RRB NTPC CBT-I Official Paper (Held On: 23 Jan 2021 Shift 1) (Previous Year Paper)

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

Take this paper as a timed mock test

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

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

Q1. Four numbers have been given, out of which three are alike in some manner and one is different. Select the number that is different from the rest.

(a) 4174
(b) 5459
(c) 2126
(d) 9637

Q2. Find the missing number to complete the given analogy.

2 : 7 : : 11 : ? : : 23 : 37

(a) 15
(b) 17
(c) 19
(d) 21

Q3. The four essential requirements for photosynthesis include:

(a) Chemicals, carbohydrates, water and chlorophyll
(b) Carbon dioxide, minerals, chlorophyll and sunlight
(c) Parasites, food, chlorophyll and oxygen
(d) Chlorophyll, sunlight, carbon dioxide and water

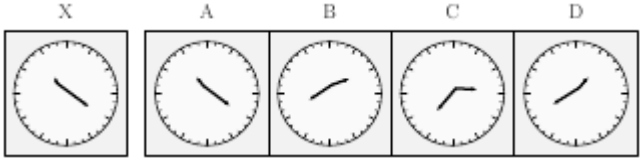
Q4. There are 3 pieces of wooden logs which are 48 m, 56 m and 72 m long. What is the greatest possible length by which these can be completely measured?

(a) 11 m
(b) 9 m
(c) 8 m
(d) 7 m

Q5. A boy bought some toffee at the rate of 15 toffees for Rs. 3 and sold all of them at the rate of 3 toffee for Rs. 2. Find the gain or loss.

(a) 233 2/3 % loss
(b) 233 2/3 % gain
(c) 233 1/3 % gain
(d) 233 1/3 % loss

Q6. Select the mirror image of Figure X from the given Option Figures. (The mirror is placed on the right side of the image)



(a) B
(b) D

(c) A
(d) C

Q7. Find the place value of 7 in 71,624.
(a) 700
(b) 7,000
(c) 70,000
(d) 7

Q8. In computer terminology, what is a nibble?
(a) Half a byte
(b) A terabyte
(c) A gigabyte
(d) A kilobyte

Q9. If the salary of A is 25% more than that of B, then how much per cent is the salary of B lower than that of A?
(a) 35%
(b) 20%
(c) 25%
(d) 30%

Q10. India's space programme was started by:
(a) Vijay Sarabhai
(b) Vikram Sarabhai
(c) Rahul Kumar
(d) Vivek Sarabhai

Q11. Fill in the blank, _____ % of 50 = 40.
(a) 90
(b) 70
(c) 60
(d) 80

Q12. If Sachin secures 70% marks in mathematics and 60% in science, what percentage of marks did Sachin get in both subjects together, assuming both subjects to have equal maximum marks?
(a) 55%
(b) 60%
(c) 65%
(d) 70%

Q13. If x/5 = y/6 = z/11, then (x + y + z)/z is equal to:
(a) 3
(b) 5
(c) 2
(d) 4

Q14. During the Quit India Movement, Aruna Asaf Ali hoisted the National Congress Flag in:
(a) Goa
(b) Bombay (now Mumbai)
(c) Calcutta (now Kolkata)
(d) New Delhi

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Q15. A is twice as efficient as B and together, they finish a piece of work in 20 days. A alone can finish the work in:

(a) 30 days
(b) 20 days
(c) 28 days
(d) 26 days

Q16. Trojan Horse is a form of:

(a) Slammer worm
(b) Melissa worm
(c) Virus attack
(d) Service attack

Q17. Find the smallest number that is exactly divisible by 7, 14, 28, 35 and 42.

(a) 410
(b) 420
(c) 430
(d) 450

Q18. Which Queen of Ahmednagar fought against Emperor Akbar?

(a) Chand Bibi
(b) Razia Sultan
(c) Durgavati
(d) Roopmati

Q19. In the following question, select the odd word from the given alternatives.

(a) Cow : Calf
(b) Insect : Larva
(c) Lion : Cub
(d) Dog : Bark

Q20. In the year 1937, the Congress session was held for the first time in a village at:

(a) Champaran
(b) Gaya
(c) Gorakhpur
(d) Faizpur

Q21. In the Unitary States, the _____ government performs all the governmental functions.

(a) state
(b) international
(c) Central
(d) local

Q22. A and B together can dig a tank in 12 days, which A alone can dig in 24 days. How much of the tank can B dig in 1 day?

(a) 1/24
(b) 1/4
(c) 1/12
(d) 1/36

Q23. Tatya Tope was one of the leaders who participated in the Indian rebellion of:

(a) 1902
(b) 1857
(c) 1890
(d) 1859

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Q24. X and Y can complete a piece of work in 16 days, Y and Z can do the same piece of work in 24 days. X, Y and Z together can do it in 12 days. How much time will X and Z take to finish it?

(a) 12 days
(b) 10 days
(c) 14 days
(d) 16 days

Q25. Abyssinia is the old name of which country from the following?

(a) Ethiopia
(b) Italy
(c) Germany
(d) Japan

Q26. What is the mineral name of rock salt?

(a) Limonite
(b) Hematite
(c) Halite
(d) Siderite

Q27. Parenchyma and collenchyma are the types of _____ tissues.

(a) vascular
(b) nervous
(c) mechanical
(d) simple permanent

Q28. Gunjan and Sophia play badminton and football. Sonu and Ravi play cricket and volleyball. Sophia and Monika play hockey and cricket. Which game is played by maximum number of people?

(a) Volleyball
(b) Football
(c) Cricket
(d) Badminton

Q29. At what rate per cent of simple interest does a sum of money double itself in 12 years?

(a) 9 1/3 %
(b) 9 2/3 %
(c) 8 2/3 %
(d) 8 1/3 %

Q30. Which of these is not the member of UN Security Council as of October 2020?

(a) Russia
(b) France
(c) United Kingdom
(d) Malaysia

Q31. The value of $3 + 12 + 27 +$ _____ $+3n^2$ is:

(a) $(n(n+ 1)(2n + 1))/6$
(b) $(n(n+ 1))/2$
(c) $(n(n+ 1)(2n + 1))/2$
(d) $(n(n+ 1)(2n + 1))/3$

Q32. When respiration takes place even in the absence of oxygen, it is called _____ respiration.

(a) anaerobic
(b) circulatory
(c) contracted
(d) aerobic

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Q33. Select the option that is related to the third term in the same way as the second term is related to the first term.

RAW : WAR :: STAR : ?

(a) MOON
(b) START
(c) RATS
(d) ARTS

Q34. The ratio of the radii of two circles is 1 : 4. The ratio of their areas is:

(a) 1 : 24
(b) 1 : 16
(c) 1 : 8
(d) 1 : 32

Q35. Which of the following musical instruments is not Indo-Islamic in origin?

(a) Sitar
(b) Rabab
(c) Veena
(d) Tabla

Q36. Identify the number from among the given options that DOES NOT belong to the following series.

17, 23, 30, 38, 46, 57

(a) 46
(b) 23
(c) 57
(d) 30

Q37. National Song 'Vande Mataram', written by Bankim Chandra Chattopadhyay, is a part of which of these novels?

(a) Durgeshnandini
(b) Anandmath
(c) Devi Chaudharani
(d) Kapalkundala

Q38. Two numbers are in the ratio of 2 : 3 and the product of their LCM and HCF is 9600. The sum of the numbers is:

(a) 200
(b) 150
(c) 100
(d) 250

Q39. Sophia and Rohan play badminton and football. Dinesh and Rahul play cricket and volleyball. Rohan and Naveen play hockey and cricket. Who does NOT play cricket?

(a) Dinesh
(b) Naveen
(c) Rohan
(d) Sophia

Q40. The international airport of which Indian city is named after Dr. B. R. Ambedkar?

(a) Nagpur
(b) Hyderabad
(c) Ranchi
(d) Pune

Q41. Which one of the following is the 2^(nd) leading petroleum exporter in the world during 2019?

(a) Russia
(b) U.A.E
(c) Venezuela

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(d) Norway

Q42. If CALM is coded as XZON, then LOVE will be coded as:

(a) CBPD
(b) MNOS
(c) OLEV
(d) PFMN

Q43. The three numbers given below are alike in some manner. Identify the number from among the given options, that belongs to this group:

94, 61, 83

(a) 87
(b) 75
(c) 72
(d) 96

Q44. Which Five year plan in India was based on P.C.Mahalanobis Model?

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

Q45. What was India's first supercomputer called?

(a) ENIAC
(b) PARAM 8000
(c) PARAM 6000
(d) SAGA 220

Q46. Phad, an art form of Rajasthan, is a _____ form of painting.

(a) tribal
(b) sensual
(c) musical
(d) religious

Q47. A/An _____ is an interface between the user and hardware.

(a) operating system
(b) screen
(c) memory
(d) command

Q48. The angles of a quadrilateral are in the ratios 2 : 4 : 6 : 8. The smallest of these angles is:

(a) 60°
(b) 22°
(c) 36°
(d) 72°

Q49. The product of two co-prime numbers is 119. Their LCM should be:

(a) 7
(b) 119
(c) 17
(d) 1

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Q50. Which type of paintings are found on the walls of Thiruvarur and Ajantha temples?

(a) Rajasthani
(b) Mural
(c) Madhubani
(d) Mughal

Q51. What is the name of famous petroleum site located in Gujarat?

(a) Mahabaleshwar
(b) Jaileshwar
(c) Ankleshwar
(d) Amreshwar

Q52. How many articles are there in the Constitution of India as of October 2020?

(a) 495
(b) 395
(c) 398
(d) 448

Q53. When was Goa captured by the Portuguese?

(a) 1510 AD
(b) 1485 AD
(c) 1590 AD
(d) 1605 AD

Q54. If $3x = \text{cosec}\ \theta$ and $3/x = \cot\theta$, then the value of $9(x^2 – 1/(x^2))$ is

(a) 1/9
(b) 0
(c) 1/3
(d) 1

Q55. The number of girls in a class is seven times the number of boys. Which of the following numbers CANNOT represent the total number of children in the class?

(a) 52
(b) 72
(c) 8
(d) 48

Q56. If $\sin\theta = 5/13$, and θ is a positive acute angle, then what is the value of $(\cos\theta - \tan\theta)/(2\cot\theta)$?

(a) 385/3744
(b) 375/3744
(c) 365/3744
(d) 395/3744

Q57. The technology that provides high internet speed over telephone wiring is called:

(a) ADLS
(b) ALSD
(c) ADSL
(d) ASLD

Q58. The sum of two numbers is 75 and the difference of their squares is 300. Find the difference between the two numbers.

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

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Q59. What is the full form of the abbreviation UPU which is related with United Nations?

(a) Universal Paid Union
(b) Universal Private Union
(c) Universal Postal Union
(d) Universal Plane Union

Q60. Kesavananda Bharti Case in 1973 stemmed the question that the Preamble can _____.

(a) be changed completely
(b) be amended
(c) not be amended
(d) be separated into sections

Q61. Which is the tallest Victory tower in India?

(a) Jhulta Minar
(b) Qutub Minar
(c) Fateh Burj
(d) Vijay Stambh

Q62. A species that cannot be found after a prolonged search in its area of habitation is said to be _____ species.

(a) rare
(b) endangered
(c) extinct
(d) vulnerable

Q63. Which of the following is the highest peak of the Nilgiri hills?

(a) Doddabetta
(b) Armakonda
(c) Kalsubai
(d) Anamudi

Q64. The population of a town increases 10% annually. If it's present population is 6,400, what will the population in 2 years be?

(a) 7,746
(b) 7,744
(c) 7,742
(d) 7,740

Q65. If 2 sin (3x – 3)° = tan 240°, then the value of x in degree is:

(a) 23°
(b) 25 °
(c) 21°
(d) 27 °

Q66. Which country will be hosting the 2022 FIFA world cup?

(a) Australia
(b) Argentina
(c) Spain
(d) Qatar

Q67. The product of (1-1/(x + 1))(1-1/(x + 2))(1-1/(x + 3)) ..... (1-1/2x)

(a) 1/2
(b) ((2x + 1)/2x)
(c) 3/2
(d) ((x - 1)/2x)

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Q68. If W is coded as 46 and CAT is coded as 48, then DOG will be coded as:

(a) 60
(b) 52
(c) 51
(d) 56

Q69. Solve the following:

(0.overline5 + 0.overline6 + 0.overline7 + 0.overline8) = ?

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

Q70. If tan3θ.tan6θ = 1, then the value of tan 30θ° is :

(a) -√3
(b) -1/√3
(c) 0
(d) 3 √3

Q71. Pulling of the earth gravitationally in the same direction by the sun and the moon causes:

(a) High tides
(b) Low tides
(c) Neap tides
(d) Spring tides

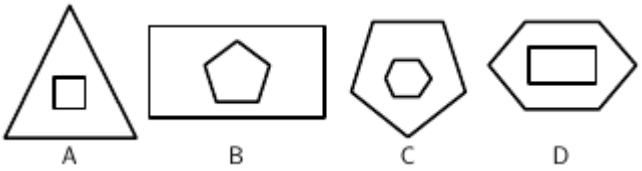
Q72. If cos θ + sec θ = 2, then the value of sin^6θ + Cos^6θ is:

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

Q73. Which of the following is the famous festival game of Kerala?

(a) Weightlifting
(b) Jujutsu
(c) Boat race
(d) Swimming

Q74. Among the four figures listed, three of them follow a common rule and one does not. Select the odd one.



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

Q75. Select the letter-cluster that does NOT belong to the given series.

CDE, FGH, IJK, LNM

(a) LNM
(b) IJK
(c) CDE
(d) FGH

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Q76. The sum of the four consecutive even numbers is 484. What would the smallest number be?

(a) 118
(b) 128
(c) 114
(d) 242

Q77. Which of the four options provided below will be the closest to the area of an equilateral triangle, each of whose sides is 10 m long?

(a) 43.25 m²
(b) 42.25 m²
(c) 44.25 m²
(d) 45.25 m²

Q78. CSIR stands for:

(a) Council of Space and Invention Research
(b) Council of Scientific and Industrial Research
(c) Council of Scientific and Indian Research
(d) Committee of Science and Iron Research

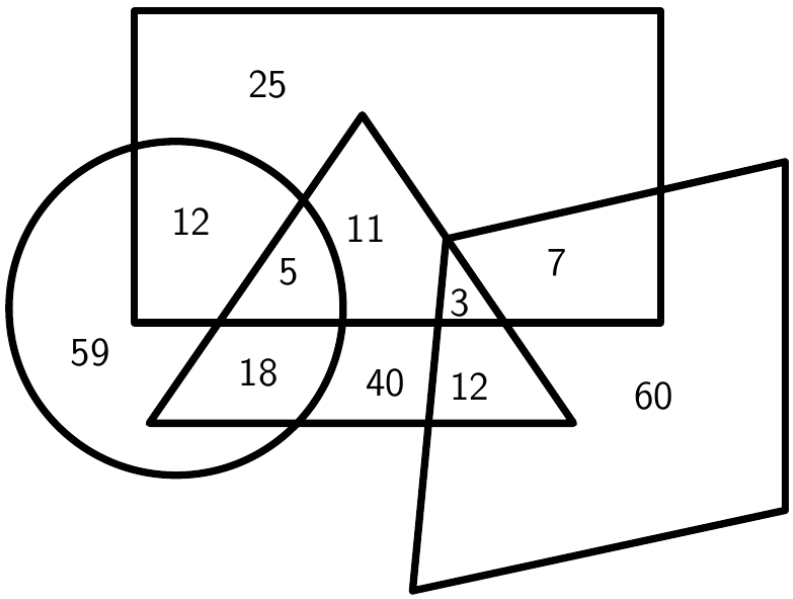
Q79. Sal and teak are the most important _____ trees.

(a) pioneer
(b) coniferous
(c) medicinal
(d) deciduous

Q80. Find the difference of the face values of 9 and 3 in 3,15,298.

(a) 3,00,090
(b) 6
(c) 2,99,910
(d) 27

Q81. In the given figure, the rectangle shows the number of students in 10^(th) grade of a school. The parallelogram shows the number of girls in the school. The triangle shows the number of tennis playing students and the circle shows the number of boys playing cricket in the school.



How many total students are there in 10^(th) grade and how many of them play both cricket and tennis?

(a) 59, 5
(b) 63, 23

(c) 59, 19
(d) 63, 5

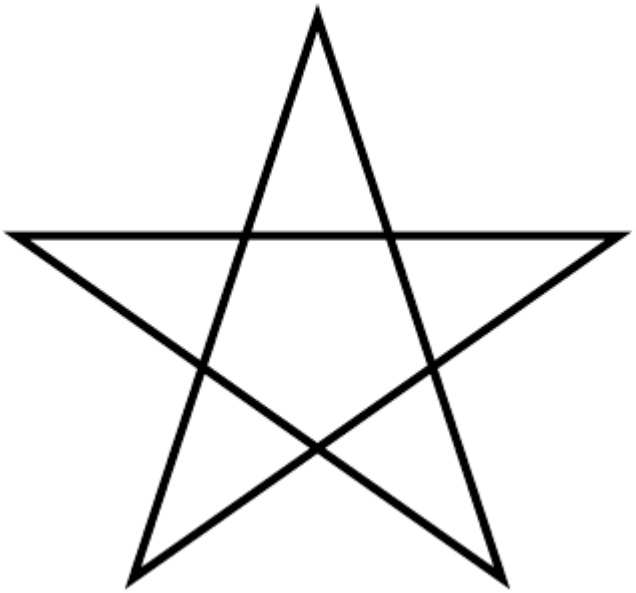
Q82. By selling a vehicle for Rs. 52,500, Ram suffers a 25% loss. What was his loss?
(a) Rs. 18,000
(b) Rs. 16,500
(c) Rs. 17,000
(d) Rs. 17,500

Q83. The leaked secret investment documents known as Panama Papers' belonged to _____.
(a) Mossack Fonseca & Co
(b) International Consortium of Investigative Journalists
(c) Suddeutsche Zeitung
(d) SpaceX

Q84. Which of the following is NOT an environmental concern?
(a) Growing pollution levels
(b) Global warming
(c) Increasing consumption and use of plastics
(d) Raising ozone layer

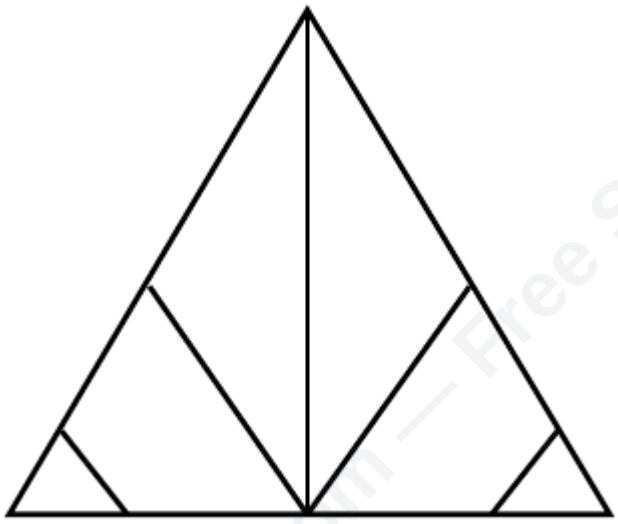
Q85. SAGA-220 was developed by Indian Space Research Organization. What is SAGA-220?
(a) Missile
(b) Pacemaker
(c) Super Computer
(d) Satellite

Q86. Find the number of the triangles in the given figure.



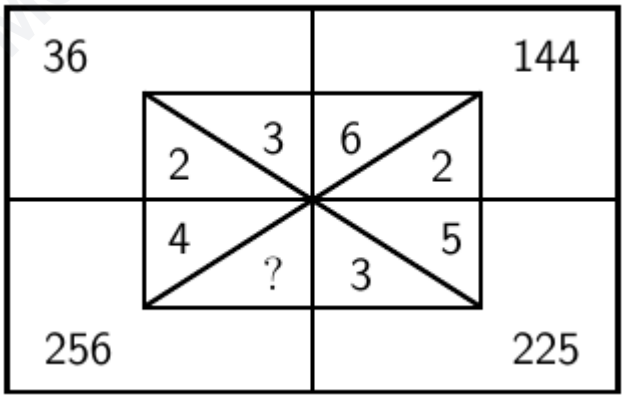
(a) 10
(b) 8
(c) 5
(d) 6

Q87. How many pentagons are there in the given figure?



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

Q88. Study the given pattern carefully and select the number from among the given options that can replace the question mark (?).



(a) 4
(b) 8
(c) 2
(d) 6

Q89. In a certain code language, if #s* means 'table is clean', @ D# means "Clean and neat' and @? means 'neat girl', then what is the code for 'and' in that language?

(a) D
(b) ?
(c) @
(d) #

Q90. Study the given pattern carefully and select the number from among the given options that can replace the question mark (?).

24 $ 34 = 68
31 $ 26 = 67
17 $ 52 = ?

(a) 16
(b) 79
(c) 15

(d) 58

Q91. Among the four numbers listed, three are alike in some manner and one is different. Select the odd one.

(a) 639
(b) 427
(c) 325
(d) 213

Q92. Select the option that is related to the fifth number in the same way as the fourth number is related to the third number and the second number is related to the first number.

21 : 2 :: 85 : 40 :: 30 : ?

(a) 0
(b) 8
(c) 6
(d) 3

Q93. Study the given pattern carefully and select the number from among the given options that can replace the question mark (?).

1 + 2 + 3 + 5 = 39

2 + 3 + 4 + 5 = 54

1 + 3 + 4 + 5 = ?

(a) 50
(b) 51
(c) 55
(d) 56

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

FEAL : LEAF : : EAKT : ?

(a) ETAK
(b) TAKE
(c) KETA
(d) KATE

Q95. If '+' means 'multiplication', '×' means 'plus', '–' means 'division', and '÷' means 'minus', then find the value of

(18 + 10 × 20) – 8 ÷ 6

(a) 29
(b) 59
(c) 19
(d) 69

Q96. Read the given statements 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 inferences can definitely be drawn from the statement(s).

Statements:

1. All the students passed the examination.
2. Some of the students are girls.

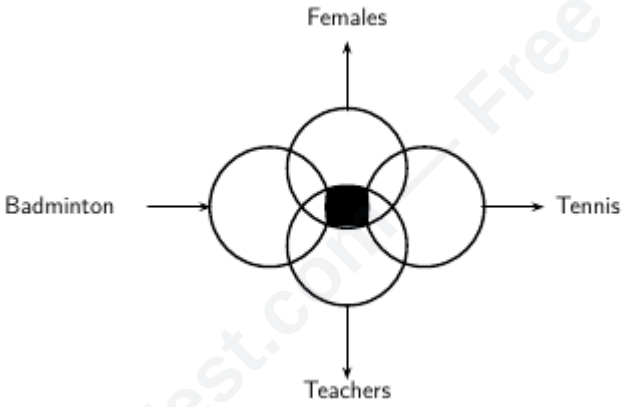
(a) No girl student failed in the examination.
(b) All the girl students failed in the examination.
(c) None of the boys passed the examination.
(d) Some of the boys failed the examination.

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Q97. If BED is coded as 42516, then DIG will be coded as:

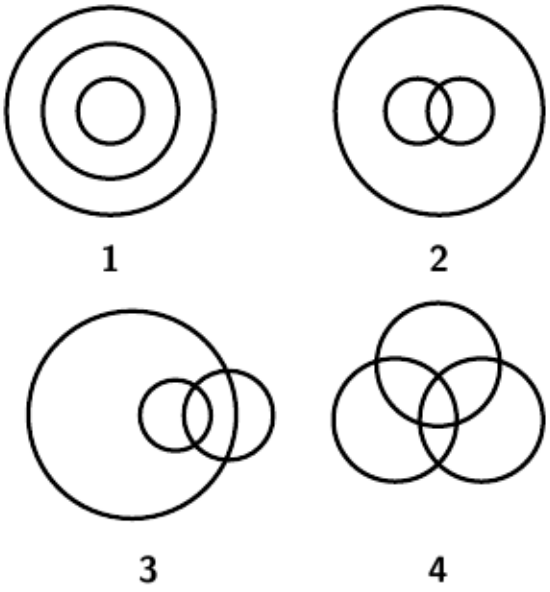
(a) 161894
(b) 253681
(c) 1625363
(d) 168149

Q98. In the given figure, what does the shaded portion depict?



(a) A group of female teachers who neither play badminton nor tennis
(b) A group of female teachers who are badminton players
(c) A group of female teachers who are tennis players but not badminton players
(d) A group of teachers who are both tennis and badminton players

Q99. Select the Venn diagram that best represents the relationship between the following classes.
Players, Humans, Students



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

Q100. Select the option that is related to the third term in the same way as the second term is related to the first term.
Temperature : Heat : : Humidity : ?

(a) Moisture
(b) Rain
(c) Weather
(d) Night

ANSWER KEY

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

SOLUTIONS

Q1. Answer: (a) 4174

The logic followed here is:-

1) 4174 → 4 + 1 + 7 + 4 = 16 => Even

2) 5459 → 5 + 4 + 5 + 9 = 23 => Odd

3) 2126 → 2 + 1 + 2 + 6 = 11 => Odd

4) 9637 → 9 + 6 + 3 + 7 = 25 => Odd

Therefore Here, '4174' is different from other three alternatives.

Hence, the correct answer is "4174".

Alternate Method The logic followed here is:-

The first number × the Last(fourth) number gives the middle two numbers.

4174 → 4 × 4 = 16 ≠ 17,

5459 → 5 × 9 = 45

2126 → 2 × 6 = 12

9637 → 9 × 7 = 63

So, '4174' is different from other three alternatives.

Q2. Answer: (c) 19

The logic followed here is :-

The prime number between 1 to 50 are :

2, 3, 5, 7, 11, 13, 17, 19, 23, 29, 31, 37, 41, 43, 47.

• There are two prime numbers in between the given pairs.

Hence, the correct answer is "19".

Q3. Answer: (d) Chlorophyll, sunlight, carbon dioxide and water

The correct answer is Chlorophyll, sunlight, carbon dioxide, and water.

Key Points

• Photosynthesis is the process by which plants use sunlight, water, and carbon dioxide to create oxygen and energy in the form of sugar.

• Steps of photosynthesis:

1. CO2 and H2O enter the leaf.

2. Light hits the pigment in the membrane of a thylakoid, splitting the H2O into O2.

3. The electrons move down to enzymes.

4. Sunlight hits the second pigment molecule allowing the enzymes to convert ADP to ATP and NADP+ gets converted to NADPH.

5. The ATP and NADPH are used by the Calvin cycle as a power source for converting carbon dioxide from the atmosphere into simple sugar glucose.

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6. The Calvin cycle converts 3CO2 molecules from the atmosphere to glucose.

7. The second of two major stages in photosynthesis (following the light reactions), involves atmospheric CO2 fixation and reduction of the fixed carbon into carbohydrates.

Additional Information

• There are three main types of photosynthetic pathways: C3, C4, and CAM. They all produce sugars from CO2 using the Calvin cycle, but each pathway is slightly different.

• Green plants and trees use photosynthesis to make food from sunlight, carbon dioxide and water in the atmosphere:

• It is their primary source of energy.

• The importance of photosynthesis in our life is the oxygen it produces.

• Without photosynthesis, there would be little to no oxygen on the planet.

Q4. Answer: (c) 8 m

CONCEPT USED:

Highest Common Factor(H.C.F)

CALCULATION:

Here, the length of the three pieces given is 48m, 56m, and 72 m respectively

=>Greatest possible length of each plank = H.C.F (48, 56, 72)

Prime factorization:

48 = 2 × 2 × 2 × 2 × 3

56 = 2 × 2 × 2 × 7

72 = 2 × 2 × 2 × 3 × 3

=> H.C.F = Product of the smallest power of each common prime factor involved in the numbers = 2 × 2 × 2 = 8

Hence, the greatest possible length of each plank is 8 m.

Q5. Answer: (c) 233 1/3 % gain

GIVEN:

Cost price of some toffee at the rate of 15 toffees = Rs. 3

Selling price of some toffee at the rate of 3 toffee = Rs. 2

FORMULA USED:

Gain percent = (Gain/C.P.) × 100

Gain = (S.P. - C.-P.)

Where, S.P. = Selling Price C.P.= Cost price.

CALCULATION:

Let us assume the person buys 45 toffees

(you can assume any number but for the sake of calculation, we have taken L.C.M of 15 and 3)

=> C.P. of 15 toffees = Rs. 3

=> C.P. of 45 toffees = (3/15) × 45 = Rs. 9

=> S.P. of 3 toffee = Rs. 2

=> S.P. of 45 toffees = (2/3) × 45 = Rs. 30

=> Gain = (S.P. - C.P.) = (30 - 9) = Rs. 21

=> Gain% = (Gain/C.P.) × 100 = (21/ 9) × 100 = 700/3 = 233 1/3 % gain

Hence, gain% is 233 1/3 %.

Q6. Answer: (b) D

The mirror image of the given figure is as shown below :

Therefore Here, the figure D is the mirror image of given figure.

Hence, the correct answer is "D".

Confusion Points

The Water image of the given figure is as shown below :

Q7. Answer: (c) 70,000

CONCEPT USED:

Place value = value of each digit in a number

CALCULATION:

Here, the given number is 71,624

=> Place value of 7 in 71,624 = 70,000 (as place value represents a digit in a number on the basis of its position in the number).

Hence, the place value is 70,000.

Q8. Answer: (a) Half a byte

The correct answer is Half a byte.

Key Points

• Nibble is also known as half-byte or trade and has sixteen possible values represented by a hex digit.

• It is used to state the memory consumption to store a digit in packed decimal format within an IBM mainframe to enhance the computation and the process of debugging.

• In a networking or telecommunication context, the nibble is often called a semi-octet, quadbit, or quartet. A nibble has sixteen possible values.

Additional Information

Unit Conversion Table

• 4 bit = 1 Nibble

• 8 bit = 1 byte

• 1 KB (kilobyte) = 1024 byte

• 1 MB (megabyte) = 1024 KB

• 1 GB (gigabyte) = 1024 MB

• 1 TB (terabyte) = 1024 GB

• 1 PB (petabyte) = 1024 TB

• 1 XB (Exabyte) = 1024 PB

• 1 ZB (zettabyte) = 1024 XB

• 1 YB (yottabyte) = 1024 ZB

Q9. Answer: (b) 20%

GIVEN:

Salary of A = 25% more than that of B

CALCULATION:

Let us assume B's salary to be 100

=> Here, the Salary of A = 25% more than that of B

=> Salary of A = 100 + 100 × 25/100 = 125

=> Now, Salary of B lower than that of A = (Difference of A - Difference of B) = (125 - 100) = 25

=> Required percent = (25/125) × 100 = 20%

Hence, the required percentage is 20%.

Q10. Answer: (b) Vikram Sarabhai

The correct answer is Vikram Sarabhai.

Key Points

• The Indian Space Research Organisation is the national space agency of India.

• It's headquartered in Bangalore.

• It operates under the Department of Space which is directly overseen by the Prime Minister of India, while the Chairman of ISRO acts as the executive of DOS as well.

• Dr. Vikram Sarabhai, the founding father of the Indian space program, quickly recognized the benefits of space technologies for India.

• Vikram Ambalal Sarabhai was an Indian physicist and astronomer who initiated space research and helped develop nuclear power in India.

• He was honoured with Padma Bhushan in 1966 and the Padma Vibhushan in 1972.

Additional Information

• ISRO was formed in 1969 with a vision to develop and harness space technology in national development while pursuing planetary exploration and space science research.

• It is one of the elite space agencies in the world over the years.

• The major ISRO achievements of 2021:

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• PSLV-C51/Amazonia-1

• Indian student satellites UNITYsat and Satish Dhawan SAT (SDSAT)

• GSLV-F10/Gisat-1 (renamed to EOS-3): Failed mission.

Q11. Answer: (d) 80

CALCULATION:

Let the required number be x

=> Hence, we have x % of 50 = 40

=> x/100 × 50 = 40

=> x = 80.

Hence, 80% of 50 = 40.

Q12. Answer: (c) 65%

GIVEN:

In mathematics = 70% marks

In science = 60% marks

CALCULATION:

Here, we have equal maximum marks

Hence, let us assume equal maximum marks in both subjects to be 100

Sachin secures 70% marks in mathematics = 70/100 × 100 (as maximum marks is 100) = 70 marks

Sachin secures 60% marks in Science = 60/100 × 100 (as maximum marks is 100) = 60 marks

Total maximum marks = 100 + 100 = 200

Total marks secured by Sachin in both the subjects together = 70 + 60 = 130

Percentage of marks secured by Sachin in both the subjects together =(130/200) × 100 = 65%.

The percentage of marks secured by Sachin in both subjects together is 65%.

Q13. Answer: (c) 2

CALCULATION:

Let us assume,

x/5 = y/6 = z/11 = k

=> x = 5k, y = 6k, z = 11k

=> x + y + z = (5k + 6k + 11k) = 22k

=> Hence, (x + y + z) / z = 22k/ 11k = 2

Hence, the required value is 2.

Q14. Answer: (b) Bombay (now Mumbai)

The correct answer is Bombay (now Mumbai).

Key Points

• Aruna Asaf Ali

• Aruna Asaf Ali was born on July 16, 1909, into a Bengali Brahmin family in Kalka, Punjab, British India (now in the Indian state of Haryana).

• She was a publisher, political activist, and educator from India.

• She was an ardent member of the fight for Indian independence, and she is well known for hosting the Indian National flag at the Gowalia Tank Maidan in Bombay in 1942, during the Quit India Movement.

• In the Indian Independence Movement, Aruna Asaf Ali played a significant role.

• After getting married to Asaf Ali, she joined the Indian National Congress and took part in the Salt Satyagraha's public processions.

• She was imprisoned in 1931 in violation of the Gandhi-Irwin Pact, which called for the release of all political prisoners, since she was accused of being a wanderer.

Additional Information

• Quit India Movement

• On August 8, 1942, during World War II, Mahatma Gandhi began the August Kranti Movement, also known as the Quit India Movement, calling for the end of British rule in India at the Bombay session of the All India Congress Committee.

• Gandhi issued a call to Do or Die in his Quit India address.

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• Gandhi's "An Orderly British Withdrawal" from India was the demand of the All India Congress Committee, which organised the massive demonstration.

• Within hours of Gandhi's speech, virtually the entire Indian National Congress leadership was detained without charge.

• The Golden Jubilee of the Quit India Movement was commemorated in 1992 by the Reserve Bank of India by issuing a one rupee commemorative coin.

Q15. Answer: (a) 30 days

GIVEN:

A and B finish work in 20 days

A is twice as efficient as B

FORMULA USED:

Efficiency = Total work/ No. of days

CALCULATION:

Here, A's efficiency = 2 B's efficiency

=> A's efficiency/ B's efficiency = 2/1 <=> Total efficiencies taken together by A and B = (2 + 1) = 3

=> No. of days taken together by A and B = 20 days

=> Total work = Efficiency × No. of days = 3 × 20 = 60 unit.,

=> A alone can finish the work in = Total unit of work/ Efficiency = 60/2 = 30 days. (as Efficiency of A = 2)

A alone can finish the work in 30 days.

Q16. Answer: (c) Virus attack

The correct answer is Virus attack.

Key Points

• A Trojan Horse Virus is a type of malware that downloads onto a computer disguised as a legitimate program.

• The delivery method typically sees an attacker use social engineering to hide malicious code within legitimate software to try and gain users' system access with their software.

• A computer virus is a type of malicious software, or malware, that spreads between computers and causes damage to data and software.

• Computer viruses aim to disrupt systems, cause major operational issues, and result in data loss and leakage.

Additional Information

• The Slammer worm exploits the stack buffer overflow vulnerability in a pair of functions offered by the SQL Server Resolution Service.

• Melissa worm It then used a macro to hijack their Microsoft Outlook email system and send messages to the first 50 addresses in their mailing lists.

• A Denial-of-Service (DoS) attack is an attack meant to shut down a machine or network, making it inaccessible to its intended users.

Q17. Answer: (b) 420

CONCEPT USED:

Lowest Common Multiple (L.C.M) = Smallest positive integer that is divisible by both a and b.

CALCULATION:

L.C.M. of 7,14,28,35 and 42

=>Prime factorization

7 = 7 × 1

14 = 7 × 2 × 1

28 = 2 × 2 × 7 × 1 = 2^2 × 7 × 1

35 = 5 × 7 × 1

42 = 2 × 3 × 7 × 1

=> L.C.M = Product of all factors in the greatest number of their occurrence = 7 × 2^2 × 5 × 3 = 420. (as prime factors of 5, 7, 3 occur one time while 2 occurs more than once)

Hence, the smallest number is 420.

Q18. Answer: (a) Chand Bibi

The correct answer is Chand Bibi.

Key Points

• Sultana Chand Bibi was an Indian ruler and warrior.

• She acted as the Regent of Bijapur Sultanate during the minority of Ibrahim Adil Shah II in 1580-1590, and regent of Ahmednagar Sultanate during the minority of her great nephew Bahadur Shah in 1595-1600.

• She was born in 1550 in Ahmadnagar Sultanate and died in1599 in Ahmednagar

• Chand Bibi was a contemporary of Emperor Akbar, well known as the heroic defender of Ahmadnagar against the Mughal forces of Emperor Akbar in 1595.

• Due to her heroic defense, Chand Bibi came to be known as “Chand Sultana”.

Additional Information

• Razia Sultana was the first woman Sultanate of India and ruled the court of Delhi from the end of 1236 to 1240. The only ever woman to do so, she defied all odds to occupy the throne, including overcoming conflicts over her gender and her slave ancestry.

• Rani Durgavati was the ruling Queen of Gondwana from 1550 until 1564. She was born in the family of Chandel Rajput king Salibahan at the fort of Mahoba. She was married to Dalpat Shah Kacchwaha, the adopted son of king Sangram Shah of the Garha Kingdom.

• Rani Roopmati was a poet and the consort of the Sultan of Malwa, Baz Bahadur. Roopmati features prominently in the folklores of Malwa, which talk about the love between the Sultan and Roopmati. Adham Khan was prompted to conquer Mandu partly due to Roopmati's beauty.

Q19. Answer: (d) Dog : Bark

The logic followed here is :-

Animal	Baby
Cow	Calf
Insect	Larva
Lion	Cub
Dog	Puppy

Therefore Here, Dog : Bark (Dog's sound) has given in option which is different from other three alternatives.

Hence, the correct answer is "Dog : Bark".

Q20. Answer: (d) Faizpur

The correct answer is Faizpur.

Key Points

• The Fiftieth (50th) Session of the Indian National Congress was held between 26 to 28 December 1936 at Faizpur.

• It was the first congress session to be held in a village.

• A large number of peasants (Almost 40,000) participated in the session.

• Dhanajinana Choudhari and Sane Guruji played an important role in organizing this session.

• The Faizpur Session was important for the Congress which had been raising demands for the welfare of the peasants.

• The Faizpur Session was also important because it was presided over by Jawaharlal Nehru who was at his peak of influence in Congress.

Additional Information

• The Indian National Congress is colloquially the Congress Party but often simply the Congress.

• It is a political party in India with widespread roots.

• It was founded in 1885.

• it was the first modern nationalist movement to emerge in the British Empire in Asia and Africa.

Q21. Answer: (c) Central

The correct answer is Central.

Key Points.

• A unitary government is often described as a centralized government.

• All powers held by the government belong to a single, central agency.

• The central (national) government creates local units of government for its convenience.

• A unitary government is one in which all the powers of administration are vested in a single centre.

• The centre is omnipotent.

Additional Information

• Countries with a unitary system include the United Kingdom, Japan, and Saudi Arabia.

• Countries with much larger regions, such as the United States, usually have federal systems of government.

• A unitary state may be divided into small units for the sake of administrative convenience but the units do not have any constitutional status of their own

Q22. Answer: (a) 1/24

GIVEN:

A and B together dig a tank = 12 days

A alone dig = 24 days

FORMULA USED:

Efficiency = Total work /No. of days

CALCULATION:

Let us assume total work done be 24 unit

(you can assume any number but for the sake of calculation, it is advised to take the L.C.M of the given numbers .Here, the given numbers are 12 and 24 and hence, the required L.C.M is 24)

=> No. of days taken by A and B together = 12 days

=> Now, Efficiency of both A and B = Total unit of work done/ No. of days = 24/12 = 2 uniit/day

A alone takes 24 days to dig

=> Efficiency of A = 24/24 = 1unit/day

Now, Efficiency of B = (Efficiency of A and B - Efficiency of A) = (2 - 1) = 1 unit/day

=> Hence, B can dig a tank = 24/ 1 = 24 days

=> In 24 days, B can dig a tank

=> In 1 day B can dig = 1/24

Hence, B can dig 1/24 of the tank in 1 day.

Q23. Answer: (b) 1857

The correct answer is 1857.

Key Points

• Tantia Tope's original name is Ramchandra Panduranga.

• He was born in1813 in Pune, India, and died on April 18, 1859, in Shivpuri.

• He was a leader of the Indian Mutiny of 1857–58.

• Although he had no formal military training, he was probably the best and most effective of the rebels' generals.

Additional Information

• The Indian Rebellion of 1857 was a major uprising in India in 1857–58 against the rule of the British East India Company, which functioned as a sovereign power on behalf of the British Crown.

• The rebellion began when sepoys refused to use new rifle cartridges, which were thought to be lubricated with grease containing a mixture of pigs' and cows' lard and thus religiously impure for Muslims and Hindus.

• It was begun in Meerut by Indian troops (sepoys) in the service of the British East India Company, it spread to Delhi, Agra, Kanpur, and Lucknow.

Q24. Answer: (d) 16 days

GIVEN:

X and Y completes work = 16 days

Y and Z completes work = 24 days

X, Y and Z together completes work = 12 days

FORMULA USED:

Efficiency = Total work done/ No. of days

CALCULATION:

Let us assume the total work done be 48 unit

(you can assume any number, but for the sake of calculation, it is advised to take the L.C.M of the given numbers. Here L.C.M of 16, 24 and 12 = 48)

As X and Y completes the work = 16 days

=> Efficiency of X and Y = 48/16 = 3 unit/ day

Now, Y and Z completes the work = 24 days

=> Efficiency of Y and Z = 48/24 = 2 unit/ day

Now, As X,Y and Z completes the work together = 12 days

=> Efficiency of X,Y and Z = 48/12 = 4 unit/day

Now, Efficiency of X =(Efficiency of X,Y and Z - Efficiency of Y and Z) = (4 - 2) = 2 unit/day

Efficiency of Z = (Efficiency of X,Y and Z - Efficiency of X and Y) = (4 - 3) = 1 unit/day

=> Total Efficiencies of X and Z = (2 +1) = 3 unit / day

Since, total work = 48 unit

=> No. of days taken by X and Z to complete the work = 48/3 = 16 days.

Hence, X and Z takes 16 days to finish the work.

Q25. Answer: (a) Ethiopia

The correct answer is Ethiopia.

Key Points

• The Ethiopian Empire, also known as Abyssinia.

• It was a kingdom that spanned a geographical area in the current state of Ethiopia.

• It began with the establishment of the Solomonic dynasty in approximately 1270 and lasted until 1974.

• When the ruling Solomonic dynasty was overthrown in a coup d'état by the Derg.

Additional Information

• The Solomonid dynasty founded the medieval Kingdom of Abyssinia.

• It was founded in 1270 CE.

• Their first ruler was Yekuno-Amlak (r. 1270-1285 CE), a local leader at Amhara.

Q26. Answer: (c) Halite

The correct answer is Halite.

Key Points

• Halite commonly known as rock salt, is a type of salt, the mineral (natural) form of sodium chloride (NaCl).

• Halite forms isometric crystals.

• Halite is mainly a sedimentary mineral that usually forms in arid climates where ocean water evaporates.

• Salt is widely used in cooking as a taste enhancer and in the curing of a number of foods, including bacon and fish.

Additional Information

• Limonite is a general term for a mixture of fine-grained iron oxides, generally dominated by goethite, but also possibly containing hematite, lepidocrocite, and other minerals.

• Hematite, also spelt haematite, heavy and relatively hard oxide mineral, ferric oxide (Fe_2O_3), that constitutes the most important iron ore because of its high iron content (70 per cent) and its abundance.

• Siderite, also called chalybite, is an iron carbonate ($FeCO_3$), a widespread mineral that is iron ore. The mineral commonly occurs in thin beds with shales, clay, or coal seams (sedimentary deposits) and in hydrothermal metallic veins (gangue, or waste rock).

Q27. Answer: (d) simple permanent

The correct answer is simple permanent.

Key Points

• Permanent tissues are derived from meristematic tissue once they lose the ability to divide.

• They are classified as simple and complex tissues.

• Parenchyma, collenchyma, and sclerenchyma are three types of simple tissues.

• Parenchyma tissue is involved in photosynthesis, secretion, food storage, and other activities of plant life.

• Collenchyma tissue provides support, structure, mechanical strength, and flexibility to the petiole, leaf veins, and stem of young plants, allowing for easy bending without breakage.

• Sclerenchyma is one of the three types of ground, or fundamental, tissue in plants; the other two types are parenchyma (living thin-walled tissue) and collenchyma (living support tissue with irregular walls).

Additional Information

• Vascular tissue is comprised of the xylem and the phloem, the main transport systems of plants. They typically occur together in vascular bundles in all plant organs, traversing roots, stems, and leaves.

• Nervous tissue is found in the brain, spinal cord, and nerves. It is responsible for coordinating and controlling many body activities. It stimulates muscle contraction, creates an awareness of the environment, and plays a major role in emotions, memory, and reasoning.

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• The tissue system that gives mechanical support to the whole plant and its growing organs against different external and internal forces is called the mechanical tissue system.

Q28. Answer: (c) Cricket

The logic followed here is :-

Sport	Players play respected sport	Count
badminton	Gunjan, Sophia	2
football	Gunjan, Sophia	2
cricket	Sonu, Ravi, Sophia, Monika	4
volleyball	Sonu, Ravi	2
hockey	Sophia, Monika	2

Therefore Here, 'Cricket' is played by maximum number of players.

Hence, the correct answer is "Cricket".

Q29. Answer: (d) 8 1/3 %

GIVEN:

Time = 12 years

Amount = Sum of money double

FORMULA USED:

S.I. =(P × R × T) /100

Amount = S.I. + P

Where, S.I. = Simple Interest, P = Principal, R = Rate of interest,, T = Time in years

CALCULATION:

Let us assume the sum of money be P,

According, to the given Question, Amount = double of sum of money = 2P, Time = 12 years

=> S.I. = (Amount - Principal) = (2P - P) = P

=> S.I. =(P × R × T)/100

=> P = (P × R × 12)/100

=> R = 25/3 = 8 1/3 %.

Hence, the required Rate of percent is 8 1/3 %.

Q30. Answer: (d) Malaysia

The correct answer is Malaysia.

Key Points

• Among the options, only Malaysia is NOT a permanent member of the United Nations Security Council.

• The United Nations Security Council is one of the principal organs of the United Nations.

• United Nations Security Council has 15 Members, and each Member has one vote. Among these 15 members, 5 are permanent members and 10 are non-permanent members.

• Permanent members:

1. China.
2. France.
3. Russia.
4. The United Kingdom.
5. The United States.

• Non-permanent members:

1. Estonia.
2. India.
3. Ireland.
4. Kenya.
5. Mexico.
6. Niger.

7. Norway.

8. Saint Vincentand the Grenadines.

9. Tunisia.

10. Vietnam.

Additional Information

• The Security Council held its first session on 17 January 1946 at Church House, Westminster, London.

• Since its first meeting, the Security Council has taken permanent residence at the United Nations Headquarters in New York City.

• In August 2021, India took over the presidency of the United Nations Security Council (UNSC) for a duration of one month.

• India's next month of the Council presidency will be in December 2022.

Q31. Answer: (c) (n(n+ 1)(2n + 1))/2

FORMULA USED:

If $1^2 + 2^2 + 3^2 + ...+ n^2$ then, sum = n (n +1) (2n +1)over 6

CALCULATION:

Here, 3 + 12 + 27 + ---------- + $3n^2$

Now, on taking 3 common 3 (1 + 4 + 9 + ---------- + n^2).....(1)

Now, equation (1) can be written as

=> 3 ($1^2 + 2^2 + 3^2$ + ---------- + n^2) = 3 n (n+1) (2n+1_)over 6 = n (n+1) (2n +1)over2

Hence, the required value is [n(n+1) (2n +1)]/2.

Q32. Answer: (a) anaerobic

The correct answer is anaerobic.

Key Points

• Anaerobic exercise is a type of exercise that breaks down glucose in the body without using oxygen; anaerobic means "without oxygen".

• In practical terms, this means that anaerobic exercise is more intense, but shorter in duration than aerobic exercise.

• Anaerobic exercises involve quick bursts of energy and are performed at maximum effort for a short time.

• Examples include jumping, sprinting, or heavy weight lifting.

• The anaerobic energy system (also called the lactic acid system) is the body's way of creating energy in the form of ATP quickly.

Additional Information

• The blood circulatory system is a system of organs that includes the heart, blood vessels, and blood which is circulated throughout the entire body of humans or other vertebrates. It includes the cardiovascular system, or vascular system, which consists of the heart and blood vessels.

• If you contract a disease, you catch it but only use this if it's something serious. You catch a cold, but contract malaria. The contract also means "shrink."

• Aerobics is a form of physical exercise that combines rhythmic aerobic exercise with stretching and strength training routines with the goal of improving all elements of fitness.

Q33. Answer: (c) RATS

The logic followed here is :-

• RAW : WAR

Similarly,

• STAR : ?

Hence, the correct answer is "RATS".

Q34. Answer: (b) 1 : 16

GIVEN:

Ratio of radii of two circles = 1:4

FORMULA USED:

Area of circle = πr^2

CALCULATION:

Let, the radii of two circles be r1 and r2 respectively

Now, here r1 = 1 and r2 = 4

Since, Area of circle = πr^2

Ratio of Area of two circles = $\pi r1^2 / \pi r2^2 = r1^2 / r2^2 <=> 1^2/4^2 = 1/16$

Hence, Ratio of radii of two circles is 1 : 16

Q35. Answer: (c) Veena

The correct answer is Veena.

Key Points

• The veena also spelt vina, comprises various chordophone instruments from the Indian subcontinent.

• Ancient musical instruments evolved into many variations, such as lutes, zithers, and arched harps.

• Veena is a musical instrument that is not Indo-Islamic in origin.

• One who plays the veena is referred to as a vainika.

• It remains an important and popular string instrument in classical Carnatic music.

Additional Information

• Sitar is a stringed instrument of the lute family that is popular in northern India, Pakistan, and Bangladesh.

• Rubab, robab, or rabab is a flute-like musical instrument. The rubab is one of the national musical instruments of Afghanistan; and is also commonly used in Pakistan.

• A tabla is a pair of twin hand drums from the Indian subcontinent. Since the 18th century, it has been the principal percussion instrument in Hindustani classical music, where it may be played solo, as an accompaniment with other instruments and vocals, and as a part of larger ensembles.

Q36. Answer: (a) 46

The logic followed here is :-

Therefore Here, '46' given in the series instead of '47'.

Thus 46 DOES NOT belong to the following series.

Hence, the correct answer is "46".

Q37. Answer: (b) Anandmath

The correct answer is Anandmath.

Key Points

• Bankim Chandra Chattopadhyay wrote the national song 'Vande Mataram'.

• It was a part of his novel Anandamath (1882).

• It is a political novel depicting a Sanyasi army fighting British soldiers.

• The poem was first sung by Rabindranath Tagore in the 1896 session of the Indian National Congress.

• On 24 January 1950, the Constituent Assembly of India has adopted "Vande Mataram" as a national song.

• On this occasion, the first President of India, Rajendra Prasad stated that the song should be honoured equally with the national anthem of India, Jana Gana Mana.

Additional Information

• Durgeshnandini is a Bengali historical romance novel written by Indian writer Bankim Chandra Chattopadhyay in 1865.

• Devi Chaudhurani is a Bengali novel written by Bankim Chandra Chatterjee and published in 1884. It was later translated to English by Subodh Chunder Mitter.

• Kapalkundala is a Bengali romance novel by Indian writer Bankim Chandra Chattopadhyay. Published in 1866.

Q38. Answer: (a) 200

GIVEN:

Ratio of two numbers = 2:3

Product of LCM and HCF = 9600

FORMULA USED:

L.C.M × H.C.F = Product of two numbers

CALCULATION:

Let us take the numbers to be 2x and 3x

Since, L.C.M × H.C.F = product of two numbers

Now, L.C.M × H.C.F = 2x × 3x

So, $9600 = 6x^2$

$=> x^2 = 1600$

=> x = 40

Now, the numbers are 2x = 2 × 40 = 80 and 3x = 3 × 40 = 120

Now, sum of the numbers = (80 +120) = 200.

Hence, sum of the numbers are 200.

Q39. Answer: (d) Sophia

The logic followed here is :-

Name of Player	Sport played by players
Sophia	Badminton, Football
Rohan	Badminton, Football, Hockey, Cricket
Dinesh	Cricket, Volleyball
Rahul	Cricket, Volleyball
Naveen	Hockey, Cricket

Therefore Here, All players except 'Sophia' plays cricket thus Sophia does not play cricket.

Hence, the correct answer is "Sophia".

Q40. Answer: (a) Nagpur

The correct answer is Nagpur.

Key Points

• Nagpur Airport, also known as Dr. Babasaheb Ambedkar International Airport, serves Nagpur in Maharashtra state in India.

• It was named in 2005 after B. R. Ambedkar, Dr. "Babasaheb" Ambedkar, the chief architect of the Indian Constitution.

• Dr. B. R. Ambedkar:

• B. R. Ambedkar was popularly known as Babasaheb Ambedkar.

• He was one of the architects of the Indian Constitution.

• He was a very well-known political leader, eminent jurist, Buddhist activist, philosopher, anthropologist, historian, orator, writer, economist, scholar, and editor, too.

Additional Information

• Airports in Maharastra:

• There are 12 Airports in Maharastra.

• Chhatrapati Shivaji International Airport (BOM), Mumbai

• Pune International Airport (PNQ), Pune

• Dr Babasaheb Ambedkar International Airport (NAG), Nagpur

• Shri Guru Gobind Singh Ji Airport (NDC), Nanded

• Akola Airport (AKD)

• Aurangabad Airport (IXU)

• Shirdi Airport (SAG)

• Kolhapur Airport (KLH), Kolhapur

• Gandhinagar Airport

• Solapur Airport

• Jalgaon Airport

• Ozar Airport in Ozar

Q41. Answer: (a) Russia

The correct answer is Russia.

Key Points

• Saudi Arabia has led the world in annual oil exports, but that changed in 2019 when the United Arab Emirates overtook it as the world's biggest oil exporter.

• The United States has also increased its share of global oil exports, accounting for 8.17% of exports in 2020, up from 5.71% in 2019.

• Russia takes the second spot.

• In 2019, it accounted for 11.6% of global exports, totalling $74.4 billion.

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• Production reached an annual average of 10.5 million barrels per day.

• Produced by major names like Rosneft, Surgutneftegas, and Gazprom. This accounts for 11% of global oil production.

Additional Information

• Oil is the third largest exported product in the world, by revenue. In 2019, crude petroleum accounted for 3.82% of global trade.

• Crude oil is unrefined petroleum that's used to manufacture many products, including gasoline, heating fuel, and plastics. As of 2019, global oil production reached 4.2 billion metric tons.

• Top countries list:

• Saudi Arabia

• Russia

• United States

• Canada

• Iraq

• United Arab Emirates

• Nigeria

• Kuwait

• Kazakhstan

• Norway

Q42. Answer: (c) OLEV

The logic followed here is :-

CALM is coded as XZON

Similarly,

LOVE will be coded as:

Hence, the correct answer is "OLEV".

Q43. Answer: (c) 72

The logic followed here is :-

Checking options:

1) 87 → 8 - 7 = 1

2) 75 → 7 - 5 = 2

3) 72 → 7 - 2 = 5

4) 96 → 9 - 6 = 3

Hence, the correct answer is "72".

Q44. Answer: (d) 2^(nd) Five Year Plan

The correct answer is 2nd Five Year Plan.

Key Points

• Mahalanobis Plan was India's second five-year plan (1956-61) proposed by Professor Prasanta Chandra Mahalanobis.

• PC Mahalanobis established the Indian Statistical Institute (ISI) in Calcutta in 1931 and for the same reason, he is known as the father of Indian Statistics.

• He was a member of the first Planning Commission of free India.

• This plan gave priority to investment goods, as they were crucial for the further economic growth of India.

• The plan explores the allocation of investment between the different sectors of the economy.

• Two sectors are considered in the model; the production goods-producing sector (K-sector) and the consumption goods-producing sector (C-sector).

Additional Information

• Basic information about the planning commission and 5- year plans:

• The planning commission was founded: in 1950.

• Planning Commission head: Prime Minister

• First five-year plan launched: 1951

• A total number of 5- year plans: 12.

• Planning Commission dissolved: 2014 (By PM Narendra Modi)

Five Year Plan	Period	About the Plan

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First	1951-56	• Objective -Development of Agriculture - Based on Harrod Domar Model - Target growth rate - 2.1% - Actual growth rate - 3.6%
Second	1956-61	• Objective - Industrial Development - Based on P.C. Mahalanobis Model, 1953 - Target growth rate - 4.5% - Actual growth rate - 4.27%
Third	1961-66	• Objective - Self-sufficiency in food, and economy - Also called Gadgil Yojana, named after Deputy Chairman of Planning Commission D.R. Gadgil - Failure of plan due to Sino Indian War (1962) and Indo-Pak War (1965) - Target growth - 5.6% - Actual growth - 2.4%
Fourth	1969-74	• Objective - Self-reliance and sustained growth - Green Revolution started - Nationalization of 14 major banks - Target growth - 5.7% - Actual growth - 3.3%
Fifth	1974-78	• Objective - Removal of poverty - The slogan of Garibi Hatao was used. - Terminated by the Morarji Desai government in 1978 - Target growth - 4.4% - Actual growth - 4.8%
Sixth	1980-85	• Objective - Improvement in infrastructure, agriculture, and industry, economic liberalization - Target growth - 5.2% - Actual growth - %5.7
Seventh	1985-90	• Objective - Modernisation and increase in employment - The private sector got priority over the public sector - Target growth - 5% - Actual growth - 6.1%
Eighth	1992-97	• Objective - Human Resource development - New Economic Policy of India launched. - Target growth - 5.6% - Actual growth - 6.8%
Ninth	1997-02	• Objective - Growth with social justice and equality - Target growth - 6.5% - Actual growth - 5.6%
Tenth	2002-07	• Objective - Increase in investment - Target growth - 8% - Actual growth - 7.6%
Eleventh	2007-12	• Objective - Rapid and inclusive growth - Prepared by C. Rangarajan. - Target growth - 9% - Actual growth - 8%
Twelfth	2012-17	• Objective - Sustainable development - Target growth - 8%

Q45. Answer: (b) PARAM 8000

The correct answer is PARAM 8000.

Key Points

• PARAM is a series of supercomputers designed and assembled by the Centre for Development of Advanced Computing (C-DAC) in Pune, India.

• PARAM means "supreme" in the Sanskrit language, whilst also creating an acronym for "PARAllel Machine". As of June 2021, the fastest machine in the series is the PARAM Siddhi AI which ranks 89th in the world with a Rpeak of 5.267 petaflops.

• The PARAM 8000 was the first machine in the series and was built from scratch. A prototype was benchmarked at the "1990 Zurich Super-computing Show" of the machines that ran at the show it came second only to one from the United States.

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• It was created in three months at a cost of Rs. 160 million (US$2 million) - the first Indian supercomputer.

Additional Information

• ENIAC was the first programmable, electronic, general-purpose digital computer, completed in 1945. It was Turing-complete and able to solve "a large class of numerical problems" through reprogramming.

• SAGA-220 is a supercomputer built by the Indian Space Research Organisation. It was unveiled on 2 May 2011 by Dr. K. Radhakrishnan, Chairman, ISRO.

Q46. Answer: (d) religious

The correct answer is religious.

Key Points

• The Phad Painting is practised in Rajasthan.

• It is a style of painting in which scroll painting and folk painting is done on a canvas or a long cloth, termed as 'phad'.

• Generally, the narratives of the folk deities of the state are depicted in this style of painting.

Additional Information

• The famous Madhubani paintings belong to the Indian state of Bihar.

• Kalighat paintings originated in the vicinity of Kalighat Kali Temple, Kalighat, Kolkata.

• Madhubani Paintings originated from the Madhubani district, Mithila region of Bihar.

• Kalamkari originated in Andhra Pradesh and Telangana.

Q47. Answer: (a) operating system

The correct answer is operating system.

Key Points

• Operating System

• An operating system (OS) serves as an interface between the computer user and the hardware.

• Operating System software is responsible for controlling computer hardware, managing software resources, and offering standard services for computer programs.

• By utilising the hardware drivers as the interface between the two, it sits in between the applications you execute and the hardware.

• For instance, when an application wants to print something, it defers to the OS to handle that operation.

• The following are some of the key functions that an operating system should perform:

• Memory management,

• Device management,

• Processor management,

• Security,

• File management,

• Coordination between other software and users,

• Error detection tools,

• and Job accounting.

Additional Information

• Operating systems are present on a wide range of computing devices, including supercomputers, web servers, mobile phones, and gaming consoles.

• Some of the most popular operating systems include:

• Apple macOS

• Apple's iOS

• Microsoft Windows

• Linux

• UNIX

• Android

• With a market share of roughly 76.45%, Microsoft Windows is the most popular operating system for general-purpose personal computers.

• In second place (17.72%) is Apple Inc.'s macOS, followed by all of the Linux distributions in third (1.73%).

• In the year 2020, Android's market share in the mobile industry (which includes smartphones and tablets) is up to 72%.

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Q48. Answer: (c) 36°

GIVEN:

The ratio of angles of a quadrilateral = 2:4:6:8

CONCEPT USED:

The sum of all angles of a quadrilateral = 360°

CALCULATION:

Let the angles of a quadrilateral be 2x, 4x, 6x and 8x

Now, Sum of the angles in a quadrilateral = 360°

So, 2x + 4x + 6x + 8x = 360°

20x = 360°

x = 18°

Now, the smallest of these angles is 2x = 2 × 18° = 36°

Hence, the smallest of these angles is 36°.

Q49. Answer: (b) 119

CONCEPT USED:

Co- prime numbers: The numbers which have no common factors except 1, is called co- prime number.

H.C.F of two co- prime number will always be 1

L.C.M of two co- prime number will be the product of them

Here L.C.M = Least Common Multiple

H.C.F = Highest Common Factor

CALCULATION:

As, 119 can be factorized as 119 = 17 × 7

As, 17 and 7 are two- co -prime numbers as they have no common factors except 1

Since, L.C.M of two co- prime numbers are the product of two co-prime numbers

L.C.M = 17 × 7 = 119

Hence, L.C.M is 119.

Q50. Answer: (b) Mural

The correct answer is Mural.

Key Points

• Mural Paintings

• Mural paintings are the only form of art that truly alters and shares space, making them appear three-dimensional.

• They must be painted on the walls of big buildings like caverns and temples since they are too big to fit on paper.

• The three main religious themes depicted by the paintings are Hinduism, Buddhism, and Jainism.

• Their natural relationship to architecture and wide-ranging public importance are two key characteristics that set them apart.

• The colour pigments used in ancient Indian mural paintings were made by combining natural materials like chalk, terracotta, red ochre, and yellow ochre with animal fat.

• Mural paintings can be found in places like Ajanta, Thiruvarur, Bagh Caverns, Sittanavasal Caves, Kailasanatha Temple in Ellora, Armamalai Cave, and Ravan Chhaya Rock Shelter.

Additional Information

• Ajanta Paintings

• One of the earliest existing murals on the Indian subcontinent was carved out of volcanic rocks in the 4th century AD in the Ajanta caves.

• It consists of 29 horseshoe-shaped caverns.

• These caves are well-known for their magnificent mural paintings, which were produced during the Mauryan Empire's rule and took four to five centuries to complete.

• The paintings show the social fabric and human ideals as well as historical fashions.

Q51. Answer: (c) Ankleshwar

The correct answer is Ankleshwar.

Key Points

• Ankleshwar

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• Ankleshwar is the largest and most famous petroleum site located in the Bharuch district of Gujarat, India.

• The Ankleshwar field, located roughly 80 km south of Vadodara and nearly 160 km south of Khambhat, was the first significant oil find and was made in 1958.

• The anticline at Ankleshwar is 4 km wide and 20 km long.

• Oil can be found between 1000 and 1200 metres below the surface.

• It is such a productive oilfield that Jawaharlal Nehru, India's former prime leader, referred to it as the fountain of prosperity.

• This field has the potential to produce 2,500,000 million tonnes of oil annually.

• The refineries in Trombay and Koyali receive oil from this field.

Additional Information

• Oil and Gas Industry

• The discovery of the nation's first oil resources in the town of Digboi in the state of Assam in 1889 marked the beginning of India's oil and gas sector.

• After the discovery of gas fields in Assam and Gujarat, the natural gas industry in India got its start in the 1960s.

• Gujarat is home to 4% of India's estimated total natural gas reserves and 20% of the country's projected total crude oil reserves.

• The largest oil field in India, known as Bombay High, is situated at the coast of Mumbai, Maharashtra.

• The first refinery in India's public sector is the Guwahati Refinery.

• The largest refinery in the world at present is the Jamnagar Refinery in India, which is owned and run by Reliance Industry.

Q52. Answer: (d) 448

The correct answer is 448.

Key Points

• Constitution of India

• The Indian Constitution is the country's highest law.

• The document outlines the framework that defines the fundamental political code, as well as the fundamental rights, directive principles, and responsibilities of citizens.

• It also lays out the structure, methods, powers, and duties of governmental institutions.

• It is the world's longest-written national constitution.

• On 26 November 1949, the Indian Constituent Assembly approved it, and it went into effect on 26 January 1950.

• It comprised 395 articles in 22 parts and 8 schedules at the time of its implementation.

• As of October 2020, there are 448 articles in the Constitution of India.

• Currently (2021), it has 470 articles, 25 parts, 12 schedules, and 105 amendments.

Additional Information

• Dr. B. R. Ambedkar served as the Constitution of India's principal architect.

• India is proclaimed to be a sovereign, socialist, secular, and democratic republic in the constitution

• It also guarantees its citizens justice, equality, and liberty while working to foster fraternity.

• The 42nd amendment act, passed in 1976 during the Emergency, added the phrases "secular" and "socialist" to the preamble.

• At the Parliament House in New Delhi, the original 1950 constitution is kept in a helium-filled box.

Q53. Answer: (a) 1510 AD

The correct answer is 1510 AD.

Key Points

• Conquest of Goa by the Portuguese

• With the aid of Krishnadev Raya (ruler of the Vijaynagar empire), Afonso de Albuquerque defeated Ismail Adil Shah, the Sultan of Bijapur, and captured Goa in 1510 AD.

• He is also credited with ending the Sati tradition in Goa.

• Goa was officially taken over by the Portuguese and Albuquerque on February 17, 1510, with no resistance

• Under penalty of death, Albuquerque reaffirmed that the city was not to be taken over and that its citizens were not to be injured.

• Timoji's intelligence of the enemy's preparations was confirmed when the Portuguese discovered more than 100 horses belonging to the ruler of Bijapur, 25 elephants, and partially finished new ships within the city.

• Goa served as the principal Portuguese base in the East for four and a half centuries and eventually became the capital of the Portuguese East Indies and Portuguese Indian territories.

Additional Information

• History of Goa

• Despite being the geographically smallest state in India, Goa has a lengthy and varied history.
• With regard to colonial influences and a multicultural aesthetic, it has many similarities to Indian history.
• During the Iron Age, Goa was governed by the Mauryan and Satavahana Empires.
• The Kadamba dynasty, the Vijayanagara Empire, the Bahmani Sultanate, and the Bijapur Sultanate all ruled over Goa during the Middle Ages.
• After a 36-hour fight, India conquered Goa in 1961 and seized it.
• In 1987, Goa received statehood as a result of the Konkani language agitation.
• Among the Indian states, Goa has one of the highest Human Development Index and GDP per capita.

Q54. Answer: (d) 1

FORMULA USED:
$\text{cosec}^2\theta - \cot^2\theta = 1$
CALCULATION:
Here, $\text{cosec}\ \theta = 3x$ and $\cot\theta = 3/x$
Since, we have $\text{cosec}^2\theta - \cot^2\theta = 1$
So, $(3x)^2 - (3/x)^2 = 1$
$\Rightarrow 9x^2 - (9/x^2) = 1$
$\Rightarrow 9(x^2 - 1/x^2) = 1$`.
Hence, the required value is 1.

Q55. Answer: (a) 52

GIVEN:
Number of girls in a class = 7 times the number of boys
CALCULATION:
Let the number of boys be x
Then, According to the given Question,
Number of girls = 7 times the number of boys
Number of girls = 7× x= 7x
So, the total number of children = x + 7x = 8x
So, in the given options, 72, 8, 48 ,52 .Only 52 is not divided by 8x
Hence, 52 cannot represent the total number of children.
Hence, the number which cannot represent the total number of children in the class is 52.

Q56. Answer: (d) 395/3744

GIVEN:
$\sin\theta = 5/13$
FORMULA USED:
$\sin\theta = p/h$
$\cos\theta = b/h$
$\tan\theta = p/b$
$\cot\theta = b/p$
$h^2 = p^2 + b^2$
Where, h = hypotenuse, p = perpendicular, b= base
CALCULATION:
Here, $\sin\theta = 5/13 = p/h$
Now, $h^2 = p^2 + b^2$
$\Rightarrow 13^2 = 5^2 + b^2$
$\Rightarrow 169 - 25 = b^2$
$\Rightarrow 144 = b^2$
$\Rightarrow 12 = b$
$\cos\theta = b/h = 12/13$
$\tan\theta = p/b = 5/12$
$\cot\theta = b\backslash p = 12/5$

cosθ - tanθ over 2cotθ = (12/13 - 5/12)over 2 × 12/5 = (144 -65)over 156 × 5/24 = 79/156 × 5/24 = 395/ 3744

Hence, the required value is 395/3744.

Q57. Answer: (c) ADSL

The correct answer is ADSL.

Key Points

• ADSL

• Asymmetric Digital Subscriber Line (ADSL) is a technology that enables high-bandwidth, fast data transmission to homes and businesses over copper wire telephone wirings.

• ADSL is asymmetric, as it uses the majority of its channels to transport data downstream to the user and only a tiny portion of them to upload data from the user.

• On the same phone line, ADSL supports both analogue (voice) and digital (data) traffic.

• It is usually provided with downstream internet connection data speeds ranging from 512 Kbps to around 6 Mb/s.

• Compared to a conventional dial-up connection, it is a more affordable way to access the internet at faster speeds.

• Download and upload speeds are not similar in ADSL technology.

• The Digital Subscriber Line (DSL) modem's primary function while using an ADSL connection is to download the content; it is not intended to distribute it to others.

Additional Information

• In order to enable simultaneous usage of the landline and the ADSL modem, ADSL operates on existing copper phone lines by utilising a DSL filter, also known as a splitter, to isolate the bands with higher frequencies.

• The one-way nature of most multimedia communication, in which a lot of data flows in the user's direction and just a little bit of interactive control data is returned, is something that ADSL was created to take advantage of.

• Symmetric Digital Subscriber Line (SDSL), which is less widespread, is different from ADSL.

• SDSL

• Broadband technology that delivers data via a phone network is known as SDSL.

• SDSL, however, has downstream bandwidth that is identical to upstream bandwidth from the network to the subscriber.

Q58. Answer: (c) 4

Given

Sum of two numbers = 75

Difference of squares of the numbers=300

Formula

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

Calculation

a + b=75

$a^2-b^2= 300$

Substituting in the equation

300=(75)(a-b)

a-b= 300/75=4

The difference between the given numbers is 4

Q59. Answer: (c) Universal Postal Union

The correct answer is Universal Postal Union.

Key Points

• Universal Postal Union

• One of the specialised institutions of the United Nations, the Universal Postal Union (UPU), coordinates postal policies among its member's countries.

• Under the influence of the Treaty of Bern, it was established in 1874 under the name General Postal Union, but in 1878 the name was modified to Universal Postal Union.

• The Congress, the Council of Administration (CA), the Postal Operations Council (POC), and the International Bureau are the four bodies that make up the UPU.

• Additionally, it is in charge of the telematics and EMS cooperatives.

• The UPU's main office is in Bern, Switzerland.

Additional Information

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• In 1948, it became a specialised agency of the UN, making it the second-oldest global international organization.

• The UPU's official language is French. In 1994, English was included as a working language.

• The majority of the UPU's records and publications are available in the six official languages (French, English, Russian, Mandarin Chinese, Spanish, and Arabic) of the United Nations, including its flagship magazine, Union Postale.

• The treaty stated that;

• There should be a standard flat charge for mailing letters anywhere in the world.

• Postal authorities should handle both domestic and international mail equally.

• Each nation should keep all funds gathered for international postage.

Q60. Answer: (b) be amended

The correct answer is be amended.

Key Points

• Kesavananda Bharti Case

• The Kesavananda Bharati case, which established the basic structure theory of the Indian Constitution, is a landmark judgment of the Supreme Court of India.

• The landmark decision was made on April 24th, 1973, by a narrow majority of 7:6.

• It holds that any provision of the Indian Constitution can be amended by the Parliament in order to fulfil its socio-economic obligations that were guaranteed to the citizens as stated in the Preamble

• It provides that such an amendment did not alter the Constitution's fundamental structure.

• However, the minority had a divergent view and cautioned against handing the Parliament unrestricted altering authority.

• The court ruled that the 24th Constitutional Amendment was fully lawful.

• But it deemed the second section of the 25th Constitutional Amendment to be excessive.

Additional Information

• Kesavananda Bharati

• He fought against the Kerala land reforms Act, which placed limitations on the management of religious property, in 1970.

• The ability to administer religiously owned property independently of the government was in dispute in this case under Article 26.

• The Supreme Court assembled the largest-ever bench of 13 judges to hear the case.

• The case had been heard for 68 days.

• The Kesavananda Bharati case, which had a severe dispute between the government and the judiciary, is popularly referred to as the fundamental rights case.

Q61. Answer: (c) Fateh Burj

The correct answer is Fateh Burj.

Key Points

• Fateh Burj

• The Fateh Burj, the tallest minar in India, is located in the Punjabi province's SAS Nagar district (Mohali district), near the old village of Chappar Chiri.

• In 2011, it was finished and inaugurated by the former Punjab chief minister Parkash Singh Badal.

• The village of Chappar Chiri is located along National Highway 205A (India), also known as Banda Singh Bahadur Road, which connects Kharar and Banur.

• The tower, which stands at 328 feet (100 meters), is dedicated to the Sikh Misls, which were established in 1711 and spread throughout most of Punjab.

• It is located just outside of Mohali, a short distance from Landran and 20 kilometres from Sirhind.

• Here, one of the most renowned Sikh fighters, Banda Singh Bahadur, defeated the Mughal army's leader, Wazir Khan, in a crucial conflict.

Additional Information

• Jhulta Minar

• One of India's most well-known minars is Jhulta Minar, located in Ahmedabad, Gujrat.

• Because both minarets shakes, Jhulta Minar is sometimes referred to as a shaking minaret.

• The mosque is thought to have been built in 1452 AD either by Sidi Bashir, a slave of Sultan Ahmed Shah, or by Malik Sarang, another Sultan of Gujarat.

• Qutub Minar

• The Qutub complex, a UNESCO World Heritage Site in Delhi's Mehrauli area, contains the Qutub Minar, a minaret or triumph tower.

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• Qutub Minar is the second-tallest landmark in Delhi, standing at a height of 72.5 metres (238 feet).

• Qutb Ud-Din-Aibak, who founded the Delhi Sultanate after overthrowing Delhi's final Hindu ruler, started constructing it in 1192 and finished it in 1193.

• Vijay Stambh

• In Chittor Fort in Chittorgarh, Rajasthan, India, there is an impressive victory monument called the Vijaya Stambha.

• In 1448, the Hindu Rajput king Rana Kumbha of Mewar built the tower to mark his victory over Mahmud Khalji's army of Malwa in the Battle of Sarangpur.

• The Hindu God Vishnu is honoured by the tower.

Q62. Answer: (c) extinct

The correct answer is extinct.

Key Points

• Extinct Species

• A species that cannot be found after a prolonged search in its area of habitation is said to be extinct species.

• A species loses all of its genetic heritage when it goes extinct.

• In order to adapt to alterations in the environment or genetic inheritance, species evolve into new species.

• According to estimates, there are currently between 10 and 14 million species, of which more than 1.2 million have been researched and more than 86% have yet to be discovered.

• Causes of Extinction

• Climate change

• Loss of habitat

• Diseases

• Lack of genetic diversity

• Some common examples of extinct species are Passenger Pigeon, Dodo, Tasmanian Tiger, Baiji White Dolphin, Pyrenean Ibex, etc.

Additional Information

• Rare Species

• A species is considered rare if its population is so limited that it could become vulnerable or endangered.

• Examples: the wild Asiatic buffalo the Himalayan brown bear, the desert fox, the hornbill, etc.

• Endangered Species

• Species in risk of going extinct are referred to as endangered species.

• Examples: Indian wild ass, Indian rhino, lion-tailed macaque, black buck, crocodile, and sangai (brow anter deer in Manipur).

• Vulnerable Species

• The term "vulnerable species" refers to those species whose populations have dropped to the point where they are likely to become endangered.

• Examples: Gangetic dolphin, blue sheep, Asiatic elephant, etc.

Q63. Answer: (a) Doddabetta

The correct answer is Doddabetta.

Key Points

• Doddabetta

• The Nilgiri Hills' highest peak, Doddabetta, has an elevation of 2637 meters.

• Around the mountain, there is a protected forest area.

• It is located in the Nilgiris District of Tamil Nadu, South India, 9 kilometres from Ooty on the Ooty-Kotagiri Road.

• According to the Badugu language, the name Doddabetta literally translates to "Big mountain."

• Along with Anamudi, Mannamalai, and Meesapulimala, it is the fourth-highest peak in South India.

• Two public telescopes are located in an observatory at the peak of Doddabetta.

• The Tamil Nadu Tourism Development Corporation (TTDC), which launched it on June 18, 1983, is in charge of running it.

Additional Information

• Armakonda

• Arma Konda, also known as Seethamma Konda, is the tallest mountain peak in the Godavari River basin and the state of Andhra Pradesh, standing 1,680 metres (5,510 feet) above sea level.

• It is the Eastern Ghats' tallest peak.

• Kalsubai

• The Kalsubai mountain of the Western Ghats lies in the Maharashtra region of India.

• The highest point in Maharashtra is located at its top, which is 1,646 metres above sea level.

• Anamudi

• The Indian state of Kerala has a mountain called Anamudi that is situated in the Ernakulam and Idukki districts.

• Its elevation is 2,695 metres (8,842 feet), and it has a topographic prominence of 2,479 meters, making it the highest peak in both South India and the Western Ghats.

• Because of the mountain's similarity to an elephant's head, the name Anamudi is literally translated as "elephant's head."

Q64. Answer: (b) 7,744

Given

Percentage increase in the population = 10%

Present population = 6400

Formula used

$Pn=P(1+r/100)^n$

where,

P_n= population after the n^(th)year

P = present population

r = rate of increase

n = no of years

Calculation

Population in 2 years = P2

P = 6400

r = 10

n = 2

Substituting,

$Pn=6400(1+10/100)^2=7744$

population after 2 years will be 7744

Q65. Answer: (c) 21°

Formula used

tan(180+x) = tan x

Calculation

2 sin (3x – 3)° = tan(180+60)°= tan(60)°

2 sin (3x – 3)° = √3

sin (3x – 3)°= √3/2 .....(1)

sin 60° = √3/2 .....(2)

equating (1) and (2)

so, (3x – 3)° = 60°

x = 21°

The value of x in the equation is 21°

Q66. Answer: (d) Qatar

The correct answer is Qatar.

Key Points

• FIFA World Cup, 2022

• The 2022 FIFA World Cup, a quadrennial international men's football championship played between the senior national teams of FIFA member countries, is set to take place for the 22nd time in 2022.

• Qatar will host it from November 20 to December 18, 2022.

• After the event in South Korea and Japan in 2002, this will be the second World Cup wholly held in Asia and the first World Cup ever to be contested in the Arab world.

• The tournament will include 32 teams for the last time; the tournament in the United States, Mexico, and Canada in 2026 will have 48 teams instead.

• At Al Bayt Stadium in Al Khor, the opening game of the tournament will be played between Qatar and Ecuador.

• The final is scheduled for December 18, 2022, which also happens to be Qatar National Day.

Additional Information

• FIFA World Cup

• The senior men's national teams of the members of the Fédération Internationale de Football Association (FIFA), the world's governing organisation of association football, compete in the FIFA World Cup, commonly referred to as the World Cup.

• Since the first competition in 1930, the championship has been given out every four years, with the exception of 1942 and 1946, when it was postponed due to the Second World War.

• France is the reigning champion after taking home a second title from the 2018 competition in Russia.

• The qualification phase of the current format determines which teams advance to the tournament phase, and it occurs over the preceding three years.

• Over the course of around a month, 32 teams, including the host nation(s), which automatically qualify, compete for the championship in venues inside the host country(s).

Q67. Answer: (a) 1/2

Calculation:

(1-1/(x + 1))(1-1/(x + 2))(1-1/(x + 3)) ..... (1-1/2x)

(1-1/(x + 1))=(x+1-1)/(x+1)=x/(x+1)

Similarly, the whole equation can be written as

(1-1/(x + 1))(1-1/(x + 2))(1-1/(x + 3)) ... (1-1/2x) = (x/(x+1))×((x+1)/(x+2))×((x+2)/(x+3))...((x+(x-1))/(x+x))

by striking out all the equal terms we get

(x/(x+1))×((x+1)/(x+2))×((x+2)/(x+3))...((x+(x-1))/(x+x)) = (x/(x+x))=x/2x=1/2

Hence the product of the given question is 1/2

Q68. Answer: (b) 52

The logic followed here is :-

Sum of alphabet positional values × 2 = Number code.

• W is coded as 46

= 23 × 2

= 46

And,

• CAT is coded as 48

= (3 + 1 + 20) × 2

= 24 × 2

= 48

Similarly,

• DOG will be coded as:

= (4 + 15 + 7) × 2

= 26 × 2

= 52

Hence, the correct answer is "52".

Q69. Answer: (a) 2 8/9

Calculation:

0.overline5 =0.5555555....

Let

0.55555...= x

multiplying by 10 we get,

5.5555.....= 10x

subtracting above equations we get

10x - x = 5.55555...- 0.5555.... = 5

solving we will get

9x = 5

x = 9/5

similarly

0.overline5=5/9, 0.overline6=6/9, ,0.overline7=7/9, 0.overline8=8/9

(0.overline5 + 0.overline6 + 0.overline7 + 0.overline8)=5/9+ 6/9+7/9+8/9=26/9 = 28/9

The solution of the given equation is 28/9

Q70. Answer: (a) -√3

Given

tan3θ.tan6θ = 1

Formula

tanθ=cot(90-θ)

Calculation

tan3θ=1/tan6θ=cot6θ

=tan(90-6θ)

so, 3θ=90-6θ

solving this we get θ=10 °

tan 30θ=tan(30 × 10)=tan300 °

tan300 ° =tan(360-60)=-tan 60= -√3

The value of tan300 ° is -√3

Q71. Answer: (d) Spring tides

The correct answer is Spring tides.

Key Points

• Spring Tides

• Pulling of the earth gravitationally in the same direction by the sun and the moon causes spring tides.

• When lunar and solar tides align, they reinforce one another and create a larger overall tidal.

• The high tides in this instance are higher than usual, and the low tides are lower than usual.

• Regardless of the season, spring tides happen twice each lunar month.

• Spring tides take place at the new and full moons.

• During the moon's quarter phases, the bulges cancel each other out since the sun and moon are at a right angle to one another.

Additional Information

• High Tides

• When the tide is high, it has reached its highest point and much of the shore is covered in water.

• This occurs as a body of water approaches one of the two bulges produced by the moon's gravitational pull.

• Low Tides

• At low tide, the water recedes to its lowest point and begins to move away from the beach.

• Two bulges are created on Earth (and its oceans) as a result of the moon's gravitational pull or tidal force: one at the location that is closest to the moon and the other on the side of the planet that is directly opposite the moon.

• Neap Tides

• Seven days after a spring tide, there is a period of moderate tides known as a neap tide, which occurs when the sun and moon are at right angles to one another.

• These tides also happen twice a month, just as spring tides.

• Low tides are a little higher and high tides are a little lower than usual during neap tide.

• When the moon is "half full," in the first and third quarters, neap tides occur.

Q72. Answer: (c) 1

Calculation:

According to the question,

(cosθ + secθ) = 2

=> cos θ + 1/cos θ = 2

=> (cos²θ + 1/ cosθ) = 2

=> cos2θ + 1 = 2 cosθ

=> cos2θ + 1 - 2 cosθ = 0

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=> $(\cos\theta - 1)^2 = 0$

=> $\cos\theta = 1$

=> $\cos\theta = \cos0°$

=> $\theta = 0°$

Now, $\sin6\theta + \cos6\theta$

=> sin^60 + cos^60

=> 0 + 1

=> 1

Therefore The value of sin^6θ + Cos^6θ is 1.

Q73. Answer: (c) Boat race

The correct answer is Boat race.

Key Points

• Vallam kali

• In Kerala, India, there is a famous traditional boat racing known as "Vallam Kali."

• War canoes with paddles are used in this style of canoe racing.

• It is primarily carried out in the springtime during the Onam harvest celebration.

• Vallam Kali features competitions for numerous varieties of paddled longboats and "snake boats."

• The Nehru Trophy costs each team roughly 6 lakh rupees.

• The main event is the race of the chundan vallam, or "snake boat," which is roughly 30-35 meters (100-120 feet) long and has 64 or 128 paddlers aboard.

• The snake boat race, also known as Vallam Kali, is a popular tourist destination.

Additional Information

• Other boat types that take part in the race include the veppu vallam, vadakkanody vallam, kochu vallam, churulan vallam, iruttukuthy vallam, odi vallam, veppu vallam, and vadakkanody vallam.

• A well-known vallam kali competition called the Nehru Trophy Boat Race takes place in the Punnamada Lake close to Alappuzha in Kerala, India.

• King Devanarayana of Chembakassery commissioned the construction of a war boat named Chundan Vallam during a conflict in Kerala at the beginning of the 13th century between the feudal kingdoms of Kayamkulam and Chembakassery.

• The Malayalam poetic style known as vanchipattu, or "boatsong," is frequently used during vallam kali and other similar festivities.

Q74. Answer: (d) D

The logic followed here is :-

• The outer polygon sides increases + 1 from figure A to B, B to C and C to D.

• The inner polygon sides increases + 1 from figure A to B, B to C, But inner polygon sides decreases - 2 from figure C to D.

Therefore Here, figure D is different from the other three alternatives.

Alternate Method

In figure A → + 1 side in increased from outer polygon to inner polygon.

In figure B → + 1 side in increased from outer polygon to inner polygon.

In figure C → + 1 side in increased from outer polygon to inner polygon.

In figure D → - 2 sides are decreased from outer polygon to inner polygon.

Hence, the correct answer is "D".

Q75. Answer: (a) LNM

The logic followed here is :-

Therefore Here, 'LNM' is different from other three alternatives.

Hence, the correct answer is "LNM".

Q76. Answer: (a) 118

Shortcut Trick

The average of the 4 consecutive even numbers = Sum ÷ 4 = 484 ÷ 4 = 121.

For an even number of consecutive terms, the average lies exactly midway between the two middle numbers.

Thus, the two middle even numbers adjacent to 121 are 120 and 122.

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The sequence of the 4 even numbers is 118, 120, 122, and 124.

The smallest number in this sequence is 118.

Therefore The correct answer is 118.

Alternate Method

Given:

Sum of 4 consecutive even numbers = 484

118

120

122

124

x

x+2

x+4

x+6

Average = 121

(484 ÷ 4)

Consecutive Even Numbers

Calculations:

Let the 4 consecutive even numbers be x, x + 2, x + 4, and x + 6.

=> Sum of the numbers = x + (x + 2) + (x + 4) + (x + 6) = 484

=> 4x + 12 = 484

=> 4x = 484 − 12

=> 4x = 472

=> x = 472 ÷ 4

=> x = 118

Since x is the smallest term in the sequence, the smallest number is 118.

Therefore The correct answer is 118.

Additional Information

Average of an Arithmetic Progression (AP)

The average of terms in an AP is exactly equal to the average of the first and last terms: Average = (First Term + Last Term) ÷ 2. It also represents the exact middle point of the distribution.

Sum of Terms in an AP

The sum of n terms can be calculated using the formula: S_n = n ÷ 2 × [2a + (n − 1)d], where 'a' is the first term and 'd' is the common difference.

Consecutive Even / Odd Numbers

The algebraic difference between any two adjacent consecutive even numbers or any two adjacent consecutive odd numbers is always exactly 2.

Q77. Answer: (a) 43.25 m²

Given

Side of an equilateral triangle is 10m

Formula used

Area of equilateral triangle= $\sqrt{3}/4 \times a^2$

where a is the side of the equilateral triangle

Calculation

a =10m

area = $\sqrt{3}/4 \times a^2 = \sqrt{3}/4 \times 10^2 = 43.3\ m^2$

The area of the triangle is approximately equal to 43.25m²(from option)

Q78. Answer: (b) Council of Scientific and Industrial Research

The correct answer is Council of Scientific and Industrial Research.

Key Points

• Council of Scientific and Industrial Research (CSIR)

• The Government of India founded the Council of Scientific and Industrial Research (CSIR), as an autonomous body in September 1942.

• It has since grown to become the largest research and development (R&D) organisation in India.

• As of 2013, it employed about 14,000 people throughout 38 laboratories and institutes, 39 outreach centres, 3 innovation centres, and 5 units across the country.

• This included a total of 4,600 scientists and 8,000 technical and support professionals.

• Structural engineering, ocean sciences, aerospace engineering, structural engineering, ocean sciences, life sciences, metallurgy, chemicals, mining, food, petroleum, and other fields are among the research and development activities of CSIR.

• As the nation's top institution, CSIR is ranked seventh in Asia.

Additional Information

• The Societies Registration Act, 1860 allows it to function as an independent entity even though the Ministry of Science and Technology provides the majority of its funding.

• New Delhi serves as its corporate headquarters.

• Among CSIR's notable accomplishments are the creation of the light combat aircraft (LAC) Tejas and the supercomputer Flysolver, as well as the organisation of expeditions and research projects in Antarctica.

• CSIR also developed a relatively affordable antiretroviral drug for treating HIV infection, which compelled the manufacturers of well-established medications to lower their prices.

• According to the Scimago Institutions Ranking World Report 2021, CSIR is the only Indian organisation among the top 100 international government institutions.

• It is placed 37th out of 1587 government institutions worldwide.

Q79. Answer: (d) deciduous

The correct answer is deciduous.

Key Points

• Deciduous Trees

• Trees that lose their leaves for a part of the year are said to be deciduous trees.

• Abscission is the process of losing useless portions, like leaves.

• All around the world, they can be found in both temperate and tropical areas.

• Deciduous trees have broad, flat leaves that are very light-catching and require a large amount of water.

• Winter can sometimes coincide with leaf loss, especially in temperate or polar regions where there is less sunlight available for photosynthesis.

• Deciduous trees lose their leaves in various parts of the world during the dry season or other seasons, depending on variations in rainfall, including tropical, subtropical, and arid climates.

• As a strategy for surviving difficult times, this enables the trees to go into dormancy.

• Some most important deciduous trees are:

• Sal

• Teak

• Oak

• Sandalwood

Additional Information

• Pioneer Trees

• Pioneer trees and plants are the species that emerge when nature is allowed to reign; they are often the first to colonize an area of land that has been damaged or degraded.

• Typically, they are robust, native species that are well adapted to the local environment and surroundings.

• Examples: Lichens, fireweed, grasses, fungi, bacteria, and willow.

• Coniferous Trees

• Common softwood tree species known as coniferous trees are distinguished by their pine-like needle leaves and seed-bearing cones.

• Although some conifers are deciduous and lose their leaves in the fall, the majority of conifer species are evergreen.

• Examples: Pine trees, Spruce trees, and Fir trees.

• Medicinal Trees

• Any plant used for medicinal, tonic, purgative, or other health-promoting purposes is known as a medicinal plant.

• This includes roots, leaves, seeds, bark, and other plant parts.

• Examples: Tulsi, Neem, Ginkgo, Sassafras, etc.

Q80. Answer: (b) 6

Shortcut Trick

Face value of any digit in a number is the digit itself.

Face value of 9 in 3,15,298 = 9

Face value of 3 in 3,15,298 = 3

Required Difference = 9 − 3 = 6

Therefore The correct answer is 6.

Alternate Method

Given:

Number = 3,15,298

Formula Used:

Face value of a digit is its own value, regardless of its position in the number.

3 1 5 2 9 8

Face Value = 3

Face Value = 9

Difference = 9 − 3 = 6

Calculations:

=> In the number 3,15,298, the digit 9 is at the tens place.

=> Face value of 9 = 9

=> The digit 3 is at the lakhs place.

=> Face value of 3 = 3

=> Difference = Face value of 9 − Face value of 3

=> Difference = 9 − 3 = 6

Therefore The correct answer is 6.

Additional Information

Place Value

Place value of a digit depends on its position. For 3,15,298: Place value of 3 = 3 × 1,00,000 = 3,00,000 and Place value of 9 = 9 × 10 = 90.

Comparison

The Face Value of a digit never changes, whereas the Place Value changes according to the position of the digit in the number.

Units Place Exception

For a digit at the units place, both the Face Value and the Place Value are always the same (e.g., for 8 in 3,15,298, both are 8).

Q81. Answer: (d) 63, 5

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

1) The total number of students in 10^(th) grade is as follows :

=> 25 + 12 + 5 + 11 + 3 + 7 = 63

Therefore Here, the total number of students in 10th grade is '63'.

2) Number of students play both cricket and tennis is as shown below :

Therefore Here, students are there in 10th grade play both cricket and tennis is '5'.

Hence, the correct answer is "63, 5".

Q82. Answer: (d) Rs. 17,500

Given

Selling price of the vehicle = Rs. 52500

Loss percentage = 25%

Formula used

Loss percentage = (CP-SP)/CP× 100

where CP = Cost price

SP = Selling price

Calculation

Loss percentage = 25 = (CP-SP)/CP× 100 = (CP-52500)/CP× 100

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25/100=(CP-52500)/CP

Solving this we get, CP = 70000

Loss = CP - SP = 70000 - 52500 = 17500

Loss in the selling of the vehicle is Rs. 17,500

Q83. Answer: (a) Mossack Fonseca & Co

The correct answer is Mossack Fonseca & Co.

Key Points

• Panama Papers

• The 11.5 million secrets, encrypted documents that belonged to the Panama-based legal firm Mossack Fonseca & Co, and were leaked are known as the "Panama Papers."

• The documents, known as the "Panama Papers," were published on April 3, 2016, by the German newspaper Süddeutsche Zeitung (SZ).

• The report revealed a network of over 214,000 tax havens including individuals and organisations from 200 different countries.

• Financial details that were previously kept private about public figures, corporate executives, famous people, politicians, and others are included in the leaked data.

• The shocking information from the Panama Papers, which included information from 1977 to 2015, shocked the entire world.

• The International Consortium of Investigative Journalists (ICIJ) later republished the entire document on its website after the German magazine first reported the story.

Additional Information

• Indians in Panama Papers

• There were about 500 Indian names on it, including several well-known figures from the Bollywood industry, including Amitabh Bachchan, his daughter-in-law Aishwarya Rai, actor Ajay Devgn, businessman Vijay Mallya, etc.

• The Panama Papers revealed Indians who were listed in the disclosures who allegedly owned illegal properties worth about Rs 20,078 crore.

• The Central Board of Direct Taxes (CBDT) chairman and representatives from the Economic Development (ED), Reserve Bank of India (RBI), and Financial Intelligence Unit (FIU) have formed a multi-agency group (MAG) to oversee an investigation into the Panama Papers and similar cases of international tax leaks.

Q84. Answer: (d) Raising ozone layer

The correct answer is Raising the ozone layer.

Key Points

• Environmental Concern

• Environmental concerns are the results of human activities in the biophysical environment, most frequently negative consequences that lead to the degradation of the ecosystem.

• The term "environment" refers to both living and non-living elements of nature.

• Environmental degradation is the deterioration of the environment as a result of resource depletion, including poor soil, water, and air quality, ecosystem disruption, habitat loss, the extinction of wildlife, and pollution.

• Major current environmental concerns are:

• Climate change

• Growing pollution levels

• Global warming

• increasing consumption and use of plastics

• Water scarcity

• Deforestation

Additional Information

• The practice of environmental protection involves safeguarding the natural environment at the individual, group, or governmental levels for the benefit of both the environment and people.

• Raising the Ozone layer is not an environmental concern. Even it is good for the conservation of the environment.

• The ultraviolet (UV) radiation that destroys living tissue, such as that of people and plants, is blocked by the ozone layer in the upper atmosphere.

• Hence, by raising the ozone layer, it will absorb more UV rays and protect the environment from being harmed.

Q85. Answer: (c) Super Computer

The correct answer is Supercomputer.

Key Points

• SAGA-220

• An Indian supercomputer with a theoretical peak performance of 220 TeraFLOPS (220 Trillion Floating Point Operations per second) has been created by the Indian Space Research Organization (ISRO).

• In Thiruvananthapuram's Vikram Sarabhai Space Centre (VSSC), there is a supercomputing facility known as the Satish Dhawan Supercomputing Facility.

• Scientists working on space missions use the new "SAGA-220" (Supercomputer for Aerospace with GPU Architecture-220 TeraFLOPS) GPU-based supercomputer to tackle challenging aerospace issues.

• The chairman of ISRO, Dr. K. Radhakrishnan, officially launched the supercomputer SAGA-220 at VSSC on 2 May 2011.

• The SAGA-220 Supercomputer was entirely developed and constructed by the Vikram Sarabhai Space Centre using hardware that is readily accessible on the market, open-source software, and internal innovations.

Additional Information

• The 400 NVIDIA Tesla C2070 GPUs and 400 Intel Quad Core Xeon CPUs were provided by WIPRO for the system.

• Compared to the Xeon CPU's more modest output of 50 gigaflops, each NVIDIA Tesla C2070 GPU is capable of producing 515 gigaflops.

• This supercomputer has an approximate price tag of 14 crores rupees.

• The system only uses 150 kW of power and is environmentally friendly.

• On the Top500 list, SAGA-220 was placed 86th in June 2012. It was placed 422nd by June 2015.

Q86. Answer: (a) 10

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

Therefore Here, there are '10' triangles in given figure.

Hence, the correct answer is "10".

Q87. Answer: (d) 3

The number of pentagons in given figure is as shown below :

Therefore Here, there are 3 pentagons in given figure.

Hence, the correct answer is "3".

Q88. Answer: (a) 4

The logic followed here is :-

$= (6 \times 2)^2$

$= 12^2 = 144$

$= (3 \times 2)^2$

$= 6^2 = 36$

$= (3 \times 5)2$

$= 152 = 225$

Similarly,

Let us consider ? as x.

$\Rightarrow (4 \times ?)^2 = 256$

$\Rightarrow (4 \times ?)2 = 16^2$

$\Rightarrow 4 \times ? = 16$

$\Rightarrow ? = 4$

Therefore Here, the by solving the given pattern ? is 4.

Hence, the correct answer is "4".

Q89. Answer: (a) D

The logic followed here is :-

Therefore Here, 'and' is coded as 'D' from given code language.

Hence, the correct answer is "D".

Q90. Answer: (b) 79

The logic: "$" represents "+", and after adding 10, we get the number.

Replace "$" with "+" in the given expression.

Add 10 to the sum to get the final number.

Expression :

24 $ 34 = 68

31 $ 26 = 67

17 $ 52 = ?

Let's analyze the Expression by replacing $ with +.

Expression 1:

24 + 34 = 58

58 + 10 = 68

Expression 2:

31 + 26 = 57

57 + 10 = 67

Expression 3:

Follow the previous Expression:

17 + 52 = 69

69 + 10 = 79

Hence, the correct answer is "79".

Q91. Answer: (b) 427

The logic followed here is :-

Hundred's digit + Ten's digit = One's digit.

• First digit + second digit = third digit.

1) 639 → 6 + 3 = 9

2) 427 → 4 + 2 = 6

3) 325 → 3 + 2 = 5

4) 213 → 2 + 1 = 3

Alternate Method

The logic followed here is :-

1) 639 → 6 + 3 + 9 = 18 => Even number

2) 427 → 4 + 2 + 7 = 13 => Odd number

3) 325 → 3 + 2 + 5 = 10 => Even number

4) 213 → 2 + 1 + 3 = 6 => Even number

Therefore Here, '427' is different from other three alternatives.

Hence, the correct answer is "427".

Q92. Answer: (a) 0

The logic followed here is :-

Ten's digit × One's digit of First number = Second number.

• (Multiply of digits of first number = Second number)

• 21 : 2 → 2 × 1 = 2

• 85 : 40 → 8 × 5 = 40

• 30 : ? → 3 × 0 = 0

Hence, the correct answer is "0".

Q93. Answer: (b) 51

The logic followed here is :-

Sum of squares of numbers.

• $1^2 + 2^2 + 3^2 + 5^2$ → 1 + 4 + 9 + 25 = 39

• $2^2 + 3^2 + 4^2 + 5^2$ → 4 + 9 + 16 + 25 = 54

• $1^2 + 3^2 + 4^2 + 5^2$ → 1 + 9 + 16 + 25 = 51

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Hence, the correct answer is "51".

Q94. Answer: (b) TAKE

The logic followed here is :-

• FEAL : LEAF

Similarly,

• EAKT : ?

Hence, the correct answer is "TAKE".

Q95. Answer: (c) 19

By using BODMAS RULE :

Symbols	•	×	•	÷
Means	×	•	÷	•

Given equation is : (18 + 10 × 20) – 8 ÷ 6

After representing with the converted symbols the equation is as follows :

= (18 × 10 + 20) ÷ 8 - 6

= (180 + 20) ÷ 8 - 6

= 200 ÷ 8 - 6

= 25 - 6

= 19

Hence, the correct answer is "19".

Q96. Answer: (a) No girl student failed in the examination.

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

1) No girl student failed in the examination → True (As All the students passed the examination and Some of the students are girls so, No girl student failed in the examination is true)

2) All the girl students failed in the examination → False (As All the students passed the examination and Some of the students are girls so, All the girl students failed in the examination is false)

3) None of the boys passed the examination → False (As All the students passed the examination and Some of the students are girls so, None of the boys passed the examination is false)

4) Some of the boys failed the examination → False (As All the students passed the examination and Some of the students are girls so, Some of the boys failed the examination is false)

Therefore Here, 'No girl student failed in the examination' is true from the given statements.

Hence, the correct answer is "No girl student failed in the examination".

Q97. Answer: (d) 168149

The logic followed here is :-

Square of alphabet positional values.

• BED is coded as 42516

Similarly,

• DIG will be coded as:

Hence, the correct answer is "168149".

Q98. Answer: (a) A group of female teachers who neither play badminton nor tennis

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

Option 1) A group of female teachers who neither play badminton nor tennis.

This diagram is correct.

Option 2): A group of female teachers who are badminton players.

Option 3): A group of female teachers who are tennis players but not badminton players.

Option 4): In this particular region thee are Female teachers but the region does not coincide with tennis or badmintin hence it can be said that A group of female teachers who neither play badminton nor tennis

Hence, the correct answer is "Option 1".

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Q99. Answer: (c) 2

The least possible Venn diagram for the given relation is as follows :-

• All Players are humans.

• All Students are humans

• Some Students may be players and vice-versa.

Therefore Here, figure 2 represents the given relation.

Hence, the correct answer is "2".

Q100. Answer: (a) Moisture

The logic followed here is :-

• The temperature is representation of intensity of heat.

Similarly,

• Humidity is representation of amount of 'Moisture' in air.

Hence, the correct answer is "Moisture".

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