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

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

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Q1. In a certain code language, 'QVZFG' is written as 'OMFAU'. What is the code for 'RNTWS' in that code language?

(a) AEZTW
(b) AEZTV
(c) ADASW
(d) ADZSV

Q2. Takht-e-Akbari, Platform on which Akbar was crowned as emperor lies in State of _____

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

Q3. What is the full form of UNESCO?

(a) Union National Employment Scheme Concerning Organization
(b) United Nations Economic, Social and Communal Organization
(c) United Nations Educational, Scientific and Cultural Organization
(d) United Nations Economic Settlement Committee

Q4. sin α = 1/√5 and cos β = 3/√10, then find the value of α + β

(a) 45°
(b) 60°
(c) 30^0
(d) 90°

Q5. Find the greatest number of five digits that is divisible by 15, 21 and 35.

(a) 99960
(b) 99950
(c) 99980
(d) 99940

Q6. Find the value of y from the following equation.

$(396 \div 18 \times 5 - 100)/y = 7^2 \div 8 + 3.875$

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

Q7. The Centre for Space Science and Technology Education in Asia-Pacific (CSSTEAP) is at:

(a) Jaipur
(b) Mumbai
(c) Dehradun
(d) Bangalore

Q8. Four words have been given, out of which three are alike in some manner and one is different. Select the odd one.

(a) Elephant
(b) Leopard
(c) Tiger
(d) Wolf

Q9. As of 31^(st) December 2020, who is the Chairman of the Airports Authority of India (AAI)?

(a) Indrakanti Narasimha Murthy
(b) Anuj Aggarwal
(c) S Suresh
(d) Arvind Singh

Q10. If an article is sold at a 150% profit, then the ratio of its cost price to its selling price will be:

(a) 4 : 9
(b) 2 : 5
(c) 5 : 7
(d) 3 : 5

Q11. Which of the following is the correct chronology for these events?

A. Non Cooperation Movement
B. Chauri Chaura Incident
C. Quit India Movement
D. Civil Disobedience Movement

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

Q12. How many ministers, including Prime Minister Mr Narendra Modi, took the oath of Cabinet Minister, Minister of States with Independent charge and Minister of State respectively, on the occasion of the oath-taking ceremony which was held at Rashtrapati Bhavan in New Delhi on 30/05/2019?

(a) 25, 9, 24
(b) 25, 8, 24
(c) 25, 9, 25
(d) 24, 8, 24

Q13. Which of the following numbers is prime?

(a) 243
(b) 337
(c) 343
(d) 377

Q14. Which of the following ages did NOT fall under the three main divisions of the Stone Age?

(a) Eneolithic
(b) Palaeolithic
(c) Mesolithic
(d) Neolithic

Q15. If $4x^2 - 8x + 3 = 0$, then what are possible values of x?

(a) 2.5, 1.5
(b) 2, 1.5
(c) 0.2, 0.5
(d) 1.5, 0.5

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Q16. On which river was Harappa city discovered during excavations around the year 1920-21?

(a) Beas
(b) Jhelum
(c) Chenab
(d) Ravi

Q17. Under which Amendment, Article 75 of the Constitution of India inserted the total number of Ministers, including the Prime Minister, in the Council of Ministers shall NOT exceed fifteen percent of the total number of members of the House of the People?

(a) Constitution (91 Amendment) Act, 2003
(b) Constitution (92 Amendment) Act, 2003
(c) Constitution (94 Amendment) Act, 2006
(d) Constitution (93 Amendment) Act, 2005

Q18. Calculate the standard deviation for the following data.

4, 7, 9, 10, 15

(a) 3.633
(b) 2.733
(c) 3.533
(d) 3.133

Q19. Select the number that can replace the question mark (?) in the following series.

261, 252, 243, 234, 225, ?

(a) 224
(b) 218
(c) 214
(d) 216

Q20. Who among the following pioneered binary logic and arithmetic in computer programming?

(a) Claude Shannon
(b) John Backus
(c) Leslie Lamport
(d) Noam Chomsky

Q21. During whose reign did the Chinese traveller Hiuen Tsang visit India?

(a) Harshavardhana
(b) Pulakesin II
(c) Vikramaditya
(d) Kirtivarman

Q22. Which of the following former Chief Minister of an Indian state was conferred the Padma Bhushan in 2021 posthumously?

(a) Ram Vilas Paswan
(b) Madhav Singh Solanki
(c) Tarun Gogoi
(d) Motilal Vora

Q23. The term 'Geography' was coined by:

(a) Alexander Von Humboldt
(b) Eratosthenes
(c) Ulisse Aldrovandi
(d) Karl Ritter

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Q24. Calculate the mean for the following data.

2.7, 3.2, 7.3, 12.4, 16.3

(a) 8.40
(b) 8.38
(c) 8.42
(d) 8.44

Q25. To attract investments from across the globe and strengthen India's manufacturing sector was the main objective of:

(a) Startup India
(b) Makeup India
(c) Make In India
(d) Digital India

Q26. A constant force acts on an object of mass 10 kg for a duration of 2 seconds. It increases the object's velocity from 5 metres/second to 10 metres /second. Find the magnitude of the applied force. Now, if the force is applied for a duration of 5 seconds, what would be the final velocity of the object?

(a) Applied Force = 25 N, Final Velocity = 17.5 metres/second
(b) Applied Force = 20 N, Final Velocity = 7.5 metres/second
(c) Applied Force = 25 N, Final Velocity = 7.5 metres/second
(d) Applied Force = 20 N, Final Velocity = 17.5 metres/second

Q27. Five boys B1, B2, B3, B4 and B5 are sitting in a row facing towards north (not necessarily in the same order). Only two boys sit between B1 and B3. B4 sits second to right of B3. Only one boy sits between B2 and B5. B5 is not the neighbour of B4.

Who is sitting in the middle of the row?

(a) B4
(b) B3
(c) B5
(d) B2

Q28. Select the option that is related to the third term in the same way as the second term is related to the first term.

Army : Soldiers :: School : ?

(a) Classrooms
(b) Principal
(c) Students
(d) Books

Q29. Read the given statement and conclusions carefully and decide which of the conclusions logically follows(s) from the statement.

Statement:

Nowadays, suicidal tendencies are maximum among school children.

Conclusions:

1. Expectations of parents increase day-by-day.

2. Socio-cultural factors also play a significant role.

(a) Only conclusion 2 follows.
(b) Neither conclusion 1 nor 2 follows.
(c) Both conclusions 1 and 2 follow.
(d) Only conclusion 1 follows.

Q30. Light travels in a:

(a) curved line
(b) horizontal line
(c) straight line
(d) vertical line

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Q31. A book was sold for Rs. 20.70 at a profit of 15%. If it was sold for Rs. 18.54, then what would have been the percentage profit?

(a) 4.5%
(b) 4%
(c) 3.5%
(d) 3%

Q32. If a certain sum at interest rate 6 1/4 % per year, compounded yearly, for 3 years amounts to Rs. 4,913 then find the simple interest on the same sum at the same rate of interest for the same period.

(a) Rs. 766
(b) Rs. 768
(c) Rs. 764
(d) Rs. 756

Q33. Find the value of the following.

$\sqrt{0.0025} \times \sqrt{2.25} \times \sqrt{0.0625}$

(a) 0.02255
(b) 0.01245
(c) 0.01875
(d) 0.01275

Q34. What is the upper portion of the earth's mantle called?

(a) Lithosphere
(b) Asthenosphere
(c) Troposphere
(d) Stratosphere

Q35. If $\sin\theta + \cos\theta = 1$, then the value of $\tan 2\theta$ is:

(a) -1
(b) 1/2
(c) 1
(d) 0

Q36. Find the value of the following.

$1/(1 \times 2) + 1/(2 \times 3) + ... + 1/(99 \times 100)$

(a) 0.95
(b) 0.99
(c) 0.29
(d) 0.92

Q37. Name the Indian state that has four international airports.

(a) Karnataka
(b) Gujarat
(c) Maharashtra
(d) Kerala

Q38. Since the year _____, flame of Amar Jawan Jyoti is continuously burning under the famous monument of India Gate at New Delhi.

(a) 1971
(b) 1947
(c) 1962
(d) 1965

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Q39. Select the number that can replace the question mark (?) in the following series.

10, 14, 24, 38, 62, ?

(a) 100
(b) 110
(c) 82
(d) 90

Q40. Two numbers are respectively 30% and 80% more than a third number. These two numbers are in the ratio of:

(a) 7 : 2
(b) 8 : 13
(c) 3 : 8
(d) 13 : 18

Q41. Find the ratio of the area of the incircle to that of the circumcircle of a square.

(a) 1 : 3
(b) 2 : 3
(c) 3 : 5
(d) 1 : 2

Q42. When was Jana Gana Mana officially adopted by the Constituent Assembly as the Indian National Anthem?

(a) 26 January, 1949
(b) 27 December, 1911
(c) 26 January, 1950
(d) 24 January, 1950

Q43. Select the term that is related to the third term in the same way as the second term is related to the first term.

ABC : 234 :: XYZ : ?

(a) 252627
(b) 262524
(c) 232425
(d) 242526

Q44. Who was the chief drafter of Article 370?

(a) Dr. BR Ambedkar
(b) Lal Bahadur Shastri
(c) N Gopalaswami Ayyangar
(d) Vallabhbhai Patel

Q45. Find the relation between x and y such that the point (x, y) is equidistant from (5, 3) and (4, 6).

(a) x - 3y = 9
(b) x + 3y = 10
(c) x + 3y + 9 = 0
(d) 3y - x = 9

Q46. Three containers contain 204, 136 and 119 litres of water respectively. Find the maximum capacity of a small container that can measure the water of each big container an exact number of times.

(a) 17 litres
(b) 19 litres
(c) 18 litres
(d) 15 litres

Q47. If $\sqrt{(3^n)} = \sqrt{6561}$, then the value of n is:

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

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(d) 8

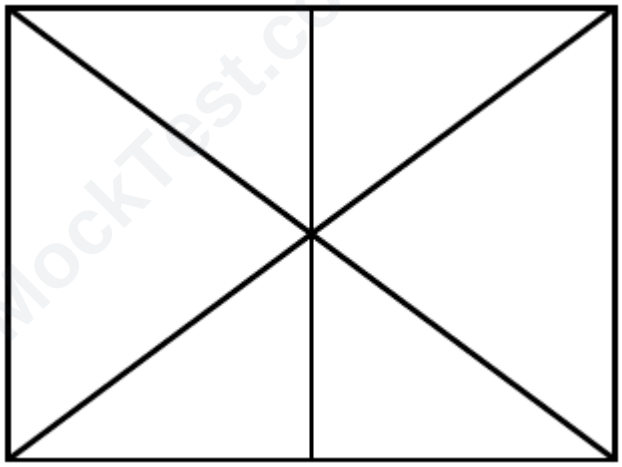
Q48. The status of Maharatna, Navratna, Miniratna to the Central Public Sector Enterprises (CPSEs) is conferred by:

(a) The Department of Public Enterprises
(b) The Ministry of Home Affairs
(c) The Ministry of Commerce and Industry
(d) The Department of Private Enterprises

Q49. In a certain code language, BOOK is written as 2151511. How will CHAIR be written as in that language?

(a) 382918
(b) 381918
(c) 918238
(d) 918382

Q50. How many triangles are in the following figure?



(a) 12
(b) 8
(c) 10
(d) 6

Q51. P can run 300 m in 20 s and Q can run the same distance in 30 s. By what distance is P ahead of Q after 4 s, if both start the race at the same time?

(a) 40 m
(b) 20 m
(c) 60 m
(d) 30 m

Q52. Select the option that is related to the third term in the same way as the second term is related to the first term.

Bird : Sky :: Ship : ?

(a) Airport
(b) Container
(c) Sea
(d) Boat

Q53. Recently The Indian Government has proposed to levy a "Green tax" on the vehicles older than _____ years.

(a) 10
(b) 15
(c) 6
(d) 8

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Q54. The second generation computers were based on:

(a) Silicon chips
(b) Vacuum tubes
(c) Transistors
(d) Bio optics

Q55. The Department of Science and Technology (DST) along with Doordarshan, Prasar Bharati announced the launch of two science communication initiatives, DD Science and India Science in January, 2019. Which of the following is correctly explained about these initiatives?

(a) DD Science is an internet based science channel while India Science is a one-hour slot on Doordarshan National channel.
(b) DD Science is an internet based science channel while India Science is a 24 × 7 on Doordarshan National channel.
(c) DD Science is a one-hour slot on Doordarshan National channel while India Science is an internet based science channel.
(d) DD Science is a 24 × 7 slot on Doordarshan National channel while India Science is an internet based science channel.

Q56. Study the given pattern carefully and select the number that can replace the question mark (?) in it.

5	**7**	**8**	**9**
7	6	2	5
4	5	4	?
140	210	64	270

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

Q57. Who among the following has been selected for the Padma Vibhushan Award under the category 'Art-Acting-Theatre' for the year 2019?

(a) Balwant Moreshwar Purandare
(b) Atul Punj
(c) Anilkumar Manibhai Naik
(d) Grandhi Mallikarjuna Rao

Q58. If $\sqrt{x} \div \sqrt{169} = 0.05$, then the value of x is:

(a) 0.4225
(b) 0.4115
(c) 0.4234
(d) 0.4223

Q59. The outermost region of the sun is known as:

(a) the radiative zone
(b) corona
(c) the convective zone
(d) chromosphere

Q60. ISRO established the third Space Technology Incubation Centre (S-TIC) to encourage start-up and entrepreneurship among the student community and to develop an academic industry ecosystem for space technology in the country at:

(a) National Institute of Technology, Calicut
(b) National Institute of Technology, Andhra Pradesh
(c) National Institute of Technology, Tiruchirappalli
(d) National Institute of Technology, Karnataka

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Q61. Find the area of a rhombus whose side measures 13 cm and one diagonal measures 24 cm.

(a) 115 cm²
(b) 125 cm²
(c) 110 cm²
(d) 120 cm²

Q62. What would be the highest values of X and Z in the given equation?

7X2 + 9Y3 + Z35 = 1770

(a) X = 7, Z = 2
(b) X = 1, Z = 1
(c) X = 3, Z = 1
(d) X = 3, Z = 2

Q63. Which of the following is NOT used for storage in computer systems?

(a) Register
(b) Flip Flop
(c) Adder
(d) Latch

Q64. What was the rank of India in the Global FDI Confidence Index, 2019?

(a) 10
(b) 12
(c) 16
(d) 11

Q65. Which of the following rivers flows into the Bay of Bengal?

(a) Tapi
(b) Narmada
(c) Indus
(d) Kaveri

Q66. The salt-water crocodile is found in:

(a) Karnataka islands
(b) Andaman and Nicobar islands
(c) Kerala islands
(d) Daman and Diu islands

Q67. State emergency can be imposed in a state if it fails to run constitutionally. Who can declare state emergency?

(a) The President of India
(b) The Chief Justice of the High Court
(c) The Governor of the state
(d) The Attorney General of India

Q68. A person covers a distance of 8 km in 56 minutes. If he covers half of the distance in two-third of the total time, then what should his speed (in km/h) be to cover the remaining distance in the remaining time?

(a) 2 6/7
(b) 12 5/7
(c) 12 4/7
(d) 12 6/7

Q69. Name the elements that are present in baking powder.

(a) Potassium, sulphur and oxygen
(b) Sulphur, hydrogen, carbon and oxygen
(c) Hydrogen, potassium, sulphur and oxygen
(d) Sodium, hydrogen, carbon and oxygen

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Q70. Read the given statements and conclusions carefully and state which of the conclusions logically follows from the statement are?

Statement :

India's GDP has increased in the modern era.

Conclusion :

1. There has been an increase in economic activity in the country.
2. The government does not play an important role in the economic activity taking place in the country.

(a) Conclusion 1 does not follow, but Conclusion 2 follows.
(b) Both Conclusion 1 and Conclusion 2 follow.
(c) Neither conclusion 1 nor conclusion 2 follow.
(d) Conclusion 1 follows, but conclusion 2 does not.

Q71. If $(a^2 - 1)/a = 5$, then $(a^6 - 1)/(a^3)$ =?

(a) 130
(b) 120
(c) 140
(d) 125

Q72. Which of the following is the correct chronology of these rulers?

A. Timur
B. Mahmud of Ghazni
C. Genghis Khan
D. Muhammad Ghori

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

Q73. India was the global host of 2018 World Environment Day (5^(th)June). The theme that year was:

(a) Beat Air Pollution
(b) Beat Water Pollution
(c) Beat Plastic Pollution
(d) Beat Thermal Pollution

Q74. Tuberculosis is caused by:

(a) bacteria
(b) viruses
(c) protozoans
(d) fungi

Q75. Who was the author of literary work 'Mricchakatika'?

(a) Chanakya
(b) Kalidasa
(c) Shri Harsha
(d) Shudraka

Q76. The sum of the interior angles of a polygon of 11 sides is:

(a) 1500°
(b) 1650^0
(c) 1610°
(d) 1620^0

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Q77. Select the letter that can replace the question mark (?) in the following series.

C, F, I, L, O, R, ?

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

Q78. What is the mean proportional between 8 + 3 √3 and 16 - 6 √3 ?

(a) √48
(b) √128
(c) √74
(d) √54

Q79. 3 men and 6 women can finish a task in 12 days, whereas 5 men and 4 women can finish it in 8 days. In how many days 1 man alone can finish the same task?

(a) 43 1/5
(b) 42 1/5
(c) 43 2/5
(d) 41 1/5

Q80. Simplify the following.

0. 077077... ÷ 7. 3333...

(a) 7/66
(b) 7/666
(c) 7/333
(d) 7/33

Q81. Four word-pairs have been given, out of which three are alike in some manner and one is different. Select the odd one.

(a) Music-Musician
(b) Paper-Pen
(c) Eagle-Aeroplane
(d) Newspaper-Editor

Q82. Which of the following players is NOT a part of the Indian cricket team in ICC World Cup 2019?

(a) Vijay Shankar
(b) Kuldeep Yadav
(c) Yuvraj Singh
(d) Kedar Jadhav

Q83. A man purchased an item at 3/4 of its marked price and sold it at 15% more than its marked price. What is his gain percentage?

(a) 15 1/5 %
(b) 5 1/3 %
(c) 53 1/3 %
(d) 1 1/3 %

Q84. The BSI (Botanical Survey of India) brings out an inventory of endangered plants in the form of a publication titled:

(a) Green Data Book
(b) Blue Data Book
(c) Red Data Book
(d) Black Data Book

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Q85. If A is 125% of B, then B is what percentage of (A - B)?

(a) 150%
(b) 300%
(c) 400%
(d) 200%

Q86. The table below shows voting percentages in the years 2014 and 2019 for five different states.
Observe the table and answer the question.

States	Voting % in 2014	Voting % in 2019
A	65.55	68.50
B	67.50	70.33
C	75.80	62.65
D	55.75	57.45
E	70.24	78.90

Which are the two states with the highest percentage of voting in 2019?

(a) C and E
(b) B and E
(c) A and E
(d) A and B

Q87. The table below shows voting percentages in the years 2014 and 2019 for five different states. Observe the table and answer the question.

States	Voting % in 2014	Voting % in 2019
A	65.55	68.50
B	67.50	70.33
C	75.80	62.65
D	55.75	57.45
E	70.24	78.90

On an average, which state has the second highest voting percentage?

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

Q88. The table below shows voting percentages in the years 2014 and 2019 for five different states.
Observe the table and answer the question.

States	Voting % in 2014	Voting % in 2019
A	65.55	68.50
B	67.50	70.33
C	75.80	62.65
D	55.75	57.45
E	70.24	78.90

On an average, which state has the lowest voting percentage?

(a) A

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

Q89. The word RAILWAY has been coded using 4 different codes.

Code 1: TCKNYCA

Code 2: PYGJUYW

Code 3: IZRODZB

Code 4: SCLPBGF

Which of the given codes is used to write the word BERTH as YVIGS?

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

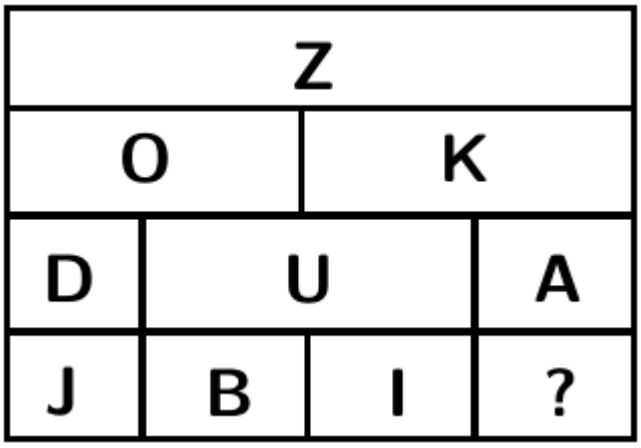
Q90. Read the paragraph and answer the question below.

A bangle seller goes to village A from his home every day to sell bangles; the distance between village A and his home is 5.5 km. From village A, he goes to village B; the distance between village A and B is 4.5 km. From village B, he goes to the market; the distance between village B and the market is 3.5 km. From the market, he directly goes home; the distance between the market and his home is 3 km.

Which of the given options is the shortest distance between his home and village B?

(a) 5.5 km
(b) 8.25 km
(c) 6.5 km
(d) 10 km

Q91. Study the given pattern carefully and select the alphabet that can replace the question mark (?) in it.



(a) G
(b) S
(c) E
(d) T

Q92. Read the paragraph carefully and answer the question below.

Five friends A, B, C, D and E are sitting in the canteen at a round table. The sitting sequence from right to left is B, A, E, D, and C. After some time, E changes place with B and A changes with D.

Where is D sitting now?

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

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Q93. In a certain code language, 'NATION' is written as '72', 'NATURE' is written as '78'. What is the code for 'PACKED' in that code language?

(a) 45
(b) 39
(c) 41
(d) 43

Q94. Four terms have been given, out of which three are alike in some manner and one is different. Select the odd one.

(a) KMO
(b) RSU
(c) NPR
(d) CEG

Q95. In a certain code language, ARMY is written as XOJV. How will CALCULATOR be written as in that language?

(a) AYJASJYRMP
(b) ECNEWNCVQT
(c) ZXIZRIXQLO
(d) DBMDVMBUPS

Q96. In a certain code language, CALENDER is written as 31125144518. How will WATCH be written as in that language?

(a) 2322038
(b) 3823220
(c) 2222038
(d) 2312038

Q97. Select the number that can replace the question mark (?) in the following series.

1, 2.5, 5.5, 11.5, 23.5, ?

(a) 33.5
(b) 43.5
(c) 34.5
(d) 47.5

Q98. Four words have been given, out of which three are alike in some manner and one is different. Select the odd one.

(a) Doctor
(b) Advocate
(c) Teacher
(d) Inspector

Q99. In a certain code language, MANGO is written as LZMFN. How will APPLE be written as in that language?

(a) BOPKD
(b) BQPMF
(c) BQQMF
(d) ZOOKD

Q100. Seven girls A, B, C, D, E, F and G are sitting in a row facing towards south (not necessarily in the same order). C is to the immediate right of D. D is at third position from the left end. A is at the one of the end and the neighbour of E. Only B is sitting between E and C.

Which of the following girls are NOT sitting next to each other?

(a) D and E
(b) F and G
(c) E and A
(d) C and B

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ANSWER KEY

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

SOLUTIONS

Q1. Answer: (d) ADZSV

The logic followed here is:

'QVZFG' is written as 'OMFAU'

Similarly, the code for 'RNTWS':

Hence, the correct answer is "ADZSV".

Q2. Answer: (b) Punjab

The correct answer is Punjab.

Key Points

• Takht-i-Akbari, the coronation platform of Mughal emperor Jalal-ud-din Mohammad Akbar at Kalanaur town is in a dilapidated state.

• The monument has been declared to be of national importance under the Ancient Monuments and Archaeological Sites and Remains (AMASR) Act, 1958.

• As per history, the coronation summary of 14-year-old Akbar was performed by Mughal military commander Bairam Khan at Kalanaur in 1556, soon after the death of his father, Humayun.

Additional Information

• Jalal-ud-din Mohammad Akbar

• Akbar was only thirteen years old at the time of Humayun’s death.

• When his father died, Akbar was at Kalanaur in Punjab and therefore his coronation took place in Kalanaur itself in 1556.

• One of the major achievements of his regency period was the defeat of Hemu and the Afghan forces in the second battle of Panipat in 1556, who were posing a serious threat to the Mughal Empire.

Q3. Answer: (c) United Nations Educational, Scientific and Cultural Organization

The correct answer is United Nations Educational, Scientific and Cultural Organization.

Key Points

• The United Nations Educational, Scientific and Cultural Organization focuses on everything from teacher training to helping improve education worldwide to protecting important historical and cultural sites around the world.

• UNESCO preserves 1073 World Heritage sites in 167 countries.

• UNESCO's Headquarters in Paris, France

• The Organization has 193 Members and 11 Associate Members.

• There are a total of 43 world heritage site in India:

• The most recent sites listed were Santiniketan and the Sacred Ensembles of the Hoysalas, in 2023.

• The most recent addition in the list of UNESCO WHS is Charaideo Maidams, Assam.

• Cultural (30)

Agra Fort (1983)

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Ajanta Caves (1983)
Archaeological Site of Nalanda Mahavihara at Nalanda, Bihar (2016)
Buddhist Monuments at Sanchi (1989)
Champaner-Pavagadh Archaeological Park (2004)
Chhatrapati Shivaji Terminus (formerly Victoria Terminus) (2004)
Churches and Convents of Goa (1986)
Elephanta Caves (1987)
Ellora Caves (1983)
Fatehpur Sikri (1986)
Great Living Chola Temples (1987,2004)
Group of Monuments at Hampi (1986)
Group of Monuments at Mahabalipuram (1984)
Group of Monuments at Pattadakal (1987)
Hill Forts of Rajasthan (2013)
Historic City of Ahmadabad (2017)
Humayun's Tomb, Delhi (1993)
Jaipur City, Rajasthan (2019)
Khajuraho Group of Monuments (1986)
Mahabodhi Temple Complex at Bodh Gaya (2002)
Mountain Railways of India (1999,2005,2008)
Qutb Minar and its Monuments, Delhi (1993)
Rani-ki-Vav (the Queen’s Stepwell) at Patan, Gujarat (2014)
Red Fort Complex (2007)
Rock Shelters of Bhimbetka (2003)
Sun Temple, Konârak (1984)
Taj Mahal (1983)
The Architectural Work of Le Corbusier, an Outstanding Contribution to the Modern Movement (2016)
The Jantar Mantar, Jaipur (2010)
Victorian Gothic and Art Deco Ensembles of Mumbai (2018)
• Natural (7)
• Great Himalayan National Park Conservation Area (2014)
• Kaziranga National Park (1985)
• Keoladeo National Park (1985)
• Manas Wildlife Sanctuary (1985)
• Nanda Devi and Valley of Flowers National Parks (1988,2005)
• Sundarbans National Park (1987)
• Western Ghats (2012)
• Mixed (1)
• Khangchendzonga National Park (2016)

Q4. Answer: (a) 45°

Given:
$\sin \alpha = 1/\sqrt{5}$
$\cos \beta = 3/\sqrt{10}$
We need to find the value of $\alpha + \beta$.
Formula used:
We use the trigonometric identity: $\sin(\alpha + \beta) = \sin \alpha \times \cos \beta + \cos \alpha \times \sin \beta$
We need to first calculate $\cos \alpha$ and $\sin \beta$ using the Pythagorean identity: $\sin^2 \theta + \cos^2 \theta = 1$.
Calculations:
For $\sin \alpha = 1/\sqrt{5}$:
$\cos \alpha = \sqrt{(1 - \sin^2 \alpha)} = \sqrt{(1 - (1/\sqrt{5})^2)}$
$\cos \alpha = \sqrt{(1 - 1/5)} = \sqrt{(4/5)} = 2/\sqrt{5}$

For cos β = 3/√10:
sin β = √(1 - cos² β) = √(1 - (3/√10)²)
sin β = √(1 - 9/10) = √(1/10) = 1/√10
Now, using sin(α + β):
sin(α + β) = (1/√5) × (3/√10) + (2/√5) × (1/√10)
=> sin(α + β) = (3/√50) + (2/√50)
=> sin(α + β) = (3 + 2)/√50
=> sin(α + β) = 5/√50
=> sin(α + β) = 1/√2
Therefore The value of sin(α + β) = 1/√2, which means α + β = 45°.

Q5. Answer: (a) 99960

Given:
Find the greatest number of five digits that is divisible by 15, 21, and 35.
Formula used:
LCM of 15, 21, and 35
Calculations:
Prime factorization:
15 = 3 × 5
21 = 3 × 7
35 = 5 × 7
LCM = 3 × 5 × 7 = 105
Greatest five-digit number = 99999
=> 99999 ÷ 105 = 952.37
=> 99999 - (99999 mod 105)
=> 99999 - (0.37 × 105)
=> 99999 - 39 = 99960
Therefore The correct answer is option 1.

Q6. Answer: (a) y = 1

Given:
(396 ÷ 18 × 5 - 100)/y = 7² ÷ 8 + 3.875
We need to find the value of y.
Calculations:
First, simplify the right-hand side:
7² = 49
49 ÷ 8 = 6.125
So, the right-hand side becomes:
6.125 + 3.875 = 10
Now, simplify the left-hand side:
396 ÷ 18 = 22
22 × 5 = 110
110 - 100 = 10
The equation becomes:
10/y = 10
Therefore:
y = 1
Therefore The value of y is 1.

Q7. Answer: (c) Dehradun

The correct answer is Dehradun.
Key Points
• The Centre for Space Science and Technology Education in Asia and the Pacific (CSSTEAP) is a regional center established to

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promote education and training in space science and technology in the Asia-Pacific region.

• It was established in 1995 under an agreement signed by 10 member countries of the region.

• Mission: To build capacity in space science and technology in the Asia-Pacific region.

• Location: Hosted by the Government of India, with facilities provided by the Indian Space Research Organisation (ISRO).

• Programs: Offers a variety of programs, including postgraduate diplomas, short-term courses, and workshops in various fields of space science and technology.

• Focus Areas: Remote sensing, geographic information systems (GIS), satellite communications, satellite meteorology, global navigation satellite systems (GNSS), and space science.

• Collaboration: Collaborates with various international organizations, including the United Nations Office for Outer Space Affairs (UN-OOSA) and other regional centers.

Q8. Answer: (a) Elephant

The logic followed here is:

Elephant	Herbivorous
Leopard	Carnivorous
Tiger	Carnivorous
Wolf	Carnivorous

Leopard, Tiger, Wolf all are Carnivorous animals,

Whereas,

Elephant is Herbivorous animal.

Hence, the correct answer is "Elephant".

Q9. Answer: (d) Arvind Singh

The correct answer is Arvind Singh.

Key Points

• The Airports Authority of India is a statutory body working under the jurisdiction of the Directorate General of Civil Aviation, Ministry of Civil Aviation, Government of India.

• It was created through the Airports Authority of India Act, 1994.

• The Airports Authority of India is responsible for creating, upgrading, maintaining and managing civil aviation infrastructure in India.

• It was formed on 1st April 1995

• The headquarters of the Airports Authority of India is situated in New Delhi.

• The Airports Authority manages a total of 137 airports which include 24 International airports (3 Civil Enclaves), 10 Custom Airports (4 Civil Enclaves) and 103 Domestic airports (23 Civil Enclaves).

• Some of the important Miniratna Companies are:

• Airport Authority of India

• Antrix Corporation Limited

• Central Warehousing Corporation

• Goa Shipyard Limited

• Hindustan Copper Limited

• Indian Rare Earths Limited

Q10. Answer: (b) 2 : 5

Given:

If an article is sold at a 150% profit, then the ratio of its cost price to its selling price will be:

Formula used:

Profit% = ((Selling Price - Cost Price) / Cost Price) × 100

Calculations:

Let Cost Price (CP) = Rs. 100

Selling Price (SP) = CP + 150% of CP

=> SP = Rs. 100 + 150% of Rs. 100

=> SP = Rs. 100 + Rs. 150

=> SP = Rs. 250

Ratio of CP to SP = CP : SP

=> Ratio = Rs. 100 : Rs. 250

=> Ratio = 2 : 5

Therefore The correct answer is option 2.

Q11. Answer: (b) A, B, D, C

The correct answer is A, B, D, C.

Key Points

• Non Cooperation Movemen

• The Non-Cooperation Movement which was launched by Mahatma Gandhi in 1920 Continued till 1922.

• The Non-Cooperation Movement was initiated by Mahatma Gandhi with the aim of self- governance and against the Rowlatt Act and the Jallianwala Bagh Massacre.

• The Non-Cooperation Movement Ended in 1922 after the Chauri-Chaura incident in Gorakhpur where a large group of protesters, participating in the Non-cooperation movement, clashed with police, who opened fire.

• A similar type of movement was initiated in 1930 as Civil Disobedience movement named as Namak Satyagraha Aandolan..

• Chauri-Chaura incident:-

• The Chauri Chaura incident took place on 5th February 1922 in the Gorakhpur District of Uttar Pradesh.

• During the Non-cooperation Movement, a group of protestors clashed with the local Police and as a result of this, Policemen opened fire on the protestors.

• Many leaders of the Non-Cooperation Movement were arrested and locked up at the Chauri Chaura police station.

• Response to the beatings and imprisonment of verification against the police on the following day was known to be as Chauri Chaura incident.

• Quit India Movement

• On 8 August 1942 at the All-India Congress Committee session in Bombay, Mohandas Karamchand Gandhi start the 'Quit India' movement.

• A while later, Gandhi, Nehru, and many other leaders of the Indian National Congress were arrested by the British Government.

• The Quit India Movement was announced by the Indian National Congress after the failure of the Cripps Mission.

• The movement began in a speech in Bombay, where Mahatma Gandhi asked Indians to Do or Die.

• Civil Disobedience Movement

• The movement started with the breaking of the salt law at Dandi in March 1930.

• The Dandi March started from Gandhiji's ashram in Sabarmati to the Gujarati coastal town of Dandi.

• The movement was called off in the year 1931, and Gandhiji decided to enter into the Gandhi-Irwin Pact.

• The terms of the Gandhi-Irwin Pact included calling off the movement, releasing of all prisoners, and manufacturing salt along the coast.

• The failure of the Second Round Table and the new repression cycle adopted by the British led to the relaunching of the Civil Disobedience Movement in 1932.

• When Gandhiji returned to India, Nehru, and Ghaffar Khan both were in jail, Congress was declared illegal, etc.

• Thus, Gandhiji decided to relaunch the movement in 1932. But, it lost its momentum in 1934.

Q12. Answer: (a) 25, 9, 24

The correct answer is 25, 9, 24.

Key Points

• On May 30, 2019, a total of 57 ministers took the oath of office at Rashtrapati Bhavan in New Delhi.

• Among these, 25 were sworn in as Cabinet Ministers, including Prime Minister Narendra Modi.

• 9 ministers took the oath as Ministers of State (Independent Charge).

• 24 ministers were sworn in as Ministers of State.

• This ceremony marked the beginning of the second term of Prime Minister Narendra Modi's government.

Additional Information

• Cabinet Minister: These are senior ministers in charge of major ministries and are part of the Cabinet Committee on Political Affairs.

• Minister of State (Independent Charge): These ministers handle specific portfolios independently and do not report to a Cabinet Minister.

• Minister of State: These ministers assist Cabinet Ministers in their respective departments and portfolios.

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• Oath of Office: The oath-taking ceremony is a formal process where ministers pledge to uphold the Constitution and discharge their duties faithfully.

• Rashtrapati Bhavan: The official residence of the President of India, where significant state functions, including swearing-in ceremonies, take place.

Q13. Answer: (b) 337

Given:

Which of the following numbers is prime?

1) 243

2) 337

3) 343

4) 377

Formula used:

A prime number is a natural number greater than 1 that has no positive divisors other than 1 and itself.

Calculation:

Check each number:

1) 243: 243 = 3^5 (Not prime)

2) 337: Divisors check (2, 3, 5, 7, 11, 13, 17, 19):

337 ÷ 2 ≠ Integer

337 ÷ 3 ≠ Integer

337 ÷ 5 ≠ Integer

337 ÷ 7 ≠ Integer

337 ÷ 11 ≠ Integer

337 ÷ 13 ≠ Integer

337 ÷ 17 ≠ Integer

337 ÷ 19 ≠ Integer

=> 337 is prime

3) 343: 343 = 7^3 (Not prime)

4) 377: Divisors check (2, 3, 5, 7, 11, 13, 17, 19):

377 ÷ 2 ≠ Integer

377 ÷ 3 ≠ Integer

377 ÷ 5 ≠ Integer

377 ÷ 7 ≠ Integer

377 ÷ 11 = 34.27 (Integer check failed)

377 ÷ 13 = 29 (Integer check passed, Not prime)

Therefore The correct answer is option 2.

Q14. Answer: (a) Eneolithic

The correct answer is Eneolithic.

Key Points

• Stone Age

• The Stone Age lasted from 30,000 BCE to about 3,000 BCE.

• It is named so because of the main technological tool developed at that time i.e. stone.

• It is divided into three distinct periods:

• Palaeolithic Period or Old Stone Age (30,000 BCE–10,000 BCE)

• The humans lived in caves or simple huts or tepees and were hunters and gatherers.

• They used basic stone and bone tools, as well as crude stone axes, for hunting birds and wild animals.

• They left their dead in the open where they were eaten by birds and animals.

• Mesolithic Period or Middle Stone Age (10,000 BCE–8,000 BCE)

• The humans used small stone tools, now also polished and sometimes crafted with points and attached to antlers, bone or wood to serve as spears and arrows.

• They often lived nomadically in camps near rivers and other bodies of water.

• Neolithic Period or New Stone Age (8,000 BCE–3,000 BCE)

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• The humans switched from hunter/gatherer mode to agriculture and food production.

• They domesticated animals and cultivated cereal grains.

• They used polished hand axes, adzes for ploughing and tilling the land and started to settle in the plains.

• There were two types of burial processes viz. complete or partial.

• In partial burial, only some selected bones of the dead were buried.

Q15. Answer: (d) 1.5, 0.5

Given:

$4x^2 - 8x + 3 = 0$

Formula used:

Quadratic equation: $ax^2 + bx + c = 0$

Calculations:

4x2 - 8x + 3 = 0

$4x^2 - 6x - 2x + 3 = 0$

$2x(2x - 3) - (2x - 3) = 0$

$(2x - 3)(2x - 1) = 0$

x = 1.5 and 0.5

Therefore The correct answer is option (4).

Q16. Answer: (d) Ravi

The correct answer is Ravi.

Key Points The Harappan civilization, also known as the Indus Valley Civilization, was renowned for its advanced urban planning, sophisticated craftsmanship, and trade practices. Among its many distinctive features, certain elements stand out as particularly emblematic of this ancient culture.

Additional Information

• Urban Planning: The Harappan cities were well-planned, with a grid layout, advanced drainage systems, and public baths, indicating a high level of civic organization and engineering skills.

• Seals: Harappan seals, usually made of steatite, depicted animals and other motifs, and were used for trade and administrative purposes. These seals are unique artifacts that provide insight into the economic activities, beliefs, and social structures of the civilization.

• Ornaments: The craftsmanship of the Harappan people is evident in their intricate jewelry made from gold, semi-precious stones, and other materials, reflecting the civilization's artistic sensibilities and trade connections.

• While seals, urban planning, and ornaments each represent distinctive features of the Harappan civilization, it is the combination of these elements that truly encapsulates the uniqueness of this ancient culture. Therefore, the correct answer is option 4, "More than one of the above."

Q17. Answer: (a) Constitution (91 Amendment) Act, 2003

The correct answer is Constitution (91 Amendment) Act, 2003.

Key Points

• The Constitution (91 Amendment) Act, 2003, was enacted to limit the size of the Council of Ministers, including the Prime Minister, to 15% of the total number of members of the House of the People (Lok Sabha).

• This amendment was part of broader efforts to curb the practice of having excessively large cabinets, which were seen as inefficient and costly.

• Article 75 of the Indian Constitution was amended to include this provision.

• The 91st Amendment also included provisions to strengthen anti-defection laws by disqualifying defectors from holding ministerial positions.

Additional Information

• Article 75 of the Indian Constitution

• Article 75 deals with the appointment of the Prime Minister and other ministers.

• The Prime Minister shall be appointed by the President, and the other ministers shall be appointed by the President on the advice of the Prime Minister.

• The ministers shall hold office during the pleasure of the President.

• The Council of Ministers is collectively responsible to the House of the People (Lok Sabha).

• Anti-Defection Law

• The anti-defection law was introduced by the 52nd Amendment Act of 1985.

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• It aims to curb political defections by members of parliament and state legislatures.

• Members can be disqualified if they voluntarily give up their party membership or disobey the directives of their party leadership on a vote.

• The 91st Amendment further tightened these provisions by making defectors ineligible for ministerial positions.

• Council of Ministers

• The Council of Ministers is headed by the Prime Minister.

• It includes Cabinet Ministers, Ministers of State, and Deputy Ministers.

• The Council of Ministers aids and advises the President in the exercise of his functions.

• The size of the Council of Ministers was limited to promote efficiency and reduce costs.

Q18. Answer: (a) 3.633

Given:

Data: 4, 7, 9, 10, 15

Formula Used:

Standard deviation (σ) is calculated using the formula:

$\sigma = \sqrt{((\sum (x_i - \mu)^2)/N)}$

Where:

x_i = each data point

μ = mean of the data

N = number of data points

Calculation:

First, calculate the mean (μ):

Mean (μ) = (4 + 7 + 9 + 10 + 15) / 5

=> Mean (μ) = 45 / 5

=> Mean (μ) = 9

Next, calculate each deviation from the mean, square it, and sum them up:

$(4 - 9)^2 = (-5)^2 = 25$

$(7 - 9)^2 = (-2)^2 = 4$

$(9 - 9)^2 = (0)^2 = 0$

$(10 - 9)^2 = (1)^2 = 1$

$(15 - 9)^2 = (6)^2 = 36$

Sum of squared deviations = 25 + 4 + 0 + 1 + 36

=> Sum = 66

Now, apply the standard deviation formula:

$\sigma = \sqrt{(66/5)}$

$\sigma = \sqrt{13.2}$

$\Rightarrow \sigma \approx 3.633$

The correct answer is option 1.

Q19. Answer: (d) 216

The logic followed here is:

Hence, the correct answer is "216".

Q20. Answer: (a) Claude Shannon

The correct answer is Claude Shannon.

Key Points

• Claude Shannon is known as the "father of information theory" and made significant contributions to digital circuit design theory.

• In his groundbreaking 1937 master's thesis, Shannon demonstrated how Boolean algebra could be used to simplify the arrangement of switches and relays used in telephone routing and other circuits.

• Shannon's work laid the foundation for digital circuits and logic gates, which are fundamental to modern computing systems.

• His 1948 paper "A Mathematical Theory of Communication" introduced the concept of binary logic and information entropy, revolutionizing telecommunications and computer science.

Additional Information

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• Binary Logic

• Binary logic refers to a system of mathematical logic that uses binary variables (0 and 1) and logical operations such as AND, OR, and NOT.

• It is the basis for digital circuits and computer algorithms.

• Binary logic is used in designing digital electronic systems such as computers, mobile phones, and other electronic devices.

• Boolean Algebra

• Boolean algebra is a branch of mathematics that deals with variables that have two possible values: true or false (1 or 0).

• It is used to analyze and simplify digital circuits.

• Claude Shannon applied Boolean algebra to electrical circuits, showing how it could be used to solve problems involving relay and switching circuits.

• Information Theory

• Information theory is a branch of applied mathematics and electrical engineering involving the quantification of information.

• It was founded by Claude Shannon in his 1948 paper, which provided a formal framework for understanding communication systems.

• Key concepts include entropy, which measures the uncertainty in a set of possible messages, and redundancy, which measures the amount of wasted or extra information in a message.

• Digital Circuits

• Digital circuits are electronic circuits designed to operate using digital signals (binary values).

• They form the foundation of modern electronic devices and systems, including computers and smartphones.

• Digital circuits use logic gates to perform various operations and process binary data.

Q21. Answer: (a) Harshavardhana

The correct answer is Harshavardhana.

Key Points

• Hiuen Tsang, also known as Xuanzang, was a famous Chinese Buddhist monk, scholar, traveler, and translator who visited India during the reign of Harshavardhana.

• Harshavardhana ruled North India from 606 to 647 CE and was known for his patronage of Buddhism and efforts to promote learning and culture.

• Hiuen Tsang spent several years in India, studying at the Nalanda University and traveling extensively to various parts of the country, documenting his observations.

• His writings provide valuable insights into the political, social, and religious conditions of India during Harshavardhana's reign.

Additional Information

• Harshavardhana:

• Harshavardhana, also known as Harsha, was an Indian emperor who ruled North India from 606 to 647 CE.

• He was a member of the Vardhana dynasty, and his empire extended over a large part of North and Northwestern India.

• Harsha is celebrated for his administrative efficiency, military prowess, and patronage of arts and learning.

• His court was adorned with renowned scholars like Banabhatta, who authored the Harshacharita, and the Chinese traveler Hiuen Tsang.

• Hiuen Tsang (Xuanzang):

• Hiuen Tsang was a Chinese Buddhist monk, scholar, traveler, and translator who lived during the Tang dynasty.

• He traveled to India in the 7th century to study Buddhism and collect sacred texts.

• His journey lasted for 17 years, during which he visited many Buddhist sites and centers of learning, including Nalanda University.

• Hiuen Tsang's travelogue, "Great Tang Records on the Western Regions," provides a detailed account of his experiences and observations in India.

• Nalanda University:

• Nalanda University was an ancient center of higher learning in the Indian state of Bihar.

• Established during the Gupta dynasty in the 5th century CE, it flourished as a major educational institution for over 800 years.

• The university attracted students and scholars from various parts of the world, including China, Korea, Japan, Tibet, Mongolia, Turkey, Sri Lanka, and Southeast Asia.

• Hiuen Tsang studied and taught at Nalanda University during his stay in India.

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Q22. Answer: (c) Tarun Gogoi

The correct answer is Tarun Gogoi.

Key Points

• Tarun Gogoi was a prominent Indian politician who served as the Chief Minister of Assam for three consecutive terms from 2001 to 2016.

• He was a member of the Indian National Congress (INC) and played a significant role in the political landscape of Assam.

• Tarun Gogoi was conferred the Padma Bhushan posthumously in 2021 in recognition of his contributions to public affairs.

• During his tenure, he was credited with improving the law and order situation in Assam and promoting economic development in the state.

Additional Information

• Padma Bhushan

• The Padma Bhushan is the third-highest civilian award in India, established in 1954 by the Government of India.

• It is awarded to recognize distinguished service of a high order in any field including service rendered by government servants.

• The award is announced on the occasion of Republic Day every year.

• Recipients of the Padma Bhushan are also eligible to use "PB" as a suffix to their name.

• Indian National Congress (INC)

• The Indian National Congress (INC) is one of the two major political parties in India, the other being the Bharatiya Janata Party (BJP).

• Founded in 1885, the INC played a significant role in the Indian independence movement against British rule.

• Post-independence, the party has governed India for the majority of its history and has produced several Prime Ministers including Jawaharlal Nehru, Indira Gandhi, and Rajiv Gandhi.

• The party's ideology is centered around social democracy and secularism.

• Assam

• Assam is a state in northeastern India, known for its rich culture, diverse population, and scenic beauty.

• The state is famous for its tea plantations, silk, and the Brahmaputra River.

• Assam has a unique geographical position, sharing borders with Bhutan, Bangladesh, and several Indian states.

• The state has a history of political instability and insurgency, which has significantly improved in recent years.

Q23. Answer: (b) Eratosthenes

The correct answer is Eratosthenes.

Key Points

• Eratosthenes was a Greek mathematician, geographer, poet, astronomer, and music theorist.

• He is best known for being the first person to calculate the circumference of the Earth, which he did by using the angles of the shadows cast in different locations.

• Eratosthenes is also known for creating the first known map of the world, incorporating parallels and meridians based on the available geographical knowledge of his time.

• He is often referred to as the "Father of Geography" due to his significant contributions to the field.

Additional Information

• Geography

• Geography is the study of places and the relationships between people and their environments. It seeks to understand the Earth's landscapes, environments, and the human societies spread across them.

• Geographers study both the physical properties of the Earth's surface and the human societies spread across it. They also examine how human culture interacts with the natural environment and the way that locations and places can have an impact on people.

• The term "Geography" comes from the Greek words "geo" (meaning "Earth") and "graphia" (meaning "writing" or "description").

• Alexander Von Humboldt

• Alexander Von Humboldt was a Prussian polymath, geographer, naturalist, and explorer. He is considered one of the founders of modern geography.

• He is known for his extensive explorations and scientific observations in Latin America, which were later published in his multi-volume work "Kosmos".

• Ulisse Aldrovandi

• Ulisse Aldrovandi was an Italian naturalist, the father of natural history studies. He was one of the principal founders of the botanical garden in Bologna, Italy.

• His work laid the groundwork for later taxonomical classification systems.

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• Karl Ritter

• Karl Ritter was a German geographer, considered one of the founders of modern geography alongside Alexander Von Humboldt.

• He emphasized the relationship between the environment and human activities in his works.

Q24. Answer: (b) 8.38

Given:

Data: 2.7, 3.2, 7.3, 12.4, 16.3

Formula Used:

Mean = (Sum of all data points) / (Number of data points)

Calculation:

Sum of data points = 2.7 + 3.2 + 7.3 + 12.4 + 16.3

Sum of data points = 2.7 + 3.2 + 7.3 + 12.4 + 16.3

Sum of data points = 41.9

Number of data points = 5

Mean = Sum of data points / Number of data points

=> Mean = 41.9 / 5

=> Mean = 8.38

The mean for the given data is 8.38.

Q25. Answer: (c) Make In India

The correct answer is Make In India.

Key Points

• Make In India was launched by Prime Minister Narendra Modi on 25th September 2014.

• The initiative aims to transform India into a global design and manufacturing hub by encouraging both multinational as well as domestic companies to manufacture their products within India.

• It focuses on 25 sectors of the economy, which include automobiles, chemicals, IT, pharmaceuticals, textiles, ports, aviation, leather, tourism and hospitality, wellness, railways, and more.

• The primary goal is to attract investments from across the globe, create job opportunities, and boost the economy by making India a manufacturing powerhouse.

Additional Information

• Startup India

• Launched on January 16, 2016, the Startup India initiative aims to build a strong ecosystem for nurturing innovation and startups in the country.

• It provides various benefits such as tax exemptions, easier compliance, IPR fast-tracking, and funding support.

• The initiative is intended to promote entrepreneurship and job creation, focusing on smaller startups and young businesses.

• Digital India

• Launched on July 1, 2015, Digital India is a campaign to ensure the Government's services are made available to citizens electronically by improving online infrastructure and increasing internet connectivity.

• It aims to transform India into a digitally empowered society and knowledge economy through initiatives like Digital Locker, e-education, e-health, and more.

• The initiative also promotes digital literacy and aims to provide high-speed internet in all rural areas.

• Makeup India

• There is no initiative or campaign named "Makeup India" by the Government of India.

• This option is incorrect and possibly included to test the awareness of candidates about government schemes and initiatives.

Q26. Answer: (a) Applied Force = 25 N, Final Velocity = 17.5 metres/second

The correct answer is Applied Force = 25 N, Final Velocity = 17.5 metres/second.

Key Points

• According to Newton’s Second Law, Force (F) = mass (m) × acceleration (a).

Given:

• Mass, m = 10 kg,

• Initial velocity, u = 5 m/s,

• Final velocity, v = 10 m/s,

• Time, t = 2 s.

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• So, Acceleration a = (v-u)/t

• a = (10 − 5)/2 = 2.5 m/s².

• Applied Force F = 10 kg × 2.5 m/s² = 25 N.

Now, if the same force is applied for 5 seconds, acceleration remains 2.5 m/s², and initial velocity is 5 m/s.

• Final velocity v = u + at = 5 + (2.5 × 5) = 17.5 m/s.

Q27. Answer: (d) B2

Given: Five boys B1, B2, B3, B4 and B5 are sitting in a row facing towards north.

1) Only two boys sit between B1 and B3.

2) B4 sits second to right of B3.

3) Only one boy sits between B2 and B5.

4) B5 is not the neighbour of B4.

Final arrangement:

So, B2 is sitting in the middle of the row.

Hence, the correct answer is "B2".

Q28. Answer: (c) Students

The logic followed here is:

Logic: Groups and their Members.

Here,

Army : Soldiers → Army is a group consisting of Soldiers.

Similarly,

School : Students → School is a group consisting of Students.

Hence, the correct answer is "Option 3".

Q29. Answer: (b) Neither conclusion 1 nor 2 follows.

Given,

Statement:

Nowadays, suicidal tendencies are maximum among school children.

Conclusions:

I. Expectations of parents increase day-by-day - False (Because, the statement does not provide any evidence to support the claim that increasing parental expectations are causing the suicidal tendencies among school children).

II. Socio-cultural factors also play a significant role - False (Because, the statement does not provide any evidence to support the claim that socio-cultural factors are responsible for the suicidal tendencies among school children).

So, Neither conclusion I nor II follows.

Hence, the correct answer is "Option 2".

Q30. Answer: (c) straight line

The correct answer is straight line.

Key Points

• Light travels in a straight line in a uniform medium.

• This principle is known as the rectilinear propagation of light.

• This behavior can be observed in phenomena such as shadows and the way light travels through optical fibers.

• Deviation from a straight path occurs due to refraction, reflection, or diffraction.

Additional Information

• Refraction

• Refraction is the bending of light as it passes from one medium to another with different densities.

• This change in speed causes the light to change direction.

• Common examples include the bending of light when it passes through water or glass.

• Reflection

• Reflection is the bouncing back of light when it hits a surface.

• The angle at which the light hits the surface is equal to the angle at which it reflects off.

• Mirrors are a common example where reflection is observed.

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• Diffraction
• Diffraction is the slight bending of light as it passes around the edge of an object.
• This phenomenon is more noticeable with waves of larger wavelengths.
• Diffraction can cause light to spread out and create patterns when it passes through small openings or around obstacles.
• Rectilinear Propagation
• Rectilinear propagation states that light travels in straight lines in a homogeneous medium.
• This principle is fundamental in understanding the behavior of light and designing optical instruments.
• It is the basis for phenomena such as the formation of shadows and the operation of devices like lasers and telescopes.

Q31. Answer: (d) 3%

Given:
Selling Price 1 (SP1) = Rs. 20.70
Profit Percentage 1 (P1) = 15%
Selling Price 2 (SP2) = Rs. 18.54
We need to find the new profit percentage if the book was sold for Rs. 18.54.
Formula used:
Cost Price (CP) = SP1 ÷ (1 + P1/100)
New Profit Percentage = ((SP2 - CP) ÷ CP) × 100
Calculations:
First, calculate the Cost Price (CP):
CP = Rs. 20.70 ÷ (1 + 15/100)
CP = Rs. 20.70 ÷ 1.15
=> CP = Rs. 18
Now, calculate the new profit percentage:
New Profit Percentage = ((Rs. 18.54 - Rs. 18) ÷ Rs. 18) × 100
=> New Profit Percentage = (Rs. 0.54 ÷ Rs. 18) × 100
=> New Profit Percentage = 3%
Therefore The new profit percentage is 3%.

Q32. Answer: (b) Rs. 768

Given:
Interest rate (r) = $6^{1}/4\%$ per year
Time (t) = 3 years
Amount (A) = Rs. 4,913
Formula used:
A = P (1+r/100)^t
Where, P = Principal
Simple Interest (SI) = (P × r × t)/100
Calculation:
$4,913 = P (1+6.25/100)^3$
$=> 4,913 = P (1+25/400)^3$
$=> 4,913 = P (1+1/16)^3$
$=> 4,913 = P (17/16)^3$
=> 4,913 = P 4913/4096
=> P = Rs. 4,096
SI = (P × r × t)/100
=> SI = (4096 × 6.25 × 3)/100
=> SI = Rs. 768
Therefore The correct answer is option 2.

Q33. Answer: (c) 0.01875

Given:
√(0.0025) × √(2.25) × √(0.0625)

Calculation:

=> √(0.0025) × √(2.25) × √(0.0625)

=> 0.05 × 1.5 × 0.25

=> 0.075 × 0.25

=> 0.01875

The correct answer is option 3.

Q34. Answer: (b) Asthenosphere

The correct answer is Asthenosphere.

Key Points

• The asthenosphere is the ductile part of the earth's upper mantle, situated directly below the lithosphere.

• It plays a crucial role in tectonic plate movements as it allows the lithosphere to move on top of it.

• The asthenosphere is composed of partially molten rock, which makes it mechanically weak and easily deformable.

• It extends from about 100 km to 200 km below the earth's surface.

Additional Information

• Lithosphere

• The lithosphere is the rigid, outermost shell of a terrestrial planet, including Earth.

• It consists of the crust and the uppermost part of the mantle, which is rigid.

• The lithosphere is divided into tectonic plates that move and interact at their boundaries, causing earthquakes, volcanic activity, and mountain building.

• It is typically about 100 km thick.

• Troposphere

• The troposphere is the lowest layer of Earth's atmosphere and where all weather occurs.

• It extends up to 8-15 km above sea level, depending on the latitude and season.

• Temperature decreases with height in the troposphere.

• It contains approximately 75% of the atmosphere's mass and 99% of its water vapor and aerosols.

• Stratosphere

• The stratosphere is the second layer of Earth's atmosphere, lying above the troposphere and below the mesosphere.

• It extends from about 15 km to 50 km above the Earth's surface.

• Temperature increases with height in the stratosphere due to the absorption of ultraviolet radiation by the ozone layer.

• Commercial jets often fly in the lower stratosphere to avoid turbulence in the troposphere.

Q35. Answer: (d) 0

Given:

If sin θ + cos θ = 1, then the value of tan 2θ is:

Formula used:

Using the trigonometric identity: $\sin^2\theta + \cos^2\theta = 1$

Calculations:

sin θ + cos θ = 1

=> $\sin^2\theta + 2\sin\theta\cos\theta + \cos^2\theta = 1^2$

=> $1 + 2\sin\theta\cos\theta = 1$

=> $2\sin\theta\cos\theta = 0$

=> $\sin 2\theta = 0$

=> $\tan 2\theta = \sin 2\theta / \cos 2\theta$

=> $\tan 2\theta = 0 / \cos 2\theta$

=> $\tan 2\theta = 0$

Therefore The correct answer is option (4).

Q36. Answer: (b) 0.99

Given:

We need to find the sum of the following series:

1/(1 × 2) + 1/(2 × 3) + … + 1/(99 × 100)

Formula used:

The general term of the series is given by: 1/(n(n+1)) = 1/n - 1/(n+1).

This is a telescoping series where most terms cancel out.

Calculations:

1/(1 × 2) + 1/(2 × 3) + … + 1/(99 × 100)

Rewriting the series:

(1/1 - 1/2) + (1/2 - 1/3) + … + (1/99 - 1/100)

All intermediate terms cancel out, and we are left with:

1 - 1/100 = 99/100 = 0.99

Therefore The value of the series is 0.99.

Q37. Answer: (d) Kerala

The correct answer is Kerala.

Key Points

• Kerala is the only Indian state with four international airports: Trivandrum International Airport, Cochin International Airport, Calicut International Airport, and Kannur International Airport.

• These airports serve as major hubs for international travel and cargo, boosting Kerala's connectivity with the rest of the world.

• Cochin International Airport is notable for being the world's first fully solar-powered airport.

• The presence of multiple international airports supports Kerala’s significant non-resident Indian (NRI) community, who frequently travel to and from the Gulf countries and other regions.

Additional Information

• Trivandrum International Airport:

• Located in Thiruvananthapuram, the capital city of Kerala.

• It is one of the oldest airports in India, established in 1932.

• The airport serves as a gateway to the southern region of Kerala and parts of Tamil Nadu.

• Cochin International Airport:

• Located in Kochi, it is one of the busiest airports in India.

• It holds the distinction of being the world's first fully solar-powered airport.

• The airport has won several awards for its sustainable practices and infrastructure.

• Calicut International Airport:

• Located in Karipur, near Kozhikode, it primarily serves the northern part of Kerala.

• The airport plays a crucial role in connecting the region to the Middle East.

• It is also known for its close proximity to the city of Malappuram.

• Kannur International Airport:

• Located in Mattannur, near Kannur, this is the newest addition to Kerala's international airports.

• It was inaugurated in December 2018 and significantly improves air connectivity in the northern region of Kerala.

• The airport has been designed to handle both international and domestic flights efficiently.

Q38. Answer: (a) 1971

The correct answer is 1971.

Key Points

• The Amar Jawan Jyoti was established in 1971 to commemorate the Indian soldiers who died during the Indo-Pakistani War of 1971.

• The eternal flame is located under the India Gate, which is a war memorial located in New Delhi, India.

• The flame is symbolic of the nation's gratitude to its soldiers who laid down their lives in service to the nation.

• The Amar Jawan Jyoti consists of a marble pedestal with a rifle standing on its barrel, capped by a soldier's helmet, with an eternal flame burning beside it.

Additional Information

• India Gate:

• The India Gate is a war memorial located astride the Rajpath, on the eastern edge of the ceremonial axis of New Delhi, India.

• It was designed by Sir Edwin Lutyens and was built to commemorate the 70,000 soldiers of the British Indian Army who died in the period 1914–21 in the First World War.

• The names of 13,300 servicemen, including some soldiers and officers from the United Kingdom, are inscribed on the gate.

• Indo-Pakistani War of 1971:

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• The Indo-Pakistani War of 1971 was a military confrontation between India and Pakistan that occurred during the Bangladesh Liberation War in East Pakistan.

• The war began on 3 December 1971 and lasted for 13 days, ending on 16 December 1971.

• The war resulted in the creation of Bangladesh, which was formerly East Pakistan.

• The conflict is considered one of the shortest wars in history, and it resulted in a decisive victory for India and the Mukti Bahini.

• Amar Jawan Jyoti:

• The Amar Jawan Jyoti, or the Flame of the Immortal Soldier, is a structure consisting of a marble pedestal with a reversed rifle, capped by a soldier's helmet, and an eternal flame burning beside it.

• It was unveiled on 26 January 1972 by the then Prime Minister, Indira Gandhi.

• The flame is kept burning day and night to remind the nation of the sacrifice made by its soldiers.

Q39. Answer: (a) 100

The logic followed here is:

Hence, the correct answer is "100".

Q40. Answer: (d) 13 : 18

Given:

Two numbers are respectively 30% and 80% more than a third number.

Formula used:

Let the third number be x.

First number = x + 0.3x = 1.3x

Second number = x + 0.8x = 1.8x

The ratio of the two numbers is:

Calculation:

Ratio = 1.3x/1.8x

=> Ratio = 1.3/1.8

=> Ratio = 13/18

Therefore The correct answer is option (4).

Q41. Answer: (d) 1 : 2

Given:

Find the ratio of the area of the incircle to that of the circumcircle of a square.

Formula used:

For a square of side length s:

Area of incircle = $\pi(s/2)^2 = (\pi s^2/4)$

Radius = s/2

Area of circumcircle = $\pi(s\sqrt{2}/2)^2 = (\pi s^2/2)$

Radius = $\sqrt{2}s/2$

Ratio of the area of incircle to the area of circumcircle = (Area of incircle) / (Area of circumcircle)

Calculation:

Ratio = $(\pi s^2/4) / (\pi s^2/2)$

=> Ratio = (1/4) / (1/2)

=> Ratio = (1/4) × (2/1)

=> Ratio = 1/2

Therefore The correct answer is option (4).

Q42. Answer: (d) 24 January, 1950

The correct answer is 24 January, 1950.

Key Points

• Jana Gana Mana was officially adopted as the Indian National Anthem by the Constituent Assembly on 24 January 1950.

• It was originally written in Bengali by Rabindranath Tagore and was first sung on 27 December 1911 at the Calcutta Session of the Indian National Congress.

• The anthem consists of the first stanza of the Brahmo hymn titled "Bharoto Bhagyo Bidhata" written by Tagore.

• It was translated into Hindi and the Hindi version was adopted as the national anthem.

Additional Information

• Rabindranath Tagore

• Rabindranath Tagore was a polymath, poet, musician, and artist from India.

• He was the first non-European to win the Nobel Prize in Literature in 1913.

• Tagore's works include novels, short stories, songs, dance-dramas, and essays.

• He is also the author of the national anthem of Bangladesh, "Amar Shonar Bangla".

• Constituent Assembly of India

• The Constituent Assembly was established to draft the Constitution of India.

• It first met on 9 December 1946 and completed its work on 26 November 1949.

• Dr. B.R. Ambedkar was the chairman of the drafting committee of the Indian Constitution.

• The Constitution of India was adopted on 26 January 1950, making India a republic.

• National Anthem

• A national anthem is a patriotic musical composition that evokes and eulogizes the history, traditions, and struggles of its people.

• It is officially recognized by a nation's government as the official national song.

• National anthems are often played during national holidays, military and other civic ceremonies, and international sporting events.

Q43. Answer: (a) 252627

The logic followed here is:

ABC : 234 => A + 1 = 2; B + 1 = 3, C + 1 = 4

Similarly,

XYZ : ? => X + 1 = 25; Y +1 = 26; Z + 1 = 27

Hence, the correct answer is "252627".

Q44. Answer: (c) N Gopalaswami Ayyangar

The correct answer is N Gopalaswami Ayyangar.

Key Points

• N Gopalaswami Ayyangar was a senior civil servant and a minister without portfolio in the first cabinet of India.

• He played a crucial role in the drafting of Article 370, which granted special autonomy to Jammu and Kashmir.

• Before joining the central government, he served as the Prime Minister of Jammu and Kashmir under Maharaja Hari Singh.

• His deep understanding of the region's complexities was instrumental in shaping the policies related to Jammu and Kashmir's special status.

Additional Information

• Article 370

• Article 370 of the Indian Constitution granted special autonomous status to Jammu and Kashmir.

• The article was drafted in Part XXI of the Indian Constitution titled "Temporary, Transitional and Special Provisions".

• Under this article, the state's residents lived under a separate set of laws, including those related to citizenship, ownership of property, and fundamental rights, as compared to other Indians.

• Article 370 was abrogated on August 5, 2019, through a presidential order and the passage of a resolution in Parliament.

• Dr. B.R. Ambedkar

• Dr. B.R. Ambedkar was the principal architect of the Indian Constitution.

• He was the chairman of the Drafting Committee of the Indian Constitution.

• Ambedkar played a key role in the formation of laws and policies to uplift the marginalized sections of society in India.

• Lal Bahadur Shastri

• Lal Bahadur Shastri served as the second Prime Minister of India.

• He is known for promoting the White Revolution – a national campaign to increase the production and supply of milk.

• He also led the country during the Indo-Pakistani War of 1965.

• Vallabhbhai Patel

• Vallabhbhai Patel, also known as the "Iron Man of India," was the first Deputy Prime Minister and Home Minister of India.

• He played a crucial role in the integration of the princely states into the Indian Union.

• Patel was a key figure in the Indian independence movement and a senior leader of the Indian National Congress.

Q45. Answer: (d) 3y - x = 9

Given:

The point (x, y) is equidistant from (5, 3) and (4, 6).

Formula used:

Distance formula: $\sqrt{((x2 - x1)^2 + (y2 - y1)^2)}$

Calculations:

Distance from (x, y) to (5, 3) = Distance from (x, y) to (4, 6)

=> $\sqrt{((x - 5)^2 + (y - 3)^2)} = \sqrt{((x - 4)^2 + (y - 6)^2)}$

=> $(x - 5)^2 + (y - 3)^2 = (x - 4)^2 + (y - 6)^2$

=> $(x^2 - 10x + 25) + (y^2 - 6y + 9) = (x^2 - 8x + 16) + (y^2 - 12y + 36)$

=> $(x^2 - 10x + 25 + y^2 - 6y + 9) = (x^2 - 8x + 16 + y^2 - 12y + 36)$

=> $-10x + 25 - 6y + 9 = -8x + 16 - 12y + 36$

=> $-10x - 6y + 34 = -8x - 12y + 52$

=> $-2x + 6y = 18$

=> $-x + 3y = 9$

=> $3y - x = 9$

Therefore The correct answer is option (4).

Q46. Answer: (a) 17 litres

Given:

Three containers contain 204, 136, and 119 litres of water respectively.

Formula used:

To find the maximum capacity of a small container that can measure the water of each big container an exact number of times, we need to find the Greatest Common Divisor (GCD) of the three numbers.

Calculation:

GCD of 204, 136, and 119:

Step-by-step GCD calculation:

First, find GCD of 204 and 136:

=> $204 = 2 \times 102$

=> $136 = 2 \times 68$

=> $GCD(204, 136) = 2 \times GCD(102, 68)$

=> $102 = 2 \times 51$

=> $68 = 2 \times 34$

=> $GCD(102, 68) = 2 \times GCD(51, 34)$

=> $51 = 3 \times 17$

=> $34 = 2 \times 17$

=> $GCD(51, 34) = 17$

=> $GCD(102, 68) = 2 \times 17 = 34$

=> $GCD(204, 136) = 2 \times 34 = 68$

Next, find GCD of 68 and 119:

=> $68 = 2 \times 34$

=> 119 is a prime number

=> GCD(68, 119):

=> $119 = 1 \times 119$

=> $68 = 2 \times 34$

=> No common factors other than 1

=> GCD(68, 119) = 1

Therefore, the GCD of 204, 136, and 119 is:

=> GCD(204, 136, 119) = 1

=> The correct answer is option 1 (17 litres).

Alternate Method

The maximum capacity of a small container that can measure the water of each big container an exact number of times

= HCF of (204/ 136, 119)

HCF = 17

Therefore The correct answer is 17.

Q47. Answer: (d) 8

Given:

$\sqrt{(3^n)} = \sqrt{6561}$

We need to find the value of n.

Calculations:

First, simplify the right-hand side:

$\sqrt{6561} = 81$ (since $81 \times 81 = 6561$)

So the equation becomes:

$\sqrt{(3^n)} = 81$

Now simplify the left-hand side:

$\sqrt{(3^n)} = 81$

Next, square both sides to remove the square root:

$3^n = (81)^2$

$= 3^n = (3^4)^2 = 3^8$

The value of n = 8.

Q48. Answer: (a) The Department of Public Enterprises

The correct answer is The Department of Public Enterprises

Key Points

• The Department of Public Enterprises (DPE) under the Ministry of Finance grants the status of Maharatna, Navratna, and Miniratna to Central Public Sector Enterprises (CPSEs)

• The DPE plays a key role in developing policies and guidelines for the performance and functioning of public sector enterprises in India

• To be eligible for Miniratna category I status, a CPSE must meet the following criteria:

• Have made profits continuously for three years

• Have a pre-tax profit of at least Rs. 30 crores in at least one of the three years

• Have a positive net worth

• This categorization allows CPSEs to enjoy greater autonomy and authority in financial and operational matters, supporting their growth and competitiveness.

Additional Information

• The Ministry of Home Affairs

• The Ministry of Home Affairs (MHA) primarily focuses on maintaining internal security, law and order, and administering Union Territories.

• It also coordinates between various state governments on national security issues but has no role in conferring the Maharatna, Navratna, or Miniratna status to CPSEs, as these statuses are economic and administrative designations rather than security-related.

• The Ministry of Commerce and Industry

• The Ministry of Commerce and Industry promotes trade, industry, and exports to drive economic growth and development.

• It focuses on policies related to foreign trade, foreign direct investment (FDI), and industrial regulation.

• The Department of Private Enterprises

• There is no Department of Private Enterprises within the Government of India.

Q49. Answer: (b) 381918

The logic followed here is: Letters are coded by their place value.

BOOK is written as 2151511.

BOOK => 2151511

Similarly, CHAIR will be written:

CHAIR => 381918

Hence, the correct answer is "381918".

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Q50. Answer: (a) 12

The number of triangles in the triangle in the given figure is shown below:

Total triangles = Number of parts × Number of diagonals

= 6 × 2 => 12

Hence, "Option 1" is the correct answer.

Q51. Answer: (b) 20 m

Given:

P can run 300 m in 20 s

Q can run 300 m in 30 s

Both start the race at the same time

Time elapsed = 4 s

Formula used:

Speed = Distance / Time

Distance = Speed × Time

Calculation:

Speed of P = 300 m / 20 s

=> Speed of P = 15 m/s

Speed of Q = 300 m / 30 s

=> Speed of Q = 10 m/s

Distance covered by P in 4 s = 15 m/s × 4 s

=> Distance covered by P in 4 s = 60 m

Distance covered by Q in 4 s = 10 m/s × 4 s

=> Distance covered by Q in 4 s = 40 m

Distance by which P is ahead of Q = Distance covered by P - Distance covered by Q

=> Distance by which P is ahead of Q = 60 m - 40 m

=> Distance by which P is ahead of Q = 20 m

Therefore The correct answer is option 2.

Q52. Answer: (c) Sea

The logic followed here is:

Logic: Association with natural habitat or environment.

Here,

Bird : Sky → Bird is commonly found or associated with the Sky.

Similarly,

Ship : Sea → Ship is commonly found or associated with the Sea.

Hence, the correct answer is "Option 3".

Q53. Answer: (d) 8

The correct answer is 8

Key Points

• The Indian Government has introduced a "Green tax" to promote cleaner and more environmentally friendly vehicles.

• This tax is levied on older vehicles to discourage their use and encourage owners to switch to newer, less polluting models.

• Commercial vehicles: Vehicles older than 8 years will be charged a Green tax at the time of renewal of their fitness certificate.

• The tax rate will be between 10% to 25% of the road tax.

• Personal vehicles: Vehicles older than 15 years will be charged a Green tax at the time of renewal of their registration certificate.

• Public transport vehicles: These vehicles will be charged a lower Green tax compared to private vehicles.

• Vehicles in polluted cities: Vehicles registered in highly polluted cities will be charged a higher Green tax (up to 50% of the road tax).

• Exemptions: Hybrid, electric, and vehicles using alternative fuels like CNG, ethanol, and LPG will be exempted from the Green tax.

• The Green tax is being implemented by state governments.

• The exact rates and specific details may vary from state to state.

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Additional Information

• Purpose of the Green tax:

• Reduce pollution:

• Older vehicles tend to emit more pollutants, contributing to air pollution and climate change.

• The Green tax aims to reduce this pollution by incentivizing the use of newer, cleaner vehicles.

• Promote cleaner technology:

• By making older vehicles more expensive to own and operate, the Green tax encourages people to switch to newer, more fuel-efficient and environmentally friendly vehicles.

• Generate revenue:

• The revenue collected from the Green tax will be used to fund initiatives aimed at improving air quality and promoting sustainable transportation.

Q54. Answer: (c) Transistors

The correct answer is Transistors

Key Points

• The second-generation computers were based on transistors.

• This marked a significant improvement over the first generation, which used vacuum tubes.

• Transistors were smaller, more reliable, and consumed less power than vacuum tubes, leading to smaller, faster, and more energy-efficient computers.

• These semiconductor devices were used to amplify or switch electrical signals and power.

• They were a key component in the development of second-generation computers, which were also solid-state in design.

• Second-generation computers were smaller and faster than first-generation computers.

• Second-generation computers contain many of the same components as modern computers, including printers, disk storage, memory, and operating systems.

• Some examples of second-generation computers include the UNIVAC 1108, CDC 1604, Honeywell 400, and CDC 3600

Additional Information

• Silicon chips: Silicon chips, also known as integrated circuits, were introduced in the third generation of computers.

• They allowed for further miniaturization and increased computing power.

• Vacuum tubes: Vacuum tubes were used in the first generation of computers. They were bulky, unreliable, and generated a lot of heat.

• Bio optics: Bio optics is a relatively new technology that is still being developed. It has the potential to revolutionize computing, but it is not yet ready for widespread use.

Q55. Answer: (c) DD Science is a one-hour slot on Doordarshan National channel while India Science is an internet based scie...

The correct answer is Option 3

Key Points

• DD Science is a television channel that broadcasts on the Doordarshan National channel for one hour every day. It features a variety of science-related content, including documentaries, discussions, and interviews.

• India Science is an online science channel that is available 24/7 on the internet. It offers a wider range of content than DD Science, including live streams, scheduled programs, and video-on-demand content.

• Both channels are free to access and aim to promote scientific literacy and awareness among the Indian public.

By launching these two channels, the Indian government aims to create a more science-literate society and to encourage young people to pursue careers in science and technology.

Q56. Answer: (a) 6

The logic followed here is:

Column wise Operation: 1st number × 2nd number × 3rd number = 4th number.

Column 1) 5 × 7 × 4 = 140

Column 2) 7 × 6 × 5 = 210

Column 3) 8 × 2 × 4 = 64

Similarly, Column 4) 9 × 5 × ? = 270

? = 270 / 45 = 6.

Hence, the correct answer is "6".

Q57. Answer: (a) Balwant Moreshwar Purandare

The correct answer is Balwant Moreshwar Purandare

Key Points

• Balwant Moreshwar Purandare, also known as Babasaheb Purandare, was awarded the Padma Vibhushan in 2019 for his contributions in the field of art-acting-theatre.

• He is known for his books such as Raja Shiv Chhatrapati, Purandaryanchi Daulat, Purandaryanchi Naubat, and Gadsanch.

• The Padma Vibhushan is the second-highest civilian award in India.

• It is awarded to people who have made distinguished service to the country.

Additional Information

• Atul Punj:

• Atul Punj is a well-known Indian businessman and entrepreneur, primarily associated with the construction and engineering sector.

• He is the founder and former Chairman and Managing Director of Punj Lloyd Group, a multinational conglomerate involved in various sectors like infrastructure, energy, and defense.

• Anil Kumar Manibhai Naik:

• Anil Naik is the Chairman of Larsen & Toubro (L&T), one of India's largest engineering and construction conglomerates.

• He has played a significant role in India's infrastructure development, leading L&T to execute numerous large-scale projects across the country and internationally.

• Grandhi Mallikarjuna Rao:

• Grandhi Mallikarjuna Rao is a prominent Indian politician and former Union Minister.

• He is associated with the Indian National Congress party and has held various important positions in the government of Andhra Pradesh.

Q58. Answer: (a) 0.4225

Given:

√{x} ÷ √{169} = 0.05

Formula Used:

√{a} ÷ √{b} = √{a/b}

Calculation:

√x ÷ √{169} = 0.05

=> √x/169 } = 0.05

=> √x/13 = 0.05

=> √x = 0.05 × 13

=> √x = 0.65

=> $x = 0.65^2$

=> x = 0.4225

The value of x is 0.4225.

Q59. Answer: (b) corona

The correct answer is corona

Key Points

• The outermost layer of the Sun is called the corona. It's the Sun's halo or "crown" and is the outermost part of its atmosphere.

• Some other layers of the Sun:

• Photosphere: The visible surface of the Sun

• Chromosphere: An irregular layer above the photosphere where the temperature rises from 6,000°C to about 20,000°C

• Transition region: A thin and irregular layer that separates the corona from the chromosphere

• The corona is usually hidden by the Sun's surface, making it difficult to see without special instruments.

• However, it can be viewed during a total solar eclipse as a white glowing corona.

• The corona has a temperature of 2 to 5 million degrees Celsius, which is much hotter than the photosphere.

• It extends millions of kilometers into space

Q60. Answer: (c) National Institute of Technology, Tiruchirappalli

The correct answer is the National Institute of Technology, Tiruchirappalli

Key Points

• ISRO established its third Space Technology Incubation Centre (S-TIC) at NIT-Tiruchirappalli in 2019.

• This initiative aims to foster innovation and entrepreneurship in the field of space technology by providing a platform for students and researchers to develop and commercialize their ideas.

• The third S-TIC was established at the National Institute of Technology, Tiruchirappalli (NIT-T).

• The primary goals of S-TICs are:

• Encouraging Startups: To provide a platform for students, researchers, and entrepreneurs to develop innovative space technology-based products and services.

• Industry-Academia Collaboration: To bridge the gap between academia and industry by facilitating partnerships and collaborations.

• Skill Development: To train and equip the next generation of space technologists and entrepreneurs.

• Regional Development: To promote regional innovation and development in the field of space technology.

• By setting up S-TICs, ISRO aims to create a vibrant ecosystem for space technology innovation in India, leading to the development of new technologies and applications that can benefit society.

Additional Information

• NIT Calicut, NIT Andhra Pradesh, and NIT Karnataka are also prestigious institutions with potential for space technology research and development.

• However, as of now, they do not have dedicated S-TICs.

Q61. Answer: (d) 120 cm²

Given:

Side of the rhombus (a) = 13 cm

One diagonal (d1) = 24 cm

Formula used:

In a rhombus, the diagonals bisect each other at right angles. Let d2 be the other diagonal.

Using Pythagoras theorem in one of the right triangles formed by the diagonals:

$a^2 = (d1/2)^2 + (d2/2)^2$

Area of rhombus = (1/2) × d1 × d2

Calculation:

$13^2 = (24/2)^2 + (d2/2)^2$

$\Rightarrow 169 = 12^2 + (d2/2)^2$

$\Rightarrow 169 = 144 + (d2/2)^2$

$\Rightarrow 169 - 144 = (d2/2)^2$

$\Rightarrow 25 = (d2/2)^2$

$\Rightarrow d2/2 = 5$

$\Rightarrow d2 = 10$

Area = (1/2) × 24 × 10

$\Rightarrow$ Area = 120 cm²

Therefore The correct answer is option (4).

Q62. Answer: (c) X = 3, Z = 1

Given:

We need to solve the equation:

7X2 + 9Y3 + Z35 = 1770

We are tasked with finding the values of X, Y, and Z.

Calculations:

Adding all three terms and equating with 1770, we get,

2 + 3 + 5 = 10

X + Y + 3 = 6

X + Y = 3

For the highest value of X

X = 3 and Y = 0

7 + 9 + Z = 16

Z = 1

Therefore The correct answer is option 3.

Q63. Answer: (c) Adder

The correct answer Adder

Key Points

• An adder is a digital circuit that performs the addition of numbers.

• It is a processing unit, not a storage unit.

• It's a fundamental building block in computer systems, particularly within the Arithmetic Logic Unit (ALU) of a processor.

• While adders are crucial for performing calculations, they are not designed to store data.

• Their primary function is to process information, not retain it.

Additional Information

• Register: A small, high-speed storage location within a processor that holds data temporarily.

• Flip-Flop: A digital circuit that can store a single bit of information. It has two stable states, typically labeled 0 and 1.

• Latch: Similar to a flip-flop, a latch is a digital circuit that can store a single bit of information. However, latches are less sensitive to timing signals and are often used in asynchronous circuits.

Q64. Answer: (c) 16

The correct answer is 16

Key Points

• The FDI Confidence Index prepared by A.T. Kearney is an annual survey that tracks the impact of probable political, economic, and regulatory changes on the intents and preferences of CEOs, CFOs, and other top executives of Global 1000 businesses with regard to foreign direct investment.

• The FDI confidence index is calculated as a weighted average of the number of low, medium,

• and high responses to questions regarding the likelihood of making a direct investment in the market over the next three years

• India is ranked 16th in the FDI Confidence Index 2019, compared to 11th in 2018.

• It slipped down 4 positions from the 2018 ranking.

• It was ranked 9th in 2016 and 8th in 2017 and 11th in 2018.

• The challenges faced in the implementation of the Goods and Services Tax.

Q65. Answer: (d) Kaveri

The correct answer is Kaveri

Key Points

• The Kaveri River flows into the Bay of Bengal:

• Kaveri: Flows into the Bay of Bengal in the south of Cuddalore, Tamil Nadu

• Other rivers that flow into the Bay of Bengal: The Mahanadi, Godavari, Krishna, Ganga, and Brahmaputra also flow into the Bay of Bengal

Additional InformationBay of Bengal

• The northeastern part of the Indian Ocean.

• Bounded on the west and northwest by India, on the north by Bangladesh, and on the east by Myanmar and the Andaman and Nicobar Islands of India.

• Maximum Length: 2090km.

Himalayan Rivers

• The rivers that originate from the Himalayan mountain ranges.

• These rivers are snow fed.

• They receive water from the melting ice of the glaciers as well as from the rains.

• The three main Himalayan Rivers are the Ganga, the Indus and the Brahmaputra.

• Narmada and Tapi: These rivers flow west, while the rivers that flow into the Bay of Bengal flow east

• The Andaman and Nicobar groups of islands separate the Bay of Bengal from the Andaman Sea

Q66. Answer: (b) Andaman and Nicobar islands

The correct answer is Andaman and Nicobar Islands

Key Points

• The salt-water crocodile is the largest living reptile on Earth and is known for its aggressive nature.

• It is a saltwater-tolerant species that can inhabit coastal brackish mangrove swamps, river deltas, and freshwater rivers.

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• The Andaman and Nicobar Islands provide a suitable habitat for these crocodiles, with their warm climate, abundant water bodies, and diverse ecosystems.

• The islands' remote location and relatively undisturbed natural environment have contributed to the survival of these apex predators.

• It's important to note that while the saltwater crocodile is a magnificent creature, it is also dangerous.

• Visitors to the Andaman and Nicobar Islands should always exercise caution and follow safety guidelines when in areas where these crocodiles may be present.

Q67. Answer: (a) The President of India

The correct answer is The President of India

Key Points

• The President of India has the power to declare a state emergency under Article 356 of the Indian Constitution.

• This can happen if the President is satisfied that a situation has arisen in which the government of a state cannot be carried on in accordance with the provisions of the Constitution.

Additional Information

• The Chief Justice of the High Court

• The Chief Justice of a High Court does not have the power to declare a state emergency.

• Their primary role is to head the judiciary in a particular state and ensure the administration of justice.

• The Governor of the state

• While the Governor of a state plays a significant role in the state government, they do not have the power to declare a state emergency.

• Their role is primarily ceremonial and administrative, and they act on the advice of the Council of Ministers.

• The Attorney General of India

• The Attorney General of India is the chief legal advisor to the Government of India.

• They do not have the power to declare a state emergency.

• Their role is to represent the Government of India in legal matters and to give legal advice to the government.

Q68. Answer: (d) 12 6/7

Given:

A person covers a distance of 8 km in 56 minutes. If he covers half of the distance in two-third of the total time, then what should his speed (in km/h) be to cover the remaining distance in the remaining time?

Formula used:

Speed = Distance / Time

Calculations:

Total distance = 8 km

Total time = 56 minutes = 56/60 hours = 14/15 hours

Distance covered in two-third of the time = 8/2 = 4 km

Time taken for the first half = (2/3) × (14/15) hours = 28/45 hours

Remaining distance = 4 km

Remaining time = (1/3) × (14/15) hours = 14/45 hours

Speed required to cover the remaining distance:

=> Speed = Distance / Time

=> Speed = 4 km / (14/45) hours

=> Speed = 4 × (45/14) km/h

=> Speed = 180/14 km/h

=> Speed = 12(6/7) km/h

Therefore The correct answer is option (4).

Q69. Answer: (d) Sodium, hydrogen, carbon and oxygen

The correct answer is Sodium, hydrogen, carbon and oxygen

Key Points

• The elements present in baking powder are sodium, hydrogen, carbon, and oxygen.

• The chemical formula for baking powder is NaHCO3, and its chemical name is sodium bicarbonate or sodium hydrogen carbonate

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• Baking powder is a mixture of baking soda, cream of tartar, and sometimes cornstarch.
• It's a dry chemical leavening agent that's used to make baked goods lighter and increase their volume.
• Baking powder works by releasing carbon dioxide gas into the batter or dough, which causes the bubbles to expand.
• Baking powder is considered non-toxic for cooking and baking.
• It's often used instead of yeast when fermentation flavors aren't desired, or when the batter doesn't have enough structure to hold gas bubbles.

Q70. Answer: (d) Conclusion 1 follows, but conclusion 2 does not.

Given,

Statement:

India's GDP has increased in the modern era.

Conclusions:

I. There has been an increase in economic activity in the country - True (Because, an increase in GDP generally indicates that there has been an increase in economic activity).

II. The government does not play an important role in the economic activity taking place in the country - False (Because, the statement does not provide any information regarding the role of the government in the economic activity).

So, Only conclusion I follows.

Hence, the correct answer is "Option 4".

Q71. Answer: (c) 140

Given:

$(a^2 - 1)/a = 5$

We need to find the value of $(a^6 - 1)/(a^3)$.

Formula Used:

$(a - b)^3 = a^3 - b^3 - 3ab(a - b)$

Calculation:

We need to find the value of,

$(a^6 - 1)/(a^3) = a^3 - (1/a^3)$

Using, $(a^2 - 1)/a = 5$

$\Rightarrow a - 1/a = 5$

Taking the cube on both sides,

$\Rightarrow (a - 1/a)^3 = 5^3$

$\Rightarrow a^3 - (1/a)^3 - 3(a - 1/a) = 125$

$\Rightarrow a^3 - (1/a)^3 = 125 + 3 \times 5$

$\Rightarrow a^3 - (1/a^3) = 140$

Therefore The correct answer is 140.

Q72. Answer: (c) B, D, C, A

The correct answer is B, D, C, A

Key Points

• The correct chronology of these rulers is Mahmud of Ghazni, Muhammad Ghori, Genghis Khan, and Timur:
• Mahmud of Ghazni
• The ruler of the Ghaznavid Empire from 997–1030, Mahmud of Ghazni was the first ruler to use the title Sultan.
• He led several raids into India and established Muslim rule over a large part of the Indian subcontinent.
• Muhammad Ghori
• The ruler of the Ghurid dynasty in Afghanistan and India, Muhammad Ghori established Muslim rule in Delhi after defeating Prithviraj Chauhan in the Second Battle of Tarain
• Genghis Khan
• The founder and first emperor of the Mongol Empire, Genghis Khan's empire controlled much of Asia and Europe at its height.
• The Mongols under Genghis Khan invaded Transoxiana in 1219 and soon after attacked the Delhi Sultanate
• Timur
• Also known as Tamerlane, Timur was a Turkic-Mongol conqueror who founded the Timurid Empire in Persia and Central Asia

Q73. Answer: (c) Beat Plastic Pollution

The correct answer is Beat Plastic Pollution

Key Points

• The theme for the 2018 World Environment Day was "Beat Plastic Pollution". India hosted the event on June 5, 2018.

• The theme called for governments, businesses, communities, and individuals to:

• Reduce the production and use of single-use plastic

• Explore sustainable alternatives

• Raise awareness of the threat plastic pollution poses to human health and marine life

• The United Nations has celebrated World Environment Day since 1974 to encourage global action and awareness to protect the environment.

Additional Information

• The United Nations Environment Programme (UNEP) is the leading global environmental authority that sets the global environmental agenda, promotes the coherent implementation of the environmental dimension of sustainable development within the United Nations system, and serves as an authoritative advocate for the global environment.

• In 2019, China was the global host of World Environment Day celebrations on the theme of Air Pollution.

• The theme of the 2021 year's World Environment Day is Ecosystem Restoration. Pakistan will act as the global host of the day.

• World Environment Day 2021 will see the launch of the UN Decade on Ecosystem Restoration.

Q74. Answer: (a) bacteria

The correct answer is bacteria

Key Points

• Tuberculosis (TB) is caused by bacteria called Mycobacterium tuberculosis.

• When a person with active TB coughs, sneezes, or speaks, they expel tiny droplets containing the bacteria into the air.

• Another person can inhale these droplets and become infected.

• It's important to note that not everyone infected with TB bacteria becomes sick.

• The body's immune system often fights off the bacteria, preventing the disease from developing.

• However, in some cases, the bacteria can remain dormant in the body for many years and reactivate later, leading to active TB disease.

Additional Information

• Viruses: These are microscopic organisms that can cause a variety of illnesses, such as the common cold, flu, and HIV.

• Protozoans: These are single-celled organisms that can cause diseases like malaria and amoebic dysentery.

• Fungi: These organisms can cause fungal infections like athlete's foot and ringworm.

Q75. Answer: (d) Shudraka

The correct answer is Shudraka.

Key Points

• Mrcchakatika is a Sanskrit drama written by Shudraka.

• Mrcchakatika is written in Sanskrit in the 2nd century BCE.

• It is is a love story of a worthy Brahmana Charudatta and a courtesan Vasantasena.

• No historical records mention a king by the name Shudraka.

• Other notable works of Shudraka are:

• Vinavasavadatta.

• Bhana.

• Padmaprabhritaka.

Additional Information

• Chanakya

• Known as the mastermind behind the rise of the Maurya Empire under Chandragupta Maurya.

• His treatise, Arthashastra, is a comprehensive guide to statecraft, economics, and military strategy.

• Kalidasa

• Regarded as one of the greatest Sanskrit poets and dramatists.

• His works, including "Shakuntala", "Abhijnana Shakuntalam", and "Meghduta", are celebrated for their poetic beauty and deep understanding of human emotions.

• Shri Harsha

• Known for his contributions to Indian philosophy, particularly Advaita Vedanta.
• This philosophical work critiques the epistemology of the Nyaya school and rational inquiry in general.

Q76. Answer: (d) 1620^0

Given:
The sum of the interior angles of a polygon of 11 sides
Formula used:
Sum of interior angles = (n - 2) × 180°
Where n = number of sides
Calculation:
n = 11
=> Sum of interior angles = (11 - 2) × 180°
=> Sum of interior angles = 9 × 180°
=> Sum of interior angles = 1620°
Therefore The correct answer is option 4.

Q77. Answer: (d) U

The logic followed here is:
C, F, I, L, O, R, ?
C + 3 = F,
F + 3 = I,
I + 3 = L,
L + 3 = O,
O + 3 = R,
R + 3 = U
Hence, the correct answer is "U".

Q78. Answer: (c) √74

Given:
First number = 8 + 3√(3)
Second number = 16 - 6√(3)
Formula Used:
The mean proportional between a and b is given by √(a × b)
Calculation:
a = 8 + 3√(3)
b = 16 - 6√(3)
Product of a and b: (8 + 3√(3)) × (16 - 6√(3))
Using distributive property:
(8 × 16) + (8 × -6√(3)) + (3√(3) × 16) + (3√(3) × -6√(3))
=> 128 - 48√(3) + 48√(3) - 54
=> 128 - 54
=> 74
Mean proportional is √(74)
The correct answer is option 3: √(74)

Q79. Answer: (a) 43 1/5

Given:
3 men and 6 women can finish a task in 12 days
5 men and 4 women can finish it in 8 days
Formula used:
Let 1 man's 1 day work = M
Let 1 woman's 1 day work = W
3M + 6W = 1/12

5M + 4W = 1/8
Calculations:
3M + 6W = 1/12
=> M + 2W = 1/36 (Dividing by 3)
5M + 4W = 1/8
=> 5M + 4W = 1/8
Now, solve the equations:
M + 2W = 1/36
5M + 4W = 1/8
Multiply the first equation by 2:
2M + 4W = 1/18
Now subtract the equations:
(5M + 4W) - (2M + 4W) = (1/8) - (1/18)
=> 3M = 5/72
=> M = 5/216
1 man's 1 day work = 5/216
=> 1 man alone can finish the task in 216/5 days
=> 1 man alone can finish the task in $43^{1}/5$ days
Therefore The correct answer is option (1).

Q80. Answer: (b) 7/666

Given:
0.077077... ÷ 7.3333...
Formula Used:
Division of repeating decimals:
Convert repeating decimals to fractions.
Calculation:
Let x = 0.077077...
$10^{3}x$ = 77.077077...
=> 1000x = 77 + x
=> 999x = 77
=> x = 77/999
=> x = 7/9
Let y = 7. 3333...
$10^{2}y$ = 733. 3333...
=> 100y = 733 + y
=> 99y = 726
=> y = 726/99
=> y = 22/3
0.077077... ÷ 7.3333...
=> (7/999) ÷ (22/3)
=> (7/999) × (3/22)
=> (7 × 3) / (999 × 22)
=> 21 / 21978
=> 7 / 666
The correct answer is option 2.

Q81. Answer: (c) Eagle-Aeroplane

The logic followed here is:

Music	Musician
Paper	Pen

Eagle	Aeroplane
Newspaper	Editor

Music, Newspaper, and Paper all have a direct association with the second word in their pairs, indicating a creator or user,

Whereas,

Eagle and Aeroplane are not directly related in such a manner..

Hence, the correct answer is "Eagle-Aeroplane".

Q82. Answer: (c) Yuvraj Singh

The correct answer is Yuvraj Singh

Key Points

• Yuvraj Singh was a prominent Indian cricketer who played a crucial role in India's 2011 World Cup victory.

• However, he was not selected for the 2019 World Cup squad.

• The Indian team for the 2019 World Cup was selected based on various factors such as recent form, fitness, and team balance.

• While Yuvraj Singh had made significant contributions to Indian cricket, the selectors opted for other players who were deemed more suitable for the specific conditions and requirements of the tournament.

Additional Information

• Vijay Shankar:

• An all-rounder who could contribute with both bat and ball.

• Known for his ability to play aggressive shots and bowl tight lines.

• Played a crucial role in India's campaign in the 2019 World Cup.

• Kuldeep Yadav:

• A left-arm wrist-spin bowler who was a key member of India's spin attack.

• Known for his ability to deceive batsmen with his variations.

• Played a crucial role in India's victories in the 2019 World Cup.

• Kedar Jadhav:

• An all-rounder who could bat in the middle order and bowl off-spin.

• Known for his ability to hit big sixes.

• Played a crucial role in India's campaign in the 2019 World Cup.

Q83. Answer: (c) 53 1/3 %

Given:

The man purchased an item at 3/4 of its marked price and sold it at 15% more than its marked price. We need to find the gain percentage.

Let:

Marked Price (MP) = Rs. 100 (for simplicity)

Purchase Price (PP) = 3/4 of MP = Rs. 100 × (3/4) = Rs. 75

Selling Price (SP) = 115% of MP = Rs. 100 × (115/100) = Rs. 115

Formula used:

Gain Percentage = ((Selling Price - Purchase Price) ÷ Purchase Price) × 100

Calculations:

Gain = SP - PP = Rs. 115 - Rs. 75 = Rs. 40

Gain Percentage = (Rs. 40 ÷ Rs. 75) × 100

=> Gain Percentage = 53.33%

Therefore The man's gain percentage is 53 1/3 %.

Q84. Answer: (c) Red Data Book

The correct answer is Red Data Book

Key Points

• The Botanical Survey of India (BSI) publishes an inventory of endangered plants in the form of a publication titled the Red Data Book.

• The Red Data Book is a publication that lists endangered and threatened species of plants and animals in a region.

• The Red Data Book is created by the International Union for Conservation of Nature (IUCN).

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• It's a comprehensive inventory of the global conservation status of plant and animal species.

• The book contains color-coded information sheets that are arranged according to the extinction risk of species and subspecies.

• For example, red sheets contain information about endangered species, black sheets contain information about species that are confirmed to be extinct, and white sheets contain information about rare species.

• The Red Data Book is beneficial for providing detailed information for studies and researches.

• It also helps in monitoring programs on rare and endangered species, and in protecting the species that are on the verge of extinction.

Additional Information

• Green Data Book

• A small-sized book providing complete information related to environmental data.

• It focuses on key indicators like agriculture, biodiversity, forestry, pollution, and sanitation.

• Blue Data Book

• It provides additional information on the ecology, conservation, and advancement of species.

• It is often used to monitor the recovery of species that were once endangered or threatened.

• Black Data Book

• It lists species that are confirmed to be extinct.

• It serves as a record of species loss and highlights the importance of conservation efforts.

Q85. Answer: (c) 400%

Given:

If A is 125% of B, then B is what percentage of (A - B)?

Formula used:

A = 1.25B

Calculation:

Let A = 1.25B

A - B = 1.25B - B

=> A - B = 0.25B

We need to find B as a percentage of (A - B)

B / (A - B) × 100 = B / 0.25B × 100

=> (1 / 0.25) × 100

=> 4 × 100

=> 400%

Therefore The correct answer is option (3).

Q86. Answer: (b) B and E

Given:

The table shows voting percentages in 2014 and 2019 for five different states (A, B, C, D, E).

We need to identify the two states with the highest percentage of voting in 2019.

Formula used:

We compare the voting percentages for all states in 2019 and find the highest two.

Calculations:

From the table:

State A voting % in 2019 = 68.50%

State B voting % in 2019 = 70.33%

State C voting % in 2019 = 62.65%

State D voting % in 2019 = 57.45%

State E voting % in 2019 = 78.90%

=> The two states with the highest voting percentages are State E (78.90%) and State B (70.33%).

Therefore The two states with the highest percentage of voting in 2019 are State E and State B.

Q87. Answer: (a) C

Given:

The table shows voting percentages in 2014 and 2019 for five different states (A, B, C, D, E).

We need to find which state has the second-highest average voting percentage over the years 2014 and 2019.
Formula used:
Average voting percentage = (Voting percentage in 2014 + Voting percentage in 2019) ÷ 2
Calculations:
For State A: (65.55 + 68.50) ÷ 2 = 67.03%
For State B: (67.50 + 70.33) ÷ 2 = 68.92%
For State C: (75.80 + 62.65) ÷ 2 = 69.23%
For State D: (55.75 + 57.45) ÷ 2 = 56.60%
For State E: (70.24 + 78.90) ÷ 2 = 74.57%
The highest average is for State E (74.57%), and the second-highest average is for State C (69.23%).
Therefore The state with the second-highest voting percentage on average is State C.

Q88. Answer: (c) D

Given:
The table shows voting percentages in 2014 and 2019 for five different states (A, B, C, D, E).
We need to find which state has the lowest average voting percentage over the years 2014 and 2019.
Formula used:
Average voting percentage = (Voting percentage in 2014 + Voting percentage in 2019) ÷ 2
Calculations:
For State A: (65.55 + 68.50) ÷ 2 = 67.03%
For State B: (67.50 + 70.33) ÷ 2 = 68.92%
For State C: (75.80 + 62.65) ÷ 2 = 69.23%
For State D: (55.75 + 57.45) ÷ 2 = 56.60%
For State E: (70.24 + 78.90) ÷ 2 = 74.57%
The lowest average is for State D (56.60%).
Therefore The state with the lowest voting percentage on average is State D.

Q89. Answer: (b) Code 3

The logic followed here is:
Code 1: Each letter + 2;
Code 2: Each letter - 2;
Code 3: Letters are opposite to each other.
Code 4: Letter +1, +2, +3, +4, +5, +6, +7
The word RAILWAY has been coded using 4 different codes.
Code 1: TCKNYCA
Code 2: PYGJUYW
Code 3: IZRODZB
Code 4: SCLPBGF
Similarly, ? codes is used to write the word BERTH as YVIGS.
• B <=> Y; E <=> V; R <=> I; T <=> G; H <=> S
Letters are opposite to each other this pattern is used in Code 3.
Hence, the correct answer is "Code 3".

Q90. Answer: (c) 6.5 km

Given:-
The distances given are:
• Home to village A: 5.5 km
• Village A to village B: 4.5 km
• Village B to the market: 3.5 km
• Market to home: 3 km
We want the shortest distance between the seller's home and village B.
1. Route via village A:
• Home to village A: 5.5 km

• Village A to village B: 4.5 km
• Total distance via village A: 5.5 km + 4.5 km = 10 km]
2. Route via market:
• Home to market: 3 km
• Market to village B: 3.5 km
• Total distance via the market: 3 km + 3.5 km = 6.5 km
Thus, the shortest distance between the seller's home and village B, following the route via the market, is 6.5 km.
Hence, the correct answer is "Option 3".

Q91. Answer: (c) E

The logic followed here is: Sum of place value of letters in a row = 26
Hence, the correct answer is "E".

Q92. Answer: (d) Between E and B

Given: Five friends A, B, C, D and E are sitting in the canteen at a round table.
The sitting sequence from right to left is B, A, E, D, and C.
After some time, E changes place with B and A changes with D.
We get new arrangement:
Thus, now D is sitting between E and B.
Hence, the correct answer is "Between E and B".

Q93. Answer: (b) 39

The logic followed here is: Sum of place value of letters in the word - 1 = Number code.
'NATION' is written as '72',
(14 + 1 + 20 + 9 + 15 + 14) - 1 = 73 - 1 = 72
'NATURE' is written as '78'.
(14 + 1 + 20 + 21 + 18 + 5) - 1 = 79 - 1 = 78
Similarly, the code for 'PACKED'
(16 + 1 + 3 + 11 + 5 + 4) - 1 = 40 - 1 = 39.
Hence, the correct answer is "39".

Q94. Answer: (b) RSU

The logic followed here is: 1st letter + 2 = 2nd letter and 2nd letter + 2 = 3rd letter.
Option 1) KMO => K + 2 = M; M + 2 = O
Option 2) RSU => R + 1 = S; S + 2 = U
Option 3) NPR => N + 2 = P; P + 2 = R
Option 4) CEG => C + 2 = E; E + 2 = G
Hence, the correct answer is "RSU".

Q95. Answer: (c) ZXIZRIXQLO

The logic followed here is:
ARMY is written as XOJV.
Similarly, CALCULATOR will be written:
Hence, the correct answer is "ZXIZRIXQLO".

Q96. Answer: (d) 2312038

The logic followed here is: Letters are coded by its place value.
CALENDER is written as 31125144518.
CALENDER => 31125144518
Similarly, WATCH will be written:
WATCH => 2312038
Hence, the correct answer is "2312038".

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Q97. Answer: (d) 47.5

The logic followed here is:

Hence, the correct answer is "47.5".

Q98. Answer: (d) Inspector

The logic followed here is:

Doctor	Medical professional
Advocate	Legal professional
Teacher	Educational professional
Inspector	Law enforcement professional

Doctor, Advocate, Teacher are all professionals who typically work in their respective institutions (hospitals, courts, schools), Whereas,

Inspector is primarily a law enforcement official who often works in the field rather than in a specific institution like the others.

Hence, the correct answer is "Inspector".

Q99. Answer: (d) ZOOKD

The logic followed here is:

MANGO is written as LZMFN.

Similarly, APPLE will be written:

Hence, the correct answer is "ZOOKD".

Q100. Answer: (a) D and E

Given: Seven girls A, B, C, D, E, F and G.

1) C is to the immediate right of D.

2) D is at third position from the left end.

3) A is at the one of the end and the neighbour of E.

4) Only B is sitting between E and C.

Final arrangement:

Thus, D and E girls are NOT sitting next to each other.

Hence, the correct answer is "D and E".

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