RRB NTPC CBT-I Official Paper (Held On: 12 Feb 2021 Shift 1) (Previous Year Paper)

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

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Q1. A single-celled fertilised egg is called a/an:

(a) zygote
(b) blastocyte
(c) embryo
(d) foetus

Q2. A man sold a radio set for Rs. 750 and gained one ninth of its cost price. Find the cost price of the radio and the percentage gain respectively.

(a) 635 and 100/9 %
(b) 555 and 100/9 %
(c) 675 and 100/9 %
(d) 655 and 100/9 %

Q3. Rajni was facing the north-west. She moved 5 m, turned left and walked 3 m. Then she turned right and walked 8 m and stopped there. Which direction is she facing now?

(a) North
(b) South-west
(c) West
(d) North-west

Q4. Who was awarded the Padma Vibhushan in the field of Art-Acting-Theatre for the year 2019?

(a) Dinyar Contractor
(b) Balwant Moreshwar Purandare
(c) Manoj Bajpai
(d) Mohanlal Viswanathan Nair

Q5. If x% of y is 2000 and y% of z is 4000, the relation between x and z will be:

(a) 6z - 2 = 2x
(b) z = 2x
(c) 6z = x/2
(d) 2z = 7x

Q6. A sum of money doubles itself in 10 years. In how many years will it be triple at the same rate of simple interest?

(a) 10
(b) 23
(c) 20
(d) 15

Q7. If 2 1/2+31/2+41/2=x, then what will be the value of x - 51/2?

(a) 8
(b) 5
(c) 6

(d) 4

Q8. The mean of a and b is 350 and the ratio of a to b is 2 : 5. What is the value of b - a?

(a) 400
(b) 300
(c) 330
(d) 325

Q9. Assuming A = 1, B = 2 and so on..... Z = 26, find the value of the following equation.

$(I^2 - C^2 \times P/R) + 8$

(a) 90
(b) 81
(c) 73
(d) 78

Q10. Jean Henry Dunant, a Swiss businessman, was the main inspiration for the setup of which international humanitarian organisation?

(a) International Committee of the Red Cross
(b) World Food Programme
(c) World Health Organisation
(d) Global Forum for Disaster Reduction

Q11. Which of the following is NOT the United Nations' legal instrument for protection of climate system?

(a) United Nations Framework Convention On Climate Change
(b) Kyoto Protocol
(c) United Nations International Panel on Climate Change
(d) Paris Agreement

Q12. Which of the following is a scheme of Government of India that provides financial assistance to the elderly, widows and persons with disabilities in the form of social pension?

(a) National Pension Scheme
(b) National Social Assistance Programme
(c) Pradhan Mantri Jan Dhan Yojana
(d) Integrated Child Development Services

Q13. Who were the signatories of the Tripartite Treaty signed in 1838 against Dost Muhammad Khan?

(a) Lord Auckland, Maharaja Ranjit Singh, Shuja ud-Daula
(b) Lord Ellenborough, Maharaja Ranjit Singh, Shuja ud-Daula
(c) Lord Auckland, Maharaja Ranjit Singh, Shah Shuja
(d) Charles Metcalfe, Maharaja Ranjit Singh, Shah Shuja

Q14. A man invests Rs. 5,000 for three years at a certain rate of interest, compounded annually. At the end of the first year, it amounts to Rs. 5,600. Calculate the rate of interest per annum.

(a) 12%
(b) 11%
(c) 14%
(d) 13%

Q15. If $\cos(\alpha + \beta) = 0$,

then $\sin(\alpha - \beta)$ can be reduced to

(a) $\sin \alpha$
(b) $\cos 2\beta$
(c) $\cos \beta$
(d) $\sin 2\alpha$

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Q16. A severe cyclone that hit Odisha in May 2019 was given the name 'Fani' (pronounced as Foni). What does this name mean?

(a) Sapphire
(b) Lotus
(c) Elephant
(d) Snake

Q17. Read the given assertion (A) and a reason (R) carefully and choose the option that accurately describes the relationship between them.

Assertion (A): All prime numbers are odd numbers.

Reason (R): Prime numbers can only be divided by self or 1.

(a) Both A and R are true, and R is the correct explanation of A.
(b) Both A and R are false.
(c) A is false but R is true.
(d) Both A and R are true but R is not the correct explanation of A.

Q18. If a person has difficulty in seeing distant objects clearly, what condition is he suffering from and how can it be corrected?

(a) Hypermetropia, using convex lens
(b) Hypermetropia, using concave lens
(c) Myopia, using convex lens
(d) Myopia, using concave lens

Q19. Tap A can fill a tank in 40 min and Tap B can empty the tank in 60 min. If the taps are opened at the same tirne, then the time taken to fill the tank will be:

(a) 125 min
(b) 100 min
(c) 120 min
(d) 150 min

Q20. Two positive numbers are in the ratio of 3 : 4 and the product of their LCM and HCF is 1200. The sum of the numbers is:

(a) 70
(b) 80
(c) 60
(d) 90

Q21. The angles of a quadrilateral are in the ratios 3 : 5 : 7 : 9. The measure of the smallest angle is:

(a) 45º
(b) 62º
(c) 60º
(d) 36º

Q22. Select the option that is related to the third term in the same way as the second term is related to the first term.

Steps : Staircase :: Book : ?

(a) Library
(b) Stories
(c) Authors
(d) Novels

Q23. Which of the following tribes celebrates the Bhagoriya festival?

(a) Baiga
(b) Bhil
(c) Gond
(d) Agariya

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Q24. Let 30 cm and 18 cm be the lengths of the two parallel sides of a trapezium and 24 cm be distance between these two sides. If the area of this trapezium is equal to the area of a square, then the perimeter of the square will be:

(a) 75 cm
(b) 66 cm
(c) 96 cm
(d) 87 cm

Q25. A, B and C can complete a task in 10, 15 and 18 days respectively. In how many days will all of them complete the same task working together?

(a) (9/2)
(b) 5(1/2)
(c) 2
(d) 9

Q26. Who among the following was NOT a member of Simon Commission?

(a) James A Scott
(b) Clement Attlee
(c) Harry Levy-Lawson
(d) John Simon

Q27. Find the value (1 + tan 75^o)/(1 - tan 75^o)

(a) √3
(b) 1/√3
(c) -√3
(d) -2√3

Q28. The longest canal in the world is:

(a) Bejing-Hangzhou Grand Canal
(b) Erie Canal
(c) Indira Gandhi Canal
(d) Sutlej-Yamuna Link Canal

Q29. Who took away the Peacock Throne from India?

(a) Nadir Shah
(b) Genghis Khan
(c) Mohammad bin Tuglaq
(d) Ahmed Shah

Q30. Isotopes are atoms that have the _____.

(a) same atomic mass but different atomic number
(b) same atomic number and atomic mass
(c) different atomic number and atomic mass
(d) same atomic number but different atomic mass

Q31. The HCF of 1/3, 3/4, 4/5, 5/6 and 6/7 is:

(a) 1/460
(b) 1/360
(c) 1/420
(d) 1/560

Q32. Sujal is a good runner who walked 8 km towards the north from point A. He then turned around and started running back at the speed of 6 km/hour. How far would Sujal be from point A after running for 10 minutes?

(a) 2 KM
(b) 7 KM
(c) 9 KM

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(d) 6 KM

Q33. Container Corporation of India is a:

(a) Miniratna II PSU under National Highways Authority of India
(b) Navratna PSU under Ministry of Railways
(c) Miniratna I PSU under Ministry of Road Transport and Highways
(d) Navratna PSU under Inland Waterways Authority of India

Q34. A civil servant is NOT allowed to become which of the following?

(a) Private Secretary to Minister of the Union
(b) Cabinet Secretary
(c) Vice-Chancellor of a university
(d) Member of Parliament

Q35. Two partners A and B started a business with the capitals of Rs. 12,000 and Rs. 18,000 respectively and made a profit of Rs. 1,800 at the end of the 1st year. Find the profit share of B.

(a) Rs. 1200
(b) Rs. 720
(c) Rs. 1,080
(d) Rs. 1,000

Q36. The value of (2020/2000)^(-2008) × (2020/2000)^(2008)× 2020 is:

(a) 0
(b) 2020
(c) 2220
(d) 220

Q37. Which of the following is a hardware input device in a computer?

(a) VDU
(b) Plotters
(c) Scanners
(d) Speech synthesiser

Q38. 42 × (4 + 2) = (42 × 4) + (42 × 2) is an example of:

(a) distributive property
(b) identity property
(c) closure property
(d) associative property

Q39. In which year was the International Labour Organisation (ILO) established?

(a) 1931
(b) 1919
(c) 1921
(d) 1909

Q40. In January 2019, which organisation developed a mobile facility to help provide immediate relief in case of any attack involving radioactive material?

(a) TIFR
(b) UCIL
(c) DRDO
(d) BARC

Q41. Select the number from among the given options that can replace the question mark (?) in the following series.

6, 12, 21, 33, ?, 66

(a) 48

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(b) 45
(c) 52
(d) 44

Q42. Four parts of a human body have been listed, out of which three are alike in some manner and one is different. Select the odd one.

Skin, Bones, Cartilage, Ligaments

(a) Bones
(b) Skin
(c) Cartilage
(d) Ligaments

Q43. What will be the value of θ if $\sqrt{3} \tan 2\theta - 3 = 0$?

(a) 60º
(b) 90º
(c) 40º
(d) 30º

Q44. What does the term 'bank rate' refer to?

(a) Rate of interest charged by a central bank on its loans to a commercial bank
(b) Rate of interest charged by a non-scheduled bank on its loans to individuals
(c) Rate of interest charged by a scheduled commercial bank on its loans to a private sector bank
(d) Rate of interest charged by a private sector bank on its loans to a commercial bank

Q45. There is a rectangular field of dimensions 100 m and 80 m respectively. If a path of uniform width 10 m runs around and inside it. then the area of path will be:

(a) 3800 m^2
(b) 3500 m2
(c) 3200 m2
(d) 3400 m2

Q46. Which of the following is NOT a function of Bureau of Indian Standards?

(a) Management system certification
(b) Formulating the controlling procedures to ensure safety in the food industry
(c) Formulation, recognition and promotion of Indian standards
(d) Product certification for Indian and foreign manufacturers

Q47. Who formulated India's three-stage nuclear power program?

(a) Shivram Bhoje
(b) Vikram Sarabhai
(c) Homi Jehangir Bhabha
(d) Raja Ramanna

Q48. A started a business with a capital of Rs. 15000, B joined him after 2 months with a capital of Rs. 20,000. The ratio in which the profit at the end of the year divided between A and B is:

(a) 9 : 8
(b) 9 : 10
(c) 8 : 9
(d) 10 : 9

Q49. The paint in a container is sufficient to paint an area equal to 9.375 m^2. How many bricks, each measuring 22.5 cm × 10 cm × 7.5 cm can be painted with the paint in the container?

(a) 150
(b) 170
(c) 100

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(d) 120

Q50. Which famous landmark is present between Lake Ontario and Lake Erie?

(a) Rhine Falls
(b) Iguazu Falls
(c) Angel Falls
(d) Niagara Falls

Q51. If the LCM of p and q is pq, then the numbers of p, q must be:

(a) even
(b) prime
(c) odd
(d) composite numbers

Q52. Pick out the odd pair.

(a) Watch - Clock
(b) Milk - Tea
(c) Ice - Water
(d) Cloth - Apparel

Q53. Where does the Brahmaputra river originate?

(a) Gaumukh
(b) Gangotri
(c) Tso Lhamo Lake
(d) Lake Manasarovar

Q54. If 31 December 2015 was a Thursday, what would be the day on 1 July 2020?

(a) Tuesday
(b) Sunday
(c) Wednesday
(d) Monday

Q55. With which dance form is the noted dancer Guru Rajkumar Singhajit Singh associated?

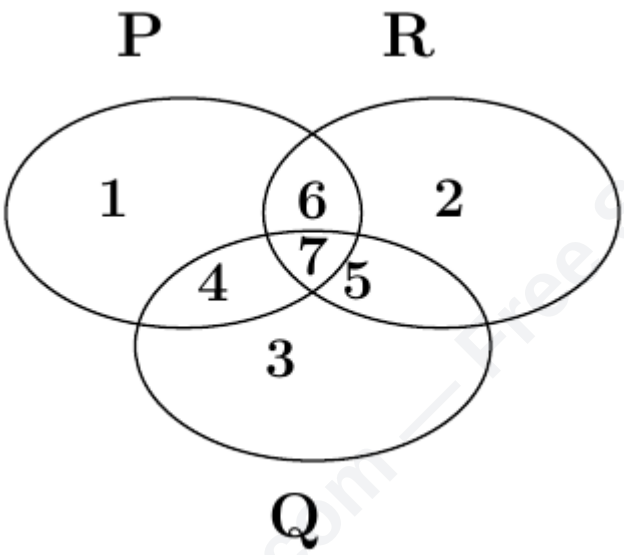
(a) Kathak
(b) Manipuri
(c) Odissi
(d) Kathakali

Q56. What is the equation for Newton's second law of motion?

(a) $F = mc^2$
(b) $F=1/2mv^2$
(c) $F = ma$
(d) $F = AP$

Q57. In the following diagram, P represents people using the ATM, Q represents people using Net Banking and R represents people visiting the bank for making transactions. Which number will represent people using both ATM and Net Banking but NOT visiting the bank for making transactions?

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

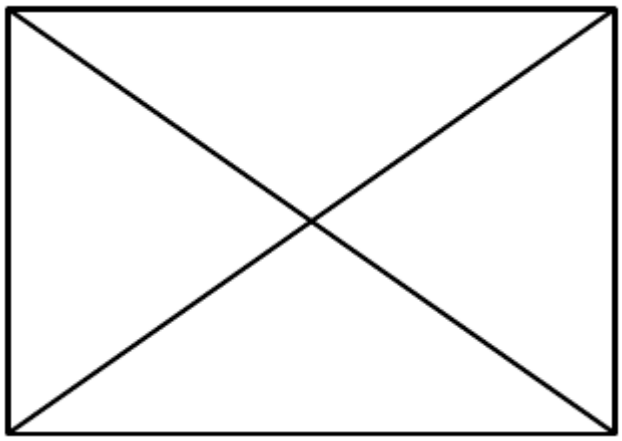
Q58. The Pradhan Mantri Ujjwala Yojana is related to:

(a) LPG connection
(b) Skill development in youth
(c) Rural electrification
(d) Distribution of LED bulbs at a low price

Q59. A, B and C divided the profit in the ratio of 3 : 4 : 5. If their total investment is Rs. 1,44,000, then B's investment will be:

(a) Rs. 64,000
(b) Rs. 48,000
(c) Rs. 36,000
(d) Rs. 60,000

Q60. What is the sum of all angles of all triangles in the given figure?



(a) 360°
(b) 1080°
(c) 720°
(d) 1440°

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Q61. Which among the following is NOT an example of an Operating System?

(a) LINUX
(b) UNIX
(c) WINDOWS
(d) MS Office

Q62. In 2017, ISRO created a world record by launching _____ satellites on a single rocket from the Sriharikota spaceport in Andhra Pradesh.

(a) 104
(b) 114
(c) 101
(d) 100

Q63. A and B can complete a task in 60 days and 40 days respectively. If C, who can complete the same task alone in 30 days, joins A & B working together after 3 days, then the number of days taken to complete the task will be:

(a) 11 4/3
(b) 11 2/3
(c) 11 1/3
(d) 11

Q64. Where, in India, would you find rock paintings dating back to the stone age?

(a) Nalanda
(b) Bhimbetka
(c) Bagh Caves
(d) Elephanta

Q65. The product of first five whole numbers is:

(a) • 120
(b) 10
(c) 0
(d) 120

Q66. Select the option that is related to the third term in the same way as the second term is related to the first term.

Bees : Honey :: Flowers : ?

(a) Fragrance
(b) Petals
(c) Fruit
(d) Plant

Q67. What fraction of 1275 is 816?

(a) 48/72
(b) 16/24
(c) 16/25
(d) 48/75

Q68. Plants having no vascular system are known as:

(a) tracheophytes
(b) pteridophytes
(c) bryophytes
(d) gametophytes

Q69. The ICC Men's Cricket World Cup 2019 was held in:

(a) Australia
(b) Sri Lanka
(c) New Zealand

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(d) United Kingdom

Q70. The correct sequence of metallic character of the given elements is:

(a) Li > Na > K > Cs > Rb
(b) Na < K < Li < Rb < Cs
(c) Li < Na < K < Rb < Cs
(d) Li > Na > K > Rb > Cs

Q71. The LCM of 248 and 868 is 1736. What is the HCF?

(a) 1736
(b) 248
(c) 868
(d) 124

Q72. Select the option that is related to the third term in the same way as the second term is related to the first term.

DFJN : EDMJ :: OWHK : ?

(a) QCFY
(b) PUKG
(c) XTGB
(d) ARVU

Q73. The noted traveller and writer Muhammad Ibn Battuta, who travelled to many countries including India in the 14th century, belonged to which of the following countries?

(a) Morocco
(b) Libya
(c) Ghana
(d) Algeria

Q74. Prior to which of the following events was the Gandhi-Irwin Pact signed?

(a) Third Round Table Conference
(b) Lucknow Session of Congress
(c) Second Round Table Conference
(d) First Round Table Conference

Q75. What is Kaiga, situated in Karnataka, famous for?

(a) Diamond mining
(b) Antibiotics plant
(c) Nuclear plant
(d) Cement plant

Q76. Pick the odd one out:

Satpura, Vindhya, Aravalli, Guru Shikhar

(a) Aravalli
(b) Satpura
(c) Vindhya
(d) Guru Shikhar

Q77. The 'International Day of the Unborn Child' is observed every year on:

(a) 8 March
(b) 31 March
(c) 25 March
(d) 12 May

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Q78. The altitudes of two similar triangles are 4 cm and 6 cm. If the area of the larger triangle is 36 cm2, what will be the area of the other one?

(a) 49 cm2
(b) 16 cm2
(c) 25 cm2
(d) 36 cm2

Q79. What is the maximum time gap between two successive sessions of the Parliament?

(a) 6 months
(b) 3 months
(c) 8 months
(d) 1 year

Q80. Pick two numbers that are the odd ones out of the following numbers.

2, 13, 29, 37, 57, 71, 91

(a) 2, 71
(b) 2, 57
(c) 29, 91
(d) 57, 91

Q81. To which group of temples does Kandariya Mahadev Temple belong?

(a) Konark Temple
(b) Khajuraho Temple
(c) Ellora Cave Temple
(d) Mahabalipuram Temple

Q82. Which type of computer application software is Quattro Pro?

(a) Desktop publishing software
(b) Database software
(c) Spreadsheet software
(d) Word processing software

Q83. Find the greatest number that divides 130, 305 and 245 leaving remainders 2, 1 and 1 respectively?

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

Q84. Who acts as the President of India when both, the President and the Vice-President are unavailable?

(a) Cabinet Secretary
(b) Minister of Home Affairs
(c) Speaker of Lok Sabha
(d) Chief Justice of India

Q85. Solve the following. 1 - 1 + 1 - 1 + 1 - 1 + ... (101 times) = ?

(a) -1
(b) 1
(c) 100
(d) 0

Q86. Dropu walked 4 m from point A towards the south-west and reached point B. Then she turned south-east and walked the same distance to reach point C. Then she turned towards the north-east and walked 4 m to reach Point D. Which direction does she need to turn to move towards Point B?

(a) East
(b) North-west

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(c) South-east
(d) West

Q87. In a certain code language, STYLE is written as JBGCE. How will HOUND be written as in that language?

(a) XWKED
(b) QPMNF
(c) BVSTP
(d) HFCED

Q88. Study the given data and answer the question that follows.

Weight (Kg)	No. of Students
21-23	1
23-25	2
25-27	3
27-29	2
29-31	1

What is the average weight of the students?

(a) 28 kg
(b) 22 kg
(c) 24 kg
(d) 26 kg

Q89. Study the given data and answer the question that follows.

Production	Year
678000	1970
698500	1980
699000	1990
715600	2000
732400	2010

Which of the following two years reported approximately the same amount of increase in production?

(a) 2000 and 2010
(b) 1990 and 1980
(c) 1990 and 2010
(d) 1980 and 2000

Q90. A girl asked a man, how is my mother's father's only daughter's daughter's brother is related to my mother's brother. What is the correct answer to her question?

(a) Cousin
(b) Maternal grandfather
(c) Nephew
(d) Paternal uncle

Q91. Count the number of F in the given sentence.

The flower of a fulfilling tree filled the freely available puffy furnace of Fatima's father.

(a) 11
(b) 12
(c) 10
(d) 13

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Q92. Read the given assertion (A) and a reason (R) carefully and choose the option that accurately describes the relationship between them.

Assertion:

A: Most Cars in India are Right hand drive cars i.e. the driver is seated on the right side of the car.

Reason:

R: Indian Car Companies do not have the knowledge or capacity to make Left hand drive cars.

(a) Both A and R are true but R is not the correct explanation of A.
(b) Both A and R are false.
(c) A is true but R is false.
(d) Both A and R are true and R is the correct explanation of A.

Q93. Select the number from among the given options that can replace the question mark (?) in the following series.

7, 4, 1, 8, 5, 2, 9, ?

(a) 7
(b) 9
(c) 3
(d) 6

Q94. 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:

All mobiles are squirrels.

Some Squirrels are clouds.

Conclusions:

A. Some clouds are mobiles.

B. Some clouds are squirrels.

C. Mobiles are not clouds.

D. Some squirrels are mobiles.

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

Q95. If N = 13 and L = 15, then NATIONAL = ?

(a) 132671812132615
(b) 132671712132615
(c) 132671212132615
(d) 132671412132615

Q96. Tannu walked 3 m from her initial position towards the north. Mannu walked 4 m from the same point towards the east. Gunnu started from the point where Tannu stopped and walked straight to Manuu taking the shortest route. In which direction did she walk and how much distance did she cover?

(a) North-east, 5 m
(b) South-east, 5 m
(c) South, 4.98 m
(d) West, 4.98 m

Q97. Select the number that will come next in the following series.

170, 197, 226, ...

(a) 320
(b) 287
(c) 370

(d) 257

Q98. Which amongst the given option could be the value of the expression 2 + 2 × 2 - 3 ÷ 3 × 3 - 4 × 4 ÷ 4 = ?

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

Q99. If Flower = 8, Water = 7, Too = 5, Most = 6 and Tree = 6, then Interdependence will be equal to:

(a) 18
(b) 30
(c) 15
(d) 17

Q100. If 1 Aug 2016 was Monday, what would be the day on 1 Aug 2012?

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

ANSWER KEY

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

SOLUTIONS

Q1. Answer: (a) zygote

The correct answer is Zygote.

Key Points

• Zygote-

• When a female gamete (egg, or ovum) and a male gamete are combined, a zygote, or fertilised egg cell, is produced (sperm).

• It contains all the genetic information needed for a new organism to develop into a baby.

• In the brief zygote stage that follows cleavage, in which the single cell divides into smaller cells, in the embryonic development of humans and other animals, there are no more than a few cells in the zygote.

• The zygote can implant in the uterus, where it will develop into an embryo and fetus

Additional Information

• Embryo-

• Embryo, the stage of an animal's early development while it is inside an egg or a mother's uterus.

• When referring to an unborn human, the phrase is used up to the end of the seventh week after conception; starting with the eighth week, the term "foetus" is used.

• It is the starting points in human growth.

• blastocyte

• A blastocyst is a ball of cells that forms in the early stages of an embryo.
• It's a key stage in the development of a fetus and is especially important in in vitro fertilization (IVF).
• Foetus-
• A foetus is the stage of the embryo at which all of the bodily components are identifiable.

Q2. Answer: (c) 675 and 100/9 %

Given:
Selling Price (SP) = Rs. 750
Gain = 1/9 of Cost Price (CP)
Formula used:
SP = CP + Gain
Gain = (1/9) × CP
Calculation:
750 = CP + (1/9) × CP
=> 750 = CP(1 + 1/9)
=> 750 = CP × (10/9)
=> CP = 750 × (9/10)
=> CP = Rs. 675
Percentage Gain = (Gain / CP) × 100
Gain = SP - CP = 750 - 675 = Rs. 75
=> Percentage Gain = (75 / 675) × 100
=> Percentage Gain = 100/9 %
Therefore Cost Price = Rs. 675 and Percentage Gain = 100/9 %.

Q3. Answer: (d) North-west

Given: Rajni was facing the north-west.
1) She moved 5 m, turned left and walked 3 m.
2) Then she turned right and walked 8 m and stopped there.
Thus, direction is she facing now is North west direction.
Hence, the correct answer is "Option 4".

Q4. Answer: (b) Balwant Moreshwar Purandare

The correct answer is Balwant Moreshwar Purandare
Key Points
• Balwant Moreshwar Purandare was awarded the Padma Vibhushan in the field of Art-Acting-Theatre in 2019.
• He is popularly known as Babasaheb Purandare.
• He is known for his books like 'Raja Shiv Chhatrapati', 'Purandaryanchi Daulat', 'Purandaryanchi Naubat' and 'Gadsanch'.
• The Maharashtra government had bestowed the ‘Maharashtra Bhushan’, the state’s highest honour, on Purandare in 2015.
• Along with him, 3 other people were awarded Padma Vibhushan in 2019.
Additional Information

Name	Field	Achievements	Notable Work
Dinyar Contractor	Theatre & Bollywood Actor	Renowned theatre artist, known for acting in plays	Famous for his work in Parsi theatre and Bollywood films
Manoj Bajpai	Film & Television Actor	Versatile actor, National Award winner	Known for roles in films like Satya, Gangs of Wasseypur
Mohanlal Viswanathan Nair	Film Actor & Producer	Legendary actor, Padma Bhushan awardee	Iconic roles in Malayalam cinema, such as Drishyam, Lucifer

Q5. Answer: (b) z = 2x

Given:
x% of y = 2000

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y% of z = 4000
Formula Used:
x% of y = (x/100) × y
y% of z = (y/100) × z
Calculation:
(x/100) × y = 2000
=> xy = 200000 [Equation 1]
(y/100) × z = 4000
=> yz = 400000 [Equation 2]
Dividing Equation 2 by Equation 1:
(yz/xy) = (400000/200000)
=> (z/x) = 2
=> z = 2x
The relation between x and z is z = 2x.

Q6. Answer: (c) 20

Given:
Time for sum to double = 10 years
Formula Used:
Simple Interest (SI) = PRT / 100
Calculation:
Let Principal amount (P) = 100
For sum to double, SI = 100, Time (T) = 10 years
Using the formula for SI: 100 = (100 × R × 10) / 100
=> 100 = 1000R / 100
=> 100 = 10R
=> R = 10%
Now, for the sum to triple, the amount becomes 300
SI for tripling = 300 - 100 = 200
We need to find the time (T) for the sum to triple:
200 = (100 × 10 × T) / 100
=> 200 = 10T
=> T = 20 years
Therefore The correct answer is option 3 (20 years).

Q7. Answer: (b) 5

Given:
2 1/2+31/2+41/2=x,
We need to find x - 51/2.
Calculation:
Step 1: Convert mixed fractions to improper fractions:
2 1/2 = 5/2, 3 1/2 = 7/2, 4 1/2 = 9/2
Step 2: Add the fractions:
x = 5/2 + 7/2 + 9/2
=> x = (5 + 7 + 9)/2 = 21/2 = 10 1/2
Step 3: Subtract 5 1/2 from x:
x - 5 1/2 = 10 1/2 - 5 1/2
=> x - 5 1/2 = (10 - 5) + (1/2 - 1/2) = 5
Therefore The value of x - 5 1/2 is 5.

Q8. Answer: (b) 300

Given:
The mean of a and b = 350

Ratio of a to b = 2 : 5
Formula Used:
Mean of a and b = (a + b) / 2
Ratio: a/b = 2/5
Calculation:
Let a = 2x and b = 5x
Mean of a and b = (a + b) / 2
350 = (2x + 5x) / 2
=> 350 = 7x / 2
=> 350 × 2 = 7x
=> 700 = 7x
=> x = 100
Therefore,
a = 2x = 2 × 100 = 200
b = 5x = 5 × 100 = 500
The value of b - a = 500 - 200 = 300
The correct answer is option 2

Q9. Answer: (b) 81

Given:
Assume A = 1, B = 2, ..., Z = 26.
We need to calculate:
$(I^2 - C^2 \times (P / R)) + 8$
Calculation:
Substitute values based on the given assumption:
I = 9, C = 3, P = 16, R = 18
Step 1: Calculate I^2:
$I^2 = 9^2 = 81$
Step 2: Calculate $C^2 \times (P / R)$:
$C^2 = 3^2 = 9$
P / R = 16 / 18 = 8 / 9
$C^2 \times (P / R) = 9 \times (8 / 9) = 8$
Step 3: Calculate $(I^2 - C^2 \times (P / R))$:
$(I^2 - C^2 \times (P / R)) = 81 - 8 = 73$
Step 4: Add 8:
$(I^2 - C^2 \times (P / R)) + 8 = 73 + 8 = 81$
Therefore The value of the equation is 81.

Q10. Answer: (a) International Committee of the Red Cross

The correct answer is Option 1.
Key Points
• Henry Dunant, also known as Henri Dunant, was a Swiss humanitarian, businessman and social activist.
• He was the visionary, promoter and co-founder of the Red Cross.
•. In 1901, he received the first Nobel Peace Prize together with Frédéric Passy, making Dunant the first Swiss Nobel laureate.

Q11. Answer: (c) United Nations International Panel on Climate Change

The correct answer is United Nations International Panel on Climate Change
Key Points
• The United Nations International Panel on Climate Change (IPCC) is not a legal instrument for protecting the climate system.
• Instead, it is an independent body that provides scientific advice on climate change
• The predecessor of the IPCC was the Advisory Group on Greenhouse Gases (AGGG)
• Three organizations set up the AGGG in 1986
Additional Information

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• United Nations Framework Convention on Climate Change (UNFCCC)
• A treaty that establishes the legal framework for international cooperation on climate change.
• The UNFCCC's goal is to limit dangerous human interference with the climate system.
• Kyoto Protocol
• An international treaty that aims to reduce greenhouse gas emissions.
• The Kyoto Protocol called for industrialized nations to reduce their carbon dioxide emissions.

Q12. Answer: (b) National Social Assistance Programme

The correct answer is National Social Assistance Programme

Key Points

• The National Social Assistance Programme (NSAP) is a government of India scheme that provides financial assistance to the elderly, widows, and people with disabilities.
• The scheme is implemented by the Ministry of Rural Development.
• NSAP provides financial assistance ranging from Rs. 200 to Rs. 500 per month
• In the case of the death of the breadwinner, a lumpsum assistance of Rs. 20,000 is given to the bereaved family

Additional Information

Scheme	Objective	Launched By	Year	Key Features
National Pension Scheme (NPS)	To provide a retirement corpus for citizens	Government of India	2004	Pension scheme for individuals in government and private sectors
Pradhan Mantri Jan Dhan Yojana (PMJDY)	Financial inclusion for unbanked households	Government of India	2014	Universal access to banking facilities, ensuring access to credit
Integrated Child Development Services (ICDS)	Early childhood care and development	Ministry of Women and Child Development	1975	Combines health, nutrition, and education services for children

Q13. Answer: (c) Lord Auckland, Maharaja Ranjit Singh, Shah Shuja

The correct answer is Lord Auckland, Maharaja Ranjit Singh, Shah Shuja

Key Points

• The signatories of the Tripartite Treaty of 1838 were Lord Auckland, Maharaja Ranjit Singh, and Shah Shuja.
• The treaty was signed on June 26, 1838 in Lahore.
• The treaty's main goal was for the parties to help each other in times of need.
• The treaty stated that Shah Shuja would accept Maharaja Ranjit Singh's suzerainty over Afghanistan.
• The treaty was signed during the First Anglo-Afghan War (1838-1842).

Additional Information

• The Tripartite Treaty was signed on June 26, 1838 by the British, Maharaja Ranjit Singh, and Shah Shuja.
• The treaty was signed to replace Amir Dost Muhammad as the ruler of Afghanistan with Shah Shuja.
• The treaty was signed to stop Russian infiltration into Afghanistan and Persia.
• The British Governor-General, Lord Auckland, wanted to make a treaty with Dost Muhammad, but Dost Muhammad demanded Peshwar.
• Lord Auckland chose Ranjit Singh instead of Dost Muhammad because Peshwar was part of Ranjit Singh's kingdom

Q14. Answer: (a) 12%

Given:

Principal (P) = Rs. 5,000

Amount at the end of 1 year (A) = Rs. 5,600

Time (t) = 1 year

Formula Used:

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

Calculation:

$\Rightarrow 5600 = 5000(1 + (r/100)^1$

=>1 + (r/100) = (5600/5000)

=> 1 + (r/100) = 1.12

=> (r/100) = 1.12 - 1

=> (r/100) = 0.12

=> r = 0.12 × 100

=> r = 12 %

The rate of interest per annum is 12%.

Q15. Answer: (b) cos 2β

Given:

cos(α + β) = 0

We need to reduce sin(α - β).

Formula used:

cos(α + β) = 0 implies:

α + β = 90° + n × 180°, where n is an integer (general solution for cos(x) = 0).

We also use the identity: sin(α - β) = sinα cosβ - cosα sinβ.

Calculation:

From cos(α + β) = 0, we take the simplest case:

α + β = 90°

Substitute α = 90° - β into sin(α - β):

sin(α - β) = sin(90° - β - β)

=> sin(α - β) = sin(90° - 2β)

Using the identity sin(90° - x) = cos(x):

sin(90° - 2β) = cos 2β

Therefore sin(α - β) = cos(2β).

Q16. Answer: (d) Snake

The correct answer is Snake.

Key Points

• Extremely severe cyclonic Fani hit the Odisha coast in Puri early morning with a wind speed of around 175 kmph.(Hence option 2 correct)

• The name of the Cyclone 'Fani', pronounced as 'Foni' was suggested by Bangladesh.

• It means 'Snake' or 'hood of a snake'.

• The worst one, a super cyclone had hit the state in 1999, killing more than 15,000 people of Odisha.

• The India Meteorological Department issued a “yellow warning” for the Odisha coast, predicting heavy to very heavy rainfall at some places ahead of the landfall of Cyclone Fani.

Additional Information

• The cyclonic storm 'Nilofer', which originated in the Arabian Sea and affected parts of Gujrat in 2014.

• The cyclone Hudhud affected Andhra Pradesh and Odisha coast along the Bay of Bengal in 2014.

• Cyclone Titli tore into coastal areas of Orissa and Andhra Pradesh states with winds of up to 150km/h (93mph)

Q17. Answer: (c) A is false but R is true.

Assertion (A): All prime numbers are odd numbers → False (because, It is false because 2 is a prime number, and it is not odd).

Reason (R): Prime numbers can only be divided by self or 1 → True(because, It is true because a prime number is defined as a number that has no positive divisors other than 1 and itself).

Here, We can say, A is false but R is true.

Hence, "A is false but R is true" is the correct answer.

Q18. Answer: (d) Myopia, using concave lens

The correct answer is Myopia, using concave lens.

Key Points

• Myopia, also known as nearsightedness or short-sightedness, is a common vision condition in which you can see objects near to you clearly, but objects farther away appear blurry.

• It occurs when the shape of your eye causes light rays to bend (refract) incorrectly, focusing the images in front of the retina

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instead of directly on the retina.

• Myopia, also known as nearsightedness or short-sightedness, is a vision condition characterized by the eye's inability to focus on distant objects clearly.

• People with myopia can see objects clearly if they're close to their eyes, but things that are further away—like road signs or a blackboard in a classroom—appear blurred.

• This happens because the eyeball is too long from front to back, or the cornea—the clear front cover of the eye—is too curved.

• Essentially, the light that enters the eye isn't focused correctly.

• With normal vision, the light is focused directly onto the retina at the back of the eye, creating a sharp image.

• But in myopia, the light is focused in front of the retina. This incorrect focus results in a blurry appearance for distant objects.

• There are various causes of myopia. Genetics plays a crucial role—if parents are myopic, then there are more likely to be myopic as well.

• Further, some evidence suggests that focusing on nearby objects for prolonged periods during childhood might contribute to developing myopia.

• Myopia typically begins in childhood and might gradually worsen as the person grows, often stabilizing in early adulthood.

• Management strategies range from corrective lenses like glasses or contact lenses to surgical procedures aimed at reshaping the cornea.

• Regular eye examinations can help detect myopia and other vision disorders early, preventing potential future issues.

Additional Information

• Hypermetropia

• In hypermetropia the image is formed behind the retina and a person cannot see nearby objects clearly.

• It can be corrected using a convex lens. It helps focus the rays entering the eye on the retina.

Q19. Answer: (c) 120 min

Given:

Time taken by Tap A to fill the tank = 40 min.

Time taken by Tap B to empty the tank = 60 min.

Formula Used:

Net part of the tank filled in 1 minute = (Part filled by Tap A in 1 minute) - (Part emptied by Tap B in 1 minute)

Time taken to fill the tank = 1 / (Net part of the tank filled in 1 minute)

Calculation:

Part of the tank filled by Tap A in 1 minute = 1 / 40

Part of the tank emptied by Tap B in 1 minute = 1 / 60

Net part of the tank filled in 1 minute = (1 / 40) - (1 / 60)

Net part of the tank filled in 1 minute = (1)/(40) - (1)/(60)

Net part of the tank filled in 1 minute = (3 - 2)/(120)

Net part of the tank filled in 1 minute = (1)/(120)

Time taken to fill the tank = 1 / (1 / 120)

Time taken to fill the tank = 120 min

The time taken to fill the tank will be 120 min.

Alternate MethodLet total capacity of tank = LCM(40, 60) = 120 units

Efficiency of Tap A = 120/40 = 3

Efficiency of Tap B = 120/60 = 2

Total efficiency of (A + B) = 3 - 2 = 1 (Since B is emptied Tap)

Time taken by Tap A and Tap B together = 120/1 = 120 min

The time taken to fill the tank will be 120 min.

Q20. Answer: (a) 70

Given:

Two positive numbers are in the ratio of 3 : 4.

Product of their LCM and HCF is 1200.

Formula Used:

Product of two numbers = Product of their LCM and HCF

Calculation:

Let the two numbers be 3x and 4x.
HCF of 3x and 4x = x
LCM of 3x and 4x = 12x
Product of the numbers = 3x × 4x = 12x²
Given, product of their LCM and HCF = 1200
=> (12x) × x = 1200
=> 12x² = 1200
=> x² = 100
=> x = 10
First number = 3x = 3 × 10 = 30
Second number = 4x = 4 × 10 = 40
Sum of the numbers = 30 + 40 = 70
The sum of the numbers is 70.

Q21. Answer: (a) 45º

Given:
The angles of a quadrilateral are in the ratios 3 : 5 : 7 : 9.
Formula Used:
Sum of the angles in a quadrilateral = 360º
Calculation:
Let the angles be 3x, 5x, 7x, and 9x.
Sum of the angles = 3x + 5x + 7x + 9x
=> 24x = 360º
=> x = 360º / 24
=> x = 15º
The measure of the smallest angle = 3x
=> 3 × 15º
=> 45º
The measure of the smallest angle is 45º.

Q22. Answer: (a) Library

The logic followed here is:
Logic: Part-Whole Relationship.
Here,
Steps : Staircase → Steps are parts of a Staircase.
Similarly,
Book : Library → Books are parts of a Library.
Hence, the correct answer is "Option 1".

Q23. Answer: (b) Bhil

The correct answer is Bhil.
Key Points
• The Bhagoriya festival marks the onset of the spring season and falls a few days before Holi.
• It is boisterous merriment, accompanied by singing, dancing, and drunken revelry.
• Bhagoria Festival is especially a trademark celebration of the Bhils.
• The prominence of the festival lies in it being a mass svayamvara or a marriage market.
• As the name suggests, ‘Bhagoriya’ Means ‘Run’ in Hindi.
• Thus, during the festival of Bhagoria, young people choose their partners and elope with them.
• Eventually, they are accepted as man and wife, as per the societal convention dictates.
• According to tradition, the girl smears gulal (colored powder) on the forehead of the boy whom she selects as her bridegroom.
• The boy reciprocates in a like manner if he harbors positive feelings for her.
Additional Information
• Bhil

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• The Bhils are one of the largest tribal groups in India, primarily residing in the states of Gujarat, Madhya Pradesh, Chhattisgarh, Maharashtra, and Rajasthan.

• They are known for their rich cultural heritage, including traditional dances like the Ghoomar, and their colorful clothing adorned with intricate patterns and tattoos.

• The Bhil people have a strong connection to the forest and are known for their skills in archery and hunting.

• They have a rich oral tradition and folklore, passed down through generations.

• Baiga

• The Baiga tribe is primarily found in the state of Chhattisgarh, India.

• They are known for their unique culture and traditions, including their distinctive dialect and their traditional practices of forest dwelling and hunting. The Baiga people have a strong belief in nature spirits and practice animism.

• They are known for their artistic skills, particularly in wood carving and bamboo crafts.

• The Baiga tribe has faced challenges such as displacement from their traditional lands and the loss of their traditional livelihoods.

• Gond

• The Gond tribe is one of the largest tribal groups in India, spread across several states, including Madhya Pradesh, Maharashtra, Chhattisgarh, Andhra Pradesh, and Telangana.

• They are known for their rich cultural heritage, including their traditional art forms like Gond paintings, which are characterized by their vibrant colors and intricate geometric patterns.

• The Gond people have a strong connection to their land and their forests, and their culture is deeply rooted in their relationship with nature.

• They have faced challenges such as displacement from their traditional lands and the loss of their traditional livelihoods.

• Agariya

• The Agariya tribe is primarily found in the state of Gujarat, India.

• They are known for their traditional occupation of salt farming, which involves extracting salt from the Rann of Kutch.

• The Agariya people have a unique culture and traditions, including their distinctive dialect and their traditional practices of salt farming and fishing.

• They have faced challenges such as displacement from their traditional lands and the loss of their traditional livelihoods due to industrialization and urbanization.

Q24. Answer: (c) 96 cm

Given:

Lengths of the two parallel sides of the trapezium = 30 cm and 18 cm.

Distance between the two parallel sides = 24 cm.

Area of the trapezium is equal to the area of a square.

Formula Used:

Area of a trapezium = 1/2 × (a + b) × h

Area of a square = side²

Calculation:

Area of the trapezium = 1/2 × (30 + 18) × 24

=> Area of the trapezium = 1/2 × 48 × 24

=> Area of the trapezium = 24 × 24 = 576 cm²

Area of the square = 576 cm²

Let the side of the square be s cm.

=> $s^2 = 576$

=> $s = \sqrt{576}$

=> s = 24 cm

Perimeter of the square = 4 × side

=> Perimeter of the square = 4 × 24

=> Perimeter of the square = 96 cm

The perimeter of the square is 96 cm.

Q25. Answer: (a) (9/2)

Given:

A can complete the task in 10 days.

B can complete the task in 15 days.

C can complete the task in 18 days.
Formula Used:
Work done by all of them together in 1 day = Work done by A in 1 day + Work done by B in 1 day + Work done by C in 1 day
Work done by all of them together = 1 / (Work done by all of them together in 1 day)
Calculation:
Work done by A in 1 day = 1/10
Work done by B in 1 day = 1/15
Work done by C in 1 day = 1/18
Work done by all of them together in 1 day = 1/10 + 1/15 + 1/18
Work done by all of them together in 1 day = (1/10) + (1/15) + (1/18)
Work done by all of them together in 1 day = (9 + 6 + 5)/90
Work done by all of them together in 1 day = 20/90
Work done by all of them together in 1 day = 2/9
Work done by all of them together = 1 / (2/9)
Work done by all of them together = 9/2
They will complete the task in 9/2 days, which is 4.5 days.
Alternate Metho
Total work done = LCM of 10, 15, and 18 = 90 units
Work done by A in 1 day = 90 / 10 = 9 units
Work done by B in 1 day = 90 / 15 = 6 units
Work done by C in 1 day = 90 / 18 = 5 units
Total work in 1 day = 9 + 6 + 5 = 20 units
Time taken = Total work / Work done per day = 90 / 20 = 4.5 days
Therefore A, B, and C will complete the task together in 4.5 days.

Q26. Answer: (a) James A Scott

The correct answer is James A Scott.
Key Points
• Simon commission:
• The British government appointed the Simon Commission in 1927.
• The commission arrived in British India in 1928.
• The Commission published its 2-volume report in May 1930.
• The commission is popularly known as the Simon Commission after its chairmanship of Sir John Simon.
• Protest in Lahore against Simon's commission leads to the death of prominent Indian nationalist Lala Lajpat Rai.
• The Government of India Act 1935 was the outcome of the Simon Commission.
Additional Information
• Clement Attlee who later became Prime Minister of Britain came to India as a member of Simon Commission.
• The British government appointed the Simon Commission to review the Government of India Act 1919 in the year 1927.
• The Simon commission arrived in India in 1928.
• It was formed to study constitutional reforms and make recommendations to the government in India.
• Simon commission was an all-white commission without any Indian members.
• The commission consisted of seven Englishman and sir John Simon was its chairman.
• It was formed on 26th November 1927.
• Simon commission arrived in India on 3rd February 1928.
• The Madras session of the congress passed a resolution to boycott the Simon Commission.
• Simon commission submitted its reports on 27th May 1930.

Q27. Answer: (c) -√3

Given:
(1 + tan 75°) / (1 - tan 75°)
Formula used:
tan(75°) = tan(45° + 30°) = (tan 45° + tan 30°) / (1 - tan 45° × tan 30°)

tan 45° = 1 and tan 30° = 1/√3

Calculation:

tan 75° = (1 + 1/√3) / (1 - 1 × 1/√3)

tan 75° = (√3 + 1) / (√3 - 1)

(1 + tan 75°) / (1 - tan 75°) = (1 + ((√3 + 1) / (√3 - 1))) / (1 - ((√3 + 1) / (√3 - 1)))

Numerator = 1 + ((√3 + 1) / (√3 - 1)) = (√3 - 1 + √3 + 1) / (√3 - 1) = (2√3) / (√3 - 1)

Denominator = 1 - ((√3 + 1) / (√3 - 1)) = (√3 - 1 - √3 - 1) / (√3 - 1) = -2 / (√3 - 1)

(Numerator / Denominator) = ((2√3) / (√3 - 1)) / ((-2) / (√3 - 1))

= (2√3) / -2 = -√3

Therefore The value of (1 + tan 75°) / (1 - tan 75°) is -√3.

Q28. Answer: (a) Bejing-Hangzhou Grand Canal

The correct answer is Bejing-Hangzhou Grand Canal.

Key Points

• Beijing-Hangzhou Grand Canal:

• Location: China

• The world's longest artificial waterway, connecting Beijing in the north to Hangzhou in the south.

• Construction began in the 5th century BC, with major expansions undertaken during the Sui Dynasty (581-618 AD).

• Facilitated the transportation of goods, grain, and troops across China, playing a crucial role in the country's economic and political development for centuries.

• A remarkable feat of engineering, the canal significantly impacted China's trade, agriculture, and cultural exchange.

Additional Information

• Erie Canal:

• Location: United States (New York State)

• A crucial waterway connecting the Great Lakes to the Atlantic Ocean via the Hudson River.

• Completed in 1825, it revolutionized transportation in the United States.

• Reduced transportation costs significantly, boosting the economy of the Midwest and connecting the growing nation.

• The Erie Canal served as a model for other canal projects and played a vital role in the westward expansion of the United States.

• Indira Gandhi Canal:

• Location: India (Rajasthan)

• A major irrigation canal in Rajasthan, India, named after former Prime Minister Indira Gandhi.

• Primarily for irrigation, bringing water to arid and semi-arid regions of Rajasthan.

• Transformed the agricultural landscape of Rajasthan, enabling the cultivation of crops in previously barren areas.

• The canal has also faced challenges such as waterlogging, salinity, and environmental concerns.

• Sutlej-Yamuna Link Canal (SYL Canal):

• Location: India (Punjab and Haryana)

• A contentious inter-state water dispute in India.

• Intended to share the waters of the Sutlej and Yamuna rivers between the states of Punjab and Haryana.

• The construction and operation of the canal have been a major source of conflict between Punjab and Haryana, with Punjab opposing its construction.

• The SYL Canal has been a subject of numerous legal battles and political debates in India.

Q29. Answer: (a) Nadir Shah

The correct answer is Nadir Shah.

Key Points

• The Peacock Throne was commissioned by Shah Jahan in the early 17th century.

• It was the seat of Mughal Emperors in India and was placed in the Diwan-i-Khas in the Red Fort of Delhi.

• When Nadir shah attacked and looted India in 1739, he also took the precious throne with him.

• The Peacock Throne was covered in gold and jewels, with steps leading up to it, with the ruler floating above the ground.

• The opulence and magnificence can be estimated from the fact that it cost twice as much as the construction of the majestic Taj Mahal.

• The peacock throne had the famous Koh-I-Noor diamond embedded in it.

Additional Information

• Nadir Shah

• Nadir Shah invaded India in the year 1739.

• He defeated the Mughal Emperor Muhammad Shah in the Battle of Karnal and plundered Delhi, taking immense wealth, including the Kohinoor diamond and the Peacock Throne.

• Genghis Khan

• Genghis Khan, original name Temüjin, (born 1162, near Lake Baikal, Mongolia—died August 18, 1227), was a Mongolian warrior-ruler, one of the most famous conquerors of history, who consolidated tribes into a unified Mongolia.

• Genghis Khan died in 1227, having spent most of his life in military combat.

• His military achievements were astounding and they were largely a result of his ability to innovate and transform different aspects of steppe combat into extremely effective military strategies.

• Between 18 to Aug. 25, 1227, during Genghis Khan's last campaign against the Western Xia, he felt unwell with a fever that ultimately killed him within eight days after the disease's onset.

• Thus, Genghis Khan died in 1227CE.

• Mohammad bin Tuglaq

• Mohammad bin Tughlaq holds the title of Amir ul Momineen.

• Mohammad bin Tughlaq was the son of Gaiyasuddin Tuglaq.

• His original name was Juna Khan.

• Mohammad bin Tughlaq has good knowledge of Arabic, Persian, Mathematics, Astronomy, Physics and Medical science.

• Mohammad bin Tughlaq is considered as three-star wonderer or wise fool by historians.

• Ahmed Shah

• Ahmad shah (1748-1754), the only son of Muhammad Shah, succeeded his father after his death.

• He was mostly engaged in irrelevant activities, giving very little attention and time to the affairs of state that caused weakening defences at North-west and allowed Abdali to invade in 1748 AD.

• He handed the affairs of the state to his mother Udham Bai who acted as a regent under her son Ahmad Shah.

• Udham Bai did not possess the intellect required to run the empire efficiently and hence, the Mughal state started declining rapidly.

• When Ahmad Shah ascended the throne at Delhi in 1748, Safdarjung became his Wazir or Vizier or Prime Minister of the empire.

• Safdarjung was an able administrator and was a major figure at the Mughal court.

• He became the second Nawab of Awadh when he succeeded Saadat Ali Khan I in 1739 AD.

• It was during his time that the Lucknow culture developed around Awadh.

Q30. Answer: (d) same atomic number but different atomic mass

The correct answer is same atomic number but different atomic mass.

Key Points

• Isotopes have the same atomic number but different mass numbers.

• Isotopes are variants of a chemical element that have the same number of protons in their atomic nuclei but different numbers of neutrons.

• Isotopes of an element have similar chemical properties but different physical properties due to their varying atomic mass.

• Isotopes are commonly used in scientific research, medical diagnosis, and treatment, as well as in industrial and environmental applications.

Q31. Answer: (c) 1/420

Given:

1/3, 3/4, 4/5, 5/6 and 6/7

Formula Used:

HCF of fractions = HCF of Numerators / LCM of Denominators

Calculation:

Numerators: 1, 3, 4, 5, 6

Denominators: 3, 4, 5, 6, 7

HCF of Numerators:

HCF of 1, 3, 4, 5, 6 is 1

LCM of Denominators:

LCM of 3, 4, 5, 6, 7

3 = 3

4 = 2^2

5 = 5

6 = 2 × 3

7 = 7

LCM = 2^2 × 3 × 5 × 7

LCM = 4 × 3 × 5 × 7

LCM = 420

HCF of fractions = HCF of Numerators / LCM of Denominators

HCF = 1 / 420

The HCF of the given fractions is 1/420.

Q32. Answer: (b) 7 KM

Given:

Distance walked towards north = 8 km

Running speed = 6 km/hour

Running time = 10 minutes

Formula used:

Distance = Speed × Time

Calculation:

Convert time into hours:

=> 10 minutes = 10/60 hours

=> 1/6 hour

Calculate the distance covered while running:

=> Distance = 6 × 1/6

=> Distance = 1 km

Initial position after walking north = 8 km

After running back 1 km towards A:

=> Distance from A = 8 - 1

=> Distance = 7 km

Therefore Sujal would be 7 km away from point A.

Q33. Answer: (b) Navratna PSU under Ministry of Railways

The correct answer is Navratna PSU under Ministry of Railways.

Key Points

• Miniratna PSUs are further categorized as Miniratna Category-I and Miniratna Category-II companies.

• Miniratna Category-I PSUs are those companies that have made profits for three consecutive years or have earned a net profit of Rs. 30 crores or more in one of the three years.

• Miniratna Category-II PSUs are those companies that have made profits for three consecutive years and have a positive net worth.

• Some of the important Miniratna Companies are:

• Airport Authority of India

• Antrix Corporation Limited

• Central Warehousing Corporation

• Goa Shipyard Limited

• Hindustan Copper Limited

• Indian Rare Earths Limited

Additional Information

• Navratna Companies:

• Navratna status is granted to central public sector enterprises (CPSEs) in India that have comparative advantages, giving them greater autonomy to compete in the global market so as to support their expansion and growth.

• Some of the criteria for granting Navratna status include a 3-year composite score of 60 out of 100, net profit to net worth ratio, and a significant presence in the market.

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• Examples of Navratna companies include Oil India Limited, Rural Electrification Corporation Limited, and Hindustan Petroleum Corporation Limited.

• Maharatna Companies:

• Maharatna status is the highest status given to CPSEs in India. These companies must have a net worth of over Rs. 15,000 crores (US$2.1 billion) for three consecutive years.

• The Maharatna status provides greater financial and operational autonomy compared to Navratna and Miniratna statuses.

• Examples of Maharatna companies include ONGC, Indian Oil Corporation Limited (IOCL), and Steel Authority of India Limited (SAIL).

Q34. Answer: (d) Member of Parliament

The correct answer is Member of Parliament.

Key Points

• Member of Parliament (MP):

• An elected representative in the Parliament of India.

• Representing the interests of their constituents in Parliament.

• Participating in debates and voting on legislation.

• Introducing and supporting bills.

• Overseeing the functioning of the government.

• Providing a voice for their constituents on various issues.

• Types: MPs can be members of either the Lok Sabha (lower house) or the Rajya Sabha (upper house).

Additional Information

• Private Secretary to Minister of the Union:

• A key aide to a Minister in the Government of India.

• Assisting the Minister in their official duties.

• Managing their schedule and appointments.

• Drafting official correspondence and speeches.

• Handling administrative tasks and coordinating with other government officials.

• Providing confidential and political advice to the Minister.

• Cabinet Secretary:

• The most senior civil servant in the Government of India.

• Head of the Civil Services of the Union.

• Advises the Prime Minister and the Cabinet on various matters.

• Coordinates the work of different ministries and departments.

• Ensures the effective implementation of government policies.

• Plays a crucial role in maintaining good governance and administrative efficiency.

• Vice-Chancellor of a University:

• The chief academic and administrative officer of a university.

• Providing academic and administrative leadership to the university.

• Maintaining the quality of teaching, research, and academic standards.

• Managing the university's budget and resources.

• Representing the university to the public and other institutions.

• Promoting the overall growth and development of the university.

Q35. Answer: (c) Rs. 1,080

Given:

Capital of A = Rs. 12,000

Capital of B = Rs. 18,000

Total Profit = Rs. 1,800

Formula Used:

Profit Share of a Partner = (Capital of the Partner / Total Capital) × Total Profit

Calculation:

Total Capital = 12,000 + 18,000 = 30,000

Profit Share of B = (Capital of B / Total Capital) × Total Profit

Profit Share of B = (18,000 / 30,000) × 1,800
Profit Share of B = 3/5 × 1,800
Profit Share of B = 3 × 360
Profit Share of B = 1,080
The profit share of B is Rs. 1,080.

Q36. Answer: (b) 2020

Given:
(2020/2000)-2008 × (2020/2000)2008 × 2020
Formula Used:
am × an = am + n
Calculation:
Combine the powers of (2020/2000):
(2020/2000)-2008 × (2020/2000)2008 = (2020/2000)-2008 + 2008
(2020/2000)0 = 1
Now multiply the result by 2020:
1 × 2020 = 2020
The value of the expression is 2020.

Q37. Answer: (c) Scanners

The correct answer is Scanners.
Key Points
• Scanners:
• An input device that captures images or text from a physical source and converts them into digital data that a computer can understand.
• Types of Scanners:
• Flatbed Scanners: Scan documents, photos, and other flat objects.
• Sheetfed Scanners: Designed for scanning multiple sheets of paper automatically.
• Handheld Scanners: Small and portable, used to scan small items or parts of larger documents.
• Uses:
• Image Capture: Scanning photos, documents, and artwork.
• Data Entry: Digitizing printed text, barcodes, and other data.
• Image Editing: Creating digital images for editing and manipulation.
Additional Information
• VDU (Visual Display Unit):
• An older term for a computer display device, typically referring to a monitor.
• Function: Displays visual output from the computer, such as text, images, and videos.
• Types VDU (Visual Display Unit):
• CRT Monitors: Older technology using cathode ray tubes.
• LCD Monitors: More modern and energy-efficient, using liquid crystal displays.
• LED Monitors: Utilize light-emitting diodes for backlighting, offering improved color accuracy and energy efficiency.
• Plotters:
• A specialized output device used to create high-quality vector graphics on paper.
• Function: Primarily used for producing architectural drawings, engineering blueprints, and other technical illustrations.
• Types of Plotters:
• Pen Plotters: Use pens to draw lines on paper.
• Electrostatic Plotters: Use electrical charges to create images on specially coated paper.
• Speech Synthesizer:
• A technology that converts text into spoken language.
• Accessibility: Enables people with visual impairments to access information.
• Communication: Used in various applications like voice assistants, navigation systems, and educational software.
• Entertainment: Employed in video games, audiobooks, and interactive storytelling.

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• Text-to-Speech (TTS): Uses algorithms to convert text into a sequence of sounds.

• Concatenative Synthesis: Joins together pre-recorded speech units to form words and sentences.

Q38. Answer: (a) distributive property

Given:

Equation: 42 × (4 + 2) = (42 × 4) + (42 × 2)

Formula Used:

Distributive Property: a × (b + c) = (a × b) + (a × c)

Calculation:

We need to verify that the given equation follows the distributive property.

42 × (4 + 2)

=> 42 × 6

=> 252

(42 × 4) + (42 × 2)

=> 168 + 84

=> 252

Both sides of the equation are equal, confirming that it follows the distributive property.

The correct answer is option 1: distributive property.

Q39. Answer: (b) 1919

The correct answer is 1919.

Key Points

• International Labour Organization (ILO) - 1919

• The ILO has 187 member states and is headquartered in Geneva, Switzerland.

• A specialized agency of the United Nations (UN) dedicated to improving labour conditions and living standards throughout the world.

• Established by the Treaty of Versailles, the ILO became the first affiliated specialized agency of the United Nations in 1946.

• ILO was awarded the Nobel Prize for Peace in 1969.

• The Functions of the ILO include the development and promotion of standards for national legislation to protect and improve working conditions and standards of living.

• The ILO also provides technical assistance in social policy and administration and in workforce training; compiles labour statistics and conducts research on the social problems of international competition, unemployment and underemployment; and helps to protect the rights of international migrants and organized labour

Q40. Answer: (c) DRDO

The correct answer is DRDO.

Key Points

• DRDO

• DRDO is a military research and development wing of the Ministry of Defence, headquarters in New Delhi, India.

• It was founded in 1958.

• It has the vision to empower India with cutting-edge defence technologies and a mission to achieve self-reliance in critical defence technologies and systems.

• DRDO has developed an antibody detection-based kit called DIPCOVAN.

Additional Information

• TIFR

• The Tata Institute of Fundamental Research (TIFR), located in Mumbai, is a premier institution in India dedicated to research in the fields of natural sciences, mathematics, and theoretical computer science.

• Founded in 1945 by the visionary industrialist J.R.D. Tata, at the behest of the scientific luminary Dr. Homi J. Bhabha, TIFR stands as a testament to India’s commitment to advancing the frontiers of science and technology.

• Mumbai, being India's financial and research hub, offers an ideal backdrop for TIFR, facilitating collaboration with other research institutions and industries.

• The institute's main campus in Mumbai is pivotal for groundbreaking research and development in fundamental sciences.

• UCIL

• UCIL is associated with Nuclear Power generation.

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• The Uranium Corporation of India Limited is abbreviated as UCIL.

• It is a Public Sector Enterprise, incorporated on 4 October 1967 and is under the Department of Atomic Energy.

• It plays a significant role in Nuclear Power Generation by fulfilling the requirement of Uranium for the Pressurized Heavy Water Reactors.

• Uranium is the raw material for the nuclear reactors.

• The company operates 6 underground mines, 1 open-pit mine, and 2 process plants in the state of Jharkhand.

• It also has 1 underground mine and 1 process plant in Andhra Pradesh.

• The company will set up new mines in Karnataka, Telangana, and Meghalaya.

• CISF is the Central Industrial Security Force that provides security to industrial units, sensitive governmental buildings, the Delhi metro, and airports.

• IITM, the Indian Institute of Tropical Meteorology based in Pune, work towards the expansion of research in the tropical Indian Ocean, of the tropics in general with special reference to monsoon meteorology, and air-sea interaction of Indian monsoon.

• ECI is the Electronics Corporation of India and was established in the year 1967 with an aim to create a strong indigenous base in electronics. It is in Hyderabad.

• BARC

• Bhabha Atomic Research Center is the full form of BARC.

• BARC is India's premier nuclear research facility headquartered in Trombay, Mumbai, Maharashtra.

• It is a multi-disciplinary research center with extensive infrastructure for advanced research and development in nuclear science, engineering, and related areas.

• The center is named after Dr. Homi J. Bhabha, who is considered the father of the Indian nuclear program.

• Dr. Homi J. Bhabha established the Tata Institute of Fundamental Research (TIFR) in 1945 and later the Atomic Energy Establishment, Trombay (AEET) in 1954, which was renamed BARC in 1966 after his demise.

• BARC plays a crucial role in India's nuclear power generation, isotope production, and radiation technology applications.

• The center also conducts research in areas such as high-energy physics, plasma physics, material science, and environmental science.

• BARC operates under the Department of Atomic Energy (DAE), Government of India.

Q41. Answer: (a) 48

Logic followed here is:

Hence, the correct "Option 1".

Q42. Answer: (b) Skin

The logic followed here is:

Bones	Connective tissues
Cartilage	Connective tissues
Skin	Epithelial tissue
Ligaments	Connective tissues

Bones, Cartilage, Ligaments all are types of connective tissues,

Whereas,

Skin is a type of epithelial tissue.

Hence, the correct answer is "Skin".

Q43. Answer: (d) 30°

Given:

$\sqrt{3} \tan 2\theta - 3 = 0$

Formula used:

$\tan 2\theta$ = Opposite Side/Adjacent Side

Calculation:

$\sqrt{3} \tan 2\theta = 3$

$\tan 2\theta = 3/\sqrt{3} = \sqrt{3}$

We know that $\tan 60° = \sqrt{3}$, so:

$2\theta = 60°$

θ = (60°)/2 = 30°

Therefore The value of θ is 30°.

Q44. Answer: (a) Rate of interest charged by a central bank on its loans to a commercial bank

The correct answer is Rate of interest charged by a central bank on its loans to a commercial bank.

Key Points

• A bank rate is the rate of interest charged by a country's central bank to its domestic banks when they borrow money.

• In India, the Reserve Bank of India determines the bank rate

• The interest rates charged by central banks are designed to keep the economy stable.

• The bank rate is called by a variety of names depending on the country, and it has changed through time in various countries as the rate-setting procedures have evolved.

Additional Information

• The bank rate, also known as the discount rate, is set by the Board of Governors of the Federal Reserve System in the United States.

• When a bank runs out of funds, it can typically borrow from the central bank, depending on the monetary policy of the country.

• The interest rate charged by a country's central or federal bank on loans and advances regulates the economy's and banking sector's money supply.

• The Reserve Bank of India also offers clients short-term loans (with collateral) at a rate known as the repo rate.

Q45. Answer: (c) 3200 m2

Given:

Dimensions of the rectangular field: 100 m and 80 m

Width of the path: 10 m

Formula Used:

Area of path = Area of outer rectangle - Area of inner rectangle

Calculation:

Dimensions of the inner rectangle

Length = 100 - 2×10 = 80 m

Breadth = 80 - 2×10 = 60 m

Area of the inner rectangle = 80 m × 60 m

Area of the inner rectangle = 4800 m²

Area of the outer rectangle (original field) = 100 m × 80 m

Area of the outer rectangle = 8000 m²

Area of the path = Area of outer rectangle - Area of inner rectangle

=> Area of the path = 8000 m² - 4800 m²

=> Area of the path = 3200 m²

The area of the path is 3200 m².

Q46. Answer: (b) Formulating the controlling procedures to ensure safety in the food industry

The correct answer is Formulating the controlling procedures to ensure safety in the food industry.

Key Points

• Bureau of Indian Standards (BIS) is the National Standard Body of India.

• BIS is responsible for the harmonious development of the activities of standardization, marking, and quality certification of goods and for matters connected therewith or incidental thereto.

• The activities of BIS can be broadly grouped under the following heads:

• Standards formulation

• International activities

• Product Certification

• Hallmarking

• Laboratory services

• Training services - National Institute of Training for Standardisation

• Consumer Affairs and Publicity

Additional Information

• The Bureau of Indian Standards is working under the aegis of the Ministry of Consumer Affairs, Food & Public Distribution, Government of India.

• It is established by the Bureau of Indian Standards Act, 1986 which came into effect on 23rd December 1986.

• BIS has its Headquarters in New Delhi.

Q47. Answer: (c) Homi Jehangir Bhabha

The correct answer is Homi Jehangir Bhabha.

Key Points

• India's three-stage nuclear power program is a long-term strategy aimed at ensuring the country's energy security and minimizing its reliance on fossil fuels. Conceived by renowned physicist Homi J. Bhabha in the 1950s, this program leverages India's abundant thorium reserves while addressing its limited uranium resources.

• Stage 1: This stage utilizes Pressurized Heavy Water Reactors (PHWRs), which employ natural uranium as fuel. These reactors produce plutonium-239 as a byproduct.

• Stage 2: Fast Breeder Reactors (FBRs) come into play in this stage. They utilize plutonium-239 as fuel and breed more plutonium while generating electricity. This stage is crucial as it aims to produce sufficient plutonium-239 for the subsequent stage.

• Stage 3: This stage involves the development of Advanced Heavy Water Reactors (AHWRs) or Accelerator Driven Systems (ADS). These reactors will utilize thorium-232 as fuel, which is abundant in India. Thorium-232, when bombarded with neutrons, transforms into uranium-233, a fissile material suitable for nuclear power generation.

• The three-stage program is designed to be self-sustaining, with each stage providing the necessary fuel for the next. It offers several advantages, including:

• Reduced reliance on uranium imports: By utilizing thorium, India can minimize its dependence on uranium imports, enhancing its energy security.

• Enhanced energy independence: The program aims to make India self-sufficient in nuclear fuel, reducing its vulnerability to international market fluctuations.

• Sustainable energy source: Nuclear power is a low-carbon energy source, contributing to India's efforts to combat climate change.

• Technological advancement: The program drives advancements in nuclear technology, fostering innovation and scientific progress.

• While the three-stage program holds significant promise, it faces several challenges, including technological hurdles in developing and deploying FBRs and AHWRs, ensuring nuclear safety and non-proliferation, and addressing environmental concerns associated with nuclear waste disposal.

Additional Information

• Homi Jehangir Bhabha, an Indian nuclear physicist, founded India's nuclear program in 1944.

• At that time, Bhabha was working at the Indian Institute of Science in Bangalore, but he was already thinking about the potential for nuclear energy to transform India's economy and improve its standing in the world.

• Bhabha believed that India needed to develop its own nuclear technology, rather than relying on other countries for assistance or supplies.

• To pursue this goal, Bhabha established the Tata Institute of Fundamental Research (TIFR) in Mumbai, which would serve as the centre for India's nuclear research and development.

• The TIFR quickly became a hub for scientific innovation, with Bhabha bringing in talented researchers from around the world to collaborate on cutting-edge projects.

• One of the key projects at the TIFR was the development of India's first nuclear reactor, Apsara. Apsara was a research reactor, designed to produce neutrons for scientific experiments rather than electricity.

• However, its successful operation marked a major milestone for India's nuclear program and demonstrated that the country had the expertise and resources to develop advanced nuclear technology.

Q48. Answer: (b) 9 : 10

Given:

A's capital = Rs. 15000

B's capital = Rs. 20000 (joined after 2 months)

Formula Used:

Profit sharing ratio = (Capital of A × Time for A) : (Capital of B × Time for B)

Calculation:

Time for A = 12 months

Time for B = 12 - 2 = 10 months

Capital of A = 15000

Capital of B = 20000
Profit sharing ratio = (15000 × 12) : (20000 × 10)
=> 180000 : 200000
=> 9 : 10
The ratio in which the profit at the end of the year is divided between A and B is 9:10.

Q49. Answer: (c) 100

Shortcut Trick
Convert Total Area to cm^2: 9.375 × 100 × 100 = 93,750 cm^2.
Surface Area of one brick = 2(lb + bh + hl) = 2(225 + 75 + 168.75) = 937.5 cm^2.
Number of bricks = Total Area ÷ Area of one brick = 93,750 ÷ 937.5 = 100.
Therefore The correct answer is 100 bricks.
Alternate Method
Given:
Total Paintable Area = 9.375 m^2
Brick Dimensions: Length (l) = 22.5 cm, Breadth (b) = 10 cm, Height (h) = 7.5 cm
Formula Used: Total Surface Area of a Cuboid = 2(lb + bh + hl)
Calculations:
=> Surface Area of 1 brick = 2 × (22.5 × 10 + 10 × 7.5 + 7.5 × 22.5)
=> Surface Area of 1 brick = 2 × (225 + 75 + 168.75) = 2 × 468.75
=> Surface Area of 1 brick = 937.5 cm^2
=> Convert Total Area to cm^2: 9.375 × 10,000 = 93,750 cm^2
=> Number of bricks = 93,750 ÷ 937.5 = 100
Therefore The correct answer is 100 bricks.
Additional Information
Cuboid Properties
The Lateral Surface Area of a cuboid is 2h(l + b) and the Volume is l × b × h.
Unit Conversion
To convert m^2 to cm^2, multiply by 10,000 (since 1m = 100cm, $1m^2$ = 100 × 100 cm^2).
Total Surface Area
For a cube with side 'a', the Total Surface Area is $6a^2$.

Q50. Answer: (d) Niagara Falls

The correct answer is Niagara Falls.
Key Points
• Lakes in North America
• The Lakes of the Canadian Shield are freshwater bodies.
• The Great Salt Lake between the Rockies and the Sierra Nevada has a high salt content and is an area of ‘Inland drainage’.
• Lake Erie in Ontario, Canada, and Michigan, New York, Ohio, Pennsylvania in the USA.
• Lake Huron in Ontario, Canada, and Michigan in the USA.
• Lake Ontario in Ontario, and New York in the USA.
• Lake St Clair in Ontario, and Michigan in the USA.
• Lake Superior in Michigan, Minnesota, Wisconsin in the USA.
• Additional Information
• Importance of great lakes region
• Glacial lakes
• The largest freshwater system.
• Together – they hold 1/5th of the earth surface’s freshwater.
• Source of drinking water, irrigation, transport, sulfide, and iron mining in the periphery.

Q51. Answer: (b) prime

Given:
The LCM of p and q is pq.

Formula Used:

If the Least Common Multiple (LCM) of two numbers p and q is equal to their product (pq), then both numbers must be prime.

Calculation:

We know:

LCM(p, q) = p × q

For this to hold true, the two numbers p and q must be prime numbers.

Prime numbers have no other divisors than 1 and themselves.

For example, if p = 2 and q = 3:

LCM(2, 3) = 2 × 3 = 6

Thus, if the LCM of two numbers is equal to their product, those numbers must be prime.

The correct answer is option 2.

Q52. Answer: (a) Watch - Clock

The logic followed here is:

Logic: Part-to-whole relationship, whereas Watch - Clock involves tools with similar functionality

Option 1) Watch - Clock: Both are timekeeping devices

Option 2) Milk - Tea: Tea is made using milk as one of its ingredients showing a raw material to finished product

Option 3) Ice - Water: Ice is used to make Water, showing a raw material to finished product

Option 4) Cloth - Apparel: Cloth is used to make apparel, showing a raw material to finished product

Hence, the correct answer is "Option 1".

Q53. Answer: (d) Lake Manasarovar

The correct answer is Lake Manasarovar.

Key Points

• The Brahmaputra is one of the major rivers in the Himalayan river system.

• It originates from the Chemayundung glacier near Manasarover lake in Tibet.

• The Brahmaputra is also called the "Red River".

• National Waterway 2 (NW2) is on the Brahmaputra river.

• In Bangladesh, Brahmaputra is known by the name Jamuna.

• The Yarlung Tsangpo is the Tibetan name for the upper course of Brahmaputra.

• In Arunachal Pradesh, Brahmaputra is known by the name Dihang.

• Most of its course lies outside India.

• It flows through countries such as India, China, and Bangladesh.

• The major tributaries of the Brahmaputra river are Tista, Lohit, Subansiri etc.

• The Brahmaputra is the Indian river that occupies the maximum volume of water.

• The river Brahmaputra empties into the Bay of Bengal.

Additional Information

• Gaumukh: This is the snout of the Gangotri Glacier, considered the source of the Bhagirathi River, one of the headstreams of the Ganges. It's a significant pilgrimage site for Hindus.

• Lake Manasarovar: A large freshwater lake located in the Ngari Prefecture of Tibet Autonomous Region, China. It's revered in Hinduism, Buddhism, Jainism, and Bon. It's often visited along with Mount Kailash, another sacred site.

• Gangotri: A town in Uttarakhand, India, located near the source of the Ganges River. It's a popular Hindu pilgrimage destination and a base for treks to Gaumukh and other Himalayan peaks.

• Tso Lhamo Lake: Also known as Lake Rakshastal, it's a high-altitude lake located in the Ngari Prefecture of Tibet Autonomous Region, China. It's considered a sacred lake in Tibetan Buddhism.

Q54. Answer: (c) Wednesday

Given: 31 December 2015 was Thursday.

Now,

2015 to 2020 = 5 Years (4 Ordinary Years and 1 Leap Year).

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

So, 1 Leap Year has 2 odd days,

And, 4 Ordinary Years have 4 odd days.

Total odd days = 2 + 4 = 6.

6 odd days → 6/7 = 0 week and 6 odd days.

then, 31 December 2020 will be Thursday + 6 = Wednesday.

Now, the number of days between 31 December 2019 to 1 July 2020

= 31(Jan) + 29(Feb, leap year) + 31(Mar) + 30(Apr) + 31(May) + 30(Jun) + 1(Jul) = 183 days.

= 183 days → 183/7 = 26 weeks and 1 odd day.

So, 1 July 2020 will be Wednesday + 1 = Thursday.

Hence, the correct answer is "Option 3".

Q55. Answer: (b) Manipuri

The correct answer is Manipuri.

Key Points

• Manipuri Dance

• The Manipuri Dance also referred to as the Manipuri Raas Leela, is one of the eight major Indian classical dance forms, originating in the state of Manipur.

• Manipuri is one of the six classical dance forms of India, the others being Bharata Natyam, Kathak, Kathakali, Kuchipudi and Odissi.

• It is indigenous to Manipur and is characterized by a variety of forms that are associated with folk tradition and ritual.

• Varieties of Manipuri Dance Styles:

• Raas

• Nata-Sankirtan

• Pung Cholam (Dancers play the pung/drum while dancing)

• Dhola Cholam

• Kartal Cholam

• Thang ta (martial art form)

Additional Information

• Kathak:

• Kathak is one of the eight major forms of Indian classical dance.

• It is the classical dance form of Uttar Pradesh.

• The origin of Kathak is traditionally attributed to the travelling bards in ancient northern India known as Kathakars or storytellers.

• Odissi

• Odissi is one of the classical dance forms of India which originated in the state of Odisha.

• It is known for its unique style and grace, characterized by its fluid movements and intricate gestures.

• The dance form is deeply rooted in the culture and traditions of Odisha and is often performed in temples as a form of worship.

• Odissi dance has a rich history and has been mentioned in ancient texts such as the Natyashastra.

• The dance form is traditionally performed by women, but in modern times, it has also been performed by men.

• Kathakali

• Kathakali is a classical dance form that originates from Kerala, a state in the southern part of India.

• It is distinguished by its vibrant costumes, elaborate makeup, and face masks that the performers wear.

• Kathakali translates to "Story-Play" and is known for its intricate storytelling, detailed gestures, and expressive eye movements.

• The dance form combines dance, music, drama, and literature into a composite art form, making it unique and complex.

• Themes of Kathakali are mostly taken from the Indian epics like Mahabharata, Ramayana, and other ancient scriptures.

• It is performed exclusively by men and involves rigorous physical training to master the art form.

• The music used in Kathakali is called Sopanam and is sung in the Malayalam language.

Q56. Answer: (c) F = ma

The correct answer is F = ma.

Key Points

• Force

• A force is a push or pull upon an object resulting from its interaction with another object. Forces can cause objects to accelerate, decelerate, remain in place, or change shape.

• Forces are vector quantities, meaning they have both magnitude and direction.

• Forces can be categorized into contact forces (e.g., friction, tension) and action-at-a-distance forces (e.g., gravitational,

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electromagnetic).

• Net Force

• The net force is the vector sum of all the forces acting on an object.

• It determines the overall effect of all the forces on the motion of the object.

• According to Newton's Second Law of Motion, the net force acting on an object is equal to the mass of the object multiplied by its acceleration (F = ma).

• Newton's Laws of Motion

• First Law (Law of Inertia): An object will remain at rest or in uniform motion in a straight line unless acted upon by a net external force.

• Second Law (Law of Acceleration): The acceleration of an object is directly proportional to the net force acting on it and inversely proportional to its mass (F = ma).

• Third Law (Action and Reaction): For every action, there is an equal and opposite reaction.

• Equilibrium

• An object is in equilibrium when the net force acting on it is zero.

• In equilibrium, an object at rest stays at rest, and an object in motion continues to move at a constant velocity.

• Equilibrium can be static (object at rest) or dynamic (object moving with constant velocity).

Additional Information

• When two forces act in opposite directions on an object, the net force is the difference between the two forces.

• The direction of the net force is in the direction of the larger force.

• If the forces are equal in magnitude but opposite in direction, they cancel each other out, resulting in a net force of zero.

• The concept of net force is crucial in understanding how forces influence the motion of objects according to Newton's Laws of Motion.

Q57. Answer: (b) 4

Given:

P represents people using the ATM,

Q represents people using Net Banking,

and R represents people visiting the bank for making transactions.

According to the venn diagram:

The shaded area shows the represent people using both ATM and Net Banking but NOT visiting the bank for making transactions.

So, people using both ATM and Net Banking but NOT visiting the bank for making transactions is "4".

Hence, the correct answer is "Option 2".

Q58. Answer: (a) LPG connection

The correct answer is LPG connection.

Key Points

• Pradhan Mantri Ujjwala Yojana was launched in May 2016.

• Pradhan Mantri Ujjwala Yojana was launched by Prime Minister of India Narendra Modi on 1 May 2016.

• it is implemented by the Ministry of Petroleum and Natural Gas through its Oil Marketing Companies.

• The government aims to provide LPG connections to BPL households in the country.

• The scheme is aimed at replacing the unclean cooking fuels mostly used in rural India with clean and more efficient LPG.

Additional Information

• Pradhan Mantri Jan Dhan Yojana:

• Pradhan Mantri Jan Dhan Yojana is a financial inclusion program of the Government of India open to Indian citizens.

• This yojana aims to expand affordable access to financial services such as bank accounts, remittances, credit, insurance, and pensions.

• Pradhan Mantri Awas Yojana:

• Pradhan Mantri Awas Yojana is an initiative by the Government of India in which affordable housing will be provided to the urban poor with a target of building 20 million affordable houses by 31 March 2022.

• Pradhan Mantri Suraksha Bima Yojana:

• Pradhan Mantri Suraksha Bima Yojana is a government-backed accident insurance scheme in India.

• It was originally mentioned in the 2015 Budget speech by Finance Minister Late Arun Jaitley in February 2015.

• It was formally launched by Prime Minister Narendra Modi on 8 May in Kolkata.

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Q59. Answer: (b) Rs. 48,000

Given:

Total investment by A, B, and C = Rs. 1,44,000

Profit ratio of A, B, and C = 3 : 4 : 5

Formula Used:

Investment of B = (B's ratio / Sum of ratios) × Total investment

Calculation:

Sum of ratios = 3 + 4 + 5

Sum of ratios = 12

Investment of B = (4 / 12) × 1,44,000

Investment of B = (1 / 3) × 1,44,000

Investment of B = 1,44,000 / 3

Investment of B = 48,000

B's investment will be Rs. 48,000.

Q60. Answer: (d) 1440°

The sum of all angles of all triangles in the given figure:

Total number of triangle is: 8.

The sum of triangle is 180°.

The sum of all triangle = 8 × 180° = 1440°.

Hence, the correct answer is "Option 4".

Q61. Answer: (d) MS Office

The correct answer is MS Office.

Key Points

• Operating System

• An Operating System (OS) is an interface between a computer user and computer hardware.

• Some popular Operating Systems include Linux Operating System, VMS, OS/400, AIX, z/OS, Apple macOS, Unix Operating System, Microsoft Windows, Google's Android OS, Linux Operating System, and Apple iOS.

• Apple macOS is found on Apple personal computers such as the Apple Macbook, Apple Macbook Pro, and Apple Macbook Air.

• UNIX is an operating system that was first developed in the 1960s and has been under constant development ever since.

• By operating system, we mean the suite of programs that make the computer work.

• It is a stable, multi-user, multi-tasking system for servers, desktops, and laptops.

Additional Information

• Linux:

• An open-source operating system (OS).

• Known for its stability, security, and flexibility.

• Widely used in servers, supercomputers, and embedded systems.

• Offers a vast range of distributions (like Ubuntu, Fedora, Debian) tailored for different needs.

• Free to use, modify, and distribute.

Additional Information

• UNIX:

• A powerful and versatile operating system that serves as the foundation for many modern systems, including Linux.

• Known for its multi-user and multitasking capabilities.

• Widely used in servers, workstations, and high-performance computing.

• Typically found in academic, research, and enterprise environments.

• Windows:

• A popular commercial operating system developed by Microsoft.

• Known for its user-friendly interface and wide software compatibility.

• Dominates the personal computer market.

• Available in various versions for desktops, laptops, tablets, and servers.

• MS Office:

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• A suite of productivity applications developed by Microsoft.

• Includes popular programs like Word (word processing), Excel (spreadsheet), PowerPoint (presentations), and Outlook (email).

• Widely used in businesses, education, and personal use.

• Offers a range of features for creating, editing, and sharing documents.

Q62. Answer: (a) 104

The correct answer is 104.

Key Points

• In 2017, ISRO made history by launching a record-breaking 104 satellites into orbit on a single rocket, the PSLV-C37.

• This remarkable feat surpassed the previous record of 37 satellites launched by Russia in 2014.

• The mission, launched from the Satish Dhawan Space Centre in Sriharikota, Andhra Pradesh, showcased India's advanced space capabilities and its growing prominence in the global space industry.

• The PSLV-C37 carried a diverse payload, including the primary satellite, Cartosat-2 series, an Earth observation satellite, along with 103 co-passenger satellites from various countries, including the United States, Canada, Germany, the United Arab Emirates, Israel, Kazakhstan, the Netherlands, Switzerland, and Spain.

• This mission demonstrated ISRO's ability to accommodate multiple customer payloads on a single launch vehicle, opening new avenues for commercial space activities.

• The successful deployment of 104 satellites in a single mission was a testament to ISRO's meticulous planning, precise engineering, and rigorous testing.

• It highlighted the reliability and versatility of the PSLV rocket, which has become a workhorse for ISRO's space missions.

• This achievement not only boosted India's image as a major player in the global space arena but also underscored the country's commitment to advancing space technology and exploring the vast frontiers of space.

Additional Information

• ISRO

• ISRO is an important body in India and spearheads research in space science in India, also playing a huge role in the development of the country through educational, agricultural, communication, and defence sector projects.

• ISRO or Indian Space Research Organisation is India’s space agency founded in 1969 to help develop an indigenous Indian space program.

• It is one of the 6 largest space agencies in the world today.

• The headquarter of ISRO is located at Bangalore.

• ISRO maintains one of the biggest fleets of remote sensing (IRS) and communication (INSAT) satellites catering to the needs of the nation through a network of centres, offices, and research institutes in different parts of the country.

• ISRO functions in the following areas:

• broadcasting

• weather forecasting

• disaster management

• geographic information systems

• navigation

• cartography (maps)

• telemedicine

• distance education satellites etc.

The headquarter of ISRO is located at Bangalore.

Q63. Answer: (b) 11 2/3

Given:

Time taken by A to complete the task alone = 60 days.

Time taken by B to complete the task alone = 40 days.

Time taken by C to complete the task alone = 30 days.

Formula Used:

Work done by A in 1 day = 1/60

Work done by B in 1 day = 1/40

Work done by C in 1 day = 1/30

Total Work done = 1

Calculation:

Work done by A and B in 1 day = 1/60 + 1/40
=> (1/60) + (1/40) = (2/120) + (3/120) = (5/120) = (1/24)
Work done by A and B in 3 days = 3 × (1/24) = 1/8
Remaining work = 1 - 1/8 = 7/8
Work done by A, B, and C in 1 day = 1/60 + 1/40 + 1/30
=> (1/60) + (1/40) + (1/30) = (2/120) + (3/120) + (4/120) = (9/120) = (3/40)
Number of days taken by A, B, and C to complete the remaining work = (7/8) / (3/40)
=> (7/8) × (40/3) = (280/24) = (35/3) = 11 (2/3)
The number of days taken to complete the task with C will be 11 2/3 days.
Alternate Method
LCM of 60, 40, and 30 = 120 (Total work = 120 units)
Work done per day by A = 120 / 60 = 2 units
Work done per day by B = 120 / 40 = 3 units
Work done per day by C = 120 / 30 = 4 units
Work done by A and B in 3 days = (2 + 3) × 3 = 15 units
Remaining work = 120 - 15 = 105 units
Work done per day by A, B, and C together = 2 + 3 + 4 = 9 units
Time required to complete 105 units = 105 / 9 = 112/3 days
The number of days taken to complete the task with C will be 11 2/3 days.

Q64. Answer: (b) Bhimbetka

The correct answer is Bhimbetka.
Key Points
• Bhimbetka Caves:
• These are a group of more than 750 rock shelters in the state of Madhya Pradesh.
• They are known for their ancient rock paintings, which provide insights into the lives of early humans in India.
• The paintings depict hunting scenes, animals, and religious motifs.
Additional Information
• Nalanda Caves:
• Located in the state of Bihar, these caves are associated with the ancient Nalanda University, a renowned center of learning.
• The caves were used by Buddhist monks as places of meditation and study.
• Bagh Caves:
• Situated in the state of Madhya Pradesh, these caves are famous for their intricate mural paintings.
• The paintings depict scenes from Buddhist mythology and are considered to be some of the finest examples of ancient Indian art.
• Elephanta Caves:
• These are a group of cave temples dedicated to the Hindu god Shiva, located on an island off the coast of Mumbai.
• The caves are known for their impressive sculptures, including a large tri-headed statue of Shiva.

Q65. Answer: (c) 0

Calculation:
The first five whole numbers are: 0, 1, 2, 3, 4
Product = 0 × 1 × 2 × 3 × 4
Since the product involves 0:
Product = 0
Therefore The product of the first five whole numbers is 0.

Q66. Answer: (a) Fragrance

The logic followed here is:
Logic: Products derived from sources.
Here,
Bees : Honey → Honey is a product derived from Bees.
Similarly,

Flowers : Fragrance → Fragrance is a product derived from Flowers.

Hence, the correct answer is "Option 1".

Q67. Answer: (c) 16/25

Calculation:

Fraction of 1275 that is 816:

Fraction = 816/1275

To simplify:

816/1275 = 16/25 (Divide numerator and denominator by their GCD, which is 51)

Therefore The fraction is 16/25.

Q68. Answer: (c) bryophytes

The correct answer is bryophytes.

Key Points

• Bryophytes:

• These are non-vascular plants, meaning they lack specialized tissues for transporting water and nutrients.

• They are often referred to as "amphibians of the plant kingdom" because they require moist environments to thrive.

• Bryophytes include mosses, liverworts, and hornworts.

• They play a crucial role in ecosystems by helping to retain moisture, prevent soil erosion, and provide habitat for other organisms.

Additional Information

• Tracheophytes:

• These are vascular plants, meaning they have specialized tissues called xylem and phloem that transport water, minerals, and nutrients throughout the plant.

• Tracheophytes include all seed plants (gymnosperms and angiosperms) as well as seedless plants like ferns and horsetails.

• They are the dominant plant life on Earth and are essential for the functioning of many ecosystems.

• Pteridophytes:

• These are vascular plants that reproduce via spores rather than seeds. They include ferns, horsetails, and club mosses.

• Pteridophytes were some of the first plants to colonize land and are an important part of the plant fossil record.

• They are often found in moist, shady environments.

• Gametophytes:

• These are haploid multicellular organisms that produce gametes (sex cells).

• In plants, the gametophyte is the sexual phase of the life cycle, alternating with the sporophyte phase. The gametophyte produces male and female gametes, which unite to form a zygote that develops into a sporophyte.

• In bryophytes, the gametophyte is the dominant phase of the life cycle, while in vascular plants, the sporophyte is the dominant phase.

Q69. Answer: (d) United Kingdom

The correct answer is United Kingdom.

Key Points

• ICC Men's Cricket World Cup 2019 final match was held at Lord's in London.

• Lord's had hosted the Cricket World Cup Final five times, the most of any venue.

• The final match was played between New Zealand and England.

• The final match was conducted on 14 July 2019.

• England defeated New Zealand and lifted the ICC Men's Cricket World Cup 2019.

• It was England's first ICC Men's Cricket World Cup victory in four final appearances.

• It was also the first world cup final since 1992 to have a definite new winner.

• The two teams were tied on the same score at the end of the match, resulting in a Super Over.

• It was the first time a Super Over was necessary for a One Day International final match.

• England won on the boundary count.

• England's all-rounder Ben Stokes was awarded the player of the match.

Additional Information

• Indian cricketer Rohit Sharma became the top scorer in the tournament with 648 runs in nine games.

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• The 2019 Cricket World Cup was hosted by England and Wales.
• England was the third team in a row to win the World Cup in their own country.
• Australia won the ICC World Cup the most number of times(5 times.)

Q70. Answer: (c) Li < Na < K < Rb < Cs

The correct answer is Li < Na < K < Rb < Cs.

Key Points

• Lithium (Li)
• Atomic Number: 3
• Group: 1 (Alkali Metals)
• Period: 2
• Electron Configuration: $1s^2\ 2s^1$
• Characteristics:
• Soft, silvery-white metal
• Reacts vigorously with water
• Used in batteries, ceramics, and pharmaceuticals
• Sodium (Na)
• Atomic Number: 11
• Group: 1 (Alkali Metals)
• Period: 3
• Electron Configuration: $1s^2\ 2s^2\ 2p^6\ 3s^1$
• Characteristics:
• Soft, silvery-white metal
• Reacts vigorously with water
• Essential for human and animal life
• Used in table salt (NaCl) and various industrial processes
• Potassium (K)
• Atomic Number: 19
• Group: 1 (Alkali Metals)
• Period: 4
• Electron Configuration: $1s^2\ 2s^2\ 2p^6\ 3s^2\ 3p^6\ 4s^1$
• Characteristics:
• Soft, silvery-white metal
• Reacts vigorously with water
• Essential for plant and animal life
• Used in fertilizers and various industrial applications
• Rubidium (Rb)
• Atomic Number: 37
• Group: 1 (Alkali Metals)
• Period: 5
• Electron Configuration: $1s^2\ 2s^2\ 2p^6\ 3s^2\ 3p^6\ 4s^2\ 3d^1{}^0\ 4p^6\ 5s^1$
• Characteristics:
• Soft, silvery-white metal
• Reacts vigorously with water
• Used in atomic clocks and certain types of glass
• Cesium (Cs)
• Atomic Number: 55
• Group: 1 (Alkali Metals)
• Period: 6
• Electron Configuration: $1s^2\ 2s^2\ 2p^6\ 3s^2\ 3p^6\ 4s^2\ 3d^1{}^0\ 4p^6\ 5s^2\ 4d^1{}^0\ 5p^6\ 6s^1$
• Characteristics:
• Soft, silvery-gold metal

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• Reacts explosively with water

• Used in atomic clocks and certain types of photoelectric cells

Q71. Answer: (d) 124

Given:

The LCM of 248 and 868 is 1736.

Formula Used:

LCM(a, b) × HCF(a, b) = a × b

Calculation:

Let a = 248 and b = 868.

We know that:

LCM(a, b) × HCF(a, b) = a × b

=> 1736 × HCF(248, 868) = 248 × 868

=> HCF(248, 868) = (248 × 868) / 1736

=> HCF(248, 868) = 215264 / 1736

=> HCF(248, 868) = 124

The HCF of 248 and 868 is 124.

Q72. Answer: (b) PUKG

The logic followed here is:

For, DFJN : EDMJ

Similarly, OWHK : ?

Thus, the OWHK : PUKG.

Hence, the correct answer is "Option 2".

Q73. Answer: (a) Morocco

The correct answer is Morocco.

Key Points

• Ibn Battuta:

• Ibn Battuta was a Moroccan explorer who is known for his extensive travels, which lasted for about 30 years.

• His travelogue, "Rihla," is one of the most important sources of information about the medieval Islamic world.

• During his travels, he visited North Africa, the Horn of Africa, West Africa, Southern Europe, Eastern Europe, the Middle East, the Indian subcontinent, Central Asia, Southeast Asia, and China.

• His appointment as Qazi in Delhi was a notable event in his life, providing valuable insights into the administration and culture of the Tughlaq dynasty.

Additional Information

• In 1334, Muhammad bin Tughlaq appointed Ibn Battuta as the Qazi (judge) of Delhi.

• Ibn Battuta was a Moroccan explorer and traveler, who is known for his extensive travels covering most of the Islamic world and beyond.

• As a Qazi, Ibn Battuta was responsible for administering justice according to Islamic law.

• Ibn Battuta's travelogue, "Rihla" (The Journey), provides a comprehensive account of his travels and experiences, including his time in India.

Q74. Answer: (c) Second Round Table Conference

The correct answer is Second Round Table Conference.

Key Points

Second round table conference:

• In January 1931 to build a favourable atmosphere for talks, the government lifted the ban on the Congress Party and released its leaders from prison.

• On 5 March 1931, the Gandhi-Irwin Pact was signed. As per this pact, Mahatma Gandhi agreed to postpone the Civil-Disobedience Movement and participate in the Second Round Table Conference.

• In September 1931, the Second Round Table Conference was held in London.

• Mahatma Gandhi engaged in the Conference but returned to India misled as no agreement could be reached on the demand for complete independence and the communal question.

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• In January 1932, the Civil-Disobedience Movement was resumed.

• The government reacted to it by arresting Mahatma Gandhi and Sardar Patel and by re-imposing the ban on the Congress party.

Additional Information

Round table conference:

• The three Round Table Conferences of 1930–32 were a set of peace conferences arranged by the British Government and Indian political personalities to review constitutional reforms in India.

• These started in November 1930 and ended in December 1932.

• They were administered as per the recommendation of Jinnah to Viceroy Lord Irwin and Prime Minister Ramsay MacDonald and by the report submitted by the Simon Commission in May 1930.

Q75. Answer: (c) Nuclear plant

The correct answer is Nuclear plant.

Key Points

Kaiga:

• The Kaiga nuclear power plant is located at Kaiga and Mallapur-Virje villages in Uttara Kannada district, approximately 3.5km from Karwar-Illikal SH-6.

• It lies 16km upstream of the Kadra dam on the left bank of the Kali river.

• The plant services India's southern grid and provides power to five states (Karnataka, Andhra Pradesh, Tamil Nadu, Kerala, and Pondicherry).

• The power station currently operates two PHWRs, the second of which (Unit-2) began commercial operations on 16 March 2000.

• The facilities fall under the direction of the Nuclear Power Corporation of India Limited (NPCIL), which operates a total of 14 reactors.

• It consists of two Stations-

• Kaiga Generating Station (KGS) 1 & 2 – Pressurized Heavy Water Reactors (2 x 220 MWe PHWR)

• Kaiga Generating Station (KGS) 3 & 4 – Pressurized Heavy Water Reactors (2 x 220 MWe PHWR)

• Hence Kaiga has four indigenously developed Pressurised Heavy Water Reactors of 220 MW each fuelled by domestic fuel.

• The first unit of the project, meanwhile, set a world record on December 10, 2018, operating uninterrupted for more than 940 days held by Heysham-Unit 2 of the United Kingdom, and in 2019 it has set a new benchmark of 962 days of uninterrupted operation and has now been shut down for maintenance.

Additional Information

(Nuclear Power Plant)	(Located in India)
Tarapur	Maharashtra
Rana Pratap Sagar	Rajasthan
Narora	Uttar Pradesh
Kalpakkam	Tamil Nadu
Kakrapar	Gujarat
Kaiga	Karnataka

Q76. Answer: (d) Guru Shikhar

Given:

1) Satpura - A mountain range in central India.

2) Vindhya - Another mountain range in central India.

3) Aravalli - A mountain range located in western India (Rajasthan).

4) Guru Shikhar - The highest peak of the Aravalli range.

While Satpura, Vindhya, and Aravalli are mountain ranges, Guru Shikhar is a specific peak, not a range.

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

Q77. Answer: (c) 25 March

The correct answer is 25 March.

Key Points

• On March 25, the Banquet of the Incarnation, the International Day of the Unborn Child, is marked.

• The day Remembrance for Abortion Victims was established in Uruguay in 1999 during St. John Paul II's Coronation.

• In 1993, El Salvador became the first country in the world to recognize a "Day of the Freedom to Be Conceived" as an official national holiday.

Additional Information

Dates	Important Days
1 March	Zero Discrimination Day, World Civil Defence Day, Self Injury Awareness Day
3 March	World Wildlife Day, World Hearing Day
4 March	National Safety Day, Employee Appreciation Day, Ramakrishna Jayanti
8 March	International Women's Day
9 March	No Smoking Day (Second Wednesday of March)
10 March	CISF Raising Day
14 March	Pi Day, International Day of Action for Rivers
15 March	World Consumer Rights Day
16 March	National Vaccination Day
18 March	Ordnance Factories Day (India)
20 March	International Day of Happiness, World Sparrow Day
21 March	World Forestry Day, World Down Syndrome Day, World Poetry Day, International Day For The Elimination Of Racial Discrimination, World Puppetry Day
22 March	World Water Day
23 March	World Meteorological Day
24 March	World Tuberculosis (TB) Day
25 March	International Day of the Unborn Child
26 March	Purple Day of Epilepsy
27 March	World Theatre Day

Q78. Answer: (b) 16 cm2

Given:

Altitude of the first triangle = 4 cm

Altitude of the second triangle = 6 cm

Area of the larger triangle = 36 cm²

Formula Used:

For similar triangles, the ratio of their areas is equal to the square of the ratio of their corresponding sides (or altitudes).

Area1 / Area2 = (Altitude1 / Altitude2)²

Calculation:

Let Area1 be the area of the smaller triangle.

Altitude1 = 4 cm

Altitude2 = 6 cm

Area2 = 36 cm²

Area1 / 36 = (4 / 6)²

Simplifying:

Area1 / 36 = (2 / 3)²

Area1 / 36 = 4 / 9

=> Area1 = 36 × 4 / 9

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=> Area1 = 144 / 9

=> Area1 = 16 cm^2

The area of the other triangle is 16 cm^2.

Q79. Answer: (a) 6 months

The correct answer is 6 months.

Key Points

• The Constitution of India mandates that the maximum time gap between two consecutive sessions of Parliament cannot exceed six months.

• This provision ensures that the legislative body remains accountable to the people and that legislative business can be conducted with reasonable frequency.

• Article 85 of the Constitution empowers the President to summon each House of Parliament at such intervals as he or she may think fit, but the maximum gap between two sessions cannot exceed six months.

• This provision serves several important purposes:

• Regular sessions ensure that the government remains accountable to the Parliament and the people.

• Frequent sessions allow for the timely introduction, discussion, and passage of legislation.

• Parliamentary sessions provide a platform for public discourse on important issues and allow for the expression of diverse viewpoints.

• In practice, Parliament typically meets in three sessions each year: the Budget Session, the Monsoon Session, and the Winter Session. However, the exact timing and duration of these sessions may vary depending on various factors.

• The six-month limit on the gap between sessions is a crucial safeguard that ensures the smooth and efficient functioning of the Indian Parliament. It reinforces the principles of parliamentary democracy and upholds the principle of accountability to the people.

Q80. Answer: (d) 57, 91

The logic followed here is:

Logic: Prime numbers.

Except 57 and 91 all others are prime number.

Prime numbers =2, 3, 5, 7, 11, 13, 17, 19, 23, 29, 31, 37, 41, 43, 47, 53, 59, 61, 67, 71, 73, 79, 83, 89 and 97.

Hence, the correct answer is "Option 4".

Q81. Answer: (b) Khajuraho Temple

The correct answer is Khajuraho Temple.

Key Points

• Khajuraho Temple

• The Khajuraho Group of Monuments is a group of Hindu temples and Jain temples in the Chhatarpur district, Madhya Pradesh.

• They are a UNESCO World Heritage Site.

• The temples are famous for their nagara-style architecture.

• The city of the temples is famous for the Khajuraho Temples built with folded stones all over the world.

• This city was the first capital of the Chandel empire.

• The Chandel Dynasty and the founder of Khajuraho were Chandravarman.

Additional Information

• Konark Sun Temple:

• It is situated at Konark in Odisha.

• It is a UNESCO World Heritage Site.

• It is dedicated to the sun god, Surya, the first rays of the sun fall on the entrance of the temple.

• It was built in the 13th century and was built by King Narasimhadeva I.

• This temple also is known as the "Black Pagoda".

• Ellora Cave Temple

• The Kailash temple at Ellora is an example of the Rock-cut temple.

• It is one of the largest rock-cut ancient Hindu temples in India, made up of a large single rock in Maharashtra.

• The Kailash Temple is the sixteenth cave, and it is one of the 32 cave temples and monasteries forming the magnanimous Ellora Caves.

• As per the historical records, it was built by the 8th century Rashtrakuta King Krishna I (756-773 AD).

• Mahabalipuram Temple

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• The Shore Temple at Mahabalipuram is an example of the Dravidian school of temple architecture:
• The Shore Temple is a prime example of the Dravidian style, which was popular during the Pallava Dynasty.
• It's considered one of the earliest examples of Dravidian architecture.
• The Shore Temple is a symbol of religious harmony, as it has sacred spaces dedicated to both Shiva and Vishnu.
• It was also an important symbol of Pallava's political and economic strength.
• The Shore Temple demonstrates the progression from rock-cut structures to free-standing structural temples.
• The Shore Temple's architecture has inspired temples across South India constructed in the Dravidian style.

Q82. Answer: (c) Spreadsheet software

The correct answer is Spreadsheet software.

Key Points

• A spreadsheet is a computer application for computation, organization, analysis and storage of data in tabular form.
• They were developed as computerized analogs of paper accounting worksheets.
• Besides performing basic arithmetic and mathematical functions, modern spreadsheets provide built-in functions for common financial accountancy and statistical operations.

Additional Information

• Notable current spreadsheet software:
• Microsoft Excel
• Apache OpenOffice Calc is a free and open-source.
• Calligra Sheets (formerly KCalc)
• Collabora Online Calc for mobile and desktop apps are free, open-source, cross-platform enterprise-ready editions of LibreOffice.
• Corel Quattro Pro (WordPerfect Office)
• Gnumeric is free and cross-platform, it is part of the GNOME Free Software Desktop Project.
• Kingsoft Spreadsheets
• LibreOffice Calc is free, open-source and cross platform.
• NeoOffice
• Numbers is Apple Inc.'s spreadsheet software, part of iWork.
• PlanMaker (SoftMaker Office)
• Pyspread

Q83. Answer: (b) 4

Given:

130 leaves a remainder of 2, so it divides 130 - 2 = 128

305 leaves a remainder of 1, so it divides 305 - 1 = 304

245 leaves a remainder of 1, so it divides 245 - 1 = 244

Formula Used:

The required number is the Greatest Common Divisor (GCD) of the adjusted numbers.

Calculations:

Find the GCD of 128, 304, and 244:

Prime factorization of 128: 128 = 2^7

Prime factorization of 304: 304 = 2^4 × 19

Prime factorization of 244: 244 = 2^2 × 61

Common factor: 2^2 = 4

The greatest number that divides 130, 305, and 245 leaving remainders 2, 1, and 1 respectively is 4.

Q84. Answer: (d) Chief Justice of India

The correct answer is Chief Justice of India.

Key Points

Duties and responsibilities of the President of India

• The President is responsible for implementing and enforcing the laws written by Congress and, to that end, appoints the heads of the federal agencies, including the Cabinet. The Vice President is also part of the Executive Branch, ready to assume the Presidency should the need arise.

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• These roles are (1) chief of state, (2) chief executive, (3) chief administrator, (4) chief diplomat, (5) commander in chief, (6) chief legislator, (7) party chief, and (8) chief citizen. Chief of state refers to the President as the head of the government. He is the symbol of all the people.

• The President is the Presiding Officer of the Legislative Council and is recognized as its independent and impartial representative. The principal role of the President is to preside over the house.

• The primary duty of the president is to preserve, protect and defend the constitution and the law of India as made part of his oath (Article 60 of the Indian constitution). The president is the common head of all independent constitutional entities.

• All his actions, recommendations (Article 3, Article 111, Article 274, etc.), and supervisory powers (Article 74(2), Article 78C, Article 108, Article 111, etc.) over the executive and legislative entities of India shall be used in accordance to uphold the constitution. There is no bar on the actions of the president to contest in the court of law.

Additional Information

• Article related to Vice-President

Article	Information
Article 63	There shall be a Vice-President of India.
Article 64	The Vice-President shall be ex-officio Chairman of the Council of States and shall not hold any other office of profit
Article 65	The Vice-President to act as President or to discharge his functions during casual vacancies in the office, or during the absence, of President.
Article 66	The Vice President shall be elected by the members of an electoral college consisting of the members of both Houses of Parliament.
Article 67	A Vice-President may, by writing under his hand addressed to the President, resign his office

Q85. Answer: (b) 1

Given:

Series: 1 - 1 + 1 - 1 + 1 - 1 + ... (101 terms)

Formula Used:

Sum of an alternating series with odd terms = 1

Sum of an alternating series with even terms = 0

Calculation:

Number of terms = 101 (odd)

The series alternates between 1 and -1.

Odd number of terms means the last term is 1.

Pair the terms: (1 - 1) + (1 - 1) + ... + 1

Each pair sums to 0.

There are 50 pairs of (1 - 1) and one extra 1.

Total sum = 0 + 0 + 0 + ... + 1

Total sum = 1

The correct answer is option 2.

Q86. Answer: (d) West

Given:

1) Dropu walked 4 m from point A towards the south-west and reached point B.

Then she turned south-east and walked the same distance to reach point C.

Then she turned towards the north-east and walked 4 m to reach Point D.

Thus, she need to turn to West to move towards Point B.

Hence, the correct answer is "Option 4".

Q87. Answer: (d) HFCED

The logic followed here is:

For, STYLE is written as JBGCE.

Similarly, HOUND be written as ?

Thus, HOUND be written as HFCED.

Hence, the correct answer is "Option 4".

Q88. Answer: (d) 26 kg

Calculation:

To calculate the average weight, we use the formula:

Average weight = (Sum of midpoints × Number of students) / Total number of students

Midpoints of weight intervals:

For 21-23: (21 + 23) / 2 = 22

For 23-25: (23 + 25) / 2 = 24

For 25-27: (25 + 27) / 2 = 26

For 27-29: (27 + 29) / 2 = 28

For 29-31: (29 + 31) / 2 = 30

Weighted sum of weights:

(22 × 1) + (24 × 2) + (26 × 3) + (28 × 2) + (30 × 1) = 22 + 48 + 78 + 56 + 30 = 234

Total number of students:

1 + 2 + 3 + 2 + 1 = 9

Average weight:

234 / 9 = 26

Therefore The average weight of the students is 26 kg.

Q89. Answer: (a) 2000 and 2010

Calculation:

We calculate the increase in production for each decade:

From 1970 to 1980:

Increase = 698500 - 678000 = 20500

From 1980 to 1990:

Increase = 699000 - 698500 = 500

From 1990 to 2000:

Increase = 715600 - 699000 = 16600

From 2000 to 2010:

Increase = 732400 - 715600 = 16800

Observation:

The increase in production from 1990 to 2000 (16600) and 2000 to 2010 (16800) is approximately the same.

Therefore The two years that reported approximately the same amount of increase in production are 2000 and 2010.

Q90. Answer: (c) Nephew

Given: A girl asked a man, how is my mother's father's only daughter's daughter's brother is related to my mother's brother.

Thus, the answer of her question is Nephew.

Hence, the correct answer is "Option 3".

Q91. Answer: (b) 12

Given:

"The flower of a fulfilling tree filled the freely available puffy furnace of Fatima's father."

Step-by-Step Count:

1 (flower) + 1 (of) + 2 (fulfilling) + 1 (filled) + 1 (freely) + 2 (puffy) + 1 (furnace) + 1 (of) + 1 (Fatima's) + 1 (father) = 12 Fs.

Hence, the correct answer is "Option (2)".

Q92. Answer: (c) A is true but R is false.

Assertion (A): Most Cars in India are Right hand drive cars i.e. the driver is seated on the right side of the car → True(because in India, vehicles drive on the left side of the road, which necessitates right-hand drive cars for better visibility and control).

Reason (R): Indian Car Companies do not have the knowledge or capacity to make Left hand drive cars → False(because Indian car companies are capable of manufacturing left-hand drive cars, but they produce right-hand drive cars to comply with the traffic

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regulations in India).

Here, We can say, A is true but R is false.

Hence, "A is true but R is false" is the correct answer.

Q93. Answer: (d) 6

The logic followed here is:

Hence, the correct answer is "Option 4".

Q94. Answer: (a) B, D

Statements:

All mobiles are squirrels.

Some Squirrels are clouds.

The least possible venn diagram is given:

Conclusions:

A. Some clouds are mobiles - False(Because, there is no direct relation between clouds and mobiles, so it can be possible only).

B. Some clouds are squirrels - True(Because, Some Squirrels are clouds it implies that Some clouds are squirrels as well).

C. Mobiles are not clouds - False((Because, there is no direct relation between clouds and mobiles, so it can be possible only).

D. Some squirrels are mobiles - True(Because, All mobiles are squirrels, it implies that some squirrels are mobiles as well).

Thus, the conclusion B and D follow.

Hence, the correct answer is "Option 1".

Q95. Answer: (a) 132671812132615

The logic followed here is:

Logic: Opposite place value of letter = Code.

For, N = 13

=> N(14) <=> M(13).

For, L = 15

=> L(12) <=> O(15).

Similarly,

N(14)	A(1)	T(20)	I(9)	O(15)	N(14)	A(1)	L(12)
M(13) 13	Z(26) 26	G(7) 7	R(18) 18	L(12) 12	M(13) 13	Z(26) 26	O(15) 15

Thus, the NATIONAL coded as 132671812132615.

Hence, the correct answer is "Option 1".

Q96. Answer: (b) South-east, 5 m

Given:

1) Tannu walked 3 m from her initial position towards the north.

2) Mannu walked 4 m from the same point towards the east.

3) Gunnu started from the point where Tannu stopped and,walked straight to Manuu taking the shortest route.

By using Pythagoras theorem:

AB2 + BC2 = AC2

42 + 32 = AC2

16 + 9 = AC2

25 = AC2

√ 25 = AC

5 = AC.

Thus, the distance did she cover 5 m in South-east direction.

Hence, the correct answer is "Option 2".

Q97. Answer: (d) 257

The logic followed here is:

Hence, the correct answer is "Option 4".

Q98. Answer: (a) -1

Given:

Expression: 2 + 2 × 2 - 3 ÷ 3 × 3 - 4 × 4 ÷ 4

Concept used:

Follow the BODMAS rule according to the table given below:

Calculation:

=> 2 + 2 × 2 - 3 ÷ 3 × 3 - 4 × 4 ÷ 4

=> 2 + 4 - 3 ÷ 3 × 3 - 4

=> 2 + 4 - 1 × 3 - 4

=> 2 + 4 - 3 - 4

=> 6 - 3 - 4

=> 3 - 4

=> -1

The value of the expression is -1.

Q99. Answer: (d) 17

The logic followed here is:

Logic: Number of letter of word + 2 = code.

For, Flower = 8.

Number of letter of "FLOWER" is 6 + 2 = 8.

For, Water = 7

Number of letter of "WATER" is 5 + 2 = 7.

For, Too = 5

Number of letter of "Too" is 3 + 2 = 5.

For, Tree = 6

Number of letter of "Tree" is 4 + 2 = 6.

Similarly, Interdependence ?

Number of letter of "Interdependence" is 15 + 2 = 17.

Thus, the code for Interdependence is 17.

Hence, the correct answer is "Option 4".

Q100. Answer: (c) Wednesday

Given: 1 August 2016 was Monday.

Now,

2016 to 2012 = 4 Years (3 Ordinary Years and 1 Leap Year).

And, In 4 Years = 1 Leap Year and 3 Ordinary Years.

So, 1 Leap Year has 2 odd days,

And, 3 Ordinary Years have 3 odd days.

Total odd days = 2 + 3 = 5.

5 odd days → 5/7 = 0 weeks and 5 odd days.

then, 1 August 2012 will be Monday - 5 = Wednesday.

Hence, the correct answer is "Option 3".

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