RRB NTPC CBT-I Official Paper (Held On: 27 Mar 2021 Shift 1) (Previous Year Paper)

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

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

Q1. Identify the odd word from the given options.

(a) Tablet
(b) Ointment
(c) Injection
(d) Treatment

Q2. Which of the following minerals is contained in bauxite, a clay like substance?

(a) Thorium
(b) Aluminium
(c) Coal
(d) Iron

Q3. The book 'A Brief History of Time' has been written by:

(a) J.V.Narlikar
(b) Satyendranath Bose
(c) Stephen Hawking
(d) C.V. Raman

Q4. The height of a house is h and 5.2 m long ladder is just sufficient to go at the top of the house when its inclination with the horizontal ground is 45°. Find the height of the house.

(a) 14 m
(b) 13√2/5 m
(c) 13 m
(d) 10.4 m

Q5. Rashmi Samant is the first Indian woman to occupy the position of president of _____ Student Union in Feb, 2021.

(a) Cambridge
(b) Cardiff
(c) Westminster
(d) Oxford

Q6. In a code language, BEST is written as UTTSFECB. How will CHAIR be written as in that language?

(a) SRJIBAIHDC
(b) CDHIBAIJRS
(c) CDHIABIJRS
(d) SRJIABIJRS

Q7. Find the greatest number which divides 285 and 1249 leaving remainders 9 and 7 respectively.

(a) 138
(b) 130
(c) 140

(d) 141

Q8. A fort has provisions for 150 men for 45 days. After 10 days 25 men left the fort. How long will the provisions last at the same rate for the remaining men?

(a) 50 days
(b) 40 days
(c) 45 days
(d) 42 days

Q9. Which of the following is a rational number?

(a) $(\sqrt{2} +1/\sqrt{8})^2$
(b) $2-\sqrt{5}$
(c) $(\sqrt{2}+\sqrt{5})^2$
(d) $2+\sqrt{5}$

Q10. The Indian Navy and IIT()_____ have signed a MoU for research in underwater domain of Naval Electronic Systems.

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

Q11. 1over3 of a commodity is sold at the rate of 15% profit, 1over4 is sold at the rate of 20% profit and the rest is sold at the rate of 24% profit. If a total profit of Rs. 62 is earned, then find the cost price of the commodity.

(a) Rs. 325
(b) Rs. 320
(c) Rs. 300
(d) Rs. 310

Q12. Study the following information carefully and answer the question that follows.

The following are the eligibility criteria for becoming a member of a library.

(i) The applicant should be able to pay a one-time membership fee of Rs. 10,000 and contribute two books worth Rs. 500.

(ii) The one-time membership fee is relaxed up to 50% if the applicant donates books worth Rs.5,000 in total.

(iii) For school students, membership fee is relaxed till the age of 18 years.

(iv) Serving school teachers are required to pay only Rs. 2,000 if they help 20 students to become members of the library.

(v) Only for serving Defence personnel and their wards, the membership of the library is free of cost.

Data/information about an individual is given. You have to decide, based on the information provided, under which criterion/criteria is the individual eligible, if so, to get a membership. Please note that an individual can be eligible under more than one criteria. You are not to assume anything other than the information provided in each question.

Mr. A is 30-years-old and the son of a retired army officer. He is ready to pay a membership fee of Rs. 10,000 and contribute two books worth Rs. 500.

(a) Not eligible
(b) Eligible only under (ii) and (v)
(c) Eligible only under (v)
(d) Eligible only under (i)

Q13. Citrus canker is a:

(a) hormonal disorder
(b) viral disease
(c) fungal disease
(d) bacterial disease

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Q14. Select the option that is related to the third term in the same way as the second term is related to the first term.

Tennis : Sport :: Dance : ?

(a) Troupe
(b) Music
(c) Art
(d) Stage

Q15. Which one of the following is NOT a scalar quantity?

(a) Time
(b) Speed
(c) Force
(d) Distance

Q16. The President of India is elected by:

(a) Electoral College
(b) Direct election
(c) System of Universal adult Franchise
(d) Members of the Parliament

Q17. Which of the following places is known for the world's largest Camel Fairs in India?

(a) Pushkar
(b) Jhalawar
(c) Kolayat
(d) Gangapur

Q18. Solve the following.

$5 + 5 \times 5 \div (5 \times 5) \times 5 = ?$

(a) 10
(b) 120
(c) 50
(d) 130

Q19. If K = 8, L = 5, N = 4 and T = 28, then what will be the value of $T \div N \times L + K$?

(a) 47
(b) 91
(c) 104
(d) 43

Q20. Who was the second person who joined individual satyagraha movement in 1940?

(a) Subhash Chandra Bose
(b) Jawahar Lal Nehru
(c) Muhammad Ali Jinnah
(d) Vinoba Bhave

Q21. The worship of images of Buddha became an important tradition in:

(a) Hinayana
(b) Mahayana
(c) Vajrayana
(d) Nyingma

Q22. Which South Inida classical dance form literally means 'Story-Play'?

(a) Kathakali
(b) Bharatanatyam
(c) Kathak
(d) Mohiniyattam

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Q23. Which was the first commercial and marketing arm of ISRO?

(a) Research Corporation Limited
(b) Space Corporation Limited
(c) Antrix Corporation Limited
(d) Sky Corporation Limited

Q24. Which of the following satellites of ISRO is an experimental satellite?

(a) RISAT - I
(b) RESOURCESAT - I
(c) SCATSAT - I
(d) YOUTHSAT

Q25. Seven friends P, Q, R, S, T, V and W are sitting around a circular table facing towards centre (not necessarily in the same order). R sits to the immediate left of W and third to the left of P. Only two friends sit between P and S. Q sits to the immediate left of V.

What is the position of T with respect to S ?

(a) Fourth to the right
(b) Third to the right
(c) Second to the right
(d) Third to the left

Q26. In a certain code, FACE is written as 6135 and DEAF is written as 4516. How will HIGH be written as in that code?

(a) 8798
(b) 8879
(c) 8987
(d) 8978

Q27. The first woman of Indian origin to travel into space was:

(a) Sunita Williams
(b) Yamuna Krishnan
(c) Shawna Pandya
(d) Kalpana Chawla

Q28. Supposing that the telegraph poles on a railroad are 50 m apart, how many poles will be passed by a train in 4 h if the speed of the train is 45 km/h?

(Include both the poles at the starting point as well as the one at the end of the journey in your count)

(a) 3604
(b) 3600
(c) 3602
(d) 3601

Q29. Which of the following rivers of India does not originate from the Western Ghat?

(a) Tapti
(b) Godavari
(c) Krishna
(d) Kaveri

Q30. What is the value of the following?

$(a + 1)(1 - a)(1 - a + a^2)(1 + a + a^2)(1 + a^6)$

(a) $1 - a^{12}$
(b) 1 - a^(36)
(c) 1 + a^(36)
(d) $1 + a^{12}$

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Q31. What does LED stand for in semiconductor electronics?

(a) Light evocative diode
(b) Low emitting diode
(c) Light emitting diode
(d) Laser emitting diode

Q32. In the late 18^(th) century, which Indian cities rose in importance as the Presidency cities?

(a) Calcutta (kolkata), Bombay (Mumbai) and Delhi
(b) Calcutta (Kolkata), Bombay (Mumbai) and Madras (Chennai)
(c) Delhi, Bombay (Mumbai) and Madras(Chennai)
(d) Calcutta (Kolkata), Delhi and Madras (Chennai)

Q33. A person lent a certain sum of money at the rate of 4% simple interest per annum. In 8 years, the interest amounted to Rs. 340 less than the sum lent. Find the sum lent.

(a) Rs. 400
(b) Rs. 800
(c) Rs. 600
(d) Rs. 500

Q34. When the Right to Property was removed from our 'fundamental rights' and was made a 'legal right'?

(a) 1978
(b) 1968
(c) 1976
(d) 1979

Q35. A man lent a part of Rs. 30,000 at the rate of 10% per annum and the remaining at the rate of 8% per annum simple interest. The total interest he received after 3 years is Rs. 8,280. Find the amount he lent at 10% per annum.

(a) Rs. 19,000
(b) Rs. 18,000
(c) Rs. 16,000
(d) Rs. 20,000

Q36. If $x^2 = y + z$, $y^2 = z + x$, $z^2 = x + y$, then the value of $1/(x+1)+1/(y+1)+1/(z+1)$ will be:

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

Q37. A can complete in 2 days as much of a task as B can complete in 3 days and B can complete in 4 days as much of the task as C can complete in 5 days. In what times will A, B and C together complete the task if A alone can complete it in 22 days?

(a) 12 days
(b) 10 days
(c) 11 days
(d) 14 days

Q38. If $X=\sqrt{(1+\sqrt{3}/2)}+\sqrt{(1-\sqrt{3}/2)}$ then the simplified value of X will be:

(a) 1over2
(b) 1
(c) $-\sqrt{3}$
(d) $\sqrt{3}$

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Q39. Select the option in which the numbers are related in the same way as are the same as are the numbers in the given set.

(9, 81, 6561)

(a) (4, 16, 64)
(b) (5, 25, 125)
(c) (2, 4, 16)
(d) (3, 9, 27)

Q40. Which person was/is compared with Shakespeare and is/was referred to as Shakespeare of India?

(a) Panini
(b) Kautilaya
(c) Vishnu Sharma
(d) Kalidasa

Q41. A vehicle before overhauling requires 5over6 h service time every 90 days, while after overhauling it requires 5over6 h service time every 120 days. What fraction of the pre - overhauling services time is saved in the latter case?

(a) 1over2
(b) 1over3
(c) 1over4
(d) 1over6

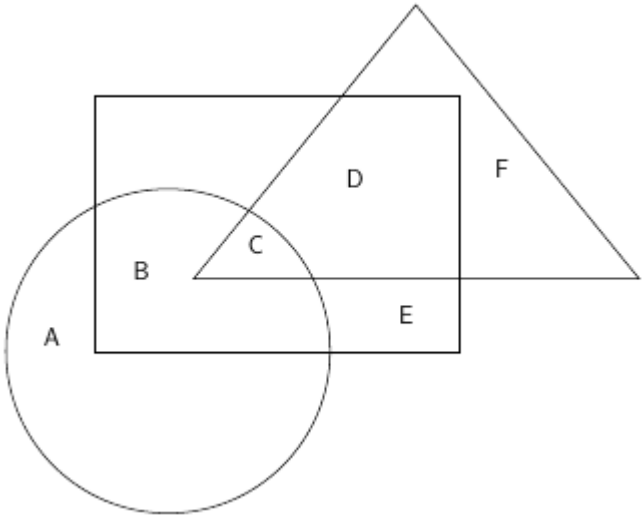
Q42. When was the National Green Tribunal Act passed in India?

(a) 2008
(b) 2011
(c) 2006
(d) 2010

Q43. Seven boys B1, B2, B3, B4, B5, B6, and B7 are sitting in a row facing towards south (not necessarily in the same order). B7 is not the neighbour of B1. B3 is to the immediate right of B4 but is not the neighbour of B5. B2 sits at one of the extreme ends and is the neighbour of B4. Only two boys sit between B1 and B5. Which of the following position of B6 is correct?

(a) Second to the left of B3
(b) Immediate right of B1
(c) Second to the right of B5
(d) Immediate right of B7

Q44. In the following Venn diagram, the rectangle represents engineers, the circle represents the people who live in urban areas and the triangle represents the people who are in government jobs. Which letter represents engineers who live in urban areas and are in government jobs?



(a) C

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

Q45. The main page of a website or a browser is called:
(a) Home page
(b) First page
(c) Master page
(d) Grand page

Q46. Identify the number that is different from the rest.
(a) 1296
(b) 836
(c) 1156
(d) 576

Q47. Hemavati is the tributary of _____ river.
(a) Krishna
(b) Mahanadi
(c) Kaveri
(d) Godavari

Q48. Find the median of the given data.
25, 18, 20, 16, 8, 10, 15, 20, 13, 30
(a) 15
(b) 20
(c) 30
(d) 17

Q49. In which year was the first five year plan presented in India?
(a) 1954
(b) 1956
(c) 1952
(d) 1951

Q50. The given data is arranged in ascending order. The median of the data is 63. Find the value of x.
29, 32, 48, 50, x, x + 2, 72, 78, 84, 95
(a) 62
(b) 60
(c) 63
(d) 64

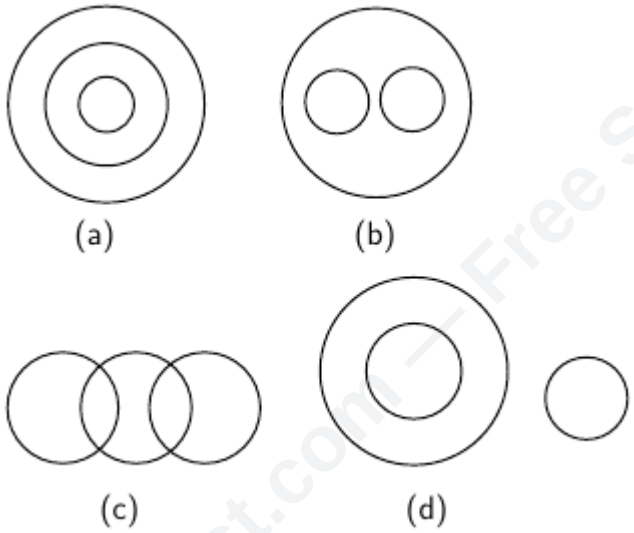
Q51. When did the first nationalisation of banks take place in India?
(a) 1890
(b) 1949
(c) 1978
(d) 1967

Q52. The distance between the Sun and the Earth is approximately:
(a) 150 million km
(b) 120 million km
(c) 140 million km
(d) 130 million km

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Q53. Select the Venn diagram that best represents the relationship between the following classes.

Parrot, Bird, Tiger



(a) a
(b) d
(c) c
(d) b

Q54. Old alluvial soil is known as:

(a) Regur
(b) Khadar
(c) Arid
(d) Bangar

Q55. Select the number that will come next in the following series.

2, 3, 6, 18, 108, 1944, ?

(a) 204120
(b) 209952
(c) 209976
(d) 2052

Q56. Which of the following is an output device in a computer?

(a) Scanner
(b) Printer
(c) Mouse
(d) Web cam

Q57. The incomes of A and B are in the ratio 3 : 2 and their expenditures are in the ratio 5 : 3. If each saves Rs. 2,000, what will be the difference between their incomes?

(a) Rs. 4,000
(b) Rs. 6,000
(c) Rs. 8,000
(d) Rs. 5,000

Q58. What is the least number which is a perfect square and contains 3675 as its factor?

(a) 11055
(b) 11025
(c) 11045
(d) 11035

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Q59. India secured the _____ rank on Global Innovation Index 2020.

(a) 15^(th)
(b) 50^(th)
(c) 71^(st)
(d) 48^(th)

Q60. A tree is broken by the wind at a height from the foot. The broken upper part of 10 m length touches the ground at a distance of 6 m from the foot of the tree. Find the height of the tree.

(a) 20 m
(b) 24 m
(c) 16 m
(d) 18 m

Q61. Select the letter that will come next in the following series.

G, J, F, I, E, H, ?

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

Q62. A reduction of 10% in the price of mangoes enables a person to buy 10 mangoes more for Rs. 2250. What is the price per dozen after reduction?

(a) Rs. 270
(b) Rs. 225
(c) Rs. 250
(d) Rs. 165

Q63. Find the fraction for of 0.666....

(a) 1over3
(b) 2over3
(c) 2over7
(d) 3over2

Q64. Out of the words listed, three are alike in some manner and one is different. Select the odd one.

(a) Jupiter
(b) Saturn
(c) Moon
(d) Venus

Q65. Selling rubber bands at the rate of 32 a rupee, a man loses 40%. How many rubber for a rupee should he sell in order to gain 20%?

(a) 16
(b) 15
(c) 20
(d) 18

Q66. The United Nations International Day of Women and Girls in Science is annually observed on _____.

(a) 15^(th)February
(b) 11^(th)February
(c) 15^(th) January
(d) 29^(th) January

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Q67. At the 91^(st) Oscar Awards, which of the following received the Best Picture award?

(a) Free Solo
(b) Green Book
(c) The Favorite
(d) Roma

Q68. Among the following, the weakest force is:

(a) Gravitational force
(b) Electric force
(c) Nuclear force
(d) Buoyant force

Q69. The Vijayanagara empire was founded in the:

(a) 14^(th) century
(b) 13^(th)century
(c) 15^(th) century
(d) 16^(th) century

Q70. If x = a (b - c), y = b (c - a) and z = c (a - b) then what will be the value of $(x/a)^3+(y/b)^3+(z/c)^3$?

(a) 3
(b) xyzover abc
(c) 3xyzover abc
(d) 3xyzabc

Q71. The prototype fast breeder reactor of India is situated at:

(a) Kudankulam
(b) Kalpakkam
(c) Tarapur
(d) Kaiga

Q72. Buffer stock, created by the Indian government, is the stock of:

(a) woof
(b) meat
(c) food grains
(d) plastics

Q73. The curved surface area of a cylindrical pillar is 66 m^2 and its volume is 231 m^3. Find the measure of its radius. (Take π=22/7)

(a) 7 m
(b) 14 m
(c) 12 m
(d) 7.5 m

Q74. A car travels a distance of 300 km at a uniform speed. If the speed of the car is 5 km/h more, it takes 2 h less to cover the same distance. Find the original speed of the car.

(a) 24 km/h
(b) 30 km/h
(c) 20 km/h
(d) 25 km/h

Q75. If P is a prime number and P divides Q^2, then P will NOT necessarily divide:

(a) 3Q
(b) Q + 1
(c) Q
(d) $2Q^2$

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Q76. The subject 'Marriage' belongs to the:

(a) union list
(b) residuary subjects
(c) concurrent list
(d) state list

Q77. Which mirror is used for shaving purpose?

(a) Concave
(b) Opaque
(c) Transparent
(d) Convex

Q78. Which is the RBI's vision document titled 'Payment And Settlement Systems In India'.

(a) Vision 2019 - 2023
(b) Vision 2019 - 2022
(c) Vision 2019 - 2024
(d) Vision 2019 - 2021

Q79. A wire in the form of a circle of radius 7 cm is bent to form of square. Find the length of the diagonal of the square. (Taken π=22/7)

(a) 22 cm
(b) 22√2 cm
(c) 11 √2 cm
(d) 44 cm

Q80. Find the HCF of 16.5, 0.45 and 15.

(a) 15
(b) 45
(c) 0.45
(d) 0.15

Q81. Who among the following attended all the three round table conferences in London?

(a) Subhash Chandra Bose
(b) K.T. Pal
(c) Muhammad Ali Jinnah
(d) B.R. Ambedkar

Q82. If the radius of a cylinder is doubled and the height is halved, what will be the ratio of the new volume to the previous volume?

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

Q83. What is the sum of the measures of the interior angles of a hexagon?

(a) 810°
(b) 1080°
(c) 720°
(d) 150°

Q84. When did India adopt its Biological Diversity Act?

(a) 2001
(b) 2002
(c) 2008
(d) 2005

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Q85. On the bank of which river was Harappa Civilisation situated?

(a) Bhogwa river
(b) Sindhu river
(c) Satluj river
(d) Ravi river

Directions

The following table shows the number of candidates at different score intervals for an entrance examination in which 10000 candidates appeared.

Subject	No. of candidates at Different Score Intervals				
	0-40	41-80	81-120	121-160	161-200
GK	2219	2025	3652	1248	856
LR	1022	2237	2954	3569	218
English	1120	1689	3562	2412	1217
Computer	645	2759	3841	2564	191

Q86. According to the given table, what percentage of candidates scored less than 20% marks in GK?

(a) 22.19%
(b) 23.12%
(c) 42.93%
(d) 19.22%

Q87. A candidate should score more than the cut-off marks for English to be evaluated for LR. If the cut-off marks for English is 40%, then how many answer sheets will be evaluated for LR?

(a) 10000
(b) 8522
(c) 8880
(d) 7191

Q88. What is the count of candidate scores above 80% across all the given subjects?

(a) 12275
(b) 2482
(c) 26284
(d) 14009

Q89. If for each subject, the cut-off marks is 40%, then how many candidates have scored more than the cut-off marks in all the subjects?

(a) 26284
(b) Cannot be determined from given data
(c) 13716
(d) 8710

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

Mohit and Sunayana are good in Mathematics and English. Veena and Mohit are good in Mathematics and Science. Yash and Sunayana are good in History and English. Veena, Yash and Prithvi are good in Drawing and Science.

Who is good in Mathematics, History and English?

(a) Yash
(b) Mohit
(c) Sunayana
(d) Veena

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Q91. Five person A, B, C, D and E are sitting in a row facing towards north (not necessarily in the same order). Each of them are preparing for different competitive exam C1, C2, C3, C4 and C5 (not necessarily in the same order). No two persons are preparing for same exam. Only two persons sit between A and the one who is preparing for C3. D sits to the immediate right of B and B is preparing for C5. Only one person sits between D and E. One among D and E sits at one of the extreme end. A is not neighbour of B. One person sits between the persons who are preparing for C3 and C1. The one preparing for C1 sits to the immediate left of the one who is preparing for C5. C is not preparing for C4. Who is preparing for C2?

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

Q92. Read the given statements and conclusion carefully. Assuming that the information given in the statements is true, even if it appears to be at variance with commonly known facts, decide which of the given conclusions logically follow(s) from the statements.

Statement:

Some guavas are mangos.

All mangos are pears.

Some pears are grapes.

Conclusions:

I.Some guavas are grapes.

II.Some guavas are pears.

III. Some mangos the grapes.

(a) All the conclusions follow.
(b) Only conclusions II and III follow.
(c) Only conclusion II follows.
(d) Only conclusions I and II follow.

Q93. Select the letter that will come next in the following series.

A, C, F, K, ?

(a) Q
(b) T
(c) N
(d) P

Q94. Identify the odd word from the given options.

(a) Thimpu
(b) Aizawl
(c) Agartala
(d) Kohima

Q95. A and B are sisters. C and D are a married couple. D is the father of B and brother of E. E is the paternal uncle of A. How is E related to C?

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

Q96. In a certain code, NEPAL is written as MVKZO and CHINA is written as XSRMZ. How will INDIA be written as in that code?

(a) RZRNW
(b) RNWRZ
(c) RWNRZ
(d) RMWRZ

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Q97. Read the given statements and conclusions carefully. Assuming that the information given in the statements is true, decide which of the given conclusions logically follow(s) from the statements.

Statements:

1. The monthly income of a family is Rs. 4,00,000.

2. Out of this, Rs. 2,40,000 is earned by the family members who work in the IT sector.

Conclusions:

I. 60% of the family members work in the IT sector.

II. The male members of the family earn more than the female members of the family.

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

Q98. 'Kabaddi' is related to 'Bangladesh' in the same way 'Volleyball' is related to '_____'.

(a) Nepal
(b) Cuba
(c) Japan
(d) Colombia

Q99. Read the given information carefully and answer the question that follows.

The following are the eligibility criteria for the selection of an Assistant Teacher (Social Science) for secondary classes.

i. The candidate should have a graduation degree including any two of the following subjects: Geography, History, Economics, Political Science and Public Administration.

ii. The candidate must possess a B.Ed. degree passed with first class.

iii. The candidate should have 8 years of teaching experience at an elementary level or 3 years of experience at a secondary level.

iv. The candidate should have good command over Hindi and English.

Information about a candidate is given.You have to decide, based on the information provided, under which criterion/criteria is the individual eligible for selection. Please note that an individual can be eligible under more than one criterion. You are NOT to assume anything other than the information provided the question.

Dr. Mohanty had Geography, English and Psychology in his graduation. He is a postgraduate in Geography and also has a Ph.D. degree. he has 8 years of teaching experience at a secondary level and can teach in Hindi and English very well.

(a) Eligible only under i and iv
(b) Eligible only under i and ii
(c) Eligible only under iii and iv
(d) Eligible only under ii and iv

Q100. There are couples, Meera-Namit and Kavita-Punit. The sum of the salaries of Meera and Namit is more than the sum of the salaries of Kavita and punit. The sum of the salaries of Meera and Kavita is the same as the sum of the salaries of Namit and Punit. Moreover, Meera earns half as much as the sum of the salaries of Namit and punit. Whose salary is highest?

(a) Kavita
(b) Meera
(c) Punit
(d) Namit

ANSWER KEY

1	d	2	b	3	c	4	b	5	d	6	a	7	a	8	d	9	a	10	c
11	d	12	d	13	d	14	c	15	c	16	a	17	a	18	a	19	d	20	b

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

SOLUTIONS

Q1. Answer: (d) Treatment

The logic followed here is:

Tablet	A form of medication
Ointment	A form of medication
Injection	A form of medication
Treatment	A process

Tablet, Ointment, Injection all are forms of medications,

Whereas,

Treatment is a process, not a form of medication.

Hence, the correct answer is "Treatment".

Q2. Answer: (b) Aluminium

The correct answer is Aluminium

Key Points

• Bauxite is a clay-like substance that contains aluminum, a mineral that is extracted from it:

• Aluminum

• Bauxite is a naturally occurring aluminum ore that's primarily made up of aluminum hydroxide minerals, such as boehmite, gibbsite, and diaspore.

• Other minerals

• Bauxite also contains other minerals and compounds, including silica, iron oxide, titania, and aluminosilicate.

• 9 Ore Deposits and Economic Minerals – Mineralogy

• Bauxite is a primary source of aluminum, which is used in many industrial applications.

• About 70% of the world's bauxite is refined into alumina, or aluminum oxide, using the Bayer chemical process.

Q3. Answer: (c) Stephen Hawking

The correct answer is Stephen Hawking.

Key Points

• Stephen Hawking:

• He was an English theoretical physicist, cosmologist, and author.

• He is the author of the best-selling book, "A Brief History of Time".

• Hawkings redefined cosmology by proposing that black holes emit radiation and later evaporate.

• Hawking was diagnosed with an early-onset slow-progressing form of motor neuron disease (amyotrophic lateral sclerosis "ALS" or Lou Gehrig's disease) that gradually paralyzed him over the decades.

• Stephen Hawking, the British Physicist, and the black hole theorist died on 14th March.

Additional Information

• J.V. Narlikar: Jayant V. Narlikar is an Indian astrophysicist known for his work in cosmology. He has authored several books on science and astronomy,

• Satyendranath Bose: An Indian physicist known for his work on quantum mechanics, specifically Bose-Einstein statistics, in

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collaboration with Albert Einstein. He did not write A Brief History of Time.

• C.V. Raman: An Indian physicist renowned for discovering the Raman Effect, for which he won the Nobel Prize in Physics in 1930.

Q4. Answer: (b) 13√2/5 m

Given:

The height of the house = h

Length of the ladder = 5.2 m

Inclination with the horizontal ground = 45º

Formula Used:

In a right triangle, using trigonometry: h = L sin(θ)

Calculation:

Here, L = 5.2 m and θ = 45º

We know that sin(45º) = √2/2

Using the formula:

=> h = 5.2 × sin(45º)

=> h = 5.2 × √2/2

=> h = 5.2 × √2/2

=> h = 2.6 √2

Therefore, the height of the house is:

h = 13√2/5 m

The correct answer is option 2.

Q5. Answer: (d) Oxford

The correct answer is Oxford

Key Points

• Rashmi Samant became the first Indian woman to be elected as the president of the Oxford University Student Union in February 2021.

• Her election was historic as it marked significant representation for Indian students at the prestigious university.

• Her election was one of the oldest and most prestigious universities in the world, had never before had an Indian woman leading its student body.

• Samant campaigned on themes such as inclusivity, environmental issues, and mental health support for students, which resonated with many at Oxford.

• Her win was celebrated by many in India and internationally as a step forward for diversity and representation in educational institutions globally.

• However, her presidency was brief, as she faced scrutiny and criticism over some past social media posts, which eventually led her to step down from the role.

Q6. Answer: (a) SRJIBAIHDC

The logic followed here is:

BEST is written as UTTSFECB

Similarly,

CHAIR is written as

Hence, "Option 1" is the correct answer.

Q7. Answer: (a) 138

Given:

Number 1: 285, leaving a remainder of 9

Number 2: 1249, leaving a remainder of 7

Formula Used:

Greatest number which divides both numbers leaving given remainders = HCF of (Number 1 - Remainder 1) and (Number 2 - Remainder 2)

Calculation:

Required number = HCF of (285 - 9) and (1249 - 7)

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Required number = HCF of 276 and 1242
Using the Euclidean algorithm:
1242 = 276 × 4 + 138
276 = 138 × 2 + 0
So, HCF = 138
The greatest number which divides 285 and 1249 leaving remainders 9 and 7 respectively is 138.

Q8. Answer: (d) 42 days

Given:
Provisions for 150 men for 45 days.
After 10 days, 25 men left.
Formula Used:
Total provisions = Number of men × Number of days
Remaining provisions = Initial provisions - Provisions used in 10 days
New number of men = Initial number of men - Number of men left
Remaining days = Remaining provisions / New number of men
Calculation:
Total provisions = 150 × 45
Total provisions = 6750 man-days
Provisions used in 10 days by 150 men = 150 × 10
Provisions used = 1500 man-days
Remaining provisions = 6750 - 1500
Remaining provisions = 5250 man-days
New number of men = 150 - 25
New number of men = 125 men
Remaining days = 5250 / 125
Remaining days = 42 days
The provisions will last for 42 days.

Q9. Answer: (a) (√2 +1/√8)²

Calculation:
Let's check each option one by one:
Option 1: (√2 + 1/√8)²
Step 1: Simplify the terms.
1/√8 = 1/2√2
Step 2: Substitute in the original expression:
(√2 + 1/2√2)²
Step 3: Apply the expansion formula $(a + b)^2 = a^2 + 2ab + b^2$
a = √2, b = 1/2√2
=> 2 + 2 × √2 × 1/2√2 + (1/2√2)² = 4 + 1 + 1/8 = 41/8
Result:
This expression is a rational number.
Option 2: 2 - √{5}
This is a subtraction of a rational number and an irrational number √{5}. The result will be irrational.
Option 3: (√2 + √5)²
Step 1: Apply the expansion formula $(a + b)^2 = a^2 + 2ab + b^2$
a = √2, b = √5
Step 2: Simplify:
$a^2 = 2$, $b^2 = 5$, 2ab = 2 × √2 × √5 = 2 √10
The result will still involve irrational terms, so it is not a rational number.
Option 4: 2 + √{5}
This is a sum of a rational number and an irrational number √{5}. The result will be irrational.

Therefore The correct answer is option 1.

Q10. Answer: (c) Delhi

The correct answer is Delhi

Key Points

• The Indian Navy and both IIT Delhi and IIT Kharagpur have signed a Memorandum of Understanding (MoU) for research in the underwater domain of Naval Electronic Systems:

• IIT Delhi

• The Indian Navy and IIT Delhi have a relationship that dates back to the 1970s.

• The research work conducted at IIT Delhi has been important for the Indian Navy's technological advances.

• IIT Kharagpur

• The Indian Navy and IIT Kharagpur signed an MoU on March 20, 2024 at Naval Headquarters, New Delhi.

• The partnership aims to promote academic cooperation, scientific understanding, and research projects in naval technology areas

Additional Information

• IIT Kanpur

• Located in Kanpur, Uttar Pradesh, IIT Kanpur is a public institute of technology.

• It's consistently ranked among India's top academic institutions. In 2024, it was ranked fourth in the NIRF Engineering list.

• IIT Bombay

• One of India's top engineering institutes, IIT Bombay was ranked third in the 2024 NIRF Engineering list.

• IIT Madras

• Established in 1959, IIT Madras has a Department of Mathematics

Q11. Answer: (d) Rs. 310

Given:

1/3 of a commodity is sold at the rate of 15% profit.

1/4 of the commodity is sold at the rate of 20% profit.

The rest is sold at the rate of 24% profit.

Total profit earned = Rs. 62

Formula Used:

Weighted Average Profit = (Sum of (Profit rate × Fraction of commodity))/Total fractions

Total Profit = (Weighted Average Profit) × (Cost Price)

Calculation:

Let the cost price of the commodity be Rs. x.

Fraction of commodity sold at 15% profit = 1/3

Fraction of commodity sold at 20% profit = 1/4

Fraction of commodity sold at 24% profit = 1 - (1/3 + 1/4)

=> Fraction of commodity sold at 24% profit = 1 - (4/12 + 3/12)

=> Fraction of commodity sold at 24% profit = 1 - 7/12

=> Fraction of commodity sold at 24% profit = 5/12

Weighted Average Profit = (15% × 1/3) + (20% × 1/4) + (24% × 5/12)

=> Weighted Average Profit = (15/100 × 1/3) + (20/100 × 1/4) + (24/100 × 5/12)

=> Weighted Average Profit = 5/100 + 5/100 + 10/100

=> Weighted Average Profit = 20/100

=> Weighted Average Profit = 20%

Total Profit = 20% of Cost Price

=> 62 = 20/100 × x

=> 62 = 0.2 × x

=> x = 62 / 0.2

=> x = 310

The cost price of the commodity is Rs. 310.

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Q12. Answer: (d) Eligible only under (i)

All conditions are as follows:

Eligibility criteria Number	Details	Fulfillment
i	The applicant should be able to pay a one-time membership fee of Rs. 10,000 and contribute two books worth Rs. 500.	Yes, as Mr. A is ready to pay a membership fee of Rs. 10,000 and contribute two books worth Rs. 500.
ii	The one-time membership fee is relaxed up to 50% if the applicant donates books worth Rs.5,000 in total.	No, as Mr. A has not donated books worth Rs. 5,000.
iii	For school students, membership fee is relaxed till the age of 18 years.	No, as Mr. A is 30 years old.
iv	Serving school teachers are required to pay only Rs. 2,000 if they help 20 students to become members of the library.	No, as there is no information provided that Mr. A is a serving school teacher or has helped 20 students to become members.
v	Only for serving Defence personnel and their wards, the membership of the library is free of cost.	No, as Mr. A is the son of a retired army officer, not a serving Defence personnel.

Therefore, Mr. A fulfills the eligibility criteria (i) to become a member of the library.

Hence, the correct answer is "Eligible only under (i)".

Q13. Answer: (d) bacterial disease

The correct answer is a bacterial disease

Key Points

• Citrus canker is a bacterial disease caused by the bacterium Xanthomonas citri subsp. citri:

• Symptoms

• Citrus canker causes lesions on the leaves, stems, and fruit of citrus plants. The leaves may drop and unripe fruit may fall to the ground.

• Impact

• Citrus canker affects the health of infected citrus trees and the marketability of infected fruit. While not harmful to humans, there is no cure for citrus canker.

• Spread

• Citrus canker is most severe in hot, wet areas. It is highly contagious and can affect all above-ground parts of citrus trees.

• Control

• To control citrus canker, you can:

• Reduce wind speeds with windbreaks

• Apply copper sprays to the fruit and leaves

• Practice sanitation

• Control leafminer

Additional Information

• Hormonal Disorder:

• A hormonal disorder refers to an imbalance or abnormality in the hormones in the body.

• Hormones are chemicals produced by glands and regulate various functions in the body, including growth, metabolism, and mood.

• Disorders like hypothyroidism, diabetes, and polycystic ovary syndrome (PCOS) are examples of hormonal disorders.

• Viral Disease:

• A viral disease is an illness caused by a virus, a microscopic agent that requires a living host to replicate.

• Viral infections can affect various parts of the body, such as the respiratory system (e.g., the flu), the digestive system (e.g., gastroenteritis), or the skin (e.g., chickenpox).

• Viruses can sometimes lead to chronic conditions, like HIV/AIDS.

• Fungal Disease:

• A fungal disease is an infection caused by fungi.

• Fungi are microorganisms that can live in the environment or on the skin and mucous membranes.

• When they grow out of control, they can cause diseases like athlete's foot, ringworm, and candidiasis (yeast infections).

Q14. Answer: (c) Art

The logic followed here is:

Logic: Activity and its category.

Here,

Tennis : Sport → Tennis is an activity that falls under the category of Sport.

Similarly,

Dance : Art → Dance is an activity that falls under the category of Art.

Hence, the correct answer is "Option 3".

Q15. Answer: (c) Force

The correct answer is Force

Key Points

• Force is not a scalar quantity, but rather a vector quantity.

• Scalar quantities have magnitude but no direction, while vector quantities have both magnitude and direction.

• Scalar quantities

• Distance and speed are scalar quantities because they have magnitude or size, but no defined direction.

• Vector quantities

• Force, velocity, and field strength are vector quantities because they have both magnitude and direction.

Q16. Answer: (a) Electoral College

The correct answer is the Electoral College

Key Points

• The President of India is elected by an Electoral College.

• The Electoral College for the presidential election in India comprises:

• - Elected Members of Parliament (MPs) from both Houses (Lok Sabha and Rajya Sabha).

• Elected Members of the Legislative Assemblies (MLAs) of all Indian states and Union Territories with legislatures (like Delhi and Puducherry).

• This system is designed to provide a weighted representation from both the central and state governments.

Additional Information

• Direct Election: The President is not directly elected by the people.

• System of Universal Adult Franchise: This system is used to elect Members of Parliament and Members of Legislative Assemblies, not the President.

• Members of the Parliament: While MPs are part of the Electoral College, MLAs are also included, so it’s not limited to Parliament alone.

Q17. Answer: (a) Pushkar

The correct answer is Pushkar

Key Points Pushkar Fair:

• Pushkar fair is one of India's or the world's largest cattle (camel) fair.

• Pushkar Fair is also known as Pushkar Camel Fair or locally Kartik Fair.

• It is an annual fair that is also known as Kartik Mela or Pushkar ka Mela.

• It is held in the Pushkar city of Ajmer district of Rajasthan.

• The Pushkar fair is one of the largest camel, horse, and cattle fairs in India.

• Apart from the cattle trade, it is an important pilgrimage for Hindus to Pushkar Lake.

• Cultural events and competitions at this fair include Matka bust, longest moustache, contest, bridal contest, camel race, and others.

Additional Information

Other important fairs of India:

Fair	City
Sonepur Mela	Sonepur Bihar
Hemis Gompa fair	Ladakh

Kolayat Fair/Kapil Muni fair	Bikaner Rajasthan
Chandrabhaga Mela	Bhubaneswar Orissa
Gangasagar Mela	Bay of Bengal, West Bengal.

Q18. Answer: (a) 10

Given:

5 + 5 × 5 ÷ (5 × 5) × 5

Formula Used:

Order of Operations (PEMDAS/BODMAS): Parentheses, Exponents, Multiplication and Division (from left to right), Addition and Subtraction (from left to right).

Calculation:

Start with the parentheses:

5 + 5 × 5 ÷ (5 × 5) × 5

=> 5 + 5 × 5 ÷ 25 × 5

Next, handle multiplication and division from left to right:

=> 5 + (5 × 5 ÷ 25) × 5

=> 5 + (5 × 1/5) × 5

=> 5 + 1 × 5

=> 5 + 5

Finally, perform the addition:

=> 10

The correct answer is option 1.

Q19. Answer: (d) 43

Given:

K = 8

L = 5

N = 4

T = 28

Formula Used:

T ÷ N × L + K

Calculation:

T ÷ N = 28 ÷ 4

=> 7

7 × L = 7 × 5

=> 35

35 + K = 35 + 8

=> 43

The value of T ÷ N × L + K is 43.

Q20. Answer: (b) Jawahar Lal Nehru

The correct answer is Jawahar Lal Nehru

Key Points

• The second person to join the Individual Satyagraha movement in 1940 was Jawaharlal Nehru.

• The Individual Satyagraha movement was launched by Mahatma Gandhi in 1940 as a peaceful protest against British repression and to assert the right to free speech during World War II.

• Vinoba Bhave was the first Satyagrahi selected by Gandhi to launch this movement.

• Jawaharlal Nehru was chosen as the second Satyagrahi to participate in the movement, and he was subsequently arrested for delivering anti-war speeches, which was part of the protest against British involvement of India in World War II without consulting Indian leaders.

Additional Information

• Subhash Chandra Bose

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• Subhash Chandra Bose was a prominent leader in the Indian independence movement, known for his radical and militant approach. Unlike Gandhi's non-violent methods, Bose believed in a more confrontation with British rule.

• Muhammad Ali Jinnah

• Muhammad Ali Jinnah was the leader of the All India Muslim League and a prominent advocate for the creation of Pakistan.

• By the 1940s, Jinnah was focused on advancing the idea of a separate Muslim state and distanced himself from the Indian National Congress's campaigns.

• Vinoba Bhave

• Vinoba Bhave was the first person selected by Gandhi to initiate the Individual Satyagraha.

• Known for his deep commitment to Gandhi's principles, Bhave's selection was significant as he represented the moral and spiritual essence of satyagraha.

Q21. Answer: (b) Mahayana

The correct answer is Mahayana

Key Points

• The worship of Buddha images became an important tradition in Mahayana Buddhism:

• Mahayana Buddhism is one of the two main branches of Buddhism.

• It emerged around the 1st century CE after the Fourth Buddhist Council, when Mahayana followers began to worship Buddha images as divine beings.

• The word "Mahayana" means "Great Vehicle" in Sanskrit.

• In Buddhism, the image of Buddha is not an idol that is worshipped for its supernatural powers.

• Instead, the image helps people focus on and remember the Buddha's qualities and accomplishments.

• Many Buddhists keep shrines at home, and remove their shoes before entering the shrine room as a symbol of respect.

• The other main branch of Buddhism is Hinayana, which means "Small Vehicle" in Sanskrit.

• Hinayana adherents follow the Buddha's original teachings and emphasize individual redemption through self-discipline and concentration.

Q22. Answer: (a) Kathakali

The correct answer is Kathakali

Key Points

• The South Indian classical dance form that literally means "story-play" is Kathakali.

• The word Kathakali comes from the Malayalam words katha, which means "story" or "conversation", and kali, which means "performance" or "play".

• Kathakali originated in Kerala in the 18th century.

• Kathakali is a combination of dance, drama, music, and ritual.

• It's performed with elaborate makeup and costumes, and actors use hand gestures, facial expressions, and eye movements to convey emotions.

• Kathakali performances often depict episodes from the Mahabharata and Ramayana, or the life of Krishna.

• Kathakali is considered one of the most difficult traditional dance forms.

• Other names: Kathakali is also known as the "Saga of East"

Additional Information

• Bharatanatyam, Kathak, and Mohiniyattam are all classical Indian dance forms:

• Bharatanatyam

• This dance form from Tamil Nadu is based on the ideas of Bharata's Natyashastra.

• It's characterized by strong lines, expressive hand gestures, and storytelling through facial expressions.

• Kathak

• This dance form from Uttar Pradesh is known for its fluid body movements, complex footwork, fast turns, and sudden stillness

• It's still widely practiced in Uttar Pradesh, Rajasthan, Delhi, Madhya Pradesh, and other regions of India.

• Mohiniyattam

• This dance form from Kerala is based on the Hindu myth of Vishnu taking the form of Mohini to distract the demon Bhasmasura

Q23. Answer: (c) Antrix Corporation Limited

The correct answer is Antrix Corporation Limited

Key Points

• Antrix Corporation Limited (ACL) is the commercial and marketing arm of the Indian Space Research Organisation (ISRO):

• ACL was incorporated in September 1992.
• ACL is headquartered in Bangalore, India.
• ACL is under the administrative control of the Department of Space, which is directly overseen by the Prime Minister of India.
• ACL's services include:
• Supply of hardware and software
• Remote sensing data service
• Transponder lease service
• Launch services
• Mission support services
• Consultancy and training services
• Goals: ACL's goals include:
• Promoting and commercially exploiting space products
• Transferring technologies developed by ISRO
• Facilitating the development of space-related industrial capabilities in India
• Delivering space goods and services to foreign customers worldwide

Additional Information

• Research Corporation Technologies
• This is a private technology investment and management company based in the United States, focused on the advancement of research and technology, primarily in health sciences.
• Founded in 1912, it provides funding for research and early-stage companies developing new technologies.
• Indian National Space Promotion and Authorization Center (IN-SPACe)
• In India, IN-SPACe was established to allow private companies to participate in space research and development. This initiative is part of India's broader space reforms to expand private sector involvement alongside ISRO (Indian Space Research Organisation).
• Several private players are now participating in space projects, satellite launches, and space technology development under IN-SPACe's authorization.
• Corporations Related to Aerospace and Space Research
• In the United States, NASA collaborates with companies like SpaceX and Blue Origin.
• In Europe, Arianespace is known for launching satellites for a range of customers around the world.
• Space Corporation Limited and Sky Corporation Limited could imply companies focused on satellite technology, communication networks, or aerospace research.

Q24. Answer: (d) YOUTHSAT

The correct answer is YOUTHSAT

Key Points

• YOUTHSAT is an experimental satellite of the Indian Space Research Organisation (ISRO):
• YOUTHSAT is a joint Indo-Russian mission that studies the relationship between solar variability and the thermosphere-ionosphere.
• YOUTHSAT carries three payloads, two Indian and one Russian, to study the composition, energetics, and dynamics of the Earth's upper atmosphere.
• YOUTHSAT launched on April 20, 2011, on the PSLV-C16/RESOURCESAT-2 launch vehicle.

Additional Information

• RISAT-1 (Radar Imaging Satellite)
• RISAT-1 is designed for radar imaging to provide all-weather surveillance and earth observation, especially useful for agriculture, forestry, and disaster management.
• It uses synthetic-aperture radar (SAR), which allows it to capture images through cloud cover and in low light, which is advantageous during the monsoon season and natural disasters.
• Launched on April 26, 2012.
• RISAT-1 is one of India's first radar imaging satellites, enhancing the country's surveillance capabilities and contributing to various fields such as agriculture monitoring and national security.
• 2) RESOURCESAT-1
• RESOURCESAT-1 is dedicated to resource monitoring in India.
• It was designed for advanced imaging to aid in land and water resource management, including agricultural planning, forestry, and environmental monitoring.

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• It includes cameras with different resolutions and wavelengths to capture high-quality images of Earth's surface.

• Launched on October 17, 2003.

• Part of ISRO's long-standing remote sensing program, RESOURCESAT-1 provided valuable data for sustainable resource management and environmental conservation efforts in India.

• SCATSAT-1 (Scatterometer Satellite)

• SCATSAT-1 was launched primarily for weather forecasting and climate monitoring, with a focus on sea surface wind speed and direction.

• This is crucial for tracking cyclones and providing early warnings for severe weather conditions.

• The satellite uses a scatterometer, an instrument that measures the reflection or scattering effect produced when radar waves hit the ocean surface.

• This helps in predicting weather changes and monitoring wind patterns over oceans.

• Launched on September 26, 2016.

• SCATSAT-1 provides vital data for weather forecasting and cyclone prediction, aiding in disaster preparedness and response.

Important Points

• Other experimental satellites of ISRO include:

• Bhaskara-I: India's first experimental remote sensing satellite, which used TV camera imagery for hydrology and forestry

• Rohini Satellite RS-1: India's first indigenous satellite launch, which measured the in-flight performance of the second experimental launch of SLV-3

• Rohini Technology Payload (RTP): Launched on the SLV-3E1 launch vehicle

• APPLE: Launched on June 19, 1981, on the Ariane-1(V-3) launch vehicle

• INS-1C: Launched on January 12, 2018, on the PSLV-C40/Cartosat-2 Series Satellite Mission

Q25. Answer: (b) Third to the right

Given: Seven friends P, Q, R, S, T, V and W are sitting around a circular table facing towards centre.

1) R sits to the immediate left of W and third to the left of P.

2) Only two friends sit between P and S.

3) Q sits to the immediate left of V.

After positioning Q and V only one position is left which will be occupied by the only boy left i.e. T.

Thus, T is third to the right of S.

Hence, "Option 2" is the correct answer.

Q26. Answer: (d) 8978

The logic followed here is:

FACE is written as 6135

And,

DEAF is written as 4516

Similarly,

HIGH is written as

Hence, "Option 4" is the correct answer.

Q27. Answer: (d) Kalpana Chawla

The correct answer is Kalpana Chawla

Key Points

• Kalpana Chawla was the first woman of Indian origin to go to space.

• She first flew on the Space Shuttle Columbia in 1997 as a mission specialist and primary robotic arm operator.

• Tragically, she lost her life during her second space mission in 2003 when the Space Shuttle Columbia disintegrated upon re-entering Earth's atmosphere.

Additional Information

• Sunita Williams: An astronaut of Indian descent, Sunita Williams flew to space in 2006 and again in 2012. However, she went to space after Kalpana Chawla and was the second woman of Indian origin to do so.

• Yamuna Krishnan: Yamuna Krishnan is a well-known scientist,

• Shawna Pandya: Shawna Pandya, a Canadian-born Indian-origin scientist and physician, trained with space programs but has not yet gone to space.

Q28. Answer: (d) 3601

Shortcut Trick

Total Distance = Speed × Time = 45 km/h × 4 h = 180 km = 1,80,000 m.

Number of Intervals = Total Distance ÷ Distance between poles = 1,80,000 ÷ 50 = 3600.

Total Poles = Number of Intervals + 1 = 3600 + 1 = 3601.

Therefore The correct answer is 3601.

Alternate Method

Given:

Distance between two telegraph poles = 50 m

Speed of the train = 45 km/h

Time taken = 4 h

Calculations:

=> Total distance covered = Speed × Time

=> Total distance = 45 × 4 = 180 km

=> Converting km to meters: 180 × 1000 = 1,80,000 m

=> Number of gaps between poles = 1,80,000 ÷ 50

=> Number of gaps = 3600

=> Since both the starting and ending poles are counted, Total poles = Number of gaps + 1

=> Total poles = 3600 + 1 = 3601

Therefore The correct answer is 3601.

Additional Information

Linear Arrangement (Pole Counting)

In a straight line, if there are n intervals of equal length, the total number of points (poles/trees) is always n + 1 when both ends are included.

Unit Conversion

To convert Speed from km/h to m/s, multiply by 5/18. To convert Distance from km to m, multiply by 1000.

Relative Speed

If two objects move in the same direction, relative speed is the difference (S1 − S2); if in opposite directions, it is the sum (S1 + S2).

Q29. Answer: (a) Tapti

The correct answer is Tapti

Key Points

• The Tapti River does not originate from the Western Ghats. Instead, it originates from the Satpura Range in central India.

• Tapti River: The Tapti River, also known as Tapi, originates in the Satpura Range in Madhya Pradesh.

• It flows westward through the states of Maharashtra and Gujarat before emptying into the Arabian Sea.

• It runs almost parallel to the Narmada River.

Additional Information

• Godavari River: The Godavari River, often referred to as the "Dakshina Ganga" or the "Ganges of the South," originates from Trimbakeshwar near Nashik in the state of Maharashtra, which is part of the Western Ghats. It is one of the longest rivers in India, flowing eastward across the Deccan Plateau and emptying into the Bay of Bengal.

• Krishna River: The Krishna River originates in the Western Ghats, specifically near Mahabaleshwar in the state of Maharashtra. It flows eastward across Maharashtra, Karnataka, and Andhra Pradesh, ultimately emptying into the Bay of Bengal.

• Kaveri River: The Kaveri River, also spelled Cauvery, originates at Talakaveri in the Western Ghats located in the Kodagu district of Karnataka. It flows southeast through Karnataka and Tamil Nadu, eventually reaching the Bay of Bengal.

Q30. Answer: (a) $1 - a^{12}$

Given:

$(a + 1)(1 - a)(1 - a + a^2)(1 + a + a^2)(1 + a^6)$

Formula used:

$(1 + x)(1 - x) = 1 - x2$

$x^3 - y^3 = (x - y)(x^2 + xy + y^2)$

Calculations:

$(a + 1)(1 - a) = 1 - a^2$

$(1 - a + a^2)(1 + a + a^2) = [(1 + a^2)^2 - (a)^2]$

Now combining the results:

(a + 1)(1 - a)(1 - a + a2)(1 + a + a2)(1 + a6)

=> (1 - a²)(1 + a2)2 - (a)2

=> (1 - a2)(1 + a2)2 - a2

=> (1 - a2)1 + a^4 + 2×a² - a 2

=> (1 - a2)1 + a^4 + a2 ------ (i)

Now, Solving (1 - a2)[1 + a4 + a2],

let 1 = x and $a^2 = y$

expression becomes,

$(x - y)(x^2 + y^2 + xy)$

which is equal to $x^3 - y^3$

so,

$(1 - a2)[1 + a4 + a2] = 1^3 - (a^2)^3 = 1 - a^6$

Now, putting this value in equation (i),

=> (1 - a2)1 + a4 + a2

=> $(1 - a^6)(1 + a6) = 1 - a^{12}$

Therefore The correct answer is $1 - a^{12}$.

Q31. Answer: (c) Light emitting diode

The correct answer is Light-emitting diode

Key Points

• LED stands for Light Emitting Diode.

LED (light-emitting diode):

• The LED (light-emitting diode) is a PN junction device that emits light when a current pass through it in the forward direction, i.e. when LED is forward biased, it emits light.

• In an LED, this energy lies in the visible region of electromagnetic radiation, and the photon released is perceived as light.

• An LED in this way converts electrical energy into light energy.

• In reverse biased mode, it works like a normal diode and does not emit light.

• It is an optical semiconductor device that emits light when voltage is applied means it converts electrical energy into light energy.

• When Light Emitting Diode (LED) is forward biased, the free electrons from the n-side and the holes from the p-side are pushed towards the junction.

• Light-emitting diodes emit either visible light or invisible infrared light when forward biased.

• The LEDs which emit invisible infrared light are used for remote controls.

• LEDs that can emit red, yellow, orange, green, and blue light are available for commercial use.

Q32. Answer: (b) Calcutta (Kolkata), Bombay (Mumbai) and Madras (Chennai)

The correct answer is Calcutta (Kolkata), Bombay(Mumbai) and Madras(Chennai)

Key Points

• In the late 18th century, the cities of Calcutta (Kolkata), Bombay (Mumbai), and Madras (Chennai) rose in importance as the Presidency cities of British India:

• These cities became the centres of British power in India.

• They were also the main centres of trade and economic activities for the English East India Company.

• The cities had a different layout from the older Indian towns, and their buildings were influenced by colonial architecture.

• Institutions were established to regulate economic activities and demonstrate British authority.

Q33. Answer: (d) Rs. 500

Given:

Rate of interest (R) = 4% per annum.

Time (T) = 8 years.

Interest = Sum lent - 340

Formula Used:

Simple Interest (SI) = (Principal × Rate × Time) / 100

Calculation:

Let the sum lent be P Rs.

Simple Interest (SI) = (P × 4 × 8)/100 = 32P/100 = 8P/25

According to the question:

SI = P - 340

=> 8P/25 = P - 340

=> 8P = 25P - 8500

=> 25P - 8P = 8500

=> 17P = 8500

=> P = 8500/17

=> P = 500

The sum lent is Rs. 500.

Q34. Answer: (a) 1978

The correct answer is 1978

Key Points

• The property right was removed from the list of fundamental rights in India in 1978 when the 44th Amendment to the Constitution was passed:

• The 44th Amendment Act of 1978 removed the right to property from the list of fundamental rights.

• The amendment repealed Article 19(1)(f) and Article 31 of the Constitution and replaced Article 31 with Article 300A.

• This made the right to property a legal right, rather than a fundamental right.

• The Morarji Desai government introduced the amendment as part of land reform policies.

• The right to property was a fundamental right in the Indian Constitution from its inception in 1950.

Q35. Answer: (b) Rs. 18,000

Given:

Total amount lent = Rs. 30,000

Interest rate for part 1 = 10% per annum

Interest rate for part 2 = 8% per annum

Total interest received after 3 years = Rs. 8,280

Formula Used:

Simple Interest = Principal × Rate × Time

Calculation:

Let the amount lent at 10% per annum be Rs. x.

Then, the amount lent at 8% per annum = 30000 - x.

Interest from amount lent at 10% per annum for 3 years = x × 10% × 3

Interest from amount lent at 10% per annum for 3 years = x × 0.1 × 3

Interest from amount lent at 10% per annum for 3 years = 0.3x

Interest from amount lent at 8% per annum for 3 years = (30000 - x) × 8% × 3

Interest from amount lent at 8% per annum for 3 years = (30000 - x) × 0.08 × 3

Interest from amount lent at 8% per annum for 3 years = 0.24(30000 - x)

Given, total interest received = Rs. 8,280

So, 0.3x + 0.24(30000 - x) = 8280

0.3x + 7200 - 0.24x = 8280

0.06x + 7200 = 8280

0.06x = 1080

x = 1080 / 0.06

x = 18000

The amount he lent at 10% per annum is Rs. 18,000.

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Q36. Answer: (c) 1

Given:

$x^2 = y + z$

$y^2 = z + x$

$z^2 = x + y$

Calculation:

$x^2 + x = y + z + x$

$x (x + 1) = x + y + z$

$1/(x + 1) = x/(x + y + z)$

Similarly,

$1/(y + 1) = y/(x + y + z)$

$1/(z + 1) = z/(x + y + z)$

Add all three above equation,

$1/(x+1)+1/(y+1)+1/(z+1) = x/(x + y + z) + y/(x + y + z) + z/(x + y + z)$

$\Rightarrow 1/(x+1)+1/(y+1)+1/(z+1) = (x + y + z)/(x + y + z) = 1$

Therefore The value of $1/(x+1) + 1/(y+1) + 1/(z+1)$ is 1.

Q37. Answer: (b) 10 days

Given:

A can complete in 2 days as much of a task as B can complete in 3 days.

B can complete in 4 days as much of the task as C can complete in 5 days.

A alone can complete the task in 22 days.

Formula Used:

Work rate of A, B, and C combined = Work rate of A + Work rate of B + Work rate of C

Time to complete the task = 1 / Work rate of A, B, and C combined

Calculation:

Work rate of A = 1/22

Let the task be x units.

In 2 days, A completes $(2/22) \times x = (1/11) \times x$ units.

In 3 days, B completes $(3/33) \times x = (1/11) \times x$ units.

$\Rightarrow$ B's work rate = (1/33)

In 4 days, B completes $(4/33) \times x$ units.

In 5 days, C completes $(5/55) \times x = (1/11) \times x$ units.

$\Rightarrow$ C's work rate = (1/55)

Combined work rate of A, B, and C = (1/22) + (1/33) + (1/55)

$\Rightarrow$ Combined work rate = $(165 + 110 + 66) / (22 \times 33 \times 55)$

$\Rightarrow$ Combined work rate = $341 / (22 \times 33 \times 55)$

$\Rightarrow$ Combined work rate = 1 / 10

Time to complete the task = 1 / (1/10)

Time to complete the task = 10 days

The correct answer is option 2.

Q38. Answer: (d) √3

Given:

$X = \sqrt{(1 + (\sqrt{3} / 2))} + \sqrt{(1 - (\sqrt{3} / 2))}$

Formula used:

$\sqrt{(a + b)}$ and $\sqrt{(a - b)}$ where b is a fraction

$\sqrt{3} = 1.732$

Calculation:

$\Rightarrow 1 + (\sqrt{3} / 2) = 1 + 0.866 = 1.866$

$\Rightarrow 1 - (\sqrt{3} / 2) = 1 - 0.866 = 0.134$

$\Rightarrow \sqrt{(1.866)} \approx 1.366$

=> √(0.134) ≈ 0.366

=> X = 1.366 + 0.366 = 1.732 = √3

Therefore The value of X is √3.

Alternate Method X=√((1+√3/2))+√((1-√3/2))

squaring both sides,

$X^2 = (1+\sqrt{3}/2)+(1-\sqrt{3}/2) + 2\times \sqrt{((1+\sqrt{3}/2))}\times \sqrt{((1-\sqrt{3}/2))}$

$=> X^2 = 2 + 2 \times \sqrt{((1+\sqrt{3}/2)(1-\sqrt{3}/2))}$

$=> X^2 = 2 + 2\times \sqrt{((1^2-(\sqrt{3}/2)^2))}$

=> X2 = 2 + 2× √((1-3/4))

=> X2 = 2 + 2× √((1/4))

=> X2 = 2 + 2 × 1/2

=> X2 = 2 + 1

=> X2 = 3

=> X = √3

Therefore The correct answer is option 4.

Q39. Answer: (c) (2, 4, 16)

The logic followed here is:

Logic: $(1st\ number)^2 = 2nd\ number$, $(2nd\ number)^2 = 3rd\ number$.

Now,

For (9, 81, 6561):

$=> (9)^2 = 81$ and $(81)^2 = 6561$.

Similarly, for (2, 4, 16):

$=> (2)^2 = 4$ and (4)2 = 16.

Hence, the correct answer is "Option 3".

Q40. Answer: (d) Kalidasa

The correct answer is Kalidasa

Key Points

• Kalidasa was a renowned classical Sanskrit poet and playwright in ancient India, whose works are celebrated for their literary excellence, vivid imagery, and emotional depth.

• He is often compared to William Shakespeare because, like Shakespeare, he made significant contributions to literature and created timeless works that depict human emotions and nature with great sensitivity.

• Kalidasa's famous works include "Shakuntala" (Abhijnanashakuntalam), "Meghaduta" (The Cloud Messenger), and "Raghuvamsha"

Additional Information

• Panini: An ancient Sanskrit philologist and grammarian, known for his work on Sanskrit grammar, particularly his text "Ashtadhyayi".

• Kautilya (Chanakya): An ancient Indian philosopher, economist, and advisor to Emperor Chandragupta Maurya, known for his treatise "Arthashastra" on statecraft and military strategy.

• Vishnu Sharma: The author traditionally attributed to the Panchatantra, a collection of animal fables,

Q41. Answer: (c) 1over4

Given:

Service time before overhauling = 5/6 hours every 90 days

Service time after overhauling = 5/6 hours every 120 days

Formula Used:

Fraction of service time saved = (Service time before overhauling - Service time after overhauling) / Service time before overhauling

Calculation:

Service time before overhauling in a year (360 days) = (5/6) × (360/90)

Service time before overhauling in a year = (5/6) × 4

Service time before overhauling in a year = 20/6

Service time before overhauling in a year = 10/3 hours

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Service time after overhauling in a year (360 days) = (5/6) × (360/120)
Service time after overhauling in a year = (5/6) × 3
Service time after overhauling in a year = 15/6
Service time after overhauling in a year = 5/2 hours
Fraction of service time saved = ((10/3) - (5/2)) / (10/3)
Fraction of service time saved = ((20/6) - (15/6)) / (10/3)
Fraction of service time saved = (5/6) / (10/3)
Fraction of service time saved = (5/6) × (3/10)
Fraction of service time saved = 15/60
Fraction of service time saved = 1/4
The fraction of the pre-overhauling service time saved is 1/4.

Q42. Answer: (d) 2010

The correct answer is 2010
Key Points
• The National Green Tribunal Act was passed by the Indian parliament in 2010.
• The NGT was established on October 18, 2010.
• The NGT was established to:
• Resolve environmental disputes in a timely manner
• Enforce legal rights related to the environment
• Provide relief and compensation for damages to people and property
• The NGT Act amends the:
• Water (Prevention and Control of Pollution) Act, 1974
• Water (Prevention and Control of Pollution) Cess Act, 1977
• Forest (Conservation) Act, 1980

Q43. Answer: (b) Immediate right of B1

Given: Seven boys B1, B2, B3, B4, B5, B6, and B7 are sitting in a row facing towards south.
1) B2 sits at one of the extreme ends and is the neighbour of B4.
2) B3 is to the immediate right of B4 but is not the neighbour of B5.
3) Only two boys sit between B1 and B5.
4) B7 is not the neighbour of B1.
After positioning B1 only one position is left which will be occupied by the only person left i.e. B6.
Thus, according to the final arrangement, B6 is immediate right of B1.
Hence, "Option 2" is the correct answer.

Q44. Answer: (a) C

According to the given Venn diagram:
The shaded region represents the engineers who live in urban areas and are in government jobs.
So, the engineers who live in urban areas and are in government jobs = 'C'
Hence, the correct answer is "Option 1".

Q45. Answer: (a) Home page

The correct answer is Home Page
Key Points
• The main page of a website is called the home page. It's the first page that a visitor sees when they access a website.
• The term "home page" can also refer to the start page that appears in a web browser when it first opens.
• Some other things to know about home pages:
• They are usually located at the root of the website's domain or subdomain.
• They can be used to attract users.
• They can include welcome messages and copy blocks that explain the benefits of the website or brand.
• In web marketing, it's recommended to design the home page in a way that's consistent with the company or product branding

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Q46. Answer: (b) 836

Given:

Numbers to evaluate: 1296, 836, 1156, 576

Formula Used:

Identify if the number is a perfect square.

Calculation:

1296 = 36^2

836 is not a perfect square.

1156 = 34^2

576 = 24^2

Conclusion:

836 is not a perfect square, while the others are perfect squares.

The correct answer is option 2.

Q47. Answer: (c) Kaveri

The correct answer is Godavari

Key Points

• The Hemavati is a tributary of the Kaveri River

• It originates from the Western Ghats in the Chikmagalur district of Karnataka and joins the Kaveri River near the town of Krishna Raja Sagara.

• The Hemavati is one of the major tributaries that contribute to the flow of the Kaveri, which is an important river in southern India, flowing through Karnataka and Tamil Nadu.

Additional Information

• Krishna: The Krishna River is one of the major rivers in India, flowing through Maharashtra, Karnataka, Telangana, and Andhra Pradesh.

• Mahanadi: The Mahanadi River flows through the states of Chhattisgarh and Odisha.it is part of the Kaveri River system.

• Godavari: The Godavari River is another major river of India, flowing primarily through Maharashtra, Telangana, Andhra Pradesh, and Odisha.

Q48. Answer: (d) 17

Given:

Data: 25, 18, 20, 16, 8, 10, 15, 20, 13, 30

Formula Used:

Median = Middle value of the sorted data

If the number of data points (n) is odd, Median = (n+1)/2^(th) value

If the number of data points (n) is even, Median = Average of (n/2)^(th) and (n/2 + 1)^(th) values

Calculation:

Sorted data: 8, 10, 13, 15, 16, 18, 20, 20, 25, 30

Number of data points (n) = 10 (even)

Median = Average of (10/2)^(th) and (10/2 + 1)^(th) values

=> Median = (16 + 18) / 2

=> Median = 34 / 2

=> Median = 17

The correct answer is option 4.

Q49. Answer: (d) 1951

The correct answer is 1951

Key Points

• The First Five-Year Plan in India was presented in 1951 and it was the first step toward planned economic development in the country.

• The plan focused on agriculture and irrigation, with the goal of boosting food production, particularly after India's independence when the economy was facing various challenges like poverty and food shortages.

• It was officially launched on April 1, 1951.

• Subsequent plans followed the model of five-year periods, with each plan focusing on different sectors of the economy to drive

growth and development.

Q50. Answer: (a) 62

Given:

The data is arranged in ascending order: 29, 32, 48, 50, x, x + 2, 72, 78, 84, 95

The median of the data is 63.

Formula Used:

For an even number of data points, the median is the average of the two middle numbers.

Calculation:

Number of data points = 10

Middle numbers are the 5^(th) and 6^(th) elements.

Median = (5^(th) element + 6^(th) element) / 2

Given median = 63

5^(th) element = x

6^(th) element = x + 2

63 = (x + (x + 2)) / 2

=> 63 = (2x + 2) / 2

=> 63 × 2 = 2x + 2

=> 126 = 2x + 2

=> 126 - 2 = 2x

=> 124 = 2x

=> x = 124 / 2

=> x = 62

The correct answer is option 1.

Q51. Answer: (b) 1949

The correct answer is 1949

Key Points

• The first nationalization of banks in India took place in 1949 when the Reserve Bank of India (RBI) was nationalized.

• The RBI was made the central bank of the country, taking over the responsibility for regulating and controlling the monetary system, which was previously under private ownership.

• However, the major nationalization of commercial banks occurred later, in 1969, when the Government of India nationalized 14 major commercial banks to increase control over the banking sector and to ensure that credit was provided to key sectors of the economy, such as agriculture and industry.

• The aim was to direct the banks to contribute to the nation’s development and reduce dependence on foreign banks.

• So, while 1949 marks the nationalization of the RBI, 1969 is often cited as the year of the first significant nationalization of commercial banks.

Q52. Answer: (a) 150 million km

The correct answer is 150 million km

Key Points

• The average distance between the Earth and the Sun is about 93 million miles (150 million kilometres).

• This distance is also known as one astronomical unit (AU).

• The Earth's orbit around the Sun is elliptical, not a perfect circle, so the distance between the two bodies changes throughout the year:

• Perihelion

• The point when the Earth is closest to the Sun, which occurs during winter in the northern hemisphere.

• At this time, the distance is about 91.4 million miles (147.1 million kilometers).

• Aphelion

• The point when the Earth is farthest from the Sun, which occurs about six months after perihelion.

• At this time, the distance is about 94.5 million miles (152.1 million kilometers).

• Light from the Sun travels at a speed of 186,000 miles (300,000 kilometers) per second, so it takes about 8 minutes to reach Earth.

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Q53. Answer: (b) d

The diagram that best represents the relationship between Parrot, Bird, and Tiger is shown below :

Parrot is a type of bird.

Birds and tiger are two different sets.

Thus, figure 'd' best represents the relationship between Parrot, Bird, and Tiger.

Hence, "Option 2" is the correct answer.

Q54. Answer: (d) Bangar

The correct answer is Bangar

Key Points

• Old alluvial soil is known as Bhangar.

• Bhangar is a system of older alluvium that is deposited away from flood plains and forms terraces along river beds that are higher than the floodplain.

• Bhangar is not very fertile and is not suitable for agriculture.

• In contrast, newer alluvial soil is called Khadar.

• Khadar is more fertile than Bhangar and is used extensively for agriculture.

• Khadar is deposited by rivers in their flood plains and is replenished every year. Khadar is also known as Nali or Naili.

• Alluvial soil is made up of clay, gravel, sand, silt, boulders, and other particles, along with organic matter that makes the soil fertile.

• Alluvial soil differs in texture because it is a transported soil deposited by rivers.

Q55. Answer: (b) 209952

The logic followed here is:

Hence, "Option 2" is the correct answer.

Q56. Answer: (b) Printer

The correct answer is Printer

Key Points

• A printer is an output device in a computer.

• An output device is a piece of hardware that converts digital data into a human-readable form, such as text, graphics, audio, or video.

• Other examples of output devices include:

• Monitors, Speakers, Headphones, Projectors, GPS devices, Optical mark readers, and Braille readers.

Additional Information

• A scanner, mouse, and webcam are all input devices that allow users to interact with a computer and provide it with data:

• Scanner: Scans documents and pictures and converts them into digital images that can be saved to a computer

• Mouse: A primary input device that controls the pointer on the computer screen

• Webcam: Captures a video image of the scene in front of it and sends it to the computer for processing

• Other input devices include:

• Keyboard, Microphone, Light pen, Barcode reader, Touch screen, and Joystick.

Q57. Answer: (a) Rs. 4,000

Given:

The incomes of A and B are in the ratio 3 : 2.

The expenditures of A and B are in the ratio 5 : 3.

Each saves Rs. 2,000.

Formula Used:

Income - Expenditure = Savings

Calculation:

Let the incomes of A and B be 3x and 2x respectively.

Let the expenditures of A and B be 5y and 3y respectively.

For A: 3x - 5y = 2,000

For B: 2x - 3y = 2,000

We have the system of equations:

3x - 5y = 2,000 (1)
2x - 3y = 2,000 (2)
To eliminate y, multiply equation (2) by 5 and equation (1) by 3:
5(2x - 3y) = 5(2,000)
10x - 15y = 10,000 (3)
3(3x - 5y) = 3(2,000)
9x - 15y = 6,000 (4)
Subtract equation (4) from equation (3):
(10x - 15y) - (9x - 15y) = 10,000 - 6,000
=> 10x - 9x = 4,000
=> x = 4,000
Substitute x = 4,000 in equation (2):
2(4,000) - 3y = 2,000
=> 8,000 - 3y = 2,000
=> -3y = 2,000 - 8,000
=> -3y = -6,000
=> y = 2,000
The incomes of A and B are 3x = 3(4,000) = 12,000 and 2x = 2(4,000) = 8,000 respectively.
The difference between their incomes is:
12,000 - 8,000 = 4,000
The difference between their incomes is Rs. 4,000.

Q58. Answer: (b) 11025

Given:
We need to find the least number which is a perfect square and contains 3675 as its factor.
Formula Used:
If a number is a perfect square, all the exponents in its prime factorization must be even.
Calculation:
Prime factorization of 3675:
$3675 = 3 \times 5^2 \times 7^2$
Therefore, $3675 = 3 \times 5^2 \times 7^2$
To make it a perfect square, we need to multiply it by the necessary primes to make all exponents even:
We need one more 3,
Required number = 3675 × 3
Required number = 11025
Checking if 11025 is a perfect square:
Square root of 11025 = 105
Therefore, the least number which is a perfect square and contains 3675 as its factor is:
11025
The correct answer is option 2.

Q59. Answer: (d) 48^(th)

The correct answer is 48^(th)
Key Points
• India ranked 48th in the 2020 Global Innovation Index (GII):
• The GII is a yearly ranking of countries based on their innovation capacity and success.
• The World Intellectual Property Organization (WIPO), Cornell University, and INSEAD jointly developed the GII.
• The 2020 GII ranked 131 economies based on 80 indicators across 7 pillars.
• India's performance
• India's 2020 ranking was its first time in the top 50. It also ranked third among lower-middle-income economies.
• India improved the most in the following pillars:
• Institutions (61st)

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• Business sophistication (55th)
• Creative outputs (64th)
• Other findings
• The 2020 GII also found that:
• Innovation is gradually shifting from the West to the East.
• China, India, the Philippines, and Vietnam have made the most progress on the index in recent years.
• India ranked in the top 15 for indicators such as Information and Communication Technology (ICT) services exports and Government online services.

Q60. Answer: (d) 18 m

Given:
The broken upper part of the tree = 10 m.
The distance from the foot of the tree to the point where the upper part touches the ground = 6 m.
Formula Used:
Using the Pythagorean theorem for the right triangle formed:
$a^2 + b^2 = c^2$
Where:
a = height of the tree from the break point to the ground.
b = distance from the foot of the tree to the point where the upper part touches the ground.
c = length of the broken upper part of the tree.
Calculation:
Let the height of the tree from the break point to the ground be h meters.
$h^2 + 6^2 = 10^2$
=> $h^2 + 36 = 100$
=> $h^2 = 100 - 36$
=> $h^2 = 64$
=> $h = \sqrt{64}$
=> h = 8 meters.
The total height of the tree = height from the foot to the break point + length of the broken part.
Total height = 8 + 10 = 18 meters.
The height of the tree is 18 meters.

Q61. Answer: (a) D

The logic followed here is:
Hence, "Option 1" is the correct answer.

Q62. Answer: (a) Rs. 270

Given:
A reduction of 10% in the price of mangoes enables a person to buy 10 mangoes more for Rs. 2250.
Formula Used:
Let the original price per mango be Rs. x.
Price after reduction = x - 0.1x = 0.9x
Number of mangoes bought originally = 2250 / x
Number of mangoes bought after reduction = 2250 / 0.9x
Difference in the number of mangoes bought = 10
Calculation:
=> (2250 / 0.9x) - (2250 / x) = 10
=> 2250 × (1 / 0.9x) - 2250 × (1 / x) = 10
=> 2250 × (1 - 0.9) / 0.9x = 10
=> 2250 × 0.1 / 0.9x = 10
=> 225 / 0.9x = 10
=> 225 = 9x
=> x = 225 / 9

=> x = 25

Price per dozen after reduction:

Price per mango after reduction = 0.9 × 25 = 22.5

Price per dozen after reduction = 22.5 × 12 = 270

The price per dozen after reduction is Rs. 270.

Q63. Answer: (b) 2over3

Given:

Decimal representation = 0.666...

Formula Used:

Let x be the repeating decimal, then multiply by a power of 10 to shift the decimal point.

Calculation:

Let x = 0.666...

Multiply by 10:

=> 10x = 6.666...

Subtract the original x from this equation:

=> 10x - x = 6.666... - 0.666...

=> 9x = 6

Solving for x :

=> x = 6 / 9

=> x = 2 / 3

The fraction form of 0.666... is 2/3.

Q64. Answer: (c) Moon

The logic followed here is:

Jupiter	Planet
Saturn	Planet
Moon	Natural Satellite
Venus	Planet

Jupiter, Saturn, Venus all are Planets,

Whereas,

Moon is a Natural Satellite.

Hence, the correct answer is "Moon".

Q65. Answer: (a) 16

Given:

Rate at which rubber bands are sold = 32 a rupee

Loss percentage = 40%

Desired gain percentage = 20%

Formula Used:

Cost Price (CP) = Selling Price (SP) / (1 - Loss%)

New Selling Price (SP') = CP × (1 + Gain%)

Number of rubber bands for a rupee = Total rubber bands / SP'

Calculation:

Given SP for 32 rubber bands = 1 rupee

Loss = 40%

=> CP = SP / (1 - Loss%)

=> CP = 1 / (1 - 0.4)

=> CP = 1 / 0.6

=> CP = 5/3 rupees

Desired gain = 20%

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=> New SP' = CP × (1 + Gain%)

=> New SP' = (5/3) × (1 + 0.2)

=> New SP' = (5/3) × 1.2

=> New SP' = 2 rupees

Number of rubber bands for 1 rupee = 32 / New SP'

=> Number of rubber bands for 1 rupee = 32 / 2

=> Number of rubber bands for 1 rupee = 16

The correct answer is option 1: 16 rubber bands per rupee.

Q66. Answer: (b) 11^(th)February

The correct answer is 11th February

Key Points

• The United Nations International Day of Women and Girls in Science is celebrated annually on February 11

• The day promotes gender equality in science and technology by:

• Encouraging women and girls to participate fully and equally in science

• Raising awareness of the challenges women face in STEM fields

• Advocating for more opportunities and support for women in STEM

• UNESCO and UN Women work with other institutions and civil society partners to implement the day

Additional Information

• 15th February: This date is observed as International Childhood Cancer Day, which raises awareness and promotes efforts to support children and adolescents with cancer, survivors, and their families.

• 15th January: This day is celebrated as Indian Army Day in India to honor the bravery and sacrifice of the Indian Army personnel. It marks the day in 1949 when General K.M. Cariappa took command of the Indian Army from the British.

• 29th January: This day is observed as World Leprosy Day (on the last Sunday of January, though it sometimes falls on 29th) to increase public awareness about leprosy, eliminate stigma, and support those affected by the disease.

Q67. Answer: (b) Green Book

The correct answer is Green Book

Key Points

• Green Book won the Best Picture award at the 91st Academy Awards in 2019:

• The movie about a white chauffeur and his Black client in the segregated United States also won Best Supporting Actor for Mahershala Ali and Best Original Screenplay.

• Green Book overcame mixed reviews and awards-season setbacks to win the top prize.

• Other winners at the 91st Academy Awards included:

• Bohemian Rhapsody: Won the most awards of the night, with four

• Black Panther: Won three awards

• Roma: Won three awards

• Regina King: Won Supporting Actress for her role in If Beale Street Could Talk

• Free Solo: Won Best Documentary Feature

Q68. Answer: (a) Gravitational force

The correct answer is Gravitational force

Key Points

• Gravitational force is the weakest of the four fundamental forces of nature:

• Gravitational force:

• The weakest force, but it works across infinite distances and is responsible for the universe's structure.

• It's always attractive in nature.

• Gravity is weaker on a smaller scale, like when you walk on Earth, but it's stronger on a larger scale, like when the Sun holds the planets in alignment.

• Electromagnetic force: A blend of electrical and magnetic forces that operates between electrically charged particles.

• It's stronger than gravitational force because it deals with microscopic particles like electrons and protons.

• Nuclear force: The strongest force.

Additional Information

• Electric force is a type of electromagnetic force, one of the four fundamental forces of nature:

• Electric force: A type of electromagnetic force that exists between charged particles
• Nuclear force: There are two types of nuclear force: strong and weak
• Strong nuclear force: Holds together nuclei
• Weak nuclear force: Responsible for radioactive decay
• Buoyant force: The force that acts on an object immersed in a liquid or fluid

Q69. Answer: (a) 14^(th) century

The correct answer is 14th Century

Key Points

• The Vijayanagara Empire was founded in the 14th century, in 1336:
• Brothers Harihara and Bukka Raya founded the empire.
• The empire was based in the Deccan region of peninsular and southern India.
• The empire succeeded the prosperous Hindu kingdoms of the Hoysalas, the Kakatiyas, and the Yadavas.
• The empire lasted for more than two centuries as the dominant power in south India.
• The empire's centre was Hampi, which was originally called Hastinavati.
• The empire included people who spoke different languages and followed different religious traditions

Q70. Answer: (c) 3xyzover abc

Given:

$x = a(b - c)$

$y = b(c - a)$

$z = c(a - b)$

Formula used:

If $a + b + c = 0$

Than, $a^3 + b^3 + c^3 = 3abc$

Calculation:

Step 1: Simplify each term:

$(x/a) = a(b - c)/a = (b - c)$

$(y/b) = b(c - a)/b = (c - a)$

$(z/c) = c(a - b)/c = (a - b)$

Adding all three equations,

$(x/a) + (x/b) + (x/c) = 0$

Using the formula,

If $a + b + c = 0$

Than, a3 + b3 + c3 = 3abc

$(x/a)^3+(y/b)^3+(z/c)^3 = 3xyz/abc$

Therefore The correct answer is option 3.

Q71. Answer: (b) Kalpakkam

The correct answer is Kalpakkam

Key Points

• India's Prototype Fast Breeder Reactor (PFBR) is located at Kalpakkam in Tamil Nadu.
• This reactor is part of India's nuclear power program and is managed by the Indira Gandhi Centre for Atomic Research (IGCAR).
• The PFBR is designed to use plutonium-uranium mixed oxide as fuel and aims to generate more fuel than it consumes, a process called "breeding."
• This technology is part of India's goal to achieve energy security and self-sufficiency in nuclear fuel

Additional Information

• Kudankulam: This location in Tamil Nadu is home to a nuclear power plant built in collaboration with Russia, known for its VVER-type reactors
• Tarapur: Situated in Maharashtra, Tarapur houses India's first nuclear power station but is not a site for fast breeder reactors.
• Kaiga: Located in Karnataka, Kaiga has pressurized heavy water reactors (PHWRs) but does not host a fast breeder reactor.

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Q72. Answer: (c) food grains

The correct answer is Food grains

Key Points

• The buffer stock created by the Indian government is a stock of food grains, such as wheat and rice:

• The government procures food grains from farmers in states with surplus production through the Food Corporation of India (FCI).

• The grains are then stored in granaries.

• The government distributes the buffer stock to different parts of the country through the Public Distribution System.

• The government uses the buffer stock to:

• Distribute food grains to poorer sections of society at a lower price than the market price

• Solve food shortages during adverse weather conditions or calamities

Additional Information

• Woof: This is commonly the sound made by a dog, an onomatopoeic word that imitates the barking sound.

• It can also mean the woven threads that run horizontally (weft) in fabric-making, crossing the warp (vertical threads) to form cloth.

Q73. Answer: (a) 7 m

Given:

Curved surface area of a cylindrical pillar = 66 m^2

Volume of the cylindrical pillar = 231 m^3

$\pi = 22/7$

Formula Used:

Curved Surface Area (CSA) of a cylinder = $2\pi rh$

Volume (V) of a cylinder = $\pi r^2 h$

Calculation:

From CSA, $2\pi rh = 66$

$\Rightarrow 2 \times 22/7 \times r \times h = 66$

$\Rightarrow 44rh = 66 \times 7$

$\Rightarrow 44rh = 462$

$\Rightarrow rh = 462/44$

$\Rightarrow rh = 10.5$

From Volume, $\pi r^2 h = 231$

$\Rightarrow 22/7 \times r^2 \times h = 231$

$\Rightarrow 22r^2h/7 = 231$

$\Rightarrow 22r^2h = 231 \times 7$

$\Rightarrow 22r^2h = 1617$

$\Rightarrow r^2h = 1617/22$

$\Rightarrow r^2h = 73.5$

We have $rh = 10.5$

$\Rightarrow r \times 10.5 = 73.5$

$\Rightarrow r = 73.5/10.5$

$\Rightarrow r = 7$ m

The correct answer is option 1.

Q74. Answer: (d) 25 km/h

Given:

Distance = 300 km

Increased speed = original speed + 5 km/h

Time difference = 2 hours

Formula Used:

Distance = Speed × Time

Calculation:

Let the original speed be x km/h.

Time taken at original speed = 300 / x

Time taken at increased speed = 300 / (x + 5)

Given that the time difference is 2 hours, we have:

300/x - 300/(x+5) = 2

=> (300(x + 5) - 300x)/(x(x + 5)) = 2

=> (300x + 1500 - 300x)/(x(x + 5)) = 2

=> 1500/(x(x + 5)) = 2

=> 1500 = 2x(x + 5)

=> 1500 = 2x² + 10x

=> 2x² + 10x - 1500 = 0

=> x² + 5x - 750 = 0

Solving the quadratic equation:

x = (-b ± √(b2 - 4ac))/2a

Where a = 1, b = 5, c = -750

x = (-5 ± √(52 - 4(1)(-750)))/(2(1))

x = (-5 ± √(25 + 3000))/2

x = (-5 ± √3025)/2

x = (-5 ± 55)/2

Taking the positive value:

x = 50/2 = 25

The original speed of the car is 25 km/h.

Q75. Answer: (b) Q + 1

Given:

If P is a prime number and P divides Q²

Formula Used:

If a prime number P divides Q², then P divides Q.

Calculation:

Given P | Q²

Since P is a prime number:

=> P | Q

We need to determine which option P will NOT necessarily divide:

1) 3Q: P | Q => P | 3Q (True)

2) Q + 1: P | Q but P does not necessarily divide Q + 1 (False)

3) Q: P | Q (True)

4) 2Q²: P | Q² => P | 2Q² (True)

The correct answer is option 2.

Q76. Answer: (c) concurrent list

The correct answer is Concurrent List

Key Points

• Marriage is a subject of the concurrent list in the Indian Constitution:

• List: Concurrent

• Subjects: Marriage, divorce, education, forests, trade unions, adoption, succession

• The concurrent list includes subjects that are of common interest to both the Union and the States.

• Both the Central and state governments can make laws on these subjects.

• However, the law made by the state government must be in conformity with the law made by the central government on the same subject.

• The Indian Constitution's 7th Schedule divides powers between the Union and State governments through three lists: Union List, State List, and Concurrent List.

Additional Information

• The Union List, State List, and Concurrent List are three lists in the Seventh Schedule of the Constitution of India that divide the powers between the Union and State governments:

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• Union List
• Subjects of national importance that only the Central Government can legislate on.
• Examples include defense, foreign affairs, atomic energy, and currency.
• State List
• Subjects of local and state interest that State Governments can legislate on.
• Examples include police, public health, agriculture, and local government.
• Concurrent List
• Subjects that both Parliament and State Legislatures can legislate on, but central laws take precedence in case of conflict.
• Examples include education, marriage and divorce, and bankruptcy and insolvency.
• The Central Government also has residual powers, which are subjects that came into existence after the constitution was written.
• Examples of residuary subjects include computer software, information technology, and space technology.

Q77. Answer: (a) Concave

The correct answer is Concave

Key Points

• A concave mirror is used for shaving because it produces a magnified and erect image of the face, which makes it easier to shave:
• How it works
• When the face is placed close to the mirror, within its focus, the mirror produces a magnified and erect image
• Image type
• Produces images that are both genuine and reversed
• Other uses
• Also used for applying makeup
• Concave mirrors are curved, and as light hits the upper and lower portions of the mirror, the image is focused at a central point.
• The image changes depending on the distance between the item and the mirror.

Additional Information

• Opaque:
• Opaque materials do not allow light to pass through them.
• They block light completely, meaning you cannot see through opaque objects.
• Examples include wood, metal, and stone. In contrast to transparent or translucent materials, opaque materials prevent visibility through them.
• Transparent:
• Transparent materials allow light to pass through them completely, making objects behind them clearly visible.
• Glass, water, and clear plastic are examples of transparent materials.
• These materials enable us to see through them without distortion, as they allow most of the light to transmit.
• Convex Mirror:
• A convex mirror is a mirror that is curved outward, like the exterior of a sphere.
• Convex mirrors diverge light rays that strike them, meaning they spread out the reflected light.
• This property makes them useful in applications like car side mirrors and security mirrors, where a wide field of view is needed.
• Convex mirrors always produce virtual, upright, and diminished images.

Q78. Answer: (d) Vision 2019 - 2021

The correct answer is Vision 2019-2021

Key Points

• The Reserve Bank of India's (RBI) vision document titled "Payment and Settlement Systems in India" is Vision 2019 - 2021.
• The document's core theme is "Empowering Exceptional (E)payment Experience".
• The vision aims to:
• Make e-payment options safe, secure, convenient, quick, and affordable for all Indians
• Achieve a "highly digital" and "cash-lite" society
• Increase digital transactions fourfold in two years
• Reduce paper-based clearing as a percentage of retail payments
• The document also focuses on: innovation, cybersecurity, financial inclusion, customer protection, and competition.
• The RBI's Payments Vision 2025 builds on the initiatives of Vision 2019 - 2021.

• It emphasizes five anchor goalposts: integrity, inclusion, innovation, institutionalization, and internationalization

Q79. Answer: (c) 11 √2 cm

Given:

Radius of the circle = 7 cm.

Formula Used:

1. Circumference of the circle = 2 × π × radius

2. Perimeter of the square = Circumference of the circle

3. Side of the square = Perimeter of the square / 4

4. Diagonal of the square = Side × √2

Calculation:

1. Circumference of the circle:

C = 2 × π × 7 = 44

2. Perimeter of the square:

Perimeter of the square = Circumference of the circle

P = 44 cm

3. Side of the square:

Side = 44/4 = 11cm

4. Diagonal of the square:

Diagonal = 11√2

The correct answer is option 3.

Q80. Answer: (d) 0.15

Given:

The numbers are 16.5, 0.45, and 15.

Formula Used:

To find the HCF (Highest Common Factor) of decimal numbers, convert them into fractions,

HCF = HCF of the numerators/ LCM of denominators

Calculation:

Convert each number to a fraction:

16.5 = 165/10 = 33/5

0.45 = 45/100 = 9/20

15 = 15/1

Now, find the HCF of the numerators 33, 9, 15.

Prime factors:

33 = 3 × 11

9 = 3^2

15 = 3 × 5

Common factor: 3

Hence, the HCF of the numerators is 3.

LCM of 5, 20, 1 = 20

Required HCF = 3/20 = 0.15

The HCF of 16.5, 0.45, and 15 is 0.15.

Q81. Answer: (d) B.R. Ambedkar

The correct answer is B.R Ambedkar

Key Points

• B.R. Ambedkar and Tej Bahadur Sapru attended all three Round Table Conferences in London

• The participation of other leaders in the Round Table Conferences:

• Mahatma Gandhi and Congress: Participated in the second round table conference only

• Muhammad Ali Jinnah: Participated in the first and second round table conferences only

Additional Information

• The Three Round Table Conferences were held in London between 1930 and 1932 to discuss constitutional reforms in India,

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especially focusing on the governance structure under British colonial rule.

• These conferences were convened by the British government to involve Indian political leaders and discuss the future of India.

Important Points

• First Round Table Conference (1930–1931)

• Date: November 12, 1930 – January 19, 1931.

• Context: The First Round Table Conference took place amid the civil disobedience movement led by Mahatma Gandhi, particularly the Salt March (Dandi March). Gandhi was invited by the British government but did not attend this conference initially.

• Indian Participants: Key leaders like Mahatma Gandhi, B.R. Ambedkar, Tej Bahadur Sapru, Lala Lajpat Rai, and others attended. However, the Indian National Congress (INC) boycotted the conference, as the British had already made clear their intention not to offer complete self-rule.

• Second Round Table Conference (1931)

• Date: September 7 – December 1, 1931.

• Context: This conference was significant because Mahatma Gandhi agreed to attend after his release from prison (following the arrest during the Salt March).

• This marked a shift in INC's stance.

• Indian Participants: Gandhi represented the INC at this conference, and other notable figures included B.R. Ambedkar, Tej Bahadur Sapru, and representatives from princely states.

• Third Round Table Conference (1932)

• Date: November 17, 1932 – December 24, 1932.

• Context: The third conference was held in the backdrop of the Poona Pact between Gandhi and Ambedkar (after Gandhi's fast in Yerwada Jail).

• The issue of separate electorates for Dalits was a key point of discussion.

• Indian Participants: B.R. Ambedkar, Tej Bahadur Sapru, and other leaders participated.

• Mahatma Gandhi did not attend, as he had already negotiated the Poona Pact, and the INC had little representation in this conference.

Q82. Answer: (b) 2 : 1

Shortcut Trick

The Volume of a cylinder is proportional to the square of its radius (r^2) and its height (h).

Change factor = (Radius change factor)^2 × (Height change factor)

Change factor = $(2)^2 \times (1/2) = 4 \times 1/2 = 2$.

Ratio of new volume to previous volume = 2 : 1.

Therefore The correct answer is 2 : 1.

Alternate Method

Given:

Initial radius = r

Initial height = h

New radius = 2r (doubled)

New height = h/2 (halved)

Formula Used:

Volume of a cylinder (V) = $\pi \times r^2 \times h$

Calculations:

=> Previous Volume (V1) = $\pi r^2 h$

=> New Volume (V2) = $\pi \times (2r)^2 \times (h/2)$

=> $V2 = \pi \times 4r^2 \times (h/2)$

=> $V2 = 2\pi r^2 h$

=> Required Ratio = $V2 : V1 = 2\pi r^2 h : \pi r^2 h$

=> Ratio = 2 : 1

Therefore The correct answer is 2 : 1.

Additional Information

Curved Surface Area (CSA) of Cylinder

The area of the curved part is given by $2 \times \pi \times r \times h$.

Total Surface Area (TSA) of Cylinder

It includes the CSA and the area of the two circular bases: $2\pi r(h + r)$.

Volume of a Cone

A cone with the same radius and height as a cylinder has (1/3) of its volume: $V = (1/3)\pi r^2 h$.

Volume Change Property

If radius is changed by a factor k and height by factor m, the volume changes by a factor $k^2 \times m$.

Q83. Answer: (c) 720°

Given:

The question asks for the sum of the measures of the interior angles of a hexagon.

Formula Used:

Sum of the interior angles of a polygon = (n - 2) × 180º, where n is the number of sides of the polygon.

Calculation:

For a hexagon, n = 6.

Sum of the interior angles = (6 - 2) × 180º

=> Sum of the interior angles = 4 × 180º

=> Sum of the interior angles = 720º

The sum of the measures of the interior angles of a hexagon is 720º.

Q84. Answer: (b) 2002

The correct answer is 2002

Key Points

• India adopted its Biological Diversity Act in 2002:

• The act was enacted to implement the Convention on Biological Diversity (CBD) and to conserve biological diversity, sustainably use its components, and fairly and equitably share the benefits of biological resources.

• The act is implemented through a three-tiered institutional mechanism at the national, state, and local levels.

• India notified Biological Diversity Rules in 2004.

• Objectives

• The act's objectives include:

• Regulating access to biological resources and related knowledge for research and commercial purposes

• Facilitating the acquisition of Intellectual Property Rights

• Advising the State Governments in identifying areas of biodiversity importance

Q85. Answer: (d) Ravi river

The correct answer is Ravi River

Key Points

• The Harappan Civilization was located on the banks of the Ravi River in the Punjab region of Pakistan:

• The Indus Valley Civilization, also known as the Harappan Civilization, was a Bronze Age civilization that spanned from 3300 BCE to 1300 BCE.

• The civilization flourished along the Indus River and the Ghaggar-Hakra river system.

• The Indus Valley Civilization was one of the three early civilizations of the Near East and South Asia, along with ancient Egypt and Mesopotamia.

• The Archaeological Survey of India excavated the mounds at Harappa between 1920 and 1934.

• The discovery of Harappa, along with Mohenjo-daro, was the result of work that began after the founding of the Archaeological Survey of India in 1861.

Additional Information

• Bhogwa River: The ancient city of Lothal is located on the Bhogwa River.

• Sindhu River: Also known as the Indus River, this river flows through India, Pakistan, and China.

• The Indus River originates from the Bokharchu glacier near Manasarovar Lake in Tibet.

• The Indus Valley site Mohenjo-daro is located on the banks of the Indus River.

• Sutlej River:

• The Sutlej River is the longest tributary of the Indus River in India.

• It originates from Lake La'nga in southwestern Tibet and flows through Himachal Pradesh and Punjab.

• The Sutlej River forms 65 miles of the India-Pakistan border before joining the Chenab River.

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• The Bhakra Dam is built on the Sutlej River to provide irrigation and other facilities to the states of Punjab, Rajasthan, and Haryana.

Q86. Answer: (a) 22.19%

Given:

Total number of candidates = 10,000

Number of candidates in the 0-40 score interval for GK = 2,219

Formula used:

Percentage = (Number of candidates in the 0-40 interval / Total number of candidates) × 100

Calculation:

Total marks = 200

20% of the total marks = 200 × 20/100 = 40

Number of candidates in the 0-40 score interval for GK = 2,219

Percentage = (2219 / 10000) × 100

=> Percentage = 22.19%

Therefore, 22.19% of candidates scored less than 20% marks in GK.

Q87. Answer: (d) 7191

Given:

Total number of candidates = 10,000

Cut-off for English = 40% of 200 = 80 marks

Number of candidates scoring more than 80 marks in English = Candidates in 81-120 + 121-160 + 161-200 score intervals

Formula used:

Total number of answer sheets to be evaluated for LR = Sum of candidates who scored above 80 marks in English

Calculation:

Total number of candidates scoring more than 80 marks in English:

Number of candidates in 81-120 score range = 3,562

Number of candidates in 121-160 score range = 2,412

Number of candidates in 161-200 score range = 1,217

Total = 3,562 + 2,412 + 1,217

=> Total = 7,191

Therefore, 7,191 answer sheets will be evaluated for LR.

Q88. Answer: (b) 2482

Given:

The total marks for each subject = 200

80% of 200 marks = 160 marks

We need to find the number of candidates who scored more than 160 marks in each subject.

Formula used:

Total number of candidates scoring above 80% in each subject = Number of candidates in the 161-200 score range for each subject

Calculation:

For GK (161-200 score range) = 856

For LR (161-200 score range) = 218

For English (161-200 score range) = 1,217

For Computer (161-200 score range) = 191

Total number of candidates scoring above 80% across all subjects:

=> 856 + 218 + 1,217 + 191 = 2,482

Therefore, the total count of candidates scoring above 80% across all subjects is 2,482.

Q89. Answer: (b) Cannot be determined from given data

Given:

Total marks for each subject = 200

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40% of 200 marks = 80 marks

We need to find the number of candidates who scored more than 80 marks in all the subjects.

Formula used:

Total number of candidates scoring above 80 marks in each subject = Sum of the number of candidates in the 81-120, 121-160, and 161-200 score ranges for each subject

Calculation:

For GK:

=> 3,652 (81-120) + 1,248 (121-160) + 856 (161-200)

=> 5,756

For LR:

=> 2,954 (81-120) + 3,569 (121-160) + 218 (161-200)

=> 6,741

For English:

=> 3,562 (81-120) + 2,412 (121-160) + 1,217 (161-200)

=> 7,191

For Computer:

=> 3,841 (81-120) + 2,564 (121-160) + 191 (161-200)

=> 6,596

Therefore, the number of candidates scoring more than the cut-off marks (40%) in all subjects is:

=> 5,756 + 6,741 + 7,191 + 6,596 = 26,284

Since Total number of students appeared = 10000, some students have passed in all subjects some passed in a few,

We can not determine from given data that how many students have passed in all the subjects.

Therefore The correct answer is option 2.

Q90. Answer: (c) Sunayana

Given:

1) Mohit and Sunayana are good in Mathematics and English. Yes

2) Veena and Mohit are good in Mathematics and Science.

	Mathematics	English	Science	History	Drawing
Mohit	Yes	Yes	Yes		
Sunayana	Yes	Yes			
Veena	Yes		Yes		
Yash					
Prithvi					

3) Yash and Sunayana are good in History and English.

4) Veena, Yash and Prithvi are good in Drawing and Science.

	Mathematics	English	Science	History	Drawing
Mohit	Yes	Yes	Yes		
Sunayana	Yes	Yes		Yes	
Veena	Yes		Yes		Yes
Yash		Yes	Yes	Yes	Yes
Prithvi			Yes		Yes

Thus, according to the final arrangement, Sunayana is good in Mathematics, History and English.

Hence, "Option 3" is the correct answer.

Q91. Answer: (a) C

Given: Five person A, B, C, D and E are sitting in a row facing towards north. Each of them are preparing for different competitive exam C1, C2, C3, C4 and C5. No two persons are preparing for same exam.

1) One among D and E sits at one of the extreme end.

2) D sits to the immediate right of B and B is preparing for C5.

3) Only one person sits between D and E.

As position of E in a row is not known yet, therefore there are two possible cases.

Case 1)

Case 2)

Case 3)

4) Only two persons sit between A and the one who is preparing for C3.

5) A is not neighbour of B.

As there is no possible position for C3 in case 1 and 3, therefore are eliminated.

After positioning A only one position is left which will be occupied by the only person left i.e. C.

Case 3)

6) One person sits between the persons who are preparing for C3 and C1.

7) The one preparing for C1 sits to the immediate left of the one who is preparing for C5.

Case 3)

8) C is not preparing for C4.

Case 3)

Thus, according to the final arrangement, C is preparing for C2.

Hence, "Option 1" is the correct answer.

Q92. Answer: (c) Only conclusion II follows.

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

Conclusions:

I. Some guavas are grapes → Does not follow (As some guavas are mangos, all mangos are pears and some pears are grapes. So it is possible but not definite.)

II. Some guavas are pears → Follow (As some guavas are mangos and all mangos are pears. As whole mangoes comes in pears and has some part common with guavas, therefore it is true.)

III. Some mangos the grapes → Does not follow (As all mangos are pears and some pears are grapes. So it is possible but not definite.)

Therefore Here, Only conclusion II follows.

Hence, "Option 3" is the correct answer.

Q93. Answer: (b) T

The logic followed here is:

Hence, "Option 2" is the correct answer.

Q94. Answer: (a) Thimpu

The logic followed here is:

Thimpu	Capital of Bhutan
Aizawl	Capital of Mizoram
Agartala	Capital of Tripura
Kohima	Capital of Nagaland

Aizawl, Agartala, Kohima all are capitals of Indian states,

Whereas,

Thimpu is the capital of Bhutan.

Hence, the correct answer is "Thimpu".

Q95. Answer: (d) Husband's Brother

Given:

1) A and B are sisters.

2) D is the father of B and brother of E.

3) C and D are a married couple.

4) E is the paternal uncle of A.

Thus, E is C's brother-in-law or husband's brother.

Hence, the correct answer is "Option 4".

Q96. Answer: (d) RMWRZ

The logic followed here is:

NEPAL is written as MVKZO

And,

CHINA is written as XSRMZ

Similarly,

INDIA is written as

Hence, "Option 4" is the correct answer.

Q97. Answer: (c) Neither conclusion I nor II follows.

Given,

Statements:

1. The monthly income of a family is Rs. 4,00,000.

2. Out of this, Rs. 2,40,000 is earned by the family members who work in the IT sector.

Conclusions:

I. 60% of the family members work in the IT sector - False (Because, the statements provide information about the income distribution, not the number of family members working in the IT sector).

II. The male members of the family earn more than the female members of the family - False (Because, there is no information provided about the gender distribution of earnings in the family).

So, Neither conclusion I nor II follows.

Hence, the correct answer is "Option 3".

Q98. Answer: (a) Nepal

The logic followed here is:

Logic: Popular sports associations with countries.

Here,

Kabaddi : Bangladesh → Kabaddi is a popular sport in Bangladesh.

Similarly,

Volleyball : Nepal → Volleyball is a popular sport in Nepal.

Hence, the correct answer is "Option 1".

Q99. Answer: (c) Eligible only under iii and iv

Condition Number	Eligibility criteria for the selection of an Assistant Teacher (Social Science) for secondary classes	Suitability
i	The candidate should have a graduation degree including any two of the following subjects: Geography, History, Economics, Political Science and Public Administration.	No Dr. Mohanty had Geography, English and Psychology in his graduation. Thus, only one subject of the given is covered here.
ii	The candidate must possess a B.Ed. degree passed with first class.	No He is a postgraduate in Geography and also has a Ph.D. degree. Thus, no B.Ed. degree passed with first class is given.
iii	The candidate should have 8 years of teaching experience at an elementary level or 3 years of experience at a secondary level.	Yes Dr. Mohanty has 8 years of teaching experience at a secondary level.
iv	The candidate should have good command over Hindi and English.	Yes Dr. Mohanty can teach in Hindi and English very well.

Dr. Mohanty is eligible only under iii and iv.

Hence, "Option 3" is the correct answer.

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Q100. Answer: (d) Namit

Given: There are couples, Meera-Namit and Kavita-Punit.

Let the incomes of Meera's salary, Namit's salary, Kavita's salary, and Punit's salary be M, N, K and P respectively.

1) The sum of the salaries of Meera and Namit is more than the sum of the salaries of Kavita and punit.

Condition 1 : M + N > K + P

2) The sum of the salaries of Meera and Kavita is the same as the sum of the salaries of Namit and Punit.

Condition 2 : M + K = N + P

3) Meera earns half as much as the sum of the salaries of Namit and punit.

Condition 3 : 2M = N + P

Putting the value of (N + P) in condition 2, we get

M + K = N + P => M + K = 2M => K = M

Putting (K = M) in condition 1, we get

M + N > K + P => M + N > M + P => N > P

Therefore, N i.e Namit's salary is the highest.

Hence, "Option 4" is the correct answer.

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