RRB NTPC CBT-I Official Paper (Held On: 1 Mar 2021 Shift 2) (Previous Year Paper)

RRB NTPC • 2021 • 100 questions • 90 minutes • Answer key and solutions

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Q1. The slogan 'Aaram Haraam Hai' was given by_____.

(a) Subhash Chandra Bose
(b) Bhagat singh
(c) Jawaharlal Nehru
(d) Dayanand Saraswati

Q2. In total how many biosphere reserves are there in India?

(a) 8
(b) 9
(c) 19
(d) 18

Q3. Who was the first chairman of Sangeet Natak Akademi?

(a) Aruna Sairam
(b) Shekhar Sen
(c) PV Rajamannar
(d) Rajendra Prasad

Q4. '_____' is related to 'Business' in the same way as 'Land' is related to 'Agriculture'.

(a) Capital
(b) Businessman
(c) Economy
(d) Government

Q5. A told to B, "I am your paternal uncle. C is my paternal uncle's son and X is my wife". B told A, "Y is my paternal grandmother and you are her youngest son". How is X related to Y?

(a) Son's Wife
(b) Brother's Wife
(c) Daughter
(d) Husband's Sister

Q6. Which country among the following declared 'climate emergency' in 2019?

(a) Austria
(b) Bulgaria
(c) Ireland
(d) Denmark

Q7. Find the compound interest on Rs. 25,000 for 2 years at the rate of 10% per annum when the interest is compounded annually.

(a) Rs. 5,000
(b) Rs. 5,200
(c) Rs. 5,250

(d) Rs. 2,500

Q8. By defeating which country, did china win the 2019 Sudirman Cup?

(a) Japan
(b) Australia
(c) France
(d) India

Q9. Consider the given statement and decide which of the given assumptions is/are implicit in the statement.

Statement:

These eleven players make a good team. So. their team may win the match.

Assumptions:

I. Players in a good team are likely to be well coordinated amongst themselves and help each other win the match.

II. Eleven is big enough the number of players in a team to make the team Win the match.

(a) Both assumptions are implicit.
(b) Only assumption II is implicit.
(c) Only assumption I is implicit.
(d) None of the assumptions is implicit.

Q10. A person purchased a vehicle for Rs. 5,94,828 and sold it for Rs. 6,60,920. What is the percentage profit on the vehicle?

(a) 11 9over11
(b) 1 1over9
(c) 1 9over11
(d) 11 1over9

Q11. Which of the following statements is true with regard to the Election Commission of India?

(a) It is Constituted every four years.
(b) It is a Permanent constitutional body.
(c) It is Constituted every six years.
(d) It is Constituted every five years.

Q12. A question is given followed by two arguments. Decide which of the arguments is/are strong with respect to the question.

Question:

Should mosquitoes be killed when they are around us?

Arguments:

I. Yes, otherwise they can harm us as they are the harbingers of diseases.

II. No, they have wings.

(a) None of the arguments is strong.
(b) Only arguments II is strong.
(c) Both arguments are strong.
(d) Only argument I is strong.

Q13. A boy walks along two adjacent sides of a rectangular field. If he walks along its diagonal, then he saves a distance equal to one-third of the larger side. Find the ratio of larger side to the smaller side.

(a) 12 : 5
(b) 3 : 5
(c) 12 : 3
(d) 2 : 5

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Q14. If 65% of a number is added to 63, then the result is the number itself. the number is?

(a) 100
(b) 180
(c) 165
(d) 200

Q15. 30% of 50% of 85% of an amount is 51. What is the amount?

(a) 300
(b) 350
(c) 400
(d) 250

Q16. Find the value of X.

$(17)^3 + 7^3 \text{over} (17)^2 + 7^2 - x = 24$

(a) x = 127
(b) x = 121
(c) x = 117
(d) x = 119

Q17. COBOL is an example of _____ generation programming language.

(a) 2^(nd)
(b) 1^(st)
(c) 3^(rd)
(d) 4^(th)

Q18. 'Triticum aestivum' is the scientific name of_____.

(a) monkey
(b) mango
(c) wheat
(d) human

Q19. In a certain code language, 'MERGE' is written as 'KCPEC'. How will 'CUT' be written as in that language?

(a) BSR
(b) ASR
(c) ATR
(d) BSQ

Q20. Which of the following is NOT a valid category of alignment in Microsoft Word?

(a) Left
(b) Vertical
(c) Justify
(d) Right

Q21. In a joint military drill,_____ along with japan. Australia and USA held its first Naval Drills in Western Pacific Ocean in May 2019.

(a) India
(b) Canada
(c) France
(d) South Korea

Q22. The given letters stand for various symbols as indicated.

P: +
q: -
R: x
s: ÷

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T: =

U: >

V: <

Select the option which is correct according to the above letter symbols.

(a) 4 R 12 S 3 T 2 R 8
(b) 4 R 12 S 3 T 2 S 8
(c) 4 R 12 S 3 U 2 R 8
(d) 4R 12 P 3 T 2 R 8

Q23. Which of the following places served as a prison for Mahatma Gandhi and Sarojini Naidu between 1942-44?

(a) Birla House
(b) Sabarmati Ashram
(c) Raigad Fort
(d) Aga Khan Palace

Q24. Out of the four words listed, three are alike in some manner and one is different. Select the odd one.

(a) First Class(FC)
(b) AC 3 Tier(3A)
(c) AC 2 tier(2A)
(d) Ticket

Q25. Who discovered blood groups?

(a) Isaac Newton
(b) Karl Landsteiner
(c) Dmitri Mendeleev
(d) Alexander Fleming

Q26. 'Speed' is related to 'Odometer' in the same way as 'Pressure' is related to'_____'.

(a) Hygrometer
(b) Barometer
(c) Thermometer
(d) Ammeter

Q27. The enzyme Alpha-Amylase is present in the _____ of the human body.

(a) Saliva
(b) Skin
(c) Teeth
(d) Hair

Q28. What would be the highest value of X in the given equation?

4X1 + 5Y3 + 2Z7 =1181

(a) 4
(b) 5
(c) 3
(d) 7

Q29. If Y + 1overz = 1 and X + 1overy = 1, then what is the value of XYZ?

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

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Q30. The Ministry of Home Affairs of India is responsible for:

(a) food security
(b) external security
(c) internal security
(d) environmental security

Q31. The highest point of Andaman and Nicobar islands is called_____.

(a) Saddle Peak
(b) Mount Pulag
(c) Semeru
(d) Teide

Q32. Which of the following vedas about the treatment of diseases?

(a) Sama Veda
(b) Yajur Veda
(c) Atharva Veda
(d) Rig Veda

Q33. In a certain code language 'SOLARIZE' is written as '111'. How will 'POSITION' be written as in that language?

(a) 117
(b) 99
(c) 109
(d) 105

Q34. A complete set of nuclear DNA in an organism is called_____.

(a) Tissue
(b) Chromosome
(c) Organelle
(d) Genome

Q35. If 3x + y = 5 and 4x - 3y = 2, then the ratio x : y is:

(a) 7 : 17
(b) 17 : 14
(c) 13 : 14
(d) 17 : 13

Q36. 17^(th) Parallel was the boundary between which two countries?

(a) North Vietnam and South Vietnam
(b) Germany and France
(c) Brazil and Chile
(d) USA and Canada

Q37. Gurdwara Panja Sahib is located in _____.

(a) Canada
(b) India
(c) Pakistan
(d) Sri Lanka

Q38. A network designed and restricted to used by outside vendors or clients of a particular company is known as:

(a) Extranet
(b) Intranet
(c) Internet
(d) Externet

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Q39. To which archipelago does Diego Garcia island belong?

(a) Bonaparte
(b) Chagos
(c) Mergui
(d) Buccaneer

Q40. Which Indian organisation has the motto 'Strength's origin is in Science'?

(a) BARC
(b) NCERT
(c) DRDO
(d) SIDBI

Q41. Who works to make 'Made in India' a label of quality?

(a) Annamrita Foundation
(b) National Innovation Foundation
(c) India Brand Equity Foundation
(d) Diya Foundation

Q42. A can complete a certain job in 18 days. B is 40% more efficient than A. How many days will B alone take to complete the same job?

(a) 12 6over17
(b) 10 6over7
(c) 10 5over18
(d) 12 6over7

Q43. Name the first person to take a solo flight from Mumbai to karachi in 1931.

(a) Nelson Mandela
(b) JRD Tata
(c) CNR Rao
(d) Satyajit Ray

Q44. How many forms of classical dances are there in India according to the Ministry of culture?

(a) 9
(b) 7
(c) 11
(d) 5

Q45. If sec A + tan A = 3over2, then find sec A - tan A

(a) 2over5
(b) 3over5
(c) 2over3
(d) 3over4

Q46. 'Not all animals migrate by choice' is a campaign launched by the:

(a) ESGP
(b) WCCB
(c) AWDF
(d) IPCC

Q47. Zorro had five different flowers A, B, C, D and E. He gave one flower to each of his five friends G, H, I, J and K. J, I and H did not get flowers B and D. K did not get flower B. I did not get flower C or E. J got flower E. Which flower did H get?

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

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(d) A

Q48. In November 2018, SpaceX's Big Falcon Rocket (BFR) was renamed as ____ by its CEO Elon Musk.

(a) Moonship
(b) Starfish
(c) Sunship
(d) Starship

Q49. Which of the following is a common factor of
(89^(89) + 87^(89)) and (89^(97 +)87^(97)).

(a) 186
(b) 174
(c) 176
(d) 178

Q50. Find the number of sides of a regular polygon if the measure of each of its exterior angle is 36^o

(a) 6
(b) 25
(c) 12
(d) 10

Q51. Find the positive value of
√(41-√(21+√(19-√9))) = ?

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

Q52. Which of the following is related to the 61^(st) Amendment of the Constitution of India?

(a) Advancement of economically weaker sections of citizens
(b) Extended the period of reservation of seats
(c) Incorporation of Goa, Daman and Diu as a union territory
(d) Lowered the voting age of elections

Q53. A sum of money deposited at compound interest becomes double after 8 years, After 32 year, it will become:

(a) 18 times
(b) 14 times
(c) 16 times
(d) 12 times

Q54. If 1.2 : y :: 3.6 : 4.8, then find the value of y.

(a) y = 4over5
(b) y = 7over5
(c) y = 5over8
(d) y = 8over5

Q55. In 2019, _____ was appointed as Chief Technology Officer (CTO) of Walmart.

(a) Kevin Systrom
(b) Werner Vogels
(c) Mike Schroepfer
(d) Suresh Kumar

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Q56. Select the letter cluster that can replace the (?) in the following series.

TSR, QPO, NML, ?

(a) GHI
(b) IJK
(c) KJI
(d) JKL

Q57. Solve the following.

1/2 ÷3/4(2/5-1/3)over12/3×3/4-1/4×2/3 = ?

(a) 9over195
(b) 2over195
(c) 8over195
(d) 3over195

Q58. In a moderately asymmetrical distribution, the values of the mode and the mean are 31.5 and 34.2 respectively. Find the median of the distribution.

(a) 30.3
(b) 34.3
(c) 33.3
(d) 33.0

Q59. Which of the following is the oldest newspaper of India still in circulation?

(a) Bombay Samachar
(b) Udant Martand
(c) Samachar Darpan
(d) Amrita Bazaar Patrika

Q60. Read the given statements and conclusions carefully and decide which of the conclusions logically follow(s) from the statements.

Statements:

a) All SIMs are phones.

b) Some phones are smart.

c) No phone is a keypad.

Conclusions:

i. No SIM is a keypad.

ii. Some SIMs are keypads.

iii. Some phones are keypads.

(a) Only (iii) follows.
(b) Only (i) follows.
(c) None of (i), (ii), (iii) follows.
(d) Only (ii) follows.

Q61. Find the third term in a sequence of positive numbers that will leave remainders 1, 2 and 5 when divide by 2, 3 and 6 respectively.

(a) 11
(b) 17
(c) 23
(d) 29

Q62. Pradhan Mantri Jan-Aushadhi Scheme comes under which ministry?

(a) Ministry of Finance
(b) Ministry of Chemical and Fertilizers
(c) Ministry of Agriculture & Farmers' Welfare
(d) Ministry of Housing and Urban Affairs

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Q63. What is the theme of the 2019 International Day of UN Peacekeepers?

(a) Investing in Peace around the world
(b) 70 Years of Service and Sacrifice
(c) Maintaining Peace Around the World
(d) Protecting Civilians, Protecting Peace

Q64. Which of the following is a prime number?

(a) 273
(b) 143
(c) 147
(d) 137

Q65. what is the melting point of the tungsten filament used in bulbs?

(a) 1000°C
(b) 30°C
(c) 300°C
(d) 3422°C

Q66. A said to B, 'I am a wise granddaughter of my maternal grandmother X and though I have only one sister, you are the sister of my maternal uncle'. B told A, 'Though I am married, I don't have any children but my husband C has a brother D and E is D's son.' How is X related to C?

(a) Wife's Mother
(b) Maternal Aunt
(c) Mother
(d) Wife's Sister

Q67. With how many states of India does Nepal share its boundaries?

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

Q68. In a group of 36 persons, where each one drinks at least one of tea or milk, 18 persons drink tea but not milk and 22 persons drink tea. How many of them drink milk but not tea ?

(a) 13
(b) 18
(c) 14
(d) 15

Q69. How much money will a farmer get annually as per the PM-KISAN samman nidhi launched by the central Government?

(a) Rs. 5000
(b) Rs. 6000
(c) Rs. 7000
(d) Rs. 8000

Q70. The United Nations has declared 2019 as the_____.

(a) International Year of Indigenous Languages
(b) International year of Family Farming
(c) International year of Plant Health
(d) International Year of Sustainable Tourism for Development

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Q71. An item is sold for Rs. 289 at a loss of 15%. What is the cost price (in Rs.) of the item?

(a) 320
(b) 341
(c) 342
(d) 340

Q72. A rectangular room has an area 60 m² and perimeter 34 m. Find the length of its diagonal.

(a) 14.5m
(b) 12m
(c) 13m
(d) 13.5m

Q73. A circle of radius 9 cm circumscribed a regular hexagon. The length of the side of the hexagon is:

(a) 9 cm
(b) 7 cm
(c) 10 cm
(d) 12 cm

Q74. Which largest number will divide 627 and 233 leaving remainders of 11 and 13 respectively?

(a) 33
(b) 23
(c) 44
(d) 22

Q75. Find the value of

tan 11º tan 41º tan 45º tan 49º tan 79º

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

Q76. A is 20% more efficient than B. How much time will they be working together to complete a job which A alone could have completed in 35 days?

(a) 9 1over11 days
(b) 1 1over11 days
(c) 29 1over11 days
(d) 19 1over11 days

Q77. Calculate the mean for the following data.

1.5, 3.2, 5.7, 7.5, 11.2

(a) 5.62
(b) 5.89
(c) 5.82
(d) 5.92

Q78. Goa annually celebrates its Statehood Days on_____.

(a) 30 June
(b) 15 June
(c) 30 May
(d) 15 May

Q79. Alexander and Porus fought on the banks of which of the following rivers?

(a) Parusni
(b) Indus
(c) Ganga

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(d) Jhelum

Q80. The ratio of the speeds of a car, a train and a bus is 4 : 7 : 3. The average of the speeds of the car the bus and the train is 70 km/h. What is the average of the speeds of the car and the train?

(a) 83 km/h
(b) 82.5 km/h
(c) 81.5 km/h
(d) 81 km/h

Q81. Arrange the following words in the order in which they appear in an English dictionary.

1) Quiet 2) Queen 3) Quarrel 4) Quint 5) Quota

(a) 32145
(b) 32415
(c) 24135
(d) 23145

Q82. Who was the third ruler ruler of the Mamluk dynasty?

(a) Qutb-ud-Din-Aibak
(b) Iltutmish
(c) Balban
(d) Razia Sultan

Q83. The value of (31/5-3/5)÷8/5over11/7÷ {1/7-(1/7÷1/5)} is:

(a) 13over16
(b) -1/16
(c) -13/16
(d) 3over16

Q84. Out of the four sports listed, three are alike in some manner and one is different. Select the odd one.

(a) Wrestling
(b) Judo
(c) Boxing
(d) Hockey

Q85. Corals are marine invertebrates within the class Anthozoa of the phylum_____.

(a) Arthropoda
(b) Cnidaria
(c) Mollusca
(d) Nematoda

Q86. Select the number that can replace the question mark (?) in the following series.

1331, 1728, ?, 2744

(a) 2567
(b) 2456
(c) 2497
(d) 2197

Q87. Four numbers have been given, out of which three are alike in some manner and one is different. Select the number that is different from the rest.

(a) 7142
(b) 4185
(c) 6183
(d) 8349

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Q88. Read the given statements and conclusions carefully and decide which of the conclusions logically follow(s) from the statements.

Statements:

a. All books are fiction.

b. All fiction are sci-fi.

c. All sci-fi are movies.

Conclusions:

i. All movies are fiction.

ii. All sci-fi are books.

iii. All movies are books.

(a) None of (i), (ii) and (iii) follows.
(b) Only (i) and (ii) follow.
(c) (i), (ii) and (iii) follows.
(d) Only (ii) and (iii) follow.

Q89. Select the letter cluster that can replace the (?) in the following series.

MJ, PM, SP, VS, ?

(a) YV
(b) YU
(c) YX
(d) YW

Q90. Out of the four words listed, three are alike in some manner and one is different. Select the odd one.

(a) Ludo
(b) Carrom
(c) Chess
(d) Aerobics

Q91. Select the option that is related to the fourth term in the same way as the first term is related to the second term.

Uttarakhand : Mussoorie :: ? : Shillong

(a) Assam
(b) Arunachal Pradesh
(c) Meghalaya
(d) Sikkim

Q92. Select the option that can replace the question mark (?) in the following series.

Y84, T80, O75, J69, E62, ?

(a) A48
(b) Z54
(c) A54
(d) Z52

Q93. Read the given information carefully and answer the question that follows.

Seven students P, Q, R, S, T, U and V, are standing in a row, from left to right in increasing order of their weights. P is standing at the middle position. R and V are at the second positions from the right and left sides, respectively. U is standing immediately after R. T is standing between R and P. S is at the third position from the least weight side.

Whose weight is minimum among all the students?

(a) S
(b) Q
(c) V
(d) T

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Q94. Select the option that is related to the third term in the same way as the second term is related to the first term.

Museum : View :: Library : ?

(a) Information
(b) Read
(c) Book
(d) Knowledge

Q95. Select the correct combination and order of mathematical signs to replace Y and balance the given equation.

16 Y 4 Y 6 Y 12 Y 2

(a) ÷, ×, =, ×
(b) ÷, -, =,-
(c) ×, =, -, ÷
(d) ÷, ×, =, -

Q96. Select the option that is related to the third number in the same way as the second number is related to the first number.

49 : 81 :: 121 : ?

(a) 280
(b) 169
(c) 194
(d) 145

Q97. Select the number that can replace the question mark(?) in the following series.

1, 4, 7, 2, 5, 8, 3, 6, ?

(a) 12
(b) 2
(c) 10
(d) 9

Q98. Eight executives A, B, C, D, E, F, G and H of a company XYZ are sitting around a circular table facing towards the center (not necessarily in the same order). A is not the neighbour of B. Only one executive sits between F and G. Only two executives sit between E and H. D is third to the right of B and is the immediate neighbour of H. A sits second to the right of C. F is the neighbour of A.

What is the position of F with respect to H?

(a) F is second to the left of H
(b) F is third to the left of H
(c) F is fourth to the left of H
(d) F is to the immediate left of H

Q99. Rahul, Virat, Yusuf, Sunil and Robert are friends. Sunil, Virat and Rahul play cricket. Yusuf plays football, tennis and badminton. Football and tennis are played by only Yusuf and Robert. Rahul and Sunil play hockey and badminton. Sunil also does swimming whereas Robert also likes hockey.

Which of the following sports is played by only one player?

(a) Cricket
(b) Tennis
(c) Swimming
(d) Football

Q100. In a certain code language, ‘CARDIO’ is written as ‘& * ^ % $ #”, ‘PARA’ is written as ‘$ % S %’ and ‘CAR’ is written as ‘# $ %*. Which of the following can be the code for ‘RADIO’ in that language?

(a) % ^ * &
(b) % ^ * & $
(c) S % ^ # &
(d) $ ^ * S %

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ANSWER KEY

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

SOLUTIONS

Q1. Answer: (c) Jawaharlal Nehru

The correct answer is Jawaharlal Nehru.

Key Points

• The slogan "Aaram Haraam Hai" was given by Jawaharlal Nehru, the first Prime Minister of India.

• Nehru served as the first Prime Minister from 1947 until he died in 1964, playing a crucial role in shaping modern India.

• Nehru's notable works include:-

• Towards freedom (Autobiography) (1936)

• The Discovery of India (1946)

• Glimpses of World History (1934).

• Nehru became the General Secretary of the All India Congress Committee in September 1923.

• He was honored with the Bharat Ratna, India's highest civilian award in 1955.

Additional Information

• Subhash Chandra Bose:-

• He founded the Indian National Army during World War II to fight against British colonial rule.

• Bose was initially a key member of the Indian National Congress and served as its President in 1938 but later resigned due to ideological differences.

• He declared the formation of the Azad Hind Government in 1943 in Singapore, proclaiming it as the provisional government of free India.

• He popularized the slogan "Give me blood, and I shall give you freedom!" which inspired many Indians to join the freedom struggle.

• He is often referred to as "Netaji" (meaning "Respected Leader").

• Bhagat Singh:-

• He is known for his radical approach against British colonial rule.

• His slogan 'Inquilab Zindabad', meaning 'Long Live the Revolution', still resonates with many.

• Bhagat Singh joined the Hindustan Socialist Republican Association (HSRA), a revolutionary organization that aimed to overthrow British rule through armed struggle.

• On April 8, 1929, Bhagat Singh and Batukeshwar Dutt threw non-lethal bombs in the Central Legislative Assembly to protest repressive laws, shouting slogans for revolution.

• Bhagat Singh was sentenced to death for the murder of John Saunders, a police officer, and was executed on March 23, 1931, along with Rajguru and Sukhdev.

• Dayanand Saraswati:-

• He founded the Arya Samaj in 1875.

• His slogan was "Go back to the Vedas!".

• He authored "Satyarth Prakash," which critiques religious dogmas and promotes rational thought.

• Dayanand strongly opposed social evils like caste discrimination, idol worship, and superstitions prevalent in society.

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Q2. Answer: (d) 18

The correct answer is 18.

Key Points

• As of now, India has a total of 18 biosphere reserves distributed across the country.

• These biosphere reserves are areas of terrestrial and coastal ecosystems promoting solutions to reconcile the conservation of biodiversity with its sustainable use.

• The first biosphere reserve in India was the Nilgiri Biosphere Reserve, established in 1986.

• Some notable biosphere reserves include Sundarbans, Nanda Devi, Nokrek, and Great Nicobar.

Additional Information

• Biosphere Reserves

• Biosphere reserves are areas of terrestrial and coastal/marine ecosystems or a combination thereof, which are internationally recognized within the framework of UNESCO's Man and the Biosphere (MAB) Programme.

• The main aim of biosphere reserves is to conserve biological and cultural diversity, and promote economic and social development through partnerships between people and nature.

• Biosphere reserves involve local communities and all interested stakeholders in planning and management.

• They integrate three main "functions": conservation of biodiversity, economic development, and logistic support for research and education.

• Nilgiri Biosphere Reserve

• It is the first biosphere reserve in India, established in 1986.

• The reserve encompasses parts of Tamil Nadu, Kerala, and Karnataka.

• The Nilgiri Biosphere Reserve is known for its rich biodiversity, including several endangered species of flora and fauna.

• Sundarbans Biosphere Reserve

• It is located in the Ganges Delta and is known for its unique mangrove forests.

• The Sundarbans is home to the famous Royal Bengal Tiger and many other species of wildlife.

• The area is also recognized for its role in protecting the coastal regions from cyclones and tidal surges.

• Nanda Devi Biosphere Reserve

• Situated in the state of Uttarakhand, it includes the Nanda Devi and Valley of Flowers National Parks.

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

• The area is also a UNESCO World Heritage Site.

Q3. Answer: (c) PV Rajamannar

The correct answer is PV Rajamannar.

Key Points

• PV Rajamannar was the first chairman of the Sangeet Natak Akademi.

• Sangeet Natak Akademi is India's national academy for music, dance, and drama.

• The Akademi was established in 1952 by the Indian government to promote and preserve the performing arts of India.

• As the first chairman, PV Rajamannar played a significant role in laying down the foundation and vision of the Akademi.

Additional Information

• Sangeet Natak Akademi

• It is an autonomous body under the Ministry of Culture, Government of India.

• The Akademi's main objectives are to promote the development of music, dance, and drama in India.

• It organizes performances, training programs, and awards to encourage artists.

• The Akademi also maintains a vast archive of recordings and documentation of various performing arts.

• Aruna Sairam

• A renowned Carnatic vocalist known for her contributions to Indian classical music.

• She has received numerous awards and honors, including the Padma Shri.

• However, she was not the first chairman of the Sangeet Natak Akademi.

• Shekhar Sen

• An Indian singer, music composer, lyricist, and actor.

• He served as the chairman of the Sangeet Natak Akademi from 2015 to 2020.

• He is known for his monoact musical plays and contributions to Indian arts.

• Rajendra Prasad

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• The first President of India and a prominent freedom fighter.
• He played a key role in the Indian independence movement and the formation of the Indian Republic.
• However, he was not associated with the Sangeet Natak Akademi as its chairman.

Q4. Answer: (a) Capital

The logic followed here is:
Logic: Resource required for an activity.
Here,
Land : Agriculture → Land is a resource required for Agriculture.
Similarly,
Capital : Business → Capital is a resource required for Business.
Hence, the correct answer is "Option 1".

Q5. Answer: (a) Son's Wife

Given:
1) A told to B, "I am your paternal uncle. C is my paternal uncle's son and X is my wife".
2) B told A, "Y is my paternal grandmother and you are her youngest son".
Thus, X is Y's daughter-in-law or son's wife.
Hence, the correct answer is "Option 1".

Q6. Answer: (c) Ireland

The correct answer is Ireland.
Key Points
• Ireland declared a climate emergency on May 9, 2019, making it the second country in the world to do so.
• This declaration was made following a report by the Joint Committee on Climate Action that called for more urgent actions to address climate change.
• The motion to declare a climate emergency was passed without a vote in the Irish parliament, showing a broad consensus on the issue.
• The declaration acknowledges the severe impacts of climate change and commits to taking more aggressive actions to mitigate its effects.
Additional Information
• Climate Emergency
• A climate emergency is a situation in which urgent action is required to reduce or halt climate change and avoid potentially irreversible environmental damage resulting from it.
• The term is often used to convey the urgency of the climate crisis and to push for more aggressive climate policies.
• The declaration of a climate emergency typically involves commitments to reduce greenhouse gas emissions, transition to renewable energy, and implement sustainable practices across various sectors.
• Greenhouse Gas Emissions
• Greenhouse gases (GHGs) are gases that trap heat in the atmosphere, leading to global warming and climate change.
• The most common GHGs include carbon dioxide (CO2), methane (CH4), nitrous oxide (N2O), and fluorinated gases.
• Reducing GHG emissions is crucial to mitigating the impacts of climate change and requires coordinated efforts across industries and governments.
• Renewable Energy
• Renewable energy comes from sources that are naturally replenished, such as solar, wind, hydro, and geothermal energy.
• Transitioning to renewable energy is a key strategy in reducing reliance on fossil fuels and lowering greenhouse gas emissions.
• Investments in renewable energy technologies are essential to achieving long-term sustainability and combating climate change.
• Sustainable Practices
• Sustainable practices involve using resources in a way that meets present needs without compromising the ability of future generations to meet their own needs.
• This includes practices such as reducing waste, conserving water, and promoting energy efficiency.
• Adopting sustainable practices across all sectors is critical to ensuring environmental health and economic stability.

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Q7. Answer: (c) Rs. 5,250

Given:

Principal (P) = Rs. 25,000

Rate (r) = 10% per annum

Time (t) = 2 years

Formula used:

Compound Interest (CI) = P (1+r/100)^t - 1

Calculation:

CI = 25000 $(1+10/100)^2$ - 1

=> CI = 25000 $(1+10/100)^2$ - 1

=> CI = 25000 $(1+10/100)^2$ - 1

=> CI = 25000 $(1.1)^2$ - 1

=> CI = 25000 (1.21 - 1)

=> CI = 25000 (0.21)

=> CI = 25000 × 0.21

=> CI = Rs. 5,250

Therefore The correct answer is option (3).

Q8. Answer: (a) Japan

The correct answer is Japan.

Key Points

• China defeated Japan to win the 2019 Sudirman Cup.

• The final match was held on 26th May 2019.

• China won the Sudirman Cup by a score of 3-0 in the final.

• This victory marked China's 11th Sudirman Cup title.

Additional Information

• Sudirman Cup

• The Sudirman Cup is a mixed team badminton championship which takes place every two years.

• The tournament was first held in 1989 in Jakarta, Indonesia.

• It is named after Dick Sudirman, a former Indonesian badminton player and the founder of the Badminton Association of Indonesia (PBSI).

• Teams from all over the world participate, competing in five categories: men's singles, women's singles, men's doubles, women's doubles, and mixed doubles.

• China's Dominance

• China is the most successful team in the history of the Sudirman Cup, having won it 11 times.

• Their dominance in badminton is attributed to a strong infrastructure for the sport and a rigorous training program.

• China has produced numerous world-class badminton players who have excelled in various international tournaments.

• Japan's Performance

• Japan has been a strong contender in international badminton, and reaching the final in 2019 was a significant achievement.

• Japanese players have shown remarkable progress in recent years, winning several titles in both individual and team events.

Q9. Answer: (c) Only assumption I is implicit.

Given Statement: These eleven players make a good team. So, their team may win the match.

Now,

Assumptions:

1. Players in a good team are likely to be well coordinated amongst themselves and help each other win the match - Implicit (Players' coordination and mutual support are key factors in winning the match)

2. Eleven is big enough the number of players in a team to make the team Win the match - Not Implicit (The statement doesn't imply that the number eleven itself is sufficient for winning, but rather focuses on the quality and coordination of the team)

Here, Only assumption I is implicit.

Hence, the correct answer is "Option 3".

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Q10. Answer: (d) 11 1over9

Given:

Cost Price (CP) = Rs. 5,94,828

Selling Price (SP) = Rs. 6,60,920

Formula used:

Percentage Profit = (SP - CP)/CP × 100

Calculation:

Percentage Profit = (6,60,920 - 5,94,828)/(5,94,828) × 100

=> Percentage Profit = (66,092)/(5,94,828) × 100

=> Percentage Profit = (66,092 × 100)/(5,94,828)

=> Percentage Profit = (66,092)/(5,948.28)

=> Percentage Profit = 11.11%

=> Percentage Profit = 111/9

Therefore The correct answer is option (4).

Q11. Answer: (b) It is a Permanent constitutional body.

The correct answer is It is a Permanent constitutional body.

Key Points

• The Election Commission of India is established by the Constitution of India under Article 324.

• It is a permanent body, which means it is not dissolved after a certain period and continues to function perpetually.

• The main responsibility of the Election Commission is to conduct free and fair elections in India at both the central and state levels.

• The Commission consists of the Chief Election Commissioner and other Election Commissioners, appointed by the President of India.

Additional Information

• Constitutional Body:

• A constitutional body is an organization established by the Constitution of a country.

• It derives its powers, functions, and responsibilities from the Constitution itself, making it an integral part of the country's governance framework.

• Article 324:

• Article 324 of the Indian Constitution provides for the establishment of the Election Commission of India.

• It vests the superintendence, direction, and control of elections in the Election Commission.

• Chief Election Commissioner:

• The Chief Election Commissioner (CEC) is the head of the Election Commission of India.

• The CEC is appointed by the President of India and holds office for a term of six years or until reaching the age of 65 years, whichever is earlier.

• Functions of the Election Commission:

• Conducting elections for the Parliament, State Legislatures, and the offices of the President and Vice-President in India.

• Preparing and updating the electoral rolls to ensure eligible voters are registered.

• Monitoring and regulating the conduct of political parties and candidates to ensure free and fair elections.

• Implementing the Model Code of Conduct during elections to maintain order and fairness.

Q12. Answer: (d) Only argument I is strong.

Given:

Statement :

Should mosquitoes be killed when they are around us?

Now,

Arguments :

I. Yes, otherwise they can harm us as they are the harbingers of diseases - True (This is strong because mosquitoes are indeed carriers of diseases such as malaria, dengue, and chikungunya, so eliminating them when they are around can protect us from potential harm.).

II. No, they have wings - False (This is weak because the fact that mosquitoes have wings does not provide a valid reason against killing them when they are around).

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So, Only argument I is strong.

Hence, the correct answer is "Option 4".

Q13. Answer: (a) 12 : 5

Given:

A boy walks along two adjacent sides of a rectangular field.

If he walks along the diagonal, he saves a distance equal to one-third of the larger side.

Let:

Length of the larger side = L

Length of the smaller side = S

Formula used:

The distance saved by walking along the diagonal is:

Distance saved = $(L + S) - \sqrt{(L^2 + S^2)}$

According to the problem:

$(L + S) - \sqrt{(L^2 + S^2)} = (1/3)L$

Calculation:

$\Rightarrow (L + S) - (1/3)L = \sqrt{(L^2 + S^2)}$

$\Rightarrow (2/3)L + S = \sqrt{(L^2 + S^2)}$

Squaring both sides:

$\Rightarrow ((2/3)L + S)^2 = L^2 + S^2$

$\Rightarrow (4/9)L^2 + (4/3)LS + S^2 = L^2 + S^2$

$\Rightarrow (4/9)L^2 + (4/3)LS = L^2$

$\Rightarrow (4/9)L^2 - L^2 + (4/3)LS = 0$

$\Rightarrow (-5/9)L^2 + (4/3)LS = 0$

$\Rightarrow 5L^2 = 12LS$

$\Rightarrow L/S = 12/5$

Therefore The ratio of the larger side to the smaller side is 12:5.

Q14. Answer: (b) 180

Given:

If 65% of a number is added to 63, then the result is the number itself.

Formula used:

Let the number be x.

$0.65x + 63 = x$

Calculation:

$0.65x + 63 = x$

$\Rightarrow 63 = x - 0.65x$

$\Rightarrow 63 = 0.35x$

$\Rightarrow x = 63/0.35$

$\Rightarrow x = 180$

Therefore The correct answer is option (2).

Q15. Answer: (c) 400

Given:

30% of 50% of 85% of an amount is 51.

Formula used:

Let the amount be x.

30% of 50% of 85% of x = 51

Calculation:

30% of 50% of 85% of x = 51

$\Rightarrow (30/100) \times (50/100) \times (85/100) \times x = 51$

$\Rightarrow (0.30) \times (0.50) \times (0.85) \times x = 51$

$\Rightarrow 0.1275 \times x = 51$

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=> x = 51 / 0.1275

=> x = 400

Therefore The correct answer is option 3.

Q16. Answer: (d) x = 119

Given:

$(17)^3 + (7)^3 / (17)^2 + (7)^2 - x = 24$

Formula used:

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

Calculation:

$(17)^3 + (7)^3 = (17 + 7)((17)^2 - 17 \times 7 + (7)^2)$

$\Rightarrow (17 + 7)((17)^2 - 17 \times 7 + (7)^2) / (17)^2 + (7)^2 - x = 24$

$\Rightarrow 24 \times (17)^2 + 24 \times (7)^2 - 24x = (17)^3 + (7)^3$

$\Rightarrow 24 \times 289 + 24 \times 49 - 24x = 4913 + 343$

$\Rightarrow 6936 + 1176 - 24x = 5256$

$\Rightarrow 8112 - 24x = 5256$

$\Rightarrow 24x = 8112 - 5256$

$\Rightarrow 24x = 2856$

$\Rightarrow x = 2856 / 24$

$\Rightarrow x = 119$

Therefore The correct answer is option (4).

Q17. Answer: (c) 3^(rd)

The correct answer is 3^(rd).

Key Points

• COBOL is classified as a third-generation programming language, designed for business and administrative systems.

• COBOL stands for "Common Business-Oriented Language" and is primarily used for data processing in finance and government sectors.

• COBOL is known for its readability, using English-like syntax, which makes it easier for non-programmers to understand.

• COBOL is still widely used in legacy systems, especially in large-scale batch-processing systems for banks and insurance companies.

Additional Information

• First-Generation Languages (1GL)

• Machine Language: This generation involves machine-level programming, consisting of binary code (0s and 1s).

• Direct Hardware Interaction: Programmers write instructions that the CPU directly understands.

• Example: Binary code for early computers.

• Second-Generation Languages (2GL)

• Assembly Language: Uses mnemonics (symbolic code) for instructions, which are translated into machine code using an assembler.

• Low-Level Programming: Provides closer control over hardware, but is still difficult to work with.

• Example: Assembly Language.

• Third-Generation Languages (3GL)

• High-Level Language: Offers more abstraction from the hardware, allowing the programmer to focus on logic rather than machine code.

• Improved Readability and Portability: Code written in 3GL can run on different hardware systems with minimal changes.

• Example: COBOL, C, FORTRAN.

• Fourth-Generation Languages (4GL)

• Application-Oriented: These languages are designed to be more user-friendly, and often used for database queries and report generation.

• Minimal Programming Required: Aimed at reducing the complexity of software development by automating repetitive tasks.

• Example: SQL, MATLAB.

• Fifth-Generation Languages (5GL)

• Logic-Based and AI-Oriented: These languages are based on problem-solving using constraints rather than specific algorithms.

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• AI and Expert Systems: They are used in artificial intelligence and machine learning.
• Example: Prolog, Mercury.

Q18. Answer: (c) wheat

The correct answer is Wheat.

Key Points

• Triticum aestivum is the most widely cultivated species of wheat, used for bread making.
• It belongs to the Poaceae (grass) family and is essential for staple cereal grains like wheat, rice, and maize.
• Wheat is a key source of carbohydrates, providing a large portion of the world's food supply.
• It thrives in temperate climates and is grown globally, with major producers being China, India, and Russia.

Additional Information

• Monkey
• Common monkeys, like the rhesus macaque, have the scientific name Macaca mulatta.
• Monkeys belong to the primate order, sharing evolutionary traits with humans such as opposable thumbs.
• Mango
• Mango is a tropical fruit with the scientific name Mangifera indica.
• Mango holds cultural and economic significance in India as the national fruit and is widely consumed.
• Human
• Humans are classified under the species Homo sapiens in the animal kingdom.
• Humans are part of the primates order, closely related to other species like monkeys and apes in evolution.

Q19. Answer: (b) ASR

The logic followed here is:

'MERGE' is written as 'KCPEC'

Similarly,

'CUT' will be written as

Hence, "Option 2" is the correct answer.

Q20. Answer: (b) Vertical

The correct answer is Vertical.

Key Points

• Microsoft Word was first released in 1983. It was originally developed for MS-DOS and later adapted for other operating systems.
• Microsoft Word uses a Ribbon interface where all commands are organized into tabs like Home, Insert, and Layout, making it user-friendly.
• Word documents are saved with the extension .docx, which is the default format in newer versions. It also supports older formats like .doc for compatibility.
• The Find feature (Ctrl + F) helps in locating specific words, while Replace (Ctrl + H) allows for replacing text quickly throughout the document.

Additional Information

• Left Alignment: This is the default alignment in Word where text is aligned to the left margin while the right edge remains uneven.
• Right Alignment: Text is aligned to the right margin, and the left edge is uneven, commonly used for numbering and headers.
• Justify Alignment: Text is spaced to align with both the left and right margins, creating a clean block of text on both sides.
• Word allows users to apply predefined styles for headings, paragraphs, and text for consistent formatting, which is essential in creating professional documents.
• The Track Changes feature allows users to track edits made in a document, making it useful for reviewing and collaborating on documents.
• The Mail Merge feature helps create personalized documents like letters or labels by linking a Word document with a data source (like Excel) for mass distribution.

Q21. Answer: (d) South Korea

The correct answer is South Korea.

Key Points

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• The joint naval drills took place in May 2019 in the Western Pacific Ocean, focusing on enhancing maritime security and cooperation.

• The exercise involved South Korea, Japan, Australia, and the United States, highlighting their collaborative efforts in regional security.

• The primary aim of the drills was to improve interoperability among the navies of the participating countries and to respond effectively to security challenges in the region.

• These drills were significant in the context of increasing tensions in the Asia-Pacific region, particularly concerning North Korea's military activities and regional stability.

Additional Information

Country	Exercise Name	Key Focus
India	Honey	Trilateral naval exercise with the USA and Japan; focuses on maritime security and interoperability.
	Yudh Abhyas	Annual joint military exercise with the USA; enhances interoperability and shares best practices.
Canada	Maple Resolve	Annual exercise for Canadian Armed Forces and allies; prepares for operations in complex environments.
	Operation Projection	Series of deployments to enhance security and stability in international waters and support allied operations.
France	Joan of Arc	Naval exercise for operational training; strengthens partnerships with other nations.
	Orio	Multinational exercise to test and improve NATO interoperability among allies and partners.

Q22. Answer: (a) 4 R 12 S 3 T 2 R 8

Decoding symbols:

Symbol	P	Q	R	S	T	U	V
Meaning	•	•	×	÷	=		<

So checking each option one by one:

Option 1) 4 R 12 S 3 T 2 R 8 => 4 × 12 ÷ 3 = 2 × 8

=> 4 × 12 ÷ 3 = 2 × 8

=> 4 × 4 = 16

=> 16 = 16 (LHS = RHS)

Option 2) 4 R 12 S 3 T 2 S 8 => 4 × 12 ÷ 3 = 2 ÷ 8

=> 4 × 12 ÷ 3 = 2 ÷ 8

=> 4 × 4 = 0.25

=> 16 ≠ 0.25 (LHS ≠ RHS)

Option 3) 4 R 12 S 3 U 2 R 8 => 4 × 12 ÷ 3 > 2 × 8

=> 4 × 12 ÷ 3 > 2 × 8

=> 4 × 4 > 16

=> 16 > 16 (LHS > RHS)

Option 4) 4R 12 P 3 T 2 R 8 => 4 × 12 + 3 = 2 × 8

=> 4 × 12 + 3 = 2 × 8

=> 48 + 3 = 16

=> 51 ≠ 16 (LHS ≠ RHS)

Hence, "Option 1" is the correct answer.

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Q23. Answer: (d) Aga Khan Palace

The correct answer is Aga Khan Palace.

Key Points

• Aga Khan Palace was used to imprison Mahatma Gandhi, Sarojini Naidu, and other leaders of the Quit India Movement (1942-44).

• Kasturba Gandhi and Mahadev Desai passed away during their imprisonment at the palace.

• The palace became a symbol of the freedom struggle and is now a national monument.

• It is located in Pune, Maharashtra, and is an important site of Indian history.

Additional Information

• Birla House:

• It was the iconic residence of Mahatma Gandhi in Delhi, deeply associated with his final moments.

• Mahatma Gandhi was tragically assassinated here on January 30, 1948, a sorrowful day in India's history.

• Sabarmati Ashram:

• It is located in Ahmedabad, Gujarat, this ashram was Gandhi's peaceful home from 1917 to 1930.

• It was the starting point of the historic Dandi March (Salt March) in 1930, a monumental act of civil disobedience.

• Raigad Fort:

• Raigad Fort, majestically perched in Maharashtra, was the proud capital of Chhatrapati Shivaji Maharaj.

• Raigad Fort is part of the Western Ghats, recognized for its cultural significance and listed as a UNESCO (World Heritage Site).

Q24. Answer: (d) Ticket

The logic followed here is:

First Class (FC)	Train Class
AC 3 Tier (3A)	Train Class
AC 2 Tier (2A)	Train Class
Ticket	Not a Train Class

First Class (FC), AC 3 Tier (3A), and AC 2 Tier (2A) all are Train Classes,

Whereas,

Ticket is not a Train Class.

Hence, the correct answer is "Ticket".

Q25. Answer: (b) Karl Landsteiner

The correct answer is Karl Landsteiner.

Key Points

• Karl Landsteiner discovered the ABO blood group system in 1901, which categorized blood into four main types: A, B, AB, and O.

• His discovery was crucial for safe blood transfusions, preventing adverse reactions due to incompatible blood types.

• Landsteiner was awarded the Nobel Prize in Physiology or Medicine in 1930 for his work on blood groups.

• Blood is composed of plasma (55%) and formed elements (45%), which include red blood cells (RBCs), white blood cells (WBCs), and platelets.

Additional Information

• Isaac Newton:

• He is Known for the law of universal gravitation, which explains the attraction between masses, crucial for physics.

• His work laid the groundwork for classical mechanics, influencing many scientific fields.

• Dmitri Mendeleev:

• He Developed the Periodic Table of Elements, which organizes elements by atomic number and properties, essential for chemistry studies.

• Predicted the existence of undiscovered elements based on his table, demonstrating the importance of systematic classification in science.

• Alexander Fleming:

• He Discovered penicillin, the first true antibiotic, which transformed medical treatment and reduced mortality from bacterial infections.

• His work led to the development of other antibiotics, playing a vital role in modern medicine.

Q26. Answer: (b) Barometer

The logic followed here is:

Logic: Measuring Instruments.

Here,

Speed : Odometer → Odometer is an instrument used to measure speed.

Similarly,

Pressure : Barometer → Barometer is an instrument used to measure pressure.

Hence, the correct answer is "Option 2".

Q27. Answer: (a) Saliva

The correct answer is Saliva.

Key Points

• Saliva contains enzymes like amylase, which begins the process of breaking down carbohydrates in the mouth, kickstarting digestion even before food reaches the stomach.

• Saliva helps neutralize acids in the mouth, which are produced by bacteria after eating. This helps prevent tooth decay and enamel erosion.

• Saliva washes away food particles and debris, helping to keep the mouth clean and reducing the risk of bacterial buildup that can lead to bad breath or infections.

• Saliva contains proteins and compounds that can speed up the healing of wounds in the mouth, including cuts and ulcers.

• It also has antimicrobial properties that reduce the risk of infections.

Additional InformationSkin

• The skin acts as a barrier against physical injuries, pathogens, and harmful UV rays.

• It helps control body temperature through sweating and blood vessel dilation.

• The skin contains nerve endings that detect touch, pain, pressure, and temperature changes.

• Exposure to sunlight helps the skin produce vitamin D, essential for bone and immune health.

Teeth

• Teeth are primarily made of enamel, dentin, pulp, and cementum. Enamel is the hard, outer layer; dentin is the underlying layer that supports enamel, pulp contains nerves and blood vessels, and cementum covers the tooth root.

• The hardest substance in the human body, enamel protects teeth from decay and physical damage, providing a barrier against bacteria and acids.

• This is a bone-like substance that anchors the tooth to the jawbone, playing a crucial role in tooth stability and supporting the periodontal ligaments that hold teeth in place.

Hair

• Hair is primarily made of a protein called keratin. It consists of three layers: the cuticle (outer layer), the cortex (middle layer), and the medulla (innermost layer).

• Hair goes through three phases: anagen (growth), catagen (transitional), and telogen (resting).

• Hair serves several functions, including providing insulation, protecting the scalp from UV rays, and enhancing sensory perception through its connection to nerve endings.

• The condition of hair can reflect overall health. Changes in hair texture, density, or growth can indicate nutritional deficiencies, hormonal imbalances, or underlying health conditions.

Q28. Answer: (d) 7

Given: 4X1 + 5Y3 + 2Z7 =1181

Concept used: The sum of unit place digit is 11 and carry 1

X + Y + Z + 1 = 8 [Here, 1 is carry]

X + Y + Z = 7

Now according to the question:

For highest value of X, we take Y = 0 and Z = 0

So,

X + 0 + 0 = 7

X = 7

Thus, the highest value of X is 7.

Hence, "Option 4" is the correct answer.

Q29. Answer: (c) -1

Shortcut Trick

From X + 1/Y = 1, we get X = (Y − 1)/Y.

From Y + 1/Z = 1, we get 1/Z = 1 − Y, which means Z = 1/(1 − Y).

Multiply X, Y, and Z: XYZ = [(Y − 1)/Y] × Y × [1/(1 − Y)].

XYZ = (Y − 1) / (1 − Y) = −1.

Therefore The correct answer is −1.

Alternate Method

Given: Y + 1/Z = 1 and X + 1/Y = 1

=> From the first equation: X + 1/Y = 1

=> X = 1 − 1/Y

=> X = (Y − 1) / Y

=> From the second equation: Y + 1/Z = 1

=> 1/Z = 1 − Y

=> Z = 1 / (1 − Y)

=> Now calculate XYZ: XYZ = [(Y − 1) / Y] × Y × [1 / (1 − Y)]

=> XYZ = (Y − 1) / (1 − Y)

=> XYZ = −(1 − Y) / (1 − Y) = −1

Therefore The correct answer is −1.

Additional Information

Cyclic Algebraic Expressions

In a set of cyclic equations like a + 1/b = 1 and b + 1/c = 1, the third relation is typically c + 1/a = 1 and the product abc = −1.

Variable Substitution

When solving multi-variable equations, expressing all terms in respect to a single common variable (like Y in this case) is the most efficient method to find products or sums.

Negative Unity Property

Note that (a − b) / (b − a) = −1. This identity is frequently used to simplify fractions in algebraic simplification questions.

Q30. Answer: (c) internal security

The correct answer is internal security.

Key Points

• The MHA is responsible for formulating and implementing policies related to internal security, law enforcement, and disaster management, ensuring the safety and security of citizens.

• Works with security agencies like police and intelligence to maintain law and order.

• Develops strategies and training programs to combat terrorism and extremism.

• Manages communal harmony and civil unrest to maintain peace and stability.

• The ministry oversees disaster management efforts, ensuring preparedness and response mechanisms are in place to handle natural and man-made disasters effectively.

Additional InformationMinistry of Consumer Affairs, Food and Public Distribution

• The Ministry of Consumer Affairs, Food and Public Distribution is a key ministry of the Government of India.

• It is responsible for ensuring food security, protecting consumer rights, and regulating essential commodities.

• The ministry formulates and implements policies to guarantee adequate food supply and nutrition for the population through the Public Distribution System (PDS).

• Food security refers to the condition where all individuals have consistent access to sufficient, safe, and nutritious food for a healthy and active life.

• It encompasses several dimensions, including availability, access, utilization, and stability of food supplies.

External Security

• External security encompasses measures to protect a nation from threats and aggressions originating outside its borders.

• It involves maintaining armed forces for defense and gathering intelligence on potential foreign threats, including terrorism and military capabilities.

• Establishing diplomatic relations and alliances with other countries to promote peace and negotiate security agreements.

• Implementing measures to secure national borders against illegal activities and potential invasions, ensuring national sovereignty and public safety.

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Environmental security

• Environmental security focuses on protecting natural resources and ecosystems to ensure a sustainable environment for current and future generations.

• Involves sustainable management of natural resources (water, land, forests) to prevent scarcity and conflicts.

• Aims to reduce pollution (air, water, soil) and its adverse effects on health and the environment.

• Protects diverse ecosystems and species, recognizing their importance for ecological balance and human well-being.

Q31. Answer: (a) Saddle Peak

The correct answer is Saddle Peak.

Key Points

• Saddle Peak is located in the northernmost part of the Andaman and Nicobar Islands in India, specifically on North Andaman Island.

• It stands at approximately 732 meters (2,405 feet), making it the highest point in the Andaman Islands.

• The area around Saddle Peak is known for its lush forests, diverse flora and fauna, and scenic views, attracting nature enthusiasts and trekkers.

• The region is part of the Saddle Peak National Park, which is home to several endemic species of plants and animals, including birds and reptiles.

Additional InformationMount Pula

• Mount Pulag is located in the northern part of the Philippines, primarily in Benguet province, and is part of the Cordillera mountain range.

• It is the third highest mountain in the Philippines, standing at approximately 2,922 meters (9,588 feet) above sea level.

• The mountain is known for its rich biodiversity, including various endemic species of flora and fauna, and is a protected area within Mount Pulag National Park.

Semeru

• Semeru is located on the island of Java in Indonesia and is part of the Bromo Tengger Semeru National Park.

• It is the highest mountain in Java, reaching an elevation of approximately 3,676 meters (12,060 feet) above sea level.

• Semeru is an active stratovolcano, known for its frequent eruptions and is considered one of the most active volcanoes in Indonesia.

• The mountain features stunning landscapes, including lush forests, alpine meadows, and the famous "Mahameru" peak, attracting hikers and nature lovers from around the world.

Teide

• Teide is located on the island of Tenerife in the Canary Islands, Spain, and is part of Teide National Park.

• It is the highest peak in Spain, standing at approximately 3,718 meters (12,198 feet) above sea level.

• The surrounding national park is known for its unique geological formations, diverse ecosystems, and stunning views, making it a UNESCO World Heritage Site and a popular destination for tourists and hikers.

Q32. Answer: (c) Atharva Veda

The correct answer is Atharva Veda.

Key Points

• The Atharva Veda is one of the four ancient sacred texts of Hinduism, alongside the Rigveda, Yajurveda, and Samaveda. It is the fourth Veda in the traditional classification.

• The Atharva Veda includes hymns, spells, and incantations related to daily life, health, healing, and protection from evil forces.

• In addition to its practical applications, the Atharva Veda also touches on philosophical concepts, such as the nature of the soul, the afterlife, and cosmology, contributing to Hindu spiritual thought.

• Composed in Vedic Sanskrit, the Atharva Veda is believed to have been compiled between 1000 BCE and 800 BCE. It is divided into 20 books (Kāndas), with over 700 hymns and verses.

Additional Information

Rig Veda

• The Rig Veda is the oldest of the four Vedas, composed around 1500–1200 BCE, and is one of the foundational texts of Hinduism.

• It contains over 1,000 hymns (suktas) divided into 10 books (mandalas), dedicated to various deities like Agni, Indra, and Soma.

• The hymns are primarily prayers and praises meant for recitation during rituals, focusing on the forces of nature, cosmic order, and divine powers.

Yajur Veda

• The Yajur Veda primarily serves as a guide for performing Vedic rituals and sacrifices, offering detailed instructions for priests on

how to conduct ceremonies.

• It is divided into two main versions, the Shukla (White) Yajur Veda and the Krishna (Black) Yajur Veda, differing in the organization and commentary of the hymns and prose.

• The text emphasizes offerings made to deities, the sacred fire, and the correct recitation of mantras during sacrificial rituals like the Ashvamedha (horse sacrifice) and Agnihotra.

Sama Veda

• The Sama Veda is known as the "Veda of melodies," consisting primarily of hymns and chants meant to be sung during rituals, making it the foundation of Indian classical music.

• Most of the verses in the Sama Veda are taken from the Rig Veda, but they are set to music and rhythm to be used in specific sacrificial ceremonies.

• It provides the musical framework for chanting mantras during important Vedic sacrifices, especially the Soma sacrifice, which involved offering a sacred drink.

Q33. Answer: (b) 99

The logic followed here is:

'SOLARIZE' is written as '111'

Similarly,

'POSITION' will be written as

Hence, "Option 2" is the correct answer.

Q34. Answer: (d) Genome

The correct answer is Genome.

Key Points

• The genome is the entire set of DNA instructions found in a cell.

• In humans, the genome consists of 23 pairs of chromosomes located in the cell’s nucleus, as well as a small chromosome in the cell’s mitochondria.

• A genome contains all the information needed for an individual to develop and function.

• DNA is the information molecule for all living organisms.

• All of the DNA of an organism is called its genome.

Additional InformationTissue

• The Epithelium is one of the four basic types of animal tissue, along with connective tissue, muscle tissue and nervous tissue.

• It is a thin, continuous, protective layer of cells.

Chromosome

• Chromosomes are thread-like structures made of DNA and protein, found in the nucleus of cells.

• They carry genetic information essential for inheritance, development, and function.

• Humans have 46 chromosomes, arranged in 23 pairs. Of these, 22 are autosomes, and one pair is the sex chromosomes (XX for females and XY for males).

• Chromosomes organize long strands of DNA into compact structures, ensuring efficient packaging and proper distribution during cell division (mitosis and meiosis).

• Chromosomes ensure that genetic material is passed from parents to offspring, influencing traits, development, and susceptibility to genetic disorders.

Organelle

• Organelles are specialized structures within a cell that perform specific functions vital to the cell's survival and operation.

• Common organelles include the nucleus (controls cell activity), mitochondria (produce energy), and ribosomes (protein synthesis).

• Organelles are primarily found in eukaryotic cells, which have membrane-bound compartments, unlike prokaryotic cells.

Q35. Answer: (b) 17 : 14

Given:

3x + y = 5

4x - 3y = 2

Formula used:

Simultaneous equations

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Calculation:

Multiply the first equation by 3:

=> 3(3x + y) = 3(5)

=> 9x + 3y = 15

Now add this to the second equation:

=> 9x + 3y + 4x - 3y = 15 + 2

=> 13x = 17

=> x = 17/13

Substitute x = 17/13 into the first equation:

=> 3(17/13) + y = 5

=> 51/13 + y = 5

=> y = 5 - 51/13

=> y = (65 - 51)/13

=> y = 14/13

So, the ratio x : y is:

=> x : y = (17/13) : (14/13)

=> x : y = 17 : 14

Therefore The correct answer is option (2).

Q36. Answer: (a) North Vietnam and South Vietnam

The correct answer is North Vietnam and South Vietnam.

Key Points

• The 17th Parallel served as the boundary between North Vietnam and South Vietnam following the Geneva Accords of 1954.

• The division was intended to be temporary, with plans for reunification elections that never occurred due to political tensions.

• The 17th Parallel became a significant military line during the Vietnam War, marking the border where opposing forces operated.

• The boundary led to the separation of families and communities, contributing to social and economic challenges in both regions during and after the conflict.

Additional InformationGermany and France

• Germany and France have a long history of rivalry, particularly during the 19th and 20th centuries, including conflicts such as the Franco-Prussian War and World War I and II.

• Both are founding members of the European Union, promoting integration.

• Germany has the largest economy in Europe, with France being a significant economic player.

• They work closely on security, climate change, and defense through the Franco-German Council of Ministers.

Brazil and Chile

• The border between Brazil and Chile is primarily defined by the Andes Mountains, which serve as a natural barrier.

• The boundary is approximately 3,500 kilometers (2,175 miles) long, running from the southern tip of South America to the northern regions.

• The border was established through treaties, including the Treaty of Peace and Friendship in 1884, resolving territorial disputes between the two countries.

USA and Canada

• The border between the USA and Canada is the longest international land border in the world, stretching approximately 8,891 kilometers (5,525 miles).

• The boundary was established through various treaties, including the Treaty of Paris (1783) and the Oregon Treaty (1846), which resolved territorial disputes.

• The border is largely demilitarized, with a focus on peaceful coexistence, allowing for open trade and travel between the two countries.

Q37. Answer: (c) Pakistan

The correct answer is Pakistan.

Key Points

1. Location: Gurdwara Panja Sahib is situated in Hasanabdal, Pakistan.

2. Historical Significance: It is a revered Sikh shrine commemorating the visit of Guru Nanak Dev Ji, the founder of Sikhism.

3. Sacred Symbol: The gurdwara derives its name from the imprint of Guru Nanak Dev Ji's hand (panja) on a rock, which is considered a sacred symbol.

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4. Architectural Beauty: The gurdwara boasts beautiful architecture, including a large golden dome and serene gardens.

Additional Information

1. Proposed Corridor: The Panja Sahib Corridor is a proposed corridor connecting the Sikh shrines in Pakistan, including Gurdwara Panja Sahib, with India.

2. Facilitating Pilgrimages: The corridor aims to facilitate pilgrimages for Sikh devotees from India to these shrines in Pakistan.

3. Cultural Exchange: It is expected to promote cultural exchange and strengthen ties between the two countries.

4. Ongoing Negotiations: Negotiations between India and Pakistan regarding the Panja Sahib Corridor are ongoing.

Q38. Answer: (a) Extranet

The correct answer is Extranet.

Key Points

1. External Network: An extranet is a private computer network that is designed and restricted to use by outside vendors or clients of a particular company.

2. Secure Access: Extranets provide secure access to a company's internal systems and data for authorized external users.

3. Collaboration: Extranets facilitate collaboration and information sharing between a company and its partners, suppliers, or customers.

4. Extended Intranet: Extranets can be considered an extension of a company's intranet, but with access granted to external users.

Additional Information

1. Intranet: An intranet is a private computer network that is used exclusively by employees within a company. It is not accessible to external users.

2. Internet: The internet is a global network of interconnected computers that allows users to access information and communicate with each other. It is a public network, accessible to anyone with an internet connection.

3. Externet: There is no widely recognized term called "externet." It might be a misspelling of "extranet" or a term used in a specific context.

Q39. Answer: (b) Chagos

The correct answer is 2) Chagos.

Key Points

• Chagos Archipelago: Diego Garcia is the largest island in the Chagos Archipelago, a group of islands located in the central Indian Ocean.

• British Indian Ocean Territory: The Chagos Archipelago is part of the British Indian Ocean Territory (BIOT), an overseas territory of the United Kingdom.

• Strategic Importance: Diego Garcia has significant strategic importance due to its location in the Indian Ocean.

• US Military Base: The island hosts a major United States military base.

Additional Information

• Bonaparte: The Bonaparte Archipelago is a group of islands located in the Pacific Ocean, near the coast of New Guinea.

• Mergui: The Mergui Archipelago is a group of islands located in the Andaman Sea, off the coast of Myanmar.

• Buccaneer: The Buccaneer Archipelago is a group of islands located in Australia, off the coast of Western Australia.

Q40. Answer: (c) DRDO

The correct answer is DRDO.

Key Points

1. Defense Research and Development Organization: DRDO stands for Defense Research and Development Organization, a premier government agency responsible for military research and development in India.

2. Motto: The motto of DRDO is "Strength's origin is in Science."

3. Scientific Excellence: This motto reflects DRDO's commitment to scientific excellence and its belief that technological advancements are crucial for national strength.

4. Defense Technologies: DRDO develops a wide range of defence technologies, including missiles, radars, weapons systems, and more.

Additional Information

1. BARC: Bhabha Atomic Research Centre is a premier research institution focused on nuclear science and technology. Its motto is "Atoms for Peace."

2. NCERT: The National Council of Educational Research and Training is a government organization responsible for curriculum development and teacher training. Its motto is "Learning without frontiers."

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3. SIDBI: Small Industries Development Bank of India is a financial institution that provides credit and support to small-scale industries. It does not have a specific motto.

Q41. Answer: (c) India Brand Equity Foundation

The correct answer is 3) India Brand Equity Foundation.

Key Points

1. Promoting Indian Brands: India Brand Equity Foundation (IBEF) is a government-backed organization that works to promote Indian brands and products globally.

2. Enhancing Brand Image: IBEF aims to enhance the perception of "Made in India" products by focusing on quality, innovation, and sustainability.

3. Various Initiatives: IBEF undertakes various initiatives, such as branding campaigns, market research, and policy advocacy, to improve the brand image of Indian products.

4. Global Recognition: Through its efforts, IBEF strives to make "Made in India" a label of quality and recognition worldwide.

Additional Information

1. Annamrita Foundation: Annamrita Foundation is a non-profit organization that provides mid-day meals to school children.

2. National Innovation Foundation: The National Innovation Foundation is a government organization that supports and promotes grassroots innovation.

3. Diya Foundation: Diya Foundation is a non-profit organization that works for the welfare of children and women.

Q42. Answer: (d) 12 6over7

Given:

A can complete a certain job in 18 days.

B is 40% more efficient than A.

Calculation:

40% = 2/5

Efficiency of A : Efficiency of B = 5 : 7

So, total work = Time taken × Efficiency = 18 × 5 = 90 unit

Now,

Time taken by B alone to complete the work = 90 / 7 = 12 6over7 days

Therefore The correct answer is option (4).

Q43. Answer: (b) JRD Tata

The correct answer is 2) JRD Tata.

Key PointsJRD Tata and his solo flight:

1. Aviation Pioneer: JRD Tata is considered the father of Indian aviation.

2. Historic Flight: In 1931, he made a historic solo flight from Karachi to Mumbai, covering a distance of 800 kilometers in a De Havilland Puss Moth aircraft.

3. Pioneering Aviation in India: This flight marked a significant milestone in the history of aviation in India, demonstrating the potential for air travel in the subcontinent.

4. Legacy: JRD Tata's pioneering spirit and contribution to Indian aviation have earned him immense respect and recognition.

Additional Information The start of aviation in India:

1. Early Beginnings: Commercial aviation in India began in the 1930s, primarily with the establishment of Tata Airlines (later renamed Air India) by JRD Tata.

2. Challenges and Growth: The early years of Indian aviation were marked by challenges, including limited infrastructure and resources. However, the industry gradually grew and expanded its operations.

3. Nationalization: In 1953, the Indian government nationalized the domestic airlines, leading to the formation of Indian Airlines and Air India.

4. Global Expansion: Air India expanded its operations to international destinations, connecting India with various countries across the globe.

Q44. Answer: (a) 9

The correct answer is 9.

Key Points

• Nine Recognized Forms: According to the Ministry of Culture, India has nine recognized classical dance forms: Bharatanatyam, Kathak, Kuchipudi, Odissi, Kathakali, Sattriya, Manipuri, Mohiniyattam, and Chhau.

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• Origin in Natya Shastra: These classical dance forms have their roots in the ancient Indian treatise on performing arts, the Natya Shastra.

• Grace and Expression: Classical dances are characterized by their grace, precision, and expressive movements.

• Cultural Heritage: They represent a rich cultural heritage and are deeply intertwined with Indian traditions and mythology.

Additional Information Regional dances in India:

1. Regional Diversity: India's vast geographical expanse and cultural diversity have given rise to a multitude of regional dances, each with its own unique characteristics and style.

2. Cultural Expression: Regional dances serve as a powerful means of cultural expression, reflecting the traditions, beliefs, and aspirations of the people of a particular region.

3. Celebration and Rituals: Many regional dances are performed during festivals, celebrations, and religious rituals, adding to their cultural significance.

4. Preservation Efforts: Efforts are being made to preserve and promote regional dances, ensuring that these valuable cultural traditions continue to thrive for future generations.

Q45. Answer: (c) 2over3

Given:

If sec A + tan A = 3/2, then find sec A - tan A

Formula used:

(sec A + tan A)(sec A - tan A) = $sec^2 A - tan^2 A$

We know that $sec^2 A - tan^2 A = 1$

Calculation:

Let x = sec A + tan A = 3/2

=> (sec A + tan A)(sec A - tan A) = 1

=> (3/2)(sec A - tan A) = 1

=> sec A - tan A = 2/3

Therefore The correct answer is option (3).

Q46. Answer: (b) WCCB

The correct answer is 2) WCCB.

Key Points

1. Wildlife Crime Control Bureau (WCCB): The campaign was launched by the Wildlife Crime Control Bureau (WCCB), a government agency under the Ministry of Environment, Forest, and Climate Change in India.

2. Raising Awareness: The campaign aims to raise awareness about the illegal wildlife trade and its impact on animal migration patterns.

3. Illegal Trade: The campaign highlights how illegal wildlife trade can disrupt natural migration routes and force animals to migrate outside their natural habitats.

4. Protection of Wildlife: The WCCB emphasizes the importance of protecting wildlife and their habitats to ensure their survival and maintain healthy ecosystems.

Additional Information

1. ESGP: The Energy Security Group of India (ESGP) is a government initiative focused on energy security and sustainability. It does not have a campaign related to wildlife conservation.

2. AWDF: The African Wildlife Foundation (AWDF) is a conservation organization based in Africa. While it works to protect wildlife, it did not launch the specific campaign "Not all animals migrate by choice."

3. IPCC: The Intergovernmental Panel on Climate Change (IPCC) is an international body that assesses the science related to climate change. It focuses on climate change research and policy recommendations, not wildlife conservation campaign

Q47. Answer: (c) C

Given: Zorro had five different flowers A, B, C, D and E. He gave one flower to each of his five friends G, H, I, J and K.

1) J got flower E.

Zorro's Friends	Flowers
G	
H	
I	

J	E
K	

2) J, I and H did not get flowers B and D.

3) K did not get flower B.

As J, I, H, and K did not get flower B, thus the only friend left who can have flower B is G.

As J, I, H and G did not get flowers D, thus the only friend left who can have flower D is K.

Zorro's Friends	Flowers
G	B
H	
I	
J	E
K	D

4) I did not get flower C or E.

As I did not get flowers C or E, thus only flower left is A which 'I' can have.

After assigning all the flowers only one flower is left which will be given to the only friend i.e. H.

Zorro's Friends	Flowers
G	B
H	C
I	A
J	E
K	D

Thus, according to the final arrangement H got C flower.

Hence, "Option 3" is the correct answer.

Q48. Answer: (d) Starship

The correct answer is Starship.

Key Points

1. New Name: In November 2018, SpaceX CEO Elon Musk announced that the Big Falcon Rocket (BFR) would be renamed Starship.

2. Reason for Renaming: The name change reflected the broader vision for the rocket, which was intended to transport humans and cargo to the Moon, Mars, and beyond.

3. Starship System: Starship became part of the Starship system, which includes a fully reusable upper stage and a reusable Super Heavy booster.

4. Future of Space Exploration: The Starship is seen as a crucial component of SpaceX's long-term goal of making space travel affordable and accessible.

Additional Information

1. Previous Name: The Big Falcon Rocket (BFR) was the original name given to the rocket by SpaceX.

2. Design: The BFR was designed to be the most powerful rocket ever built, capable of carrying over 100 tons of payload to orbit.

3. Reusable Components: The BFR was intended to be fully reusable, with both the upper stage and booster capable of returning to Earth for refilling and reuse.

4. Ambitious Goals: SpaceX envisioned using the BFR to transport humans to Mars and establish a self-sustaining colony on the red planet.

Q49. Answer: (c) 176

Given:

Find the common factor of:

(89^(89) + 87^(89)) and (89^(97) + 87^(97)).

Formula used:

For two expressions of the form a^m + b^m and $a^n + b^n$, the common factor is:

a^(gcd(m, n)) + b^(gcd(m, n))

Where gcd is the greatest common divisor.

Calculation:

Let a = 89, b = 87, m = 89, n = 97

=> gcd(89, 97) = 1 (since 89 and 97 are prime numbers)

Common factor = $89^1 + 87^1$ = 89 + 87 = 176

Therefore The common factor of (89 + 87) is 176.

Q50. Answer: (d) 10

html

Given:

Measure of each exterior angle of a regular polygon = 36^o

Formula used:

Exterior angle of a regular polygon = $(360^o)/n$

Where, n = number of sides

Calculation:

$36^o = (360^o)/n$

$=> n = (360^o)/(36^o)$

=> n = 10

Therefore The correct answer is option (4).

Q51. Answer: (c) 6

Given:

Find the positive value of:

√(41 - √(21 + √(19 - √(9))))

Calculation:

First, simplify √(9):

√(9) = 3

Next, substitute this value:

√(19 - 3) = √(16) = 4

Now substitute into the next layer:

√(21 + 4) = √(25) = 5

Now substitute this value into the outer layer:

√(41 - 5) = √(36) = 6

Therefore The positive value is 6.

Q52. Answer: (d) Lowered the voting age of elections

The correct answer is Lowered the voting age of elections.

Key Points

• The 61st Amendment of the Constitution of India, passed in 1988, lowered the voting age from 21 years to 18 years.

• The amendment was made to increase youth participation in the democratic process and ensure their representation in elections.

• It amended Article 326 of the Constitution, which originally set the minimum age for voting at 21 years.

• This change in the voting age was implemented for all national and state elections in India.

• The change also sought to align India's voting age with that of many other democratic nations.

Additional Information

• Article 326 of the Indian Constitution:

• It lays down the qualifications for the right to vote in India.

• Before the 61st Amendment, Article 326 required a minimum age of 21 for voting in elections.

• The 61st Amendment Act of 1988 marked a significant change in the democratic process by empowering a larger section of the population to actively participate in electing representatives.

• The Electoral Roll is updated by the Election Commission of India, ensuring that all eligible voters, including those who turned 18

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after the amendment, are registered.

• The Indian Youth now represent a significant portion of the electorate, which has brought about changes in the political landscape.

• The 61st Amendment is part of a series of constitutional reforms aimed at making India's democratic system more inclusive and representative.

Q53. Answer: (c) 16 times

Given:

A sum of money deposited at compound interest becomes double after 8 years.

Formula used:

A = P(1 + r/100)^t

Where, P = Principal, r = rate of interest, t = time

Calculations:

Let the principal be P and the amount after 8 years be 2P.

=> 2P = P(1 + r/100)^8

=> 2 = (1 + r/100)^8

After 32 years (which is 4 times 8 years), the amount will be:

=> A = P(1 + r/100)^{32}

=> A = P(1 + r/100)^(4×8)

=> A = P(2)^4

=> A = P × 16

Therefore The correct answer is option (3).

Q54. Answer: (d) y = 8over5

Given:

Proportion: 1.2 : y :: 3.6 : 4.8

Formula Used:

In a proportion a : b :: c : d, the product of the extremes equals the product of the means.

a × d = b × c

Calculation:

Here, a = 1.2, b = y, c = 3.6, and d = 4.8.

According to the formula:

1.2 × 4.8 = y × 3.6

=> 5.76 = 3.6 × y

=> y = 5.76 / 3.6

=> y = 57.6 / 36

=> y = 8/5

Therefore The value of y is 8/5.

Q55. Answer: (d) Suresh Kumar

The correct answer is Suresh Kumar.

Key Points

• Suresh Kumar was appointed as the Chief Technology Officer (CTO) of Walmart in 2019.

• Before joining Walmart, he held leadership roles at Google and Amazon.

• At Google, he served as the vice president and general manager of display, video, app ads, and analytics.

• He also served as the vice president of technology at Amazon, where he led initiatives in retail, marketplace systems, and infrastructure.

Additional Information

• Chief Technology Officer (CTO)

• The CTO is responsible for overseeing the development and dissemination of technology for external customers, vendors, and other clients to help improve and increase business.

• They are pivotal in deciding the company's technology strategy and ensuring the technological resources align with the business needs.

• Walmart

• Walmart Inc. is an American multinational retail corporation that operates a chain of hypermarkets, discount department stores, and grocery stores.

• Founded by Sam Walton in 1962, Walmart is headquartered in Bentonville, Arkansas.

• As of 2021, Walmart is the world's largest company by revenue, with approximately $559 billion in annual revenue.

• Google

• Google LLC is an American multinational technology company that specializes in Internet-related services and products.

• These include online advertising technologies, a search engine, cloud computing, software, and hardware.

• Amazon

• Amazon.com, Inc. is an American multinational technology company which focuses on e-commerce, cloud computing, digital streaming, and artificial intelligence.

• It is considered one of the Big Five companies in the U.S. information technology industry, along with Google, Apple, Microsoft, and Facebook.

Q56. Answer: (c) KJI

The logic followed here is:

Hence, "Option 3" is the correct answer.

Q57. Answer: (c) 8over195

Given:

Solve the following:

(1/2 ÷ 3/4 * (2/5 - 1/3)) / (1 2/3 * 3/4 - 1/4 * 2/3)

Calculation:

Step 1: Simplify (2/5 - 1/3):

(2/5) - (1/3) = (6/15) - (5/15) = (1/15)

Step 2: Calculate 1/2 ÷ 3/4:

1/2 ÷ 3/4 = (1/2) * (4/3) = 4/6 = 2/3

Step 3: Now multiply:

(2/3) * (1/15) = 2/45

Step 4: Simplify the denominator:

1 2/3 = 5/3

Now calculate (5/3 * 3/4):

(5/3) * (3/4) = 5/4

Step 5: Calculate (1/4 * 2/3):

(1/4) * (2/3) = 2/12 = 1/6

Step 6: Now combine the denominator:

(5/4 - 1/6):

Finding a common denominator (12):

(15/12) - (2/12) = (13/12)

Step 7: Final calculation:

(2/45) / (13/12) = (2/45) * (12/13) = (24/585)

Step 8: Simplify:

24/585 = 8/195

The final answer is 8/195.

Q58. Answer: (c) 33.3

Given:

Mode = 31.5

Mean = 34.2

Formula used:

Mean - Mode = 3(Mean - Median)

Calculation:

34.2 - 31.5 = 3(34.2 - Median)

=> 2.7 = 3(34.2 - Median)

=> 2.7 = 102.6 - 3 × Median

=> 3 × Median = 102.6 - 2.7

=> 3 × Median = 99.9

=> Median = 99.9 / 3

=> Median = 33.3

Therefore The correct answer is option (3).

Q59. Answer: (a) Bombay Samachar

The correct answer is Bombay Samachar.

Key Points

• Bombay Samachar is the oldest continuously published newspaper in India.

• It was first published on 1 July 1822.

• The newspaper primarily serves the Parsi community and is published in the Gujarati language.

• Bombay Samachar started as a weekly publication but later became a daily newspaper.

Additional Information

• Udant Martand

• It was the first Hindi-language newspaper published in India.

• Launched on 30 May 1826 in Calcutta, it was a weekly newspaper.

• Despite its historical significance, it ceased publication in December 1827.

• Samachar Darpan

• It was the first Bengali-language newspaper published in India.

• Started on 23 May 1818 by the Serampore Mission Press, it played a significant role in journalism in Bengal.

• Amrita Bazaar Patrika

• It was one of India's oldest newspapers, founded in 1868.

• Originally a Bengali weekly, it became a daily and switched to English in 1878.

• It was known for its strong nationalist stance during the Indian independence movement.

• Unfortunately, it ceased publication in 2004.

Q60. Answer: (b) Only (i) follows.

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

Conclusions:

I. No SIM is a keypads → Follow (As all SIMs are phones and no phone is a keypad. As whole SIMs comes in phones which cannot be keypads, therefore it is true)

II. Some SIMs are keypads → Does not follow (As all SIMs are phones and no phone is a keypad. As whole SIMs comes in phones which cannot be keypads, therefore it is false)

III. Some phones are keypads → Does not follow (As no phone is a keypad. As truth cannot be proved, therefore it is false)

Therefore Here, Only conclusion I follows.

Hence, the correct answer is "Option 2"

Q61. Answer: (b) 17

Given:

Find the third term in a sequence of positive numbers that will leave remainders 1, 2, and 5 when divided by 2, 3, and 6 respectively.

Conditions:

• $x \equiv 1 \pmod 2$

• $x \equiv 2 \pmod 3$

• $x \equiv 5 \pmod 6$

Calculation:

From the condition $x \equiv 5 \pmod 6$, we know that:

• x can be expressed as $x = 6k + 5$ for some integer k.

Now substitute this into the second condition:

$6k + 5 \equiv 2 \pmod 3$

$0k + 2 \equiv 2 \pmod 3$ (since 6 is divisible by 3)

This is always true.

Now substitute into the first condition:

6k + 5 ≡ 1 (mod 2)

0k + 1 ≡ 1 (mod 2) (since 6 is even)

This is also always true.

Now we can find the positive values of x:

Let k = 0, 1, 2, ...

For k = 0:

x = 6(0) + 5 = 5

For k = 1:

x = 6(1) + 5 = 11

For k = 2:

x = 6(2) + 5 = 17

Thus, the third term is:

x = 17

The third term in the sequence is 17.

Q62. Answer: (b) Ministry of Chemical and Fertilizers

The correct answer is Ministry of Chemical and Fertilizers.

Key Points

• The Pradhan Mantri Jan-Aushadhi Scheme is implemented by the Ministry of Chemical and Fertilizers under the Department of Pharmaceuticals.

• The scheme aims to provide quality medicines at affordable prices through special outlets known as Pradhan Mantri Bhartiya Janaushadhi Kendras (PMBJKs).

• It was launched in 2008 and has since expanded to thousands of outlets across India.

• The scheme targets to reduce out-of-pocket expenditure on medicines for the common man, particularly the poor and disadvantaged sections of the society.

Additional Information

• Ministry of Finance

• The Ministry of Finance is responsible for the management of the finances of the Government of India, including the preparation of the annual Budget.

• It oversees various departments such as the Department of Economic Affairs, Department of Expenditure, Department of Revenue, and Department of Financial Services.

• The Ministry is also in charge of financial regulations, taxation, and economic policies.

• Ministry of Agriculture & Farmers' Welfare

• This Ministry is responsible for policy formulation, implementation, and oversight of agriculture and farmers' welfare in India.

• It aims to increase the income of farmers and ensure food security through various schemes and initiatives.

• Key schemes include PM-KISAN, National Food Security Mission, and Pradhan Mantri Fasal Bima Yojana.

• Ministry of Housing and Urban Affairs

• The Ministry of Housing and Urban Affairs is responsible for urban development and housing policies in India.

• It oversees major urban initiatives such as Smart Cities Mission, AMRUT, and Pradhan Mantri Awas Yojana (Urban).

• The Ministry aims to promote sustainable urbanization and improve the quality of life in urban areas.

Q63. Answer: (d) Protecting Civilians, Protecting Peace

The correct answer is Protecting Civilians, Protecting Peace.

Key Points

• The theme for the 2019 International Day of UN Peacekeepers was “Protecting Civilians, Protecting Peace”.

• This theme highlights the crucial role played by UN peacekeepers in providing security and supporting the political process in countries torn by conflict.

• Peacekeepers are often deployed in situations where civilians are at risk, and their presence can help to deter violence and protect vulnerable populations.

• The theme also underscores the importance of peacekeeping missions in establishing and maintaining peace in conflict-affected areas, which is essential for sustainable development.

Additional Information

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• International Day of United Nations Peacekeepers

• The International Day of United Nations Peacekeepers is observed annually on May 29th.

• It was established by the UN General Assembly in 2002 to pay tribute to all the men and women who have served and continue to serve in UN peacekeeping operations.

• The day also honors the memory of those who have lost their lives in the cause of peace.

• UN Peacekeeping

• UN peacekeeping is a collective security measure aimed at maintaining peace and security in conflict areas.

• It involves the deployment of military, police, and civilian personnel from UN member states to conflict zones.

• The primary functions of UN peacekeepers include monitoring ceasefires, protecting civilians, disarming former combatants, supporting the organization of elections, and promoting human rights and the rule of law.

• Peacekeeping missions are authorized by the UN Security Council and are typically established with the consent of the host government.

• Protecting Civilians

• Protecting civilians is a fundamental mandate of many UN peacekeeping operations.

• This involves using force, if necessary, to protect civilians from imminent threat of physical violence.

• Peacekeepers also work to create a secure environment for the delivery of humanitarian aid and the safe return of displaced persons.

Q64. Answer: (d) 137

Given:

Which of the following is a prime number?

Options:

1) 273

2) 143

3) 147

4) 137

Formula used:

A prime number is a number greater than 1 that has no positive divisors other than 1 and itself.

Calculation:

1) 273 is divisible by 3 (273 ÷ 3 = 91)

=> Not a prime number

2) 143 is divisible by 11 (143 ÷ 11 = 13)

=> Not a prime number

3) 147 is divisible by 3 (147 ÷ 3 = 49)

=> Not a prime number

4) 137 is not divisible by any number other than 1 and 137

=> Prime number

Therefore The correct answer is option 4.

Q65. Answer: (d) 3422°C

The correct answer is 3422ºC.

Key Points

• The melting point of tungsten is 3422ºC, making it one of the highest melting points of all metals.

• This property allows tungsten filaments to operate at high temperatures without melting, which is crucial for their use in incandescent light bulbs.

• Tungsten's high melting point contributes to its ability to emit bright light when heated.

• In addition to light bulbs, tungsten is also used in various high-temperature applications such as rocket engine nozzles, heating elements, and welding electrodes.

Additional Information

• Incandescent Light Bulbs

• These bulbs produce light by heating a tungsten filament until it glows.

• The filament is enclosed in a glass bulb filled with an inert gas like argon to prevent the tungsten from oxidizing and burning out quickly.

• Despite their inefficiency compared to modern lighting technologies, incandescent bulbs are still used in some applications due to their warm light quality.

• Properties of Tungsten

• Tungsten is a chemical element with the symbol W and atomic number 74.

• It is known for its remarkable physical properties, including its high density (19.25 g/cm³) and high tensile strength.

• These properties make it suitable for applications involving extreme conditions, such as in military projectiles and high-speed cutting tools.

• Other High-Melting-Point Materials

• Materials like Tantalum (melting point: 3017ºC) and Molybdenum (melting point: 2623ºC) also have high melting points, making them useful in various high-temperature applications.

• These materials are often used in electronics, aerospace, and industrial processes where high thermal resistance is required.

Q66. Answer: (a) Wife's Mother

Given:

1) A said to B, 'I am a wise granddaughter of my maternal grandmother X and though I have only one sister, you are the sister of my maternal uncle'.

As it cannot be determined B's relation with A, so B can either the mother or maternal aunt of A.

Case 1) B is the mother of A.

Case 2) B is the maternal aunt of A.

2) B told A, 'Though I am married, I don't have any children but my husband C has a brother D and E is D's son.'

As B doesn't have any children, therefore case 1 is eliminated.

Case 2)

Thus, X is C's mother-in-law or wife's mother.

Hence, the correct answer is "Option 1".

Q67. Answer: (d) 5

The correct answer is 5.

Key Points

• Nepal shares its boundaries with 5 states of India.

• The states are Sikkim, West Bengal, Bihar, Uttar Pradesh, and Uttarakhand.

• Nepal is a landlocked country located in South Asia.

• It shares international borders with India to the south, east, and west, and China to the north.

Additional Information

• Sikkim:

• Sikkim is one of the northeastern states of India.

• It shares a border with Nepal to the west.

• West Bengal:

• West Bengal is an eastern state of India.

• It shares a small border with Nepal in the northern part of the state.

• Bihar:

• Bihar is a state in eastern India.

• It shares a long border with Nepal.

• Uttar Pradesh:

• Uttar Pradesh is a northern state of India.

• It also shares a significant border with Nepal.

• Uttarakhand:

• Uttarakhand is a state in northern India.

• It shares its international border with Nepal to the east.

• Landlocked Country:

• A landlocked country is one that is entirely enclosed by land or whose coastlines lie on closed seas.

• Nepal is landlocked, bordered by China to the north and India to the south, east, and west.

• Geopolitical Significance:

• Nepal's strategic location between India and China makes it geopolitically significant.

• It has a rich cultural heritage and is known for its mountainous terrain, including Mount Everest.

Q68. Answer: (c) 14

Given: A group of 36 persons, where each one drinks at least one of tea or milk.

According to the question,

Number of persons who drink either tea or milk or both = 36

Number of persons who drink tea = 22 (Number of people who drink tea + Number of people who drink both tea and milk)

Number of persons who drink tea but not milk = 18

Number of person who drink both tea and milk = 22 - 18 → 4

So, the number of people who drink milk but not tea or only milk = 36 - 22 → 14

Hence, "Option 3" is the correct answer.

Q69. Answer: (b) Rs. 6000

The correct answer is Rs. 6000.

Key Points

• The PM-KISAN (Pradhan Mantri Kisan Samman Nidhi) scheme provides financial support to farmers.

• Under this scheme, eligible farmers receive Rs. 6000 per year.

• The amount is distributed in three equal installments of Rs. 2000 each.

• The primary objective of the scheme is to ensure a life of dignity for small and marginal farmers.

Additional Information

• PM-KISAN

• The scheme was launched in February 2019 by the Government of India.

• It is aimed at providing income support to small and marginal farmers.

• The financial benefit is transferred directly to the bank accounts of the beneficiaries.

• Farmers holding up to 2 hectares of cultivable land are eligible for this scheme.

• Other Agricultural Schemes

• Pradhan Mantri Fasal Bima Yojana (PMFBY)

• Launched in 2016, it aims to provide insurance coverage and financial support to farmers in the event of crop failure.

• It covers risks such as natural calamities, pests, and diseases.

• Pradhan Mantri Krishi Sinchai Yojana (PMKSY)

• Launched in 2015, it aims to enhance the physical access of water on farms and expand the cultivable area under assured irrigation.

• It focuses on water-use efficiency and water conservation practices.

• Soil Health Card Scheme

• Launched in 2015, this scheme aims to promote soil testing and provide soil health cards to farmers.

• It helps farmers to understand the nutrient status of their soil and take corrective measures.

Q70. Answer: (a) International Year of Indigenous Languages

The correct answer is International Year of Indigenous Languages.

Key Points

• The United Nations declared 2019 as the International Year of Indigenous Languages to raise awareness about the critical loss of indigenous languages and the urgent need to preserve, revitalize, and promote them.

• The declaration aims to draw attention to the unique role that indigenous languages play in cultural diversity, identity, and heritage.

• It underscores the importance of indigenous languages in sustainable development, peace-building, and reconciliation.

• The initiative involves various stakeholders including governments, indigenous peoples, UN agencies, and academic institutions to take collaborative actions to support indigenous languages.

Additional Information

• Indigenous Languages

• Indigenous languages are languages that are native to a region and spoken by indigenous peoples. These languages are deeply connected to the culture, traditions, and history of indigenous communities.

• Many indigenous languages are at risk of extinction, with estimates suggesting that a language disappears every two weeks.

• Revitalizing indigenous languages involves efforts such as language education, documentation, and the use of modern technology to promote their usage among younger generations.

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• The preservation of indigenous languages is crucial for maintaining cultural diversity and fostering inclusive societies.

• UNESCO's Role

• UNESCO (United Nations Educational, Scientific and Cultural Organization) plays a pivotal role in advocating for the preservation and promotion of indigenous languages.

• UNESCO provides a platform for indigenous peoples to voice their concerns and collaborate on initiatives aimed at protecting their linguistic heritage.

• It also supports projects that document and archive indigenous languages, ensuring that they are preserved for future generations.

• By promoting multilingual education and integrating indigenous languages into educational systems, UNESCO helps to safeguard these languages and empower indigenous communities.

• Sustainable Development Goals (SDGs)

• The United Nations' Sustainable Development Goals (SDGs) include targets that emphasize the importance of cultural and linguistic diversity.

• Goal 4 (Quality Education) highlights the need to ensure inclusive and equitable quality education, which includes recognizing the significance of indigenous languages in education systems.

• Goal 16 (Peace, Justice, and Strong Institutions) and Goal 10 (Reduced Inequality) also underscore the importance of promoting and protecting the rights of indigenous peoples, including their linguistic rights.

• Efforts to revitalize indigenous languages contribute to achieving these global goals by promoting social inclusion, cultural preservation, and educational equity.

• International Year of Indigenous Languages (IYIL) 2019

• The International Year of Indigenous Languages (IYIL) 2019 was a year-long initiative to raise awareness about the critical status of many indigenous languages worldwide.

• The initiative encouraged various activities, conferences, and events globally to promote the use, preservation, and revitalization of indigenous languages.

• It aimed to foster a greater appreciation and understanding of the linguistic and cultural diversity represented by indigenous languages.

• The IYIL 2019 also sought to build partnerships and strengthen cooperation among different stakeholders to support the long-term sustainability of indigenous languages.

Q71. Answer: (d) 340

Given:

Selling Price (SP) = Rs. 289

Loss Percentage (L) = 15%

Formula used:

Cost Price (CP) = SP/(1 - L/100)

Calculation:

CP = 289/(1 - 15/100)

=> CP = 289/0.85

=> CP = 340

Therefore The correct answer is option (4).

Q72. Answer: (c) 13m

Given:

A rectangular room has an area 60 m^2 and perimeter 34 m.

Formula used:

Area (A) = $l \times w$

Perimeter (P) = $2(l + w)$

Diagonal (d) = $\sqrt{(l^2 + w^2)}$

Calculation:

$l \times w = 60$

$2(l + w) = 34$

=> $l + w = 17$

We have two equations:

1) $l \times w = 60$

2) l + w = 17
From equation 2:
w = 17 - l
Substitute into equation 1:
l(17 - l) = 60
=> 17l - l^2 = 60
=> l^2 - 17l + 60 = 0
Solve the quadratic equation:
l = (17 ± √(17^2 - 4 × 60))/2
=> l = (17 ± √(289 - 240))/2
=> l = (17 ± √49)/2
=> l = (17 ± 7)/2
Possible values of l:
l = 12 or l = 5
If l = 12, then w = 17 - 12 = 5
If l = 5, then w = 17 - 5 = 12
In either case:
Diagonal (d) = √(12^2 + 5^2)
=> d = √(144 + 25)
=> d = √169
=> d = 13 m
Therefore The correct answer is option (3).

Q73. Answer: (a) 9 cm

Given:
A circle of radius 9 cm circumscribed a regular hexagon.
Formula used:
The radius (R) of the circumscribed circle of a regular hexagon is equal to the side length (a) of the hexagon.
Calculation:
Given radius R = 9 cm
=> Side length of the hexagon a = R
=> a = 9 cm
Therefore The correct answer is option (1).

Q74. Answer: (c) 44

Given:
Number 1 = 627, Remainder 1 = 11
Number 2 = 233, Remainder 2 = 13
Formula used:
To find the largest number that will divide both numbers leaving the given remainders, we use:
Required Number = HCF(Number 1 - Remainder 1, Number 2 - Remainder 2)
Calculation:
Required Number = HCF(627 - 11, 233 - 13)
=> HCF(616, 220)
Finding HCF using Euclidean algorithm:
616 = 220 × 2 + 176
220 = 176 × 1 + 44
176 = 44 × 4 + 0
=> HCF(616, 220) = 44
Therefore The correct answer is option (3).

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Q75. Answer: (c) 1

Given:

tan 11º tan 41º tan 45º tan 49º tan 79º

Formula used:

tan (90º - x) = cot x

Calculation:

tan 11º tan 41º tan 45º tan 49º tan 79º

=> tan 11º tan (90º - 49º) tan 45º tan 49º tan (90º - 11º)

=> tan 11º cot 49º tan 45º tan 49º cot 11º

=> tan 11º × cot 11º × tan 45º × tan 49º × cot 49º

=> 1 × 1 × 1

=> 1

Therefore The correct answer is option (3).

Q76. Answer: (d) 19 1over11 days

Given:

A is 20% more efficient than B. How much time will they be working together to complete a job which A alone could have completed in 35 days?

Formula used:

Efficiency of A = 1.20 × Efficiency of B

Work = Efficiency × Time

Calculations:

Let the efficiency of B be 1 unit/day.

=> Efficiency of A = 1.20 units/day

=> Work done by A in 35 days = 1.20 × 35 = 42 units

Let the time taken by A and B together to complete the job be T days.

Combined efficiency of A and B = 1.20 + 1 = 2.20 units/day

=> Total work / Combined efficiency = T

=> 42 / 2.20 = T

=> T = 42 / 2.20

=> T = $19^{1}/11$ days

Therefore The correct answer is option (4).

Q77. Answer: (c) 5.82

Given:

Data: 1.5, 3.2, 5.7, 7.5, 11.2

Formula used:

Mean = (Sum of all data points)/(Number of data points)

Calculation:

Sum of all data points = 1.5 + 3.2 + 5.7 + 7.5 + 11.2

=> Sum = 1.5 + 3.2 + 5.7 + 7.5 + 11.2 = 29.1

Number of data points = 5

=> Mean = 29.1/5

=> Mean = 5.82

Therefore The correct answer is option (3).

Q78. Answer: (c) 30 May

The correct answer is Thu May 30 2024 00:00:00 GMT+0530 (India Standard Time).

Key Points

- Goa celebrates its Statehood Day annually on May 30.
- On May 30, 1987, Goa was officially declared as the 25th state of India.
- Prior to statehood, Goa was a Union Territory along with Daman and Diu.
- Goa is known for its rich cultural heritage, beautiful beaches, and vibrant tourism industry.

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Additional Information

• Statehood Day

• Statehood Day is the anniversary of the day a state was established or recognized as a state.

• It is often celebrated with various cultural events, parades, and official ceremonies.

• Statehood Day is an important occasion for citizens to reflect on their state's history and achievements.

• Goa's History

• Goa was a Portuguese colony for about 450 years until it was liberated by the Indian Armed Forces in 1961.

• After liberation, Goa was integrated into India as a Union Territory.

• Goa's statehood was conferred after a prolonged movement and political struggle by its residents.

• Importance of Statehood

• Statehood provides a state with greater autonomy and representation in the Indian Union.

• It allows the state to have its own government and legislative assembly, which can make laws on subjects within the state list.

• Statehood also brings economic and administrative benefits, enabling the state to better manage its resources and development programs.

Q79. Answer: (d) Jhelum

The correct answer is Jhelum.

Key Points

• Alexander the Great and King Porus fought the famous Battle of the Hydaspes in 326 BC.

• The battle took place on the banks of the Jhelum River, which was known as the Hydaspes in ancient times.

• This battle was significant because it marked Alexander’s attempt to expand his empire into the Indian subcontinent.

• Despite being heavily outnumbered, Alexander's army managed to defeat Porus, who was known for his valor and bravery.

Additional Information

• Alexander the Great

• Alexander III of Macedon, commonly known as Alexander the Great, was a king of the ancient Greek kingdom of Macedon.

• He was born in Pella in 356 BC and succeeded his father Philip II to the throne at the age of 20.

• By the age of 30, he had created one of the largest empires in history, stretching from Greece to northwestern India.

• He is considered one of history's most successful military commanders.

• Porus

• King Porus, also known as Purushottama, was an ancient Indian king whose territory spanned the region between the Jhelum and Chenab rivers (in present-day Punjab, Pakistan).

• He is known for his courageous stand against Alexander the Great in the Battle of the Hydaspes.

• Despite his defeat, Alexander was impressed by Porus’s bravery and allowed him to retain his kingdom and even granted him more territory.

• Battle of the Hydaspes

• The Battle of the Hydaspes was fought between Alexander the Great and King Porus in 326 BC.

• The battle took place on the banks of the Jhelum River (then known as Hydaspes) in what is now Punjab, Pakistan.

• It is one of the most significant battles fought by Alexander during his campaign to conquer the Achaemenid Persian Empire and expand his empire into the Indian subcontinent.

• Despite the challenging conditions, including a monsoon and the river’s strong currents, Alexander’s tactical genius led to his victory over Porus.

Q80. Answer: (b) 82.5 km/h

Given:

The ratio of the speeds of a car, a train, and a bus is 4:7:3.

The average of the speeds of the car, the bus, and the train is 70 km/h.

Formula used:

Let the speeds of the car, train, and bus be 4x, 7x, and 3x respectively.

Average speed = (Speed of Car + Speed of Train + Speed of Bus) / 3

Calculation:

Average speed = (4x + 7x + 3x) / 3

=> 70 = (4x + 7x + 3x) / 3

=> 70 = 14x / 3

=> 70 × 3 = 14x

=> 210 = 14x

=> x = 210 / 14

=> x = 15

Speed of Car = 4x = 4 × 15 = 60 km/h

Speed of Train = 7x = 7 × 15 = 105 km/h

Average of the speeds of the car and the train = (Speed of Car + Speed of Train) / 2

=> Average = (60 + 105) / 2

=> Average = 165 / 2

=> Average = 82.5 km/h

Therefore The correct answer is option 2.

Q81. Answer: (a) 32145

The correct Dictionary order is:

3. Quarrel

2. Queen

1. Quiet

4. Quint

5. Quota

So, the correct order are: '3, 2, 1, 4, 5'.

Hence, the correct answer is "Option 1".

Q82. Answer: (b) Iltutmish

The correct answer is Iltutmish.

Key Points

• Iltutmish succeeded Qutb-ud-din Aibak's son, Aram Shah, and is considered one of the most significant rulers of the Mamluk Dynasty.

• He consolidated the empire, established administrative and military reforms, and strengthened the Sultanate's position in India from 1211 to 1236 AD.

• He established a strong administrative framework, organized the revenue system, and introduced the Iqta system, where land grants were given to military officials instead of salary.

• Iltutmish is known for his contributions to architecture, including completing the Qutub Minar, which his predecessor, Qutb-ud-din Aibak, started.

Additional Information

Ruler	Reign	Key Contributions
Qutb-ud-din Aibak	1206 – 1210 AD	Founder of the Mamluk Dynasty in India Initiated the construction of Qutub Minar and the Quwwat-ul-Islam Mosque in Delhi (Lakh Baksh).
Razia Sultan	1236 – 1240 AD	First and only female Sultan of Delhi Faced resistance from nobles due to her gender, which led to multiple rebellions.
Ghiyasuddin Balban	1266 – 1287 AD	Strengthened the Sultanate through military reforms and strict administration Established a centralized government and maintained law and order with an iron hand.

Q83. Answer: (c) -13/16

Given:

Find the value of:

(3 1/5 - 3/5) ÷ (8/5) ÷ (1 1/7 ÷ {1/7 - (1/7 ÷ 1/5)})

Calculation:

Step 1: Convert mixed numbers to improper fractions:

3 1/5 = 16/5

1 1/7 = 8/7

Step 2: Simplify the numerator:

(16/5 - 3/5) = (16 - 3)/5 = 13/5

Step 3: Now simplify the numerator with (8/5):

(13/5) ÷ (8/5) = (13/5) * (5/8) = 13/8

Step 4: Simplify the expression inside the braces:

1/7 - (1/7 ÷ 1/5) = 1/7 - (1/7 * 5/1) = 1/7 - 5/7 = -4/7

Step 5: Now calculate (8/7) ÷ (-4/7):

(8/7) ÷ (-4/7) = (8/7) * (-7/4) = -2

Step 6: Finally, put everything together:

(13/8) ÷ (-2) = (13/8) * (-1/2) = -13/16

The value is -13/16.

Q84. Answer: (d) Hockey

The logic followed here is:

Wrestling	Combat Sport
Judo	Combat Sport
Boxing	Combat Sport
Hockey	Team Sport

Wrestling, Judo, Boxing all are Combat Sports,

Whereas,

Hockey is a Team Sport.

Hence, the correct answer is "Hockey".

Q85. Answer: (b) Cnidaria

The correct answer is Cnidaria.

Key Points

• Corals are marine invertebrates within the class Anthozoa of the phylum Cnidaria.

• Cnidarians are characterized by the presence of specialized cells known as cnidocytes that they use mainly for capturing prey.

• The phylum Cnidaria includes not only corals but also jellyfish, sea anemones, and hydra.

• Corals primarily form symbiotic relationships with algae called zooxanthellae, which provide them with energy through photosynthesis.

Additional Information

• Phylum Cnidaria

• Cnidaria is a phylum under the kingdom Animalia that includes around 10,000 species of aquatic animals.

• They are predominantly marine species but also include freshwater species.

• Cnidarians have a simple body plan with radial symmetry, a mouth, and tentacles.

• They exhibit two main forms: the polyp (e.g., sea anemones) and the medusa (e.g., jellyfish).

• Anthozoa

• Anthozoa is a class within the phylum Cnidaria that includes corals, sea anemones, and sea pens.

• They are exclusively marine animals.

• Unlike other cnidarians, anthozoans do not have a medusa stage in their life cycle.

• They are often colonial and can form extensive coral reefs which provide critical habitats for marine life.

• Zooxanthellae

• Zooxanthellae are a type of symbiotic algae that live within the tissues of corals.

• They perform photosynthesis and provide the coral with organic compounds, which serve as a major energy source for corals.

• This symbiotic relationship is essential for the growth and health of coral reefs.

• Coral bleaching occurs when corals expel their zooxanthellae due to stress conditions such as increased sea temperatures.

• Cnidocytes

• Cnidocytes are specialized cells unique to the phylum Cnidaria.

• They contain organelles called nematocysts, which can deliver a sting to capture prey or for defense.

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• These cells play a crucial role in the feeding mechanism of cnidarians.
• The venom delivered by cnidocytes can vary from mild to extremely potent, depending on the species.

Q86. Answer: (d) 2197

The logic followed here is:
Hence, "Option 4" is the correct answer.

Q87. Answer: (a) 7142

The logic followed here is:
Option 1) 7142 → Even number
Option 2) 4185 → Odd number
Option 3) 6183 → Odd number
Option 4) 8349 → Odd number
Thus, out of all the options, '7142' is the odd one out.
Hence, "Option 1" is the correct answer

Q88. Answer: (a) None of (i), (ii) and (iii) follows.

The least possible Venn diagram for the given statements is as shown below :
Conclusions:
I. All movies are fiction → Does not follow (As all fiction are sci-fi and all sci-fi are movies. So it is possible but not definite.)
II. All sci-fi are books → Does not follow (As all books are fiction and all fiction are sci-fi. So it is possible but not definite.)
III. All movies are books → Does not follow (As all books are fiction, all fiction are sci-fi and all sci-fi are movies. So it is possible but not definite.)
Therefore Here, None of the conclusions follow.
Hence, the correct answer is "Option 1"

Q89. Answer: (a) YV

The logic followed here is:
Hence, "Option 1" is the correct answer.

Q90. Answer: (d) Aerobics

The logic followed here is:

Ludo	Indoor Game
Carrom	Indoor Game
Chess	Indoor Game
Aerobics	Physical Exercise

Ludo, Carrom, Chess are all Indoor Games,
Whereas,
Aerobics is a Physical Exercise activity.
Hence, the correct answer is "Aerobics".

Q91. Answer: (c) Meghalaya

The logic followed here is:
Logic: States and their famous cities.
Here,
Uttarakhand : Mussoorie → Mussoorie is a famous city in Uttarakhand.
Similarly,
? : Shillong → Shillong is a famous city in Meghalaya.
Hence, the correct answer is "Option 3".

Q92. Answer: (b) Z54

The logic followed here is:
Hence, "Option 2" is the correct answer.

Q93. Answer: (b) Q

Given: Seven students P, Q, R, S, T, U and V, are standing in a row, from left to right in increasing order of their weights.

1) P is standing at the middle position.

2) R and V are at the second positions from the right and left sides, respectively.

3) T is standing between R and P.

4) S is at the third position from the least weight side.

5) U is standing immediately after R.

After positioning U only one position is left which will be occupied by the only person left i.e. Q.

Thus, according to the final arrangement Q's weight is minimum among all the students.

Hence, "Option 2" is the correct answer.

Q94. Answer: (b) Read

The logic followed here is:

Logic: Activities performed in specific places.

Here,

Museum : View → View is an activity performed in a Museum.

Similarly,

Library : Read → Read is an activity performed in a Library.

Hence, the correct answer is "Option 2".

Q95. Answer: (a) ÷, ×, =, ×

Given : 16 Y 4 Y 6 Y 12 Y 2

According to the question, after replacing the numbers :

Option 1) ÷, ×, =, ×

16 Y 4 Y 6 Y 12 Y 2 => 16 ÷ 4 × 6 = 12 × 2

=> 16 ÷ 4 × 6 = 12 × 2

=> 4 × 6 = 24

=> 24 = 24 (LHS = RHS)

Option 2) ÷, -, =, -

16 Y 4 Y 6 Y 12 Y 2 => 16 ÷ 4 - 6 = 12 - 2

=> 16 ÷ 4 - 6 = 12 - 2

=> 4 - 6 = 10

=> -2 ≠ 10 (LHS ≠ RHS)

Option 3) ×, =, -, ÷

16 Y 4 Y 6 Y 12 Y 2 => 16 × 4 = 6 - 12 ÷ 2

=> 16 × 4 = 6 - 12 ÷ 2

=> 64 = 6 - 6

=> 64 ≠ 0 (LHS ≠ RHS)

Option 4) ÷, ×, =, -

16 Y 4 Y 6 Y 12 Y 2 => 16 ÷ 4 × 6 = 12 - 2

=> 16 ÷ 4 × 6 = 12 - 2

=> 4 × 6 = 10

=> 24 ≠ 10 (LHS ≠ RHS)

Hence, "Option 2" is the correct answer.

Q96. Answer: (b) 169

The logic followed here is:

Logic: $(\sqrt{1st\ number} + 2)^2 = 2nd\ number$.

Now,

For, 49 : 81

=> $(\sqrt{49} + 2)^2 = (7 + 2)^2 = 9^2 = 81$.

For, 121 : ?

=> $(\sqrt{121} + 2)^2 = (11 + 2)^2 = 13^2 = 169$.

Hence, the correct answer is "Option 2".

Q97. Answer: (d) 9

The logic followed here is:

Hence, "Option 4" is the correct answer.

Q98. Answer: (b) F is third to the left of H

Given: Eight executives A, B, C, D, E, F, G and H of a company XYZ are sitting around a circular table facing towards the center.

1) D is third to the right of B and is the immediate neighbour of H.

2) Only two executives sit between E and H.

As the positions of E and H are not known yet, therefore there are four possible cases.

Case 1)

Case 2)

Case 3)

Case 4)

3) A sits second to the right of C.

4) F is the neighbour of A.

5) A is not the neighbour of B.

As there is no possible position for A in Case 2, therefore is eliminated.

Case 1)

Case 3)

Case 4)

6) Only one executive sits between F and G.

As there is no possible position for G in case 2 and case 4, therefore are eliminated.

Case 3)

Thus, according to the final arrangement F is third to the left of H.

Hence, "Option 2" is the correct answer

Q99. Answer: (c) Swimming

Given: Rahul, Virat, Yusuf, Sunil and Robert are friends.

1) Sunil, Virat and Rahul play cricket.

2) Yusuf plays football, tennis and badminton.

Player	Sports
Rahul	Cricket
Virat	Cricket
Yusuf	Football, Tennis, Badminton
Sunil	Cricket
Robert	

3) Football and tennis are played by only Yusuf and Robert.

4) Rahul and Sunil play hockey and badminton.

5) Sunil also does swimming whereas Robert also likes hockey.

Player	Sports
Rahul	Cricket, Hockey, Badminton
Virat	Cricket
Yusuf	Football, Tennis, Badminton
Sunil	Cricket, Hockey, Badminton, Swimming
Robert	Football, Tennis, Hockey

Thus, according to the final arrangement swimming is the only sports which is played by only one player i.e. Sunil.

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Hence, "Option 3" is the correct answer.

Q100. Answer: (b) % ^ * & $

The logic followed here is:

‘CARDIO’ is written as ‘& * ^ % $ #”

‘PARA’ is written as ‘$ % S %’

‘CAR’ is written as ‘# $ %

So, the codes for R, A, D, I, and O will be:

R → $

A → %

D / I / O → & / * / ^

‘RADIO’ is written as "% ^ * & $"

Hence, "Option 2" is the correct answer.

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