RRB NTPC CBT-I Official Paper (Held On: 24 July 2021 Shift 2) (Previous Year Paper)

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

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Q1. Sriharikota, from where Chandrayaan-2 was launched, is located in which district?

(a) Nellore
(b) Bengaluru
(c) Thiruvananthapuram
(d) Chennai

Q2. Casein is a protein found in:

(a) soya bean
(b) milk
(c) meat
(d) carrot

Q3. Which of the following pigments is mainly responsible for the colour of our hair, skin and eyes?

(a) Melanin
(b) Xanthophyll
(c) Myoglobin
(d) Chlorophyll

Q4. Chilika Lake is famous for which of the following birds/animals?

(a) Rhinoceros
(b) Flamingos
(c) Musk deer
(d) Penguins

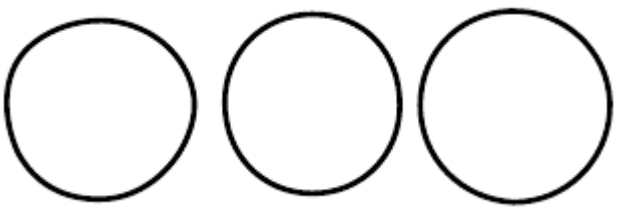
Q5. Raja Rammohan Roy founded a reform association known as the 'Brahmo Sabha' (later known as 'Brahmo Samaj') in which city of India?

(a) Calcutta
(b) Burdwan
(c) Barrackpore
(d) Murshidabad

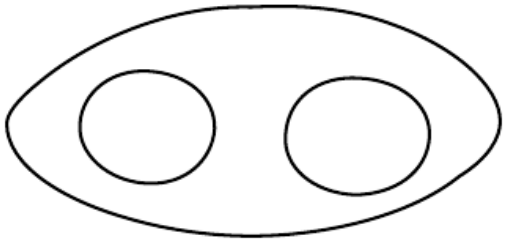
Q6. Select the Venn diagram that best represents the relationship between the following classes.

Canvas, Paint, Brush

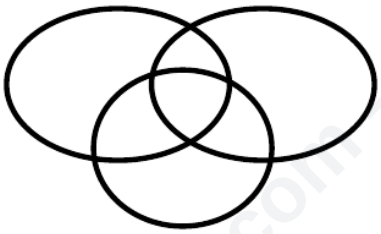
(a)



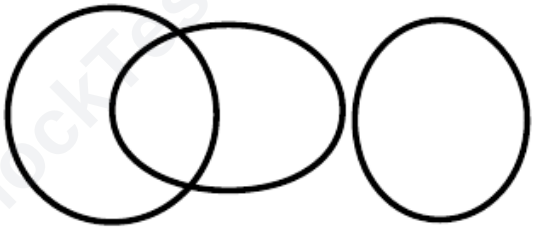
(b)



(c)



(d)



Q7. Which of the following is NOT a function of the International Monetary Fund (IMF)?

(a) Creating innovative business models to increase the wealth of its member countries
(b) Providing loans to countries that have trouble meeting their international payments
(c) Assisting mainly low and middle income countries to effectively manage their economies
(d) Monitoring the financial and economic policies of its member countries

Q8. In December 2018, the United Nations declared 7^(th)June as:

(a) World No Hunger Day
(b) World Food Safety Day
(c) World Healthy Food Day
(d) World Organic Food Day

Q9. Who among the following was instrumental in promoting English education in India?

(a) James Mill
(b) Thomas Babington Macaulay
(c) Charles Wood
(d) William Carey

Q10. Find the HCF of the first 100 natural numbers.

(a) 100
(b) 10
(c) 2
(d) 1

Q11. 19% of 16% of 1480 is the same as:

(a) 48% of 6% of 1480
(b) 35% of 1% of 1480
(c) 38% of 8% of 1480
(d) 9% of 26% of 1480

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Q12. Out of the four number-pairs listed, three are alike in some manner and one is different. Select the number-pair that is different from the rest.

(a) 53, 225
(b) 29, 324
(c) 23, 216
(d) 37, 441

Q13. In a certain code language, POSITIVE is written as KQHKGKEG. How will NATIONAL be written as in that language?

(a) MCGKLPZN
(b) MCGKLPCO
(c) MCGKOCPL
(d) MCKGPLZN

Q14. Which of the following bacteria is associated with the formation of root nodules of leguminous plants?

(a) Clostridium
(b) Escherichia
(c) Rhizobium
(d) Salmonella

Q15. Which of the following cities is famous for the Kalighat paintings?

(a) Banaras
(b) Kolkata
(c) Nathdwara
(d) Madurai

Q16. Five teachers, U, V, W, X and Y, are sitting in a row facing towards the north. U is the left of V and right of W. Y is to the extreme left. V is to the left of X. Who is sitting in the middle?

(a) U
(b) W
(c) X
(d) V

Q17. Who among the following did NOT receive the 'Best Actor' or 'Best Actress' award at the 67^(th) National Film Awards Ceremony?

(a) Dhanush
(b) Sushant Singh Rajput
(c) Kangana Ranaut
(d) Manoj Bajpayee

Q18. The following table gives a frequency distribution whose arithmetic mean is 33. Find the product of the possible values of k from the distribution.

Value (x)	Frequency (f)
29	4
30	3
30 + k	3k
34	2
62	1

(a) 2
(b) 3
(c) 5
(d) 4

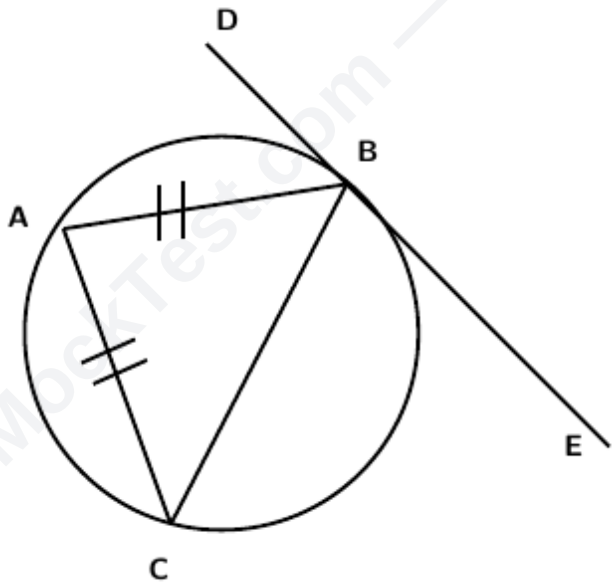
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Q19. Kamini, Madhuri, Gunjan, Anita, Sunita and Rakhi are friends. Sunita is younger than Kamini but older than Rakhi. Madhuri is the oldest among them all. Anita is a few months younger than Kamini but a few years older than Sunita. Gunjan is older than Kamini. Who is the third oldest among them all?

(a) Sunita
(b) Gunjan
(c) Kamini
(d) Anita

Q20. In the given figure, DE is tangent to the circle at a point B. triangle ABC is constructed such that A and C are points on the circumference of the given circle, with AB = AC. If angle ABD = 65°, then what is angle BAC?

(Figure is not to scale)



(a) 50°
(b) 40°
(c) 80°
(d) 60°

Q21. A certain number of men can complete a task in 50 days. If there are 5 men more, then it can be finished in 10 days less. How many men are there?

(a) 40
(b) 20
(c) 10
(d) 30

Q22. Who among the following is a doctor of Indian origin appointed as Surgeon General by US President Joe Biden in 2021?

(a) Sanjay Gupta
(b) Vivek Murthy
(c) Deepak Chopra
(d) Anita Goel

Q23. Who among the following freedom fighters founded the 'Naujawan Bharat Sabha'?

(a) Bhagat Singh
(b) Vinayak Damodar Savarkar
(c) Dadabhai Naoroji
(d) Ashfaqulla Khan

Q24. Who wrote about the injustices of the caste system in his book 'Ghulamgiri' (1871)?

(a) EV Ramaswamy Naicker
(b) Kashi Baba
(c) Dr. BR Ambedkar
(d) Jyotirao Govindrao Phule

Q25. A rhombus has one diagonal double the other. If the area of the rhombus is K cm^2, then the length of its side will be:

(a) 5k cm
(b) (5 √k)/4 cm
(c) √5k/4 cm
(d) √(5k/4) cm

Q26. The difference between a 12.5% profit and a 10.5% loss, while selling an item, is Rs. 161. What would the selling price of the item be if the intended profit is 19%?

(a) Rs. 817
(b) Rs. 798
(c) Rs. 850
(d) Rs. 833

Q27. In the context of computing, which of the following is NOT an input device?

(a) Projector
(b) Barcode reader
(c) Scanner
(d) Mouse

Q28. In a certain code language, all letters of the English alphabet are coded with odd numbers as follows: A = 1, B = 3, C = 5 and so on. How will HEAD be coded as in that language?

(a) 15919
(b) 15735
(c) 13915
(d) 15917

Q29. Select the letter-cluster from among the given options that can replace the question mark (?) in the following series.

BUDS, CTER, ?, ERGP, FQHO

(a) DTFM
(b) DVFP
(c) DWFQ
(d) DSFQ

Q30. A train takes 15 s to pass completely through a station platform 50 m long and 10 s through another station platform 20 m long. Find the length of the train.

(a) 40 m
(b) 50 m
(c) 60 m
(d) 35 m

Q31. Read the given statements and conclusions carefully. Assuming that the information given in the statements is true, even if it appears to be at variance with commonly known facts, decide which of the given conclusions logically follow(s) from the statements.

Statements:

All students are girls.

No girl is a boy.

Conclusions:

I. All girls are students.

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II. No boy is a student.

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

Q32. At a speed of 60 km/h a train crosses a pole in 33 s. Find the length of the train.

(a) 550 m
(b) 495 m
(c) 490 m
(d) 400 m

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

HSJQ : JQLO :: CXEV : ?

(a) EZGX
(b) BWDU
(c) EVGT
(d) DUFW

Q34. Which of the following computer devices is NOT an output device?

(a) Printer
(b) Mouse
(c) Headphones
(d) Computer screen

Q35. The British achieved political power in India after the Battle of Plassey. In which year was this battle fought?

(a) 1857
(b) 1756
(c) 1858
(d) 1757

Q36. What is the least positive integer that should be subtracted from 2750, so that the difference is a perfect cube?

(a) 15
(b) 6
(c) 9
(d) 14

Q37. In March 2021, whose name was recommended by Chief Justice of India SA Bobde as his successor?

(a) Justice Ramana
(b) Justice Rohinton Fali Nariman
(c) Justice M V Muralitharan
(d) Justice Uday U Lalit

Q38. Find the largest four-digit number which when divided by 7, 9 and 11 leaves a remainder of 5 in each case.

(a) 9236
(b) 9707
(c) 9467
(d) 9763

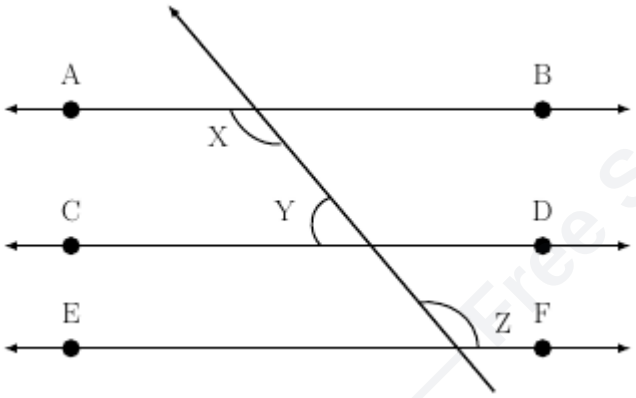
Q39. Solve the following.

1/2 [1/3 - (1/2 - 1/4) + 1/2 - 1/4] = ?

(a) 1/4
(b) 1/2
(c) 1/6
(d) 0

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Q40.



In the given figure, the three parallel lines are cut through by a transversal. Of the marked angles, the greater two are of equal measure. The ratio of a greater angle to the smaller angle is 7 : 3. What is the measure of the greater angle?

(a) 110°
(b) 126°
(c) 18°
(d) 90°

Q41. What is full form of IRCTC?

(a) Indian Railway Central Transport Corporation
(b) Indian Railway Central Tourism Corporation
(c) Indian Railway Catering and Tourism Corporation
(d) Indian Railway Catering and Transport Corporation

Q42. Out of the four words listed, three are alike in some manner and one is different. Select the odd one.

(a) Pond
(b) River
(c) Lake
(d) Tubewell

Q43. The average of 3 consecutive natural numbers (which are in increasing order) is K. If two consecutive numbers, just next to the first set of numbers, are added, then the new average will become:

(a) (2k + 1)/2
(b) K + 1
(c) 2K - 1
(d) K + 2

Q44. 'Silly point', 'slip' and 'gully' are terms used in:

(a) cycling
(b) football
(c) cricket
(d) hockey

Q45. Which of the following network types covers the largest geographical area?

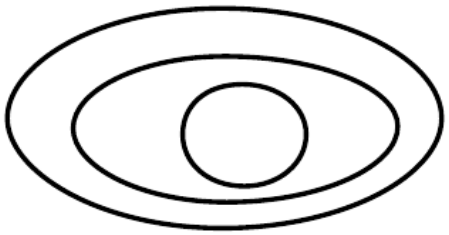
(a) MAN
(b) PAN
(c) LAN
(d) WAN

Q46. Select the Venn diagram that best represents the relationship between the following classes.

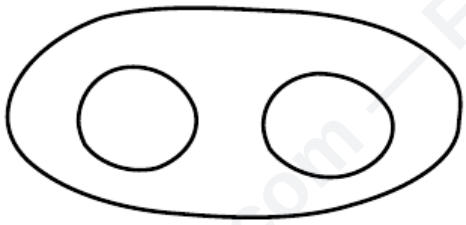
Tripura, Sikkim, Arunachal Pradesh

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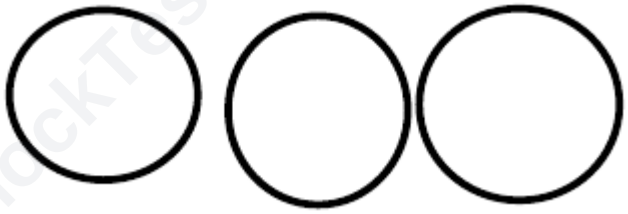
(a)



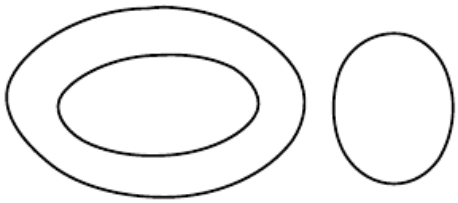
(b)



(c)



(d)



Q47. What is the name of the summit held in March 2021, for an informal strategic dialogue between the US, Japan, Australia and India?

(a) Non-Aligned Movement Summits
(b) Quad Summit
(c) Arcadia Conference
(d) Francophonie Summits

Q48. Find the compound interest (correct to two places of decimals) for 2 years of Rs. 1,800 at the rate of 10% per annum, compounded half yearly.

(a) Rs. 86.86
(b) Rs. 387.91
(c) Rs. 286.86
(d) Rs. 1,968.86

Q49. What should be subtracted from (3/4 - 2/3) to get -1 over 6 ?

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

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Q50. Which of the following films was nominated in the 'Best Adapted Screenplay' category at the Oscars 2021?

(a) The Father
(b) The White Tiger
(c) Joker
(d) The Shape of Water

Q51. The headquarters of West Central railway is _____.

(a) Mumbai
(b) Jaipur
(c) Jabalpur
(d) Bilaspur

Q52. The value of tan 75° - cot 75° is equal to:

(a) 2 + √3
(b) 1 + 2 √3
(c) 2 - √3
(d) 2 √3

Q53. As per Articles 344(1) and 351 of the Constitution of India, the eighth schedule includes the recognition of ____ languages.

(a) 23
(b) 22
(c) 26
(d) 20

Q54. A man purchases an item for Rs. 950 and sells it for Rs. 1000. Find his percentage gain.

(a) 5 5/9 % %
(b) 5 5/19% %
(c) 5%
(d) 5 1/9 %

Q55. 'Durgeshnandini' was written by:

(a) Premchand
(b) Chand Menon
(c) Bankim Chandra Chattopadhyay
(d) Rabindranath Tagore

Q56. As on Jan 2021, Which is the biggest thermal power plant in India?

(a) Vindhyachal Thermal Power Station
(b) Tiroda Thermal Power Plant
(c) Talcher Super Thermal Power Station
(d) Mundra Thermal Power Station

Q57. The average of a,11, 23 and 17 is 15 and the average of a, b, 12 and 25 is 16. the value of a over b is:

(a) 3over4
(b) 1over 3
(c) 2 over 3
(d) 1over2

Q58. In which of the following years was the Federation of the Indian Chamber of Commerce and Industries (FICCI) formed?

(a) 1927
(b) 1932
(c) 1930
(d) 1935

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Q59. As of March 2021, which of the following companies is a Public Sector Undertaking?

(a) Container Corporation of India
(b) Transport Corporation of India
(c) Imperial Tobacco Company of India Limited
(d) Madras Rubber Factory

Q60. If ^(10)p_r = 5040, find the value of r.

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

Q61. In which of the following sports do Dipika Pallikal Karthik and Joshna Chinappa represent India?

(a) Squash
(b) Volleyball
(c) Table tennis
(d) Tennis

Q62. Plant cell walls are composed of:

(a) cytosol
(b) cytoplasm
(c) glucose
(d) cellulose

Q63. If the discount and percentage profit are both 20%, then by what percentage is the marketed price above the cost price?

(a) 40%
(b) 50%
(c) 70%
(d) 60%

Q64. What number should be added to -5 over 7 to get -2 over 3 ?

(a) 10 over 21
(b) 1 over 21
(c) -7 over 21
(d) 7 over 21

Q65. How many four-digit numbers are completely divisible by 5, 12 and 18?

(a) 47
(b) 48
(c) 49
(d) 50

Q66. Which of the following states did NOT hold assembly elections in March-April 2021?

(a) Kerala
(b) West Bengal
(c) Manipur
(d) Assam

Q67. The GCD of two numbers is 9 and their LCM is 270. If one number is 27, then what will be the second number?

(a) 54
(b) 10
(c) 90
(d) 900

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Q68. In a certain code language, HISTORICAL is written as IKVXTQGZWG. How will ACCESSIBLE be written as in that language?

(a) BFFHXRGYHZ
(b) BEFIXRGYHZ
(c) BEFIXRHYHZ
(d) BEFIXRGZHZ

Q69. The difference between simple interest and compound interest on Rs. 10,00,000 for 18 months at 12% per annum reckoned half yearly is:

(a) Rs. 1.11016
(b) Rs. 1,101.6
(c) Rs. 11,016
(d) Rs. 110.16

Q70. The Quit India Movement was launched at the Bombay session of the All-India Congress Committee by Mahatma Gandhi in ____ 1942.

(a) September
(b) August
(c) December
(d) November

Q71. Brass is a mixture of:

(a) 30% zinc and 70% copper
(b) 20% zinc and 80% copper
(c) 80% zinc and 20% copper
(d) 70% zinc and 30% copper

Q72. Solve the following:

$0.25(0.25 \times 0.25) \div 0.625 = ?$

(a) 0.25
(b) 2.5
(c) 0.0025
(d) 0.025

Q73. Select the option that is related to the third term in the same way as the second term is related to the first term.

Bow : Arrow :: Gun : ?

(a) Pistol
(b) Shoot
(c) Bullet
(d) Weapon

Q74. Who was the chairman of ISRO (Indian Space Research Organisation) during the Chandrayaan-2 mission?

(a) K Sivan
(b) G Madhavan Nair
(c) AS Kiran Kumar
(d) K Radhakrishnan

Q75. Which of the following cities is also known as 'Blue City'?

(a) Jaipur
(b) Bikaner
(c) Jodhpur
(d) Ajmer

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Q76. If 2a + 1/2a = 6, what will be the value of 64a^6 + 1/(64a^6) ?

(a) 42592
(b) 39202
(c) 36752
(d) 46656

Q77. The sum of two angles of a triangle is equal to its third angle. The measure of the third angle is:

(a) 90°
(b) 50°
(c) 60°
(d) 80°

Q78. Which of the following countries shares some part of the Rann of Kutch with India?

(a) Afghanistan
(b) China
(c) Nepal
(d) Pakistan

Q79. In which of the following continents is the country Mongolia located?

(a) Antarctica
(b) Asia
(c) Africa
(d) Europe

Q80. Mohan earns Rs. 60 on first day and spends Rs. 50 on the second day. He again earns Rs. 60 on the third day and spends Rs. 50 on the fourth day, and so on. On which day will he have Rs. 200 with him before spending?

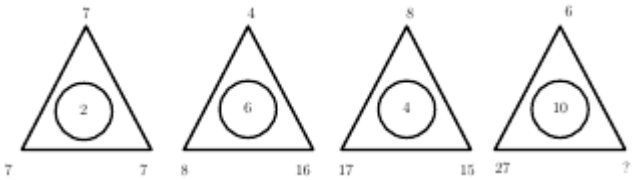
(a) 28^(th)
(b) 14^(th)
(c) 29^(th)
(d) 10^(th)

Q81. Select the word that CANNOT be formed using the letters of the given word.

Canterbury

(a) Crane
(b) Anther
(c) Burnt
(d) Brat

Q82. Study the given pattern carefully and select the number from the given options that can replace the question mark (?) in it.



(a) 33
(b) 9
(c) 27
(d) 25

Q83. Who among the following US Defence Secretaries visited India in March 2021?

(a) James N Mattis
(b) Mark T Esper
(c) Lloyd J Austin III

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(d) Ashton B Carter

Q84. From which of the following mountain ranges does the river Luni originate?

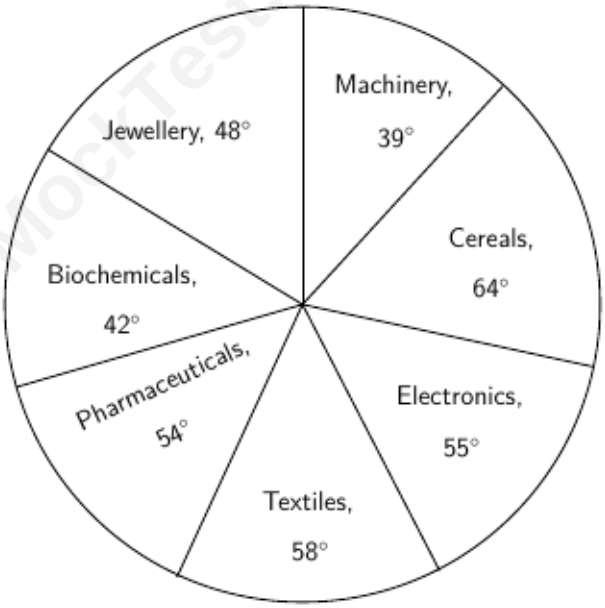
(a) Himalaya
(b) Vindhyachal
(c) Aravali
(d) Satpura

Q85. Find the divisor, given that dividend is 2200, remainder is 13 and the divisor is one-third of the quotient.

(a) 25
(b) 20
(c) 27
(d) 24

Q86. Study the given pie chart and answer the question that follows.

The pie chart shows the annual expenditure of a company on importing various products from a country during a particular year.



If the amount spent on importing biochemicals and textiles during the year was Rs. 8 crore, then what was total approximate amount spent on importing all the various products in that year?

(a) Rs. 29 crore
(b) Rs. 36 crore
(c) Rs. 45 crore
(d) Rs. 16 crore

Directions

Study the given table and answer the question that follows.

The table shows the population of different age-groups in different places.

Age-Groups	12-17 years	18-25 years	26-40 years	Total Population
Places				
Pune	120000	40000	65000	225000
Delhi	50000	80000	120000	250000
Goa	30000	75000	70000	175000
Bengaluru	40000	50000	110000	200000

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Q87. If 25% of the people in the age-group of 18-25 years move from Delhi to Goa, then what will be the total population of Goa?

(a) 20000
(b) 200000
(c) 175000
(d) 195000

Q88. Which age-group has the highest population and which age-group has the lowest population, respectively?

(a) 12-17 years, 26-40 years
(b) 26-40 years, 12-17 years
(c) 18-25 years, 26-40 years
(d) 12-17 years, 18-25 years

Q89. In January, 20% of the people in the age-group of 26-40 years moved from Pune to Delhi.

In February, 10% of the people in the age-group of 18-25 years moved from Bengaluru to Delhi.

In March, 20% of the people in the age-group of 18-25 years moved from Delhi to Goa.

Assuming that there was no movement of people other than as stated above from January to April, what will be the total population of Delhi in the month of April?

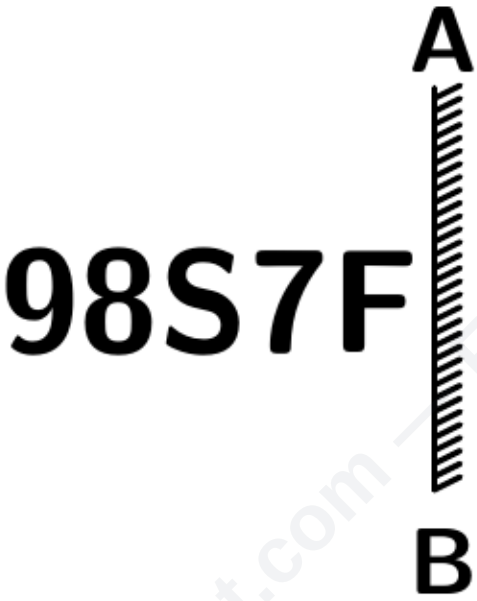
(a) 263700
(b) 274700
(c) 269700
(d) 251000

Q90. Select the correct mirror image of the given combination

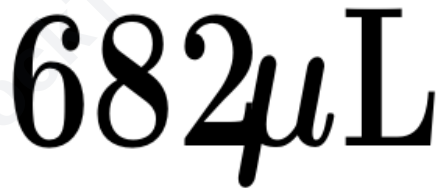




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(a)





(b)





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(c)



(d)



Q91. Select the number from among the given options that can replace the question mark (?) in the following series.

169, ?, 361, 529, 841

(a) 289
(b) 225
(c) 269
(d) 276

Q92. If '+' means division, '-' means multiplication, '×' means addition, and '÷' means subtraction, then what will be the value of the following expression?

7 × 4 + 2 - 3

(a) 20
(b) 27
(c) 13
(d) 25

Q93. Select the option that is related to the third term in the same way as the second term is related to the first term.

Airplane : Hangar :: Bus : ?

(a) Destination
(b) Transport
(c) Depot
(d) Driver

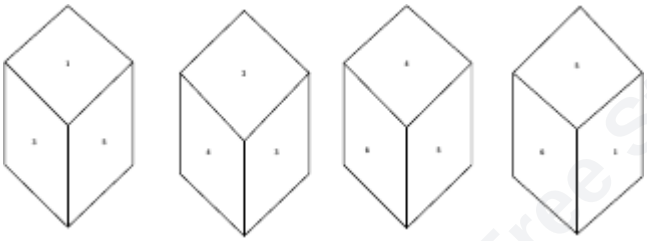
Q94. Identify the number that DOES NOT belong to the following series.

785, 851, 796, 840, 807, 827

(a) 827
(b) 796
(c) 807

(d) 840

Q95. The following are different views of the same wooden block.



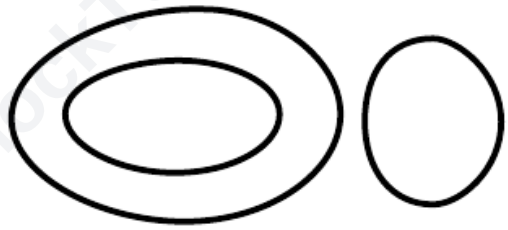
What would be the number opposite 5? (Ignore the orientation of the numbers.)

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

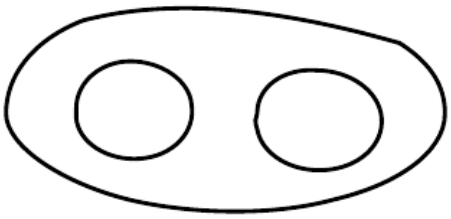
Q96. Select the Venn diagram that best represents the relationship between the following.

Asia, Nepal, India

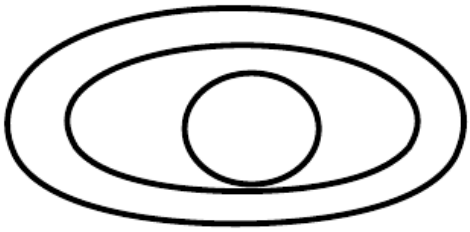
(a)



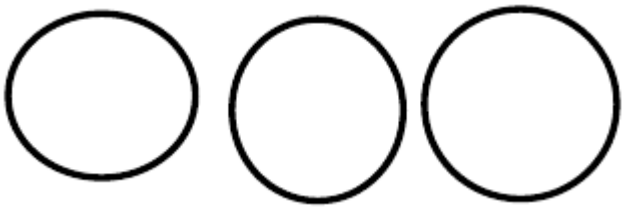
(b)



(c)



(d)



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Q97. Read the given statements and conclusions carefully. Assuming that the information given in the statements is true, even if it appears to be at variance with commonly known facts, decide which of the given conclusions logically follow(s) from the statements.

Statements:

All beds are tables.

No table is an almirah.

Some almirahs are cupboards.

Conclusions:

I. No cupboard is a table.

II. Some cupboards are not tables.

III. Some beds are almirahs.

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

Q98. Select the number from among the given options that can replace the question mark (?) in the following series.

4, 13.5, 32, ?, 108

(a) 49
(b) 65.5
(c) 50.5
(d) 62.5

Q99. If P and Q are sisters, R is Q's father, S is R's mother, and T is S's brother, then how is P related to S?

(a) Son's daughter
(b) Father's sister
(c) Mother's mother
(d) Mother's sister

Q100. If '+' means division, '-' means multiplication, '×' means addition, and '÷' means subtraction, then what will be the value of the following expression?

2 + 4 × 3 ÷ 2

(a) 9
(b) 2.5
(c) 8
(d) 1.5

ANSWER KEY

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

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SOLUTIONS

Q1. Answer: (a) Nellore

The correct answer is Nellore.

Key Points

• Sriharikota is a barrier island located in the Nellore district of Andhra Pradesh, India.

• It houses the Satish Dhawan Space Centre (SDSC), which is the primary launch center for the Indian Space Research Organisation (ISRO).

• The island is situated in the Bay of Bengal, off the eastern coast of Andhra Pradesh.

• Sriharikota has been the site for numerous significant space missions, including the Chandrayaan-2 mission.

Additional Information

• Chandrayaan-2

• Chandrayaan-2 is India's second lunar exploration mission developed by the Indian Space Research Organisation (ISRO).

• The mission aims to explore the south polar region of the Moon, which is less explored and could provide valuable scientific data.

• Launched on 22 July 2019 from the Satish Dhawan Space Centre in Sriharikota, the mission included an orbiter, a lander named Vikram, and a rover named Pragyan.

• While the orbiter continues to study the Moon from its orbit, the lander unfortunately crash-landed during its descent.

• Satish Dhawan Space Centre (SDSC)

• Named after one of the founding figures of the Indian space program, Satish Dhawan, the SDSC is the primary launch center for ISRO's satellite missions.

• Established in 1971, SDSC is equipped with multiple launch pads and facilities for vehicle assembly, integration, and testing.

• The center has been pivotal in launching numerous significant missions, including the Mars Orbiter Mission (Mangalyaan) and the GSAT series of communication satellites.

• SDSC also conducts various other activities such as testing, tracking, and telemetry operations related to space missions.

Q2. Answer: (b) milk

The correct answer is milk.

Key Points

• Casein is a family of related phosphoproteins that are commonly found in mammalian milk, making up about 80% of the proteins in cow's milk and between 20% to 45% of the proteins in human milk.

• Casein is a major component of cheese and is also used in the food industry as a binding agent, emulsifier, and thickening agent.

• It has a slow digestion rate, which makes it a popular choice for those looking for a sustained release of amino acids in the body, especially during periods of fasting or overnight.

• Casein is rich in essential amino acids and calcium, which is beneficial for bone health and muscle repair.

Additional Information

• Proteins:

• Proteins are large biomolecules consisting of one or more long chains of amino acid residues. They perform a vast array of functions within organisms, including catalyzing metabolic reactions, DNA replication, responding to stimuli, providing structure to cells, and organisms, and transporting molecules from one location to another.

• Proteins differ from one another primarily in their sequence of amino acids, which is dictated by the nucleotide sequence of their genes, and which usually results in protein folding into a specific 3D structure that determines its activity.

• Milk:

• Milk is a nutrient-rich liquid food produced by the mammary glands of mammals. It is the primary source of nutrition for young mammals before they are able to digest other types of food.

• In addition to casein, milk contains other proteins such as whey protein, lactose (a type of sugar), and various vitamins and minerals, including calcium, vitamin D, and potassium.

• Cheese:

• Cheese is a dairy product derived from milk that is produced in a wide range of flavors, textures, and forms by coagulation of the milk protein casein.

• It comprises proteins and fat from milk, usually the milk of cows, buffalo, goats, or sheep.

• Cheese is valued for its portability, long shelf life, and high content of fat, protein, calcium, and phosphorus.

• Emulsifier:

• An emulsifier is a substance that stabilizes an emulsion, which is a mixture of two or more liquids that are normally immiscible (unblendable).

• In the food industry, emulsifiers are used to improve the texture, consistency, and shelf life of processed foods.

Q3. Answer: (a) Melanin

The correct answer is Melanin.

Key Points

• Melanin is the pigment primarily responsible for the color of human skin, hair, and eyes.

• Melanin is produced by cells known as melanocytes in a process called melanogenesis.

• The amount and type of melanin produced by melanocytes determines the wide range of human skin, hair, and eye colors.

• Melanin has the ability to absorb harmful UV radiation from the sun, providing some protection against UV-induced DNA damage.

Additional Information

• Xanthophyll

• Xanthophylls are yellow pigments that belong to the carotenoid group.

• They are found in the leaves of most green plants and play a role in photosynthesis by protecting the plant from the harmful effects of light.

• Myoglobin

• Myoglobin is an iron- and oxygen-binding protein found in the muscle tissue of vertebrates.

• It helps in storing oxygen in muscle cells, which is essential for muscular activity.

• Chlorophyll

• Chlorophyll is the green pigment found in the chloroplasts of plants, algae, and cyanobacteria.

• It is crucial for photosynthesis, as it helps in the absorption of light energy to convert carbon dioxide and water into glucose and oxygen.

Q4. Answer: (b) Flamingos

The correct answer is Flamingos.

Key Points

• Chilika Lake, located in the state of Odisha in India, is the largest coastal lagoon in India and the second largest lagoon in the world.

• It is a significant habitat for a variety of migratory birds, especially during the winter season, with Flamingos being one of the most notable species.

• Chilika Lake is recognized as one of the most important wetlands in the world because it hosts over 160 species of birds in the peak migratory season.

• Flamingos flock to Chilika Lake from far-off places like the Caspian Sea, Lake Baikal, the Aral Sea, and other remote parts of Russia, Kirghiz steppes of Mongolia, Central and Southeast Asia, Ladakh, and the Himalayas.

Additional Information

• Rhinoceros:

• Rhinoceros are large, herbivorous mammals known for their horned snouts.

• They are found in parts of Africa and Asia, not in Chilika Lake.

• The Indian Rhinoceros is primarily found in the grasslands of Assam and West Bengal.

• Musk Deer:

• Musk deer are small, shy, and solitary animals found in mountainous regions of Asia, particularly in the Himalayas.

• They are known for the musk gland that the males possess.

• Penguins:

• Penguins are flightless birds that primarily inhabit the Southern Hemisphere, especially Antarctica.

• They are not found in Chilika Lake or any other part of India.

• Flamingos:

• Flamingos are large wading birds known for their pink feathers, long necks, and stick-like legs.

• They thrive in saline or alkaline lakes and are prominent visitors to Chilika Lake, making it a crucial spot for their migratory pattern.

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Q5. Answer: (a) Calcutta

The correct answer is Calcutta.

Key Points

• Raja Rammohan Roy founded the Brahmo Sabha in Calcutta in 1828, which was later renamed Brahmo Samaj.

• The Brahmo Samaj played a key role in the social and religious reform movement in India during the 19th century.

• It aimed at reforming the practice of Hinduism and eradicating social evils like Sati, child marriage, and caste discrimination.

• Raja Rammohan Roy is often referred to as the "Father of the Indian Renaissance" for his efforts in modernizing Indian society.

Additional Information

• Brahmo Samaj:

• The Brahmo Samaj was one of the most influential religious movements in India, advocating for monotheism and rejecting idol worship.

• It sought to bring about a social and religious reformation by emphasizing rationality and ethics in religious practices.

• Leaders like Debendranath Tagore and Keshab Chandra Sen furthered the movement after Raja Rammohan Roy's death.

• Raja Rammohan Roy:

• Born on May 22, 1772, in Radhanagar, Bengal, Raja Rammohan Roy was a prominent social and religious reformer.

• He was instrumental in the abolition of the Sati practice through his relentless efforts and petitions to the British government.

• In addition to founding the Brahmo Samaj, he also established the Hindu College in Calcutta in 1817, which later became the Presidency College.

• His contributions extended beyond social reform to areas such as education, women's rights, and the promotion of a free press.

• Social Reforms:

• The Brahmo Samaj was pivotal in advocating for women's rights, including the education of women and the abolition of practices like child marriage and polygamy.

• It promoted the idea of a casteless and classless society, focusing on the unity and equality of all human beings.

• Legacy:

• The Brahmo Samaj's impact was profound, influencing other social and religious reform movements across India, including the Arya Samaj and the Ramakrishna Mission.

• Its progressive ideals contributed significantly to the shaping of modern Indian society and the Indian independence movement.

Q6. Answer: (a) [figure]

The diagram that best represents the relationship between Canvas, and Paint, Brush is shown below :

Canvas, Paint, and Brush are three different items used for painting.

Hence, "Option 1" is the correct answer.

Additional InformationA canvas is a surface for painting.

Paint is the medium used to create the artwork.

a brush is the tool used to apply the paint.

Q7. Answer: (a) Creating innovative business models to increase the wealth of its member countries

The correct answer is Creating innovative business models to increase the wealth of its member countries.

Key Points

• The International Monetary Fund (IMF) was established to promote international monetary cooperation.

• It provides policy advice and financing to members in economic difficulties.

• It works to reduce poverty around the world.

• It helps to stabilize exchange rates and provide a stable monetary system.

Additional Information

• International Monetary Fund (IMF)

• The IMF is an organization of 190 countries, working to foster global monetary cooperation, secure financial stability, facilitate international trade, promote high employment and sustainable economic growth, and reduce poverty around the world.

• It was conceived in July 1944 during the United Nations Monetary and Financial Conference in Bretton Woods, New Hampshire, United States, and formally came into existence on December 27, 1945.

• The IMF's primary purpose is to ensure the stability of the international monetary system—the system of exchange rates and international payments that enables countries (and their citizens) to transact with each other.

• Functions of the IMF

• Surveillance: The IMF oversees the international monetary system and monitors the economic and financial policies of its 190 member countries. This activity is known as surveillance and facilitates international cooperation.

• Financial Assistance: The IMF provides financial assistance to member countries facing balance of payments problems. This assistance is provided under various IMF lending programs, such as Stand-By Arrangements, Extended Fund Facility, and others.

• Capacity Development: The IMF offers technical assistance and training to help member countries build better economic institutions and strengthen their capacity to design and implement effective policies.

Q8. Answer: (b) World Food Safety Day

The correct answer is World Food Safety Day.

Key Points

• The United Nations declared 7th June as World Food Safety Day to raise awareness about the importance of food safety.

• Food safety is a critical issue as it impacts human health, food security, and the economy.

• The first World Food Safety Day was celebrated on June 7, 2019.

• The day aims to draw attention to and inspire actions to help prevent, detect, and manage foodborne risks, contributing to food security, human health, economic prosperity, agriculture, market access, tourism, and sustainable development.

Additional Information

• Food Safety

• Food safety refers to the handling, preparation, and storage of food in ways that prevent foodborne illness.

• It includes various routines that should be followed to avoid potentially severe health hazards.

• Food can transmit diseases from one person to another as well as serve as a growth medium for bacteria that can cause food poisoning.

• Food safety practices are critical for maintaining the quality and safety of food throughout the entire food chain.

• United Nations

• The United Nations (UN) is an international organization founded in 1945 after the Second World War by 51 countries committed to maintaining international peace and security.

• It works to foster friendly relations among nations, promote social progress, better living standards, and human rights.

• The UN has numerous specialized agencies that work on various aspects of international development, including health, agriculture, and education.

• The UN plays a pivotal role in global governance, addressing issues that transcend national boundaries.

• World Health Organization (WHO)

• The WHO is a specialized agency of the United Nations responsible for international public health.

• It was established on 7 April 1948, headquartered in Geneva, Switzerland.

• The WHO's primary role is to direct and coordinate international health within the United Nations system.

• The WHO works with 194 Member States, across six regions, and from more than 150 offices to achieve better health for everyone, everywhere.

Q9. Answer: (b) Thomas Babington Macaulay

The correct answer is Thomas Babington Macaulay.

Key Points

• Thomas Babington Macaulay was instrumental in the introduction of English education in India through his famous "Minute on Indian Education" in 1835.

• He argued that promoting English literature and science would lead to the creation of a class of anglicized Indians who would serve as cultural intermediaries between the British and the Indians.

• Macaulay's policies led to the establishment of English as the medium of instruction in Indian education.

• His efforts laid the foundation for the modern education system in India, emphasizing Western curriculum and pedagogy.

Additional Information

• James Mill

• James Mill was a Scottish historian, economist, and philosopher, known for his work "The History of British India".

• He was critical of Indian culture and was an advocate for British rule in India.

• Charles Wood

• Charles Wood was the President of the Board of Control of the British East India Company.

• He is known for the Wood's Dispatch of 1854, which laid the foundation for the establishment of a systematic and structured educational system in India.

• The Dispatch recommended the establishment of universities in Calcutta, Bombay, and Madras.

• William Carey

• William Carey was a Christian missionary and a key figure in the spread of Western education in India.

• He founded the Serampore College and was instrumental in the translation of the Bible into several Indian languages.

Q10. Answer: (d) 1

Given:

Find the HCF of the first 100 natural numbers.

Formula used:

HCF of any set of numbers is the highest number that divides all of them exactly.

Calculation:

The first 100 natural numbers are 1, 2, 3, ..., 100.

The only number that can divide all natural numbers is 1.

=> HCF = 1

Therefore The correct answer is option (4).

Q11. Answer: (c) 38% of 8% of 1480

Given:

19% of 16% of 1480

Formula used:

a% of b% of c = (a/100) × (b/100) × c

Calculation:

19% of 16% of 1480

=> (19/100) × (16/100) × 1480

=> 0.19 × 0.16 × 1480

=> 0.0304 × 1480

=> 45.0

Now, calculating for the options:

Option 1: 48% of 6% of 1480

=> (48/100) × (6/100) × 1480

=> 0.48 × 0.06 × 1480

=> 0.0288 × 1480

=> 42.6

Option 2: 35% of 1% of 1480

=> (35/100) × (1/100) × 1480

=> 0.35 × 0.01 × 1480

=> 0.0035 × 1480

=> 5.18

Option 3: 38% of 8% of 1480

=> (38/100) × (8/100) × 1480

=> 0.38 × 0.08 × 1480

=> 0.0304 × 1480

=> 45.0

Option 4: 9% of 26% of 1480

=> (9/100) × (26/100) × 1480

=> 0.09 × 0.26 × 1480

=> 0.0234 × 1480

=> 34.63

Therefore The correct answer is option 3.

Q12. Answer: (c) 23, 216

The logic followed here is:

Option 1) 53, 225

$(5 \times 3)^2 = 225$

(15)2 = 225

225 = 225 (LHS = RHS)

Option 2) 29, 324

(2 × 9)2 = 324

(18)2 = 324

324 = 324 (LHS = RHS)

Option 3) 23, 216

(2 × 3)2 = 216

(6)2 = 216

36 ≠ 216 (LHS ≠ RHS)

Option 4) 37, 441

(3 × 7)2 = 441

(21)2 = 441

441 = 441 (LHS = RHS)

Thus, out of all the options, '23, 216' is the correct answer.

Hence, "Option 3" is the correct answer.

Q13. Answer: (a) MCGKLPZN

The logic followed here is:

POSITIVE is written as KQHKGKEG

Similarly,

NATIONAL is written as

Hence, "Option 1" is the correct answer.

Q14. Answer: (c) Rhizobium

The correct answer is Rhizobium.

Key Points

• Rhizobium is a genus of soil bacteria that forms symbiotic relationships with leguminous plants by fixing nitrogen from the atmosphere.

• These bacteria are found in the root nodules of legume plants where they convert atmospheric nitrogen into ammonia, which the plant can use for growth.

• The relationship between Rhizobium and leguminous plants is mutually beneficial; the plant provides carbohydrates to the bacteria, while the bacteria provide the plant with a usable form of nitrogen.

• Rhizobium species are critical for sustainable agriculture as they reduce the need for chemical fertilizers by naturally enriching soil nitrogen levels.

Additional Information

• Clostridium

• Clostridium is a genus of Gram-positive bacteria, which are obligate anaerobes and can produce endospores.

• They are commonly found in soil, water, and the gastrointestinal tract of humans and animals.

• Some species of Clostridium are pathogenic and can cause diseases such as botulism, tetanus, and gas gangrene.

• Escherichia

• Escherichia is a genus of Gram-negative bacteria, of which Escherichia coli (E. coli) is the most well-known species.

• While many strains of E. coli are harmless and part of the normal gut flora, some can cause serious food poisoning and infections.

• E. coli is often used as an indicator organism to assess the sanitary quality of food and water.

• Salmonella

• Salmonella is a genus of Gram-negative bacteria that are pathogenic and can cause foodborne illnesses.

• Infection with Salmonella bacteria can lead to symptoms such as diarrhea, fever, and abdominal cramps, commonly known as salmonellosis.

• Salmonella is typically transmitted through contaminated food or water.

Q15. Answer: (b) Kolkata

The correct answer is Kolkata.

Key Points

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

• These paintings were created by the local scroll painters and potters, known as 'patuas' and 'kumars'.

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• Kalighat paintings are known for their bold outlines, vibrant colors, and simple yet expressive characters.

• The themes of these paintings often revolve around Hindu gods and goddesses, mythological stories, and contemporary social issues.

Additional Information

• Kalighat Kali Temple

• The Kalighat Kali Temple is one of the most famous Hindu temples dedicated to Goddess Kali, located in Kolkata, West Bengal.

• It is considered one of the 51 Shakti Peethas of India and is highly revered by devotees.

• The temple has a rich history and is a significant cultural landmark in Kolkata.

• Patuas

• Patuas are traditional scroll painters and storytellers from Bengal and Odisha regions.

• They paint narrative scrolls, known as 'Patachitra', and travel from village to village, singing and narrating the stories depicted in their scrolls.

• The tradition of Patachitra dates back to ancient times and is an important part of the folk art and culture of the region.

• Kolkata - Cultural Hub

• Kolkata, the capital city of West Bengal, is known as the cultural capital of India due to its rich history, literature, art, and heritage.

• The city has produced numerous poets, writers, film directors, and artists who have significantly contributed to Indian culture.

• Kolkata is home to several prestigious cultural institutions, including the Indian Museum, Victoria Memorial, and Rabindra Bharati University.

Q16. Answer: (a) U

Given: Five teachers, U, V, W, X and Y, are sitting in a row facing towards the north.

1) Y is to the extreme left.

2) U is the left of V and right of W.

3) V is to the left of X.

After positioning Jake only position is left which will be occupied by the only person left i.e. Cole.

Thus, according to the final arrangement, U is sitting in the middle.

Hence, "Option 1" is the correct answer.

Q17. Answer: (b) Sushant Singh Rajput

The correct answer is Sushant Singh Rajput.

Key Points

• Sushant Singh Rajput did not receive the 'Best Actor' or 'Best Actress' award at the 67th National Film Awards Ceremony.

• The 'Best Actor' award was shared between Dhanush for the Tamil movie 'Asuran' and Manoj Bajpayee for the Hindi movie 'Bhonsle'.

• Kangana Ranaut received the 'Best Actress' award for her performances in 'Manikarnika: The Queen of Jhansi' and 'Panga'.

• The 67th National Film Awards recognized films from the year 2019 and were announced on 22nd March 2021.

Additional Information

• National Film Awards

• The National Film Awards is the most prominent film award ceremony in India, established in 1954.

• It is administered by the Directorate of Film Festivals, an organization set up by the Ministry of Information and Broadcasting.

• The awards aim to encourage the production of films of aesthetic and technical excellence and social relevance, contributing to the understanding and appreciation of cultures of different regions of the country in cinematic form.

• The awards are presented in various categories including feature films, non-feature films, and books written on Indian cinema.

• 67th National Film Awards

• The awards honoring the best films of 2019, were announced on 22nd March 2021 due to the COVID-19 pandemic.

• Dhanush and Manoj Bajpayee won the 'Best Actor' award for 'Asuran' and 'Bhonsle', respectively.

• Kangana Ranaut received the 'Best Actress' award for her roles in 'Manikarnika: The Queen of Jhansi' and 'Panga'.

• The awards ceremony was delayed and held in 2021 to accommodate the schedule disrupted by the pandemic.

• Sushant Singh Rajput

• Sushant Singh Rajput was an Indian actor known for his work in Hindi cinema.

• He made his film debut in the movie 'Kai Po Che!' in 2013.

• He gained widespread acclaim and popularity for his portrayal of Indian cricketer Mahendra Singh Dhoni in the biopic 'M.S. Dhoni: The Untold Story'.

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• Despite his successful career, he did not receive the 'Best Actor' award at the 67th National Film Awards.

Q18. Answer: (a) 2

Given:

The following table gives a frequency distribution whose arithmetic mean is 33. Find the product of the possible values of k from the distribution.

Value (x)	Frequency (f)
29	4
30	3
30 + k	3k
34	2
62	1

Mean = 33

Formula used:

Arithmetic Mean = (∑ (f_i · x_i))/(∑ f_i)

Calculations:

33 = (29 · 4) + (30 · 3) + ((30 + k) · 3k) + (34 · 2) + (62 · 1)/(4 + 3 + 3k + 2 + 1)

=> 33 = (116 + 90 + (90k + 3k²) + 68 + 62)/(10 + 3k)

=> 33 = (336 + 90k + 3k²)/(10 + 3k)

=> 33(10 + 3k) = 336 + 90k + 3k^2

=> 330 + 99k = 336 + 90k + 3k^2

=> 3k^2 - 9k + 6 = 0

=> k^2 - 3k + 2 = 0

=> (k - 1)(k - 2) = 0

=> k = 1 or k = 2

Therefore, the product of possible values of k is:

1 × 2 = 2

Therefore The correct answer is option (1).

Q19. Answer: (c) Kamini

Given: Kamini, Madhuri, Gunjan, Anita, Sunita and Rakhi are friends.

1) Madhuri is the oldest among them all.

Madhuri > _ > _ > _ > _ > _

2) Sunita is younger than Kamini but older than Rakhi.

3) Gunjan is older than Kamini.

Gunjan > Kamini > Sunita > Rakhi

3) Anita is a few months younger than Kamini but a few years older than Sunita.

Madhuri > Gunjan > Kamini > Anita > Sunita > Rakhi

Thus, according to the final arrangement, Kamini is the third oldest among them all.

Hence, "Option 3" is the correct answer.

Q20. Answer: (a) 50°

Given:

DE is tangent to the circle at point B.

ABC is an isosceles triangle with AB = AC.

angle ABD = 65°

Formula used:

Tangent-Chord Angle Theorem: angle ABD = ½ arc AB

Calculations:

arc AB = 2 × angle ABD = 2 × 65° = 130°

In triangle AABC, AB = AC → angle ABC = angle ACB

Sum of angles in triangle: angle ABC + angle ACB + angle BAC = 180°

Since angle ABC = angle ACB, 2 × angle ABC + angle BAC = 180°

angle ABC = ½ × arc AB = 65°

2 × 65° + angle BAC = 180° => angle BAC = 180° - 130° = 50°

Answer:

angle BAC = 50°.

Q21. Answer: (b) 20

Given:

A certain number of men can complete a task in 50 days.

If there are 5 men more, then it can be finished in 10 days less.

Formula used:

Let the number of men be M.

Work = Men × Days

Calculation:

Original work: M × 50

New work: (M + 5) × 40

Since the work is the same:

M × 50 = (M + 5) × 40

=> 50M = 40(M + 5)

=> 50M = 40M + 200

=> 50M - 40M = 200

=> 10M = 200

=> M = 20

Therefore The correct answer is option 2.

Q22. Answer: (b) Vivek Murthy

The correct answer is Vivek Murthy

Key Points

• Vivek Murthy, a doctor of Indian origin, was appointed as the 21st Surgeon General of the United States by President Joe Biden in 2021Dr

• Vivek Murthy is a physician, public health advocate, and author of Indian origin.

• He was first appointed as the 19th Surgeon General of the United States by President Barack Obama in 2014 and later reappointed as the 21st Surgeon General by President Joe Biden in 2021.

• This made him one of the few individuals to serve multiple terms in this role.

Additional Information

• Joe Biden of the Democratic Party defeated Donald Trump of the Republican Party to become the 46th President of the United States.

• Mr. Biden's running mate, Kamala Devi Harris, a U.S. Senator from California, will become the first woman and first Indian- and African-American Vice-President of the country.

• Mr. Biden, 77 (when elected) is the oldest candidate ever elected as the President of the USA. Recently on 20 November, he turned 78.

Important Points

• Basic Information about the USA:

• Number of States in the USA: Fifty

• Capital: Washington DC

• Bounded by: on the north by Canada, on the east by the Atlantic Ocean, on the south by the Gulf of Mexico and Mexico, and on the west by the Pacific Ocean.

• Place in the world: In terms of Area, 4th largest country after Russia, Canada, and China.

• Place in the world: In terms of GDP, the United States with a GDP worth USD 21.44 trillion is the largest economy followed by China (USD 14.41 trillion), Japan (USD 5.15 trillion), Germany (USD 3.16 trillion), and India (USD 2.94 trillion).

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Q23. Answer: (a) Bhagat Singh

The correct answer is Bhagat Singh.

Key Points

• The Naujawan Bharat Sabha was founded by Bhagat Singh in 1926.

• It was a left-wing organization which sought independence by gathering together worker and peasant youths.

• It was part of the Hindustan Republican Association.

• The British government banned it in 1929.

• The members were responsible for killing J.P. Saunders and in the Meerut conspiracy, where the organization's members tried to create strikes among railway workers.

• The group later merged with the All India Youth League.

Additional Information

• Vinayak Damodar Savarkar

• He was a prominent member of the Hindu Mahasabha.

• Savarkar joined the Hindu Mahasabha and popularized Chandranath Basu's word Hindutva to build a collective Hindu identity as an essence of Bharat.

• Savarkar was an atheist who practised Hindu philosophy pragmatically.

• In 1904, Vinayak Damodar Savarkar and his brother Ganesh Damodar Savarkar created the Abhinav Bharat Organization (Young India Society).

• It is an Indian Independence secret society.

• It was founded as Mitra Mela in Nasik when he was a student at Fergusson College in Pune.

• It was the group developed to encompass several hundred revolutionaries and political activists with branches in many regions of India.

• The Savarkar brothers were convicted and imprisoned after they carried out a few assassinations of British officials.

• In 1952, the society was formally abolished.

• Dadabhai Naoroji

• Dadabhai Naoroji was a businessman and a great publicist who settled in London.

• He was the first Asian to become a British Member of Parliament when he was elected to the House of Commons in 1892.

• He formed the London India Society in 1865 to put forth views on Indian political, social and literary subjects.

• He also founded the East India Association in 1867 with the purpose of putting across Indian viewpoints across to the British public.

• He was the President of the Congress Party in 1886, 1893 and 1906.

• Naoroji’s book Poverty and Un-British Rule in India offered scathing criticism of the economic impact of British rule.

• Ashfaqulla Khan

• Ashfaqullah Khan was detained in Faizabad Jail after being caught in the Kakori conspiracy case.

• The Kakori Conspiracy Case took place on 9th August 1925.

• It is an armed robbery of a train in Uttar Pradesh's Kakori traveling from Shahjahanpur to Lucknow.

• The motive of the robbery was to gain funds from the government by the Hindustan Republican Association for the Independence Struggle.

• 40 people were arrested for the case across India for involvement in the Kakori Conspiracy.

• The trial for the case went on for 1.5 years and ended in April 1927.

• As many as 15 people were released due to a lack of evidence.

Q24. Answer: (d) Jyotirao Govindrao Phule

The correct answer is Jyotirao Phule.

Key Points

• Gulamgiri is a masterpiece in itself.

• It is regarded as the very first book that talked about the caste system and how certain castes were exploited during that time.

• It was written in 1873.

• It was written in the form of a dialogue.

• The book is written in the form of a dialogue between Jyotiba and a character called Dhondiba.

• Jyotiba dedicated his book to the American slaves.

• The black Americans were treated as slaves and were highly discriminated against because of their dark complexion.

• He linked the condition of the blacks with the condition of the lower castes in India.

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Thus, Jyotirao Phule was the writer of the book 'Gulamgiri'.

Additional Information

• Jyotirao Phule

• Jyotirao Phule was a social activist and a social reformer.

• He was born in 1827.

• He was the first writer to write against the caste system.

• He tried his best to remove prejudice and untouchability from the caste system.

• He tried to bring out the injustices done to the lower castes and how they were treated as slaves just because they belonged to a lower caste.

Q25. Answer: (d) √(5k/4) cm

Given:

A rhombus has one diagonal double the other.

Area of the rhombus = K cm^2

Formula used:

Area of rhombus = (1/2) × d1 × d2

Where, d1 and d2 are the diagonals.

Side of the rhombus (s) = $\sqrt{((d1/2)^2 + (d2/2)^2)}$

Calculations:

Given d2 = 2d1

K = (1/2) × d1 × 2d1

=> $K = d1^2$

=> $d1 = \sqrt{K}$

$d2 = 2\sqrt{K}$

Side of rhombus (s) = $\sqrt{((\sqrt{K}/2)^2 + (2\sqrt{K}/2)^2)}$

=> $s = \sqrt{(K/4 + K)}$

=> $s = \sqrt{(5K/4)}$

Therefore The correct answer is option (4).

Q26. Answer: (d) Rs. 833

Given:

The difference between a 12.5% profit and a 10.5% loss = Rs. 161

Formula used:

Let Cost Price (CP) = Rs. x

Selling Price (SP) at 12.5% profit = x + 12.5% of x = x + 0.125x = 1.125x

Selling Price (SP) at 10.5% loss = x - 10.5% of x = x - 0.105x = 0.895x

Difference in Selling Prices = 1.125x - 0.895x = 0.23x

Calculation:

0.23x = Rs. 161

=> x = Rs. 1610.231610.231610.231610.231610.231610.23

=> x = Rs. 700

Selling Price (SP) at 19% profit = x + 19% of x = x + 0.19x = 1.19x

=> SP = 1.19 × 700

=> SP = Rs. 833

Therefore The correct answer is option (4).

Q27. Answer: (a) Projector

The correct answer is Projector

Key Points

• A projector is not an input device, but a barcode reader, scanner, and mouse are all input devices

• Projector is an output device that displays images on a screen using light

• A white screen or wall It can be used as a monitor or television replacement for showing videos and images to a large audience.

• There are Different Types of projector:

• DLP Projector
• LCD Projector
• LED Projector
• CRT Projector

Additional Information

• Difference between Input and Output Device

Aspect	Input Devices	Output Devices
Function	Used to send data or commands to the computer.	Used to receive and display/process data from the computer.
Direction of Data Flow	Data flows from the user to the computer/system.	Data flows from the computer/system to the user.
Examples	Keyboard, mouse, scanner, microphone, webcam.	Monitor, printer, speakers, headphones, projector.
Interaction	Requires user action to provide input.	Passively provides information or results to the user.
Nature	Converts physical actions into digital signals.	Converts digital signals into a form perceivable by humans.
Purpose	Facilitates user interaction and data entry.	Displays or outputs results of processed data.
Dependency	Cannot work independently, needs a system to receive data.	Cannot work independently, needs data to output.

Q28. Answer: (d) 15917

The logic followed here is:

A = 1, B = 3, C = 5

Similarly,

HEAD is coded as

Hence, "Option 4" is the correct answer.

Q29. Answer: (d) DSFQ

The logic followed here is:

Hence, "Option 4" is the correct answer.

Q30. Answer: (a) 40 m

Given:

A train takes 15 s to pass completely through a station platform 50 m long and 10 s through another station platform 20 m long.

Formula used:

Let the length of the train be L meters and its speed be V m/s.

Using the formula: Distance = Speed × Time

For the first platform: L + 50 = V × 15

For the second platform: L + 20 = V × 10

Calculation:

From the first equation: L + 50 = 15V

=> L = 15V - 50

From the second equation: L + 20 = 10V

=> L = 10V - 20

Equating both expressions for L:

15V - 50 = 10V - 20

=> 15V - 10V = 50 - 20

=> 5V = 30

=> V = 6 m/s

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Substituting V back into L = 15V - 50:

L = 15 × 6 - 50

=> L = 90 - 50

=> L = 40 m

Therefore The correct answer is option (1).

Q31. Answer: (d) Only conclusion II follows.

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

Conclusions:

I. All girls are students → Does not follow (As all students are girls. So it is possible but not definite.)

II. No boy is a student → Follow (As all students are girls and no girl is a boy. As whole students comes in girls which cannot be boy, therefore it is true.)

Therefore Here, Only conclusion II follows.

Hence, the correct answer is "Option 4".

Q32. Answer: (a) 550 m

Given:

Speed of the train = 60 km/h

Time taken to cross the pole = 33 seconds

Formula used:

Distance = Speed × Time

Calculations:

1. Convert speed from km/h to m/s:

60 km/h = 60 × 1000 ÷ 3600 = 16.6667 m/s

2. Calculate the length of the train:

Distance = 16.6667 m/s × 33 s = 550 m

Answer:

The length of the train is 550 meters.

Q33. Answer: (c) EVGT

The logic followed here is:

HSJQ : JQLO

Similarly,

CXEV : ?

Hence, "Option 3" is the correct answer.

Q34. Answer: (b) Mouse

The correct answer is Mouse

Key Points

• The mouse is not an output device, but an input device.

• A mouse receives input from the user and sends it to the computer, which the user sees as the cursor moves on the screen.

• It allows users to point, click, drag, and scroll on the computer screen.

• It translates physical movement into digital signals that the computer can interpret.

Additional Information

• Difference between Input and Output Device

Aspect	Input Devices	Output Devices
Function	Used to send data or commands to the computer.	Used to receive and display/process data from the computer.
Direction of Data Flow	Data flows from the user to the computer/system.	Data flows from the computer/system to the user.
Examples	Keyboard, mouse, scanner, microphone, webcam.	Monitor, printer, speakers, headphones, projector.

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Interaction	Requires user action to provide input.	Passively provides information or results to the user.
Nature	Converts physical actions into digital signals.	Converts digital signals into a form perceivable by humans.
Purpose	Facilitates user interaction and data entry.	Displays or outputs results of processed data.
Dependency	Cannot work independently, needs a system to receive data.	Cannot work independently, needs data to output.

Q35. Answer: (d) 1757

The correct answer is 1757.

Key Points

• The Battle of Plassey is regarded as a historic turning point for the British in India.

• It established the political and military supremacy of the British in Bengal.

• Battle of Plassey

• The Battle of Plassey was fought in 1757 in the Plassey (or Palashi) region of West Bengal, on the east of the Bhagirathi river.

• British East India Company, led by Robert Clive, won against the forces of Siraj-ud-Daulah, the last independent Nawab of Bengal, and his French allies.

• In the aftermath, Mir Jafar was installed as the Nawab of Bengal, on the throne of Murshidabad.

Additional Information

• Reasons behind the Battle of Plassey

• The British victory in the Carnatic made the Nawab of Bengal apprehensive of the rising power of the British.

• The East India Company kept misusing its power, including fortifying Calcutta without the Nawab's permission.

• The Nawab marched to Fort Williams and captured it, leading to the infamous 'Black Hole of Calcutta' incident.

• Robert Clive was sent to overthrow the Nawab leading to the battle.

Q36. Answer: (b) 6

Given:

Number = 2750

Formula used:

We need to find the smallest positive integer 'x' such that (2750 - x) is a perfect cube.

Calculations:

Let's check the perfect cubes around 2750:

$14^3 = 2744$

$15^3 = 3375$

Since 2750 is between 2744 and 3375, and we need the least positive integer to subtract:

=> 2750 - 2744 = 6

Therefore The correct answer is option (2).

Q37. Answer: (a) Justice Ramana

The correct answer is Justice Ramana

Key Points

• In March 2021, Chief Justice of India S.A. Bobde recommended Justice N.V. Ramana as his successor.

• President Kovind approved the recommendation, and Justice N.V. Ramana was appointed as the 48th Chief Justice of India.

• He assumed office on April 24, 2021, and served until his retirement on August 26, 2022.

• He Served as a judge in the Andhra Pradesh High Court and Chief Justice of the Delhi High Court before his elevation to the Supreme Court in 2014.

• S.A. Bobde, the 47th Chief Justice of India, was due to retire on April 23, 2021.

• As per tradition, the outgoing Chief Justice of India (CJI) recommends the name of the senior-most judge of the Supreme Court as their successor.

Additional Information

• Justice Rohinton Fali Nariman

• Justice Nariman was known for his deep understanding of constitutional law, commercial law, and intellectual property law.

• He was the fifth lawyer to be directly elevated to the Supreme Court Bench and the first Parsi to serve on the Supreme Court of India post-independence.

• His judgments include those in Shayara Bano v. Union of India (triple talaq case), Navtej Johar v. Union of India (decriminalization of homosexuality), and Indian Young Lawyers Association v. State of Kerala (Sabarimala case).

• Justice M V Muralidharan

• Justice M V Muralidharan is a judge at the Madras High Court, with expertise in handling a variety of cases, including constitutional and civil matters.

• He served as the Acting Chief Justice of the Manipur High Court and contributed to enhancing judicial infrastructure and processes in the state.

• Justice Muralidharan is known for promoting transparency and upholding principles of natural justice in his judicial decisions.

• Justice Uday Umesh Lalit

• Justice U U Lalit served as the 49th Chief Justice of India, albeit for a short tenure of 74 days in 2022.

• Before becoming a judge, he was a renowned criminal lawyer and represented significant cases in the Supreme Court, including the 2G spectrum case.

• Justice Lalit played a key role in decisions such as Shreya Singhal v. Union of India (striking down Section 66A of the IT Act) and Pradyuman Thakur Case (school safety guidelines).

Q38. Answer: (b) 9707

Given:

The largest four-digit number which when divided by 7, 9, and 11 leaves a remainder of 5 in each case.

Formula used:

We need to find the largest four-digit number N such that:

$N \equiv 5 \pmod 7$

$N \equiv 5 \pmod 9$

$N \equiv 5 \pmod{11}$

Since 7, 9, and 11 are pairwise coprime, we can use the Chinese Remainder Theorem (CRT). The number will be of the form:

$N = 7 \times 9 \times 11 \times k + 5$

Where k is an integer.

Calculation:

First, we calculate the product of the moduli:

$7 \times 9 \times 11 = 693$

So the number N can be written as:

$N = 693k + 5$

We need to find the largest four-digit number, so:

$693k + 5 \leq 9999$

$\Rightarrow 693k \leq 9994$

$\Rightarrow k \leq 14.42$

The largest integer k is 14.

Now, we calculate N:

$N = 693 \times 14 + 5$

$N = 9702 + 5$

$N = 9707$

Therefore The correct answer is option 2.

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Q39. Answer: (c) 1/6

Given:

1/2 [1/3 - (1/2 - 1/4) + 1/2 - 1/4] = ?

Formula used:

Simplification of fractions and basic arithmetic operations

Calculation:

1/2 [1/3 - (1/2 - 1/4) + 1/2 - 1/4] = ?

=> 1/2 [1/3 - (2/4 - 1/4) + 2/4 - 1/4]

=> 1/2 [1/3 - 1/4 + 1/4]

=> 1/2 [1/3]

=> 1/6

Therefore The correct answer is option (3).

Q40. Answer: (b) 126°

Given:

Three parallel lines are cut through by a transversal. The greater two angles are of equal measure. The ratio of a greater angle to the smaller angle is 7 : 3.

Formula used:

Let the smaller angle be 3x and the greater angle be 7x.

Sum of the angles around a point on a straight line is 180º.

Calculation:

3x + 7x = 180º

=> 10x = 180º

=> x = 18º

Greater angle = 7x = 7 × 18º

=> Greater angle = 126º

Therefore The correct answer is option 2.

Q41. Answer: (c) Indian Railway Catering and Tourism Corporation

The correct answer is Indian Railway Catering and Tourism Corporation

Key Points

• IRCTC stands for Indian Railway Catering and Tourism Corporation.

• It is a public sector undertaking in India that offers ticketing, catering, and tourism services for the Indian Railways

• IRCTC is the official website of the Indian Railways for booking tickets online.

• Some of its objectives include: Being customer-centric, Using resources efficiently, Improving human resource performance, Becoming a leading public sector catering service, and Creating business opportunities through public-private partnerships.

Additional Information

• Benefits of IRCTC

• Offers online ticket booking service with payment options including Net Banking, and Debit/Credit Card.

• Provides a Travel Card for regular travellers.

• Unique features for train bookings are available.

• Facility for Tatkal ticket booking is available.

• Flight booking facility is also included.

• Provides service for checking ticket status and seat availability.

Q42. Answer: (d) Tubewell

The logic followed here is:

Logic: Types of Water Bodies.

Here,

Pond, River, and Lake are all natural water bodies.

Similarly,

Tubewell is not a natural water body, it is a man-made structure used to extract water from the ground.

Hence, the correct answer is "Option 4".

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Q43. Answer: (b) K + 1

Given:

The average of 3 consecutive natural numbers (which are in increasing order) is K. If two consecutive numbers, just next to the first set of numbers, are added, then the new average will become:

Formula used:

Average = Sum of numbers / Number of numbers

Calculations:

Let the 3 consecutive natural numbers be (n-1), n, (n+1).

Average of these 3 numbers = K

=> K = (n-1 + n + n+1) / 3

=> K = (3n) / 3

=> K = n

Next two consecutive numbers are (n+2) and (n+3).

Sum of all 5 numbers = (n-1) + n + (n+1) + (n+2) + (n+3)

=> Sum = 5n + 5

New average = Sum of all 5 numbers / 5

=> New average = (5n + 5) / 5

=> New average = n + 1

=> New average = K + 1

Therefore The correct answer is option (2).

Q44. Answer: (c) cricket

The correct answer is cricket

Key Points

• Silly point", "slip", and "gully" are all terms used in the sport of cricket to describe fielding positions:

• Silly point

• It is a fielder is positioned at a 45-degree angle from the batter, and is usually close to the batting position.

• This position is considered "silly" because the fielder is at risk of being hit by a firm stroke from the batter.

• Slip

• It is a fielder who is positioned to catch balls that just edge off the bat.

• There are often multiple slips next to each other, numbered outwards from the wicket-keeper.

• Gully

• A fielding position where the player stands opposite the traditional gully fielder.

Additional Information

Sport	Terminologies
Cycling	Peloton, Drafting, Cadence, Time Trial, Sprint, Breakaway, Paceline, Crankset, Bonk, Clipless Pedals, Saddle, Chainring, Aero Bars, Leadout, Neutral Support
Football	Offside, Free Kick, Corner Kick, Dribbling, Header, Hat-trick, Throw-in, Tackle, Goal Kick, Cross, Penalty Kick, Volley, Counterattack, Nutmeg, Wall Pass
Hockey	Penalty Corner, Dribble, Face-off, Scoop, Flick, Backstick, Powerplay, Bully, Push, Drag-flick, Short Corner, Hit In, Stick Check, Aerial Ball, Reverse Stick
Cricket	Duck, Yorker, LBW (Leg Before Wicket), Bouncer, Silly Point, Googly, Maiden Over, No Ball, Cover Drive, Pull Shot, Wide Ball, Beamer, Reverse Swing, Powerplay, Slips

Q45. Answer: (d) WAN

The correct answer is WAN

Key Points

• A Wide Area Network (WAN) covers the largest geographical area

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• A WAN can cover a city, country, or even the entire world.

• The internet is the largest WAN.

• Some WANs are private and used by businesses to connect sites that are far apart

• A wide area network(WAN) connects computers in different cities or countries.

• The network to connect computers that are thousands of miles apart is not built by an organization. Instead, the organization uses leased telephone lines.

• It is owned and managed collectively by many cooperating organizations.

Additional InformationLAN

• A local area network(LAN) connects computers that are in the same building.

• A network spread over a few kilometers also comes under LAN.

• The LAN is usually realized using Ethernet technology or token ring technology. Fiber Distributed Data Interface (FDDI) is also becoming popular.

• LAN or Local Area Network connects network devices in such a way that personal computers and workstations can share data, tools, and programs.

• Usually, LAN is under the control of a single organization.

• The prime objective of LAN is to facilitate information and resource sharing within an organization.

MAN:

• It stands for the "Metropolitan Area Network."

• A MAN is a network that spans a large area, such as a town or city.

• MAN network covers a larger area by connections LANs to a larger network of computers.

• It is larger than a campus area network (CAN) but smaller than a wide area network (WAN).

• An example of a MAN is a series of wireless routers distributed across a city.

PAN:

• A Personal Area Network (PAN) is a computer network that connects devices near a person.

• The range of a PAN is typically a few meters.

• Examples of wireless PAN devices include wireless mice, wireless keyboards, cell phone headsets, printers, bar code scanners, and game consoles

Q46. Answer: (c) [figure]

The diagram that best represents the relationship between Tripura, Sikkim, and Arunachal Pradesh is shown below :

Tripura, Sikkim, and Arunachal Pradesh are three different states in India.

Hence, "Option 3" is the correct answer.

Q47. Answer: (b) Quad Summit

The correct answer is Quad Summit

Key Points

• The summit held in March 2021 for an informal strategic dialogue between the US, Japan, Australia, and India was a Quadrilateral Security Dialogue (QUAD) summit

• The grouping is maintained by semi-regular summits, information exchanges, and military drills between member countries.

• The forum was initiated as a dialogue in 2007 by Prime Minister Shinzo Abe of Japan, with the support of Vice President Dick Cheney of the US, Prime Minister John Howard of Australia, and Prime Minister Manmohan Singh of India.

• The dialogue was paralleled by joint military exercises of an unprecedented scale, titled Exercise Malabar.

• The diplomatic and military arrangement was widely viewed as a response to increasing Chinese economic and military power, and the Chinese government responded to the Quad by issuing formal diplomatic protests to its members.

Additional Information

• Non-Aligned Movement (NAM) Summits

• The NAM was established during the Cold War to represent countries that did not align themselves with either the United States or the Soviet Union.

• It aims to promote peace, equality, and mutual respect among nations and support decolonization efforts.

• The first NAM summit, held in Yugoslavia under the leadership of President Josip Broz Tito, aimed to unite newly independent nations.

• Arcadia Conference

• The Arcadia Conference (also known as the Anglo-American Conference) was held during World War II in 1941 between Winston Churchill and Franklin D. Roosevelt.

• The main goal was to establish a common war strategy and agree on post-war plans.

• The Atlantic Charter, which outlined post-war peace objectives, including self-determination, economic cooperation, and global security.

• Cooperation on military strategy and planning, leading to closer collaboration between the UK and the US.

• Francophonie Summits

• The Francophonie Summits are held by the International Organisation of La Francophonie (OIF), focusing on promoting the French language, cultural diversity, peace, democracy, and sustainable development among French-speaking countries.

Q48. Answer: (b) Rs. 387.91

Given:

Principal (P) = Rs. 1,800

Rate (r) = 10% per annum

Time (t) = 2 years

Compounded half yearly

Formula used:

A = P(1 + r/n)^(nt)

Where, n = number of times interest applied per time period

Calculations:

n = 2 (since interest is compounded half yearly)

r/n = 10/2 = 5% per half year

nt = 2 × 2 = 4

A = 1800(1 + 5/100)^4

=> A = 1800(1 + 0.05)^4

=> A = 1800(1.05)^4

=> A = 1800 × 1.21550625

=> A = 2187.91

Compound Interest (CI) = A - P

=> CI = 2187.91 - 1800

=> CI = 387.91

Therefore The correct answer is option (2).

Q49. Answer: (c) 1 over 4

Given:

What should be subtracted from 3/4 - 2/3 to get (-1)/6 ?

Formula used:

(Initial Value) - (Subtracted Value) = Result

Calculations:

3/4 - 2/3 - x = (-1)/6

=> (9/12 - 8/12) - x = (-1)/6

=> 1/12 - x = (-1)/6

=> -x = (-1)/6 - 1/12

=> -x = (-2)/12 - 1/12

=> -x = (-3)/12

=> -x = (-1)/4

=> x = 1/4

Therefore The correct answer is option (3).

Q50. Answer: (b) The White Tiger

The correct answer is The White Tiger

Key Points

• At the Oscars 2021, the film that was nominated in the Best Adapted Screenplay category was The White Tiger (adapted by Ramin Bahrani from Aravind Adiga's novel of the same name).

• The story follows Balram Halwai, a poor Indian man who rises to become a successful entrepreneur through a series of morally

ambiguous choices.

• The film explores themes of class disparity, corruption, and the challenges of modern India.

• Ramin Bahrani's adaptation of Adiga's novel received praise for maintaining the essence of the book while successfully translating it to the screen.

Additional Information

• The Oscar Prize is given in the field of Films.

• The Oscar Award is cinema's most prestigious award,

• It is awarded to recognize the excellence of professionals including directors, actors, and writers in the film industry.

• The award is organized annually by the American Academy of Motion Picture Arts and Sciences (AMPAS).

• The award consists of 24 categories. Those given for artistic and technical qualifications in the film industry.

• This is the award ceremony given to the world's oldest cinema world.

• Award winners are given a copy of a gold statue.

• It is officially known as 'Academy Award Merit' and commonly known as 'Oscar'.

Important Points

• Emile Jannining was the first actor to win the Oscar Awards.

• He won the award for the movie- The Last Command and The Way of All Flesh.

• First Best Actress - Janet Gaynor

• First Best Outstanding Picture - Wings

• These awards are presented by the Academy of Motion Picture Arts and Sciences.

• The first Oscars honored the best films of 1927 and 1928.

• Douglas Fairbanks presented the award. He was the President of Academy.

• The awards were awarded in 12 categories.

Q51. Answer: (c) Jabalpur

The correct answer is Jabalpur.

Key Points

• The West Central Railway is one of the 18 zones under Indian Railways.

• West Central Railway was issued by the Ministry of Railway on 4^(th) July 2002.

• It came into existence on 1^(st) April 2003.

• The headquarters of West Central Railway is at Jabalpur.

• West Central Railway covers three Indian states namely Madhya Pradesh, Uttar Pradesh, and Rajasthan.

• Jabalpur railway division, Bhopal railway division, and Kota railway division are the three divisions of West Central Railway.

Important Points

• Jabalpur is a city in the Indian state of Madhya Pradesh.

• The principal seat of Madhya Pradesh high court is at Jabalpur.

• The famous Dhuandhar waterfall is located in Jabalpur.

• It is the second-most-populous district in Madhya Pradesh.

• The Army headquarters of Madhya Pradesh, Chhattisgarh, Orissa, Bihar and Jharkhand are located in Jabalpur.

Additional Information

• The headquarters of the central and western railway is in Mumbai

• The headquarters of the northern railway is in Delhi.

• The headquarters of the southwestern railway is in Hubli.

Q52. Answer: (d) 2 √3

Given:

The value of tan 75º - cot 75º is equal to:

Formula used:

tan (90º - θ) = cot θ

cot (90º - θ) = tan θ

tan 75º = cot 15º

cot 75º = tan 15º

Calculation:

tan 75º - cot 75º = cot 15º - tan 15º

tan 15º = 2 - √3

cot 15º = 2 + √3

=> tan 75º - cot 75º = (2 + √3) - (2 - √3)

=> tan 75º - cot 75º = 2 + √3 - 2 + √3

=> tan 75º - cot 75º = 2√3

Therefore The correct answer is option (4).

Q53. Answer: (b) 22

The correct answer is 22

Key Points

• The Eighth Schedule to the Constitution of India lists the official languages of India.

• As per Articles 344(1) and 351 of the Indian Constitution, the eighth schedule includes the recognition of the 22 languages.

• Out of them, 14 were initially included in the Constitution.

• Sindhi was added in 1967 by the 21st constitutional amendment act.

• Konkani, Manipuri (Meitei), and Nepali were added in 1992 by the 71st Constitutional Amendment Act.

• Bodo, Dogri, Maithili, and Santali were added in 2003 by the 92nd Constitutional Amendment Act.

Additional Information

• The Sixth Schedule consists of provisions for the administration of tribal areas in Assam, Meghalaya, Tripura, and Mizoram, according to Article 244 of the Indian Constitution.

• The Seventh Schedule to the Constitution of India defines and specifies the allocation of powers and functions between the Union & States.

• The Ninth Schedule contains a list of central and state laws that cannot be challenged in courts. The Schedule became a part of the Constitution in 1951 when the document was amended for the first time.

Q54. Answer: (b) 5 5/19% %

Given:

Cost Price (CP) = Rs. 950

Selling Price (SP) = Rs. 1000

Formula used:

Percentage Gain = (SP - CP)/CP × 100

Calculation:

Percentage Gain = (1000 - 950)/950 × 100

=> Percentage Gain = 50/950 × 100

=> Percentage Gain = (50 × 100)/950

=> Percentage Gain = 5000/950

=> Percentage Gain = 55/19 %

Therefore The correct answer is option (2).

Q55. Answer: (c) Bankim Chandra Chattopadhyay

The correct answer is Bankim Chandra Chattopadhyay

Key Points

• Bankim Chandra Chatterjee is the author of "Durgeshnandini".

• "Vande Mataram" was written by Bankim Chandra Chatterjee.

• It was first composed in the Sanskrit language in the year of 1870s (1875). Later in 1882, it was included in the Bengali novel Anandamath.

• Other notable works of Bankim Chandra Chatterjee:

• Anandmath, Kapalkundala, Komalakanter Doptor, Mrinalini, Krishnakanter Will, Bishbrikhsha, Rajsingho, Sitaram, Devi Chaudhurani.

Additional Information

• Premchand

• The original name of Munshi Premchand was Dhanpat Rai Srivastava.

• He was an Indian writer famous for his modern Hindustani literature.

• Munshi Premchand is one of the most celebrated writers of the Indian subcontinent and is regarded as one of the foremost Hindi

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writers of the early twentieth century.

• He published his first collection of five short stories in 1907 in a book called Soz-e Watan.

• He began writing under the pen name "Nawab Rai", but subsequently switched to "Premchand", Munshi being an honorary prefix.

• Rabindranath Tagore

• Rabindranath Tagore was born on 7th May 1861 in Kolkata.

• He was a poet, litterateur, philosopher, playwright, composer, and painter.

• He was awarded the Nobel Prize for Literature in 1913 for the creation of the world-famous epic Gitanjali.

• He is the only Indian to win the Nobel in the field of literature.

• Rabindra Nath Tagore gave up his 'Knighthood' in protest of the Jallianwala Bagh Massacre.

• He was awarded the knighthood in the year 1915 by King George V.

• He gave Gandhiji the title of Mahatma.

• He is the only poet whose two compositions became the national anthem of two countries.

• The national anthem of India - Jana-Gana-Mana.

• The national anthem of Bangladesh - Amar Sonar Bangla.

• Tagore established Santiniketan with trees, gardens, and a library in the lap of nature.

• Tagore also established the Vishwabharati University here.

• On 7 August 1941, he breathed his last in Kolkata

Q56. Answer: (a) Vindhyachal Thermal Power Station

The correct answer is Vindhyachal Thermal Power Station

Key Points

• As of January 2021, the Vindhyachal Thermal Power Station in Madhya Pradesh was the largest thermal power plant in India.

• The Vindhyachal Thermal Power Station is also the 10th largest coal-fired power station in the world.

• It is located in Singrauli district, Madhya Pradesh

• The owner of it is National Thermal Power Corporation (NTPC).

Additional Information

• More than 65% of India's electricity generation capacity comes from thermal power plants, with about 85% of the country's thermal power generation being coal-based.

• Thermal power plants contribute the largest proportion of electricity into the national power grid of India.

• There are three kinds of thermal power plants in India with a total installed capacity of 221,802.59 MW.

• Types of Thermal Power Plants

• As the name suggests, thermal power plants generate electricity by using heat from a fuel source.

• The heat usually generates steam in a boiler which is then used to run a steam turbine connected to a generator.

• They are classified according to the heat source as follows:

• Coal-Fired Gas Diesel or Liquid fuel Geothermal Biomass Waste Material

• India mainly uses three types of thermal power plants which are listed below along with their installed capacity as of January 2021:

• Coal: 206404.50 MW

• Gas: 24956.51 MW

• Liquid Fuel(Diesel): 509.71 MW

• The total capacity of thermal power plants as on January 31, 2021, all across India is 231870.72 MW.

Q57. Answer: (d) 1over2

Given:

The average of a, 11, 23, and 17 is 15.

The average of a, b, 12, and 25 is 16.

Formula used:

Average = (Sum of terms) / (Number of terms)

Calculation:

For the first average:

(a + 11 + 23 + 17) / 4 = 15

=> (a + 51) / 4 = 15

=> a + 51 = 60

=> a = 9

For the second average:

(a + b + 12 + 25) / 4 = 16

=> (9 + b + 37) / 4 = 16

=> (b + 46) / 4 = 16

=> b + 46 = 64

=> b = 18

Value of a/b:

= 9 / 18 = 1 / 2

Therefore The correct answer is option 4.

Q58. Answer: (a) 1927

The correct answer is 1927.

Key Points

• The Federation of Indian Chambers of Commerce and Industry (FICCI) is a non-profit trade organization and lobbying organization located in India.

• In 1927, Indian businessmen Mr. G D Birla and Purshottamdas Thakurdas launched the company on Mahatma Gandhi's recommendation.

• It is India's largest, most influential, and oldest commercial organization.

• It is a non-governmental, non-profit organization. Members of FICCI come from the private and public sectors, as well as SMEs and multinational enterprises.

• The chamber has around 250,000 indirect members through a variety of regional chambers of commerce.

• It focuses on firm development, advertising, and networking in a given industry.

Additional Information

• It is based in New Delhi, India's capital, and operates in 12 states and eight countries worldwide.

• India's only national ATA Carnet issuing and assuring organization is the FICCI.

• ATA Carnets are used to carry temporary equipment across borders by TV/film crews, journalists, engineers, musicians, and industry.

Q59. Answer: (a) Container Corporation of India

The correct answer is Container Corporation of India

Key Points

• Container Corporation of India Limited is a public sector undertaking (PSU)

• It plays a vital role in the development of multimodal transportation and trade across India.

• It was founded in 1988

• A PSU is a government-owned entity in India where at least 51% of the stake is owned by the government.

• CONCOR provides integrated cargo handling services at various logistics hubs.

• PSUs perform commercial functions for the government.

Additional Information

• Some other examples of PSUs include:

• Bharat Electronics Limited

• Engineers India Limited

• Hindustan Aeronautics Limited

• National Aluminium Company Limited

• NTPC Limited

• National Hydroelectric Power Corporation (NHPC)

• Rural Electrification Corporation (REC)

• North Eastern Electric Power Corporation (NEEPCO)

• Power Finance Corporation (PFC)

• Power Grid Corporation of India (POWER GRID)

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Q60. Answer: (d) 4

Given:

10p_r = 5040

Formula used:

nPr = n! / (n-r)!

Calculation:

10p_r = 10! / (10-r)!

5040 = 10! / (10-r)!

10! = 3628800

=> 5040 = 3628800 / (10-r)!

=> (10-r)! = 3628800 / 5040

=> (10-r)! = 720

By trial and error, we find that 720 = 6!

=> 10-r = 6

=> r = 4

Therefore The correct answer is option (4).

Q61. Answer: (a) Squash

The correct answer is Squash

Key Points

• Dipika Pallikal Karthik is an internationally recognised Indian squash player.

• She was the first Indian to break into the top 10 in the PSA Women's rankings.

• Dipika has several achievements in her squash career.

• She won three WISPA tour titles in 2011, and she achieved her career-best ranking of World No. 10 in December 2012.

• In addition, Dipika and Joshna Chinappa won the squash women's doubles gold medal in the 2014 Commonwealth Games.

Additional Information

Sport	Player(s)
Volleyball	Karch Kiraly, Lang Ping, Giba, Misty May-Treanor, Sachin Kamble (India), Ranjitha Suresh (India)
Table Tennis	Ma Long, Ding Ning, Timo Boll, Neha Agarwal, Sharath Kamal (India), Manika Batra (India)
Tennis	Roger Federer, Serena Williams, Novak Djokovic, Rafael Nadal, Sania Mirza (India), Leander Paes (India), Mahesh Bhupathi (India)

Q62. Answer: (d) cellulose

The correct answer is cellulose

Key Points

• The plant cell wall is primarily composed of cellulose, which is a complex carbohydrate or polysaccharide.

• Cellulose provides structural support to the plant cell, making it rigid and helping it maintain its shape.

• It is a crucial component for the cell wall's mechanical strength and is involved in the growth process of plants.

• Besides cellulose, plant cell walls also contain other polysaccharides like hemicellulose and pectin, but cellulose is the most abundant.

Additional Information

Term	Definition	Function	Location
Cytoplasm	The gel-like substance inside the cell, excluding the nucleus, composed of cytosol and organelles.	Facilitates cellular processes, including metabolism, protein synthesis, and transport of materials.	Found between the cell membrane and nucleus.
Glucose	A simple sugar (C6H12O6) that is a primary source of energy for cells.	Used in cellular respiration to produce ATP, the cell's energy currency.	Found in the bloodstream, and used by cells.

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Cytosol	The liquid component of the cytoplasm, excluding organelles and membranes, primarily made of water.	Serves as the medium for chemical reactions and supports the structure of the cell.	Found throughout the cytoplasm.

Q63. Answer: (b) 50%

Given:
Discount = 20%
Percentage profit = 20%
Formula used:
Marked Price (MP) = Cost Price (CP) + Markup
Discounted Price = MP - Discount
Profit = Discounted Price - CP
Calculation:
Let CP = 100
Markup = 20% of CP = 20% of 100 = 20
=> MP = CP + Markup = 100 + 20 = 120
Discount = 20% of MP = 20% of 120 = 24
=> Discounted Price = MP - Discount = 120 - 24 = 96
Profit = Discounted Price - CP = 96 - 100 = -4 (loss)
Since the result shows a loss, revise the approach:
Let CP = 100
Markup = 20% of CP = 20% of 100 = 20
=> MP = CP + Markup = 100 + 20 = 120
To achieve a 20% profit on CP:
Required Selling Price = CP + Profit = 100 + 20 = 120
Considering discount given:
Discounted Price = MP - Discount = 120 - 24 = 96
96 should achieve a profit of 20%
Revised calculations:
Let CP = 100
Required Selling Price = CP + Profit = 100 + 20 = 120
Discounted Price = 120 - 24 = 96
=> MP should be higher to achieve the desired profit post discount
Let new MP be x
Discounted Price = x - 20% of x = 0.8x
0.8x should give 20% profit on CP:
=> 0.8x = 120
=> x = 120 / 0.8
=> x = 150
MP = 150
Percentage increase above CP:
=> (MP - CP) / CP × 100
=> (150 - 100) / 100 × 100
=> 50 / 100 × 100
=> 50%
Therefore The correct answer is option (2).

Q64. Answer: (b) 1 over 21

Given:
What number should be added to -2 over 3 ?
Formula used:

Let the number be x.

(-5)/7 + x = (-2)/3

Calculation:

(-5)/7 + x = (-2)/3

=> x = (-2)/3 - (-5)/7

=> x = (-2)/3 + 5/7

=> x = (-2 × 7) + (5 × 3)/(3 × 7)

=> x = (-14 + 15)/21

=> x = 1/21

Therefore The correct answer is option (2).

Q65. Answer: (d) 50

Given:

We need to find the number of four-digit numbers completely divisible by 5, 12, and 18.

Formula used:

The least common multiple (LCM) of the numbers to find the common divisor:

LCM(5, 12, 18)

Calculation:

Prime factorization:

5 = 5

12 = $2^2 \times 3$

18 = 2×3^2

LCM(5, 12, 18) = $2^2 \times 3^2 \times 5 = 4 \times 9 \times 5 = 180$

Four-digit numbers range: 1000 to 9999

First multiple of 180 within range: 180 × 6 = 1080

Last multiple of 180 within range: 180 × 55 = 9900

Number of terms:

=> (9900 - 1080) / 180 + 1

=> 8820 / 180 + 1

=> 49 + 1

=> 50

Therefore The correct answer is option (4).

Q66. Answer: (c) Manipur

The correct answer is Manipur

Key Points

• The state that did NOT hold assembly elections in March-April 2021 was Manipur.

• The assembly elections in March-April 2021 were held in Kerala, West Bengal, and Assam.

• Legislative assembly

• In the Indian system of government, a representative who is elected to the legislature of the state government is known as a member of the legislative assembly (MLA).

• The voters choose one representative from each constituency, who subsequently joins the legislative assembly (MLA).

• In India, elections held in 2021 for the Lok Sabha, Rajya Sabha, legislative assemblies of four states and one union territory, as well as other municipal, state, and federal councils, committees, and legislative assemblies.

Additional Information

• Kerala:

• It Held its legislative assembly elections on April 6, 2021.

• The Left Democratic Front (LDF) led by Pinarayi Vijayan won a second consecutive term in power.

• West Bengal:

• The elections were held in multiple phases between March 27 and April 29, 2021.

• Mamata Banerjee's All India Trinamool Congress (TMC) won a third consecutive term, defeating the Bharatiya Janata Party (BJP).

• Assam:

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• The elections were held in three phases from March 27 to April 6, 2021.
• The Bharatiya Janata Party (BJP)-led alliance retained power in Assam.

Q67. Answer: (c) 90

Given:
The GCD of two numbers is 9 and their LCM is 270. If one number is 27.
Formula used:
GCD × LCM = Number1 × Number2
Calculation:
9 × 270 = 27 × Number2
=> 2430 = 27 × Number2
=> Number2 = 2430 ÷ 27
=> Number2 = 90
Therefore The correct answer is option (3).

Q68. Answer: (b) BEFIXRGYHZ

The logic followed here is:
HISTORICAL is written as IKVXTQGZWG
Similarly,
ACCESSIBLE is written as
Hence, "Option 2" is the correct answer.

Q69. Answer: (c) Rs. 11,016

Shortcut Trick
Alternate Method
Given:
Principal (P) = Rs. 10,00,000
Rate (R) = 12% per annum
Time (T) = 18 months = 1.5 years
Compounded half-yearly
Formula used:
Simple Interest (SI) = (P × R × T)/100
Compound Interest (CI) = P (1 + R/(2 × 100))^(2 × T) - P
Difference = CI - SI
Calculation:
Simple Interest (SI) = (10,00,000 × 12 × 1.5)/100
=> SI = Rs. 1,80,000
Compound Interest (CI) = 10,00,000 (1 + 12/(2 × 100))^(2 × 1.5) - 10,00,000
=> CI = 10,00,000 $(1 + 0.06)^3$ - 10,00,000
=> CI = 10,00,000 $(1.06)^3$ - 10,00,000
=> CI = 10,00,000 × 1.191016 - 10,00,000
=> CI = Rs. 11,91,016 - Rs. 10,00,000
=> CI = Rs. 1,91,016
Difference = CI - SI
=> Difference = Rs. 1,91,016 - Rs. 1,80,000
=> Difference = Rs. 11,016
Therefore The correct answer is option (3).

Q70. Answer: (b) August

The correct answer is August
Key Points
• Quit India Movement
• The Quit India Movement was launched by Mahatma Gandhi at the Bombay session of the All-India Congress Committee on 8th

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August 1942.The Quit India Movement was launched by Mahatma Gandhi at the Bombay session of the All-India Congress Committee on 8th August 1942.

• The movement called for an end to British rule and demanded immediate independence for India

• A significant feature of the Quit India Movement was the emergence of what came to be known as parallel governments in some parts of the country.

• The first one was proclaimed in Ballia, in east UP, in August 1942.

Additional Information

• On 8^(th) August 1942, Mahatma Gandhi gave a clarion call to end the British rule and launched the Quit India Movement at the session of the All-India Congress Committee in Mumbai.

• Gandhiji gave the call “Do or Die” in his speech delivered at the Gowalia Tank Maidan, now popularly known as August Kranti Maidan.

• Aruna Asaf Ali popularly known as the 'Grand Old Lady' of the Independence Movement is known for hoisting the Indian flag at the Gowalia Tank Maidan in Mumbai during the Quit India Movement.

• The slogan ‘Quit India’ was coined by Yusuf Meherally, a socialist and trade unionist who also served as Mayor of Mumbai.

• Meherally had also coined the slogan “Simon Go Back”.

Q71. Answer: (a) 30% zinc and 70% copper

The correct answer is 30% zinc and 70% copper

Key Points

• Brass is a mixture of 70% copper and 30% zinc.

• Brass is an alloy, which is a substance made by melting two or more elements together, at least one of which is a metal.

• Brass has many useful properties, including:

• Brass is stronger and more durable than pure copper or zinc.

• Brass is resistant to corrosion and water.

• Brass has a lower melting point than copper or zinc.

• Brass is more malleable than bronze or zinc.

• Brass has good electrical and thermal conductivity.

• The color of brass can range from red to yellowish-brown, depending on the amount of zinc added to the alloy.

Additional InformationOther important alloys

Alloys	Composition	Uses
Bronze	Copper + Tin	in making coins, utensils, bells etc.
German Silver	Copper + Nickle + Zinc	In making utensils
Duralumin	Copper + Aluminium + Manganese + Magnesium	In making utensils

Q72. Answer: (d) 0.025

Given:

0.25(0.25 × 0.25) ÷ 0.625 = ?

Formula used:

Use BODMAS/BIDMAS rules for calculation.

Calculation:

0.25(0.25 × 0.25) ÷ 0.625 = ?

=> 0.25(0.0625) ÷ 0.625

=> 0.015625 ÷ 0.625

=> 0.025

Therefore The correct answer is option (4).

Q73. Answer: (c) Bullet

The logic followed here is:

Logic: Object and its corresponding ammunition.

Here,

Bow : Arrow → Arrow is the ammunition used with a Bow.

Similarly,

Gun : ?

The correct answer is Bullet, as Bullet is the ammunition used with a Gun.

Hence, the correct answer is "Option 3".

Q74. Answer: (a) K Sivan

The correct answer is K Sivan.

Key Points

• Chandrayaan-2 is India's 2nd moon mission which was successfully launched by GSLV-MkIII-M1 from Second Launch Pad at Satish Dhawan Space Centre, Sriharikota in Andhra Pradesh.

• Chandrayaan-2 was launched on 22nd July 2019.

• In 2019, Chandrayaan-2 was launched with an orbiter and a lander named Vikram, and a six-wheeled rover named Pragyaan ISRO.

• The orbiter is still functional and the lander crashed before its induction in any research operation.

• The Lander was named Vikram after Dr. Vikram A Sarabhai who is known as the Father of the Indian Space Programme.

• It was designed to function for one lunar day, which is equivalent to 14 Earth days.

• Lander Vikram weighs 1471 kg.

Additional Information

• Rover- Pragyan:

• Pragyan in Sanskrit means wisdom.

• It is a 6-wheeled robotic vehicle, weighing 27-kg. It will set out on its job of collecting information on the lunar surface.

• Some important objectives behind it were -

1. To study lunar topography, mineralogy, elemental abundance, and signature of hydroxyl and ice.
2. To study the water ice in the south polar region and thickness of the lunar regolith on the surface.
3. To map the lunar surface and help to prepare 3D maps of it.

Important Points

• Important scientists and engineers who were involved in the development of Chandrayaan-2 -

1. Ritu Karidhal
2. Muthayya Vanitha
3. K Kalpana
4. G Narayanan
5. G Nagesh

Q75. Answer: (c) Jodhpur

The correct answer is Jodhpur

Key Points

• The Blue City of India is the nickname of Jodhpur.

• It is called Blue City because houses are painted in blue color in the old city area.

• Jodhpur is situated in Rajasthan.

• Jodhpur is in the Thar Desert area of the western part of the country.

Additional Information

Indian Cities Name	State	Nicknames of Indian Cities
Jaipur	Rajasthan	Pink City
Akola	Maharashtra	Cotton City of India
Bhagalpur	Bihar	Silk City
Udaipur	Rajasthan	City of Lakes White City
Alappuzha	Kerala	Venice of the East
Dibrugarh	Assam	Tea City of India
Lucknow	Uttar Pradesh	City of Nawabs
Muzaffarpur	Bihar	The Land of Litchi Sweet City

Kanpur	Uttar Pradesh	The Leather City
Pune	Maharashtra	Deccan Queen
Nagpur	Maharashtra	Orange City
Nashik	Maharashtra	Wine Capital of India
Bengaluru	Karnataka	Garden City of India Silicon Valley of India Science City
Mangalore	Karnataka	Rome of the East Gateway of Karnataka Cradle of Indian Banking
Coorg	Karnataka	Scotland of India
Mysore	Karnataka	Sandalwood City
Kolkata	West Bengal	City of Joy
Dhanbad	Jharkhand	Land of Black Diamond
Hyderabad	Telangana	City of Pearls
Kochi	Kerala	Queen of Arabian Sea
Kozhikode (Calicut)	Kerala	City of Spices
Thrissur	Kerala	Gold Capital of India
Kollam	Kerala	Cashew Capital of the World
Madurai	Tamil Nadu	City of Festivals Athens of the East
Coimbatore	Tamil Nadu	Manchester of South India
Pondicherry	Puducherry	Paris of the East
Kashmir	Jammu and Kashmir	Switzerland of India
Jamshedpur	Jharkhand	Steel City of India Pittsburgh of India
Bhubaneswar	Odisha	Temple City of India
Shillong	Meghalaya	Scotland of East
Jaisalmer	Rajasthan	Golden City

Q76. Answer: (b) 39202

Given:

If $2a + 1/2a = 6$

Formula used:

$64a^6 + 1/(64a^6)$

Calculation:

Let $x = 2a$

Then, $x + 1/x = 6$

$\Rightarrow x^2 + 1/(x^2) = (x + 1/x)^2 - 2$

$\Rightarrow x^2 + 1/(x^2) = 6^2 - 2$

$\Rightarrow x^2 + 1/(x^2) = 36 - 2$

$\Rightarrow x^2 + 1/(x^2) = 34$

Now, $(x^2 + 1/(x^2))^3 = 34^3$

$\Rightarrow x^6 + 1/(x^6) + 3(x^2 + 1/(x^2)) = 34^3$

$\Rightarrow x^6 + 1/(x^6) + 3(34) = 34^3$

$\Rightarrow x^6 + 1/(x^6) + 102 = 39304$

$\Rightarrow x^6 + 1/(x^6) = 39304 - 102$

$\Rightarrow x^6 + 1/(x^6) = 39202$

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Since x = 2a, we have 64a^6 + 1/(64a^6) = 39202

Therefore The correct answer is option (2).

Q77. Answer: (a) 90°

Given:

The sum of two angles of a triangle is equal to its third angle.

Formula used:

In a triangle, the sum of all angles is 180º

Calculation:

Let the third angle be A.

=> A + A = 180º

=> 2A = 180º

=> A = 180º / 2

=> A = 90º

Therefore The correct answer is option 1.

Q78. Answer: (d) Pakistan

The correct answer is Pakistan

Key Points

• Pakistan shares a part of the Rann of Kutch with India.

• The Radcliffe Line, which was revealed on August 17, 1947, separates India and Pakistan

• It runs through the Rann of Kutch in Gujarat to the international border in Jammu and Kashmir.

• The Kutch region, located mostly in Gujarat, India, with a small part in Sindh, Pakistan, is known for its vast salt marshes.

• It is divided into two main areas: the Great Rann and the Little Rann.

• The region experiences a hot and dry climate during the summer, while it transforms into a wetland during the monsoon season.

• The ecosystems found here include mangroves and desert vegetation, adapting to the harsh conditions.

• Additionally, the northern territory of the Great Rann of Kutch forms the international border between India and Pakistan.

Additional Information

The states in India that share borders with each neighbouring country:

Country	Border Length (km)	Indian States
Afghanistan	106 km	Jammu & Kashmir
Bangladesh	4,096 km	West Bengal, Assam, Meghalaya, Tripura, Mizoram
Bhutan	699 km	Sikkim, West Bengal, Assam, Arunachal Pradesh
China	3,488 km	Jammu & Kashmir, Himachal Pradesh, Uttarakhand, Sikkim, Arunachal Pradesh
Myanmar	1,643 km	Nagaland, Manipur, Mizoram, Arunachal Pradesh
Nepal	1,751 km	Sikkim, West Bengal, Bihar, Uttar Pradesh, Uttarakhand
Pakistan	3,323 km	Jammu & Kashmir, Punjab, Rajasthan, Gujarat
Sri Lanka (maritime)	1,340 km (via sea)	Tamil Nadu, Kerala (maritime boundary)

Q79. Answer: (b) Asia

The correct answer is Asia

Key Points

• Mongolia is located in Asia

• Mongolia is a landlocked country in East Asia, bordered by Russia to the north and China to the south.

• It's the world's most sparsely populated sovereign state, with a population of 3.5 million.

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• Mongolia's capital and largest city is Ulaanbaatar, and its official language is Mongolian.
• Asia is the world's largest continent, covering about one-third of the Earth's total land area.
Additional Information
• Africa
• Africa is the world's second-largest continent after Asia.
• A large part of the African continent lies in the Northern Hemisphere.
• It is the second-most populous continent in the world.
• Africa has the highest number of countries among continents.
• Africa comprises 54 countries.
• Africa is surrounded by:
• The Mediterranean Sea in the north.
• The Atlantic Ocean in the west.
• The Indian Ocean in the southeast.
• The Suez Canal, the Red Sea and the Arabian Sea in the northeast.
• Africa is located between the latitudes 37° North and 35° South and between the longitudes 50° East and 20° West.
• The Equator runs almost through the middle of the continent.
• Africa is the only continent through which the Tropic of Cancer, the Equator and the Tropic of Capricorn pass.
• The world’s largest hot desert Sahara desert is located in Africa.
• The world’s longest river the Nile flows through Africa.
• Antarctica
• Antarctica is the coldest, driest, and windiest continent, and it contains about 70% of the world's fresh water in the form of ice.
• The continent is governed by the Antarctic Treaty System, which prohibits military activity and mineral mining, supports scientific research, and protects the continent's ecozone.
• Mount Vinson is part of the Vinson Massif in the Ellsworth Mountains and is one of the Seven Summits, the highest peaks on each of the seven continents.
• The Antarctic Circumpolar Current is the only ocean current that flows completely around the globe and plays a crucial role in the global climate system.
• Europe
• Europe is the second-smallest continent in the world, but it is also one of the most diverse and complex.
• With a total land area of approximately 10.18 million square kilometers,
• Europe is home to over 740 million people and is comprised of 44 countries, including some of the world's oldest and most influential nations, such as France, Germany, and the United Kingdom.

Q80. Answer: (c) 29^(th)

Given:
Mohan earns Rs.60 on the first day and spends Rs.50 on the second day.
He continues this pattern alternately.
He wants to have Rs.200 before spending.
Formula used:
Net saving per 2-day cycle = Earnings - Spending = 60 × 1 - 50 × 1 = 10
Total saving before spending = 200
Calculations:
Let n = number of 2-day cycles
Saving after n cycles = 10 × n
On the (2n + 1)th day, he earns another 60:
Total saving before spending = 10 × n + 60 = 200
=> 10 × n + 60 = 200
=> 10 × n = 140
=> n = 14
Total days = 2 × 14 + 1 = 29
Answer:
Mohan will have Rs.200 before spending on the 29th day.

Q81. Answer: (b) Anther

Given word: Canterbury

Checking each option one by one:

Option 1) Crane → Can be formed => Canterbury

Option 2) Anther → Cannot be formed => Canterbury as 'h' is not present.

Option 3) Burnt → Can be formed => Canterbury

Option 4) Brat → Can be formed => Canterbury

Hence, "Option 2" is the correct answer.

Q82. Answer: (a) 33

The logic followed here is:

(7 + 7) ÷ 7 = 2

14 ÷ 7 = 2

2 = 2 (LHS = RHS)

(8 + 16) ÷ 4 = 6

24 ÷ 4 = 6

6 = 6 (LHS = RHS)

And,

(17 + 15) ÷ 8 = 4

32 ÷ 8 = 4

4 = 4 (LHS = RHS)

Similarly,

(27 + ?) ÷ 6 = 10

27 + ? = 10 × 6

? = 60 - 27

? = 33

Hence, "Option 1" is the correct answer.

Q83. Answer: (c) Lloyd J Austin III

The correct answer is Lloyd J Austin.

Key Points

• US Defence Secretary Lloyd J Austin arrived in India on 19 March 2021.

• During the visit, he will meet Defence Minister Rajnath Singh, and other senior dignitaries of the government to discuss deepening the India US Major Defense Partnership.

• They will also discuss advancing cooperation for a free, prosperous, and open Indo-Pacific Region.

• His visit is a part of his first overseas trave

Additional Information

• USA:

• Capital - Washington, D.C.

• Currency - US Dollar.

• Geography:

• The United States is the third-largest country in the world by land area, covering about 9.8 million square kilometers.

• It is located in North America and is bordered by Canada to the north, Mexico to the south, the Atlantic Ocean to the east, and the Pacific Ocean to the west.

• Government:

• The USA operates as a federal republic with a presidential system.

• It has 50 states, and Washington, D.C. serves as the capital.

• The President is both the head of state and government, while the Congress and the Supreme Court are key branches of government.

• Economy:

• The United States has the world's largest economy, with a GDP exceeding $20 trillion.

• It is a leader in technology, finance, and innovation, with Silicon Valley being a global hub for tech companies.

• Diverse Population:

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• The USA is known for its cultural diversity, with a population of over 330 million people.

• It is home to various ethnic groups, languages, and traditions, making it a "melting pot" of cultures.

• Military Power:

• The United States has the most powerful military in the world, with advanced technology and a global presence through military bases and alliances.

• It is a leading member of NATO and plays a key role in international security.

Q84. Answer: (c) Aravali

The correct answer is Aravali

Key Points

• Luni River originates from Nag Pahar or Naga hills in Ajmer district of Rajasthan.

• Luni originates in the Pushkar valley of the Aravalli Range, near Ajmer and passes through the southeastern portion of the Thar Desert.

• It ends in the marshy lands of Rann of Kutch in Gujarat.

• Luni River flows through Ajmer, Barmer, Jalore, Jodhpur, Nagaur, Pali, and Sirohi districts of Rajasthan and the Banaskantha and Patan districts of Gujarat.

• Sukri, Mithri River, Bandi, Khari, Jawai, Guhiya and Sagi are the left bank tributary of River Luni.

• Jojari is the right bank tributary of River Luni.

• Jaswant Sagar Dam was built in 1892 by Maharaja Jaswant Singh is one of the largest artificial lakes in India.

• Sardar Samand and Jawai dam are major irrigation projects on River Luni.

Additional Information

• Himalaya

• Himalaya is the youngest fold mountain range in the world.

• The word Himalaya means "the abode of snow".

• The Himalaya is mostly formed of sedimentary rocks.

• The Himalayas consist of three main parallel ranges, namely:

1. The greater Himalayas.

2. The lesser Himalayas.

3. The outer Himalayas.

• Satpura

• The Satpura Range is an elaboration of hills in central India.

• The range rises in eastern Gujarat state from east through the extent of Maharashtra and Madhya Pradesh to the east till Chhattisgarh.

• The range parallels the Vindhya Range to the north, and these two east-west ranges split the Indian Subcontinent into the Indo-Gangetic plain of northern India and the Deccan Plateau of the south.

• The Narmada River procreate from the north-eastern end of Satpura in Amarkantak, and runs in the depression amongst the Satpura and Vindhya ranges, draining the northern slope of the Satpura range, running west towards the Arabian Sea.

• Vindhyachal

• The Vindhya Range runs roughly east to west, spanning across the states of Madhya Pradesh, Uttar Pradesh, and Bihar.

• It acts as a natural boundary between northern and southern India.

• The Vindhyachal region is considered sacred in Hinduism, with several temples located along the range.

• One of the most famous temples is the Vindhyavasini Temple in the town of Vindhyachal, which attracts pilgrims from all over the country.

• The highest point in the Vindhya Range is Siddheshwar Hill in Madhya Pradesh, standing at around 752 meters (2,464 feet).

Q85. Answer: (c) 27

Given:

Dividend = 2200

Remainder = 13

Divisor = 1/3 of Quotient

Formula used:

Dividend = Divisor × Quotient + Remainder

Calculations:

2200 = D × Q + 13
=> 2200 - 13 = D × Q
=> 2187 = D × Q
Given D = 1/3 Q
=> 2187 = (1/3 Q) × Q
=> 2187 = $Q^2/3$
=> $Q^2 = 2187 \times 3$
=> $Q^2 = 6561$
=> Q = √6561
=> Q = 81
=> D = 1/3 × 81
=> D = 27
Therefore The correct answer is option (3).

Q86. Answer: (a) Rs. 29 crore

Given:
Amount spent on Biochemicals and Textiles = Rs. 8 crore
Biochemicals = 42°
Textiles = 58°
Total angle of the pie chart = 360°
Formula used:
Total amount = (Given amount)/(Sum of respective angles) × 360
Calculation:
Sum of angles for Biochemicals and Textiles = 42° + 58° = 100°
Total amount spent:
=> 8/100 × 360
=> (8 × 360)/100
=> Rs. 28.8 crore
Therefore The total approximate amount spent on importing all products is Rs. 29 crore.

Q87. Answer: (d) 195000

Given:
Population of 18-25 age group in Delhi = 80,000
Original population of Goa = 175,000
Formula used:
Number moving = (Percentage / 100) × Population
New population = Original population + Number moving
Calculations:
Number moving = (25 / 100) × 80000
=> Number moving = 20000
New population = 175000 + 20000
=> New population = 195000
Therefore The total population of Goa after migration is 195,000.

Q88. Answer: (b) 26-40 years, 12-17 years

Given:
Age group 12-17 years = 240,000
Age group 18-25 years = 245,000
Age group 26-40 years = 365,000
Formula used:
Total Population = Sum of populations of all age groups
Calculations:
Total Population = 240000 + 245000 + 365000

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=> Total Population = 850000
Highest Population Age Group = 365000 (26-40 years)
Lowest Population Age Group = 240000 (12-17 years)
Therefore The age group with the highest population is 26-40 years with 365,000, and the lowest is 12-17 years with 240,000.

Q89. Answer: (d) 251000

Given:
Population of 26-40 age group in Pune = 65,000
Population of 18-25 age group in Bengaluru = 50,000
Original population of Delhi's 26-40 age group = 120,000
Original population of Delhi's 18-25 age group = 80,000
Original population of Delhi's 12-17 age group = 50,000
Formula used:
Number moving = (Percentage / 100) × Population
New population = Original population ± Number moving
Calculations:
January:
Number moving from Pune to Delhi = 20/100 × 65000
=> Number moving = 13,000
New 26-40 age group population in Delhi = 120000 + 13000
=> 133,000
February:
Number moving from Bengaluru to Delhi = 10/100 × 50000
=> Number moving = 5,000
New 18-25 age group population in Delhi = 80000 + 5000
=> 85,000
March:
Number moving from Delhi to Goa = 20/100 × 85000
=> Number moving = 17,000
New 18-25 age group population in Delhi = 85000 - 17000
=> 68,000
April:
Total population of Delhi in April = 50000 + 68000 + 133000
=> Total population = 251,000
Therefore The total population of Delhi in the month of April is 251,000.

Q90. Answer: (d) [figure] [figure]

The correct mirror image of the given figure is:
Hence, the correct answer is "Option 4".

Q91. Answer: (a) 289

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

Q92. Answer: (c) 13

Given: 7 × 4 + 2 - 3 = ?
Decoding the given information:

Symbol	•	•	×	÷
Means	÷	×	•	•

Now replacing the sign from left to right using BODMAS Rule, we get:
=> 7 + 4 ÷ 2 × 3
=> 7 + 2 × 3

=> 7 + 6

=> 13

Hence, the correct answer is "Option 3".

Q93. Answer: (c) Depot

The logic followed here is:

Logic: Storage places for vehicles.

Here,

Airplane : Hangar → Hangar is a storage place for an Airplane.

Similarly,

Bus : Depot → Depot is a storage place for a Bus.

Hence, the correct answer is "Option 3".

Q94. Answer: (a) 827

The logic followed here is:

Thus, it should be 829 instead of 827.

Hence, "Option 1" is the correct answer.

Q95. Answer: (b) 2

The logic followed here is :-

From the given four different dices the adjacent sides are as shown below :

As 3 is common on both the dices I and II, it is clear that 1, 5, 2, and 4 are adjacent to it, and the remaining i.e. 6 will be opposite to it.

Opposite pairs:

1 → 4

5 → 2

3 → 6

So, the opposite side of "5" will be side "2".

Hence, the correct answer is "Option 2".

Q96. Answer: (b) [figure]

The diagram that best represents the relationship between Asia, Nepal, and India is shown below :

Nepal and India are two different countries in Asia.

Hence, "Option 2" is the correct answer.

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

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

Conclusions:

I. No cupboard is a table → Does not follow (As no table is an almirah and some almirahs are cupboards. As no direct relation is given cupboards and tables, therefore it is possible but not definite.)

II. Some cupboards are not tables → Follow (As no table is an almirah and some almirahs are cupboards. As some part of cupboards is common with almirahs which cannot be tables, therefore it is true.)

III. Some beds are almirahs → Does not follow (As all beds are tables and no table is an almirah. As whole beds comes in tables which cannot be almirahs, therefore it is false)

Therefore Here, Only conclusion II follows.

Hence, the correct answer is "Option 4".

Q98. Answer: (d) 62.5

The logic followed here is:

Hence, "Option 4" is the correct answer.

Q99. Answer: (a) Son's daughter

Given:

1) P and Q are sisters

2) R is Q's father.

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3) S is R's mother, and T is S's brother

Here, P is S's granddaughter or son's daughter.

Hence, the correct answer is "Option 1".

Q100. Answer: (d) 1.5

Decoding signs:

Signs	•	•	×	÷
Means	÷	×	•	•

Given: 2 + 4 × 3 ÷ 2480÷0.3×5+500190+9×27÷1.6=2480÷0.3×5+500190+9×27÷1.6=2

According to the question, after interchanging the signs:

2 + 4 × 3 ÷ 2 => 2 ÷ 4 + 3 - 2

=> 2 ÷ 4 + 3 - 2

=> 0.5 + 3 - 2

=> 3.5 - 2

=> 1.5

Hence, "Option 4" is the correct answer.

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