 27/55

Q72. Study the given bar-graph and answer the question that follows.

The bar-graph shows the production of refrigerators (in thousand) by five different companies A, B, C, D and E during 2004 to 2007.



What is the ratio of the average production of the refrigerators by companies A, B and E taken together for the year 2004-2005 to the average production of the refrigerators by companies C and D taken together for the year 2005-2006?

(a) 19 : 41
(b) 19 : 43
(c) 41 : 19

(d) 43 : 19

Q73. The given table shows the number of candidates who have appeared, qualified and been selected in an examination from two states A and B over the years 2001 to 2005.

YEAR	State A	State B				
Applied	Qualified	Selected	Applied	Qualified	Selected	
2001	8000	850	94	8200	680	85
2002	4800	500	48	6800	600	70
2003	7500	640	82	6500	525	65
2004	9500	850	90	7800	720	84
2005	9000	800	70	5700	485	60

In the year 2001, the percentage of candidates who were selected over the candidates who applied in State A is:

(a) 1.185%
(b) 1.175%
(c) 1.155%
(d) 1.165%

Q74. What is the curved surface area of cylinder whose radius is 3cm and height is 14cm? (Take π = (22/7))

(a) 262 cm^2
(b) 261 cm2
(c) 264 cm2
(d) 263 cm2

Q75. How much time (in years) will it take for an amount of Rs. 4,50,000 to yield Rs. 45,000 as simple interest at a 5% per annum rate of interest?

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

GENERAL AWARENESS

Q76. The 9^(th) Men's ICC T20 World Cup Cricket 2024 will be hosted by which of the following countries?

(a) India and Sri Lanka
(b) West Indies and USA
(c) India and Bangladesh
(d) Canada and USA

Q77. In whose ashram did the Beatles compose rock music in 1968 influenced by classical music?

(a) Maharshi Aurobindo Ashram
(b) Pandit Ravishankar Ashram
(c) Maharshi Mahesh Yogi Ashram
(d) Osho Rajnish Ashram

Q78. Which classical dance was introduced by the great Vaishnava saint and reformer of Assam?

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

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Q79. Dussehra festival is celebrated in which of the following Hindu months?

(a) Chaitra
(b) Ashwin
(c) Ashadha
(d) Vaisakha

Q80. Which country's national game is Chinlone (Caneball)?

(a) Afghanistan
(b) Myanmar
(c) China
(d) Bhutan

Q81. What does SAARC stand for?

(a) South Asian Association of Regional Climate change
(b) South Asian Association of Regional Corporation
(c) South Asian Association of Regional Cartography
(d) South Asian Association for Regional Cooperation

Q82. In which state is the Nanda Devi Biosphere Reserve located?

(a) Himachal Pradesh
(b) Assam
(c) Uttarakhand
(d) Odisha

Q83. Which type of system did the leaders of independent India decide to adopt?

(a) A system that would promote the welfare of all rather than a few
(b) A system that would promote the welfare of the government
(c) A system that would promote the welfare of private enterprises
(d) A system that would promote the welfare of few rather than all

Q84. In February 2023, PARAKH became the First National Assessment Regulator. What does R stand for in PARAKH?

(a) Related
(b) Report
(c) Recall
(d) Review

Q85. Parkash Singh Badal passed away in April 2023. He served as Chief Minister of _____ for five times.

(a) Haryana
(b) Himachal Pradesh
(c) Punjab
(d) Bihar

Q86. What is the standard weight of hammer for women in the hammer throw event?

(a) 4 kg
(b) 5 kg
(c) 6 kg
(d) 8 kg

Q87. The Atal Tunnel has been built by Border Road Organisation at an altitude of 3000 metres. Which places are connected by this tunnel?

(a) Shimla to Ladakh
(b) Manali to Shimla
(c) Shimla to Srinagar
(d) Manali to Lahaul-Spiti

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Q88. In which of the following years did the Constitution (One Hundredth Amendment) Act come into force?

(a) 2001
(b) 2015
(c) 2009
(d) 2020

Q89. In which year did Wilhelm Johannsen coin the term ‘gene’ to describe the Mendelian units of heredity?

(a) 1920
(b) 1910
(c) 1900
(d) 1909

Q90. Which Act was enacted by the British which regulated the manufacture, sale, possession and transport of firearms?

(a) The Firearms Act, 1871
(b) The Arm Rules, 1839
(c) Indian Arms Act, 1878
(d) The Arms Act,1857

Q91. Brihadiswara Temple of Tanjore was built by which of the following Chola emperors?

(a) Rajendra I
(b) Raja Raja Chola
(c) Chamunda Raya
(d) Vijayalaya

Q92. Which was the first programmable general purpose computer in the world?

(a) ENIAC
(b) Napier's bones
(c) Pascaline
(d) Mark I

Q93. How many fundamental duties were recommended to be inserted in the Indian Constitution by the Swarna Singh Committee?

(a) 9
(b) 8
(c) 7
(d) 6

Q94. On 12 September 2002, ISRO launched the Kalpana-1 satellite using the Polar Satellite Launch Vehicle. What is the application of this satellite?

(a) Planetary observation
(b) Disaster management system
(c) Earth observation
(d) Climate & environment communication

Q95. What is the primary aim of Regional Rural Banks in India?

(a) Development of metropolitan economy
(b) Development of rural economy
(c) Development of urban economy
(d) Development of semi-urban economy

Q96. India hosted Men’s Hockey World Cup in 2023 at:

(a) Patna and Gaya
(b) Amritsar and Bathinda
(c) Nashik and Nagpur
(d) Bhubaneswar and Rourkela

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Q97. Which feature in MS Word allows you to see a document's layout and formatting as it will appear when printed?

(a) Print Preview
(b) Reading View
(c) Screen View
(d) Draft View

Q98. In classical Carnatic music, tempo is called as _____.

(a) padam
(b) laya
(c) gita
(d) achala

Q99. Electrochemical cell is a device which converts chemical energy into electrical energy in a/an _____.

(a) direct redox reaction
(b) indirect redox reaction
(c) oxidation reaction
(d) reduction reaction

Q100. Which of the following writs in Latin means ‘we command’?

(a) Prohibition
(b) Quo-warranto
(c) Habeas corpus
(d) Mandamus

ANSWER KEY

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

SOLUTIONS

Q1. Answer: (b) Ragini plays the guitar melodiously.

The correct answer is Option 2)

Key Points

• The word 'melodiously' is the correct adverb to describe how Ragini plays the guitar.
• Adjectives describe nouns, while adverbs describe verbs, adjectives, or other adverbs.
• Example: "She sings beautifully." ('beautifully' is an adverb describing the verb 'sings')
• Using the correct form of words ensures clarity and precision in communication.
• Example: "He is a quick runner." ('quick' is an adjective describing the noun 'runner')
• "He runs quickly." ('quickly' is an adverb describing the verb 'runs')

Hence, the correct statement is "Ragini plays the guitar melodiously."

Additional Information

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• Other options either use incorrect forms or do not make grammatical sense:
• Option 1: "with a melody" is not how we typically describe playing an instrument.
• Option 3: "with melodiousness" is awkward and uncommon.
• Option 4: "melodious" is an adjective, not an adverb.

Q2. Answer: (d) for our Jobs and Careers Conference

The correct answer is Option 4)

Key Points

• In the given sentence, the preposition 'for' used in 'for our Jobs and Careers Conference' is incorrect.
• The correct preposition should be 'at' or 'during'.
• The corrected sentence should be: 'I am writing to invite you to give a presentation at our Jobs and Careers Conference for engineering graduates.'

Hence, the correct statement is: I am writing to invite you to give a presentation at our Jobs and Careers Conference for engineering graduates.

Additional Information

• The prepositions 'at' and 'during' are commonly used to refer to events or periods of time.
• Example: He spoke at the annual meeting.
• Example: She will be presenting during the conference.

Q3. Answer: (c) A

The correct answer is Option 3)

Key Points

• In the first part of the given sentence, the phrase 'I am hearing' is incorrect.
• In English, the verb 'hear' is stative and is not used in the continuous form.
• Instead of 'I am hearing', we should use 'I hear' to indicate perception through the sense of hearing.
• Example: I hear that the meeting is postponed.
• Therefore, the correct phrase should be 'I hear'.

Hence, the correct statement is: I hear that the heat wave is going to be worse this year.

Additional Information

• Stative verbs describe a state rather than an action and are generally not used in the continuous form.
• Example: I believe in fair play.
• Common stative verbs include: believe, know, understand, belong, contain, consist, love, hate, etc.
• Example: I understand your concerns.

Q4. Answer: (b) I hope your health will get better by next week.

The correct answer is Option 2)

Key Points

• Future Tense: The phrase "will get better" correctly uses the future tense to describe an improvement in health that is expected to happen by next week.
• Verb Agreement: The future tense is formed by using "will" before the base form of the verb, which in this case is "get."
• Clarity of Intention: Using "will" shows a clear intention or expectation of future improvement, which aligns with the meaning of the sentence.
• Context Appropriateness: The context of the sentence is about something expected to happen in the future, making "will get better" the most appropriate choice.
• Hope and Expectation: The phrase "I hope" sets the expectation, and "will get better" fits logically as it refers to a future event that is hoped for.
• Common Usage: This construction is commonly used in English to express hope for future improvements or changes.

Therefore, the correct answer is Option 2)

Additional Information

• Option 1: Uses present continuous tense "is getting," which is incorrect for a future expectation.
• Option 3: Incorrect usage of "have been getting," which is present perfect continuous tense, not appropriate for future hope.
• Option 4: Incorrect grammar as "is get" doesn't form a valid verb phrase.

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Q5. Answer: (d) who

The correct answer is Option 4)

Key Points

• The word "who" is a subject pronoun used to refer to people, fitting correctly in the context of the sentence.

• "Who" introduces a relative clause providing additional information about the man, i.e., what he used to do.

• Using "who" effectively connects the man with his action (telling fortunes), maintaining the sentence's grammatical structure.

• The sentence remains clear and understandable, preserving a smooth flow when "who" is used.

• "Who" is consistently employed in English to add information about a known person, ensuring proper syntax.

• According to standard English grammar rules, "who" is the appropriate relative pronoun to use after a noun referring to a person.

Therefore, the correct answer is Option 4.

Additional Information

• Option 1 (whom): "Whom" is used as an object pronoun, not as a subject pronoun, thus incorrect for the sentence.

• Option 2 (whose): "Whose" is a possessive pronoun, which would imply ownership, not suitable here.

• Option 3 (by whom): "By whom" changes the sentence to a passive construction, making it awkward and incorrect.

Q6. Answer: (b) has

The correct answer is Option 2)

Key Points

• "Has" is the correct form of the verb to use here, aligning with the present perfect tense of the sentence structure.

• The present perfect tense ("has broken") indicates an action that occurred at an unspecified time before now.

• In this context, the present perfect tense is used to describe an action (breaking the door) that has a present relevance (the valuables are stolen).

• Using "has" ensures subject-verb agreement, as "somebody" is singular and requires a singular verb form.

• "Has broken" is a commonly used, grammatically correct phrase that fits well in conversational and narrative contexts.

• Maintaining the correct verb tense is crucial for the coherence and readability of the passage.

Therefore, the correct answer is Option 2.

Additional Information

• Option 1 (have): "Have" is a plural verb form, unsuitable for the singular subject "somebody."

• Option 3 (shall have): "Shall have" is future perfect tense, inappropriate for the context of the story.

• Option 4 (had): "Had" is past perfect tense, which is not suitable here since the action is relevant to the present.

Q7. Answer: (b) quite

The correct answer is Option 2)

Key Points

• "Quite" is used here to emphasize the extent of the fortune teller's shock.

• The adverb "quite" enhances the intensity of the adjective "shocked," making the expression stronger.

• The usage of "quite shocked" is a common, grammatically correct phrase in English.

• "Quite" fits the context well, describing the emotional reaction of the fortune teller adequately.

• Other options do not fit grammatically or contextually in the given sentence.

Therefore, the correct answer is 'Option 2.'

Additional Information

• Option 1 (many): "Many" is used to describe a large number of countable items and does not fit the context of describing the level of shock.

• Option 3 (so less): "So less" is grammatically incorrect; "less" is used with uncountable nouns and does not fit the instance of measuring shock.

• Option 4 (so more): "So more" is also grammatically incorrect and does not make sense in the given context.

Q8. Answer: (b) commented

The correct answer is Option 2)

Key Points

• The verb "commented" is in the past tense, which matches the narrative tense of the passage.

• Using the past tense "commented" ensures that the sentence remains consistent with the past narrative of the story.

• The word "commented" correctly introduces the direct speech that follows ("Every day he...").

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• This choice provides a smooth transition from the description of events to the customer's remark.
• In narrative writing, reported speech or actions typically use the past tense to maintain a coherent timeline.

Therefore, the correct answer is 'Option 2.'

Additional Information

• Option 1 (comments): "Comments" is in the present tense and does not match the past tense narrative.
• Option 3 (comment): "Comment" is the base form of the verb and is not appropriate for this context.
• Option 4 (commenting): "Commenting" is the present participle and does not fit the structure of the sentence.

Q9. Answer: (d) tells

The correct answer is Option 4)

Key Points

• The verb "tells" is in the present tense, matching the habitual action described in the passage.
• A present tense verb is appropriate here to denote a routine or habitual action ("tells the fortunes of so many people").
• The use of "tells" emphasizes the regularity of the fortune teller's actions, contrasting with his inability to foresee his own crisis.
• In the customer's comment, "Every day he tells..." correctly parallels the habitual nature of the fortune teller's work.
• This choice maintains consistency with the narrative and logical flow of the passage.

Therefore, the correct answer is Option 4.

Additional Information

• Option 1 (tell): "Tell" is the base form of the verb and does not fit the structure of the sentence.
• Option 2 (telling): "Telling" is a present participle and does not make sense in the context of a habitual action.
• Option 3 (told): "Told" is in the past tense and does not match the present habitual action described.

Q10. Answer: (c) at

The correct answer is Option 3)

Key Points

• In the given sentence, the preposition 'in' is incorrect.
• The correct preposition to use with time expressions such as 5:00 pm is 'at'.
• Therefore, the correct preposition that should be used in place of 'in' is 'at'.

Hence, the correct sentence is: His flight departs at 5:00 pm.

Additional Information

• Prepositions are important in indicating time, place, and direction. The preposition 'at' is used for specific times of the day.
• Example: The meeting starts at 3:00 pm.
• The preposition 'in' is used for longer periods, such as months, years, and parts of the day.
• Example: She was born in July.
• The preposition 'on' is used for specific days and dates.
• Example: The event is on Monday.

Q11. Answer: (a) Incompetent

The solution is in Hindi. Read it online.

Q12. Answer: (a) make

The correct answer is Option 1)

Key Points

• Common Collocation: The phrase "make a decision" is a common collocation in English. A collocation is a pair or group of words that are often used together.
• Standard Usage: "Make a decision" is widely recognized as the standard phrase used when describing the act of deciding something.
• Clarity and Understanding: Using "make" in this context ensures that the sentence is clear and easily understood by native English speakers.
• Context Suitability: The act of deciding upon a project requires a definitive action, which is best encapsulated by the verb "make."
• Decision-Making Process: The verb "make" pairs naturally with "decision" to describe the process of coming to a conclusion or judgment.
• Formality and Appropriateness: In both formal and informal contexts, "make a decision" is the most appropriate and conventional choice.

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Therefore, the correct answer is Option 1)

Additional Information

• Option 2: "Frame" is not commonly used with "decision"; it's more appropriate for constructing sentences or policies.

• Option 3: "Build" is used for physical construction, not for decisions.

• Option 4: "Draw" is typically used with conclusions, not decisions.

Q13. Answer: (d) Adult

The solution is in Hindi. Read it online.

Q14. Answer: (c) piece

The solution is in Hindi. Read it online.

Q15. Answer: (c) on the condition that she would return

The solution is in Hindi. Read it online.

Q16. Answer: (d) in lieu of playing

The solution is in Hindi. Read it online.

Q17. Answer: (a) Pitiful

The solution is in Hindi. Read it online.

Q18. Answer: (b) Strange

The solution is in Hindi. Read it online.

Q19. Answer: (a) Decide

The solution is in Hindi. Read it online.

Q20. Answer: (a) plight

The solution is in Hindi. Read it online.

Q21. Answer: (c) Repulsive

The solution is in Hindi. Read it online.

Q22. Answer: (c) Sluggish

The solution is in Hindi. Read it online.

Q23. Answer: (c) refused to help me in my distress

The solution is in Hindi. Read it online.

Q24. Answer: (d) climb

The solution is in Hindi. Read it online.

Q25. Answer: (b) Produsing

The solution is in Hindi. Read it online.

Q26. Answer: (a) Friday

Given: 23 January 2002 was Wednesday.

Now,

2002 to 2007 = 5 Years (4 Ordinary Years and 1 Leap Year).

And, In 5 Years = 1 Leap Year and 4 Ordinary Years.

So, 1 Leap Year has 2 odd days,

And, 4 Ordinary Years have 4 odd days.

Total odd days = 2 + 4 = 6.

then, 23 January 2007 will be Wednesday + 6 = Tuesday.

Now, the number of days between 23 January 2007 to 26 January 2007

= 3 days.

= 3 days → 3/7 = 0 weeks and 3 odd days.

So, 26 January 2007 will be Tuesday + 3 = Friday.

Hence, the correct answer is "Option 1".

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Q27. Answer: (d) WPNK

Logic:

First and third letters → (1) and (3) are added to the position values according to the English alphabetic series respectively.

Second and fourth letters → (2) and (4) are subtracted from the position values according to the English alphabetic series respectively.

So,

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

Q28. Answer: (c) (7, 5, 25)

The logic followed here is:

Logic: (1st number × 2nd number) - 10 = 3rd number.

Now,

For, (3, 12, 26)

=> (3 × 12) - 10

= 36 - 10 = 26.

For, (7, 9, 53)

=> (7 × 9) - 10

= 63 - 10 = 53.

Similarly, for (7, 5, 25)

=> (7 × 5) - 10

= 35 - 10 = 25.

Hence, the correct answer is "Option 3".

Q29. Answer: (b) Neither conclusion (I) nor (II) follows.

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

Conclusions:

I. All earth is space → Does not follow (As all space is wind and some wind is earth. So, it is possible but not definitely true)

II. Some wind is fire → Does not follow (As some wind is earth and some fire is earth. So, it is possible but not definitely true)

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

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

Q30. Answer: (d) 961

The logic followed here is:

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

Now,

For, 11 : 121

=> $11^2 = 121$.

For, 21 : 441

=> $21^2 = 441$.

Similarly, for 31 : ?

=> $31^2 = 961$.

Hence, the correct answer is "Option 4".

Q31. Answer: (d) Thursday

Given: 26 November 2013 was Tuesday.

Now,

2013 to 2018 = 5 Years (4 Ordinary Years and 1 Leap Year).

And, In 5 Years = 1 Leap year and 4 Ordinary Years.

So, 1 Leap Year has 2 odd days,

And, 4 Ordinary Years have 4 odd days.

Total odd days = 2 + 4 = 6.

then, 26 November 2018 will be Tuesday + 6 = Monday.

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Now, the number of days between 26 November 2018 to 29 November 2018
= 3 days.
= 3 days → 3/7 = 0 weeks and 3 odd days.
So, 29 November 2018 will be Monday + 3 = Thursday.
Hence, the correct answer is "Option 4".

Q32. Answer: (c) 231

Logic : Alternately (18) and (28) are added to each number subsequently.
Hence, "231" is the correct answer.

Q33. Answer: (b) JMP : ORU

Logic: (5) is added to the position values according to the English alphabetic series.
Given :
FJK : KOP
And,
MQR : RVW
So, Checking the options one by one :
Option - (1): GMN : FLM
Option - (2): JMP : ORU
Option - (3): ADE : ZWV
Option - (4): PRS : SRP

Thus, out of all the options "JMP : ORU" follows the same pattern as given.
Hence, "Option - (2)" is the correct answer.

Q34. Answer: (d) [figure]

The logic followed here is :
1) For '
' element → Shifting back and forth to the opposite side.
2) For '
' element → Shifting in the clockwise direction from the center position towards the corner position.
3) For '
' element → Shifting in the clockwise direction from the corner position towards the center position.
4) For '
' element → Shifting back and forth to the top center position.
5) For '
' element → Shifting in the clockwise direction from the corner position towards the center position.
6) For '
' element → Shifting back and forth to the opposite side.
Thus, the final series is :
Hence, "Option - (4)" is the correct answer.

Q35. Answer: (a) [figure]

According to the given figure:
The figure will appear when it is opened as follows:
Hence, "Option - (1)" is the correct answer.

Q36. Answer: (a) [figure]

The image embedded in the given figure is as shown below :
Therefore Here, the given figure is embedded in option Figure - 1.
Hence, the correct answer is "Option- (1)".

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Q37. Answer: (d) YWT

Logic: (3) is added to the position values according to the English alphabetic series.

So,

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

Q38. Answer: (b) 22

Given Equation: 16 A 24 C 30 E 15 U 9 = ?

BODMAS Rule:

Decoding the given information:

Alphabet	E	U	A	C
Meaning	÷	×	•	•

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

=> 16 + 24 - 30 ÷ 15 × 9 = ?

=> 16 + 24 - 2 × 9 = ?

=> 16 + 24 - 18 = ?

=> 40 - 18 = 22.

Hence, the correct option is "Option 2".

Q39. Answer: (a) 168

Given Equation: 16 B 8 D 51 A 3 C 57 = ?

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:

=> 16 × 8 - 51 ÷ 3 + 57 = ?

=> 16 × 8 - 17 + 57 = ?

=> 128 - 17 + 57 = ?

=> 185 - 17 = 168.

Hence, the correct option is "Option 1".

Q40. Answer: (a) 16

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

Here, as marked there are a total of 16 triangles.

Hence, "16" is the correct answer.

Q41. Answer: (d) 133

Logic : Odd number series is added to each number subsequently.

Hence, "133" is the correct answer.

Q42. Answer: (a) [figure]

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

Therefore Here, the given figure is embedded in option Figure - 1.

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

Q43. Answer: (c) KMP

Logic:

First and second letter → (3) is added to the position values according to the English alphabetic series.

Second and third letter → (3) is added to the position values according to the English alphabetic series.

So, Checking the options one by one:

Option - (1): BEH

Option - (2): RUX

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Option - (3): KMP
Option - (4): NQT
Thus, out of all the options "KMP" is the odd one out
Hence, "Option - (3)" is the correct answer.

Q44. Answer: (c) vp

According to the given information,
Thus, according to the given codes 'vp' is the code for the word 'dirty'.
Hence, the correct answer is "vp".

Q45. 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)".

Q46. Answer: (c) Mother’s sister’s son’s wife

Decoding the Symbols:

A is				
Symbol	•	•	×	÷
Meaning	Mother	Sister	Wife	Son
to B				

Given: Z × Y ÷ X − V + W
Z × Y → Z is the wife of Y.
Y ÷ X → Y is the son of X.
X − V → X is the sister of V.

V + W → V is the mother of W.
Here, Z is the mother’s sister’s son’s wife of W.
Hence, the correct answer is "Option - (3)".

Q47. Answer: (d) 107

Logic : Even number series is added to each number subsequently.
Hence, "107" is the correct answer.

Q48. 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)".

Q49. Answer: (b) 7 and 3

Given : 17 × 7 + (21 ÷ 3) × 5 – 28 + 34 = 72
According to the question, after replacing the numbers :
So,
Option - (1) : 21 and 28
17 × 7 + (21 ÷ 3) × 5 – 28 + 34 = 72 => 17 × 7 + (28 ÷ 3) × 5 – 21 + 34 = 72
17 × 7 + (28 ÷ 3) × 5 – 21 + 34 = 72
17 × 7 + 9.33 × 5 – 21 + 34 = 72
119 + 46.65 + 34 - 21 = 72
199.65 - 21 = 72
178.65 ≠ 72 (LHS ≠ RHS)
Option - (2) : 7 and 3
17 × 7 + (21 ÷ 3) × 5 – 28 + 34 = 72 => 17 × 3 + (21 ÷ 7) × 5 – 28 + 34 = 72

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17 × 3 + (21 ÷ 7) × 5 – 28 + 34 = 72
17 × 3 + 3 × 5 – 28 + 34 = 72
51 + 15 + 34 - 28 = 72
100 - 28 = 72
72 = 72 (LHS = RHS)
Option - (3) : 5 and 7
17 × 7 + (21 ÷ 3) × 5 – 28 + 34 = 72 => 17 × 5 + (21 ÷ 3) × 7 – 28 + 34 = 72
17 × 5 + (21 ÷ 3) × 7 – 28 + 34 = 72
17 × 5 + 7 × 7 – 28 + 34 = 72
85 + 49 + 34 - 28 = 72
168 - 28 = 72
140 ≠ 72 (LHS ≠ RHS)
Option - (4) : 17 and 28
17 × 7 + (21 ÷ 3) × 5 – 28 + 34 = 72 => 28 × 7 + (21 ÷ 3) × 5 – 17 + 34 = 72
28 × 7 + (21 ÷ 3) × 5 – 17 + 34 = 72
28 × 7 + 7 × 5 – 17 + 34 = 72
196 + 35 + 34 - 17 = 72
265 - 17 = 72
248 ≠ 72 (LHS ≠ RHS)
Hence, "Option - (2)" is the correct answer.

Q50. Answer: (a) WTJQ

Logic: (18) is added to the position values according to the English alphabetic series.
So,
AQLZ is related to SIDR

And,
CPDV is related to UHVN

Similarly,
EBRY is related to

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

Q51. Answer: (c) 12%

Given:
Last year's monthly salary = Rs. 34,500
This year's monthly salary = Rs. 38,640
Formula Used:
Percentage Increase = (New Value - Old Value)/(Old Value) × 100
Calculation:
New Value = Rs. 38,640
Old Value = Rs. 34,500
Percentage Increase = (38,640 - 34,500)/(34,500) × 100
Percentage Increase = 4,140/34,500 × 100
=> Percentage Increase = 0.12 × 100
=> Percentage Increase = 12%
The percentage increase in Ranjan's monthly salary this year over his monthly salary last year is 12%.

Q52. Answer: (b) 7.5

Given:
Marked price = Rs. 1,000
Discount scheme (i): Two successive discounts of 25% and 5%

Discount scheme (ii): Two successive discounts of 20% and 10%
Formula Used:
Final price after successive discounts = Marked price × (1 - Discount 1) × (1 - Discount 2)
Calculation:
For scheme (i):
Discount 1 = 25% = 0.25
Discount 2 = 5% = 0.05
Final price after scheme (i) = 1000 × (1 - 0.25) × (1 - 0.05)
=> Final price after scheme (i) = 1000 × 0.75 × 0.95
=> Final price after scheme (i) = 1000 × 0.7125
=> Final price after scheme (i) = 712.5
For scheme (ii):
Discount 1 = 20% = 0.20
Discount 2 = 10% = 0.10
Final price after scheme (ii) = 1000 × (1 - 0.20) × (1 - 0.10)
=> Final price after scheme (ii) = 1000 × 0.80 × 0.90
=> Final price after scheme (ii) = 1000 × 0.72
=> Final price after scheme (ii) = 720
Difference in selling price = Final price after scheme (ii) - Final price after scheme (i)
=> Difference in selling price = 720 - 712.5
=> Difference in selling price = 7.5
The difference between the selling price under the two discount schemes is Rs. 7.5.

Q53. Answer: (a) B; Y

Formula Used:
Average sale per product = (Sum of sales for the product by all companies) ÷ 3
Total sales per company = Sum of sales for all products by the company
Calculations:
Step 1: Calculate the average sale per product.
Product A: (2750 + 2500 + 3500) ÷ 3 = 2916.67
Product B: (3250 + 3000 + 3150) ÷ 3 = 3133.33
Product C: (2250 + 1750 + 2400) ÷ 3 = 2133.33
=> The highest average sale per company is for the product B.
Step 2: Calculate the total sales per company.
Company X: 2750 + 3250 + 2250 = 8250
Company Y: 2500 + 3000 + 1750 = 7250
Company Z: 3500 + 3150 + 2400 = 9050
=> The lowest average sale per product is for the company Y.
Therefore The highest average sale per company is for the product B and the lowest average sale per product is for the company Y.

Q54. Answer: (a) 24

Given:
First number (a) = 2
Second number (b) = 6
Third number (c) = 8
Formula Used:
Fourth proportional (d) = (b × c) / a
Calculation:
Fourth proportional = (6 × 8) / 2
Fourth proportional = 48 / 2
Fourth proportional = 24

The fourth proportional to 2, 6, 8 is 24.

Q55. Answer: (a) 1.5 min

Shortcut Trick

Let T_A and T_B be the times in minutes to run 3000 m.

Case 1: Arun runs 3000 m while Bhaskar runs 2600 m and loses by 0.5 min.

=> T_A = (2600 ÷ 3000) × T_B − 0.5 => T_A = (13/15)T_B − 0.5

Case 2: Bhaskar runs 3000 m while Arun runs 2500 m starting 2.5 min late.

=> T_B = (2500 ÷ 3000) × T_A + 2.5 => T_B = (5/6)T_A + 2.5

Substitute T_B: T_A = (13/15)((5/6)T_A + 2.5) − 0.5 => (5/18)T_A = 5/3 => T_A = 6 min, T_B = 7.5 min.

Therefore The correct answer is 1.5 min.

Alternate Method

Given:

Total distance = 3 km = 3000 m.

Case 1: Bhaskar head start = 400 m, Arun beats him by 30 s = 0.5 min.

Case 2: Bhaskar time lead = 2.5 min, Arun beaten by 500 m.

Formula Used:

Time = Distance ÷ Speed

0 m 3000 m Case 1: Arun (3000m) wins by 0.5 min Bhaskar (2600m) starting at 400m Case 2: Bhaskar (3000m) wins Arun (2500m) starting 2.5 min late

Let V_A and V_B be the speeds of Arun and Bhaskar in m/min.

=> Case 1: 3000 ÷ V_A = (3000 − 400) ÷ V_B − 0.5

=> 3000 ÷ V_A = 2600 ÷ V_B − 0.5 --- (1)

=> Case 2: (3000 − 500) ÷ V_A = 3000 ÷ V_B − 2.5

=> 2500 ÷ V_A = 3000 ÷ V_B − 2.5 --- (2)

=> From (1), 1/V_A = (2600/V_B − 0.5) ÷ 3000

=> Substitute in (2): 2500 × [(2600/V_B − 0.5) ÷ 3000] = 3000/V_B − 2.5

=> (5/6) × (2600/V_B − 0.5) = 3000/V_B − 2.5

=> 13000/(6V_B) − 2.5/6 = 3000/V_B − 2.5

=> 2.5 − 5/12 = 3000/V_B − 6500/(3V_B)

=> 25/12 = (9000 − 6500) ÷ (3V_B) => 25/12 = 2500 ÷ (3V_B)

=> 3V_B = (2500 × 12) ÷ 25 => 3V_B = 1200 => V_B = 400 m/min

=> Time for Bhaskar (T_B) = 3000 ÷ 400 = 7.5 min

=> Substitute V_B in (1): 3000 ÷ V_A = 2600 ÷ 400 − 0.5 = 6.5 − 0.5 = 6 min

=> Time for Arun (T_A) = 6 min

=> Difference = 7.5 − 6 = 1.5 min

Therefore The correct answer is 1.5 min.

Additional Information

Head Start vs Time Lead

A head start of 'x' meters means the opponent starts 'x' meters ahead. A time lead of 't' minutes means the opponent starts 't' minutes earlier than the other person.

Beating by Distance vs Time

If A beats B by 'd' meters, B is 'd' meters behind when A finishes. If A beats B by 't' minutes, B takes 't' minutes more than A to cover the same distance.

Relative Speed in Races

In a linear race, if both run in the same direction, relative speed is the difference of their speeds: V_(rel) = |V_A − V_B|.

Q56. Answer: (b) 14

Shortcut Trick

Ratio (Man : Son) 10 years ago = 5 : 1 (Difference = 4 units)

Ratio (Man : Son) 2 years hence = 4 : 2 = 2 : 1 (Difference = 1 unit)

Make difference equal: Multiply (2 : 1) by 4 => New Ratio = 8 : 4

Gap in Son's ratio units = 4 − 1 = 3 units. Total time gap = 10 + 2 = 12 years.

3 units = 12 years => 1 unit = 4 years.

Son's age 10 years ago = 1 unit = 4 years => Present age = 4 + 10 = 14 years.

Therefore The correct answer is 14 years.

Alternate Method

Given:

Let the present age of the man be M and the son be S.

10 years ago: (M − 10) = 5 × (S − 10)

2 years hence: 2 × (M + 2) = 4 × (S + 2)

Calculations:

=> M − 10 = 5S − 50

=> M = 5S − 40 --- (Equation 1)

=> 2(M + 2) = 4(S + 2)

=> M + 2 = 2(S + 2)

=> M + 2 = 2S + 4

=> M = 2S + 2 --- (Equation 2)

=> 5S − 40 = 2S + 2

=> 3S = 42

=> S = 42 ÷ 3

=> S = 14 years

Therefore The correct answer is 14 years.

Additional Information

Constant Age Difference

The difference between the ages of two people remains constant throughout their lives, regardless of how many years pass.

Sum of Ages Change

If the sum of ages of N people is X today, then after Y years, the new sum will be X + (N × Y).

Ratio Balancing Method

To solve age problems using ratios, always ensure the difference between the ratio parts of two individuals is made equal across different time periods.

Q57. Answer: (b) 41 cm2

Given:

Length of diagonal 1 (d1) = 10 cm

Length of diagonal 2 (d2) = 8.2 cm

Formula Used:

Area of rhombus = (1/2) × d1 × d2

Calculation:

Area = (1/2) × 10 × 8.2

=> Area = 5 × 8.2

=> Area = 41 cm²

The area of the rhombus is 41 cm².

Q58. Answer: (c) 72 cm

Given:

In ΔABC, P and Q are the middle points of the sides AB and AC, respectively. R is a point on the segment PQ such that PR : RQ = 1 : 5. PR = 6 cm.

Formula Used:

In a triangle, the line segment joining the midpoints of two sides is parallel to the third side and half of it (Midpoint Theorem).

Calculation:

According to the Midpoint Theorem, PQ is parallel to BC and PQ = ½ BC.

Given PR : RQ = 1 : 5, so PR / RQ = 1 / 5.

Let RQ = x.

Then, PR = 6 cm and PR / RQ = 6 / x = 1 / 5.

=> 6 / x = 1 / 5

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=> 6 = x / 5
=> x = 30 cm
Thus, PQ = PR + RQ = 6 + 30 = 36 cm.
Since PQ = ½ BC, we have:
=> BC = 2 × PQ
=> BC = 2 × 36
=> BC = 72 cm
The length of BC is 72 cm.

Q59. Answer: (a) 25 kg

Given:
Number of boys = 40
Average weight of boys = 33 kg
Number of remaining students = 72 - 40 = 32
Average weight of remaining students = 15 kg
Formula Used:
Average weight of all students = (Total weight of all students) / (Total number of students)
Calculation:
Total weight of boys = 40 × 33
Total weight of boys = 1320 kg
Total weight of remaining students = 32 × 15
Total weight of remaining students = 480 kg
Total weight of all students = 1320 + 480
Total weight of all students = 1800 kg
Total number of students = 72
Average weight of all students = Total weight of all students / Total number of students
=> Average weight of all students = 1800 / 72
=> Average weight of all students = 25 kg
The average weight of all the students in the section is 25 kg.

Q60. Answer: (d) 2 : 3

Given:
Radius of the first circle (r1) = 25 cm
Radius of the second circle (r2) = 35 cm
Distance between the centers of the circles (d) = 80 cm
Formula used:
The length of the direct common tangent (D) between two circles is given by the formula:
$D = \sqrt{(d^2 - (r1 - r2)^2)}$
The length of the transverse common tangent (T) between two circles is given by the formula:
$T = \sqrt{(d^2 - (r1 + r2)^2)}$
Calculation:
Step 1: Calculate the length of the direct common tangent
=> $D = \sqrt{(80^2 - (35 - 25)^2)}$
=> $D = \sqrt{(6400 - 10^2)}$
=> $D = \sqrt{(6400 - 100)}$
=> $D = \sqrt{6300}$ cm
Step 2: Calculate the length of the transverse common tangent
=> $T = \sqrt{(80^2 - (35 + 25)^2)}$
=> $T = \sqrt{(6400 - 60^2)}$
=> $T = \sqrt{(6400 - 3600)}$
=> $T = \sqrt{2800}$ cm
Step 3: Calculate the ratio of the lengths

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=> Ratio = T / D = √2800 : √6300 = √(2800/6300) = √(28/63) = √4/9 = 2/3 = 2 : 3

Therefore The correct answer is option (4).

Q61. Answer: (d) 20

Shortcut Trick

Total work = LCM of 20, 10, and 5 = 20 units.

Combined efficiency of A, B, and C = 20 ÷ 5 = 4 units/day.

Combined efficiency of A and B = (20 ÷ 20) + (20 ÷ 10) = 1 + 2 = 3 units/day.

Efficiency of C = 4 − 3 = 1 unit/day.

Time taken by C alone = 20 ÷ 1 = 20 days.

Therefore The correct answer is 20 days.

Alternate Method

Given:

Time taken by A = 20 days

Time taken by B = 10 days

Time taken by A, B, and C together = 5 days

Formula Used:

Total Work = LCM of time taken

Efficiency = Total Work ÷ Time

Calculations:

Person	Days	Total Work	Efficiency
A	20	20	1
B	10	2	
A + B + C	5	4	

=> Efficiency of C = Total Efficiency − (Efficiency of A + Efficiency of B)

=> Efficiency of C = 4 − (1 + 2) = 1 unit/day

=> Time taken by C alone = Total Work ÷ Efficiency of C

=> Time taken = 20 ÷ 1 = 20 days

Therefore The correct answer is 20 days.

Additional Information

Pipes & Cisterns

Similar to the Time & Work concept, but an outlet pipe that empties the tank is assigned a negative efficiency.

Work & Wages

Wages are divided in proportion to the total work done by each person, which matches the ratio of their efficiencies if they all work for the same number of days.

Alternate Day Work

Calculate the total work completed in one full cycle of alternating days, and then sequentially add the remaining work for the final fraction of days.

Q62. Answer: (b) 56.25%

Shortcut Trick

Surface Area of a sphere is proportional to the square of its radius (r^2).

Net percentage change = x + y + (x × y)/100

Here x = 25 and y = 25.

Increase % = 25 + 25 + (25 × 25)/100

Increase % = 50 + 6.25 = 56.25%

Therefore The correct answer is 56.25%.

Alternate Method

Given: Increase in radius = 25%

Formula Used: Surface Area of a sphere = $4\pi r^2$

r = 4 units

Initial Area prop. to 4^2

r = 5 units

New Area prop. to 5^2

Radius Ratio 4 : 5 (25% increase)

=> Let original radius r1 = 4 units

=> New radius r2 = 4 + (25% of 4) = 5 units

=> Original Surface Area A1 = $4 \times \pi \times (4)^2 = 64\pi$

=> New Surface Area A2 = $4 \times \pi \times (5)^2 = 100\pi$

=> Percentage Increase = $[(A2 - A1) \div A1] \times 100$

=> Percentage Increase = $[(100\pi - 64\pi) \div 64\pi] \times 100$

=> Percentage Increase = $(36 \div 64) \times 100 = (9 \div 16) \times 100 = 56.25\%$

Therefore The correct answer is 56.25%.

Additional Information

Volume Percentage Change

Since Volume prop. to r^3, if radius increases by 25% (ratio 4:5), the volume ratio becomes $4^3:5^3 = 64:125$, resulting in a 95.31% increase.

General Successive Change Formula

For any two-dimensional measurement change (Area of circle, square, or sphere surface), total % change = x + y + (xy/100).

Sphere Properties

Surface Area = $4\pi r^2$ and Volume = $(4/3)\pi r^3$. For a hemisphere, Curved Surface Area = $2\pi r^2$ and Total Surface Area = $3\pi r^2$.

Q63. Answer: (b) 5 cm

Given:

CD = 10 cm

BD = 6 cm

DM = CM (Since D is produced such that DM = CM)

Formula used:

We use the fact that in a right triangle, the line joining the mid-point of the hypotenuse to the opposite vertex is half of the hypotenuse.

Since DM = CM and C is the mid-point of CD:

CD = 2 × CM

Calculation:

Given CD = 10 cm

=> 10 = 2 × CM

=> CM = 10/2 = 5 cm

Therefore The value of CM is 5 cm.

Q64. Answer: (b) Rs. 480

Given:

Markup on cost price = 25%

Discount on marked price = 10%

Final price paid by customer = Rs. 540

Formula Used:

Marked Price = Cost Price × (1 + Markup Percentage)

Sale Price = Marked Price × (1 - Discount Percentage)

Calculation:

Let the original cost price be Rs. C.

Marked Price = C × (1 + 0.25)

Marked Price = C × 1.25

Sale Price = Marked Price × (1 - 0.10)

Sale Price = C × 1.25 × 0.90

Sale Price = C × 1.125

Given Sale Price = Rs. 540

=> C × 1.125 = 540

=> C = 540 / 1.125

=> C = 480

The original cost price of the goods is Rs. 480.

Q65. Answer: (c) 50%

Given:

Total period = 2015 to 2018

Stages of construction = 4

Stage 4 (Buildings completed) percentages for each year:

2015: 20%

2016: 10%

2017: 10%

2018: 10%

Formula used:

Total percentage of buildings completed = Sum of percentages for each year

Calculation:

=> Total percentage of buildings completed = 20% + 10% + 10% + 10%

=> Total percentage of buildings completed = 50%

Therefore The total percentage of buildings completed during the period 2015 to 2018 is 50%.

Q66. Answer: (b) 8

Given:

Remainder when the first number is divided by the divisor = 6

Remainder when the second number is divided by the divisor = 7

Remainder when the sum of the two numbers is divided by the same divisor = 5

Formula Used:

If the remainders of two numbers when divided by the same divisor are r1 and r2, and the remainder when their sum is divided by the same divisor is r3, then the divisor d can be found using:

r1 + r2 = r3 + kd

where k is an integer.

Calculation:

Given:

r1 = 6

r2 = 7

r3 = 5

Using the formula:

6 + 7 = 5 + kd

=> 13 = 5 + kd

=> 13 - 5 = kd

=> 8 = kd

Since d must be a divisor of 8, the possible values for d are 1, 2, 4, and 8. However, the only option given that matches this is 8.

The divisor is 8.

Q67. Answer: (a) Decrease 12(1/2)%

Given:

The cost of rice is increased by 25%.

Its consumption is decreased by 30%.

Formula Used:

Percentage change in expenditure = (Change in cost) × (Change in consumption)

Calculation:

Let the original cost of rice be 100 units and the original consumption be 100 units.

New cost of rice = 100 + 25% of 100

New cost of rice = 100 + 25
New cost of rice = 125 units
New consumption of rice = 100 - 30% of 100
New consumption of rice = 100 - 30
New consumption of rice = 70 units
Original expenditure = 100 × 100
Original expenditure = 10000 units
New expenditure = 125 × 70
New expenditure = 8750 units
Percentage change in expenditure
=> (Original expenditure - New expenditure) / (Original expenditure) × 100
Percentage change in expenditure
=> (10000 - 8750) / (10000) × 100
Percentage change in expenditure
=> 1250 / 10000 × 100
Percentage change in expenditure
=> 12.5%
The expenditure of money decreased by 12(1/2)%.

Q68. Answer: (d) sec2 2α tan2 2 α

Shortcut Trick
Put α = 15°, so 2α = 30°.
Expression: 1/sin^4(90°−30°) + 1/(cos²(90°−30°) − 1) = 1/sin^460° + 1/(cos²60° − 1).
=> 1/(√3/2)^4 + 1/((1/2)² − 1) = 16/9 + 1/(1/4 − 1) = 16/9 − 4/3 = 4/9.
Check options: Option (4) sec²30° × tan²30° = (2/√3)² × (1/√3)² = 4/3 × 1/3 = 4/9.
Therefore The correct answer is sec² 2α tan² 2α.
Alternate Method
Given: Expression = 1/sin^4(90° − 2α) + 1/(cos²(90° − 2α) − 1)
Formulas Used: sin(90°−θ) = cosθ; cos(90°−θ) = sinθ; 1−sin²θ = cos²θ
=> Expression = 1/cos^4 2α + 1/(sin² 2α − 1)
=> Expression = 1/cos^4 2α − 1/(1 − sin² 2α)
=> Expression = 1/cos^4 2α − 1/cos² 2α
=> Expression = (1 − cos² 2α) / cos^4 2α
=> Expression = sin² 2α / cos^4 2α = (sin² 2α / cos² 2α) × (1 / cos² 2α)
=> Expression = tan² 2α × sec² 2α
Therefore The correct answer is sec² 2α tan² 2α.
Additional Information
Complementary Angle Rules
Trigonometric ratios change to their co-functions when the angle is (90° − θ): sin ↔ cos, tan ↔ cot, sec ↔ cosec.
Pythagorean Identities
Fundamental identities include sin²θ + cos²θ = 1, 1 + tan²θ = sec²θ, and 1 + cot²θ = cosec²θ.

Q69. Answer: (d) 38º

Given:
The smallest angle measures 42º less than the greatest angle.
The remaining angle is 24º more than the smallest angle.
Formula Used:
Sum of angles in a triangle = 180º
Calculation:
Let the smallest angle be x º.
Largest angle = x + 42 º
Remaining angle = x + 24°

Sum of angles: x + (x + 42) + (x + 24) = 180 º

=> 3x + 66 = 180

=> 3x = 180 - 66

=> 3x = 114

=> x = 38

Smallest angle = x = 38°.

The measure of the smallest angle of the triangle is 38º.

Q70. Answer: (d) 32.5%

Shortcut Trick

Assume Income = 100, Expenditure = 70, and Savings = 30.

Total Increase in Income = 15% of 100 = 15

Increase in Expenditure = 7.5% of 70 = 5.25

Increase in Savings = 15 − 5.25 = 9.75

Percentage Increase in Savings = (9.75 ÷ 30) × 100 = 32.5%

Therefore The correct answer is 32.5%.

Alternate Method

Given:

Initial Expenditure = 70% of Income

Increase in Income = 15%

Increase in Expenditure = 7.5%

Formula Used:

Income = Expenditure + Savings

Percentage Increase = (Change ÷ Initial Value) × 100

Income = 100

Exp (70)

Sav (30)

Inc +15% → 115

Exp +7.5% → 75.25

Sav → 39.75

Calculations:

Let initial Income = 100

=> Initial Expenditure = 70

=> Initial Savings = 100 − 70 = 30

=> New Income = 100 + 15% of 100 = 115

=> New Expenditure = 70 + 7.5% of 70

=> New Expenditure = 70 + 5.25 = 75.25

=> New Savings = 115 − 75.25 = 39.75

=> Increase in Savings = 39.75 − 30 = 9.75

=> Percentage Increase in Savings = (9.75 ÷ 30) × 100

=> Percentage Increase in Savings = 32.5%

Therefore The correct answer is 32.5%.

Additional Information

Income-Expenditure Relationship

Income is always the sum of Expenditure and Savings. Any change in Income must be balanced by the sum of changes in Expenditure and Savings.

Weighted Average Rule

The percentage change in Income is the weighted average of percentage changes in Expenditure and Savings: %ΔIncome = (%ΔExp × Exp + %ΔSav × Sav) ÷ (Exp + Sav).

Alligation Method

Income problems can be solved using alligation where the ratio of Expenditure to Savings is the inverse of the differences between their percentage changes and the total income percentage change.

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Q71. Answer: (a) 77/5

Given:

The expression: 10 + 33/5 ÷ [22/3 ÷ {71/6 - (21/2 + 2/3)}]

Calculation:

Step 1: Solve the innermost bracket

=> 2(1/2) + 2/3 = 5/2 + 2/3

Convert to a common denominator:

=> 5/2 = 15/6 and 2/3 = 4/6

=> 15/6 + 4/6 = 19/6

Step 2: Subtract from 7(1/6)

=> 7(1/6) = 43/6

=> 43/6 - 19/6 = 24/6 = 4

Step 3: Divide 2(2/3) by 4

=> 2(2/3) = 8/3

=> 8/3 ÷ 4 = 8/3 × 1/4 = 8/12 = 2/3

Step 4: Divide 3(3/5) by 2/3

=> 3(3/5) = 18/5

=> 18/5 ÷ 2/3 = 18/5 × 3/2 = 54/10 = 27/5

Step 5: Add 10 to the result

=> 10 + 27/5 = 50/5 + 27/5 = 77/5

Therefore The value of the expression is 77/5.

Q72. Answer: (b) 19 : 43

Given:

We need to calculate the ratio of the average production of refrigerators by companies A, B, and E for the years 2004-2005 to the average production of refrigerators by companies C and D for the years 2005-2006.

Formula used:

Average production = (Total production) / (Number of companies)

Calculation:

From the bar graph:

Production of refrigerators in 2004-2005:

Company A: 110

Company B: 160

Company E: 300

Total production for A, B, and E in 2004-2005 = 110 + 160 + 300 = 570

Average production for A, B, and E in 2004-2005 = 570 / 3 = 190

Production of refrigerators in 2005-2006:

Company C: 370

Company D: 490

Total production for C and D in 2005-2006 = 370 + 490 = 860

Average production for C and D in 2005-2006 = 860 / 2 = 430

Ratio:

Ratio = 190 / 430

=> Ratio = 190:430

=> Ratio = 19:43

Therefore The required ratio is 19:43.

Q73. Answer: (b) 1.175%

Given:

Year: 2001

State A:

Applied: 8000

Selected: 94
Formula used:
Percentage of candidates selected = (Number of candidates selected / Number of candidates applied) × 100
Calculation:
=> Percentage of candidates selected = (94 / 8000) × 100
=> Percentage of candidates selected = 1.175%
Therefore The percentage of candidates selected over the candidates who applied in State A in 2001 is 1.175%.

Q74. Answer: (c) 264 cm2

Given:
Radius (r) = 3 cm
Height (h) = 14 cm
Formula Used:
Curved Surface Area (CSA) of a cylinder = 2π rh
Calculation:
Curved Surface Area (CSA) = 2 × 22/7 × 3 × 14
=> CSA = 2 × 22/7 × 3 × 14
=> CSA = 2 × 22 × 3 × 2
=> CSA = 2 × 22 × 6
=> CSA = 264 cm²
The curved surface area of the cylinder is 264 cm².

Q75. Answer: (b) 2

Given:
Principal (P) = Rs. 4,50,000
Simple Interest (SI) = Rs. 45,000
Rate of Interest (R) = 5% per annum
Formula Used:
Simple Interest (SI) = (P × R × T) / 100
Calculation:
We need to find T, so we rearrange the formula:
SI = (P × R × T) / 100
=> T = (SI × 100) / (P × R)
=> T = (45,000 × 100) / (4,50,000 × 5)
=> T = 45,00,000 / 22,50,000
=> T = 2 years
It will take 2 years for an amount of Rs. 4,50,000 to yield Rs. 45,000 as simple interest at a 5% per annum rate of interest.

Q76. Answer: (b) West Indies and USA

The correct answer is West Indies and USA
Key Points
• West Indies and USA will host the 9th Men's ICC T20 World Cup Cricket in 2024.
• This will be the first time the USA will co-host a major ICC event.
• The ICC T20 World Cup is one of the premier international championships in Twenty20 cricket.
• The tournament will feature teams from around the world competing for the title.
• Hosting the event in these countries aims to expand the cricketing footprint in the Americas.
Additional Information
• The ICC T20 World Cup was first held in 2007, and India won the inaugural tournament.
• The tournament is organized by the International Cricket Council (ICC), which is the global governing body for cricket.
• The decision to award the hosting rights to West Indies and USA is part of the ICC's efforts to globalize the game.
• Previous editions of the T20 World Cup have been held in various countries, including India, England, and Australia.
• The event will provide a significant boost to the development of cricket in the USA, where the sport is gaining popularity.

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Q77. Answer: (c) Maharshi Mahesh Yogi Ashram

The correct answer is Maharshi Mahesh Yogi Ashram

Key Points

• The Beatles visited the Maharshi Mahesh Yogi Ashram in Rishikesh, India, in 1968.

• During their stay, they composed numerous songs influenced by classical Indian music and culture.

• This visit was part of their spiritual journey and interest in Transcendental Meditation taught by Maharshi Mahesh Yogi.

• Many of the songs written during this period were included in their "White Album".

Additional Information

• The Maharshi Mahesh Yogi Ashram, also known as the Beatles Ashram, is now a tourist attraction in Rishikesh.

• The Beatles' visit to India is considered a significant event in the history of rock music, showcasing the blending of Western and Eastern musical traditions.

• Their time in India also marked a period of prolific songwriting, contributing to the band's artistic evolution.

Q78. Answer: (c) Sattriya

The correct answer is Sattriya

Key Points

• Sattriya is a classical dance form of Assam.

• It was introduced by the great Vaishnava saint and reformer of Assam, Sankardev.

• This dance form is an artistic way of presenting mythological teachings to the people.

• Sattriya dance is a combination of dance, drama, and music and is an important part of the Assamese culture.

• It is performed in the Sattras (monasteries) as a part of the daily rituals and as a part of special festivals.

Additional Information

• Sankardev was a 15th-century saint-scholar, poet, and cultural icon of Assam.

• He played a key role in the cultural and religious history of Assam and laid the foundation of the Bhakti movement in Assam.

• Sattriya was recognized as one of the eight classical dance forms of India by the Sangeet Natak Akademi in 2000.

• The dance form has a rich tradition of over 500 years and continues to be a vital part of Assamese culture and heritage.

Q79. Answer: (b) Ashwin

The correct answer is Ashwin

Key Points

• Dussehra festival is celebrated in the Hindu month of Ashwin.

• It marks the victory of Lord Rama over the demon king Ravana.

• The festival signifies the triumph of good over evil and is celebrated with great enthusiasm across India.

• In some regions, it is also known as Vijayadashami.

• The celebration includes the burning of effigies of Ravana, symbolizing the destruction of evil.

Additional Information

• The Hindu month of Ashwin typically falls in the Gregorian months of September and October.

• Dussehra is the culmination of the Navratri festival, which is a nine-day celebration dedicated to the worship of the Goddess Durga.

• It is one of the major festivals in India and is celebrated with various cultural performances, fairs, and processions.

• In some parts of India, people also celebrate the victory of Goddess Durga over the buffalo demon Mahishasura.

• Public celebrations include plays, dance dramas, and colorful processions depicting scenes from the Ramayana.

Q80. Answer: (b) Myanmar

The correct answer is Myanmar

Key Points

• Chinlone (also known as Caneball) is the traditional sport of Myanmar.

• Chinlone is a combination of sport and dance, where players pass a ball made of rattan using their feet, knees, and heads.

• The game is typically played in a circle with teams or individually, focusing on skill and grace rather than competition.

• It is an integral part of Myanmar's culture and is often played during festivals and traditional events.

Additional Information

• Myanmar, formerly known as Burma, is a country in Southeast Asia bordered by Bangladesh, India, China, Laos, and Thailand.

• The official language is Burmese, and the country has a rich cultural heritage influenced by Buddhism.

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• Myanmar gained independence from British colonial rule on January 4, 1948.

• The country is known for its diverse ethnic groups, traditional arts, and historical sites such as the ancient city of Bagan.

Q81. Answer: (d) South Asian Association for Regional Cooperation

The correct answer is South Asian Association for Regional Cooperation

Key Points

• South Asian Association for Regional Cooperation (SAARC) is an organization of South Asian nations, established on December 8, 1985.

• SAARC aims to promote economic and regional integration among its member countries.

• The current member countries are Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, and Sri Lanka.

• The organization has its headquarters in Kathmandu, Nepal.

• SAARC's primary objectives include promoting the welfare of the peoples of South Asia and improving their quality of life, accelerating economic growth, social progress, and cultural development in the region.

Additional Information

• SAARC was established with the signing of the SAARC Charter in Dhaka, Bangladesh.

• Since its inception, SAARC has conducted several summits aimed at addressing regional issues and fostering cooperation.

• SAARC also includes nine observer states: Australia, China, the European Union, Iran, Japan, Mauritius, Myanmar, South Korea, and the United States.

• Various regional centers have been established under the auspices of SAARC to promote regional cooperation in specific areas, such as the SAARC Disaster Management Centre and the SAARC Agricultural Centre.

Q82. Answer: (c) Uttarakhand

The correct answer is Uttarakhand

Key Points

• The Nanda Devi Biosphere Reserve is located in the state of Uttarakhand.

• It is recognized for its diverse flora and fauna, including several endangered species.

• The reserve is part of the UNESCO World Network of Biosphere Reserves since 2004.

• It encompasses the Nanda Devi and Valley of Flowers National Parks, which are known for their scenic beauty and rich biodiversity.

• The region is also culturally significant with many ancient temples and pilgrimage sites.

Additional Information

• The Nanda Devi Biosphere Reserve covers an area of about 5860.69 square kilometers.

• It is divided into three zones: core zone, buffer zone, and transition zone to ensure the protection of its delicate ecosystems.

• The core zone is strictly protected and human activities are restricted to minimize impact on wildlife.

• The reserve is a popular destination for trekking and mountaineering, attracting adventurers from around the world.

• Efforts are ongoing to balance conservation with sustainable development to benefit local communities.

Q83. Answer: (a) A system that would promote the welfare of all rather than a few

The correct answer is A system that would promote the welfare of all rather than a few

Key Points

• The leaders of independent India decided to adopt a system that would promote the welfare of all rather than a few.

• This decision was rooted in the values of democracy, equality, and social justice.

• The aim was to ensure that the benefits of development and progress would reach all sections of society, not just a privileged few.

• This approach was also intended to reduce disparities in wealth and opportunities.

Additional Information

• The decision to promote the welfare of all was influenced by the principles enshrined in the Constitution of India, which was adopted on 26th November 1949 and came into effect on 26th January 1950.

• The Constitution lays down the framework for a democratic republic that assures its citizens justice, equality, and liberty.

• It includes Directive Principles of State Policy which guide the state in making policies aimed at social and economic welfare.

• The leaders believed that a just and equitable system would help in the nation-building process and promote social harmony.

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Q84. Answer: (d) Review

The correct answer is Review

Key Points

• PARAKH stands for Performance Assessment, Review, and Analysis of Knowledge for Holistic Development.

• In February 2023, PARAKH was established as the first national assessment regulator in India.

• The initiative aims to standardize and improve the quality of assessments across various educational boards in India.

• PARAKH will set norms, standards, and guidelines for student assessment and evaluation for all recognized school boards across the country.

• The regulator will also ensure the equivalence of academic standards among different boards, thereby promoting uniformity in assessments.

Additional Information

• The establishment of PARAKH is part of the National Education Policy (NEP) 2020, which emphasizes the need for a holistic, multi-disciplinary approach to education.

• NEP 2020 aims to transform India's education system by 2040, making it more inclusive, flexible, and aligned with the needs of the 21st century.

• PARAKH will also play a crucial role in the assessment reforms proposed by NEP 2020, including competency-based assessment and reducing the emphasis on rote learning.

• The regulator will work towards creating a more balanced and integrated assessment system that evaluates students' understanding, skills, and competencies.

Q85. Answer: (c) Punjab

The correct answer is Punjab

Key Points

• Parkash Singh Badal served as the Chief Minister of Punjab for five times.

• He was a prominent political figure in Punjab and a key leader of the Shiromani Akali Dal (SAD) party.

• His tenure as Chief Minister spanned across different terms, reflecting his significant influence and leadership in the state.

• Badal was known for his efforts towards agricultural development and addressing the issues of farmers in Punjab.

• He also played a crucial role in the political landscape of Punjab, contributing to various social and economic policies.

Additional Information

• Parkash Singh Badal was born on December 8, 1927, in Abul Khurana, Punjab.

• He was awarded the Padma Vibhushan, India's second-highest civilian award, in 2015 for his contributions to public affairs.

• He was a pivotal figure in Punjab politics, serving as the Chief Minister from 1970-1971, 1977-1980, 1997-2002, 2007-2012, and 2012-2017.

• Badal's leadership was characterized by a focus on rural development, infrastructure improvement, and welfare schemes for the underprivileged sections of society.

• He passed away on April 25, 2023, leaving behind a legacy of political service and dedication to Punjab.

Q86. Answer: (a) 4 kg

The correct answer is 4 kg

Key Points

• 4 kg is the standard weight of the hammer for women in the hammer throw event.

• The hammer throw is a track and field event in which the athlete throws a heavy metal ball attached to a wire and handle.

• This event is part of the Olympic Games and World Championships in athletics.

• The hammer must be thrown from inside a circle with a diameter of 2.135 meters.

• The throw is measured from the inside edge of the circle to the nearest mark made by the fall of the hammer.

Additional Information

• The men's hammer weighs 7.26 kg (16 pounds).

• The hammer throw has been part of the men's track and field program since the 1900 Summer Olympics in Paris.

• The women's hammer throw was added to the Olympic program in the 2000 Sydney Games.

• Hammer throw technique involves the athlete spinning with the hammer several times before releasing it.

• Proper technique and strength are crucial for achieving maximum distance in the hammer throw.

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Q87. Answer: (d) Manali to Lahaul-Spiti

The correct answer is Manali to Lahaul-Spiti

Key Points

• The Atal Tunnel is a highway tunnel built under the Rohtang Pass in the eastern Pir Panjal range of the Himalayas on the Leh-Manali Highway.

• It connects Manali to Lahaul-Spiti valley throughout the year, which was previously cut off for about six months due to heavy snowfall.

• The tunnel is named after former Indian Prime Minister Atal Bihari Vajpayee and is one of the longest tunnels above 10,000 feet in the world.

• The tunnel reduces the road distance between Manali and Leh by 46 kilometers and the time by about 4 to 5 hours.

Additional Information

• The Atal Tunnel project was announced by Atal Bihari Vajpayee on June 3, 2000.

• The foundation stone for the access road to the south portal of the tunnel was laid on May 26, 2002.

• The tunnel was inaugurated by Prime Minister Narendra Modi on October 3, 2020.

• The tunnel is designed to handle traffic of up to 3,000 cars and 1,500 trucks per day.

• It is equipped with state-of-the-art electromechanical systems, including semi-transverse ventilation, SCADA-controlled firefighting, illumination, and monitoring systems.

• The tunnel also has an emergency escape tunnel built into the main tunnel itself.

Q88. Answer: (b) 2015

The correct answer is 2015

Key Points

• The 100^(th) Constitutional Amendment Act came into force in the year 2015.

• This amendment dealt with the exchange of certain enclaves between India and Bangladesh, resolving long-standing border issues between the two countries.

• The amendment aimed to formalize the transfer of territories and ensure better management and demarcation of the international boundary.

• It was a significant step in strengthening bilateral relations and cooperation between India and Bangladesh.

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.

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

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

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

Q89. Answer: (d) 1909

The correct answer is 1909

Key Points

• Wilhelm Johannsen coined the term 'gene' in 1909.

• This term was used to describe the Mendelian units of heredity, which are the fundamental units of genetic inheritance.

• Johannsen's work was crucial in the development of the field of genetics and provided a clear terminology to describe hereditary factors.

• The term 'gene' has since become a central concept in genetics, helping scientists understand how traits are passed from one generation to the next.

Additional Information

• Wilhelm Johannsen was a Danish botanist and geneticist who made significant contributions to the field of genetics.

• In addition to coining the term 'gene', Johannsen also introduced the concepts of genotype and phenotype.

• The genotype refers to the genetic makeup of an organism, while the phenotype refers to the observable characteristics of an organism.

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• Johannsen's work laid the foundation for modern genetic research and our understanding of how genetic information is transmitted.

Q90. Answer: (c) Indian Arms Act, 1878

The correct answer is Indian Arms Act, 1878

Key Points

• Indian Arms Act, 1878 was enacted by the British to regulate the manufacture, sale, possession, and transport of firearms.

• This Act was part of the colonial measures to control arms and ammunition among the Indian population.

• The Act required that Indians obtain licenses to possess, sell, or manufacture arms and ammunition.

• It was aimed at preventing any potential uprising or revolt by restricting access to weapons.

Additional Information

• The Indian Arms Act, 1878 was one of several laws enacted to maintain British control over India.

• The Act was repealed and replaced by the Arms Act of 1959 post-Independence, which governs the current regulations related to arms and ammunition in India.

• The Arms Act of 1959 aims to curb illegal arms and ensure that firearms are used responsibly.

• Licenses for arms are now issued under the provisions of the 1959 Act, which includes various checks and balances to prevent misuse.

Q91. Answer: (b) Raja Raja Chola

The correct answer is Raja Raja Chola

Key Points

• Raja Raja Chola was the Chola emperor who built the Brihadiswara Temple of Tanjore.

• The Brihadiswara Temple, also known as Peruvudaiyar Kovil, is a Hindu temple dedicated to Shiva and is located in Thanjavur, Tamil Nadu, India.

• It is one of the largest temples in India and is an exemplary example of Dravidian architecture.

• The temple was built around 1010 AD and is a part of the UNESCO World Heritage Site known as the "Great Living Chola Temples".

• Raja Raja Chola I was one of the greatest rulers of the Chola dynasty and his reign marked the peak of Chola power and influence.

Additional Information

• Raja Raja Chola I ruled between 985 and 1014 AD and expanded the Chola Empire to its zenith.

• The Brihadiswara Temple is renowned for its massive Vimana (temple tower) which is one of the tallest in the world.

• The temple complex includes a massive statue of Nandi (the sacred bull) and features intricate carvings and frescoes.

• Raja Raja Chola's contributions to art, architecture, and culture have left a lasting legacy in South India.

• The temple is still an active place of worship and attracts thousands of visitors and pilgrims every year.

Q92. Answer: (a) ENIAC

The correct answer is ENIAC

Key Points

• ENIAC (Electronic Numerical Integrator and Computer) was the first programmable general-purpose computer.

• It was designed and built in the United States during World War II.

• ENIAC was capable of performing a wide variety of calculations, making it a versatile computing machine for its time.

• It was developed by John Presper Eckert and John Mauchly at the University of Pennsylvania.

• ENIAC was completed in 1945 and was used for calculations related to the development of the hydrogen bomb, weather prediction, cosmic ray studies, and other scientific applications.

Additional Information

• ENIAC was a groundbreaking machine that used vacuum tubes for computation and could perform 5,000 additions per second.

• It was a significant advancement over earlier mechanical computers, which were much slower and less reliable.

• The success of ENIAC demonstrated the potential of electronic computing and paved the way for the development of future computers.

• ENIAC's architecture and design principles influenced many subsequent computer designs.

• Despite its size and power consumption, ENIAC marked the beginning of the electronic computing era and had a profound impact on science, engineering, and technology.

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Q93. Answer: (b) 8

The correct answer is 8

Key Points

• The Swarna Singh Committee recommended the inclusion of 8 fundamental duties in the Indian Constitution.

• These duties were intended to serve as a constant reminder to every citizen that while enjoying their rights, they also have certain duties to perform.

• The concept of Fundamental Duties is borrowed from the Constitution of Russia (erstwhile USSR).

• Fundamental Duties were incorporated in Part IV-A of the Constitution by the 42nd Amendment Act, 1976.

Additional Information

• Originally, the Constitution of India did not contain any list of Fundamental Duties.

• The Fundamental Duties are enshrined in Article 51A of the Constitution.

• There are currently 11 Fundamental Duties after the 86th Amendment in 2002 added one more duty.

• These duties are non-justiciable, meaning their violation cannot be taken to court.

• The Fundamental Duties aim to promote a sense of discipline and commitment among the citizens.

Q94. Answer: (d) Climate & environment communication

The correct answer is Climate & environment communication

Key Points

• The Kalpana-1 satellite was launched by ISRO on 12 September 2002 using the Polar Satellite Launch Vehicle.

• Its primary application is in climate and environment communication.

• Kalpana-1 is named after Kalpana Chawla, the first woman of Indian origin in space.

• The satellite helps in meteorological observations and data collection related to weather and climate.

• It plays a crucial role in disaster management by providing vital data for forecasting and monitoring natural calamities like cyclones and floods.

Additional Information

• Kalpana-1 was originally known as METSAT-1 before being renamed in honor of Kalpana Chawla after the Columbia disaster.

• It operates in the geostationary orbit and provides continuous monitoring of weather patterns over the Indian subcontinent.

• Data from Kalpana-1 supports various applications including agriculture, water resources management, and aviation.

• The satellite's instruments include a Very High Resolution Radiometer (VHRR) and a Data Relay Transponder (DRT).

Q95. Answer: (b) Development of rural economy

The correct answer is Development of rural economy

Key Points

• Development of rural economy is the primary aim of Regional Rural Banks (RRBs) in India.

• RRBs were established to provide sufficient banking and credit facilities for agriculture and other rural sectors.

• The focus is on promoting financial inclusion and supporting rural development by providing credit to small and marginal farmers, agricultural laborers, and rural artisans.

• RRBs also aim to enhance the rural economy by providing various financial services and products tailored to the needs of rural residents.

Additional Information

• Regional Rural Banks were established under the RRB Act of 1976.

• They operate under the supervision of the National Bank for Agriculture and Rural Development (NABARD).

• RRBs have a unique structure where they are jointly owned by the Government of India, the concerned State Government, and a Sponsor Bank.

• Their establishment aimed to bridge the gap in the availability of institutional credit in rural areas.

• RRBs play a crucial role in the implementation of various government schemes aimed at rural development and poverty alleviation.

Q96. Answer: (d) Bhubaneswar and Rourkela

The correct answer is Bhubaneswar and Rourkela

Key Points

• Bhubaneswar and Rourkela hosted the Men's Hockey World Cup in 2023.

• Bhubaneswar is the capital city of Odisha and is known for its rich history and cultural heritage.

• Rourkela is a prominent industrial city in Odisha, known for the Rourkela Steel Plant.

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• The Kalinga Stadium in Bhubaneswar and the Biju Patnaik Hockey Stadium in Rourkela were the primary venues for the event.

• This was the second consecutive time that Bhubaneswar hosted the Men's Hockey World Cup, having previously hosted it in 2018.

• The event saw participation from top hockey teams from around the world, competing for the prestigious title.

Additional Information

• Hockey India is the governing body for field hockey in India and was responsible for organizing the event.

• The Men's Hockey World Cup is held every four years, with the International Hockey Federation (FIH) overseeing the tournament.

• India has a rich history in field hockey, having won multiple Olympic gold medals and World Cups.

• The 2023 edition of the Men's Hockey World Cup aimed to promote the sport further in the country and inspire future generations of hockey players.

• Odisha has been actively supporting hockey and has also sponsored the Indian national hockey teams since 2018.

Q97. Answer: (a) Print Preview

The correct answer is Print Preview

Key Points

• Print Preview allows you to see a document's layout and formatting as it will appear when printed.

• This feature is crucial for ensuring that the document's layout, margins, and other formatting elements are correctly set before printing.

• It helps in identifying any potential issues that might affect the final printed version of the document, such as page breaks, alignment, and spacing.

• Using Print Preview can save time and resources by reducing the need for multiple printouts to correct formatting errors.

Additional Information

• Reading View focuses on providing a comfortable reading experience by minimizing distractions and optimizing the document for reading on screen.

• Screen View is not a standard view option in MS Word.

• Draft View is used for quick editing and formatting, showing the text in a simplified layout without displaying the final appearance of the document.

• MS Word offers several view options to cater to different needs, including Print Layout View, which shows the document as it will appear when printed.

Q98. Answer: (b) laya

The correct answer is laya

Key Points

• Laya is the term used in classical Carnatic music to refer to tempo.

• It is a fundamental concept that governs the speed and rhythm of the musical performance.

• The tempo in Carnatic music can be broadly classified into three categories: Vilambita (slow), Madhyama (medium), and Druta (fast).

• Mastery over laya is essential for any Carnatic musician, as it ensures the proper execution of compositions and improvisations.

Additional Information

• Carnatic music is one of the two main subgenres of Indian classical music, the other being Hindustani music.

• It is predominantly practiced in the southern states of India: Tamil Nadu, Karnataka, Andhra Pradesh, and Kerala.

• The structure of a Carnatic music performance is highly intricate, involving a variety of compositions such as Varnams, Kritis, and Tillanas.

• The rhythmic aspect (laya) is complemented by the melodic aspect (raga), creating a rich and complex musical experience.

• Renowned composers in Carnatic music include the Trinity of Carnatic music: Tyagaraja, Muthuswami Dikshitar, and Syama Sastri.

Q99. Answer: (b) indirect redox reaction

The correct answer is indirect redox reaction

Key Points

• An electrochemical cell is a device that converts chemical energy into electrical energy through an indirect redox reaction.

• In an electrochemical cell, oxidation and reduction reactions occur in separate compartments, allowing the transfer of electrons through an external circuit.

• This separation of reactions helps in generating a potential difference that drives the flow of electrons, thus producing electrical

energy.

• Examples of electrochemical cells include galvanic cells and batteries, which are widely used in various applications for power supply.

Additional Information

• Redox reactions involve the transfer of electrons between two species; oxidation refers to the loss of electrons, while reduction refers to the gain of electrons.

• In a galvanic cell, the anode is the site of oxidation, and the cathode is the site of reduction.

• The electrolyte in the cell facilitates the flow of ions, maintaining the charge balance as electrons move through the external circuit.

• Electrochemical cells are fundamental to the operation of batteries, fuel cells, and various types of sensors.

Q100. Answer: (d) Mandamus

The correct answer is Mandamus

Key Points

• The writ of Mandamus in Latin means 'we command'.

• It is issued by a court to a public official, lower court, or government body to perform a duty they are obligated to complete.

• Mandamus is one of the five writs under the Indian Constitution used to enforce the performance of public duties.

• This writ is a powerful tool to ensure that public authorities fulfil their duties as mandated by law.

Additional Information

• The other writs include Habeas Corpus, Certiorari, Prohibition, and Quo Warranto.

• Habeas Corpus is used to bring a person who has been detained unlawfully to court.

• Prohibition is issued by a higher court to a lower court to prevent it from exceeding its jurisdiction.

• Certiorari is issued to transfer a case from a lower court to a higher court for review.

• Quo Warranto is issued to challenge the legality of a person's claim to a public office.

• These writs are essential for the protection of fundamental rights and the enforcement of the rule of law.

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