RRB NTPC CBT-I Official Paper (Held On: 31 Jan 2021 Shift 2) (Previous Year Paper)

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

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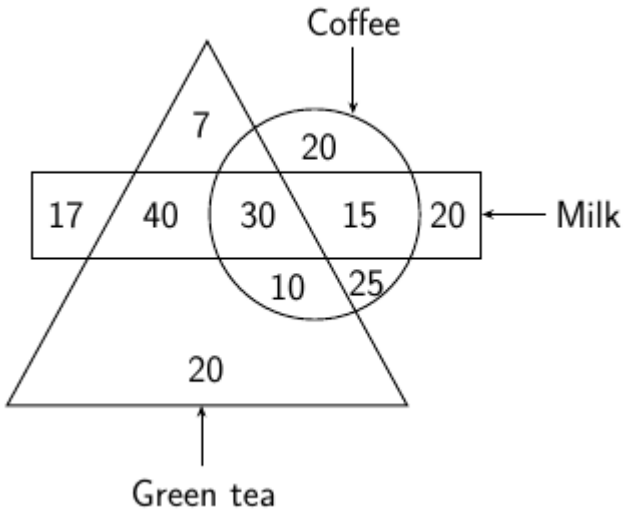
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Q1. Study the given pattern carefully and select the number that can replace the question mark(?) in it.

48	64	80
24	?	40
12	16	20

(a) 34
(b) 32
(c) 28
(d) 24

Q2. In the following diagram, if the triangle represents the people who drink green tea, the circle represents the people who drink coffee and the rectangle represents the people who drink milk, then how many people like both green tea and coffee?



(a) 40
(b) 80
(c) 37
(d) 47

Q3. What is the value of the following expression?

(cos 3x + cosx)/(sin3x - sinx)

(a) cot x
(b) cos x
(c) tan x
(d) sin x

Q4. In which of the following states is the Gambhira - a popular dance, performed using various wooden masks?

(a) Gujarat
(b) West Bengal
(c) Telangana
(d) Rajasthan

Q5. Select the word that does NOT belong to the following group.

Blue, Green, Pink, Yellow

(a) Pink
(b) Yellow
(c) Green
(d) Blue

Q6. Which of the following Acts ended the trade monopoly of the Company in India and opened it to all British subjects except tea?

(a) Regulating Act, 1773
(b) Charter Act of 1813
(c) Indian Council Act, 1861
(d) Government of India Act, 1935

Q7. An aquarium is in the form of a cuboid whose external measures are 80 cm × 30 cm × 40 cm. The base, side faces and back face are to be covered with a coloured paper. Find the area of the paper needed?

(a) 8080 cm^2
(b) 8000 cm^2
(c) 6000 cm^2
(d) 8050 cm^2

Q8. Who among the following is appointed as the deputy Governor of the Reserve Bank of India in October 2020?

(a) Hasmukh Adhia
(b) Rajeshwar Rao
(c) Subhash Chandra Garg
(d) Ashok Lavasa

Q9. Which of the following gases makes up 78% of our atmosphere and also a part of many molecules essential to life?

(a) Nitrogen
(b) Carbon
(c) Oxygen
(d) Helium

Q10. How much does one need to add to 1/2 to get 2?

(a) 1/(-1)
(b) 3/2
(c) 1/2
(d) 5/3

Q11. In which year did Indian National Congress observe 26 January as Independence Day for the first time?

(a) 1947
(b) 1915
(c) 1929
(d) 1930

Q12. Which are the top performing states in NITI Aayog's SDG India index released in 2019?

(a) Assam, Bihar, Uttar Pradesh
(b) Kerala, Himachal Pradesh
(c) Haryana, Goa, Gujarat

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(d) Maharashtra, Punjab

Q13. Who among the following became the fastest batsman to score 5000 runs in the IPL?

(a) Suresh Raina
(b) MS Dhoni
(c) Rohit Sharma
(d) David Warner

Q14. A godown is in the form of a cuboid of measures 60 m × 40 × 30 m. How many cuboidal boxes can be stored in it if the volume of one box is 0.8 m^3 ?

(a) 78,800
(b) 80,000
(c) 85,000
(d) 90,000

Q15. Who became the third Cricketer to receive the Rajiv Gandhi Khel Ratna award?

(a) Sachin Tendulkar
(b) M S Dhoni
(c) Rohit Sharma
(d) Virat Kohli

Q16. When did the British army under Eyre Coote defeat Haider Ali at Porto Novo and save Madras?

(a) July 1781
(b) July 1780
(c) July 1761
(d) July 1771

Q17. The sum of two numbers is 66 and their HCF and LCM are 3 and 315 respectively. The sum of the reciprocals of the numbers will be:

(a) 22/315
(b) 56/315
(c) 66/315
(d) 3/315

Q18. Who proclaimed the formation of a provisional government of the Azad Hind on October 21, 1943?

(a) Vir Savarkar
(b) Subhash Chandra Bose
(c) CR Das
(d) Sardar Vallabhbhai Patel

Q19. John is twice as old as Jean. After 3 years, the sum of their ages will be 66 years. What are the present ages of Jean and John, respectively?

(a) 40 and 20 years
(b) 20 and 40 years
(c) 24 and 48 years
(d) 42 and 84 years

Q20. The HCF of two even numbers should be at least _____.

(a) 0
(b) 2
(c) 1
(d) 4

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Q21. From a point Y on a level ground, the angle of elevation of the top of a lamp post is 45°. If the distance of point Y from the foot of the lamp post is 80 m, the height of the lamp post will be:

(a) 82 m
(b) 70 m
(c) 78 m
(d) 80 m

Q22. In July 2016, the Capitol complex of which Union Territory was declared as the UNESCO World Heritage site under the inscription of 'Architectural work of Le Corbusier?

(a) Diu and Daman
(b) Chandigarh
(c) Delhi
(d) Pondicherry

Q23. Which of the following rational number lies between 1/4 and 1/2.

(a) 3/8
(b) 1/6
(c) 1/8
(d) 3/5

Q24. Which of the following was introduced as the 101^(st)Amendment of the Constitution of India on July 1, 2017?

(a) Land boundary agreement between India and Bangladesh
(b) Constitutional status of cooperatives
(c) Goods and Service Tax
(d) Replacing Orissa with Odisha

Q25. How many nuclear power plants has the United States agreed to set-up in India to strengthen bilateral security and civil nuclear cooperation between the two nations?

(a) Five
(b) Six
(c) Four
(d) Eight

Q26. Which of the following is a folk dance of Maharashtra?

(a) Lavani
(b) Baul
(c) Bihu
(d) Mando

Q27. P can run 250 m in 25 s and Q can run the same distance in 30 s. By what distance is P ahead of Q after 4.5 s, if both start the race at the same time?

(a) 6.9 m
(b) 7.5 m
(c) 9.6 m
(d) 8.4 m

Q28. Which of the following cities of Tamil Nadu got a Geographical Identification Tag for Turmeric cultivation in 2019?

(a) Coimbatore
(b) Salem
(c) Madurai
(d) Erode

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Q29. Which are the two main organs in the human body where the magnetic field produced is significant?

(a) Stomach and intestines
(b) Liver and gallbladder
(c) Lungs and liver
(d) Heart and brain

Q30. Which of the following cities hosted the 4-day India International Cherry Blossom festival in 2019?

(a) Agartala
(b) Shillong
(c) Guwahati
(d) Imphal

Q31. Find the number of bricks measuring 25 cm in length, 5 cm in breadth and 20 cm in height for a wall 40 m long, 80 cm broad and 6 m in height.

(a) 74524
(b) 78986
(c) 75898
(d) 76800

Q32. The sum of the numerator and denominator of a fraction is 11. If the numerator is decreased by 1, the fraction becomes 1/4. Find the fraction.

(a) 2/9
(b) 3/8
(c) 4/7
(d) 5/6

Q33. Which of the following articles provided that an Inter-State Council can be formed by a Presidential Order?

(a) Article 264
(b) Article 263
(c) Article 261
(d) Article 262

Q34. Which of the following is the system designed to prevent unauthorised access to or from a private network?

(a) Packet filter
(b) Firewall
(c) Bridge
(d) Repeater

Q35. Eight siblings, L, M, N, O, P, Q, R and S, are sitting around a circular table facing away from the centre and at equal distance from the other, but not in the same order. S sits second to the left of P. M sits third to the right of S. R is M's immediate neighbour and is sitting second to the left of L. N is an immediate neighbour of R. O's back faces the back of N. Q sits to the immediate right of L. Who sits to the immediate right of O?

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

Q36. Name the Indian Executive who has been chosen for the Prestigious USIBC Global Leadership Award 2020.

(a) Ajaypal Singh Banga
(b) Lakshmi Mittal
(c) N Chandrasekaran
(d) Indra Nooyi

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Q37. Select the word that does NOT belong to the following group.

Chilli, Cumin, Capsicum, Cardamom

(a) Capsicum
(b) Cardamom
(c) Chilli
(d) Cumin

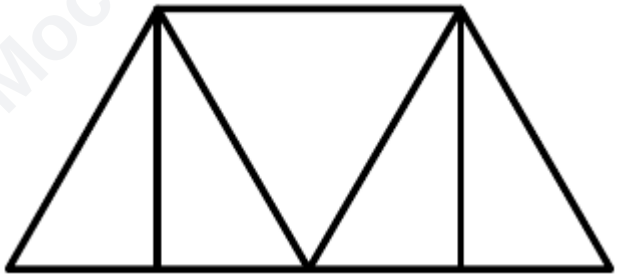
Q38. A sample of milk from a vessel contains 4% water. What quantity of pure milk should be added to 8 L of milk in the vessel to reduce the water content to 2%?

(a) 8 L
(b) 6.5 L
(c) 7.5 L
(d) 7 L

Q39. Which of the following ministries launched a theme song 'Hawa Aane De' on air pollution in 2019?

(a) Science and Technology
(b) Environment, forest and climate change
(c) Human Resource
(d) Agriculture

Q40. Find the number of triangles in the given figure.



(a) 7
(b) 5
(c) 8
(d) 3

Q41. Which of the following statements about plant tissues is INCORRECT?

(a) Phloem transports food from leaves to other parts of the plant.
(b) Materials can move in both directions in xylem.
(c) Xylem and phloem are complex tissues.
(d) Xylem transports water and minerals.

Q42. The difference between 48% and 38% of a number is 354. What is 58% of that number?

(a) 2053.2
(b) 2034.6
(c) 1987.56
(d) 1893.78

Q43. The release of which hormone causes simultaneous increase in heartbeat and breathing rate?

(a) Estrogen
(b) Serotonin
(c) Thyroxin
(d) Adrenaline

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Q44. If 'X + Y' means 'X is the brother of Y', 'X × Y' means 'X is the father of Y' and 'X / Y' means 'X is the mother of Y', then which of the following would mean 'R is the son of S'?

(a) S × R + T
(b) S × T × R
(c) S + R × T
(d) S / R / T

Q45. Rajiv Mehrishi has been elected as external auditor of which international organisation from 2020 to 2023?

(a) WHO
(b) WTO
(c) UNICEF
(d) IMF

Q46. A sum of Rs. 20,000 is borrowed by Heena for 2 years at an interest of 8% compounded annually. Find the compound interest.

(a) Rs. 3,028
(b) Rs. 3,628
(c) Rs. 3,428
(d) Rs. 3,328

Q47. What percentage of profit on cost price equals 20% of profit on selling price?

(a) 28%
(b) 25%
(c) 22%
(d) 30%

Q48. Out of four brothers, M, N, O and P, M and N play cricket and football, N and O play cricket and hockey, O and P play hockey and basketball, P and M play football and basketball. Who plays football, basketball and hockey?

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

Q49. Pointing to a boy in a photograph, Anil said, "His father's sister is the only daughter of my father's father." How is the boy's father related to Anil?

(a) Father's Brother's Son
(b) Father's Father
(c) Father's Brother
(d) Brother

Q50. If 330 pencils were distributed among Rajesh, Suresh and Chandan in the ratio of 1/4 : 2/3 : 1/3 respectively then how many pencils did Chandan get?

(a) 88
(b) 78
(c) 48
(d) 56

Q51. Which of the following is a programme that translates each instruction of high-level language and executes it before passing on to the next instruction?

(a) Data Processing
(b) Interpreter
(c) Multiprocessing
(d) Assembler

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Q52. Which of the following is India's highest ranked City in Safest City category in the Mercer's 2019 Quality of Living Index?

(a) Bangalore
(b) Delhi
(c) Chennai
(d) Mumbai

Q53. A started a journey at 1:00 p.m. at a speed of 40 km/h. B started from the same spot and in the same direction at 1:40 p.m. at a speed of 50 km/h. How many minutes will B take to catch with A?

(a) 150 min
(b) 160 min
(c) 140 min
(d) 120 min

Q54. Which Abhiyan was launched in 2014 on the birth anniversary of the Father of the Nation?

(a) Rashtriya Arogya Nidhi
(b) Saansad Adarsh Gram Yojana
(c) Swachh Bharat
(d) Pulse Polio

Q55. In which of the following places did the English open their 'factory' in 1611 on east coast of India?

(a) Tuticorin
(b) Yanam
(c) Masulipatnam
(d) Madras

Q56. If A : B = 1 : 3, B : C = 5 : 4 and C : D = 2 : 3, then the value of A : B : C : D will be:

(a) 4 : 12 : 18 : 20
(b) 5 : 15 : 12 : 18
(c) 3 : 8 : 9 : 12
(d) 4 : 9 : 12 : 16

Q57. _____ is a generic term, which refers to all the legal and regulatory aspects of Internet and the World Wide Web.

(a) Tool
(b) Cookies
(c) Cyber law
(d) Hackers

Q58. If the length and the perimeter of a rectangle are in the ratio of 3 : 20, then its length and breadth will be in the ratio of:

(a) 3 : 5
(b) 3 : 6
(c) 3 : 7
(d) 3 : 4

Q59. HCF and LCM of two numbers are 5 and 210 respectively. If the numbers are between 25 and 40, the sum of the numbers will be:

(a) 65
(b) 60
(c) 55
(d) 50

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Q60. Waheeda bought an air cooler for Rs. 3,300 including a tax of 10%. Find the price of the air cooler before tax was added.

(a) Rs. 2,800
(b) Rs. 3,000
(c) Rs. 3,300
(d) Rs. 2,900

Q61. If $\tan\theta + \cot\theta = 6$, then find the value of $\tan^2\theta + \cot^2\theta$

(a) 44
(b) 24
(c) 54
(d) 34

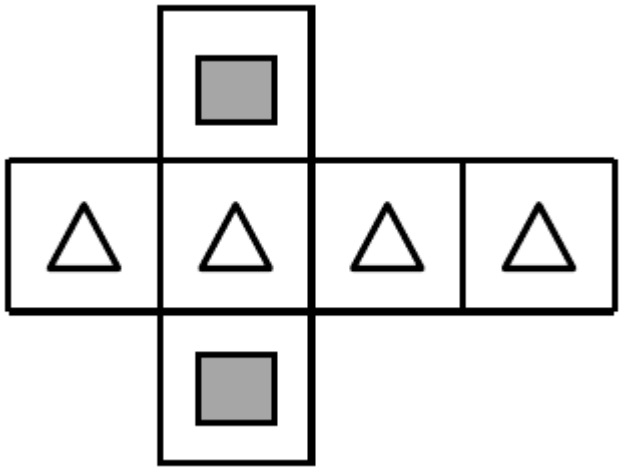
Q62. How many numbers between 1 and 100 are exactly divisible by 6 and 8 both?

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

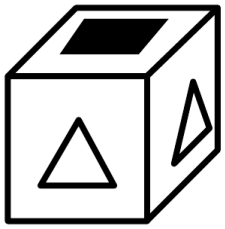
Q63. The LCM of two positive integers is thrice the larger number. The difference of the smaller number and the HCF of the two numbers is 6. The smaller number is:

(a) 9
(b) 1 1
(c) 5
(d) 7

Q64. Which cube given in the options CANNOT be made using the following sheet?

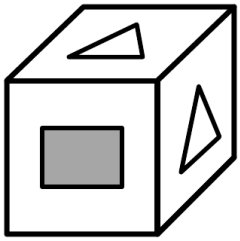


(a)

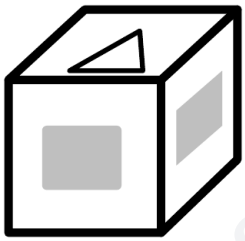


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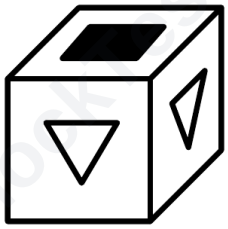
(b)



(c)



(d)



Q65. Which of the following state government's Medical and Health Departments has been awarded by WHO (in the year 2019) for its achievements in the field of tobacco control?

(a) Rajasthan
(b) Bihar
(c) Punjab
(d) Uttar Pradesh

Q66. Which of the following are stored in the form of starch which serves as an internal energy reserve to be used as and when required by the plant?

(a) water
(b) sunlight
(c) carbohydrates
(d) oxygen

Q67. Ameesha can complete a task by herself in 14 days, while it takes Bhavya 35 days to complete it alone. Together with Chitra, they can complete the task in 6 days. How many days will Chitra need to complete the task alone?

(a) 43
(b) 15
(c) 28
(d) 14

Q68. If a vessel gets filled by 15 glasses of milk where capacity of each glass is 1.5 L, how many glasses are required to fill the same vessel if the capacity of each glass is 0.5 L?

(a) 55
(b) 50
(c) 40
(d) 45

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Q69. Whose 'State of the Global Climate' report has revealed record sea level rise and exceptionally high land and ocean temperature over the past four years?

(a) World Meteorological Organisation
(b) World Intellectual Property Organisation
(c) United Environment Programme
(d) Food and Agriculture Organisation

Q70. A wire in the form of a circle of radius 56 m is cut and again bent in the form of a square. What is the measure of the diagonal of the square?

(a) 88√2 m
(b) 90√2 m
(c) 85√3 m
(d) 80√2 m

Q71. How many heart chambers do mammals have?

(a) three
(b) four
(c) two
(d) single

Q72. In a certain code, ZEBRA is written as ZQADY. How will HINTS be written as in that code?

(a) HUMFQ
(b) HTMFQ
(c) HVMQF
(d) HSFQM

Q73. Which of the following organisations incorporated New Space India Limited (NSIL) on March 6, 2019, for commercially utilising research development activities in the area of space?

(a) DRDO
(b) CSIR
(c) ISRO
(d) NASA

Q74. An amount of money is to be divided between A, B and C in the ratio of 5 : 2 : 8. If the difference between the shares of A and C is Rs. 7,740, then what will be the total amount?

(a) Rs. 35,875
(b) Rs. 30,983
(c) Rs. 28,976
(d) Rs. 38,700

Q75. The Constitution of India provides for a _____ structure of governance in the form of Parliamentary Democracy both at the Centre and the State.

(a) federal
(b) dual system
(c) singular system
(d) quasi-federal

Q76. 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:

(a) All leaders are corrupt.

(b) Some women are leaders.

Conclusions:

I. Some women are corrupt.

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II. All those corrupt are women.

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

Q77. Which of the following is related to the Arvind Subramanian Committee?

(a) Taxation of E-commerce
(b) Mining policy
(c) Rural credits
(d) GST

Q78. The Union Cabinet has approved the continuation of the GSLV phase-4 programmes consisting of five GSLV flights during the period_____.

(a) 2021-2024
(b) 2020-2023
(c) 2024-2028
(d) 2022-2025

Q79. 30 ml paint is required to paint a circular plate of 20 cm radius. How much paint is required to paint a similar plate of radius 80 cm?

(a) 450 ml
(b) 480 ml
(c) 360 ml
(d) 300 ml

Q80. Find the relation between x and y such that the point (x, y) is equidistant from (6, 2) and (4, 6).

(a) 2x + y = -3
(b) x + 2y = 3
(c) 2x - y = 3
(d) x – 2y = –3

Q81. Which of the following Articles of the constitution refers to the Union Budget as the Annual Financial Statement?

(a) Article 101
(b) Article 112
(c) Article 113
(d) Article 102

Q82. In the following question below are given some statements followed by some conclusions based on those statements. Taking the given statements to be true even if they seem to be at variance from commonly known facts. Read all the conclusions and then decide which of the given conclusion logically follows the given statements.

Statements:

I. All D are E.

II. Some E are F.

Conclusions:

I. All D are F.

II. Some F are D.

III. Some F are E.

(a) Both conclusion II and III follows.
(b) All conclusion follows
(c) Only conclusion III follows
(d) Only conclusion I follows

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Q83. In a code language, BLACK is written as YMZDJ. Which word will be coded as PNZSS in that language?

(a) SMART
(b) SOUTH
(c) WHITE
(d) WORTH

Q84. UNESCO has named _____ as the World Capital of Architecture for 2020.

(a) Rio de Janeiro
(b) Fortalezas
(c) Sao Paulo
(d) Salvador

Q85. Name the Metro Rail Corporation which has become the first ever project in the country to receive power generated from a waste-to-energy plant.

(a) Delhi metro
(b) Bangalore metro
(c) Chennai metro
(d) Mumbai metro

Q86. Select the option that is related to the third term in the same way as the second term is related to the first term.
WORLD : 231518124 : : CLOUD : ?

(a) 31215214
(b) 31215210
(c) 3121515
(d) 31215211

Q87. The following table shows the expenditure of a factory (in thousands) per annum over the given years.

Year	Raw Material	Interest on Loan	Sales
2014	88	13.4	321
2015	102	23.5	231
2016	91	31.6	119
2017	123	26.4	201
2018	132	39.4	108

What is the average amount of interest (in thousands) per year that the factory had to pay during the given period?

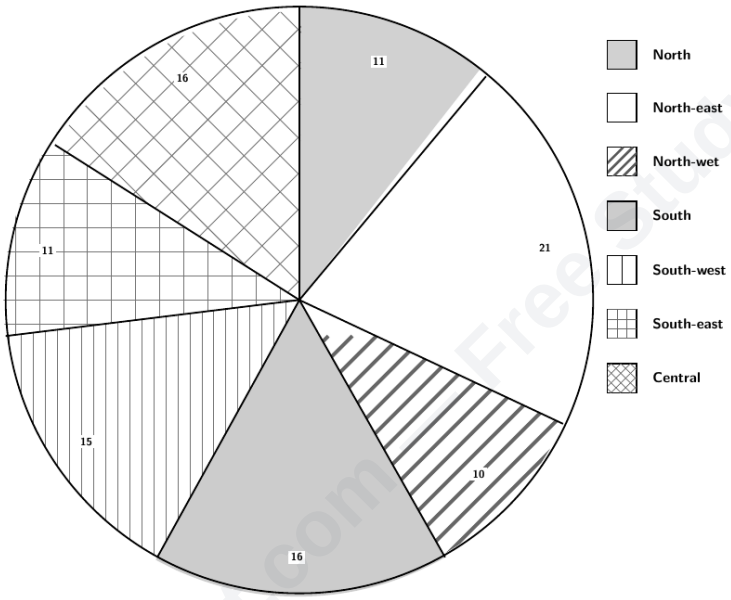
(a) 43.1
(b) 26.86
(c) 33.58
(d) 58.68

Q88. If GARLIC is coded as 112 then CLOCK will be coded as:

(a) 91
(b) 101
(c) 111
(d) 81

Q89. The distribution of the population of Delhi into seven districts in 2017 is shown in the following pie chart.

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The percentage of the population of each district below poverty line is shown in the following table.

District	Percentage of population below poverty line
North	28
North-east	42
North-west	32
South	41
South-west	39
South-east	36
Central	48

If the population of the north-west district in 2017 is 52000, then what population of the north-east district is below poverty line in that year?

(a) 45684
(b) 45864
(c) 45846
(d) 45486

Q90. Select the word that does NOT belong to the following group.

Aluminium, Copper, Chlorine, Zinc

(a) Zinc
(b) Copper
(c) Chlorine
(d) Aluminium

Q91. Select the option in which the words share the same relationship as that shared by the given pair of words.

Freezer : Chill

(a) Geyser : Heat
(b) Steam : Boil
(c) Snow : Ice
(d) Fridge : Gas

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Q92. Select the combination of letters that when sequentially placed in the blanks will create a repetitive pattern.

_baa_aa_aab_

(a) abab
(b) aabb
(c) abba
(d) bbaa

Q93. In a certain code, SYLLABUS is written as SLYALUBS. How will BACKYARD be written as in that code?

(a) BCYARAKD
(b) ABKCAYDR
(c) ABCKYADR
(d) BCAYKRAD

Q94. Select the number that can replace the question mark (?) in the following series.

110, 91, 74, 59, 46, ?

(a) 27
(b) 33
(c) 29
(d) 35

Q95. Read the given two statements and decide which of the conclusions given in the options follows from the statements.

Statements:

1. All men are mortal.
2. Philip is a man.

(a) Philip is not a man.
(b) Philip is not mortal.
(c) Philip must be mortal.
(d) All mortal are men.

Q96. Select the number that can replace the question mark (?) in the following series.

12, 8, 4, 0, – 4, ?

(a) 8
(b) -12
(c) • 8
(d) 16

Q97. A series is given with one term missing. Select the correct alternative from the given ones that will complete the series.

XPC, QHT, JZK, CRB, ?

(a) YMV
(b) VJS
(c) WKT
(d) XLU

Q98. Select the combination of letters that when sequentially placed in the blanks will create a repetitive pattern.

_stu_vuts_rst_vvu_sr

(a) turvr
(b) tsuvr
(c) rvrut
(d) rvust

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Q99. Consider the given statements and decide which of the given assumptions is/are implicit in the statement.

Statement:

"Drop the mail in the mailbox", said John to his assistant.

Assumptions:

1. The assistant knows the address where the mail needs to be sent.
2. The assistant will follow orders.

(a) Only assumption 2 is implicit.
(b) None of the assumptions is implicit.
(c) Both assumptions 1 and 2 are implicit.
(d) Only assumption 1 is implicit.

Q100. A, B, C, D and E are sitting on a bench. A and B are sitting next to each other and so are C and D. D is sitting at the extreme left end of the bench and A is sitting at the centre. E is sitting next to B. In which position is A sitting?

(a) Between C and E
(b) Between B and D
(c) Between B and C
(d) Between B and E

ANSWER KEY

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

SOLUTIONS

Q1. Answer: (b) 32

Logic : Observing the pattern column wise, we get to know that:
Column 1 : HCF of 48, 24, 12 is 12. Thus, ratio is 4:2:1
Column 3 : HCF of 80, 40, 20 is 20. Thus, ratio is 4:2:1
Similarly, in Column 2 : Ratio will be 4 : 2: 1
=> 64 : ? : 16
=> 64 : 32 : 16
=> 4 : 2 : 1
So the value of '?' is 32.
Hence, 'option 2' is the correct answer.

Q2. Answer: (a) 40

The figure is given below:
The shaded portion represents people who like both green tea and coffee = 30 + 10 = 40
Hence, 'option 1' is the correct answer.

Q3. Answer: (a) cot x

Given:

(cos3x+cosx)/(sin3x-sinx)

Identities Used:

cos3x=4× cos³x-3× cosx

sin3x=3× sinx-4× sin³x

cos2x=2× cos²x-1=1-2× sin²x

cosx/sinx=cotx

Calculation:

=> (cos3x+cosx)/(sin3x-sinx)=(4× cos³x-3× cosx+cosx)/(3× sinx-4× sin³x-sinx)

=> (4× cos³x-2× cosx)/(2× sinx-4× sin³x)

=> (2× cosx(2× cos²x-1))/(2× sinx(1-2× sin²x))

=> (2× cosx× cos2x)/(2× sinx× cos2x)=cosx/sinx

=> cotx

Therefore, the value of the expression is cot x.

Q4. Answer: (b) West Bengal

The correct answer is West Bengal.

Key Points

• Gambhira

• One of the famous devotional dances of West Bengal is Gambhira.

• It is the sacred devotional dance performed by worshippers of Shakti.

• The dance is named so because it is performed in the dance hall of the Chandi Mandir.

• In this dance, there are two main dancers, who are accompanied by a chorus.

• The two main dancers perform the role of nana (maternal grandfather) and nati (grandson), respectively.

• This dance is performed along with musical instruments, like harmonium, flute, drum, and Judi.

Additional Information

• Garba - Popular dance of Gujarat

• Garba is a form of dance that originates from the state of Gujarat in India.

• The name is derived from the Sanskrit term Garbha.

• It is performed during the nine-day Hindu festival Navaratri.

• Garba is performed in a circle as a symbol of the Hindu view of time.

• Ghoomar - Popular dance of Rajasthan

• Ghoomar is a traditional folk dance of Rajasthan.

• It was the Bhil tribe who performed it to worship Goddess Sarasvati.

• The dance is chiefly performed by veiled women who wear flowing dresses called Ghaghara.

• The word ghoomna describes the twirling movement of the dancers and is the basis of the word ghoomar.

• Perini Sivatandavam - Popular dance of Telangana

• Perini Sivathandavam is an ancient dance form of Telangana.

• It originated and prospered in Telangana, during the Kakatiya dynasty.

• Perini is performed in honour of Lord Siva, the Hindu god of destruction.

• Padmasri Dr. Nataraja Ramakrishna was the person who revived this art form recently.

Q5. Answer: (a) Pink

Pink is the odd one out.

The other three colors - Yellow, Green, Blue are the colors of rainbow. Pink does not belong to this group.

Hence, 'option 1' is the correct answer.

Important PointsRainbow consists of seven colors. These colors are Red, Orange, Yellow, Green, Blue, Indigo and Violet.

"VIBGYOR" is an acronym for the colors of rainbow.

Q6. Answer: (b) Charter Act of 1813

The correct answer is Charter Act of 1813.

Key Points

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• Charter Act of 1813
• The Charter Act of 1813 was passed by the British Parliament.
• It renewed the East India Company's charter for another 20 years.
• This is also called the East India Company Act, 1813.
• It defined for the first time the constitutional position of British Indian territories.
• This Act asserted the Crown's sovereignty over British possessions in India.
• Their trade monopoly was ended except for the trade in tea, opium, and with China.
Additional Information
• Regulating Act, 1773
• The regulating Act of 1773 was passed by the British Parliament.
• It was passed to control the territories of the East India Company majorly in Bengal.
• This act permitted the company to retain its territorial possessions in India but sought to regulate the activities and functioning of the company.
• It did not take over power completely, hence called 'regulating'.
• Indian Council Act, 1861
• The Indian Councils Act 1861 was an act of the British Parliament.
• It made significant changes in the Governor-General's Council.
• It allowed for the decentralization of administration with the vesting of legislative power to the presidencies of Bombay and Madras.
• Government of India Act, 1935
• The Government of India Act was passed by the British Parliament in August 1935.
• It was the longest act enacted by the British Parliament at that time.
• It was divided into two separate acts namely
• the Government of India Act 1935
• the Government of Burma Act 1935
• Its aim was to make further provisions for the Government of India.

Q7. Answer: (b) 8000 cm²

Shortcut Trick
Total paper area = Area of (Base + Back Face + 2 × Side Faces)
Required area = (80 × 30) + (80 × 40) + 2(30 × 40)
Required area = 2400 + 3200 + 2400 = 8000 cm²
Therefore, the area of the paper needed is 8000 cm², which matches Option (2).
Therefore The correct answer is 8000 cm².
Alternate Method
Given:
=> Length (l) of the aquarium = 80 cm
=> Width (w) of the aquarium = 30 cm
=> Height (h) of the aquarium = 40 cm
Calculations:
=> Area of the Base = l × w = 80 × 30 = 2400 cm²
=> Area of the Back face = l × h = 80 × 40 = 3200 cm²
=> Area of one side face = w × h = 30 × 40 = 1200 cm²
=> Area of two side faces = 2 × 1200 = 2400 cm²
=> Total area of paper needed = Area of Base + Area of Back face + Area of two side faces
=> Total Area = 2400 + 3200 + 2400 = 8000 cm²
This result corresponds to the value given in Option (2).
Therefore The correct answer is 8000 cm².
Additional Information
Total Surface Area of Cuboid
The total surface area (TSA) covers all six faces and is given by the formula 2(lw + wh + hl).
Lateral Surface Area (Area of 4 walls)

The area of the vertical faces (excluding top and base) is given by 2h(l + w).

Volume of a Cuboid

The amount of space inside the cuboid (capacity) is calculated as Volume = l × w × h.

Diagonal of a Cuboid

The longest rod that can be placed inside a cuboid is $\sqrt{(l^2 + w^2 + h^2)}$.

Q8. Answer: (b) Rajeshwar Rao

The correct answer is Rajeshwar Rao.

Key Points

• Rajeshwar Rao

• P. V. Rajeshwar Rao was an Indian politician.

• He was a member of parliament.

• He represented Andhra Pradesh in the Lok Sabha, as a member of the Indian National Congress.

• Rajeshwar Rao took over as the Deputy Governor of the Reserve Bank of India on October 9, 2020.

• Shri Rao was Executive Director of the Reserve Bank before being elevated to the post of Deputy Governor.

Additional Information

• Hasmukh Adhia

• Hasmukh Adhia is an Indian Banker and a civil servant.

• He is the key person behind the roll-out of the Goods and Services Tax & Demonetization scheme.

• He is an Indian Administrative Service (IAS) officer of the 1981 Gujarat cadre batch.

• He is the present Non-Executive Chairman of Bank of Baroda.

• Subhash Chandra Garg

• Subhash Chandra Garg is a 1983 batch IAS officer of the Rajasthan cadre.

• He served as Economic Affairs Secretary and Finance Secretary of India.

• He has also served as an executive director of the World Bank.

• Ashok Lavasa

• Ashok Lavasa is a retired 1980 batch IAS officer of the Haryana cadre.

• He was one of the two Election Commissioners of India.

• He has been appointed as the Vice President of the Asian Development Bank (ADB).

Q9. Answer: (a) Nitrogen

Key Points

• The correct answer is Nitrogen.

• Nitrogen makes up about 78% of the Earth's atmosphere, more than any other gas.

• Nitrogen is a crucial component of amino acids, which are the building blocks of proteins.

• It is also a part of the nucleic acids DNA and RNA, essential for genetic information.

• Nitrogen is critical for plant growth and is often added to soil in the form of fertilizer.

Additional Information

Property	Description
Atmospheric Composition	Nitrogen is the most abundant gas in the Earth's atmosphere.
Chemical Symbol	The chemical symbol for Nitrogen is N.
Atomic Number	Nitrogen has an atomic number of 7.
Role in Life	Essential for the synthesis of proteins and nucleic acids.
Industrial Use	Used in fertilizers, plastics, and explosives.

Q10. Answer: (b) 3/2

Given:

Fraction = 1/2

Calculation:

=> Let x be added to 1/2 to get 2

=> 2 = 1/2 + x

=> x = 2 – 1/2 = (4-1)/2

=> x = 3/2

Therefore, 3/2 is needed to add to 1/2 to get 2

Q11. Answer: (d) 1930

The correct answer is 1930.

Key Points

• On January 26 1929 Indian National Congress issued the Declaration of Indian Independence (Purna Swaraj).

• It opposed the British Regime's Dominion status.

• On December 31, 1929, Nehru hoisted the tricolor on the banks of the Ravi river.

• He demanded “Poorna Swaraj” or complete self-rule, and the date set for independence was January 26, 1930.

• The day was then celebrated as Poorna Swaraj day for the next 17 years.

• On January 26, 1930, Congress passed the Poorna Swaraj resolution or the Declaration of Independence.

• In this way, Indian National Congress observe 26 January as Independence Day for the first time in 1930.

Additional Information

• India achieved independence from British Raj on 15 August 1947.

• The independence came through the Indian Independence Act 1947.

• The Constitution was adopted by the Indian Constituent Assembly on 26 November 1949.

• It came into effect on 26 January 1950 with a democratic government system.

• 26 January was chosen as the date for Republic day because it was on this day in 1930 when the Declaration Purna Swaraj.

• The main Republic Day celebration is held in the national capital, New Delhi, at the Rajpath before the President of India.

Q12. Answer: (b) Kerala, Himachal Pradesh

The correct answer is Kerala, Himachal Pradesh.

Key Points

• The Index for Sustainable Development Goals (SDGs) evaluates the progress of states and Union Territories.

• It evaluates various parameters including health, education, gender, economic growth, institutions, climate change and the environment.

• Kerala retained its rank at the top with a score of 75.

• Himachal Pradesh and Tamil Nadu both took the second spot with a score of 74.

• Bihar, Jharkhand, and Assam were the worst performing states in this year’s India index.

Additional Information

• The SDG India Index computes goal-wise scores on the 16 SDGs for each State and Union Territory.

• These scores range from 0–100.

• If a State/UT achieves a score of 100, it signifies it has achieved the 2030 targets.

• The higher the score of a State/UT, the greater the distance to the target achieved.

• States and Union Territories are classified in four categories based on their SDG India Index score:

• Aspirant (0–49)

• Performer (50–64)

• Front-Runner (65–99)

• Achiever (100)

Q13. Answer: (d) David Warner

The correct answer is David Warner.

Key Points

• David Warner

• David Warner is an Australian international cricketer.

• He was a former captain of the Australian national team in limited overs format.

• He is a left-handed opening batsman.

• He is considered one of the best batters of the current era.

• He plays for New South Wales and played for the Sydney Thunder in domestic cricket.

• He served as the Australian vice-captain across Test and ODI formats of the game between 2015 and 2018.

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• He became the fastest batsman to score 5000 runs in the IPL.

Additional Information

• Suresh Raina

• Suresh Raina is a former Indian international cricketer.

• He occasionally served as stand-in captain for the Indian men's national cricket team during the absence of the main captain.

• He played for Uttarpradesh (UP) in the domestic cricket circuit.

• He is a left-handed middle-order batsman and an occasional off-spin bowler.

• He is the first Indian batsman to hit a century in all three formats of international cricket.

• MS Dhoni

• Mahendra Singh Dhoni is an Indian former professional cricketer.

• He was captain of the Indian national cricket team in limited-overs formats from 2007 to 2017.

• He is a right-handed wicket-keeper batsman.

• India won ICC Test Championship Mace two times in 2010, and 2011 under his leadership.

• Rohit Sharma

• Rohit Sharma is the current captain of the Indian national team.

• He is a right-handed opening batsman.

• He plays for Mumbai in domestic cricket.

• He captains Mumbai Indians in the Indian Premier League.

• He holds the world record for the highest individual score (264) in a one-day international match.

Q14. Answer: (d) 90,000

Given:

Volume of box = 0.8 m^3

Measurement of cuboidal godown = 60 m × 40 m × 30 m

Concept used:

Number of boxes = Volume of godown ÷ Volume of box

Calculation:

=> Volume of box = 0.8 m^3

=> Volume of cuboidal godown is,

=> 60 m × 40 × 30 m = 72000 m^3

=> Number of boxes that can be stored in godown = Volume of godown ÷ Volume of a box

=> 72000/0.8 = 90,000

Therefore, the number of cuboidal boxes that can be stored in the godown is 90,000

Q15. Answer: (d) Virat Kohli

The correct answer is Virat Kohli.

Key Points

• Virat Kohli

• Virat Kohli is an Indian international cricketer.

• He was the former captain of the Indian national cricket team.

• He plays for Delhi in domestic cricket and Royal Challengers Bangalore in the Indian Premier League.

• He is a right-handed batsman.

• Between 2013 and 2022, he captained the India cricket team in 213 matches across all three formats.

• With 40 wins out of 68 matches, Kohli is one of the most successful Indian Test captains.

• He became the third Cricketer to receive the Rajiv Gandhi Khel Ratna award.

Additional Information

• Sachin Tendulkar

• Sachin Ramesh Tendulkar is an Indian former international cricketer.

• He captained the Indian national team.

• He is regarded as one of the greatest batsmen in the history of cricket.

• In 2002, halfway through his career, Wisden ranked him the second-greatest Test batsman of all time.

• MS Dhoni

• Mahendra Singh Dhoni is an Indian former professional cricketer.
• He was captain of the Indian national cricket team in limited-overs formats from 2007 to 2017.
• He is a right-handed wicket-keeper batsman.
• India won ICC Test Championship Mace two times in 2010, and 2011 under his leadership.
• Rohit Sharma
• Rohit Sharma is the current captain of the Indian national team.
• He is a right-handed opening batsman.
• He plays for Mumbai in domestic cricket.
• He captains Mumbai Indians in the Indian Premier League.
• He holds the world record for the highest individual score (264) in a one-day international match.

Q16. Answer: (a) July 1781

The correct answer is July 1781.
Key Points
• The English captured the French port Mahe which was of great importance to Hyder Ali.
• So, he protested and declared war against the British.
• In 1781 the British army under Sir Eyre Coote defeated Hyder Ali at Port Novo.
• In 1782 Hyder Ali died of cancer. So, Tipu Sultan continued the war.
• In 1784, he signed the Treaty of Mangalore with the English by which the conquered territories were restored to both parties.
Additional Information
• The Second Anglo-Mysore War started in 1780 when Hyder Ali of Mysore declared war against the British.
• This was in response to an English attack on Mahe, which was a French possession and in Hyder Ali's dominion.
• In July of that year, Hyder Ali invaded the Carnatic.
• In this battle, the British suffered a heavy defeat.
• After this, Ali renewed the siege of Arcot.
• This prompted the British to gear up their defenses in South India.
• It also sends reinforcements under Sir Eyre Coote, a British army officer to Madras.

Q17. Answer: (a) 22/315

Given:
HCF = 3
LCM = 315
Sum of two numbers = 66
Concept Used:
LCM × HCF = Product of two numbers
Calculation:
=> Let, the numbers be a and b.
=> a + b = 66
=> According to the formula,
=> 3 × 315 = a × b
=> Required sum = 1/a + 1/b = (a + b)/ab
=> Putting the values, we get
=> 66/(3 × 315) = 66/945=22/315
Therefore, the sum of their reciprocals is 22/315.

Q18. Answer: (b) Subhash Chandra Bose

The correct answer is Subhash Chandra Bose.
Key Points
• On 21 October 1943, Bose announced the formation of the Provisional Government of Azad Hind (Free India).
• He announced himself as the Head of State, Prime Minister, and Minister of War.
• The Provisional Government enabled Bose to negotiate with the Japanese on an equal footing.
• It also facilitated the mobilization of Indians in East Asia to join and support the INA.
• Soon after the announcement, the Provisional Government received recognition from various countries.

Additional Information

• Azad Hind was established as part of a political movement originating outside India by Indians against British imperialism.

• Subhash Chandra Bose was the most prominent leader of this movement.

• Azad Hind staked claim to the entire subcontinent as its own.

• In actuality, it governed Indian military and civilian personnel in the Southeast Asian British colonial territory.

• The provisional Indian government was recognized only by the Axis powers and their allies.

Q19. Answer: (b) 20 and 40 years

Given:

Age of John = Twice of Jean's age

Sum of their ages after three years = 66 years

Calculation:

=> Let the present age of Jean be y years.

=> So, the Present age of John = 2y

=> Sum of their ages after three years = 66 years

=> Therefore, sum of their present ages = 66 – 6 = 60 years

=> 2y + y = 60 years

=> y = 60/3 = 20 years

=> Present age of Jean = y = 20 years

=> Present age of John = 2y = 2 × 20 = 40 years

Therefore, the present ages of Jean and John is 20 and 40 years, respectively.

Q20. Answer: (b) 2

Given:

HCF of two even numbers

Calculation:

=> All even numbers have a common factor as 2

=> Let's take an example of two even numbers as 4 and 2

=> HCF of 2 and 4 = 2

Therefore, the HCF of two even numbers should be at least 2

Q21. Answer: (d) 80 m

Given:

Angle of elevation = 45°

YZ = 80m (distance from point Y to foot of lamp post)

Concepts Used:

tan 45° = 1

Calculations:

=> tan 45° = XZ/YZ

=> 1 = XZ/80

=> XZ = 80m

Therefore, the height of lamp post is 80m.

Q22. Answer: (b) Chandigarh

The correct answer is Chandigarh.

Key Points

• Chandigarh’s Capitol Complex was declared by UNESCO a World Heritage at the 40th session of a World Heritage Conference.

• The Capitol Complex buildings include:

• Punjab and Haryana High Court

• Punjab and Haryana Secretariat

• Punjab and Haryana Assembly

• Martyrs Memoria

• Geometric Hill

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• Tower of Shadow
• The site got inscribed as part of the UN body's recognition of Le Corbusier's architectural works in different parts of the world.
• UNESCO inscription was under "The Architectural Work of Le Corbusier an outstanding contribution to the Modern Movement".

Additional InformationUNESCO World Heritage sites in India:

Sr. No.	World Heritage Site	Year
1	Dholavira	2021
2	Kakatiya Rudreshwara Temple	2021
3	The Jantar Mantar	2010
4	Red Fort Complex	2007
5	Mountain Railways of India	1999
6	Elephanta Caves	1987
7	Keoladeo Ghana National Park	1985
8	Great Himalayan National Park	2014
9	Western Ghats	2012
10	Sundarbans National Park	1987

Q23. Answer: (a) 3/8

Given:

Rational numbers = 1/4 and 1/2

Concept used:

A rational number in between a and b is (a+b)/2, where a and b are the numbers.

Calculation:

=> Numbers are frac14 and frac12.

=> Rational number between frac14 and frac12 = (1/4 + 1/2)/2

=> ((1+2)/4)/2 = 3/8

Therefore, the rational number between 1/4 and 1/2 is 3/8

Q24. Answer: (c) Goods and Service Tax

The correct answer is Goods and Service Tax.

Key Points

• Goods and Service Tax
• Goods and Service Tax is officially known as The Constitution (One Hundred and First Amendment) Act, 2016.
• This amendment introduced a national Goods and Services Tax (GST) in India on 1 July 2017.
• It was introduced as the One Hundred and one Amendment Bill of the Constitution of India.
• The Goods and Services Tax (GST) is a Value added Tax (VAT).
• It proposed to be a comprehensive indirect tax levy on the manufacture, sale, and consumption of goods as well as services at the national level.
• It replaces all indirect taxes levied on goods and services by the Indian Central and state governments.
• It is aimed at being comprehensive for most goods and services.

Additional Information

• Listed are the major objectives that aspired to be accomplished by implementing GST under the 101 constitutional amendment act 2016.
• The fundamental objective of GST was to build a common market with a constant tax rate in India.
• The goods and services tax eradicates the initial taxes for the same transaction as input tax credits.
• There is no export tax as GST boosts exports by refunding the amount collected on the inputs.
• It seeks to increase revenue as it brings more taxpayers by growing the tax base.
• The procedure of application and return of tax has been simplified with the use of common forms.
• Tax payment and form submission became convenient with the introduction of online payment gateways.
• A unified information technology system called Goods and Services Network (GSTN) got operated for simple GST operation.

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Q25. Answer: (b) Six

The correct answer is six.

Key Points

• India and the US said they have agreed to build six American nuclear power plants in India.
• It is a boost to bilateral civil nuclear energy cooperation.
• They committed to strengthening bilateral security and civil nuclear cooperation.
• India and the US signed a historic agreement to cooperate in the civil nuclear energy sector in October 2008.
• The deal gave a fillip to bilateral ties, which have been on an upswing since.
• India plans to triple its nuclear capacity by 2024 to wean Asia's third-largest economy off polluting fossil fuels.

Additional Information

• The Indian government is reportedly planning to build ten nuclear power plants in ‘fleet mode’ in the country over the next three years.
• The FPC is planned for next year at the 700MW Kaiga atomic power station, which is located in the Indian state of Karnataka.
• India currently operates a total of 22 nuclear reactors, with more than 6.7GW of combined capacity.
• In 2017, the government gave approval to the Nuclear Power Corporation of India (NPCIL).
• It approved to build of ten units of locally-designed pressurised heavy water reactors (PHWR), each with 700MW of capacity.

Q26. Answer: (a) Lavani

The correct answer is Lavani.

Key Points

• Lavani
• Lavani is a genre of music popular in Maharashtra.
• It is a combination of traditional song and dance.
• It is particularly performed to the beats of Dholki, a percussion instrument.
• It has contributed substantially to the development of Marathi folk theatre.
• In Maharashtra and southern Madhya Pradesh, it is performed by female performers wearing nine-yard-long sarees.
• The songs are sung in a quick tempo.

Additional Information

• Baul
• Baul dance connects love and spirituality.
• It aims to interact with the almighty in human beings’ souls.
• The modern Baul culture is very similar to western folk music.
• It is a very prominent folk music tradition practiced in West Bengal.
• The people have high regard for folk dance due to its highly spiritual and cosmic values.
• Bihu
• The Bihu dance is an indigenous folk dance from the Indian state of Assam.
• It is related to the Bihu festival and is an important part of Assamese culture.
• Bihu dancers are usually young men and women.
• The dancing style is characterized by brisk steps and rapid hand movements.
• The traditional costume of dancers is colorful and centered around the red color theme, signifying joy and vigor.
• Mando
• Mando is a musical form that evolved during the 19th and 20th centuries among the Goan Catholics.
• It represents a meeting point of local Goan and western musical traditions.
• The dress worn during the Mando dance was of velvet or silk, red, blue, or green in color, embroidered with gold threads.
• The Mando festival at the Kala Academy, with performers, decked up for the event.

Q27. Answer: (b) 7.5 m

Given:

Time taken by P to run 250 m = 25 s

Time taken by Q to run 250 m = 30 s

Calculation:

=> P takes 25 s to run = 250 m

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=> In 1 s, P could run = 250/25 = 10 m

=> In 4.5 s, P could run = 10 × 4.5 = 45 m

=> Q takes 30 s to run = 250 m

=> In 1 s, Q runs = 250/30 = 25/3 m

=> In 4.5 s, he could run = 25/3× 4.5 = 25 × 1.5 = 37.5 m

=> Difference in their distance = 45 – 37.5 = 7.5 m

Therefore, P is ahead of Q by 7.5 m after 4.5 seconds.

Q28. Answer: (d) Erode

The correct answer is Erode.

Key Points

• The Geographical Indication (GI) tag is granted to products that are special for a particular geographical area.

• It also prevents misuse of the popularity of the products by others.

• The famous 'Erode turmeric' has received a prestigious GI tag from the Geographical Indication Registry of India.

• The GI Registry granted the coveted status based on the application filed by ‘Erode Manjal Vanigarkal Matrum Kidangu Urimaiyalargal Sangam’.

• After an eight-year process, the Government of India recognized it as a Geographical indication officially since the year 2019.

Additional Information

• Erode Turmeric is known for its high Curcumin content.

• It is a natural food coloring agent as approved by WHO.

• Erode Turmeric has about 90% of Curcumin content for which it is most sought after.

• It is also known for its high medicinal value and taste.

• Erode grows the majority of Chinna Nadan.

• It is also the largest market for turmeric.

Q29. Answer: (d) Heart and brain

The correct answer is Heart and Brain.

Key Points

• The two human body organs where magnetism is produced significantly are the heart and the brain.

• The Magnetism present in the brain of a human is used to obtain images of internal parts of the brain by MRI technique.

• The heart produces the greatest rhythmic electromagnetic field in all of the body's organs.

• It is the most strong source of electromagnetic energy in the human body.

• The electrical activity produced by the heart has a 60-fold greater magnitude than the electrical activity generated by the brain.

• The current from the brain causes the scalp to generate an electroencephalogram (EEG).

• It also generates a magnetic field around the head, which is calculated as a magnetoencephalogram (MEG).

Additional Information

• The human body generates diverse electrical activity in a variety of cell types.

• This comprises neurons, endocrine cells, and muscle cells, many of which are referred to as "excitable cells."

• This action generates a magnetic field, as does all electricity.

• Magnetite was included in "almost every bit" of the specimens, according to the findings.

• When our bodies are no longer exposed to the gravitational field, the current ceases.

Q30. Answer: (b) Shillong

The correct answer is Shillong.

Key Points

• Shillong hosted the 4-day India International Cherry Blossom festival in 2019.

• It was celebrated from 13th to 16th November 2019.

• It was inaugurated by the Meghalaya Chief Minister, Conrad K Sangma.

• The festival celebrates the unique autumn flowering of Himalayan Cherry Blossoms with several cultural events.

• The festival is a great example of how natural resources and sustainable tourism can be utilized in an effective manner.

Additional Information

• Some other important festivals celebrated in North-East India

• Losar - Arunachal Pradesh

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• Saga Dawa - Sikkim
• Ambubachi Mela - Assam
• Dree Festival -Arunachal Pradesh
• Anthurium - Mizoram

Q31. Answer: (d) 76800

Given:
Brick's dimensions: l = 25 cm, b = 5 cm, h = 20 cm
Wall's dimensions: L = 40 m, B = 80 cm, H = 6 m
For Used:
Volume of cuboid = l × b × h
Calculation:
=> First, convert the dimensions of the wall from m to cm by multiplying it by 100,
=> Length of wall = 40 m = 40 × 100 = 4000 cm
=> Height of wall = 6 m = 6 × 100 = 600 cm
=> Volume of a wall = 4000 × 80 × 600 = 192000000 cm^3
=> Volume of a brick = 25 × 5 × 20 = 2500 cm^3
=> Number of bricks required = 192000000/2500 = 76800
Therefore, 76800 bricks are required for constructing the wall.

Q32. Answer: (b) 3/8

Given:
Sum of numerator and denominator = 11
If fraction got reduced by 1, fraction becomes = 1/4
Calculation:
=> Let the required fraction be x/y. Then,
=> x + y = 11 ——→ (1)
=> According to the question,
=> (x – 1)/y = 1/4
=> 4x – 4 = y
=> 4x – y = 4 ——→ (2)
=> On adding equation (1) and (2), we get,
=> x = 3
=> On putting x = 3 in equation (1), we get,
=> y = 8
Therefore, the required fraction is 3/8

Q33. Answer: (b) Article 263

The correct answer is Article 263.
Key Points
• Article 263
• Article 263 of the Indian Constitution deals with provisions with respect to an inter-State Council.
• It further has the following provisions:
• If it appears to the President that the public interests would be served by the establishment of a Council charged with the duty of
• Inquiring into and advising upon disputes which may have arisen between States;
• Investigating and discussing subjects in which some or all of the States have a common interest.
• Making recommendations upon any such subject and recommendations for the better coordination of policy.
Additional Information
• Article 261
• Article 261 of the Indian Constitution deals with Public acts, records and judicial proceedings.
• It has the following provisions:
• Full faith and credit shall be given throughout the territory of India to public acts, records and judicial proceedings of the Union.
• The manner in which and the conditions under which the acts, records and proceedings referred to in clause (1) shall be proved.

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• Final judgments or orders delivered or passed by civil courts shall be capable of execution anywhere within that territory

• Article 262

• Article 262 deals with the Adjudication of disputes relating to waters of inter-State rivers or river valleys.

• Furthermore, it contains the following provisions:

• Parliament may by law provide for the adjudication of any dispute or complaint with respect to the use, distribution or control of the waters of, or in, any inter-State river or river valley Notwithstanding anything in this Constitution,

• Parliament may by law provide that neither the Supreme Court nor any other court shall exercise jurisdiction in respect of any such dispute or complaint as is referred to in the above clause.

Q34. Answer: (b) Firewall

The correct answer is Firewall

Key Points

• A firewall is a network security device that monitors and filters incoming and outgoing network traffic based on an organization's previously established security policies.

• At its most basic, a firewall is essentially the barrier that sits between a private internal network and the public Internet.

• The main purpose of a firewall is to prevent unauthorised access to or from private networks and to protect the networked computer system from malicious access.

• Firewalls can be hardware, software, or a combination of both.

• Types of firewalls include packet filtering firewalls, stateful inspection firewalls, proxy firewalls, and next-generation firewalls (NGFW).

Additional Information

Firewalls have evolved over time to combat the increasing complexity and sophistication of cyber threats. Here are some key milestones:

• The concept of a firewall originally emerged in the late 1980s when the Internet was a fledgling network.

• One of the first types of firewalls to be developed was the packet filter firewall, which made decisions to allow or block traffic based on IP addresses and ports.

• As cyber threats evolved, so did firewall technology, leading to the development of stateful inspection firewalls, which could make decisions based on the context of network traffic.

• The introduction of next-generation firewalls (NGFW) brought features such as application awareness and control, integrated intrusion prevention, and cloud-delivered threat intelligence.

• Today, firewalls are an essential component of any organization's cybersecurity strategy, protecting against a wide range of cyber threats while enabling secure access to network resources

Q35. Answer: (d) P

Siblings: L, M, N, O, P, Q, R and S

1) They are sitting around a circular table facing away from the centre and at equal distance from the other.

2) S sits second to the left of P. M sits third to the right of S.

3) R is M's immediate neighbour and is sitting second to the left of L.

4) Q sits to the immediate right of L. N is an immediate neighbour of R. O's back faces the back of N.

P sits to the immediate right of O.

Hence, 'option 4' is the correct answer.

Q36. Answer: (c) N Chandrasekaran

The correct answer is N Chandrasekaran.

Key Points

• N Chandrasekaran

• Natarajan Chandrasekaran is chairman of Tata Sons.

• He was Chief operating officer (COO) and executive director of Tata Consultancy Services (TCS).

• In 2009, he became Chief executive officer (CEO).

• He was also the chairman of Tata Motors and Tata Global Beverages (TGB).

• He became the first non-Parsi and professional executive to head the Tata Group.

• He has been chosen for the Prestigious USIBC Global Leadership Award 2020.

Additional Information

• USIBC Global Leadership Award

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• The USIBC Global Leadership Award has been presented annually since 2007.
• It is accorded to the top corporate executives from the United States and India.
• It is accorded whose companies play a major role in promoting growth in the US-India commercial corridor.
• It is a recognition for their outstanding leadership and for promoting Indo-US trade and business.

Q37. Answer: (a) Capsicum

Capsicum is the odd one out.
The other three terms - Chilli, Cumin, Cardamom are the spices whereas capsicum is a vegetable.
Thus, capsicum does not belong to the group.
Hence, 'option 1' is the correct answer.

Q38. Answer: (a) 8 L

Given:
Percentage of water in the milk solution = 4%
Amount of milk solution = 8 L
Required percentage of water content = 2%
Calculation:
=> Amount of water in the milk solution = 4% of 8 L = 4% of 8000 ml
=> Amount of water in the milk solution = 4/100× 8000 = 320 ml
=> Pure milk in the solution = 8000 – 320 = 7680 ml
=> Let the amount of pure milk added in the solution be x ml.
=> According to the question,
=> (7680+x)/(8000+x)=2/100
=> 50 × (7680 + x) = 8000 + x
=> 384000 + 50x = 8000 + x
=> 50x – x = | 8000 – 384000 | = 376000
=> x = 376000/49≈ 8000ml
Therefore, the amount of pure milk should be added in the solution to reduce water content to 2% is 8 L.

Q39. Answer: (b) Environment, forest and climate change

The correct answer is Environment, forest and climate change.
Key Points
• Environment, forest, and climate change on 29th May launched the song “Thodi hawa aane de, taazi hawa aane de".
• It was launched to spread awareness about Air pollution.
• This song was launched by Secretary, Ministry of Environment CK Mishra.
• The song urges people to be part of the solution and not add to the pollution.
• It offers solutions for clean and green travel which include switching to public transport, car-pooling, and turning off the engine at a traffic signal.
• It was launched ahead of World Environment Day on the 5th of June.
• The theme of Environment Day for 2019 was 'Air Pollution.
Additional Information
• The ministry in collaboration with Bhamla Foundation has produced the anthem.
• Bhamla Foundation is a Mumbai-based non-governmental organization (NGO).
• For the anthem, actors Akshay Kumar, Rajkummar Rao, Vicky Kaushal, comedian Kapil Sharma, choreographer Shiamak Davar, singers Shaan, Shankar Mahadevan, and Sunidhi Chauhan came together.
• The song asks people to put a full stop to the burning of stubble and waste, and support eco-friendly industrialization.
• The anthem further highlights how we don’t value the things we get easily or for free like air.

Q40. Answer: (a) 7

The figure is given below:
There are 7 triangles.
Hence, 'option 1' is the correct answer.

Q41. Answer: (b) Materials can move in both directions in xylem.

The correct answer is Materials can move in both directions in xylem.

Key Points

• Phloem indeed transports food from leaves to other parts of the plant, facilitating the distribution of nutrients.

• Materials cannot move in both directions in xylem; it is specifically designed for unidirectional flow, moving water and minerals from roots to the rest of the plant.

• Xylem and phloem are classified as complex tissues due to their composition of different types of cells performing a variety of functions.

• Xylem plays a crucial role in transporting water and minerals absorbed by the roots to various parts of the plant.

Additional Information

Plant Tissue	Function
Xylem	Transports water and minerals from roots to shoots and leaves
Phloem	Transports sugars and other metabolic products downwards from the leaves
Meristematic Tissue	Responsible for the growth of plant tissues and organs
Epidermal Tissue	Forms the outer protective covering of the plant
Ground Tissue	Performs photosynthesis, stores plant products, and helps support the plant

Q42. Answer: (a) 2053.2

Given:

Difference = 354

Percentages = 48% and 38%

Concept Used:

Basic Percentage Calculation

Calculation:

=> Let that number be x.

=> According to the question,

=> 48% of x – 38% of x = 354

=> 48/100× x-38/100× x = 354

=> x/100 × (48 – 38) = 354

=> x/100× 10=354

=> x = 3540

=> 58% of x = 58/100× 3540 = 2053.2

Therefore, 58% of x is 2053.2

Q43. Answer: (d) Adrenaline

The correct answer is Adrenaline

Key Points

• Adrenaline, also known as epinephrine, is a hormone and medication.

• It is produced by both the adrenal glands and certain neurons.

• It plays an important role in the fight-or-flight response by increasing blood flow to muscles, output of the heart, pupil dilation, and blood sugar level.

• It does so by binding to alpha and beta receptors.

Additional Information

• Adrenaline was first isolated and identified in 1895 by Napoleon Cybulski, a Polish physiologist.

• It is used medically to treat a number of conditions, including anaphylaxis, cardiac arrest, and superficial bleeding.

• In the brain, adrenaline affects areas involved in attention and responding actions, enhancing memory consolidation.

• Commercially, synthetic adrenaline is produced through a process of chemical synthesis.

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Q44. Answer: (a) S × R + T

Family chart:

Let us decode the symbols:

Symbol	•	×	/
Meaning	Brother	Father	Mother

Lets check each option:

1) S × R + T → It shows that S is the father of R and R is the brother of T. Hence we can conclude that 'R is the son of S'.

2) S × T × R → It shows that R is the grandchild of S.

3) S + R × T → It shows that R is the brother of S.

4) S / R / T → It shows that R is the daughter of S.

Hence, 'option 1' is the correct answer.

Q45. Answer: (a) WHO

The correct answer is WHO.

Key Points

• Rajiv Mehrishi has been elected as external auditor of the World Health Organization (WHO).

• He has been elected for four years from 2020 to 2023.

• He was elected at the 72nd World Health Assembly in Geneva in May 2019.

• This is the second major international audit assignment for the CAG this year.

• First was his selection for the post of External Auditor of Food and Agriculture Organization in Rome earlier this year in March 2019.

• Mehrishi is also on the Board of Auditors of the United Nations and Vice-Chair of the UN Panel of External Auditors.

Additional Information

• Rajiv Mehrishi was the 13th Comptroller and Auditor General of India (C&AG).

• He was the Vice Chairman of the United Nations Panel of External Auditors.

• He is a retired Indian Administrative Service (IAS) officer of the 1978 batch belonging to the Rajasthan cadre.

• He was appointed the Home Secretary of India on 31 August 2015.

• He was awarded the Padma Bhushan, India's third highest civilian award, in 2022.

Q46. Answer: (d) Rs. 3,328

Given:

Principal Amount = Rs 20,000

Rate of interest = 8%

Time = 2 years

Concept Used:

Amount = Principal (1+r/100)^t

Compound Interest = Amount – Principal

Calculation:

=> Compound Interest = Principal (1+r/100)^t – Principal

=> Compound Interest = 20000× (1+8/100)²-20000

=> Compound Interest = 20000× 108/100× 108/100-20000

=> Compound Interest = 23328 – 20000 = Rs. 3,328

Therefore, the compound interest is Rs. 3,328

Q47. Answer: (b) 25%

Given:

Percentage profit on selling price = 20%

Calculation:

=> Let the selling price be Rs x.

=> Profit = 20% of x

=> Profit = 20/100× x=Rs x/5

=> Cost price = Selling price – Profit

=> Cost price = x-x/5=(5x-x)/5=Rs 4x/5

=> Required profit percentage = Profit/(Cost price)×100=(x/5)/(4x/5)×100

=> Required profit percentage = x/5× 5/4x× 100=25%

Therefore, the percentage of profit made on cost price equals 25%.

Q48. Answer: (a) P

Brothers : M, N, O and P

1) M and N play cricket and football.

2) N and O play cricket and hockey.

3) O and P play hockey and basketball.

4) P and M play football and basketball.

According to statements:

P plays football, basketball and hockey.

Hence, 'option 1' is the correct answer.

Q49. Answer: (c) Father's Brother

Family chart:

According to the statement: The family tree is shown below,

Boy's father is Anil's father's brother.

Hence, 'option 3' is the correct answer.

Q50. Answer: (a) 88

Given:

Number of pencils = 330

Ratio of distribution = 1/4:2/3:1/3

Calculation:

=> LCM of the denominators of the ratio = 12

=> Let the pencil shared with Rajesh, Suresh and Chandan be 3x, 8x and 4x respectively.

=> According to the question,

=> Total pencils = 3x + 8x + 4x = 330

=> 15x = 330

=> x=330/15=22

=> Number of pencils Chandan get = 4x = 4 × 22 = 88

Therefore, the number of pencils which Chandan got is 88

Q51. Answer: (b) Interpreter

The correct answer is Interpreter

Key Points

• Interpreter translates high-level programming language into machine language, line by line.

• It executes each instruction before moving to the next, without converting the entire source code into machine code at once.

• This allows for immediate error detection after each line, making debugging easier for developers.

• Interpreters are often used in the development of software for programming languages like Python, Ruby, and PHP.

Additional Information

• High-level programming languages are designed to be easy to read and understand, allowing programmers to write source codes using logical words and symbols.

• These languages need to be translated into machine language (binary code) for the computer to understand and execute the instructions.

• Interpreters and compilers are the two main types of translators used for this purpose, with interpreters translating and executing code line-by-line, while compilers translate the entire code at once before execution.

• The choice between using an interpreter or a compiler depends on the specific requirements of the development project, including speed, debugging ease, and the programming language used.

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Q52. Answer: (c) Chennai

The correct answer is Chennai.

Key Points

• Chennai has consistently been on top of the safety index.

• Mercer's 21st annual Quality of Living survey 2019 shows that in 105th place.

• It ranks as Southern Asia's safest city.

• It is safe to visit for everyone, irrespective of whether you are a backpacker or a solo female traveler.

• Cities in Tamil Nadu, Coimbatore, and Chennai, are the safest for women to live in as they have the lowest rate of crimes against women.

• It stands out for its hospitality and is among the top cities in the world.

• Health tourists from across the world travel to Chennai.

Additional Information

• The Quality of Living Index 2019 was released by the Consulting Agency Mercer.

• The index was based on the data analyzed between September and November 2018.

• The index ranks 231 cities.

• Austrian capital Vienna tops Mercer’s index of most liveable cities for the 10th year in a row.

• Hyderabad and Pune topped the list among the Indian cities with a rank of 143.

• Bengaluru was the second best with a ranking of 149.

• Mumbai with a ranking of 154 stood third among Indian cities.

• The capital of India, New Delhi ranked 162 on Mercer’s Quality Of Living Index.

Q53. Answer: (b) 160 min

Given:

Speed of A while starting the journey at 1:00 pm = 40 km/h

Speed of B while starting the journey at 1:40 pm = 50 km/h

Concept Used:

Time = Distance/Speed

Calculation:

=> Distance covered by A between 1:00 pm to 1:40 pm = 40/60× 40

=> Distance covered by A between 1:00 pm to 1:40 pm = 80/3km

=> Relative speed of B = Speed of B – Speed of A

=> Relative speed of B = 50 – 40 = 10 km/h

=> Putting the values in the formula,

=> Time = (80/3)/10=80/(10× 3)

=> Time = 8/3hrs

=> Now, convert hours into minutes by multiplying it by 60,

=> 8/3hrs=8/3× 60=8× 20=160 minutes

Therefore, B takes 160 min to catch A with his speed.

Q54. Answer: (c) Swachh Bharat

The correct answer is Swachh Bharat.

Key Points

• Swachh Bharat

• Swachh Bharat Abhiyan is a country-wide campaign initiated by the Government of India in 2014.

• It was initiated to eliminate open defecation and improve solid waste management.

• The campaign was officially launched on 2 October 2014 at Rajghat, New Delhi by Prime Minister Narendra Modi.

• It has 3 million government employees and students participating in 4,043 cities, towns, and rural communities.

• Phase 1 of the Swachh Bharat Mission lasted till October 2019.

• Phase 2 is being implemented between 2020–21 and 2024–25 to help cement the work of Phase 1.

Additional Information

• Rashtriya Arogya Nidhi

• Rashtriya Arogya Nidhi is a centrally sponsored scheme.

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• It aims at providing financial assistance to patients who live under the poverty line.
• The scheme covers patients suffering from diseases that are identified as life-threatening.
• Patients can avail of medical treatment at any hospital or institute providing super-specialty facilities.
• The scheme was established in 1997 by the Ministry of Health and Family Welfare.
• Saansad Adarsh Gram Yojana
• Saansad Adarsh Gram Yojanawas launched on 11th October 2014.
• The main objectives are:
• To trigger processes that lead to the holistic development of the identified Gram Panchayats.
• To substantially improve the standard of living and quality of life of all sections of the population.
• Pulse Polio
• The pulse Polio Immunization program was launched in India in 1995.
• Children in the age group of 0-5 years are administered polio drops every year.
• About 172 million children are immunized during each National Immunization Day (NID).
• WHO on 24th February 2012 removed India from the list of countries with active endemic wild poliovirus transmission.

Q55. Answer: (c) Masulipatnam

The correct answer is Masulipatnam.

Key Points

• British East India Company's history begins in 1611 CE.
• The British East India Company was established in 1600 CE under the name 'The Company of Merchants of London Trading into the East Indies'.
• The Company first established its foothold in Masulipatnam in India in 1611 CE.
• In 1612 CE, they secured the right to establish a factory in Surat.
• These rights were granted to them by the Mughal Emperor, Jehangir.
• A second factory was established at Madras after having secured the rights from the Vijayanagara ruler.

Additional Information

• The East India Company is now owned by an Indian entrepreneur named Sanjiv Mehta.
• The company was founded in 1600 to import spices, tea and exotic items to Europe from India.
• After the 1857 revolt, the East India Company was disbanded after its soldiers rose in rebellion against the British.
• In India, the historic East India Company is a symbol of oppression and humiliation.
• In 2003, a group of shareholders who owned the East India Company were attempting to revive it as a business selling tea and coffee.
• Indian entrepreneur Sanjiv Mehta procured the company name in 2005.
• He transmuted it into a customer brand focused on luxury teas, coffees, and food.

Q56. Answer: (b) 5 : 15 : 12 : 18

Given:

A : B = 1 : 3, B : C = 5 : 4 and C : D = 2 : 3

Calculation:

=> From the first two ratios, to make the value of B equal,

=> LCM of 3 and 5 = 15

=> Now, multiplying the first ratio by 5 and second ratio by 3, we get

=> A : B = 5 : 15 and B : C = 15 : 12

=> As the value of B is common, so combining the ratio we get

=> A : B : C = 5 : 15 : 12

=> Same way, for the second and third ratio, to make the value of C equal,

=> LCM of 12 and 2 = 12

=> Now, multiplying the second ratio and third ratio by 6, we get

=> A : B : C = 5 : 15 : 12 and C : D = 12 : 18

=> As the value of C is common in all, so combining all the ratios we get,

=> A : B : C : D = 5 : 15 : 12 : 18

Therefore, the required ratio of A : B : C : D is 5 : 15 : 12 : 18.

Q57. Answer: (c) Cyber law

The correct answer is Cyber law

Key Points

• Cyber law refers to the legal and regulatory aspects of the Internet and the World Wide Web.

• It covers a broad range of legal issues related to the use of the Internet, such as intellectual property rights, privacy, cybercrimes, and electronic commerce.

• The importance of cyber law has increased with the rapid growth of the Internet and its impact on various aspects of society, business, and governance.

• Each country has its own set of cyber laws to regulate online behavior, protect users' rights, and ensure the security of online transactions.

• Cyber law is crucial for creating a safe and secure digital environment for individuals and businesses.

Additional Information

Cyber law encompasses various legal disciplines including intellectual property, privacy, freedom of expression, and jurisdiction. As the Internet knows no borders, the enforcement of cyber law poses unique challenges, often requiring international cooperation. Notable international efforts include the Budapest Convention on Cybercrime, which seeks to address Internet and computer crime by harmonizing national laws, improving investigative techniques, and increasing cooperation among nations.

Q58. Answer: (c) 3 : 7

Given:

Ratio of length and perimeter of rectangle = 3 : 20

Concept used:

Perimeter of rectangle = 2(l + b)

Calculation:

=> According to the question,

=> l/(2(l+b)) = 3/20

=> 6l + 6b = 20l

=> 6b = 20l – 6l = 14l

=> l/b = 6/14 = 3/7

=> l : b = 3 : 7

Therefore, the ratio of the length and breadth is 3 : 7

Q59. Answer: (a) 65

Given:

HCF of two numbers = 5

LCM of two numbers = 210

Numbers are between = 25 and 40

Concept Used:

LCM × HCF = Product of two numbers

Calculation:

=> According to the formula,

=> 5 × 210 = Product of two numbers

=> Product of two numbers = 1050

=> As we have HCF of 5, so both the numbers are divisible by 5

=> Multiples of 5 between 25 and 40 = 30 and 35

=> So, Product of 30 and 35 = 30 × 35 = 1050

=> Above condition is satisfied,

=> Sum of both numbers = 30 + 35 = 65

Therefore, the sum of the numbers is 65

Q60. Answer: (b) Rs. 3,000

Given:

Price of an air cooler with tax = Rs. 3,300

Tax on air cooler = 10%

Calculation:

=> Let the cost of the air cooler before tax added be Rs x.
=> Value added tax (VAT) = 10% of x = 0.1x
=> Cost after VAT added = x + 0.1x = 1.1x
=> Given cost of cooler = Rs 3300
=> 1.1x = 3300
=> x = 3300/1.1
=> x = 3000
Therefore, the price of the air cooler before tax was added is Rs. 3,000

Q61. Answer: (d) 34

Given:
$\tan\theta+\cot\theta=6$
Concept Used:
$\tan\theta=1/(\cot\theta)$
Calculation:
=> $\tan\theta+\cot\theta=6$
=> Squaring on both the sides,
=> $(\tan\theta+\cot\theta)^2=6^2=36$
=> $\tan^2\theta+\cot^2\theta+2\times\tan\theta\times\cot\theta=36$
=> $\tan^2\theta+\cot^2\theta+2\times 1/(\cot\theta)\times\cot\theta=36$
=> $\tan^2\theta+\cot^2\theta=36-2=34$
Therefore, the value of $\tan^2\theta+\cot^2\theta$ is 34

Q62. Answer: (d) 4

Given:
Numbers between = 1 and 100
Divisor = 6 and 8 both
Calculation:
=> Numbers between 1 and 100 that are,
=> Divisible by 6 includes = 6, 12, 18, 24, 30, 36, 42, 48, 54, 60, 66, 72, 78, 84, 90, 96
=> Divisible by 8 includes = 8, 16, 24, 32, 40, 48, 56, 64, 72, 80, 88, 96
=> Common numbers are 24,48,72 and 96
Therefore, 4 numbers are there between 1 and 100 that are exactly divisible by 6 and 8 both.

Q63. Answer: (a) 9

Given:
LCM of two positive integers = Thrice of larger number
Difference of smaller number and HCF of two numbers = 6
Concept Used:
LCM × HCF = Product of two numbers
Calculation:
=> Let the smaller number be x and the larger number be y.
=> LCM of x and y = 3y
=> According to the question,
=> x – HCF = 6
=> HCF = x – 6
=> Putting the values in the formula,
=> 3y × (x – 6) = xy
=> 3xy – 18y = xy
=> 2xy = 18y
=> x = 18y/2y=9
Therefore, the value of the smaller number is 9

Q64. Answer: (c) [figure]

The opposite sides of cubes are:

3rd cube is not possible from unfolded cube as shaded rectangles are opposite to each other. But in this figure they are adjacent to each other.

Hence, 'option 3' is the correct answer.

Q65. Answer: (a) Rajasthan

The correct answer is Rajasthan.

Key Points

• The World Health Organization awarded the Rajasthan government's Medical & Health Department its Tobacco Control Award for the year 2019.

• Rohit Kumar Singh, Additional Chief Secretary, Medical, Health & Family Welfare, received the award.

• He received at the National Consultation on Tobacco & Lung Health on 31st May 2019 in New Delhi.

• The award was conferred by the World Health Organization on the occasion of World No Tobacco Day.

Additional Information

• The medical and health department of Rajasthan is one of the two from India selected for the 'World No Tobacco Day Award for 2019'.

• WHO selected 33 institutions and individuals across the world for the award.

• In the Southeast Asian region, two have been selected from India.

• One is the Rajasthan government and the other is Prof Raj Kumar, director, Vallabhbhai Patel Chest Institute, New Delhi.

Q66. Answer: (c) carbohydrates

The correct answer is carbohydrates.

Key Points

• Starch is a complex carbohydrate that plants use to store energy.

• It is a polysaccharide that consists of a large number of glucose units.

• Plants synthesize starch as a way to store excess glucose, which is a product of photosynthesis.

• Starch is found in significant amounts in staple foods like potatoes, wheat, maize (corn), rice, and cassava.

• When plants need energy, starch is broken down into glucose molecules, which are then used to produce energy through cellular respiration.

Additional Information

Starch plays a crucial role not only in the plant kingdom but also in the human diet as a major source of carbohydrates. It is extensively used in the food industry as a thickener, stabilizer, and filler. Moreover, it serves as a raw material in the production of biofuels and bioplastics, highlighting its importance beyond nutritional aspects.

Q67. Answer: (b) 15

Given:

Time taken by Ameesha to complete a task = 14 days

Time taken by Bhavya to complete a task = 35 days

Together with Chitra, time taken to complete the work = 6 days

Concept Used:

Rate of work (Efficiency) = 1/(Time taken)

Sum of per day tasks of all people = Per day task together

Calculation:

=> Let Chitra takes x days to complete the work.

=> Amount of work done by Ameesha each day = 1/14

=> Amount of work done by Bhavya each day = 1/35

=> According to the formula,

=> 1/14+1/35+1/x=1/6

=> 1/x+(5+2)/70=1/6

=> 1/x=1/6-1/10

=> 1/x=(5-3)/30=2/30=1/15

=> x = 15 days

Therefore, the time taken by Chitra to complete the work is 15 days.

Q68. Answer: (d) 45

Given:

Capacity of each glass = 1.5 L

Number of glasses required to fill the vessel = 15

Calculation:

=> Total capacity of the vessel = 15 × 1.5

=> Total capacity of the vessel = 22.5 L

=> New capacity of each glass = 0.5 L

=> Number of glasses required to fill the glass = 22.5/0.5=45

Therefore, 45 glasses are required to fill the vessel if the capacity of each glass is 0.5 L

Q69. Answer: (a) World Meteorological Organisation

The correct answer is World Meteorological Organisation.

Key Points

• World Meteorological Organization

• The World Meteorological Congress is the supreme body of the WMO.

• It is headed by its Secretary-General.

• It was established in 1950.

• It is an intergovernmental organization that originated from the International Meteorological Organisation (IMO).

• WMO 'State of the Global Climate' report revealed record sea level rise and exceptionally high land and ocean temperature.

• The WMO State of the Global Climate in 2021 report confirmed that the past seven years have been the warmest seven years on record.

Additional Information

• World Intellectual Property Organization

• The World Intellectual Property Organisation or WIPO is a UN specialized agency.

• It was created in 1967 to promote intellectual property (IP) protection and encourage creative activity all over the world.

• WIPO is basically a global forum for IP policy, services, information and cooperation.

• WIPO is a self-funded agency of the United Nations.

• United Environment Programme

• The UNEP is responsible for coordinating responses to environmental issues.

• It was established by Maurice Strong in June 1972.

• Its mandate is to provide leadership, deliver science and develop solutions on a wide range of issues.

• The organization also develops international environmental agreements; publishes and promotes environmental science.

• Food and Agriculture Organization

• The Food and Agriculture Organization of the United Nations is a specialized agency of the United Nations.

• It leads international efforts to defeat hunger and improve nutrition and food security.

• Its Latin motto, fiat panis, translates to "let there be bread".

• It was founded on 16 October 1945.

Q70. Answer: (a) 88√2 m

Given:

Radius of circle = 56 m

Concept Used:

Circumference of Circle = 2π r

Diagonal of Square = √2 a

Calculation:

=> Length of wire = 2π r=2× 22/7× 56

=> Length of wire = 44× 8=352 m

=> Side of square = 352/4=88 m

=> So, Diagonal of square = 88√2 m

Therefore, the diagonal of the square is of length 88√2 m.

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Q71. Answer: (b) four

The correct answer is four

Key Points

• Mammals have four heart chambers: two atria and two ventricles.

• This structure allows for efficient separation of oxygenated and deoxygenated blood.

• The right side of the heart pumps blood to the lungs, while the left side pumps it to the rest of the body.

• This separation is crucial for the high metabolism and endothermic (warm-blooded) nature of mammals.

• The four-chambered heart is a key feature distinguishing mammals from other vertebrates, such as reptiles and amphibians, which have hearts with fewer chambers.

Additional Information

Characteristic	Description
Warm-blooded	Mammals can regulate their body temperature internally.
Hair or Fur	All mammals have some form of hair or fur, which helps in insulation.
Milk Production	Mammals possess mammary glands that produce milk to feed their young.
Live Births	Most mammals give birth to live young, except for the monotremes that lay eggs.
Diaphragm	A muscular partition between the chest and abdominal cavity that aids in breathing.

Q72. Answer: (a) HUMFQ

The positional values of the English alphabet is as follows:

The pattern followed in the given code is:

Similarly,

Hence the correct answer is option 1).

Q73. Answer: (c) ISRO

The correct answer is ISRO.

Key Points

• Indian space research corporation, fashioned in 1969, outmoded the erstwhile INCOSPAR.

• Vikram Sarabha. NewSpace India restrained (NSIL), integrated on 6 March 2019 (under the Corporations Act, 2013) is a wholly owned government of India company, under the executive control of the department of space (DOS).

• ISIL became set up on 6 March 2019 to satisfy the ever-increasing needs of the Indian area application and to commercially make the most of the research and development paintings pursued at ISRO in an effort to cater to the rapidly developing global area market.

Additional Information

• Defense research & improvement enterprise (DRDO) is an organization below the Ministry of Defence.

• The Council of clinical & business research (CSIR), is understood for its modern R&D understanding base in numerous S&T regions.

• The most ISRO Scientist profits can move up to INR 80,000/-. The ISRO Scientist's income lies among Rs. 15600 - 39100 consistent with month to Rs. 75,500 - 80,000 in step with month.

• NASA is now making ready for a bold new technology of sustainable human spaceflight and discovery.

Q74. Answer: (d) Rs. 38,700

Given:

Ratio of money divided between A, B and C = 5 : 2 : 8

Difference between shares of A and C = Rs 7740

Calculation:

=> Let the amount divided between A, B and C be 5x, 2x and 8x respectively.

=> According to the question,

=> Difference between shares of A and C =8x-5x=7740

=> 3x = 7740

=> x = 7740/3=2580

=> Amount with A = 5x = 5× 2580=12900

=> Amount with B = 2x = 2× 2580=5160

=> Amount with C = 8x = 8× 2580=20640

=> Total amount = Rs (12900 + 5160 + 20640) = Rs 38700

Therefore, the total amount divided among A, B and C is Rs 38,700

Q75. Answer: (a) federal

The correct answer is federal.

Key Points

• The Constitution accommodates a Parliamentary type of government which is bureaucratic in structure with specific unitary elements.

• Indian Constitution has embraced the Parliamentary System of Constitution from the UK.

• The Republic is administered as far as the Constitution of India which was taken on by the Constituent Assembly on 26th November 1949.

• The Federal Government is made out of three particular branches: legislative, executive, and judicial whose powers are vested by the U.S.

Additional Information

• In math, a double framework, double pair, or duality over a field is a triple comprising of two vector spaces and over and a non-degenerate bilinear guide.

• Solitary frameworks are those elements that are represented by a combination of mathematical and differential conditions.

• Semi-bureaucratic alludes to an arrangement of government where the circulation of force between the middle and the state isn't equivalent

• Government Bank Limited is one of the significant Indian business banks in the confidential area settled at Aluva Kerala.

Q76. Answer: (b) Only conclusion I follows.

Statements:

(a) All leaders are corrupt.

(b) Some women are leaders.

Possible Venn diagram:

Conclusions:

I. Some women are corrupt → True (Since some women are leaders and all leaders are corrupt)

II. All those corrupt are women → False (It is not true because all those corrupt cannot be women)

Hence, 'option 2' is the correct answer.

Q77. Answer: (d) GST

The correct answer is GST.

Key Points

• A panel beneath chief monetary adviser Arvind Subramanian was constituted by means of the authorities to determine goods and offerings tax (GST) costs.

• The authorities propose to introduce GST with impact from 1st July 2017.

• Arvind Subramanian is an Indian economist and a former leader monetary representative of the government of India.

• Subramanian is presently a Senior Fellow at the Watson Institute for Global and Public Affairs at Brown University.

Additional Information

• The exclusive taxes relevant to e-trade

• Cost delivered Tax (VAT) VAT is a slightly ambiguous tax that has plagued e-trade agencies.

• Sales Tax. Sales tax is levied on products that might be sold for the first time.

• Carrier Tax. A carrier tax is best levied on services, inclusive of the transport of products.

• Entry Tax.

• The Mineral policy states that with a purpose to efficiently modify the mineral zone thru enforcement of mining plans for adoption of proper mining strategies and the most reliable utilization of minerals,

• Listed underneath are the five important sources of Rural credit scores in India.

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• Land development Banks. These banks provide a good-sized sum of money as a credit score to farmers via the usage of their land as collateral.

• Co-operative credit score Societies.

• Local Rural Banks.

• Business Banks.

• Government.

Q78. Answer: (a) 2021-2024

The correct answer is 2021-2024.

Key Points

• Bureau supports the Continuation of Phase 4 of Geosynchronous Satellite Launch Vehicle (GSLV) The Union Cabinet, led by Prime Minister Shri Narendra Modi.

• GSLV MkIII decided to send off the Chandrayaan-2 rocket, which is a three-stage weighty lift send-off vehicle created by ISRO.

• The vehicle has two strong tie-ons, a center fluid promoter, and a cryogenic upper stage.

• As of August 12, 2021, rockets from the GSLV family have made 14 send-offs, bringing about 8 victories, four disappointments, and two fractional disappointments.

Additional Information

• The GSLV Continuation Program - Phase 4 will meet the send-off prerequisite of satellites for giving basic Satellite Navigation Services, and Data Relay Communication for supporting the Indian Human spaceflight program, and the following interplanetary mission to Mars.

• The absolute asset necessity is Rs. 2729.13 Crores and incorporates the expense of five GSLV vehicles.

• The GSLV Program - Phase 4 will empower the send-off of 2-ton classes of satellites for Geo-imaging, Navigation, Data Relay Communication, and Space Sciences.

• The operationalization of GSLV has made the country confident in the starting ability of 2 ton class of satellites for correspondence and meteorological satellites.

Q79. Answer: (b) 480 ml

Given:

Paint required to paint a circular plate of radius 20 cm = 30 ml

Concept Used:

Area of circle = πr^2

Calculation:

=> For the circular plate of radius 20 cm,

=> Area of circular plate = $\pi \times 20 \times 20 = 400\pi$ cm²

=> Paint required to paint area of 400π = 30 ml

=> Now, for the circular plate of radius 80 cm,

=> Area of new circular plate = $\pi \times 80 \times 80 = 6400\pi$ cm²

=> Amount of paint required to paint the area of new circular plate = $6400/400 \times 30 = 480$ ml

Therefore, paint required to paint a similar plate of radius 80 cm is 480 ml.

Q80. Answer: (d) x – 2y = –3

Shortcut Trick

The locus of a point equidistant from two given points is the perpendicular bisector of the segment joining them.

Find the midpoint of (6, 2) and (4, 6): M = ((6+4)/2, (2+6)/2) = (5, 4).

Slope of the line joining points (m1) = (6 − 2) ÷ (4 − 6) = 4 ÷ (−2) = −2.

Slope of perpendicular bisector (m2) = −1 ÷ m1 = 1/2.

Equation: y − 4 = 1/2 × (x − 5) => 2y − 8 = x − 5 => x − 2y = −3.

Therefore The correct answer is x − 2y = −3.

Alternate Method

Given: Points A(6, 2) and B(4, 6). Point P(x, y) is equidistant from A and B.

Formula Used: Distance between (x1, y1) and (x2, y2) = $\sqrt{[(x2 - x1)^2 + (y2 - y1)^2]}$

According to the question, PA = PB

=> $PA^2 = PB^2$

=> $(x - 6)^2 + (y - 2)^2 = (x - 4)^2 + (y - 6)^2$

=> $x^2 - 12x + 36 + y^2 - 4y + 4 = x^2 - 8x + 16 + y^2 - 12y + 36$

=> $-12x - 4y + 40 = -8x - 12y + 52$

=> $-12x + 8x - 4y + 12y = 52 - 40$

=> $-4x + 8y = 12$

=> $-4(x - 2y) = 12$

=> $x - 2y = 12 \div (-4)$

=> $x - 2y = -3$

Therefore The correct answer is $x - 2y = -3$.

Additional Information

Distance Formula

Used to calculate the distance between two points in a 2D plane: $d = \sqrt{[(x2 - x1)^2 + (y2 - y1)^2]}$.

Perpendicular Bisector

Every point on the perpendicular bisector of a line segment is equidistant from the endpoints of the segment.

Midpoint Formula

The coordinates of the midpoint M of a segment AB are given by ((x1+x2)/2, (y1+y2)/2).

Q81. Answer: (b) Article 112

The correct answer is Article 112.

Key Points

• As indicated via Article 112 of the Indian charter, the Union price range is 12 months.

• Article 112 of the Constitution requires the public authority to present to Parliament an assertion of assessed receipts and use in regard to each and every monetary year.

• Article 112 of the Indian Constitution says that consistently "the President of India will cause to be laid before both the places of the parliament" the "Yearly Financial Statement". This is prominently known as Budget.

• Article 112 arrangements with the Annual budget summary.

Additional Information

• Regulations conflicting with or in disparagement of essential freedoms.

• Article 102 of the Treaty on the Functioning of the European Union (TFEU) forbids oppressive direct by organizations that have a predominant situation in a specific market.

• The 101st constitution correction act presented the arrangement of 'one country, one assessment'.

Q82. Answer: (c) Only conclusion III follows

Statements:

I. All D are E.

II. Some E are F.

Possible Venn diagram:

Conclusions:

I. All D are F → False (All D cannot be F since all D are E and some E are F)

II. Some F are D → False (Some F cannot be D since all D are E and some E are F)

III. Some F are E → True (Since some E are F)

Hence, 'option 3' is the correct answer.

Q83. Answer: (a) SMART

The positional values of the English alphabet is as follows:

The pattern followed in the given code is:

Similarly,

Hence the correct answer is option 1).

Q84. Answer: (a) Rio de Janeiro

The correct answer is Rio de Janeiro.

Key Points

• UNESCO named Rio de Janeiro, Brazil as the arena Capital of architecture for 2020.

• The town become intended to be the venue for the 27th global Congress of Architects but due to the pandemic, the event occurred digitally.

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• Rio de Janeiro has been particularly the first UNESCO-UIA global Capital of structure for 2020-21.

Additional Information

• Top 10 Best Cities in the US for Architecture Lovers

• San Francisco, California.

• Washington D.C.

• Boston, Massachusetts.

• Palm Springs, California.

• New Orleans, Louisiana.

• New York City, New York.

• Detroit, Michigan.

• Santa Fe, New Mexico.

• Fortaleza is well-known for its city seashores, Praia de Iracema and Praia Meireles.

• Sao Paulo city has cultural, financial, and political an effect on nationally and the world over.

• In the Land of Volcanoes, El Salvador has common earthquakes and volcanic hobbies.

Q85. Answer: (a) Delhi metro

The correct answer is Delhi metro.

Key Points

• The Delhi Metro has turned into the first at any point project in Quite a while to get power produced from a Waste-to-Energy (WtE) plant.

• Delhi Metro Rail Corporation (DMRC) has begun getting 2 MW power from a 12 MW limit squander to-energy plant in Ghazipur.

• Delhi Metro Rail Corporation (DMRC) began its tasks with the help of sun-based energy on the Violet line between the Jawaharlal Nehru Stadium metro station and to Central Secretariat station.

• The Delhi Metro is a mass fast travel (MRT) framework serving Delhi and its outer municipalities of Ghaziabad, Faridabad, Gurugram, Noida, and Bahadurgarh in the National Capital Region of India.

Additional Information

• The establishment stone of the task was laid by Indira Gandhi, the Prime Minister of India, on 29 December 1972, and development work began in 1973-74.

• Bangalore Metro Phase 1 with 42.30 km of courses began in April 2007.

• The Blue Line 1 of the Mumbai Metro, or the Versova-Andheri-Ghatkopar Line, is important for the metro framework for the city of Mumbai, India.

Q86. Answer: (a) 31215214

The positional values of the English alphabet is as follows:

The pattern followed here is: Positional value of the letter

WORLD : 231518124

Similarly, CLOUD : ?

CLOUD : 31215214

Hence, 'option 1' is the correct answer.

Q87. Answer: (b) 26.86

Given:

Year	Raw Material	Interest on Loan	Sales
2014	88	13.4	321
2015	102	23.5	231
2016	91	31.6	119
2017	123	26.4	201
2018	132	39.4	108

Concept Used:

Average = Total Sum of values ÷ Number of values

Calculation:

=> Total interest of all the years = 13.4 + 23.5 + 31.6 + 26.4 + 39.4

=> Total interest of all the years = 134.3

=> Total number of years = 5

=> Total average amount of interest per year = 134.3/5=26.86

Therefore, the average amount of interest per year that the company had to pay during the given period is 26.86

Q88. Answer: (a) 91

The positional values of the English alphabet is as follows:

The pattern followed here is: Sum of the opposite positional values of the letter

GARLIC is coded as 112 → 20 + 26 + 9 + 15 + 18 + 24 = 112

Similarly, CLOCK will be coded as: 24 + 15 + 12 + 24 + 16 = 91

Hence, 'option 1' is the correct answer.

Q89. Answer: (b) 45864

Given:

District	Percentage of population below poverty line
North	28
North-east	42
North-west	32
South	41
South-west	39
South-east	36
Central	48

Population of north-west district in 2017 = 52,000

Concept Used:

Basic Percentage Calculation

Calculation:

=> Percentage population in north-west district in 2017 = 10%

=> Population of north-west district in 2017 = 52000

=> So, 1% of population comprises of = 52000/10=5200 people

=> Then, Percentage of population of north-east district = 21%

=> Population of north-east district = 5200× 21=109200

=> Percentage of population in north-east district below poverty line = 42%

=> Population in north-east district who are below poverty line = 42% of 109200

=> Population in north-east district who are below poverty line = 42/100× 109200=42× 1092=45864

Therefore, the population of north-east district which is below the poverty line is 45864

Q90. Answer: (c) Chlorine

Chlorine is the odd one out.

The other three terms - Aluminium, Copper, Zinc are metals whereas chlorine is not a metal. So it does not belong to the group.

Hence, 'option 3' is the correct answer.

Q91. Answer: (a) Geyser : Heat

Logic : First word is an electric appliance whereas the second word tells us about its use.

• Freezer : Chill

=> Freezers are usually kept in the kitchen which keeps food frozen at extremely low temperatures. It is where you keep your ice cubes and ice creams.

Similarly, Geyser is usually installed in the bathroom as people need warm water during winter to take bath. They help us in quickly heat water.

Thus, Geyser : Heat shares the same relationship as that shared by the Freezer : Chill.

Hence, 'option 1' is the correct answer.

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Q92. Answer: (c) abba

Given : _baa_aa_aab_

Lets check each option:

1) a,b,a,b → aba - aba - aaa - abb

No pattern is followed.

2) a,a,b,b → aba - aaa - aba - abb

No pattern is followed.

3) a,b,b,a → aba - aba - aba - aba

Here, aba is repeating itself.

4) b,b,a,a → bba - aba - aaa - aba

No pattern is followed.

Hence, 'option 3' is the correct answer.

Q93. Answer: (d) BCAYKRAD

The pattern followed here is :

SYLLABUS is written as SLYALUBS

Similarly, BACKYARD will be written as:

Hence, 'option 4' is the correct answer.

Q94. Answer: (d) 35

Given:

Series = 110, 91, 74, 59, 46, ...

Calculation:

=> Here, the difference between

=> 1st and 2nd term i.e. = 110-91=19

=> 2nd and 3rd term = 91-74=17

=> 3rd and 4th term = 74-59=15

=> 4th and 5th term = 59-46=13

=> The differences forms an AP with common difference 2

=> Next difference term = 13 – 2 = 11

=> So, the difference between 5th term i.e. 46 and the next difference term of the given series would be 11

=> 46-11=35

Therefore, the next term of the given series would be 35

Q95. Answer: (c) Philip must be mortal.

Statements:

1. All men are mortal.

2. Philip is a man.

Possible Venn Diagram:

Lets check each option and identify which conclusion follows:

1) Philip is not a man → False (Since it is given that Philip is a man)

2) Philip is not mortal → False (Since Philip is a man and all men are mortal)

3) Philip must be mortal → True (Since Philip is a man and all men are mortal)

4) All mortal are men → False (Since all men are mortal, so all mortal can not be men)

Hence, 'option 3' is the correct answer.

Q96. Answer: (c) • 8

Given:

The series = 12, 8, 4, 0, – 4

Calculation:

=> The pattern followed here is,

=> 12 – 4 = 8

=> 8 – 4 = 4

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=> 4 – 4 = 0

=> 0 – 4 = – 4

=> Common difference = 4

=> Next number of series = – 4 – 4 = – 8

Therefore, the number that can replace the question mark is – 8

Q97. Answer: (b) VJS

According to the English alphabets and their positional values:

The pattern followed in the given series is:

• First alphabet is decreased to 7 positional values.

• Second alphabet is decreased to 8 positional values.

• Third alphabet is decreased to 9 positional values.

Hence the correct answer is option 2).

Q98. Answer: (c) rvrut

Given : _stu_vuts_rst_vvu_sr

Lets check each option:

1) t,u,r,v,r → tstuu - vutsr - rstvv - vursr

No pattern is followed.

2) t,s,u,v,r → tstus - vutsu - rstvv - vursr

No pattern is followed.

3) r,v,r,u,t → rstuv - vutsr - rstuv - vutsr

Here, rstuv - vutsr is repeating itself.

4) r,v,u,s,t → rstuv - vutsu - rstsv - vutsr

No pattern is followed.

Hence, 'option 3' is the correct answer.

Q99. Answer: (a) Only assumption 2 is implicit.

Statement:

"Drop the mail in the mailbox", said John to his assistant.

Assumptions:

1. The assistant knows the address where the mail needs to be sent → This assumption is not valid because nothing such information is stated above.

2. The assistant will follow orders → This assumption is implicit here because this is an imperative statement, John is giving command to his assistant. So it is assumed that his assistant will follow his orders.

Hence, 'option 1' is the correct answer.

Q100. Answer: (c) Between B and C

People : A, B, C, D and E

1) D is sitting at the extreme left end of the bench. D and C are sitting next to each other and A is sitting at the centre.

2) A and B are sitting next to each other and E is sitting next to B.

A is sitting between B and C.

Hence, 'option 3' is the correct answer.

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