RRB NTPC CBT-I Official Paper (Held On: 10 Feb 2021 Shift 2) (Previous Year Paper)

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

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Q1. Which of the following missions was announced by NASA for the study of the deep of the planet Mars?

(a) Mission Duster
(b) Mission Mars
(c) InSight Mission
(d) Mission Contact

Q2. In an election between two candidates, 75% of the voters enrolled in the election cast their votes, out of which 2% were declared invalid. A candidate got 9261 votes, which was 75% of the valid votes. The total number of voters enrolled in that election was:

(a) 16000
(b) 16400
(c) 18000
(d) 16800

Q3. Which state produced the highest cotton in India in the year 2019-20?

(a) Gujarat
(b) Maharashtra
(c) Haryana
(d) Madhya Pradesh

Q4. Which of the following is a malaria parasite?

(a) E. coli
(b) Plasmodium
(c) Mycobacterium
(d) Salmonella

Q5. Recently, Indian Defence Minister attended the Victory Day Parade in Moscow, Russia on the occasion of the 75^(th) anniversary of the Soviet victory over ____.

(a) Germany
(b) England
(c) USA
(d) France

Q6. A can do a piece of work alone in 32 days, while together with B she can do the work in 24 days. If C alone can do the work in 64 days, in how many days can B and C together do the work?

(a) 37 4/5 days
(b) 38 2/5 days
(c) 38 4/5 days
(d) 38 3/5 days

Q7. Select the number that can replace the question mark (?) in the following series.

234, 197, 160, ?, 86, 49

(a) 98
(b) 118
(c) 123
(d) 132

Q8. A student multiplied a number by 3/5 instead of 5/3. What is the percentage error in the calculation?

(a) 20%
(b) 10%
(c) 46%
(d) 64%

Q9. The ratio of two numbers is 3 : 4 and their HCF is 4. Their LCM is:

(a) 34
(b) 48
(c) 42
(d) 84

Q10. If in a certain code language SPECTROSCOPY is written as ESPRCTCOSYOP, how will EXTRAVAGANZA be written in that code language?

(a) TXEVARAGAAZN
(b) TEXVRAAAGANZ
(c) TEXVRAAGAANZ
(d) REXTGAVAANZA

Q11. Consider the given statement and decide which of the given assumptions is/are implicit in the statement.

Statement:

Together our mother is very strict about our meals and prepares healthy food for us, she lets us have doughnuts once in a while.

Assumptions:

I. Doughnuts are healthy.

II. Healthy food is prepared by our mother.

(a) Either I or II is implicit.
(b) Only assumption I is implicit.
(c) Only assumption II is implicit.
(d) Neither I nor II is implicit.

Q12. Which of the following is not a beneficial insect?

(a) Termite
(b) Honey bee
(c) Silk moth
(d) Lac insect

Q13. Which of the following is equal to 3.14 × 10^6?

(a) 3140
(b) 3140000
(c) 31.40000
(d) 314000

Q14. The mean and standard deviation of 100 observations were calculated as 40 and 5.1 respectively by a student who took 50 instead of 40 for one observation. What is the correct mean and standard deviation?

(a) 39.0, 5
(b) 39.9, 50

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(c) 39.09, 5
(d) 39.9, 5

Q15. If MOANA is written as 132 in a particular code language, how will CROOD be written as in that language?
(a) 173
(b) 165
(c) 158
(d) 55

Q16. If a/2 = b/3 = c/5 then find (a + b + c)/c.
(a) 2
(b) 10
(c) 12
(d) 5

Q17. Pointing to a boy, Suresh said, “His mother’s brother is the only son of my mother’s father”. How is the boy’s mother related to Suresh?
(a) Maternal Aunt
(b) Mother
(c) Sister
(d) Grandmother

Q18. Find the sum of all even natural number less than 85.
(a) 1806
(b) 840
(c) 4700
(d) 1408

Q19. A number, x, when divided by 7 leaves a remainder of 1 and another number, y, when divided by 7 leaves a remainder of 2. What will be the remainder if x + y is divided by 7?
(a) 4
(b) 3
(c) 1
(d) 2

Q20. If a triangle and a parallelogram are on the same base and between the same parallels, then the area of the triangle is equal to:
(a) one-third of the area of the parallelogram
(b) the area of the parallelogram
(c) half the area of the parallelogram
(d) three-fourth of the area of the parallelogram

Q21. Who was the founding director of BARC Mumbai?
(a) Homi Jehangir Bhabha
(b) Vikram Sarabhai
(c) Satish Dhawan
(d) Raja Ramanna

Q22. Which of the following countries is the largest producer of gold in the world in 2019?
(a) South Africa
(b) China
(c) India
(d) Australia

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Q23. If 5% more is gained by selling an article for Rs. 350 than by selling the article for Rs. 340, then what is the cost of the article?

(a) Rs. 160
(b) Rs. 250
(c) Rs. 200
(d) Rs. 100

Q24. Which of the following countries is not a member of the World Bank Group?

(a) Canada
(b) China
(c) Cuba
(d) USA

Q25. Find the greatest four-digit number that is a perfect square.

(a) 9008
(b) 9999
(c) 9000
(d) 9801

Q26. The sum of half, one-third and one-fifth of a number exceeds the number by 12. What is the number?

(a) 144
(b) 360
(c) 444
(d) 122

Q27. If the following equation has to be balanced, then the signs in which of the following options will be used in the same sequence?

65, 5, 25 = 190

(a) ×, -
(b) ×, +
(c) +, ×
(d) ÷, ×

Q28. Which mission was launched by the Govt. of India in December 2014 to achieve full immunisation coverage for all children and pregnant women at a rapid pace?

(a) Mission Indradhanush
(b) Sukanya yojana
(c) Ujjwala yojana
(d) Jan Dhan Yojana

Q29. Which of the following is not correctly matched?

(a) Tehri Dam - Maharashtra
(b) Sardar sarovar dam - Gujarat
(c) Hirakud dam - Odisha
(d) Bhakra dam - Himachal Pradesh

Q30. If '×' means '-', '÷' means '+', '-' means '÷' and '+' means '×', then what is value of 40 × 5 + 10 - 2 ÷ 8?

(a) 23
(b) 7
(c) 57
(d) -28

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Q31. The radius of the circle in which a central angle of 60° intercepts an arc of length 35 cm is:

(a) 35/π cm
(b) 35π cm
(c) 105/π cm
(d) 100/π cm

Q32. The 21^(st) commonwealth games were held in:

(a) Gold Coast
(b) New Delhi
(c) Melbourne
(d) London

Q33. Which among the following was one of the conceivers of the Kakori robbery?

(a) Sukhdev
(b) Bhagat Singh
(c) Udham Singh
(d) Ashfaqullah Khan

Q34. In a swimming pool measuring 90 m × 40 m, 150 men take a dip. If the average displacement of water by a man is 8 m^3, then what will be the rise in the water level of the pool?

(a) 33.33 cm
(b) 25 cm
(c) 35 cm
(d) 30 cm

Q35. There are three consecutive road crossings at which traffic lights change after every 35 seconds, 42 seconds and 90 seconds, respectively. If the lights are set on simultaneously at 8:00:00 hours, then after how much time will they change again simultaneously?

(a) 7 minutes 20 seconds
(b) 9 minutes 30 seconds
(c) 9 minutes 10 seconds
(d) 10 minutes 30 seconds

Q36. A solution of a weak acid and its salt is called:

(a) Buffer solution
(b) Basic solution
(c) Neutral solution
(d) Highly acidic solution

Q37. The variance of 20 observations is 5. If each observation is multiplied by 2, then the variance of the resulting observations will be:

(a) 5
(b) 2×5^2
(c) 2×5
(d) $2^2 \times 5$

Q38. Rangbhumi, Godan, Gaban and Vardaan are the novels written by:

(a) Ramdhari Singh Dinkar
(b) Maithili Sharan Gupt
(c) Munshi Prem Chand
(d) Sumitra Nandan Pant

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Q39. Who among the following never became United Nation's Secretary General?

(a) Kofi Annan
(b) Ban Ki-moon
(c) Dag Hammarskjold
(d) Louise Frechette

Q40. Construction work has begun in Lincolnshire on the world's longest subsea power cable, which will run between Britain and _____ to share renewable energy between the two countries.

(a) Denmark
(b) Austria
(c) Belgium
(d) France

Q41. If cos x = - 3/5 and x lies in the third quadrant, then the value of the sin x is:

(a) 1
(b) 4/5
(c) 0
(d) • 4/5

Q42. At which of the following railway stations of South Africa was Gandhiji thrown out of a train after refusing to leave the first-class compartment?

(a) Cape Town
(b) Johannesburg
(c) Durban
(d) Pietermaritzburg

Q43. Which of the following options is NOT correct regarding Swachh Bharat Abhiyan?

(a) The main goal of the campaign was to eradicate the practice of open defecation.
(b) It was launched by Prime Minister Narendra Modi in the year 2014
(c) It is the restructuring of Nirmal Bharat Abhiyan
(d) It's main focus is achieving cleanliness only in urban areas of India

Q44. What is the difference between the compound interests on a sum of Rs. 5,000 for 1 1/2 years at 4% per annum compounded yearly and half-yearly?

(a) Rs. 2.04
(b) Rs. 3.61
(c) Rs. 3.40
(d) Rs. 2.90

Q45. The perimeters of five squares are 24 cm, 32 cm, 40 cm, 76 cm and 80 cm respectively. The perimeter of another square whose area is equal to the sum of the areas of these squares will be:

(a) 100 cm
(b) 120 cm
(c) 124 cm
(d) 128 cm

Q46. Select the letter that can replace the question mark (?) in the following series.

D, V, F, T, H, R, J,?

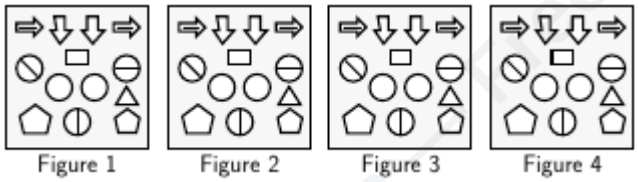
(a) L
(b) M
(c) P
(d) O

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Q47. There are 2401 students in a school. The PT teacher wants all of them to stand in rows and columns. Find the number of rows, if the number of rows is equal to the number of columns.

(a) 19
(b) 49
(c) 39
(d) 29

Q48. Which of the following figures is different from the rest?



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

Q49. A man deposits Rs. 5,000 in his bank account for 5 years to earn a simple interest of 12% per annum. What amount will he get after 5 years?

(a) Rs. 7,500
(b) Rs. 2,500
(c) Rs. 3,500
(d) Rs. 8,000

Q50. In what time will Rs. 1,000 become Rs. 1,331 at an interest rate of 10% per annum compounded annually?

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

Q51. Which one of the following is not an operating system?

(a) Linux
(b) Microsoft Office
(c) MS Windows
(d) macOS

Q52. Select a word from the following four options that is related to the word 'South Africa' in the same way as the word 'Persian' is related to the word 'Iran'.

(a) Portuguese
(b) English
(c) Country
(d) Africa

Q53. The fungus Puccinia graminis causes:

(a) Red rot of sugarcane
(b) Late blight of potato
(c) Black rust in wheat
(d) Ringworm in humans

Q54. Where is 'Paithan Hydroelectric Project' located in India?

(a) Maharashtra
(b) Rajasthan
(c) Uttar Pradesh

(d) West Bengal

Q55. What are the four tax rates in India under GST?

(a) 5%, 12%, 18% and 28%
(b) 3%, 6%, 18% and 28%
(c) 6%, 12%, 17% and 28%
(d) 6%, 9%, 18% and 28%

Q56. Which of the following chemicals/gases is/are responsible for causing the greenhouse effect?

(a) NO2, CO2 and SO2,
(b) Water vapour, CO2 and CFCs
(c) NO2, O2 and SO2,
(d) Water vapour, O2 and CFCs

Q57. Select the option that is related to the fifth number in the same way as the fourth number is related to the third number and in the same as the second number is related to the first number.

6 : 34 :: 8 : 62 :: 9 : ?

(a) 81
(b) 18
(c) 64
(d) 79

Q58. Read the given statements and conclusions carefully. Assuming that the information given in the statements is true, even if it appears to be at variance with commonly known facts, decide which of the given conclusions logically follow(s) from the statements.

Statements:

Nurses marry only tall men.

Ankit is very tall.

Conclusions:

I. Ankit was married to a nurse.

II. Ankit was not married to a nurse.

(a) Either I or II follows.
(b) Only conclusion II follows.
(c) Both, I and II follow.
(d) Only conclusion I follows.

Q59. What is the full form of COBOL?

(a) Common Business-Oriented Language
(b) Common Open Business Objective Language
(c) Computer Operative Business Objective Language
(d) Computer Operative Business Oriented Language

Q60. The trial test of a computer or software before the commercial launch is called:

(a) e-test
(b) Alpha test
(c) Beta test
(d) Delta test

Q61. Which among following countries has the largest land area?

(a) China
(b) Brazil
(c) Canada
(d) Australia

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Q62. Which of the following Articles of Indian Constitution provides Right against Exploitation?

(a) Article 19
(b) Article 23
(c) Article 21
(d) Article 14

Q63. A man travelled from a village to a post-office at a speed of 25 km/h and walked back at a speed of 4 km/h. If the whole journey took 5 hours 48 minutes, then the distance of the post-office from the village is:

(a) 40 m
(b) 20 m
(c) 20 km
(d) 40 km

Q64. A, B and C all start their journey from the same place and all three follow the same route. However, A travels at a speed of 60 km/h. B at a speed of 75 km/h and C at a speed of 80 km/h. Also, A starts the journey five hours before B does. If B and C both overtake A at the same instance while travelling, how much time after A did C start the journey?

(a) 6 hours 12 minutes
(b) 6 hours 30 minutes
(c) 6 hours 25 minutes
(d) 6 hours 15 minutes

Q65. Which section of the Criminal Procedure Code (CrPC) empowers an executive magistrate to prohibit an assembly of more than four persons in an area?

(a) Section 231
(b) Section 111
(c) Section 144
(d) Section 357

Q66. Which of the following states of India does not share any boundary with Nepal?

(a) Tripura
(b) Uttarakhand
(c) Bihar
(d) Uttar Pradesh

Q67. If 144/0.144 = 14.4/x, then what is the value of x?

(a) 0.144
(b) 0.00144
(c) 0.01044
(d) 0.0144

Q68. If a lens has a focal length of 25 cm, what will be the power of that lens?

(a) 4 D
(b) 1 D
(c) 2 D
(d) 6 D

Q69. Consider the given statement and decide which of the given assumptions is/are implicit in the statement.

Statement:

A signboard in a park states: Please use the dustbin, do not litter and help keep your community clean.

Assumptions:

I. Throwing litter around makes a community dirty.

II. People are likely to pay attention to this notice.

(a) Only assumption II is implicit.
(b) Either I or II is implicit.

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(c) Both, I and II are implicit.
(d) Only assumption I is implicit.

Q70. A tailor has 37.5 m of cloth. He has to make 8 pieces out of 3 m of cloth. How many pieces can he make out of his cloth?
(a) 90
(b) 100
(c) 300
(d) 150

Q71. Name the pigment that gives plants their green color.
(a) Actin
(b) Carotenoid
(c) Chlorophyll
(d) Thiamin

Q72. The reduction in the external value of the domestic currency is called:
(a) Economic growth
(b) Devaluation of currency
(c) Increase in purchasing power
(d) Decrease in inflation

Q73. Which statement of the following is not true regarding national highway?
(a) NH-44 is the longest national highway of India.
(b) NH-8 is the shortest national highway in India.
(c) NH-47A is the shortest national highway in India.
(d) NHAI has the authority for the development, maintenance and management of national highways

Q74. Who was the British Prime Minister during the first round table conference in London?
(a) Ramsay MacDonald
(b) N. Chamberlain
(c) Stanley Baldwin
(d) Winston Churchill

Q75. The Constitution of India came into force in:
(a) 1948
(b) 1950
(c) 1947
(d) 1949

Q76. Which architect designed the Gateway of India located at Mumbai?
(a) Laurie Baker
(b) Edwin Lutyens
(c) Albert Speer
(d) George Wittet

Q77. Who was last Nizam (ruler) of Hyderabad?
(a) Nasir-ud-Daula
(b) Mir Osman Ali Khan
(c) Mir Mahbub Ali Khan
(d) Afzal-ud-Daula

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Q78. Which of the following Indian pairs has won the Miss Universe title?

(a) Priyanka Chopra and Manushi Chhillar
(b) Lara Dutta and Diana Hayden
(c) Reita Faria and Aishwarya Rai
(d) Sushmita sen and Lara Dutta

Q79. Who discovered the sea route to India?

(a) Christopher Columbus
(b) Vasco da Gama
(c) Ibn Battuta
(d) Hsuan Tsang

Q80. Out of the four words listed, three are alike in some manner and one is different. Select the odd one.

(a) Fish
(b) Bear
(c) Hibiscus
(d) Pig

Q81. Dehing Patkai Wildlife Sanctuary is located in _____

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

Q82. If the side of a square is 1/10 m, then how many such squares will get accommodated in a bigger square of side 4 m?

(a) 1500
(b) 1200
(c) 1600
(d) 1650

Q83. Select a word from the following four options that is related to the word 'Butcher' in the same way as the word 'Shoe' is related to the word 'Cobbler'.

(a) Wood
(b) Meat
(c) Vegetables
(d) Plastics

Q84. Solve the following.

108 ÷ (36 × 1/4) + 2/5 × 3 1/4 = ?

(a) 13 3/10
(b) 130/10
(c) 13/10 + 11
(d) 132/10

Q85. The minute hand of a watch is 1.5 cm long. How far does its tip move in 40 minutes?

(take π = 3.14)

(a) 6.28 cm
(b) 6.00 cm
(c) 2π m
(d) π cm

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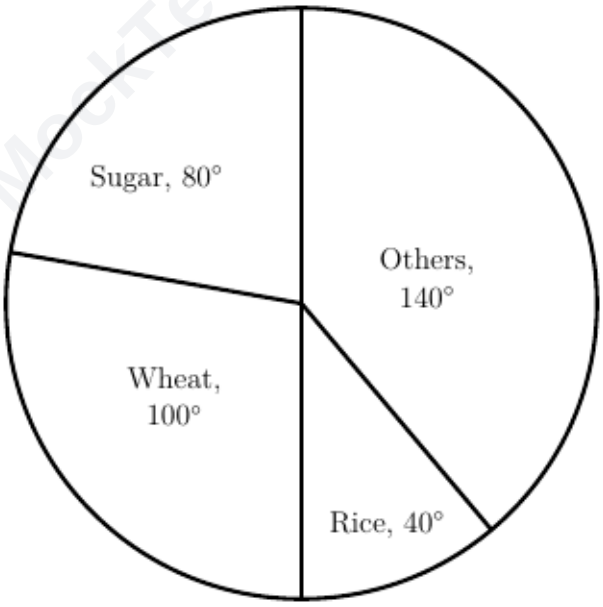
Q86. According to the given table, how many schools won less than 15 gold medals in any of the two consecutive years?
X = Schools, Y = Year.

X ↓	Y →	2001	2002	2003	2004
School A	20	13	16	11	
School B	15	18	14	25	
School C	14	21	16	9	
School D	19	8	14	21	
School E	5	12	16	17	

Number of Gold Medals won by different schools in different years during Interschool competition.

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

Q87. Study the given pie chart that shows the annual agricultural yield of a certain and answer the question that follows.



If the total production is 8100 tons, then the yield of rice (in tonnes) will be:

(a) 3240
(b) 900
(c) 4860
(d) 2025

Q88. According to the given table, which of the following has the highest growth rate of production from 2001 to 2005?

Years	Gold	Silver	Copper	Iron
2001	24	87	12	27
2002	56	89	20	29
2003	65	95	35	16
2004	75	101	43	37
2005	85	103	54	69

Production of four elements (Thousand tonnes)

(a) Silver

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(b) Iron
(c) Copper
(d) Gold

Q89. The table gives the marks of two friends Anita and Sunita in various subjects in a semester exam. What is the difference between their percentage of aggregate marks?

SUBJECTS	Anita	Maximum Marks	Sunita	Maximum Marks
English	70	100	85	100
French	50	100	90	100
Biology	45	50	40	50
Physics	30	50	25	50

(a) 7%
(b) 15%
(c) 10%
(d) 1%

Q90. Study the given information carefully and answer the question that follows.

Eight persons A, B, C, D, E, F, G and H are sitting in a row facing the north but not necessarily in the same order. Three persons are sitting between D and F. G is sitting to the immediate left of D. Only one person is sitting between E and B. E is not sitting at any of the extreme ends. More than three persons are sitting between H and A. A is sitting to the left of H. Either H or A is sitting at one of the ends. Neither D nor F is sitting at any of the extreme ends. E and B are not the immediate neighbours of G and D. E is sitting to the right of B.

How many persons are sitting between H and C?

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

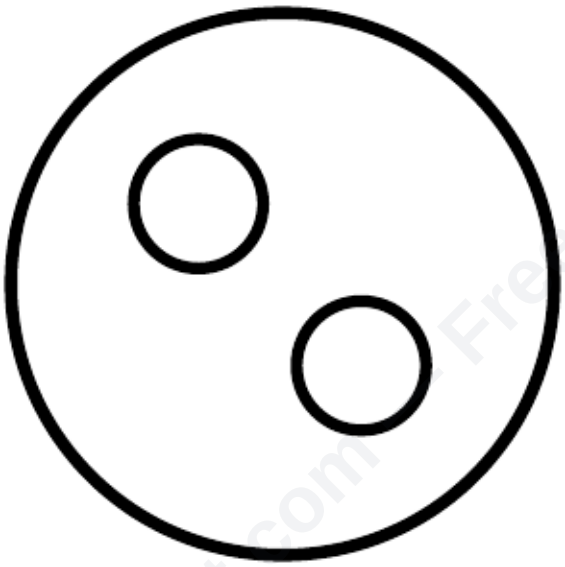
Q91. A, B, C, D, E, F and G are the names of two teenage girls, two infants and three old men. B, F and E are not old men. A, F and C are not teenage girls. G is an old man while D is an infant.

Which of the following are two teenage girls?

(a) B and E
(b) F and E
(c) A and E
(d) B and F

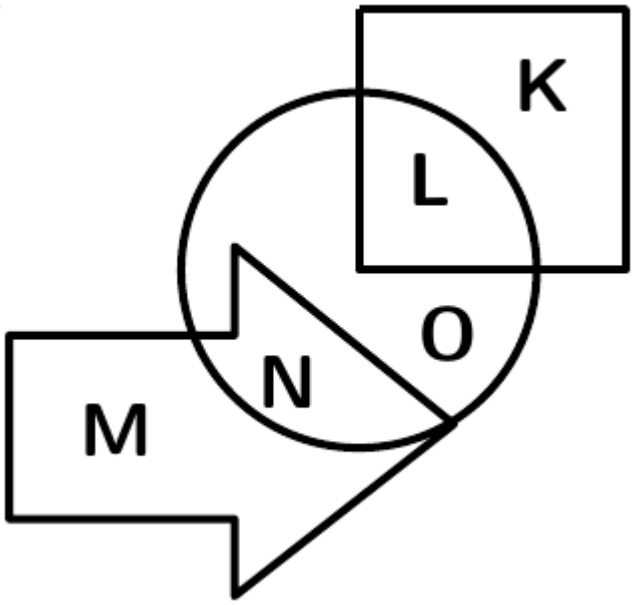
Q92. The relationship between which of the following groups of items is best represented by the given Venn Diagram?

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(a) Cars, Buses, Motor Vehicles
(b) Year, Month, July
(c) Doctors, Nurses, Surgeons
(d) Criminal, Thief, Police

Q93. In the given diagram, circle represents 'boxers', square represents 'philosophers' and arrow represents 'business women'.



Which of the following letters represents boxers who are not men?

(a) N
(b) M
(c) O
(d) L

Q94. Select the letter-cluster from among the given options that can replace the question mark (?) in the following series.
KABL, MCDN, OEFP, QGHR, ?

(a) SIJT
(b) UQRV
(c) WSTX
(d) YBAZ

Q95. In a code language, LETTER is written as MGWXJX. Select the option that will be written as ICNYSG in that language.

(a) MATOLA
(b) MATATA
(c) HAKUNA
(d) HAKURA

Q96. Out of the four letter-clusters listed, three are alike in some manner and one is different. Select the odd one.

(a) BO
(b) AI
(c) CG
(d) DF

Q97. In the given statement, relationship between different elements is shown. Which of the following conclusions logically follow(s) from the given statement?

Statement:

S < G < X = T > W > Q < R.

Conclusions:

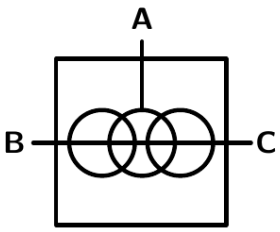
I. W < X

II. Q = S

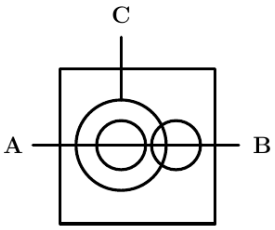
(a) Either conclusion I or II follows.
(b) Only conclusion II follows.
(c) Both, conclusion I and II follow.
(d) Only conclusion I follows.

Q98. Which of the following diagram best depicts the relationship between A, B and C, where A means 'Colour of the leaves', B means 'Yellow coloured things' and C means 'Green coloured things'?

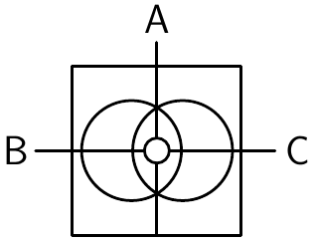
(a)



(b)

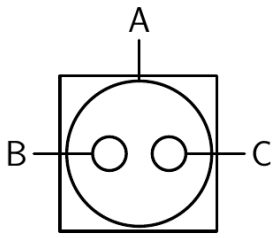


(c)



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(d)



Q99. Items L, Z, A, M and P are to be delivered to BCD showroom on 5 consecutive days beginning from Monday to Friday. Items Z and P cannot be delivered on consecutive days. Items L and Z have to be delivered on alternate days. M and P cannot be delivered on consecutive days. L has to be delivered on Monday. Which item will be delivered on Tuesday?

(a) L
(b) Z
(c) M
(d) A

Q100. Select the number from among the given options that can replace the question mark (?) in the following series.

24,70, 208, ?, 1864

(a) 515
(b) 476
(c) 622
(d) 558

ANSWER KEY

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

SOLUTIONS

Q1. Answer: (c) InSight Mission

The correct answer is InSight Mission.

Key Points

- Mars rover mission by NASA's Mars exploration program is planned to launch in 2020.
- The Mars 2020 InSight Mission mission is part of NASA's Mars Exploration Program.
- It was a long-term effort of robotic exploration of the Red Planet.
- The Mars 2020 mission launched on July 30, 2020.
- It's motive is to search for signs of ancient microbial life.
- Mars rover mission by NASA's Mars exploration program will also gather rocks and Soil.
- It will include a testing method for producing oxygen from the Martian atmosphere.
- The Mars 2020 spacecraft uses a guided entry, descent, and landing system.

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Additional Information

• NASA:

• The full form of NASA is the National Aeronautics and Space Administration.

• It is an independent agency of the US federal government.

• It is responsible for the civil space program, aeronautics research, and space research.

Q2. Answer: (d) 16800

Given:

Total percentage of voters votes = 75%

Invalid votes = 2%

A candidate got votes = 9261 votes = 75% of valid votes

Formula Used:

Percentage = (Initail value)/(Final value)×100

Calculation:

Let the total number of votes = x

A candidate got votes = 9261

According to the question,

=> 75% of valid votes = 9261

=> Valid votes = (9261 × 100)/75 = 3087 x 4 = 12348

=> Total votes enrolled = 75% of x = 75x/100

Invalid votes declared = 2% of total votes

=> Valid votes percentage = 100 - Invalid votes = 100 - 2 = 98% votes are valid = 98/100× 75x/100

So we can say,

=> 98/100× 75x/100 = 12348

=> Total votes(x) = 1.68 x 10000 = 16800

Hence, The total votes enrolled in the election cast their votes is 16800

Q3. Answer: (a) Gujarat

The correct answer is Gujarat.

Key Points

• It produces 29.78 percent of the total cotton production of India.

• It is also called ‘Cottonpolis of India’.

• India is the world’s largest producer of cotton.

• The states of Gujarat, Maharashtra, Andhra Pradesh, Haryana, Punjab, Madhya Pradesh, Rajasthan, Karnataka, and Tamil Nadu are the major cotton-producing areas in India.

• Nearly two-thirds of cotton production in India comes from the states of Maharashtra, Gujarat, Andhra Pradesh, and Telangana - collectively known as the Cotton Basket of India.

• The United States Department of Agriculture (USDA) pegs India's cotton production at 29 million bales in 2019-20.

Additional Information

• Cotton is a soft, fluffy staple fiber that grows in a boll, or protective case, around the seeds of the cotton plants of the genus Gossypium in the mallow family Malvaceae.

• The fiber is almost pure cellulose and can contain minor percentages of waxes, fats, pectins, and water.

• Cotton is a natural fiber that grows on a plant.

• It is both a food and fiber crop, and the plant is a leafy, green shrub related to the hibiscus species of plants.

• There are up to 52 species of cotton in the Gossypium genus.

Q4. Answer: (b) Plasmodium

The correct answer is Plasmodium.

Key Points

• Malaria

• Microorganisms of the Plasmodium groups are responsible for causing malaria.

• Only Anopheles mosquitoes with the infection can transmit it through bites.

• The parasites in the mosquito's saliva are transferred into the victim's blood through the bite.

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• To mature and reproduce, the parasites travel to the liver.

• Humans have the ability to contract and spread five different Plasmodium species.

• P. falciparum is the most common cause of malaria-related deaths, while P. vivax, P. ovale, and P. malariae typically cause a less severe form of the disease.

• P. knowlesi rarely infects humans with disease

• Fever, exhaustion, nausea, and headaches are among the typical symptoms of malaria.

• Seizures, a coma, or even death have been known to occur in extreme cases.

Additional Information

• Plasmodium

• An obligate parasite of insects and vertebrates, Plasmodium is a genus of unicellular eukaryotes.

• In the course of their life cycles, Plasmodium species develop in blood-feeding insect hosts before injecting parasites into vertebrate hosts during a blood meal.

• Prior to entering the bloodstream to infect red blood cells, parasites develop within a vertebrate body tissue (often the liver).

• Malaria may result from the resulting depletion of host red blood cells.

• In the majority of cases, mosquitoes feed on blood, so some parasites picked up during this infection are picked up by them and the life cycle is continued.

• The large group of parasitic eukaryotes known as Apicomplexa includes Plasmodium.

Q5. Answer: (a) Germany

The correct answer is Germany

Key Points

• Indian Defence Minister Shri Rajnath Singh visited Moscow in the last week of June to attend the Victory Parade that commemorated the 75th anniversary of the Second World War.

• The Parade was organised to honour the heroism and sacrifices of the Russian and other friendly forces.

• Every year, Russia celebrates Victory Day on May 9 to commemorate the Soviet Union's victory over Germany's Nazi forces in World War II.

• The Russian military holds a parade at Moscow's Red Square and in other cities to mark the event.

Additional Information

• Germany. Events in Berlin occur on 8 May to commemorate those who fought against Nazism in the German Resistance and lost their lives in World War II.

• In 2020, a regional holiday in Berlin occurred on 8 May to mark the 75th anniversary of surrender.

Q6. Answer: (b) 38 2/5 days

Given:

A can do a piece of work alone in 32 days

Together with B, she can do the work in 24 days

C alone can do the work in 64 days

Formula Used:

Efficiency = (Work done)/(Number of days)

Calculation:

A can the work = 32 days

=> A does work in 1 day = 1/32

Similarly,

Together with B, she does the work = 24 days

=> A + B = 24

Amount of (A + B) together work in one day

=> 1/32+1/B=1/24

=> 1/B=1/24-1/32=(4-3)/96=1/96

C can do the work = 64 days

=> C does work in 1 day = 1/64

B and C together can work in one day

=> 1/96+1/64=(2+3)/192=5/192

=> B and C together complete the work in = 192/5 = 38 2/5

Hence, B and C together can complete the work in 38 2/5

Q7. Answer: (c) 123

Given series: 234, 197, 160, ?, 86, 49

The logic here is:

37 is deducted from the first number to get the next term and so on.

Therefore, '?' will be replaced with '123'.

Hence, the correct answer is option (3).

Q8. Answer: (d) 64%

Given:

A student multiplied a number by 3/5 instead of 5/3

Concept Used:

Percentage= Error/(Actual value)×100

Calculation:

Let the number = x

According to the question

=> A student multiplied = 3x/5

=> Actual value = 5x/3

=> Error = 5x/3-3x/5=(25x-9x)/15=16x/15

=> Percentage= (16x/15)/(5x/3)×100=16×4=64

Hence, the error percentage in the calculation is 64%

Q9. Answer: (b) 48

Given:

The ratio of the two numbers is 3 : 4

HCF = 4

Formula Used:

HCF x LCM = product of two number

Calculation:

Ratio = 3 : 4

=> Let the First number = 3x

=> Second number = 4x

HCF means common in both the number

=> so x = 4

=> First Number = 3 x 4= 12

=> Second number= 4 x 4= 16

According to the formula,

=> HCF x LCM = product of two number

=> 4 x LCM = 12 x 16

=> LCM = 12 x 4 = 48

Hence, The LCM of the two numbers is 48

Q10. Answer: (b) TEXVRAAAGANZ

Here, the following logic is used:

'SPECTROSCOPY' = 'ESPRCTCOSYOP'

Similarly,

'EXTRAVAGANZA' = 'TEXVRAAAGANZ'

Hence, the correct answer is option (2).

Q11. Answer: (c) Only assumption II is implicit.

Statement:

Together our mother is very strict about our meals and prepares healthy food for us, she lets us have doughnuts once in a while.

Assumptions:

I. Doughnuts are healthy.

II. Healthy food is prepared by our mother.

Assumption I. Since mother allows us to have doughnuts once in a while, which means they are not healthy. So, this assumption is not followed

Assumption II. Mother is strict about meals and prepares healthy food. So, this assumption is followed.

Therefore, only assumption II is implicit.

Hence, the correct answer is option (3)

Q12. Answer: (a) Termite

The Correct answer is Termite.

Key Points

• Termites are small insects that live in colonies and have distinct castes and feed on wood or other dead plant matter, occurring on every continent except Antarctica.

• Termites comprise the infraorder Isoptera, or alternatively the epifamily Termitidae, within the order Blattodea.

• Although termites cause serious structural damage to properties, they are not known to attack or bite people and pets nor do they pose any serious health concerns.

• Termites can cause significant destruction to structures, they do not pose a direct threat to humans.

Additional Information

• Beneficial insects

• Hoverflies.

• Ladybirds.

• Parasitic wasps.

• Butterflies and moths.

• Lacewings.

• Ground beetles.

• Solitary bees (Hymenoptera).

Q13. Answer: (b) 3140000

Given;

3.14 × 106

Concept Used:

The number system is defined as the system of expressing the number

Calculation:

=> 3.14 x 10^6 = 3.14 x 1000000 = 3140000

Hence, The value equal to 3140000

Q14. Answer: (d) 39.9, 5

Given:

Mean of 100 observation = 40

The standard deviation of 100 observation = 5.1

One observation is taken as 50 instead of 40

Formula Used:

Mean(overline x) = (Sum of obsvatiom)/(Total number of observation)

(Standard deviation)² = (∑ x_i²)/n-(overline x)²

Calculation:

=> overline x=1/n∑_(i=1)^(100) x_i

=> ∑_(i=1)^(100) x_i=overline x × n = 40 x 100 = 4000

=> (S.D)²=(∑ x_i²)/n-overline x

sum x_i²=n[(S.D)²+(overline x)²] = 100 × [5.1² + 40² } = 100 × (26.01 + 1600) = 162601

Corrected mean= 1/n∑_(i=1)^(100) x_i = 4000 - 50 + 40 = 3990

Corrected ∑ x_i² = 162601 - 50² + 40² = 161701

Corrected mean = (Sum of obsvatiom)/(Total number of observation)=3990/100 = 39.9

Corrected S.D² = (∑ x_i²)/n-(overline x)²=161701/100-39.9² = 25

S.D = √25 = 5

Hence, The Correct mean and correct deviation are 39.9 and 5

Q15. Answer: (b) 165

The positional value of alphabets are as follows

Here, the following logic is used

Code = (sum of the positional values of the alphabets) × 3

MOANA

= (13 + 15 + 1 + 14 + 1) × 3

= 44 × 3

= 132

Similarly,

CROOD

= (3 + 18 + 15 + 15 + 4) × 3

= 55 × 3

= 165

Hence, the correct answer is option (2).

Q16. Answer: (a) 2

Given:

a/2 = b/3 = c/5

Concept Used:

A ratio is a mathematical tool for the comparison of two quantities.

Calculation:

Let the ratio = k

=> a/2 = b/3 = c/5 = k

then,

=> a = 2k

=> b = 3k

=> c = 5k

According to the question,

=> (a + b + c)/c=(2k+3k+5k)/5k=10k/5k=2

Hence, the value of the above equation is 2

Q17. Answer: (a) Maternal Aunt

The family chart symbols is as follows

According to the givens statement, we have the family tree as:

Thus, the the boy's mother is Maternal Aunt to Suresh.

Hence, the correct answer is option(1)

Q18. Answer: (a) 1806

Given:

To find the sum of even natural numbers less than 85

Formula Used:

Sum = (n[2a+(n-1)d])/2

n = number of term

a = first term

d = difference between the first and second number

Number of term = (Last term - First term)/2+1

The direct formula for the sum of n even numbers = n(n + 1)

Calculation:

=> First even natural number(a) = 2

=> Second even natural number = 4

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=> Difference(d) = 4 - 2 = 2

=> Last even natural number = 84

=> Number of term = (84 - 2)/2+1=82/2+1=41+1=42

According to the question,

=> Sum = (n[2a+(n-1)d])/2=(42[2×2+(42-1)2])/2 = 21(4 + 41 x 2) = 21 × 86 = 1806

Hence, the required sum of even natural numbers is 1806.

Q19. Answer: (b) 3

Given:

A number, x, when divided by 7 leaves a remainder of 1

Another number y, when divided by 7 leaves a remainder of 2

Formula Used:

Number = Divisor x Quotient + Remainder

Calculation:

According to the question,

Divisor = 7

Let Quotient = k

x = 7k + 1

Let the value of k be 1

So, x = 7k + 1 = 7 x 1 + 1 = 7 + 1 = 8

Similarly,

y = 7k + 2

Let the value of k be 1

So, y = 7k + 2 = 7 x 1 + 2 = 7 + 2 = 9

x + y = 8 + 9 = 17

x + y is divided by 7

17 = 7 x 2 + 3

Hence, when x + y is divided by 7 gives the remainder 3.

Q20. Answer: (c) half the area of the parallelogram

Given:

A triangle and a parallelogram are on the same base and between the same parallels

Concept Used:

Two triangles are said to be congruent if their sides have the same length and angles have the same measure

Proof:

Draw BQ parallel to AP to obtain another parallelogram ABQP. Now parallelograms ABQP and ABCD are on the same base AB and between the same parallels AB and PC.

=> ar (ABQP) = ar (ABCD)

=> triangle PAB = triangle BQP

Diagonal PB divides parallelogram ABQP into two congruent triangles

=> ar(triangle BQP) = 1/2 ar(ABQP)

therefore,

=> ar(triangle PAB) = 1/2 ar(ABQP)

So, we can say

=> ar(triangle PAB) = 1/2 ar(ABCD)

Hence, ar(triangle PAB) = 1/2 ar(ABCD)

Q21. Answer: (a) Homi Jehangir Bhabha

The correct answer is Homi Jehangir Bhabha

Key Points

• Homi Jehangir Bhabha was an Indian nuclear physicist, founding director, and professor of physics at the Tata Institute of Fundamental Research.

• Dr. Bhabha established the Atomic Energy Establishment, (AEET), Trombay, Mumbai in January 1954.

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• AEET was subsequently renamed Bhabha Atomic Research Centre (BARC).

Additional Information

• Vikram Ambalal Sarabhai was an Indian physicist and astronomer who initiated space research and helped develop nuclear power in India. Honored with Padma Bhushan in 1966 and the Padma Vibhushan in 1972. He is regarded as the Father of the Indian Space Program

• Satish Dhawan was an Indian mathematician and aerospace engineer, widely regarded as the father of experimental fluid dynamics research in India.

• Raja Ramanna was an Indian physicist who is best known for his role in India's nuclear program. Ramanna worked under Homi Jehangir Bhabha and later became the director of this program in 1967

Q22. Answer: (b) China

The correct answer is China.

Key Points

• Gold mining is a global business with operations on every continent, except Antarctica, and gold is extracted from mines of widely varying types and scale

• At a country level, China was the largest producer in the world and accounted for around 9 percent of total global production

Additional Information

• An estimated 100 metric tons of gold were produced in South Africa. The gold mining industry in South Africa is an important source of employment. India's gold mine production.

• Australia is the second largest gold producer in the world, reaching 390 tonnes per annum. Australia has two of the world's 20 largest gold mines and reserves totaling more than 380 million ounces of gold

• India's gold mine production is just 1.6 tonnes as of 2019 and could rise to 20 tonnes per year, highlights a World Gold Council report on 'Gold Mining in India''.

Q23. Answer: (c) Rs. 200

Given:

Selling the article for Rs. 350 - Selling the article for Rs. 340 = 5% Gain

Concept Used:

A percentage is a number or ratio that can be expressed as a fraction of 100

Calculation:

According to the question

=> 5% = 350 - 340

=> 5% = 10

=> 1% = 2

=> 100% = 200

Hence, The cost price of the article is Rs. 200.

Q24. Answer: (c) Cuba

The correct answer is Cuba

Key Points

• The World Bank is an international financial institution that provides loans and grants to the governments of low- and middle-income countries for the purpose of pursuing capital projects

• With 189 member countries, staff from more than 170 countries, and offices in over 130 locations.

• The World Bank Group is a unique global partnership: five institutions working for sustainable solutions that reduce poverty and build shared prosperity in developing countries.

Additional Information

• The World Bank is run by a president and 25 executive directors, as well as 29 various vice presidents.

• It has 189 and 174 member countries, respectively.

• The U.S., Japan, China, Germany, and the U.K. have the most voting power.

• The bank aims for loans to developing countries to help reduce poverty.

Q25. Answer: (d) 9801

Given:

The greatest four-digit number

Concept Used:

The long division method is used for finding the square root of the number

Calculation:

=> Greatest four-digit number = 9999

=> Long division method for 9999

It gives the remainder 198

For making the perfect square we have to subtract the number from the remainder

=> Perfect Square = 9999 - 198= 9801

Hence, The Greatest Four Digit perfect square is 9801

Q26. Answer: (b) 360

Given:

The sum of half, one-third, and one-fifth of a number exceeds the number by 12

Concept Used;

The number system is defined as the system of expressing or writing the numbers

Calculation:

Let the number = x

According to the question

=> 1/2 x + 1/3 x + 1/5 x = x + 12

=> (15x+10x+6x)/30 = x + 12

=> 31x/30 = x + 12

=> 31x = 30x + 360

=> 31x - 30x = 360

=> x = 360

Hence, The number is 360

Q27. Answer: (c) +, ×

Given Equation: 65, 5, 25 = 190

Let's check all the options one by one

Option 1) ×, -

Putting signs in place of commas

=> 65 × 5 - 25 = 190

=> 325 - 25 = 190

=> 300 = 190 (which is not possible)

=> LHS ≠ RHS

Option 2) ×, +

Putting signs in place of commas

=> 65 × 5 + 25 = 190

=> 325 + 25 = 190

=> 350 = 190 (which is not possible)

=> LHS ≠ RHS

Option 3) +. ×

Putting signs in place of commas

=> 65 + 5 × 25 = 190

=> 65 + 125 = 190

=> 190 = 190

=> LHS = RHS

Option(4) ÷. ×

Putting signs in place of commas

=> 65 ÷ 5 × 25 = 190

=> 13 × 25 = 190

=> 325 = 190 (which is not possible)

=> LHS ≠ RHS

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Only option 3) balances the equation.

Hence, the correct answer is +, ×.

Q28. Answer: (a) Mission Indradhanush

The correct answer is Mission Indradhanush

Key Points

• Mission Indradhanush is a health mission of the Government of India.

• It was launched by Union Health Minister J. P. Nadda on 25 December 2014

• The scheme seeks to drive toward 90% full immunization coverage of India and sustain the same by the year 2022.

• The main objective is to ensure high coverage of children and pregnant women with all available vaccines throughout the country.

Additional Information

• Sukanya Samriddhi Yojana is a Government of India-backed saving scheme targeted at the parents of girl children. The scheme encourages parents to build a fund for the future education of their female children.

• Pradhan Mantri Ujjwala Yojana was launched by Prime Minister of India Narendra Modi on 1 May 2016 to distribute 50 million LPG connections to women of Below Poverty Line families. A budgetary allocation of Rs. 80 billion was made for the scheme

• Pradhan Mantri Jan Dhan Yojana is a financial inclusion program of the Government of India open to Indian citizens, that aims to expand affordable access to financial services such as bank accounts, remittances, credit, insurance and pensions

Q29. Answer: (a) Tehri Dam - Maharashtra

Here, the dam and its location are given.

option 1): Tehri dam is in Uttarakhand (not in Maharashtra).

option 2): Sardar Sarovar dam is in Gujarat.

option 3): Hirakud dam is in Odisha.

option 4): Bhakra dam is in Himachal Pradesh.

So, 'Tehri Dam - Maharashtra' is incorrectly matched

Hence, the correct answer is option 1).

Q30. Answer: (a) 23

Here, we will interchange the signs as given below,

'×' means '-', '÷' means '+', '-' means '÷' and '+' means '×'

Given Equation: 40 × 5 + 10 - 2 ÷ 8

Interchanging the signs and using BODMAS

Interchanging the signs, according to the question,

=> 40 - 5 × 10 ÷ 2 + 8

=> 40 - 5 × 5 + 8

=> 40 - 25 + 8

=> 48 - 25

=> 23

Therefore, the 23 is a value that comes after interchanging the signs.

Hence, the correct answer is option 1).

Q31. Answer: (c) 105/π cm

Given:

Central angle = 60°

Arc = 35 cm

Formula Used:

Radius = arc/angle

Calculation:

=> Angle(in radian) = 60º = 60× π/180 = π/3

=> Radius = arc/angle=35/(π/3)=105/π

Hence, The Radius of the circle is 105/π cm

Q32. Answer: (a) Gold Coast

The correct answer is Gold Coast

Key Points

• The 2018 Commonwealth Games, officially known as the XXI Commonwealth Games and also known as Gold Coast 2018.

• It was an international multi-sport event for members of the Commonwealth that were held on the Gold Coast, Australia, between 4 and 15 April 2018.

Additional Information

• The Commonwealth Games often referred to as the Friendly Games, are a quadrennial international multi-sport event among athletes from the Commonwealth of Nations.

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

Q33. Answer: (d) Ashfaqullah Khan

The correct answer is Ashafaqulla Khan

Key Points

• Kakori Conspiracy, also called Kakori Conspiracy Case or Kakori Train Robbery, armed robbery on August 9, 1925, of a train in what is now central Uttar Pradesh state, north-central India, and the subsequent court trial instituted by the government of British India against more than two dozen men accused of involvement.

• Revolutionaries involved in the Kakori Conspiracy Case were hanged.

Additional Information

• On 19 December 1927, revolutionary freedom fighters Ram Prasad 'Bismil', Ashfaqulla Khan and Thakur Roshan Singh were hanged to death by the British government for their involvement in the Kakori train robbery case.

Q34. Answer: (a) 33.33 cm

Shortcut Trick

Rise in water level = (Total Volume Displaced) ÷ (Area of Pool Base)

Total displacement = 150 men × 8 m^3 = 1200 m^3

Area of pool = 90 m × 40 m = 3600 m^2

Rise (h) = 1200 ÷ 3600 = 1/3 m

Rise in cm = (1/3) × 100 = 33.33 cm

Therefore The correct answer is 33.33 cm.

Alternate Method

Given:

Dimensions of swimming pool = 90 m × 40 m

Number of men = 150

Average displacement per man = 8 m^3

Formula Used:

Volume of water rose = Total volume displaced by men

Area of base × Rise in height (h) = Number of men × Volume displaced per man

Calculations:

=> Total volume of water displaced = 150 × 8 = 1200 m^3

=> Surface area of the pool = 90 × 40 = 3600 m^2

=> Let h be the rise in water level in meters.

=> 3600 × h = 1200

=> h = 1200 ÷ 3600

=> h = 1/3 m

=> To convert meters into centimeters, multiply by 100:

=> h = (1/3) × 100 cm

=> h ≈ 33.33 cm

Therefore The correct answer is 33.33 cm.

Additional Information

Archimedes' Principle

The volume of water displaced by a submerged or floating object is exactly equal to the volume of the object itself.

Volume of a Cuboid

The volume of a cuboidal pool is calculated as V = Length × Width × Depth (or height).

Rise in Level Formula

Rise in Level = (Volume Added) ÷ (Area of the Base). This assumes the base area remains constant throughout the rise.

Unit Conversion Rule

To convert meters to centimeters, multiply by 100; to convert cubic meters to liters, multiply by 1000.

Q35. Answer: (d) 10 minutes 30 seconds

Given:

Traffic Lights change after every 35, 42 & 90 seconds

Initial time = 8:00:00 hours

Concept used:

LCM = Least Common Multiple

It is the product of the greatest power of each prime factor, involved in the numbers.

Solution:

LCM(35, 42, 90) = 2 x 3 x 3 x 5 x 7 = 630

A total of 630 seconds will be required to change the lights simultaneously again.

60 seconds = 1 minute

630 seconds = ? minute

= 630/60 = 10 minutes 30 seconds.

Hence, 10 minutes and 30 seconds time will be required for them to change again simultaneously.

Q36. Answer: (a) Buffer solution

The correct answer is Buffer solution.

Key Points

• A buffer solution is an aqueous mixture of a weak acid and either its conjugate base or base itself. When a modest amount of a strong acid and base is introduced to it, the pH hardly changes at all.

• The two main categories of the buffer are alkaline and acidic buffer solutions. Acidic buffers are solutions that contain a weak acid and one of its salts and have a pH below 7.

• To keep the pH neutral or even slightly alkaline, buffer solutions are employed in the production of many cosmetic and personal hygiene products.

Additional Information

• An aqueous solution that has more OH- ions than H+ ions is referred to as a basic solution. It is an aqueous solution with a pH higher than 7, in other words.

• The same concentrations of hydrogen and hydroxide ions are considered to be neutral solutions.

• Higher than that of pure water, an acidic solution has a high concentration of hydrogen ions (H +start superscript).

Q37. Answer: (d) $2^2 \times 5$

Given:

Old variance = 5

Multiplication factor = m = 2

Formula used:

New variance = m^2 x Old Variance

Solution:

Let's put the values in the above formula to find the new variant,

New variance = 2^2 x 5 = 20

Hence, the new variance of the resulting observation is 2^2 x 5.

Q38. Answer: (c) Munshi Prem Chand

The correct answer is Munshi Prem Chand.

Key Points

• Munshi Prem Chand is recognised as one of the greatest Hindi authors of the first half of the twentieth century. He is one of the most well-known authors from the Indian subcontinent,

• Godaan, Karmabhoomi, Gaban, Mansarovar, and Idgah are some of his creations. In a book titled Soz-e-Watan, he initially published his collection of five short stories in 1907.

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• Premchand's writings are distinguished by his engaging storytelling and use of straightforward language.

Additional Information

• Ramdhari Singh Dinkar was an Indian poet, writer, freedom fighter, patriot, and academic who wrote in Hindi and Maithili. He has been praised as a Rashtrakavi because his poems radiated Veer Rasa.

• One of the most influential Hindi poets of the modern era was Maithili Sharan Gupt. His works of poetry include Jaydrath Vadh and Rang me Bhang.

• Indian poet Sumitra Nandan Pant was born. His best-known works include Pallav and Chidambarab.

Q39. Answer: (d) Louise Frechette

The correct answer is Louise Frechette.

Key Points

• On the Security Council's proposal, the General Assembly appoints the Secretary-General.

• Therefore, any of the Security Council's five permanent members may veto the Secretary-appointment. General's

• Canadian diplomat and public servant Louise Frechette held the position of Deputy Secretary-General of the United Nations for eight years.

Additional Information

• From 1997 to 2006, Kofi Annan, a diplomat from Ghana, held the position of seventh Secretary-General of the United Nations.

• Between 2007 to 2016, South Korean politician and diplomat Ban Ki-moon held the position of eighth Secretary-General of the United Nations.

• From April 1953 to September 1961, the second Secretary-General of the United Nations was Dag Hammarskjold, a diplomat, and economist from Sweden.

Q40. Answer: (a) Denmark

The correct answer is Denmark.

Key Points

• Foreign ties between the United Kingdom and Denmark are known as British-Danish relations. Denmark and the United Kingdom each have embassies in the other's capital cities.

• The 1.6 billion euro North Sea Link is referred to as "the world's longest undersea electrical interconnector" by Britain's National Grid.

• The NSL's goal is to utilize both the U.S. and Norway's hydropower.

Additional Information

• The U.K. and Norway can now share renewable energy thanks to a 450-mile underwater connection that connects the two nations.

• The NSL's goal is to utilise the hydropower in Norway and wind energy in the United Kingdom.

• Hydroelectricity from Norway can be imported when demand is high in Britain but wind generation is low.

Q41. Answer: (d) • 4/5

Shortcut Trick

In the third quadrant, the sine function is always negative.

Given cos x = −3/5, we identify the 3-4-5 Pythagorean triplet where base = 3 and hypotenuse = 5.

The perpendicular is 4, so the magnitude of sin x is 4/5.

Since x is in the third quadrant, sin x must be negative.

Therefore The correct answer is −4/5.

Alternate Method

Given: cos x = −3/5 and x lies in the third quadrant (180° < x < 270°).

Formula Used: $\sin^2 x + \cos^2 x = 1$

=> $\sin^2 x = 1 - \cos^2 x$

=> $\sin^2 x = 1 - (-3/5)^2$

=> $\sin^2 x = 1 - 9/25$

=> $\sin^2 x = 16/25$

=> $\sin x = \pm \sqrt{(16/25)} = \pm 4/5$

Since x lies in the third quadrant, the sine value is negative (sin x < 0).

=> sin x = −4/5

Therefore The correct answer is −4/5.

Additional Information

ASTC Rule

This rule determines the sign of trigonometric ratios: All positive in Q1, Sine in Q2, Tangent in Q3, and Cosine in Q4.

Pythagorean Identity

For any angle x, the identity sin2x + cos2x = 1 always holds true, derived from the Pythagorean theorem.

Trigonometric Ratios

In a right-angled triangle, sin θ = Perpendicular/Hypotenuse and cos θ = Base/Hypotenuse.

Q42. Answer: (d) Pietermaritzburg

The correct answer is Pietermaritzburg.

Key Point

• The primary train station for the city of Pietermaritzburg, South Africa, is Pietermaritzburg Railway Station.

• M.K. Gandhi was pulled forcibly from a whites-only carriage on a train to Pietermaritzburg on June 7, 1893, for breaking the law that divided each carriage by race.

• Mahatma Gandhi famously forced off a train at this stop in 1893 because he was traveling first class.

Additional Information

• Gandhi was forced out of the train at Pietermaritzburg station despite having a valid first-class ticket and refusing to comply with the instructions. That evening, he had stayed at the station.

• Due to his dusky color, Gandhi was expelled from the train. Gandhi was taken aback. It inspired him to make a shift.

• He spoke with the railroad officials as well, and he got them to agree that Indians who were "fully clothed" might travel in second or first class.

Q43. Answer: (d) It's main focus is achieving cleanliness only in urban areas of India

The correct answer is It's main focus is achieving cleanliness only in urban areas of India.

Key Points

• The government of India launched the Swachh Bharat Abhiyan, a nationwide effort, in 2014 to end open defecation and enhance solid waste management.

• The Government of India is conducting a nationwide drive to clean the nation's streets, highways, and infrastructure in 4041 statutory towns.

• Clean India Mission for Cities. The program includes eradicating open defecation, converting unhygienic toilets to pour flush toilets, eliminating manual scavenging, managing municipal solid waste, and changing people's attitudes toward good sanitation practices.

Additional Information

• The Swachh Bharat Mission was established by the Indian Prime Minister on October 2, 2014, to focus on sanitation and to speed up efforts to attain universal sanitation coverage.

• For the fifth year running, Indore has held the title of "Cleanest City" in India without being contested, winning the prized designation at the Swachh Survekshan Award 2021.

• The National Tricolor is used to represent the bridge of Mahatma Gandhi's spectacles in the Swachh Bharat Mission logo.

Q44. Answer: (a) Rs. 2.04

Given:

Principle = Rs. 5,000

Rate = 4%

Time = 1.5 years

Formula used:

A= P × [1 + R/100]^T

CI = A - P

here,

A = Amount

CI = Compound Interest

P = Principle

R = Rate

T = Time

Solution:

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Let's put the values given, in the formula to find the value of A;

For Compounded yearly,

1st year: P = 5000 & R = 4%

$A= P \times [1 + R/100]^T = 5000 \times [1 + 4/100]^1 = Rs. 5200$

CI = A - P = 5200 - 500 = Rs. 200

1/2 year: P = Rs. 5200 & R = 4/2 = 2%

$A= P \times [1 + R/100]^T = 5200 \times [1 + 2/100]^1 = 5304$

CI = A - P = 5304 - 5200 = Rs. 104

Total Interest for compounded annually = 200 + 104 = Rs. 304

For Compounded Half Yearly,

P = Rs. 5000

R = 4/2 = 2%

T = 3

$A= P \times [1 + R/100]^T = 5000 \times [1 + 2/100]^3 = 5306.04$

CI = 5306.04 - 5000 = Rs. 306.04

Now, the difference be compounded annually and half-yearly = 5306.04 - 5304 = Rs. 2.04

Hence, the difference between the compound interests is Rs. 2.04.

Q45. Answer: (c) 124 cm

Given:

Perimeter of 5 squares = 24cm, 32 cm, 40cm, 76cm, 80cm.

Area of another square = Sum of areas of the above 5 squares.

Formula used:

Area of square = side x side

Perimeter of square = 4 x side

Solution:

First of all, we will find the side of 5 squares then, we will find their area, sum up them, and find the side of another square, to calculate its perimeter.

Side of 1st square = 24/4 = 6 cm

Side of 2nd square = 32/4 = 8 cm

Side of 3rd square = 40/4 = 10 cm

Side of 4rth square = 76/4 = 19 cm

Side of 5th square = 80/4 = 20 cm

now,

Area of 1st square = 6 x 6 = 36 cm^2

Area of 2nd square = 8 x 8 = 64 cm2

Area of 3rd square = 10 x 10 = 100 cm2

Area of 4rth square = 19 x 19 = 361 cm2

Area of 5th square = 20 x 20 = 400 cm^2

Now, Area of another square = 36 + 64 + 100 + 361 + 400 = 961 cm^2

Hence, the side of another square = 31 cm

Perimeter of another square = 4 x 31 = 124 cm.

Q46. Answer: (c) P

The table showing the positional value of the alphabets is given below.

Here, the following logic is used,

Therefore, '?' will be replaced by 'P'.

Hence, the correct answer is option 3).

Q47. Answer: (b) 49

Given:

Total number of students in a school = 2401

Explanation:

Here, the number of rows and number of columns are equal and the total number of students is 2401.
To find the number of rows and columns will take the square root of the total number of students
Therefore, √2401 = 49
Hence, the number of rows or columns is 49.

Q48. Answer: (c) Figure 3

Here, all figures are identical, except figure(3).
In Figure(3) an arrow has a diagonal line in it whereas other figures have a plain arrow.
Hence, the correct answer is option 3).

Q49. Answer: (d) Rs. 8,000

Given:
Principle = Rs. 5000
Rate = 12%
Time = 5 years
Formula used:
SI = (P × R × T)/100
A = SI + P
here,
A = Amount
SI= Simple Interest
P = Principle
R = Rate
T = Time
Calculation:
Let's put the values given, in the formula to find the value of SI;
SI = (P × R × T)/100= (5000 × 12 × 5)/100
SI = Rs. 3000
Now, A = SI + P = 3000 + 5000 = Rs. 8000
Hence, the amount after 5 years will be Rs. 8000.

Q50. Answer: (a) 3 years

Given:
Principle = Rs. 1000
Rate = 10%
Amount = Rs. 1,331
Formula used:
A= P × [1 + R/100]^T
A = CI + P
here,
A = Amount
CI = Compound Interest
P = Principle
R = Rate
T = Time
Calculation:
Let's put the values given, in the formula to find the value of T;
A= P × [1 + R/100]^T ; 1331 = 1000[1+10/100]^T ; 1331 = 1000[1.1]^T ; 1.331 = [1.1]^T ; $[1.1]^3$ = [1.1]^T ; T = 3
Hence, the value of time is 3 years.

Q51. Answer: (b) Microsoft Office

The correct answer is Microsoft Office.
Key Points

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• An operating system is a piece of system software that controls computer resources, hardware, and common services for software programs.

• An operating system is a program that controls all other application programs in a computer after being loaded into the system first by a boot program.

• Microsoft Office is a collection of programs made to increase productivity and carry out typical operations on a computer.

Additional Information

• These are some applications for using Linux: Server OS for shared servers of any kind, including web servers, database servers, file servers, email servers, etc.

• Microsoft Windows is a personal computer operating system (OS) created by the Microsoft Corporation. It is also known as Windows and Windows OS (PCs).

• Apple's desktop OS now has a lot of new features and improvements thanks to macOS Mojave. Stacks aid in maintaining a neat desktop. A system-wide dark mode is visually appealing and helps with evening computer use.

Q52. Answer: (b) English

The Persian language is also known as 'Farsi' and is spoken in Iran.

Similarly,

English is a language spoken in 'South Africa'.

Hence, the correct answer is an option(2)

Q53. Answer: (c) Black rust in wheat

The correct answer is Black rust in wheat.

Key Points

• The fungus Puccinia graminis tritici causes the black rust of wheat.

• The disease is also known as stem rust of wheat.

• It affects the grains, stems, and leaves of the plant.

• Heteroecious Puccinia graminis tritici.

• The parasite needs two partners in order to complicate its life because it belongs to the heteroecious family.

• Wheat and Kentucky blue grass stem rust are caused by Puccinia garminis.

Additional Information

• Red rot, prevalent in South Asia and Indonesia, is distinguished by sporadic red and white patches inside the cane and a sour alcoholic odor when the rod is split open.

• Late blight, is the most significant potato disease, which is brought on by the fungus Phytophthora infestans and can quickly lead to crop failures if proper control measures are not taken.

• A ring-shaped rash that is itchy, scaly, and slightly elevated is frequently caused by ringworm. Typically, the rings begin small and then spread outward. A rash known as ringworm of the body (tinea corporis) is brought on by a fungus. The rash is typically round and irritating, with clearer skin in the center.

Q54. Answer: (a) Maharashtra

The correct answer is Maharashtra.

Key Points

• Paithan Hydroelectric Project is located in Maharastra.

• It was made at the Godavari river.

• It is completed with the help of Japan.

• The dam's created reservoir is known as Nath Sagar Jalashay.

• Mrs. Indira Gandhi, the prime minister at the time, gave it its inauguration in 1976.

Additional Information

• Dams in Rajasthan:

• Jawai Dam

• Mahi DAm]

• Bisalpur dam

• Jawar Sagar Dam, etc.

• Dams in Uttar Pradesh:

• Adwa Dam

• Afzalgarh Dam

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• Ahraura Dam
• Arjun Dam, etc.
• Dams in West Bengal
• Bakreshwar Dam Siuri
• Bandhu Dam Puruliya
• Bara Mandira Dam Asansol
• Barabhum Dam:

Q55. Answer: (a) 5%, 12%, 18% and 28%

The correct answer is 5%, 12%, 18% and 28%.

Key Points

• GST tax slab of 5%
• Goods – Spices, chapati, edible oil, bread, pizza bread, fish, Khakhra, tea and coffee, etc.

Services – aircraft lease, crude and petroleum transport, takeaway food, economy flight tickets, etc.

• GST tax slab of 6%
• Goods – Frozen meat, meat sausages, juices, sauces, cakes, pickles, boiled sugar, products made of milk, etc.

Services – Business class flight tickets, movie tickets, hotel stay (Price < INR 7,500), eating and drinking outlet.

• GST tax slab of 18%
• Goods – Mineral water, raw pasta, biscuits, pastries, soup, cornflakes, curry powder and paste, etc.

Services – Movie tickets (> INR 100), Hotel accommodation (>= INR 7,500), Daily room (from INR 2,500 and 5,000), etc.

• GST tax slab of 28%
• Goods – Aerated water (with or without added sugar), instant coffee, chocolates, protein, coffee and custard concentrates, etc.

Services – Hotel stay wherein bill is > INR 7,500, gambling, go-karting, ballet, club services such as casinos, etc.

Additional Information

• GST has been structured in a way that essential services and food items are placed in the lower tax brackets.
• Luxury services and products have been placed in the higher tax bracket.
• The GST council has fitted over 1300 goods and 500 services under four tax slabs of 5%, 12%, 18% and 28%.
• A total of 81% of all the goods and services fall below or in the 18% tax slab.
• 7% of the items come under the exempted list, 14% of the items attract a 5% tax and 17% of the items attract a 12% tax.
• 43% of the items attract an 18% tax slab, while only 19% of the items fall under the highest slab of 28% in the new regime.

Q56. Answer: (b) Water vapour, CO2 and CFCs

The correct answer is Water vapour, CO2 and CFCs.

Key Points

Examples of Greenhouse Gases:

• Water Vapour (H2O) – The most abundant natural greenhouse gas.
• Carbon Dioxide (CO2) – Released from fossil fuel burning and deforestation.
• Methane (CH4) – Emitted from livestock, agriculture, and landfills.
• Nitrous Oxide (N2O) – Comes from fertilizers, burning fossil fuels, and biomass.
• Ozone (O3) – Found in the lower atmosphere (troposphere) and contributes to warming.
• Chlorofluorocarbons (CFCs) & Fluorinated Gases – Synthetic gases used in refrigeration and industrial processes.

Additional Information

• Greenhouse effect
• Without the greenhouse effect, Earth's average temperature would drop from ~14°C to as low as –18°C, making it too cold for life.
• Greenhouse gas emissions increased by approximately 70% between 1970 and 2004 due to industrial activities, deforestation, and fossil fuel use.
• CO2 emissions rose by about 80% during that period, largely due to human activities such as burning coal, oil, and gas.
• As the levels of greenhouse gases increase, Earth's temperature rises, leading to climate changes.
• The rise in Earth's average temperature due to human activity is known as global warming.

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Q57. Answer: (d) 79

Given series:

6 : 34 :: 8 : 62 :: 9 : ?

Here, the following logic is used

(First number)² - 2 = Second number

First pair

$(6)^2 - 2 = 6 \times 6 - 2$

$= 36 - 2$

$= 34$

Second Pair $(8)^2 - 2 = 8 \times 8 - 2$

$= 64 - 2$

$= 62$

Third Pair

$(9)^2 - 2 = 9 \times 9 - 2$

$= 81 - 2$

$= 79$

Therefore, '?' will be replaced by '79'

Hence, the correct answer is option 4).

Q58. Answer: (a) Either I or II follows.

Given Statements:

Nurses marry only tall men.

Ankit is very tall.

Conclusions:

I. Ankit was married to a nurse.

II. Ankit was not married to a nurse.

Conclusion 1: Since all the nurses marry only the tall men and Ankit is very tall, this conclusion may follow.

Conclusion 2: Ankit is very tall, but it is not explicitly mentioned that he marries a nurse, so there is a possibility that he did not married to a nurse.

Hence, this conclusion may also follow.

From the above, it is clear that either conclusion I or conclusion II follows.

Hence, the correct answer is option 1).

Q59. Answer: (a) Common Business-Oriented Language

The correct answer is Common Business-Oriented Language.

Key Points

• COBOL

• COBOL stands for Common Business-Oriented Language.

• It is a 60-year-old programming language that is still widely used today.

• It was developed in 1959 by CODASYL (Conference/Committee on Data Systems Languages).

• It is an English-like computer programming language used for business.

• The syntax was developed to be simple and explicit.

• The non-programmers in business environments could understand it without needing extensive knowledge of coding.

Additional Information

• COBOL has strict rules regarding syntax and organization.

• The code for a program written in COBOL is broken up into divisions.

• It make it easy to locate and understand the individual components.

• Each program consists of four divisions:

• Identification division

• Environment division

• Data division

• Procedure division

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Q60. Answer: (c) Beta test

The correct answer is Beta test.

Key Points

• Beta test

• A beta test is a type of trial period for a computer product prior to a commercial or official release.

• Beta testing is considered the last stage of testing before launch.

• It normally involves the distribution of the product to external beta test sites and individual users for real-world exposure.

• Other beta tests may offer the product for a free trial download over the Internet.

Additional Information

• Alpha test

• Alpha testing is the first end-to-end testing of a product to ensure it meets the business requirements and functions correctly.

• It is typically performed by internal employees and conducted in a lab/stage environment.

• An alpha test ensures the product really works and does everything it's supposed to do.

• Delta test

• Delta testing is automated user testing.

• It's a proven, cost-effective approach to legacy user testing that allows companies to capture early product feedback from customers.

• This gives companies the customer insights they need to develop high-quality products their customers will love.

Q61. Answer: (c) Canada

The correct answer is Canada.

Key Points

• Canada occupies most of the northern part of North America.

• The country occupies an area of 9,984,670 km², making it the largest country in the Western Hemisphere.

• Compared, it is slightly larger than the US, or 18 times the size of France.

• It has 13 sub-national divisions, ten provinces and three territories.

• Canada is divided into multiple geographical regions, and its landscape offers a wide range of natural sceneries.

Additional Information

The top ten largest countries, in square kilometers

Sr. No.	Country	Area in sq. km
1	Russia	17,098,242
2	Canada	9,984,670
3	United States	9,826,675
4	China	9,596,961
5	Brazil	8,514,877
6	Australia	7,741,220
7	India	3,287,263
8	Argentina	2,780,400
9	Kazakhstan	2,724,900
10	Algeria	2,381,741

Q62. Answer: (b) Article 23

The correct answer is Article 23.

Key Points

• Article 23

• The right against Exploitation is enshrined in Articles 23 and 24 of the Indian Constitution.

• Traffic in human beings and beggars and other similar forms of forced labor are prohibited.

• Any contravention of this provision shall be an offense punishable in accordance with the law.

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• Article 23 protects citizens not only against the State but also from private citizens.
• Laws passed by the Parliament in pursuance of Article 23:
• Suppression of Immoral Traffic in Women and Girls Act, 1956
• Bonded Labour System (Abolition) Act, 1976
Additional Information
• Article 19
• Protection of certain rights regarding freedom of speech etc.
• All citizens shall have the right
• to freedom of speech and expression
• to assemble peaceably and without arms
• to form associations or unions
• to move freely throughout the territory of India
• to reside and settle in any part of the territory of India
• Article 21
• The Right to Life and Personal Liberty is assured by the Indian Constitution under Article 21.
• No person shall be deprived of his life or personal liberty except according to procedure established by law.
• This fundamental right is available to every person, citizens and foreigners alike.
• Article 21 provides two rights:
• Right to life
• Right to personal liberty
• Article 14
• Article 14 treats all people the same in the eyes of the law.
• This provision states that all citizens will be treated equally before the law.
• The law of the country protects everybody equally.
• Under the same circumstances, the law will treat people in the same manner.

Q63. Answer: (c) 20 km

Given:
Speed from village to Post Office = S1 = 25 km/h
Speed from Post-office to village = S2 = 4 km/h
Total time = 5 hours 48 minutes = 5.8 hours
Formula used:
Time = Distance/Speed
Calculation:
Let's put the values in the above formula,
Time = Distance/Speed
T1 = d/25
T2 = d/4
=> T1 + T2 = d/25 + d/4
=> 5.8 = (4d + 25d)/100
=> 580 = 29d
=> d = 20
Hence, the distance is 20 km.

Q64. Answer: (d) 6 hours 15 minutes

Given:
Speed of A = 60 km/h
Speed of B = 75 km/h
Speed of C = 80 km/h
T(A) = T(B) + 5
T(A) = T(C) + h
Formula used:

Distance = Speed x Time

Solution:

Let, t = time taken by B

The distance traveled is the same for A & B thus,

60 x (t + 5) = 75 x t

60t + 300 = 75t

15t = 300

t = 20

Distance traveled by B = 75 x 20 = 1500 km

Now,

For B & C, the distance is the same,

T(C) x 80 = 1500

T(C) = 75/4 hours = 18 hours 45 minutes

Now, the Time taken by A = T(A) = t + 5 = 20 + 5 = 25 hours

So, h = difference between the time of A & C

T(A) = T(C) + h

h = T(A) - T(C) = 25 hours - 18 hours 45 minutes = 6 hours 15 minutes.

Hence, C started after 6 hours and 15 minutes.

Q65. Answer: (c) Section 144

The correct answer is Section 144.

Key Points

• Section 144

• Section 144 is imposed in urgent cases of nuisance or apprehended danger of some event that has the potential to cause trouble.

• Section 144 of CrPC generally prohibits public gatherings.

• It has been used in the past to impose restrictions as a means to prevent protests that can lead to unrest or riots.

• The orders to impose Section 144 have been conferred to the Executive Magistrate when there is an emergency situation.

• Section 144 also restricts carrying any sort of weapon in that area where it has been imposed.

• The maximum punishment for such an act is three years.

Additional Information

• Section 231

• Whoever counterfeits or knowingly performs any part of the process of counterfeiting coins, shall be punished with imprisonment.

• The punishment would be of:

• either description for a term which may extend to seven years

• shall also be liable to fine.

• Section 111

• When an Act is abetted and a different act is done, the abettor is liable for the act don.

• It is in the same manner and to the same extent as if he had directly abetted it.

• Section 357

• Whoever assaults or uses criminal force to any person he/she shall be pun-ished with imprisonment of either description.

• It is for a term which may extend to one year, or with fine which may extend to one thousand rupees, or with both.

Q66. Answer: (a) Tripura

The correct answer is Tripura.

Key Points

• Five Indian states Uttarpradesh, Uttarakhand, West Bengal, Sikkim and Bihar share their borders with Nepal.

• Tripura does not share any border with Nepal.

• Tripura is surrounded by Bangladesh on its north, south and west.

• The length of its international border is 856 km.

• The state is connected with the rest of India by NH-44 which runs through Assam, Meghalaya, North Bengal, Kolkata and other parts of India.

Additional Information

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Country	Border length	Bordering states
Afganisthan	106 km	Ladakh (PoK)
Bangladesh	4096.7 km	West Bengal, Meghalaya, Mizoram, Tripura and Assam
Bhutan	699 km	West Bengal, Sikkim, Arunachal Pradesh, Assam
China	3488 km	Ladakh, Himachal Pradesh, Uttarakhand, Sikkim and Arunachal Pradesh
Myanmar	1643 km	Arunachal Pradesh, Nagaland, Mizoram and Manipur
Nepal	1751 km	Uttarpradesh, Uttarakhand, West Bengal, Sikkim and Bihar
Pakistan	3323 km	Jammu and Kashmir, Ladakh, Punjab, Rajasthan and Gujarat

Q67. Answer: (d) 0.0144

Given:

144/0.144 = 14.4/x

Calculation:

144/0.144 = 14.4/x ; 144/0.144 × 1000/1000 = 14.4/x × 10/10; 144000/144 = 144/10x; 1000 = 144/10x

The value of x = 144/10000 = 0.0144

Q68. Answer: (a) 4 D

The correct answer is 4D.

Key Points

• Given focal length = 25 cm

• Power of lens = 100/f

• Power of lens = 100/25 = 4D

Additional Information

• Power of lens

• The inverse of the focal length is known as the power of the lens.

• The unit of power of the lens is Dioptre.

• P =1/f where P is the lens whose refracting surface e power of the lens and f is the focal length.

• Concave lens

• It is a diverging lens that diverges the parallel beam of light.

• The focal length of the concave lens is negative.

• Convex length

• The lens whose refracting surface is upside is called a convex lens.

• The focal length of a convex length is positive.

Q69. Answer: (c) Both, I and II are implicit.

Statement Given:

A signboard in a park states: Please use the dustbin, do not litter, and help keep your community clean.

Assumptions Given:

I. Throwing litter around makes a community dirty.

II. People are likely to pay attention to this notice.

Assumption I,

As it is given to use the dustbin and not to litter there and here, which means throwing litter makes a community dirty. This is implicit above.

Assumption II,

Since the signboard is placed in the park, it is clear that people are likely to pay attention to this notice. So, this assumption is also

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implicit here.

Therefore, both I and II are implicit.

Hence, the correct answer is an option(3)

Q70. Answer: (b) 100

Given:

Length of cloth = 37.5 m

Number of Pieces = 8 from 3 m of cloth

Calculation:

Length of 1 piece of cloth = 3/8 = 0.375 meters

Total pieces from 37.5 meters of cloth = 37.5/0.375 = 100

Hence, 100 such pieces can be made.

Q71. Answer: (c) Chlorophyll

The correct answer is Chlorophyll.

Key Points

• Chlorophyll

• Chlorophyll is the pigment that gives plants their green color.

• This pigment is necessary in order for plants to make their own food during the process of photosynthesis.

• Chlorophyll is referred to as a photoreceptor.

• Photoreceptors are specially designed proteins that receive and respond to light.

• Since chlorophyll is a photoreceptor, it is able to detect light.

• When light from the sun hits these photoreceptors, the photoreceptors are able to absorb energy from sun and carry out photosynthesis.

Additional Information

• Actin

• Actin is a family of globular multi-functional proteins.

• It form microfilaments in the cytoskeleton, and the thin filaments in muscle fibrils.

• It is found in essentially all eukaryotic cells.

• Its mass is roughly 42 kDa, with a diameter of 4 to 7 nm.

• Carotenoid

• Carotenoids are a class of more than 750 naturally occurring pigments synthesized by plants, algae, and photosynthetic bacteria.

• These richly colored molecules are the sources of the yellow, orange, and red colors of many plants.

• Fruit and vegetables provide most of the 40 to 50 carotenoids found in the human diet.

• Thiamin

• Thiamin, or vitamin B1, is a water-soluble vitamin found naturally in some foods, added to foods, and sold as a supplement.

• Thiamin helps the body generate energy from nutrients.

• Thiamin is necessary for the growth, development and function of cells.

Q72. Answer: (b) Devaluation of currency

The correct answer is Devaluation of currency.

Key Points

• Devaluation of currency

• The reduction in the external value of the domestic currency is called the devaluation of currency.

• Devaluation occurs when a country intentionally reduces the value of its currency relative to one or more foreign countries.

• The government does this by adjusting the fixed or semi-fixed exchange rate of its currency versus that of another country.

• By making its own currency cheaper, the country can boost exports.

• At the same time, foreign products become more expensive, so imports fall.

Additional Information

• Economic growth

• Economic growth is an increase in the production of goods and services in an economy.

• It can be measured in nominal or real (adjusted for inflation) terms.

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• Aggregate economic growth is measured in terms of gross national product (GNP) or gross domestic product (GDP).
• Decrease in Inflation
• Decrease in inflation is called deflation.
• Deflation, or negative inflation, happens when prices generally fall in an economy.
• This can be because the supply of goods is higher than the demand for those goods.

Q73. Answer: (b) NH-8 is the shortest national highway in India.

The correct answer is NH-8 is the shortest national highway in India.

Key Points

• NH-8
• National Highway 8 (NH 8) is a National Highway in India running from Karimganj in Assam to Sabroom in Tripura.
• It is a 4-lane (6-lane in most parts) National Highway in India.
• It connects the national capital Delhi to the financial capital Mumbai.
• The total length is 1428km.
• It is popularly known as Western Express Highway.

Additional Information

• NH-44
• National Highway 44 (NH 44) is a major north–south National Highway in India.
• It is the longest highway in the country.
• It passes through the Union Territory of Jammu and Kashmir.
• NH-47A
• NH-47A is the shortest national highway in India.
• It covers a distance of 6 km (3.7 mi) between Kundannoor and Willingdon Island in Kochi, Kerala.
• It starts from the junction of NH 47 at Kundannoor.
• NHAI
• The National Highways Authority of India or NHAI is an autonomous agency of the Government of India.
• It was set up in 1995 (Act 1988).
• It is responsible for the management of a network of over 50,000 km of National Highways out of 1,32,499 km in India.
• NHAI has the authority for the development, maintenance and management of national highways.
• It is a nodal agency of the Ministry of Road Transport and Highways.

Q74. Answer: (a) Ramsay MacDonald

The correct answer is Ramsay MacDonald.

Key Points

• Ramsay MacDonald
• James Ramsay MacDonald FRS was a British politician.
• He served as Prime Minister of the United Kingdom, the first who belonged to the Labour Party.
• He thought it important to address the issue of constitutional reforms in India.
• For this purpose, he organized a conference in London and invited representatives from all the parties and Indian states.
• This conference came to be popularly known as the First Round Table Conference.

Additional Information

• First Round Table Conference
• The First Round Table Conference was held between November 1930 and January 1931 in London.
• There were increasing demands of granting dominion status to India among a certain section of the British polity.
• In India, the freedom movement was in full swing with its demand for swaraj or self-rule spearheaded by the charismatic Gandhi.
• Participants in the First Round Table Conference
• 58 political leaders from British India.
• 16 delegates from the native princely states.
• 16 delegates from the three British political parties.
• It was for the first time that the Indians and the British were meeting as ‘equals’.

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Q75. Answer: (b) 1950

The correct answer is 1950.

Key Points

• The Constitution of India was adopted by the Constituent Assembly on 26th November 1949.

• It came into force on 26th January 1950.

• This date was chosen so as to commemorate the idea of Purna Swaraj put forth by Nehru in 1928.

• At the time of its adoption, the Constitution contained 395 Articles and 8 Schedules and was about 145,000 words long.

• It is the longest national Constitution to ever be adopted.

• Every Article in the Constitution was debated by the members of the Constituent Assembly.

• The members sat for 11 sessions and 167 days to frame the Constitution, over a period of 2 years and 11 months.

Additional Information

• India had gained independence from Britain on 15th August 1947 through the passing of the Indian Independence Act.

• On 28 August 1947, the Drafting Committee was formed with Dr. B R Ambedkar as its Chairman to draft a permanent constitution for the country.

• A draft constitution, prepared by the Committee, was submitted to the Constituent Assembly in November of the same year.

• The Assembly had been formed in 1946 for this purpose.

• The constitution was passed and adopted by the assembly on 26 November 1949.

Q76. Answer: (d) George Wittet

The correct answer is George Wittet.

Key Points

• The Gateway of India is an arch monument built during the 20th century in Bombay, India.

• The monument was erected to commemorate the landing of King George V and Queen Mary.

• The final design of George Wittet was sanctioned in 1914.

• The construction of the monument was completed in 1924.

• The Gateway of India is located on the waterfront at the Apollo Bunder area at the end of Chhatrapati Shivaji Marg in South Mumbai.

• It overlooks the Arabian Sea.

• The monument has also been referred to as the Taj Mahal of Mumbai.

Additional Information

• The architectural design of the Gateway of India was fashioned by architect, George Wittet.

• It took 4 years to complete this monument's construction.

• This plan was approved only in 1914, the reclamations at Apollo Bunder were completed only in 1919.

• The main objective behind its construction was to commemorate the visit of King George V and Queen Mary to Mumbai.

• In March 1911, Sir George Sydenham Clarke, who was then the Governor of Bombay, laid down the monument's first foundation.

Q77. Answer: (b) Mir Osman Ali Khan

The correct answer is a Mir Osman Ali Khan.

Key Points

• Mir Osman Ali Khan

• Mir Osman Ali Khan was the last Nizam of the Princely State of Hyderabad.

• He ascended the throne on 29 August 1911, at the age of 25.

• He ruled the Kingdom of Hyderabad between 1911 and 1948 until India annexed it.

• He was styled as His Exalted Highness - the Nizam of Hyderabad.

• He was widely considered one of the world's wealthiest person of all time.

Additional Information

• Nasir-ud-Daula

• Mir Farqunda Ali Khan was commonly known as Nasir-ud-Daulah.

• He was Nizam of Hyderabad from 24 May 1829 until his death in 1857.

• The Nizam founded the Hyderabad Medical School in 1846.

• Mir Mahbub Ali Khan

• Asaf Jah VI was also known as Sir Mir Mahboob Ali Khan Siddiqi Bayafandi.

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• He was the 6th Nizam of Hyderabad.
• He ruled Hyderabad state, one of the Princely states in India between 1869 and 1911.
• Afzal-ud-Daula
• Afzal-ud-Daula was the ruling Nizam of Hyderabad, India, from 1857 to 1869.
• Asaf Jah V was the eldest son of Nasir-ud-dawlah.
• He died in Hyderabad on 26 February 1869, after a reign of just 12 years.

Q78. Answer: (d) Sushmita sen and Lara Dutta

The correct answer is Sushmita sen and Lara Dutta.

Key Points

• Sushmita Sen is an Indian actress, model and the winner of the Miss Universe 1994 pageant.
• She is the first Indian to win the Miss Universe pageant.
• She has previously crowned Femina Miss India in 1994 at the age of 18.
• Lara Dutta is an Indian actress, entrepreneur and the winner of the Miss Universe 2000 pageant.
• She was previously crowned as Miss Intercontinental 1997.

Additional Information

• Miss Universe 2021
• Harnaaz Kaur Sandhu is an Indian model, actress, and beauty pageant titleholder who was crowned Miss Universe 2021.
• Sandhu had been previously crowned Miss Diva Universe 2021.
• She is the third entrant from India to win Miss Universe.
• Sandhu was also crowned Femina Miss India Punjab in 2019, and placed as a semifinalist at Femina Miss India 2019.

Q79. Answer: (b) Vasco da Gama

The correct answer is Vasco da Gama.

Key Points

• Vasco-da-Gama
• Vasco-da-Gama a Portuguese explorer discovered the sea route to India in 1498.
• His initial voyage to India by way of the Cape of Good Hope.
• He was the first to link Europe and Asia by an ocean route, connecting the Atlantic and the Indian oceans.
• Da Gama's discovery of the sea route to India opened the way for an age of global imperialism.
• It enabled the Portuguese to establish a long-lasting colonial empire along the way from Africa to Asia.

Additional Information

• Christopher Columbus
• Christopher Columbus was an Italian explorer and navigator.
• He completed four Spanish-based voyages across the Atlantic Ocean sponsored by the Catholic Monarchs of Spain.
• He opened the way for the widespread European exploration and colonization of the Americas.
• His expeditions were the first known European contact with the Caribbean, Central America, and South America.
• Ibn Battuta
• Ibn Battuta was a Berber Maghrebi scholar and explorer.
• He traveled extensively in the lands of Afro-Eurasia.
• He visited most of southern Eurasia, including Central Asia, Southeast Asia, South Asia, China, and the Iberian Peninsula.
• Hsuan Tsang
• Hsuan Tsang was a 7th-century Chinese Buddhist monk, scholar, traveler, and translator.
• He is known for the epoch-making contributions to Chinese Buddhism.

Q80. Answer: (c) Hibiscus

Here, Fish, Bear and Pig are the names of the animals.

So, all the given words are names of animals except the word 'Hibiscus' as it is the name of a flower.

Hence, the odd one is 'Hibiscus'.

Q81. Answer: (a) Assam

The correct answer is Assam.

Key Points

• Dehing Patkai Wildlife Sanctuary
• Dehing Patkai National Park is located in the Dibrugarh and Tinsukia districts of Assam.
• It covers an area of 231.65 km2 rainforest.
• It was declared a wildlife sanctuary on 13 June 2004.
• On 13 December 2020 Government of Assam upgraded it into a national park.
• On 9 June 2021 Forest Department of Assam officially notified it as a national park.
• It is located in the Dehing Patkai Landscape which is a dipterocarp-dominated lowland rainforest.
Additional Information
• Top 10 Wildlife Sanctuaries in India:
• Corbett National Park in Uttarakhand
• Periyar Wildlife Sanctuary in Kerala
• Sundarbans National Park in West Bengal
• Kaziranga National Park in Assam
• Ranthambore National Park in Rajasthan
• Kanha National Park in Madhya Pradesh
• Bandipur National Park in Karnataka
• Bandhavgarh National Park in Madhya Pradesh
• Sariska National Park, Rajasthan
• Govind Wildlife Sanctuary in Uttarakhand

Q82. Answer: (c) 1600

Given:
Side of a smaller square = 1/10 m
Side of bigger square = 4 m
Formula used:
Area of square = side x side
Calculation:
Area of smaller square = $(1/10)^2 = 1/100$ m²
Area of bigger square = 4 x 4 = 16 m²
Now, accomodation of smaller squares in bigger square = 16/(1/100) = 1600

Q83. Answer: (b) Meat

Here, we know that cobbler repairs and restores the footwear, also known as a shoemaker.
Similarly, the Butcher is the one who cuts the Meat.
Thus, 'Meat' is related to the word 'Butcher'.
Hence, the correct answer is 'option 2'.

Q84. Answer: (a) 13 3/10

Given:
108 ÷(36 ×1/4) + 2/5 × 31/4
Concept:
Follow the BODMAS rule according to the table given below:
Calculation:
108 ÷(36 ×1/4) + 2/5 × 31/4 ; = 108 ÷(9) + 2/5 × 31/4; = 12 + 2/5 × 13/4; = 12 + 13/10 ; = 133/10; = 133/10

Q85. Answer: (a) 6.28 cm

Shortcut Trick
The minute hand covers a full circle (distance of 2πr) in 60 minutes.
Distance covered in 40 minutes = (40 ÷ 60) × 2πr = (2 ÷ 3) × 2πr
=> Distance = (2 ÷ 3) × 2 × 3.14 × 1.5
=> Distance = 2 × 3.14 = 6.28 cm
Therefore The correct answer is 6.28 cm.
Alternate Method

Given:

Length of the minute hand (radius, r) = 1.5 cm

Time moved by minute hand = 40 minutes

Value of π ≈ 3.14

Formula Used:

Distance moved by the tip = Arc length = (θ ÷ 360°) × 2πr

Angle swept by the minute hand in 1 minute = 360° ÷ 60 = 6°

r = 1.5 cm

240°

Distance Moved

Calculations:

=> Angle swept in 40 minutes (θ) = 40 × 6° = 240°

=> Distance moved = (240° ÷ 360°) × 2πr

=> Distance moved = (2 ÷ 3) × 2 × 3.14 × 1.5

=> Distance moved = (2 ÷ 3) × 3.14 × 3

=> Distance moved = 2 × 3.14

=> Distance moved = 6.28 cm

Therefore The correct answer is 6.28 cm.

Additional Information

Speed of Clock Hands

The minute hand sweeps 360° in 60 minutes, yielding a speed of 6° per minute. The hour hand sweeps 360° in 12 hours (720 minutes), giving a speed of 0.5° per minute.

Area of a Sector

If asked for the area swept by the clock hand over a specific time, use the sector area formula: Area = (θ ÷ 360°) × πr².

Arc Length in Radians

When the angle θ is given in radians instead of degrees, the arc length distance can be calculated directly using the simpler formula: s = rθ.

Q86. Answer: (b) 2

Given:

Gold medals won by different school

Concept used:

Consecutive years mean just one after the other year without any year gap.

Calculation:

From the table, we can see that School D won 8 medals in 2002 & 14 medals in 2003, which is less than 15.

School E has won 5 medals in 2001 & 12 medals in 2002.

Hence, a total of 2 schools have won less than 15 medals in two consecutive years.

Q87. Answer: (b) 900

Given:

Total Production = 8100 tons

Rice = 40°

Formula used:

Yield (Rice) = Rice/360 x 8100

Calculation:

Yield of Rice = 40/360 x 8100 = 8100/9 = 900

Hence, the yield of Rice is 900 tons.

Q88. Answer: (c) Copper

Given:

Production of different elements from 2001-2005.

Calculation:

Rate of growth in production for:

Gold = 85/24 = 3.54
Copper = 54/12 = 4.5
Silver = 103/87 = 1.18
Iron = 69/27 = 2.55
From the above, we can say that the growth rate in the production of copper is the highest from 2001 - 2005, i.e. 4.5.

Q89. Answer: (b) 15%

Given:
Marks of Sunita & Anita
Formula used:
Aggregate percentage = ((Sum of obtained marks)/(Total marks)) x 100
Calculation:
Total marks = 100 + 100 + 50 + 50 = 300
Marks obtained by Anita = [(70 + 50 + 45 + 30)/300] x 100 = 195/3 = 65%
Marks obtained by Sunita = [(85 + 90 + 40 + 25)/300] x 100 = 240/3 = 80%
Difference between their percentage of aggregate marks = 80 - 65 = 15%

Q90. Answer: (a) Three

Given: Eight persons A, B, C, D, E, F, G, and H are sitting in a row facing the north but not necessarily in the same order.
According to the given statements, we have:
1) Three persons are sitting between D and F.
2) G is sitting to the immediate left of D.
3) Neither D nor F is sitting at any of the extreme ends.
4) Only one person is sitting between E and B. E is sitting to the right of B.
5) E is not sitting at any of the extreme ends. E and B are not the immediate neighbors of G and D. So, Case 2 is eliminated.
6) More than three persons are sitting between H and A. Either H or A is sitting at one of the ends.
7) A is sitting to the left of H. So, Case 1b is eliminated.
Thus, the final arrangement is:
Thus, there are 'three' persons sitting between H and C.
Hence, the correct answer is 'option 1'.

Q91. Answer: (a) B and E

Given: A, B, C, D, E, F and G are the names of two teenage girls, two infants, and three old men.
According to the given information, we have
Thus, B and E are two teenage girls.
Hence, the correct answer is 'option 1'.

Q92. Answer: (a) Cars, Buses, Motor Vehicles

According to the given Venn diagram we have:
As car and bus come under the motor vehicles. But both the car and bus are different vehicles and so they are separated.
Thus, 'Cars, Buses, Motor Vehicles' is the group of items best represented by the given Venn Diagram.
Hence, the correct answer is 'option 1'.

Q93. Answer: (a) N

According to the given information, we have:
Thus, the letter 'N' represents boxers who are not men.
Hence, the correct answer is 'option 1'.

Q94. Answer: (a) SIJT

The alphabets and their positions are:
The logic here is:
Thus, the missing number is 'SIJT'.
Hence, the correct answer is 'option 1'.

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Q95. Answer: (c) HAKUNA

The alphabets and their positions are:

The logic here is:

For the word LETTER is written as MGWZJX as:

Similarly, which word is written as ICNYSG, we will have:

Thus, the word 'HUKUNA' is written as 'ICNYSG'.

Hence, the correct answer is 'option 3'.

Q96. Answer: (a) BO

The alphabets and their positions are:

The pattern here is: All the letter-cluster are either consonant or vowel.

So, we check all the options as,

1) BO -

2) AI -

3) CG -

4) DF -

Thus, we see that the BO is the odd one out.

Hence, the correct answer is 'option 1'.

Q97. Answer: (d) Only conclusion I follows.

Given: S < G < X = T > W > Q < R

Let us check the conclusions:

I. W < X

=> X = T > W

=> X > W

=> W < X, this conclusion follows.

II. Q = S

=> S < G < X = T > W > Q

=> S < T > W > Q

=> We cannot establish a relation between Q and S, so this conclusion didn't follow.

Hence, the only conclusion I follows.

Q98. Answer: (a) [figure]

According to the given information, we have:

A = Colour of the leaves

B = Yellow coloured things

C = Green coloured things

So, we will have the Venn diagram as:

The colour of some leaves can be yellow and some can be green.

Hence, the correct answer is 'option 1)'.

Q99. Answer: (c) M

Given: Items L, Z, A, M, and P are to be delivered to BCD showroom on 5 consecutive days beginning from Monday to Friday.

According to the given statements, we have

1) L has to be delivered on Monday.

Days	Items
Monday	L
Tuesday	
Wednesday	
Thursday	
Friday	

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2) Items L and Z have to be delivered on alternate days.

Days	Items
Monday	L
Tuesday	
Wednesday	Z
Thursday	
Friday	

3) Items Z and P cannot be delivered on consecutive days.

Days	Items
Monday	L
Tuesday	
Wednesday	Z
Thursday	
Friday	P

4) M and P cannot be delivered on consecutive days.

Days	Items
Monday	L
Tuesday	M
Wednesday	Z
Thursday	
Friday	P

Thus, the final delivered arrangement will be:

Days	Items
Monday	L
Tuesday	M
Wednesday	Z
Thursday	A
Friday	P

Hence, item 'M' will be delivered on Tuesday.

Q100. Answer: (c) 622

The pattern here is:

Hence, the missing number is '622'.

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