RRB NTPC CBT 2 (Level-2) Official Paper (Held On: 16 June 2022 Shift 1) (Previous Year Paper)

RRB NTPC • 2022 • 120 questions • 90 minutes • Answer key and solutions

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FULL TEST

Q1. The value of the expression 432/3 ÷ [35 + 3/4of24 + (42 ÷ 7 - 51/3)] is

(a) 121/161
(b) 91/161
(c) 131/161
(d) 109/161

Q2. When the speed of a car is increased by 30%, it takes 24 minutes less to cover the same distance. What is the time taken by it to cover the same distance at its usual speed?

(a) 1 hour 50 minutes
(b) 1 hour 44 minutes
(c) 1 hour 55 minutes
(d) 1 hour 40 minutes

Q3. To join in a bank, there are few selection criteria. Read the given conditions and select your answer for the following situation.

Conditions:

1. Candidate must be a graduate with 60% marks.
2. Candidate must secure minimum 70% marks in the selection test.
3. Candidate should have a certificate in computer fundamentals.

Special Exemptions:

1. In case the graduation is in B.Tech, the 3^(rd) condition can be waived off.
2. If the marks in selection test is less than 70% but more than 60%, and the graduation marks is more than 75%, the case will be referred to the GM for consideration.

Situation:

Vijay has applied for the post and secured 70% marks in the selection test. He has done B.Tech with 75% marks.

(a) His case will be referred to the GM.
(b) He will be selected.
(c) He will be rejected.
(d) Information is incomplete.

Q4. In November 2021, an overall cost of Rs. _____ was approved for the continuation of the umbrella scheme 'Ocean Services, Modelling, Application, Resources and Technology (O-SMART)' for the period 2021-26.

(a) Rs. 2,177 crores.
(b) Rs. 4,177 crores.
(c) Rs. 3,177 crores.
(d) Rs. 1,177 crores.

Q5. Water has the highest density at nearly _____ Kelvin.

(a) 0
(b) 227
(c) 277
(d) 273

Q6. The ratio of the radius of a sphere to the radius of a hemisphere is 4 : 5 respectively. The surface area of the sphere is what percentage more than the curved surface area of the hemisphere?

(a) 28%
(b) 27%
(c) 25%
(d) 26%

Q7. '#' means '>',
'$' means '≥',
'%' means '<', and
'@' means '≤'.
Assuming the following statements to be true, which of the conclusions given in the options is definitely true.
B $ D $ A
R % D % L @ J

(a) J % D
(b) B # L
(c) B $ J
(d) A % L

Q8. The percentage change in demand for a good, divided by the percentage change in its price is known as _____.

(a) price elasticity of demand
(b) production function
(c) price elasticity of supply
(d) perfect competition

Q9. A field is in the shape of a rhombus whose side is 122 m. The length of one of its diagonals is 240 m. What is the area (in m^2) of the field?

(a) 1320
(b) 1760
(c) 3080
(d) 5280

Q10. As per the India State of Forest Report (ISFR) 2021, which of the following is the state with the least forest cover with respect to the total geographical area in India?

(a) Haryana
(b) Telangana
(c) Sikkim
(d) Rajasthan

Q11. Which one of the following numbers is divisible by 24?

(a) 23152
(b) 42192
(c) 52182
(d) 32192

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Q12. A question is given, followed by two statements labelled I and II. Identify which of the statements is/are sufficient/necessary to answer the question.

Question:

What is the total of five natural even numbers?

Statements:

I. The second number is two times the first number.

II. All the five even numbers are consecutive even numbers in increasing order.

(a) Statement I alone is sufficient to answer the Question
(b) Both the Statements together are not sufficient to answer the Question
(c) Both the Statements together are necessary to answer the Question
(d) Statement II alone is sufficient to answer the Question

Q13. Identify which conclusion(s) is/are true based on the given statement.

Statement:

$Q \leq R = S > T < U \geq V$

Conclusions:

I. $V < T$

II. $S < Q$

(a) Neither I nor II is true
(b) Both I and II are true
(c) Only II is true
(d) Only I is true

Q14. The graphs of the equations $2x + 3y = 4$ and $3x - y + 5 = 0$, intersect at P (α, β). What is the value of $(3\alpha - 4\beta)$?

(a) 11
(b) -11
(c) -1
(d) 2

Q15. Who was the grandfather of King Ashoka?

(a) Dashratha
(b) Vitashoka
(c) Chandragupta Maurya
(d) Bindusara

Q16. Eight Friends are playing a game. K, L, M and N are sitting in a straight line and are facing North. O, P, Q and R are sitting on a parallel line and are facing South. Thus each of the persons sitting in a line, faces another person sitting in the parallel line. M faces a person who has two people sitting to his right. N is sitting between M and K. Q faces K. O is neither an immediate neighbour of P nor Q. Who amongst the following faces M?

(a) R
(b) O
(c) P
(d) Q

Q17. Black soil, found in the Deccan Traps is considered highly suitable for the cultivation of _____ crops.

(a) tea
(b) cotton
(c) wheat
(d) coffee

Q18. What is the compound interest (in Rs.) on a sum of Rs. 15600 at 20% p.a. for 21/4 years, the interest being compounded annually? [Give your answer correct to the nearest Rs.]

(a) 7993
(b) 7987

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(c) 7884
(d) 7895

Q19. Which of the alpha-numeric clusters given in the options is similar to the alpha-numeric clusters given below?

$E^{22}Q\text{^}(10)D^{23}$

R^9U^6B^(25)

(a) $S\text{^}8M\text{^}(14)N^{13}$
(b) $V\text{^}5E^{22}N\text{^}(14)$
(c) T^7G^(20)X^(24)
(d) H^8N^(14)S^(19)

Q20. P and Q together can complete a job in 20 days. Q and R together can complete the same job in 30 days. P and R together can complete the same job in 30 days. What is the respective ratio of the number of days taken by P when completing the same job alone to the number of days taken by R when completing the same job alone?

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

Q21. Which of the following is a non-perennial river?

(a) Krishna
(b) Ganges
(c) Brahmaputra
(d) Indus

Q22. In a certain code language, 'ACHIEVE' is written as 'XHENBAB' and 'NUMBERS' is written as 'KZJGBWP'. How will 'CAPTAIN' be written in that language?

(a) YFLYWNJ
(b) ZFMYXNK
(c) YHLAWPJ
(d) ZHMAXPK

Q23. Eight friends A, B, C, D, E, F, G and H are sitting around a square table in a manner that two persons are sitting on each side of the table. They all are facing the centre of the table, thus each person sitting on a side is facing another person sitting on the opposite side of the square. Both B and C are immediate neighbours of A. E faces one of the immediate neighbours of A. H faces C. F and G face each other. Who is sitting opposite D?

(a) H
(b) F
(c) G
(d) A

Q24. The Mediterranean Sea is connected with the _____ through the Suez Canal.

(a) Pacific Ocean
(b) Black Sea
(c) Red Sea
(d) Atlantic Ocean

Q25. The 'Vyas Samman', a literary award was first awarded in the year _____.

(a) 1988
(b) 1991
(c) 1999
(d) 1990

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Q26. If A can do a piece of work in 8 days, B can do it in 10 days and C can do it in 20 days, then in how many days can A, B and C together do the same work?

(a) 4
(b) 3
(c) 37/11
(d) 27/11

Q27. The curved surface area of a solid cylinder is 2/3 of its total surface area. If the solid cylinder has a total surface area of 231 cm^2, then find the volume of the cylinder (in cm^3). (Use $\pi = 22/7$)

(a) 269.5
(b) 264.8
(c) 348.2
(d) 295.4

Q28. In a certain code language, if 'COMPUTER' is written as 'RETPUMOC*'*, 'NOTEBOOK' is written as 'KOOEBTON', how will 'INTERNET' be written in that language?

(a) TENERNIT
(b) TEENRINT
(c) TENREINT
(d) TENERTNI

Q29. Krishnadeva Raya belonged to the _____ dynasty.

(a) Gajapati
(b) Saluva
(c) Sangama
(d) Tuluva

Q30. Which of the following keyboard shortcuts is used to perform UNDO operation in MS-Word?

(a) Alt + Z
(b) Alt + U
(c) Ctrl + U
(d) Ctrl + Z

Q31. What is the full form of MGNREGA, an Act that provides guaranteed wage employment to adult volunteers to do unskilled manual work for a minimum of 100 days?

(a) Mahatma Gandhi National Regional Employment Guarantee Act
(b) Mahatma Gandhi National Rural Employees Grants Act
(c) Mahatma Gandhi National Rural Employment Guarantee Act
(d) Mahatma Gandhi National Rural Employment Grants Act

Q32. From the top of a platform 4 m high the angle of elevation of the top of a tower $50\sqrt{3}$ m away was measured. If the tower was 54 m high, what was the angle of elevation of the tower from the top of the platform?

(a) 30°
(b) 75°
(c) 45°
(d) 60°

Q33. The value of 3/4 × 22/3 ÷ 5/9of11/5 - 3/5of(2/3 ÷ 2/3of3/2) + 4/5 × 11/9 ÷ 8/15 - 2/3 is:

(a) 13/10
(b) 39/10
(c) 33/5
(d) 42/5

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Q34. In the below question two statements I and II are given. These statements may be either independent causes or may be effects of independent causes or a common cause. One of these statements may be the effect of the other statements. Read both the statements and decide which of the following answer choice correctly depicts the relationship between these two statements.

Statements:

I) India's economy sees record growth during the deadly Covid second wave.

II) Manufacturing and Health sectors drove growth during the second lockdown.

(a) Statement I is the cause and statement II is its effect.
(b) Statement II is the cause and statement I is its effect.
(c) Both the statements I and II are independent causes.
(d) Both the statements I and II are effects of independent causes and none can be a possible cause of the other.

Q35. If each of the observations of 14, 22, 16, 24, 12, 8, 4, 18, 12, 10 is increased by 10, then what will be their new mean?

(a) 26
(b) 14
(c) 24
(d) 16

Q36. Which Indian-origin chemist won the 2020 Millennium Technology Prize along with Prof David Kleinerman in May 2021?

(a) Sumita Mitra
(b) Shankar Balasubramanian
(c) Namrata Singh
(d) CNR Rao

Q37. As per a study published in Acta Astronautica in September 2021, with which institute did ISRO develop an instrument to conduct microbial experiments in outer space?

(a) Indian Institute of Technology Bombay (IIT Bombay)
(b) Tata Institute of Fundamental Research (TIFR)
(c) • Homi Bhabha National Institute (HBNI)
(d) Indian Institute of Science (IISc)

Q38. Read the given statements and conclusions carefully. Assuming that the information given in the statements is true, even if it appears to be at variance with commonly known facts, decide which of the given conclusions logically follow(s) from the statements.

Statements:

Some boys are handsome.

No handsome is employed.

No graduate is a boy.

Conclusions:

I. Some handsome are not graduates.

II. No employed is a boy.

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

Q39. Which of the following rivers drains into the Bay of Bengal?

(a) Godavari
(b) Narmada
(c) Luni
(d) Tapi

Q40. In a certain code language, 'TEACHING' is written as 'GVZXSRMT', 'TENDENCY' is written as 'GVMWVMXB'. How will 'SYMBOLIC' be written in that language?

(a) HBMYKORX
(b) HBMXLOSY
(c) HBNYLORX
(d) HBNXLORW

Q41. An 'All-Bengal Civil Disobedience Council' was formed in Bengal by _____.

(a) J. M. Sengupta
(b) Sardar Vallabhbhai Patel
(c) Jawaharlal Nehru
(d) Mahatma Gandhi

Q42. Which of the following statements is incorrect regarding the condition of agriculture at the time of independence?

(a) Zamindars helped in improving the condition of farmers.
(b) The land tenure system was characterised by intermediaries.
(c) Low productivity of the agricultural sector
(d) Indian farmers were encouraged to produce cash crops

Q43. Khamba-Thoibi is an important form of performing arts of _____.

(a) Nagaland
(b) Puducherry
(c) Manipur
(d) Lakshadweep

Q44. The pH of Saliva of a Healthy Human mostly ranges from _____.

(a) 7.7 to 9.2
(b) 4.1 to 5.2
(c) 6.2 to 7.6
(d) 5.2 to 6.1

Q45. What is the area (in m^2) of a circular path having a uniform width of 3 m surrounding a circular field of diameter 150 m?

(a) 459π
(b) 453π
(c) 447π
(d) 456π

Q46. A bus covers four successive 12 km stretches at 20 kmph, 40 kmph, 60 kmph and 120 kmph respectively. Its average speed (in kmph) over this distance is:

(a) 50
(b) 100/9
(c) 40
(d) 200/9

Q47. Ajay correctly remembers that his mother Radhika's birthday is after the 5^(th) but before the 10^(th)of June, while his sister Sita correctly remembers that her mother's birthday is before the 11^(th) but after the 8^(th) of June. On which date in June is their mother's birthday?

(a) 7^(th)
(b) 9^(th)
(c) 10^(th)
(d) 8^(th)

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Q48. On Centre-State relations, a commission had been set up by the government of India named Sarkaria Commission, in the year___.

(a) 1980
(b) 1981
(c) 1984
(d) 1983

Q49. Which team did India Legends beat in the final match of the Road Safety World Series 2021 (cricket) Series held in Raipur?

(a) Sri Lanka Legends
(b) West Indies Legends
(c) South Africa Legends
(d) England Legends

Q50. Read the given statement and conclusions carefully. Assuming that the information given in the statements is true, even if it appears to be at variance with commonly known facts, decide which of the given conclusions logically follow(s) from the statement.

Statement:

Milk will become poison, if kept in a copper utensil. Poison is good for consumption and health.

Conclusions:

I. People should consume milk which is kept in a copper pot.

II. Consumption of poison should be avoided.

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

Q51. A sum of money invested at a certain rate of simple interest per annum amounts to Rs. 24500 in eight years and to Rs. 32000 in thirteen years. Find the sum invested.

(a) Rs. 12500
(b) Rs. 11500
(c) Rs. 12000
(d) Rs. 13000

Q52. On all the five corners of pentagon, five people Ram, Rohan, Sunita, Seema and Chandan sit in a specific order facing towards the centre. Ram is to the immediate left of Rohan. Sunita is not an immediate neighbour of Ram. Chandan is an immediate neighbour of both Sunita and Seema.

What will be the position of Sunita with respect to Ram?

(a) Sunita occupies second place from Ram in the clockwise direction
(b) Sunita occupies third place from Ram in the anticlockwise direction
(c) Sunita occupies first place from Ram in the anti-clockwise direction
(d) Sunita occupies third place from Ram in the clockwise direction

Q53. Raj, Vikram, Amit, Amar and Shivani are five friends. Raj, Vikram and Amit are intelligent. Raj, Amar and Shivani are hard working. Amar, Amit and Shivani are teachers. Raj, Vikram and Shivani are scholars.

Who among the given friends is neither hardworking nor a scholar?

(a) Vikram
(b) Raj
(c) Shivani
(d) Amit

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Q54. As per the Forest Survey Report 2021, the state of _____ has the highest forest cover as a percentage of total geographical area.

(a) Mizoram
(b) Arunachal
(c) Manipur
(d) Nagaland

Q55. In an examination Sunita scored 90% of what Anita scored, while Anita's score was 110% of what Vinita scored. If Sunita scored 198 marks in the examination, how many marks did Vinita score?

(a) 242
(b) 200
(c) 180
(d) 220

Q56. In March 2021, the Ministry of Youth Affairs and Sports decided to extend which sports scheme from 2021-22 to 2025-26?

(a) Come and Play Scheme
(b) Sports and Games for Persons with Disabilities Scheme
(c) Khelo India Scheme
(d) Target Olympic Podium Scheme

Q57. If 'A # B' means A is the father of B,
'A & B' means A is the brother of B,
'A @ B' means A is the mother of B,
then, which of the following is definitely true about C@ A # B & D?

(a) C is mother of A and D.
(b) D is daughter of A.
(c) C is paternal grandmother of B and D.
(d) D is granddaughter of C.

Q58. A shopkeeper sells an article at 20% profit. If he had bought the article at 10% less and sold it at Rs. 18 more than the previous selling price, he would have made 40% profit. What is the original cost price of the article (in Rs.)?

(a) 280
(b) 350
(c) 320
(d) 300

Q59. Thimphu is the capital of which neighbouring country of India?

(a) Bangladesh
(b) Myanmar
(c) Nepal
(d) Bhutan

Q60. Simplify the following expression:
$\sqrt{(12.5 \times 8 \times 1.44)}$

(a) 12
(b) 10
(c) 13
(d) 15

Q61. Awadh walks 20m towards West. Then, he turns to his left and walks 10m. Then, he again takes a left turn and walks 10m. Now, he takes a right and again walks 10m. Finally, he takes a right turn and stops after walking 10m. In which direction is the stopping point with respect to the starting point? (all turns are 90° turns only)

(a) North-east
(b) South-east

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(c) South-west
(d) North-west

Q62. Which of the following states holds the largest reserves of manganese in India, according to Indian Bureau of Mines Indian Minerals Yearbook 2019?
(a) Maharashtra
(b) Jharkhand
(c) Karnataka
(d) Odisha

Q63. Arvind bought 120 m cloth for Rs. 15000. He sold 45% of it at a gain of 40%, 25% of it at a loss of 10% and the remaining cloth at the cost price. His profit (in Rs.) in the entire transaction is
(a) Rs. 2325
(b) Rs. 4180
(c) Rs. 2035
(d) Rs. 4075

Q64. By how much does 12/((13/14)) exceed ((12/13))/14 ?
(a) 131/6
(b) 136/7
(c) 55/17
(d) 126/7

Q65. In which year was the Prarthana Samaj established at Bombay?
(a) 1557
(b) 1867
(c) 1667
(d) 1897

Q66. Which two signs should be interchanged to make the following equation correct?
24 × 36 ÷ 27 + 6 - 2 = 22
(a) ÷ and +
(b) • and ×
(c) • and +
(d) ÷ and ×

Q67. Which of the following options is the closest approximate value which will replace question mark (?) in the following equation?
(44.97% of 226) + 55.03 × 4.98 - ? = 140
(a) 25
(b) 237
(c) 508
(d) 120

Q68. Under which project has the Government of India issued a tender of Rs. 50,000 crore to build six conventional diesel-electric submarines in July 2021?
(a) Project-85 India
(b) Project-75 India
(c) Project-65 India
(d) Project-55 India

Q69. Separating cotton from the seeds by combing is called:
(a) Ginning
(b) Yarning
(c) Thermoforming

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(d) Molding

Q70. Eight people are sitting around a circular table at equal distances, facing the centre. Lalit is an immediate neighbour of both Chirag and Pihu. Kiran is to the immediate right of Sanjay. Only three people sit between Sia and Pihu. Asha is third to the right of Chirag. Only three people sit between Kiran and Rajiv. Sia is an immediate neighbour of Rajiv and Asha. Who is sitting to the immediate right of Asha?

(a) Chirag
(b) Kiran
(c) Sia
(d) Sanjay

Q71. Shreya starts walking towards the north from her shop. She walks 15 m, then takes a right turn and walks 30 m. She now takes a left turn and walks 15 m, then again she takes a left turn and walks 15 m. Finally, she turns left again and stops after walking 15 m. In which direction is the end point with respect to the starting point? (all turns are 90° turns only)

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

Q72. The Commercial Paper (CP) to be used by corporate houses in India was introduced in the year _____.

(a) 1980
(b) 1965
(c) 1990
(d) 1950

Q73. Sangeet Ratnakar, the earliest known treatise on music was composed by _____.

(a) Amir Khusru
(b) Sharangdev
(c) Tansen
(d) Muhammad Shah

Q74. On 5^(th) February 2022, who became the first Indian cricketer to take 5 wickets in the U19 World Cup final held against England in North Sound, Antigua?

(a) Nishant Sindhu
(b) Raj Angad Bawa
(c) Ravi Kumar
(d) Vicky Ostwal

Q75. The scores obtained by 10 students in a test are 82, 60, 62, 63, 78, 75, 86, 75, 91, 46.

Find the arithmetic mean of their scores.

(a) 70.6
(b) 72.8
(c) 71.8
(d) 72.2

Q76. Which of the following works as a buffer between CPU and main memory to prevent the processor from having to wait for a program and data from main memory?

(a) Cache memory
(b) Tertiary memory
(c) Optical memory
(d) Auxiliary memory

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Q77. Δ RST is an obtuse isosceles triangle with mangle R = 16° and m (TR) > m (ST). What is the measure of angle S?

(a) 16°
(b) 148°
(c) 164°
(d) 144°

Q78. Who among the following popularised the guitar as an instrument in Hindustani classical music?

(a) Ustad Ali Akbar Khan
(b) Pandit Brij Bhushan Kabra
(c) Pandit Shivkumar Sharma
(d) Pandit Hariprasad Chaurasia

Q79. Select the combination of letters that when sequentially placed in the blanks of the given series will complete the series.

ab_ _ da _ bcda _ _ cd _ _ bcd

(a) bcbbaab
(b) bcabbab
(c) bcbbbab
(d) bcbabab

Q80. Nabakalebar is a ritual in which the wooden figures of Lord Jagannath, Balabhadra, Subhadra and Sudarshan are periodically renewed. Where is the Nabakalebar Rath Yatra held?

(a) Brindavan
(b) Somnath
(c) Puri
(d) Mathura

Q81. In each of the number-pairs, the second number is obtained by performing a certain mathematical operation on the first number. Three of the following pairs follow the same pattern and thus form a group. Select the number-pair that does NOT belong to that group.

(a) 3 : 12
(b) 14 : 220
(c) 11 : 132
(d) 5 : 30

Q82. The 'Gyana Panchami' is celebrated by the Jains on the _____ day of Kartika.

(a) fifth
(b) first
(c) third
(d) ninth

Q83. A sum of Rs. 9200 was lent partly at 5% p.a. and the rest at 8% p.a., both earning simple interest. Total interest received after 3 years was Rs. 1812. The sum (in Rs.) lent at 5% p.a. was

(a) 4600
(b) 4200
(c) 5200
(d) 4400

Q84. _____ pointed out that 'the benefits of economic development must accrue more and more to the relatively less privileged classes of society'.

(a) The Second Five-Year Plan
(b) The Third Five-Year Plan
(c) The Fourth Five-Year Plan
(d) The Fifth Five-Year Plan

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Q85. In a certain code language, 'FEATURE' is written as 'ZIUXOVY' and 'CONSULT' is written as 'WSHWOPN'. How will 'PROMISE' be written in that language?

(a) JUIPCVY
(b) IVHQBWX
(c) IUHPBVX
(d) JVIQCWY

Q86. The Trans-Siberian Railway is a project of which of the following countries?

(a) Sweden
(b) Russia
(c) China
(d) Norway

Q87. The presence of which of the following soils in the hilly areas of South India makes the region suitable for tea and coffee cultivation?

(a) Laterite soil
(b) Alluvial soil
(c) Black soil
(d) Arid soil

Q88. What is the largest number that will divide both 288 and 468 without leaving any remainder?

(a) 39
(b) 36
(c) 72
(d) 18

Q89. A football team lost 40% of the matches it played. If it won 75 matches, then find the number of matches it played.

(a) 125
(b) 130
(c) 140
(d) 110

Q90. In the Constitution of India, Part IV deals with the:

(a) Fundamental Duties
(b) Fundamental Rights
(c) Citizenship
(d) Directive Principles of State Policy

Q91. Who is authorised to alter the boundaries of any State in India?

(a) Union Minister of Home
(b) Prime Minister of India
(c) State Legislatures
(d) Parliament

Q92. Rajat joined school on 26^(th) February 2020, a Wednesday, and he has his examination scheduled on 26^(th) May 2020. There was no holiday or leave, except Sundays. For how many active working days did he go to school before the exam?

(a) 77
(b) 72
(c) 74
(d) 76

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Q93. Find the surface area (in dm^2) of a cuboid whose length is 4.2 m, breadth is 30 dm and height is 180 cm.

(a) 4924
(b) 5212
(c) 5042
(d) 5112

Q94. The demand curve is elastic when _____ and it is inelastic when _____.

(a) marginal revenue has a negative value; average revenue has a positive value
(b) average revenue has a negative value; marginal revenue has a positive value
(c) marginal revenue has a positive value; marginal revenue has a negative value
(d) average revenue has a positive value; marginal revenue has a negative value

Q95. Let x be the median of the data: 16, 78, 26, 91, 29, 71, 31, 46, 9, 51, 54, 56, 61, 21, 62, 65, 73, 86, 41, 89. Let y be the median of the data obtained when 26 and 41 are replaced by 59 and 75, respectively, in the above data. What is the value of (3x - 2y)?

(a) 54
(b) 38
(c) 45
(d) 49

Q96. Which of the following institutions has/have the power to issue a writ of 'Habeas corpus' as per the Constitution of India?

(a) The Supreme Court and the High Court
(b) Lower Courts
(c) The High Court
(d) The Supreme Court

Q97. Sinhala is a major language in which of the following countries?

(a) Malaysia
(b) Indonesia
(c) Sri Lanka
(d) Myanmar

Q98. Where is the Kandariya Mahadeo temple located?

(a) Orchha
(b) Khajuraho
(c) Ujjain
(d) Dewas

Q99. A certain number of people are sitting in a row, facing North. E sits fourth to the right of D. B sits third to the left of D. Exactly seven people sit between A and D. E and C occupy the extreme end positions of the row. A sits third to the right of C. If no other person is sitting in the row, what is the total number of persons seated?

(a) 17
(b) 15
(c) 14
(d) 16

Q100. Seven friends P, Q, R, S, T, U and V belong to seven cities namely Shimla, Manali, Agra, Jaipur, Goa, Guwahati and Darjeeling but not necessarily in the same order. Each one of them belong to only one city. T belongs to Darjeeling. S and V belong to Manali and Shimla, respectively. Q belongs to Agra. One among R and U belongs to Guwahati. P does not belong to Goa.

Who belongs to Jaipur?

(a) Q
(b) S
(c) R

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(d) P

Q101. _____ is the sanctum sanctorum, the innermost sanctuary of Hindu and Jain temples where resides the murti (idol) of the primary deity of the temple.

(a) Vimana
(b) Shikhara
(c) Mandapa
(d) Garbhagriha

Q102. The altitude of an equilateral triangle is 12 cm. What is the perimeter of the triangle?

(a) 18√3 cm
(b) 30√3 cm
(c) 24√3 cm
(d) 42 cm

Q103. A pole is 405 m long. It is painted in saffron, white and green colors one above the other in the ratio 8 : 9 : 10 respectively. What is the length of the white part of the pole (in meters)?

(a) 120 m
(b) 135 m
(c) 140 m
(d) 130 m

Q104. Which Article of the Indian Constitution deals with the special address by the President to the parliament?

(a) 87
(b) 79
(c) 85
(d) 81

Q105. P, Q, R, S and T appeared in a class test and each scored different marks. T scored more than only one student. S scored more than Q but less than P. Q did not score less than T. Who among them scored the highest marks?

(a) P
(b) Q
(c) R
(d) S

Q106. On 3 August 2021, who obliterated his/her own world record in the Tokyo 2020 Summer Olympic 400-meter hurdles?

(a) Karsten Warholm
(b) Melaine Walker
(c) Rai Benjamin
(d) Alison dos Santos

Q107. Anu lives on one floor in a seven storey building. Each floor of the building is numbered in a manner that the lowest floor is numbered as one and the highest floor is numbered as seven. She does not live on an even numbered floor. At least two floors are above and two floors are below the floor where she lives. There are at least two floors between her and her friend who lives on the topmost floor. On which floor is Anu's flat?

(a) 3
(b) 1
(c) 5
(d) 7

Q108. Find the compound interest on Rs. 100000 at 20% per annum for 3 years 3 months, compounded annually.

(a) Rs. 82360
(b) Rs. 65000
(c) Rs. 71650
(d) Rs. 81440

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Q109. The L.C.M. of two numbers is 252 and their H.C.F. is 14. If one of the numbers is 28, then by what percentage is the other number more than 28?

(a) 350%
(b) 310%
(c) 340%
(d) 330%

Q110. Simplify the following expression:

$(15^3 + 20^3 + 25^3 - 22500)/(15^2 + 20^2 + 25^2 - 300 - 500 - 375)$

(a) 80
(b) 60
(c) 75
(d) 50

Q111. Which of the following Indian cities is famous for its oranges?

(a) Nagpur
(b) Varanasi
(c) Chennai
(d) Amritsar

Q112. Select the letter-pair from among the given options that can replace the question mark (?) and continue the given series.

AN, CL, ?, GH, IF

(a) EI
(b) EJ
(c) DI
(d) DJ

Q113. Which of the following places is known for its hot springs?

(a) Mawsynram
(b) Gaurikund
(c) Jaisalmer
(d) Coorg

Q114. Select the number that can replace the question mark (?) in the following series.

40, 20, 20, 30, 60, ?, 450, 1575, 6300

(a) 150
(b) 180
(c) 40
(d) 120

Q115. 7 friends Garima, Pakhi, Parul, Shikha, Ruby, Ana and Somya are seated on a bench and are facing North. Shikha is an immediate neighbour of the person who is seated at one of the extreme ends. Only three people are seated between Ana and Ruby. Ruby is seated at one of the extreme ends of the bench. Ruby is an immediate neighbour of Pakhi. Parul is an immediate neighbour of both Somya and Pakhi. Who is seated in the middle of the bench?

(a) Shikha
(b) Ana
(c) Parul
(d) Somya

Q116. A can complete a piece of work alone in 20 days, B can do it alone in 15 days and C can complete it alone in 18 days. B and C started the work together but both were forced to leave after 4 days. The remaining work was done by A in:

(a) 12 days
(b) 142/45 days

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(c) 102/9 days
(d) 92/45 days

Q117. In March 2021, veteran playback singer Asha Bhosle received which of the following awards?
(a) Yash Chopra Memorial Award
(b) Deenanath Mangeshkar Award
(c) Banga Bhushan Award
(d) Maharashtra Bhushan Award

Q118. 'TABLE' is related to '726251522' and 'FORMS' is related to '21129148', in the same way as 'CHAIR' is related to '_____'.
(a) 241296189
(b) 241926189
(c) 241926198
(d) 214926189

Q119. Simplify the following expression:
(15 ÷ 3) - [{(19 - 1) ÷ 2} - {5 × 20 - (7 × 9 - (-2))}]
(a) -21
(b) 35
(c) 31
(d) 21

Q120. The loan disbursement at ABC bank in the last 5 years is as shown in the table.

Sr. No.	Year	Rupees (in Cr.)
1	2016	75
2	2017	85
3	2018	125
4	2019	145
5	2020	190

Which year has the maximum percentage growth in the loan disbursement over the previous year?
(a) 2020
(b) 2019
(c) 2018
(d) 2017

ANSWER KEY

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

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101	d	102	c	103	b	104	a	105	a	106	a	107	a	108	d	109	a	110	b
111	a	112	b	113	b	114	a	115	d	116	c	117	d	118	b	119	c	120	c

SOLUTIONS

Q1. Answer: (c) 131/161

Given:

131/3 ÷ [35 + 3(24)/4 + (42 ÷ 7 - 16/3)]

Calculation:

131/3 ÷ [35 + 3 × 24/ 4 + (42 ÷ 7 - 16/3)]

=> 131/3 ÷ [35 + 3 × 6 + (6 - 16/3)]

=> 131/3 ÷ [35 + 18 + (18 - 16)/3]

=> 131/3 ÷ [53 + 2/3]

=> 131/3 ÷ [159 + 2]/3

=> 131/3 ÷ 161/3

=> 131 ÷ 161 = 131/161

Therefore The simplified value of the given equation is 131/161.

Q2. Answer: (b) 1 hour 44 minutes

Given:

When usual Speed (S) increased = 30%

Time Taken = Usual Time(T) - 24 minutes

Formula used:

Speed = Distance/Time

Distance = Speed × Time

Calculations:

According to the question,

The distance traveled by car in each scenario is the same

Let the usual speed of the car be 'a'

=> Increased speed × TIme Taken = Usual speed × Time Taken

=> (a + 30% of a) × (T - 24) = a × T

=> (a + 0.30 a) × (T - 24) = a × T

=> (1.30 a) × (T - 24) = a × T

=> 1.30 × (T - 24) = T

=> 1.30 × (T - 24) = T

=> 1.3T - 31.2 = T

=> 0.3T = 31.2

=> T = 31.2/0.3 = 104 minutes OR 1 hour 44 minutes.

Therefore The time taken by the car to cover the same distance at its usual speed is 1 hour 44 minutes.

Q3. Answer: (b) He will be selected.

Explanation:

With the given situation of 70% in selection test and 75% in B.tech, Vijay fulfills the first two conditions i.e.

• Candidate must be a graduate with 60% marks and Vijay scored 75% --- Condition fulfilled.

• Candidate must secure minimum 70% marks in the selection test and Vijay secured 70% --- Condition fulfilled.

• Candidate should have a certificate in computer fundamentals but Vijay does not have any certificate which --- does not fulfill the conditions.

Considering the Special Exemptions :

• In case the graduation is in B.Tech, the 3rd condition can be waived off, since Vijay is a B.tech graduate the 3^(rd) condition is waived off.

Hence, the correct answer is "He will be selected".

Q4. Answer: (a) Rs. 2,177 crores.

The correct answer is Rs. 2,177 crores.

Key Points

• Ocean - Services, Modelling, Application, Resources, and Technology (O-SMART)

• The Cabinet Committee approved the umbrella programme Ocean - Services, Modelling, Application, Resources, and Technology (O-SMART) on August 29, 2018, for implementation in 2017–18 and 2019–20 at a total cost of Rs. 1.623 crores.

• The Ministry of Earth Sciences' umbrella programme O-SMART has received approval for its continuation from the Cabinet Committee on Economic Affairs, which is chaired by Prime Minister Shri Narendra Modi and will continue to be implemented from 2021 to 2026 at a cost of Rs. 2177 crore.

• The primary objective of the O-SMART scheme is to offer services and projections based on ongoing oceanic research and it also encourages leading ocean sciences research.

• Seven sub-schemes that make up the overall O-SMART scheme:

• Ocean Technology

• Coastal Research

• Ocean Observation Network (OON)

• Ocean Modelling and Advisory Services (OMAS)

• Marine Living Resources and Ecology (MLRE)

• Ocean Non-Living Resources

• Operation and Maintenance of Research Vessels

Additional Information

• Autonomous/attached institutes of the Ministry that are implementing these sub-schemes:

• The Indian National Center for Ocean Information Services (INCOIS), Hyderabad

• The National Centre for Coastal Research (NCCR), Chennai

• The National Centre for Polar and Ocean Research (NCPOR), Goa

• The Center for Marine Living Resources and Ecology (CMLRE), Kochi

• The National Institute of Ocean Technology (NIOT), Chennai; as well as other national institutes.

• Total of 16 sub-projects are covered under the umbrella programme which addresses various aspects of the development of the ocean, including services, resources, observations, technology, and sciences.

• The programme has allowed India to take a leading position in the Intergovernmental Oceanographic Commission (IOC) of UNESCO for the implemenation of the Global Ocean Observing System of the Indian Ocean component.

Q5. Answer: (c) 277

The correct answer is 277.

Key Points

• Water Density

• The density of water is measured as weight per unit volume of the water and it is mainly dependent on the temperature of water.

• In the crystal lattice, there are lot of void area present, when the water is in its ice form doe to sufficient hydrogen bonding between the water molecules. This crystal structure begins to collapse as the ice begin to melt.

• As the temperature increases, the molecules of water start migrating farther from each other hydrogen bond start collapsing and therefore the molecules start coming close to each other resulting in the increase of water density and decrease in volume.

• At 273 kelvin (0°C), ice clusters are seen in the water which are allowed to move freely. Due to the vacant spaces present in the ice clusters, its density get reduced and volume is increased.

• At 0 and 227 kelvin the temperature decreases and thus the density decreases.

• At 277 kelvin (4°C), as the temperature increases the clusters begin to deform, resulting in the highest water density.

Additional Information

• The unit of temperature kelvin is converted into celcius (C) by

• K= C+273, thus 277 kelvin is 4°C (K =4+273=277 kelvin)

• After 277 k, the rise in volume due to the expansion of liquid water becomes more than the reduce in volume caused due to hydrogen bond breakage.

• After 277 k, there is a net gain in volume during heating, which leads to a decrease in density.

• It falls within a variety of abnormal physical properties.

• As compared to liquid water, the density of ice is less and thus ice floats on water.

• When we freeze the water, the density of ice is reduced by about 9%.

Q6. Answer: (a) 28%

Given:

The ratio of the radius of a sphere to the radius of a hemisphere is 4 : 5

Formula:

The surface area of the sphere = $4\pi r^2$

The curved Surface area of the hemisphere = $2\pi r^2$

Calculation:

The radius of sphere: radius of hemisphere = 4 : 5

Now, the surface area of the sphere: Curved surface area of the hemisphere

= $4\pi(R)^2 : 2\pi r^2$, where R is the radius of the sphere and r is the radius of the hemisphere

= $(2R^2 : r^2)$

= $(2 \times 4^2 : 5^2)$

= (2 × 16 : 25)

= 32 : 25

Now, the percentage by which the surface area of a sphere is more than the curved surface area of the hemisphere

= (32-25)/25×100

= (7/25) × 100

= 28 %

Hence, the percentage required is 28%.

Q7. Answer: (d) A % L

Let us first decode the given sign:

Sign	#	$	%	@
Meaning		≥	<	≤

Explanation:

B $ D $ A → B ≥ D ≥ A

R % D % L @ J → R < D < L ≤ J

After combining equation: R < B ≤ A ≤ D < L ≤ J

Option 1: J < D → Here, J ≥ D so, J < D is False

Option 2: B > L → Here, L ≥ B so, B > L is False

Option 3: B ≥ J → Here, J ≥ B so, B ≥ J is False

Option 4: A < L → Here, L ≥ A so, A < L is True

Hence, A%L is the correct answer.

Q8. Answer: (a) price elasticity of demand

The correct answer is the price elasticity of demand.

Given:

The percentage change in demand for a good, divided by the percentage change in its price is known as price elasticity of demand.

Concept used:

Price elasticity of demand = (% change in Q)/(% change in P)

Calculations:

Let the percentage change in demand for goods be Q, and

Let the percentage change in its price by P

According to the question,

=> { [(Q_f - Q_i)/((Q_f + Q_i)/2)] ÷ [(P_f - P_i)/((P_i + P_f)/2)] } × 100

=> { [(Qf - Qi)/((Qf + Qi)/2)] × 100 } ÷ { [(Pf - Pi)/((Pi + Pf)/2)] × 100 }

=> (% change in Q) ÷ (% change in P) = Price elasticity of demand

Therefore The percentage change in demand for a good, divided by the percentage change in its price is known as the Price elasticity of demand.

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Q9. Answer: (d) 5280

Shortcut Trick

In a rhombus, diagonals are perpendicular bisectors of each other.

Half of the given diagonal = 240 ÷ 2 = 120 m.

Using Pythagoras triplet for the side (122) and half-diagonal (120):

Other half-diagonal = $\sqrt{(122^2 - 120^2)} = \sqrt{(2 \times 242)} = \sqrt{484} = 22$ m.

Second diagonal (d2) = 2 × 22 = 44 m.

Area = (1 ÷ 2) × 240 × 44 = 120 × 44 = 5280 m².

Therefore The correct answer is 5280 m².

Alternate Method

Given:

Side of the rhombus (a) = 122 m

Length of one diagonal (d1) = 240 m

Formula Used:

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

2) Area of rhombus = (1/2) × d1 × d2

Calculations:

=> Let the other diagonal be d2.

=> $122^2 = (240/2)^2 + (d2/2)^2$

=> $14884 = 120^2 + (d2/2)^2$

=> $14884 = 14400 + (d2/2)^2$

=> $(d2/2)^2 = 14884 - 14400$

=> $(d2/2)^2 = 484$

=> $d2/2 = \sqrt{484} = 22$ m

=> d2 = 22 × 2 = 44 m

=> Area = (1/2) × 240 × 44

=> Area = 120 × 44

=> Area = 5280 m²

Therefore The correct answer is 5280 m².

Additional Information

Properties of Rhombus

A rhombus is a quadrilateral with all sides equal. Its diagonals bisect each other at 90°.

Perimeter of Rhombus

Perimeter = 4 × side = 4a.

Relation between Side and Diagonals

$4a^2 = d1^2 + d2^2$, where a is the side and d1, d2 are diagonals.

Q10. Answer: (a) Haryana

The correct answer is Haryana

Key Points

• India State of Forest Report (ISFR)

• The country's forest cover and tree cover are reported in the India State of Forest Report (ISFR) 2021.

• The first survey was released in 1987, and they are now published every two years. The Forest Survey of India (FSI), 17th edition of ISFR is currently available.

• India's entire forest and tree cover 7,13,789 square kilometres or 24.62 per cent of the country's total geographical area.

• Haryana's forest cover is only 1588 sq kilometres or 3.59% of the state's overall geographic area.

• Since agriculture is Haryana's primary industry, the majority of its land has been utilized.

Additional Information

• Top three states with the greatest increase in forest cover are:

• Andhra Pradesh (647 sq km)

• Telangana (632 sq km)

• Odisha (537 sq km)

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• The overall area covered by trees and forests in the country has increased by 2,261 sq km since the assessment of 2019. Out of this, an increase in forest cover of 1,540 sq km and an increase in tree cover of 721 sq km have been noted.

Q11. Answer: (b) 42192

Given:

Number divisible by 24.

Concept used:

Divisibility by 24: if a number is divisible by 3 and 8 then that number is divisible by 24 also.

Divisible by 3: If the sum of digits of that number is divisible by 3, then that number is divisible by 3.

Divisible by 8: If the last three digits of a number are divisible by 8, then that number is divisible by 8.

Calculations:

According to the concept,

Now we check if the numbers are divisible by 3:

=> 23152 = 2 + 3 + 1 + 5 + 2 = 13 [not divisible by 3]

=> 42192 = 4 + 2 + 1 + 9 + 2 = 18 [divisible by 3]

=> 52182 = 5 + 2 + 1 + 8 + 2 = 18 [divisible by 3]

=> 32192 = 3 + 2 + 1 + 9 + 2 = 17 [not divisible by 3]

Now we check if the numbers are divisible by 8:

=> 23152 = 152/8 = 19 [divisible by 8]

=> 42192 = 192/8 = 24 [divisible by 8]

=> 52182 = 182/8 = 91/4 [not divisible by 8]

=> 32192 = 192/8 = 24 [divisible by 8]

Therefore The number divisible by 24 is 42192.

Q12. Answer: (c) Both the Statements together are necessary to answer the Question

We have to find total of five natural even numbers.

Explanation:

Statement I: The second number s two times the first number.

• Let the first number = x

• Then, the second number = 2x

Statement II: All the five even numbers are consecutive even numbers in increasing order.

• We get that number will be x, x + 2, x + 4, x + 6, x + 8.

• Combining I and II, we get

• x + 2 = 2x

• x = 2

Total of five natural even numbers = x + x + 2 + x + 4 + x + 6 + x + 8 = 2 + 4 + 6 + 8 + 10 =30

Hence, Both the Statements together are necessary to answer the Question is the correct answer.

Q13. Answer: (a) Neither I nor II is true

Given: Q ≤ R = S > T < U ≥ V

Explanation:

• V < T →(False) T< U ≥ V → (As U > T and U ≥ V then T > V is does not follow)

• S < Q→(False) Q ≤ R = S → (As Q ≤ R and R = S. So, Q > S is does not follow)

Hence, Neither I nor II is true is the correct answer.

Q14. Answer: (b) -11

Given:

The graphs of the equations 2x + 3y = 4 and 3x - y + 5 = 0

Calculation:

[2α + 3β = 4] × 1 .....(1)

[3α - β = - 5] × 3 .....(2)

Adding both (1) & (2)

(2α + 3β) + (9α - 3β) = - 15 + 4

=> 11α = -11

=> α = -1

Substituting the value of α in equation (2)

3α - β = - 5

=> (3 × -1) - β = - 5

=> - 3 - β = - 5

=> - 3 + 5 = β

=> β = +2

According to the question,

=> (3α - 4β) = (3 × (-1) - 4 × 2)

=> - 3 - 8 = - 11

Therefore The value of (3α - 4β) is - 11.

Q15. Answer: (c) Chandragupta Maurya

The correct answer is Chandragupta Maurya.

Key Points

• Chandragupta Maurya

• The Maurya dynasty was established by the Iron Age South Asian king Chandragupta Maurya, who established a vast kingdom with its capital in Magadha.From 324 BCE to 293 BCE, he was in power.

• The capital of the empire was Pataliputra, located in Magadha (modern-day Patna), while Takshashila (later Taxila) and Ujjain served as the regional capitals.

• The third ruler of the Mauryan Empire (322-185 BCE), Ashoka the Great (r. 268-232 BCE), is best known for his creation of the idea of dhamma (pious social behaviour).

• Chandragupta Maurya was the grandfather of King Ashoka.

• King Ashoka is also known for the promotion of Buddhism, and efficient rule over a nearly pan-Indian political entity.

Additional Information

• King Ashoka

• King Bindusara was the father of Emperor Ashoka, and Shubhadrangi was his mother.

• Acharya Chanakya served as the emperor's guru.

• Ashoka, whose full name was Devanampiya Ashok Maurya, waged a particularly destructive war against the state of Kalinga, which he eventually conquered in about 260 BCE.

• Devanampiya translates as the god's favourite.

Q16. Answer: (a) R

Eight friends: K, L, M, N, O, P, Q and R

• Number of friends = 8, namely, K, L, M, N, O, P, Q, R

• K, L, M and N are sitting in a straight line and are facing North.

• O, P, Q and R are sitting on a parallel line and are facing South.

• Each of the persons sitting in a line, faces another person sitting in the parallel line.

• M faces a person who has two people sitting to his right. M is facing North.

• N is sitting between M and K.

• Q faces K.

• O is neither an immediate neighbour of P nor Q.

Hence, R is the correct answer.

Q17. Answer: (b) cotton

The correct answer is cotton.

Key Points

• Black soil

• It has occasionally been referred to as "regur," a word derived from the Telegu word "Regada." This soil is a product of the erosion of basalt from the Deccan Highlands.

• Black soil, with its clayey characteristics, is crucial for growing cotton. High moisture retention is necessary for cotton farming.

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• Black soils are very fine-grained, black, and very argillaceous. They also contain high amounts of magnesium and calcium carbonates. They are extremely sticky and tenacious of moisture when wet.

• They also have fair amounts of lime, magnesia, and alumina, as well as a significant abundance of iron.

• Because this soil is most suited for the cotton crop, it is primarily referred to as black cotton soil.

Additional Information

• Black soil is also good for growing crops including peanuts, wheat, tobacco, chilies, and jowar in addition to cotton.

• Organic matter, phosphorous, and nitrogen are insufficient in black soils.

• The beidellitic and montmorillonitic classes of clay minerals are often abundant in the soils.

• It is located in the Deccan trap and lava plateaus which reach south-east along the Godavari and Krishna basins and include the plateaus of Malwa, Maharashtra, Saurashtra, Chattisgarh, and Madhya Pradesh.

Q18. Answer: (b) 7987

Given:

Principal = Rs. 15600,

Rate per annum = 20% and

T = 2 years + 1/4 year

Formula used:

A = P(1 + R / 100)^T

Calculations:

The interest rate for 1st and 2nd year = 20%

Interest rate for (1 / 4) year = 20 x (1 / 4) = 5%

According to the question

=> A = 15600 × (120 / 100) × (120 / 100) × (105 / 100)

=> 15600 × (1.2) × (1.2) × (1.05)

=> 15600 × (1.512) = 23587.2

Compound interest = 23587.2 - 15600 = 7987.2 ~ 7987.

Hence The interest being compounded annually is 7897.

Q19. Answer: (a) S^8M^(14)N¹³

EXPLANATION:

Lets check the number of places of each alphabets from the table below:

The relation of E22Q10D23 is given below -

Hence, the correct answer is "S8M14N13".

Q20. Answer: (d) 1 : 3

Given:

P and Q together can complete the job in 20 days.

Q and R together can complete the job in 30 days.

P and R together can complete the job in 30 days.

Calculations:

According to the question,

One-day work of P and Q = 1/20 .....(1)

One-day work of R and Q = 1/30 .....(2)

One-day work of P and R = 1/30 .....(3)

Adding the equations (1), (2), and (3)

(P + Q) + (R + Q) + (P + R) = (1/20) + (1/30) + (1/30)

=> 2(P + Q + R) = (1/20) + 2(1/30)

=> 2(P + Q + R) = (1/20) + (1/15)

=> 2(P + Q + R) = (3 + 4)/60

=> (P + Q + R) = 7/120

Total work done by all P, Q, and R in one day is 7/120

Now total work done by P alone in one day

=> (P + Q + R) - (R + Q) = (7/120) - (1/30)

=> P = (7 - 4)/120
=> P = 3/120 = 1/40
P alone can do the job in 40 days
Now total work done by R alone in one day
=> (P + Q + R) - (P + Q) = (7/120) - (1/20)
=> R = (7 - 6)/120
=> R = 1/120
R alone can do the job in 120 days
Now the ratio of work done by P and R alone
=> P/R = 40/120 = 1/3 = 1:3
Therefore The ratio of work done by P and R alone is 1:3.

Q21. Answer: (a) Krishna

The correct answer is Krishna.
Key PointsNon-perennial rivers
• Non-perennial rivers are rivers in which flow of water is seasonal and not for the whole year.
• These rivers do not receive water during the whole year except during rainy season through water cycle.
• Examples of these rivers are Godavari, Krishna, etc.
• These rivers also do not originate from glacial areas like Himalayan rivers do.
• These rivers may cause flood due to heavy rainfall.
Additional Information
• Perennial rivers
• Perennial rivers are rivers having continuous flow throughout the year.
• Perennial rivers have a continuous reliable sources.
• Examples of perennial rivers are Ganges, Yamuna, Indus, Brahmaputra, Sindhu, etc.
• Ganges
• It is the longest flowing river.
• Origin: Gangotri
• Length:2510km
• Brahmaputra
• The transboundary river flows through Tibet, India and Bangladesh.
• Origin: Himalayas
• Length: 2900km

Q22. Answer: (b) ZFMYXNK

The position of letters according to the English alphabet series:
'ACHIEVE' is written as 'XHENBAB'
And,
'NUMBERS' is written as 'KZJGBWP
Similarly,
'CAPTAIN' be written as '?'
Hence, the correct answer ZFMYXNK".

Q23. Answer: (d) A

EXPLANATION:
1. H faces C.
2. Both B and C are immediate neighbours of A.
3. E faces one of the immediate neighbours of A.
(Here, H already faces the C so E faces only B)
4. Both B and C are immediate neighbours of A.
F and G face each other. So D faces towards A.
Hence "A" is the correct answer.

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Q24. Answer: (c) Red Sea

The correct answer is Red Sea.

Key Points

• Red Sea

• It is a seawater inlet of the India Ocean lying between Africa and Asia.

• It contains the world's most saltiest and hottest seawater.

• It's name is red sea due to color changes observed in its water.

Additional Information

• Suez Canal

• The Suez canal is an artificial sea level waterway in Egypt.

• It effectively allows for passage from North Atlantic to Indian Ocean without circumnavigate the African Continent.

• Egypt is working to improve the Suez Canal by adding 10 km accessible to two way traffic.

• Suez Canal connects Mediterranean Sea with Red Sea makes the shortest maritime route to Asia from Europe.

Q25. Answer: (b) 1991

The correct answer is 1991.

Key Points

• Vyas Samman

• The Vyas Samman is literary award first awarded in 1991.

• This is awarded by K.K Birla Foundation annually.

• It includes payout of 4 Lakhs from the recent 2019 distribution with plaque and citation.

• In 1991, this was awarded to Ram Vilas Sharma for his literary work "Bharat ke Pracheen Bhasha aur Hindi.".

Additional Information

• Prof. Sharad Pagare got this prestigious award in 2020 for his novel "Patliputra Ki Samragi".

• Eligibility for this award is that the literary work must be in Hindi language and must be published in the past 10 years.

Q26. Answer: (c) 37/11

Given:

A can do the piece of work in 8 days,

B can do the piece of work in 10 days

C can do the piece of work in 20 days

Calculations:

According to the question,

One day work of A = 1 / 8 .....(1)

One day work of B = 1 / 10 .....(2)

One day work of C = 1 / 20 .....(3)

Adding all the equations (1), (2), and (3)

=> A + B + C = (1 / 8) + (1 / 10) + (1 / 20)

=> A + B + C = (5 + 4 + 2) / 40

=> A + B + C = 11 / 40

Therefore A, B, and C together do the same work in 40/11 days or 37/11 days.

Q27. Answer: (a) 269.5

Shortcut Trick

Ratio of CSA : TSA = 2 : 3 => h : (h + r) = 2 : 3 => h = 2r.

Total Surface Area (TSA) = 3 units = 231 cm^2 => 1 unit = 77 cm^2.

Area of two bases ($2\pi r^2$) = TSA − CSA = 3 units − 2 units = 1 unit = 77 cm^2.

Radius r^2 = 77 ÷ (2 × 22/7) = 49/4 => r = 3.5 cm.

Volume = CSA × (r/2) = (2 × 77) × (3.5 / 2) = 154 × 1.75 = 269.5 cm^3.

Therefore The correct answer is 269.5 cm^3.

Alternate Method

Given:

Total Surface Area (TSA) = 231 cm^2

Curved Surface Area (CSA) = (2/3) × TSA

Formula Used:

CSA of cylinder = $2\pi rh$

TSA of cylinder = $2\pi r(r + h)$

Volume of cylinder = πr^2h

Calculations:

=> CSA = (2/3) × 231 = 154 cm^2

=> TSA = CSA + 2 × Area of base

=> 231 = 154 + $2\pi r^2$

=> 77 = 2 × (22/7) × r^2

=> r^2 = (77 × 7) / (2 × 22) = (7 × 7) / 4 = 49 / 4

=> r = 7 / 2 = 3.5 cm

=> Now, CSA = $2\pi rh$ = 154

=> 2 × (22/7) × (7/2) × h = 154

=> 22 × h = 154

=> h = 154 / 22 = 7 cm

=> Volume = πr^2h

=> Volume = (22/7) × (3.5) × (3.5) × 7

=> Volume = 22 × 12.25 = 269.5 cm^3

Therefore The correct answer is 269.5 cm^3.

Additional Information

Cylinder Properties

For a cylinder with radius r and height h, Volume = πr^2h, and the ratio of Volume to CSA is always r/2.

Total Surface Area

TSA includes the curved surface and the area of two circular ends: TSA = $2\pi rh + 2\pi r^2$.

Hollow Cylinder

The volume of a hollow cylinder with external radius R and internal radius r is $V = \pi h(R^2 - r^2)$.

Q28. Answer: (d) TENERTNI

The logic followed here is:

Logic: Given word is written from the reverse side and middle two alphabet is remain same in all words.

'COMPUTER' is written as 'RETPUMOC*'*

• 'NOTEBOOK' is written as 'KOOEBTON'

• Similarly,

For INTERNET

• Hence, the correct answer is "TENERTNI".

Q29. Answer: (d) Tuluva

The correct answer is Tuluva.

Key Points

• Krishnadeva Raya was an emperor of Vijayanagar Empire who reigned from 1509 to 1529.

• He was the third monarch of Tuluva Dynasty and was considered as a greatest leaders from Indian history.

• Tuluva Dynasty

• Tuluva Dynasty was founded by Tuluva Narasa Nayaka.

• It was third of the four dynasties: Sangama Dynasty, Saluva Dynasty, Tuluva Dynasty and Aravidu Dynasty to rule Vijayanagara Empire.

• Tuluva Dynasty was ruled from 1491 to 1570.

• The fall of the Tuluva dynasty led to the beginning of the disintegration of the Vijayanagar empire.

Additional Information

• Sadasiva Raya was the sixth and last ruler of the Tuluva Dynasty.

• The original home of the kingdom was the westerly Tulu speaking region.

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Q30. Answer: (d) Ctrl + Z

The correct answer is Ctrl+Z.

Key Points

• UNDO operation

• UNDO is the operation used to reverse the effects of previous action.

• UNDO is mainly used to undone the actions.

Additional Information

• Ctrl+V is keyboard shortcut for paste in MS Word.

• Ctrl+C is keyboard shortcut for copy in MS Word.

• Ctrl+X is keyboard shortcut for cut in MS Word.

• Ctrl+ Y is keyboard shortcut for redo in MS Word.

Q31. Answer: (c) Mahatma Gandhi National Rural Employment Guarantee Act

The correct answer is Mahatma Gandhi National Rural Employment Guarantee Act.

Key PointsMGNREGA

• This was initiated with the objective of “enhancing livelihood security in rural areas by providing at least 100 days of guaranteed wage employment in a financial year, especially to household whose adult members volunteer to do unskilled manual work".

• This Act also aiming to create durable assets (such as roads, canals, ponds, wells).

• Within 5 km of an applicant’s residence, employment is provided.

Additional Information

NREGA

• National Rural Employment Guarantee Act 2005, later renamed as the MGNREGA, is an Indian labour law and social security measure that aims to guarantee the ‘right to work’.

• NREGA can also help in protecting the environment, empowering rural women, reducing rural-urban migration and fostering social equity, among others.

Q32. Answer: (a) 30°

Shortcut Trick

Effective height of the tower from the top of the platform = 54 − 4 = 50 m.

Horizontal distance between them = 50√3 m.

Using the property: tan θ = Perpendicular / Base = 50 / 50√3 = 1 / √3.

Since tan 30° = 1 / √3, the angle of elevation is 30°.

Therefore The correct answer is 30°.

Alternate Method

Given:

Height of the platform (h_p) = 4 m

Height of the tower (h_t) = 54 m

Distance between the platform and the tower (d) = 50√3 m

Formula Used:

tan θ = Perpendicular / Base

Calculations:

=> Perpendicular (Height of tower above platform) = Total Tower Height − Platform Height

=> Perpendicular = 54 − 4 = 50 m

=> Base (Horizontal Distance) = 50√3 m

=> tan θ = 50 / 50√3

=> tan θ = 1 / √3

=> θ = tan^(−1)(1 / √3)

=> θ = 30°

Therefore The correct answer is 30°.

Additional Information

Angle of Elevation

The angle formed by the line of sight with the horizontal when looking up at an object. It is equal to the angle of depression when viewed from the object back to the observer.

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Standard Trigonometric Ratios

tan 30° = 1/√3, tan 45° = 1, and tan 60° = √3. These are essential for solving heights and distances problems.

Relationship between Height and Distance

For a given angle θ, Height = Distance × tan θ. This linear relationship is the basis for most geometrical surveying.

Q33. Answer: (c) 33/5

Given :

3/4 × 22/3 ÷ 5/9of11/5 - 3/5of(2/3 ÷ 2/3of3/2) + 4/5 × 11/9 ÷ 8/15 - 2/3

Concept used :

Calculations :

3/4 × 22/3 ÷ 5/9of11/5 - 3/5of(2/3 ÷ 2/3of3/2) + 4/5 × 11/9 ÷ 8/15 - 2/3 2/3

=3/4×8/3÷5/9of6/5-2/5+4/5×10/9÷8/15-2/3

=3/4×8/3÷2/3-2/5+4/5×10/9÷8/15-2/3

=3/4×4-2/5+4/5×25/12-2/3

= 3-2/5+1

= 18/5

= 33/5

Hence, the required answer is 33/5.

Q34. Answer: (b) Statement II is the cause and statement I is its effect.

The logic followed here is:

Manufacturing and Health sectors drove growth during the second lockdown (Cause) and as the demand grew rapidly, India's economy sees record growth during the deadly Covid second wave (Effect)

Hence Statement II is the cause and statement I is its effect.

Additional Information

What are Causes?

Causes are the conditions under which an event occurs.

For example, can you guess the causes for the following?

The police increased security around the President's house.

Lots of people buy a particularly expensive brand of washing machines around Diwali. Easily, we can guess the causes for the above events.

There were reports of threats against the President.

There was a high discount or sale for that brand during Diwali.

Sufficient & Necessary Conditions:

In a cause and effect question, the cause is the sufficient condition. It is assumed that the sufficient condition of the occurrence of the events must include the different necessary conditions as well.

A necessary condition is one that must be satisfied for the occurrence of an event.

E.g. You must adhere to the deadline to get your work appraised.

This means if you get your work appraised, you have to adhere to the deadline. Or; if you do not adhere to the deadline, you do not get your work appraised.

A condition is called a sufficient condition if in a certain event, you are satisfied with the results.

E.g. Being human is a sufficient condition for being a mammal. Being a human is not possible unless one is also a mammal. But it is not necessary that being human is a necessary condition for being a mammal.

Q35. Answer: (c) 24

Given:

Scores = 14, 22, 16, 24, 12, 8, 4, 18, 12, 10.

Each observation is increased by 10.

Formula Used:

Mean = (sum of all the values)/(total no. of values)

Calculations:

=> M = (24 + 32 + 26 + 34 + 22 + 18 + 14 + 28 + 22 + 20)/(10)

=> M = 240/10 = 24.

Therefore The new arithmetic mean will be 24.

Shortcut Trick

If we increase each value of the observation by a certain number then the average will also increase by that certain number.

So the mean of the initial observations is 14. now we are increasing the value of each observation by 10 so the average will also increase by 10 so the answer is 14 + 10 = 24.

Q36. Answer: (b) Shankar Balasubramanian

The correct answer is Shankar Balasubramanian.

Key Points

• Shankar Balasubramanian and Prof David Kleinerman got this award in May 2021 for the invention of Next Generation DNA Sequencing.

• Millennium Technology Prize

• One of the world's largest technology prizes.

• It is awarded once every two years by Technology Academy Finland.

• The Patron of this prize is the President of Finland.

• This award is for Life Enhancing Technological Innovation.

• Established: 2002

• The prize was inaugurated in 2004.

Additional Information

• Technology Academy Finland is an independent foundation established by Finnish industries, academic institutions, and the state of Finland.

Q37. Answer: (d) Indian Institute of Science (IISc)

The correct answer is Indian Institute of Science (IISc).

Key Points

• Acta Astronautica

• Mmonthly peer-reviewed scientific journal covering all fields of physical, engineering, life, and social sciences related to the peaceful scientific exploration of space.

• Known as one of the top aerospace engineering journals.

• IISc

• Public, deemed, research university for higher education and research in science, engineering, design, and management.

• Located in Bengaluru, in the Indian state of Karnataka.

Additional Information

• ISRO

• The Indian Space Research Organization is the national space agency of India, headquartered in Bangalore.

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

Q38. Answer: (c) Only conclusion I follows

EXPLANATION:

Conclusions:

I. Some handsome are not graduates → Follows → (As, Some boys are handsome and no graduate is a boy. So, some handsome boy is not graduate is definite true)

II. No employed is a boy → Does not follow → (As, There is no direct negative relation between boys and employed so we can not determine it is true or not)

Hence, the correct answer is "Only conclusion I follow".

Q39. Answer: (a) Godavari

The correct answer is Godavari.

Key Points

• There are many rivers drains into Bay of Bengal: The Ganges–Hooghly, the Padma, the Brahmaputra–Yamuna, the Barak–Surma–Meghna, the Irrawaddy, the Godavari, the Mahanadi, the Brahmani, the Baitarani, the Krishna and the Kaveri.

Bay 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.

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• Maximum Length: 2090km.

Additional Information 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.

Q40. Answer: (c) HBNYLORX

The position of letters according to the English alphabet series:

Logic: Alphabet are arranged according to opposite letters.

'TEACHING' is written as 'GVZXSRMT'

And,

'TENDENCY' is written as 'GVMWVMXB'

Similarly,

Hence, "HBNYLORX" is the correct answer.

Q41. Answer: (a) J. M. Sengupta

The correct answer is J.M. Sengupta.

Key PointsJ.M. Sengupta

• Jatindra Mohan Sengupta was an Indian revolutionary against the British rule.

• He was arrested several times by the British police.

• In 1933, he died in a prison located in Ranchi, India.

Sardar Vallabhbhai Patel

• Endeared as Sardar and was an Indian statesman.

• He is also called the "Unifier of India".

Jawaharlal Nehru

• Indian anti-colonial nationalist, secular humanist, social democrat and author who was a central figure in India during the middle of the 20th century.

Mahatma Gandhi

• Indian lawyer, anti-colonial nationalist and political ethicist who employed nonviolent resistance to lead the successful campaign for India's independence from British rule.

• He inspire movements for civil rights and freedom across the world.

Additional Information All-Bengal Civil Disobedience Council

• It was formed to violate the salt law.

• Decided to violate in the coastal districts of Chattogram, Noakhali, Barisal, Khulna, 24 Parganas and Midnapur.

• With its clear anti-imperialist agenda, helped to crystallize efforts towards linking elite politics and the relatively spontaneous politics of the people into an organized movement.

• organized by special Congress district civil disobedience committees which were affiliated to the local Congress committees.

Q42. Answer: (a) Zamindars helped in improving the condition of farmers.

The correct answer is Zamindars helped in improving the condition of farmers.

Key Points

Zamindari System

• Zamindari system of agriculture was mainly practiced in Bengal during British rule, which was the capital of British India.

• During the independence, zamindars helped farmers to improve the condition of their farms.

• The main intention of zamindars was not to help the farmers but wanted to reap the benefits of the agriculture sector.

• According to this system, the major part of the profit went to zamindars instead of the farmers.

Additional Information

• Through the Permanent Settlement Act, Cornwallis introduced the Zamindari System in 1793.

• It first appeared in the Bengal, Bihar, Orissa, and Varanasi provinces.

• It is also known as the Permanent Settlement System.

• Land ownership was acknowledged to belong to zamindars.

• The authority to collect rent from the peasants was granted to the zamindars.

• The actual farmers were made tenants while the zamindars acquired ownership of the land.

Q43. Answer: (c) Manipur

The correct answer is Manipur.

Key Points

• Khamba-Thoibi:

• Khamba-Thoibi is a folk dance of Moirang which was the ancient kingdom of Manipur.

• People of Manipur believed that the dance was first performed by Khamba, a hero in Manipuri mythology and his lover Thoibi who was the princess of the Moirang.

• This dance is based on the beautiful love story of the couple Khamba and Thoibi.

• In order to perform this dance, the male dancers pick up their partners to the dance arena and the female dancers decorate themselves with colorful dresses and flowers in their hands.

Additional Information

• Performing arts in Nagaland, Puducherry and Lakshadweep:

• The major folk dances of Nagaland include Modse, Butterfly dance, Rengma, Leshalaptu, Shankai, Seecha, Kukui kucho, etc.

• People in Nagaland perform a war dance known as 'Chang lo' to celebrate victory in war.

• Garadi is a well-known dance in Puducherry. It is performed at festivals.

• It is believed that when Lord Rama (hero of Ramayana) defeated Ravana, at that time vanar sena (group of monkeys) performed this dance to celebrate the victory.

• The important form of performing arts of Lakshadweep is Kolkali and Parichakli.

• Lava is also an important form of dance here.

Q44. Answer: (c) 6.2 to 7.6

The correct answer is 6.2 to 7.6.

Key Points

• The acronym pH stands for potential hydrogen. It describes the chemical acidity level vs the alkalinity level of the substance.

• 99% of saliva is made of water and the remaining 1% consists of digestive enzymes, uric acid, electrolytes, cholesterol and mucus-forming proteins.

• The normal range of saliva for a healthy human being is 6.2 to 7.6. Generally, it does not fall below 6.3.

• Adults generally have more acidic saliva than children.

Additional Information

• According to the pH level, the chemical acidity or alkalinity level can be checked.

• The pH level of 14 is considered to be the most alkaline.

• The pH level of 0 is the most acidic.

• The pH level of 7 is considered to be neutral.

• Food and drinks are responsible to check the pH level of saliva.

• Good bacteria in the mouth breaks down the food and lowers the pH level.

Q45. Answer: (a) 459π

Given:

A circular path surrounding the field having a width of 3 m

The circular field with a diameter of 150 m

Formula used:

Area of a circle = πR^2

Calculations:

According to the questions,

Assume the field as a smaller circle of Radius (r) = 150/2 = 75 m

The field + the path as a bigger circle of Radius (R) = r + 3 = 78 m

Now for the area of the circular path,

Area of the circular path = (Area of the field with circular path) - (Area of the field)

Area = $(\pi R^2) - (\pi r^2)$

=> π [(78)2 - (75)2]

=> π [6084 - 5625] = 459π m2

Therefore The area (in m²) of a circular path is 459π m2,

Q46. Answer: (c) 40

Given:

A bus covers four successive 12 km stretches at 20 kmph, 40 kmph, 60 kmph, and 120 kmph respectively.

Formula Used:

Average Speed (Sav) = (Total Distance)/(Total Time)

Calculations:

Total Distance = 4 × 12 = 48

Total Time = (12/20) + (12/40) + (12/60) + (12/120)

=> T = (3/5) + (3/10) + (1/5) + (1/10)

=> T = (4/5) + (2/5) = 6/5 hours.

Now Average Speed,

=> S_(AV) = 48/(6/5)

=> (48 × 5)/6 = 40 km/h

Therefore Over this distance, the average speed (in kmph) is 40 km/h.

Q47. Answer: (b) 9^(th)

EXPLANATION:

According to Ajay, mother's birthday can be on 6^(th), 7^(th), 8^(th), and 9^(th) of June.

According to his sister, mother's birthday can be on the 9^(th)and 10^(th).of June.

Here, the 9^(th) of June is common in both the statement.

Hence, my mother's birthday is on 9^(th) of June.

The correct answer is "9^(th)".

Q48. Answer: (d) 1983

The correct answer is 1983.

Key Points

Sarkaria Commission

• The Sarkaria Commission was set up in the year 1983 by the central government of India.

• It was founded in June 1983, by the Ministry of Home Affairs of the Indian Government under the Chairmanship of Justice R.S. Sarkaria with Shri B. Sivaraman and Dr. S. R. Sen as its members.

• The Sarkaria Commission's charter was to examine the central state relationship on various portfolios and suggest changes within the framework of the constitution of India.

• The first three-member commission for determining the relationship between the center and the state was presided over by R. S. Sarkaria.

Additional Information

• The Commission was so named as it was headed by Justice Ranjit Singh Sarkaria, the chairman of the commission and a retired judge of the Supreme Court of India.

• The Commission will examine and review the working of the existing arrangements between the Union and States as per the Constitution of India, the healthy precedents being followed, various pronouncements of the Courts in regard to powers, functions and responsibilities in all spheres including legislative relations.

• In examining and reviewing the working of the existing arrangements between the Union and States and making recommendations as to the changes and measures needed, the Commission will keep in view the social and economic developments that have taken place over the years, particularly over the last two decades.

Q49. Answer: (a) Sri Lanka Legends

The correct answer is Sri Lanka Legends.

Key Points

• India Legends defeated Sri Lanka Legends by 14 runs in the final match of the Road Safety World Series which was held in Jaipur.

• Yusuf Pathan was the star of the day and he was adjudged player of the match for his all-round performance in the summit clash.

• He smashed an unbeaten 62 and picked up two wickets in his four-over spell to help his side win the inaugural Road Safety World Series T20 tournament.

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• Sachin Tendulkar, captain of the India Legends, finished the tournament as the third-highest run-getter with 233 runs from seven matches.

Additional Information

• Road Safety World Series

• The Road Safety World Series (RSWS) is an annual T20 tournament between retired masters of the game from major cricket-playing nations like England, Australia, New Zealand, South Africa, Sri Lanka, Bangladesh, West Indies and India.

• Sunil Gavaskar is the Commissioner of the event while Tendulkar is the brand ambassador of the league.

• The Road Safety World Series is a joint initiative of the Ministry of Road Transport and Highways and the Ministry of Information and Technology and Youth Affairs and Sports Government of India.

• The 30-day tournament is played with the aim to create awareness towards road safety in India and around the globe.

Q50. Answer: (b) Conclusion I follows

The statement highlights the problem that milk will become poison, if kept in a copper utensil. Poison is good for consumption and health.

Conclusion 1. This conclusion logically follows from the given statements because if poison is considered good for consumption and health, and milk stored in a copper utensil becomes poison, then, following the statements, it implies that such milk is good for consumption.

conclusion 2. No, as Poison is good for consumption and health so they can't be avoided.

Hence Conclusion I follow.

Q51. Answer: (a) Rs. 12500

Given:

Amount of sum of money invested for 8 years = Rs. 24500

Amount of sum of money invested for 13 years = Rs. 32000

Formula used:

Simple Interest = (P × R × T)/100

Simple Interest = Amount - Principle

Calculations:

According to the question,

Simple Interest for 8 years,

24500 - P = (P × R × 8)/100 .....(1)

Simple Interest for 13 years,

32000 - P = (P × R × 13)/100 .....(2)

Subtracting (1) from (2)

=> (24500 - P) - (32000 - P) = (P × R × 13)/100) - (P × R × 8)/100

=> 7500 = [(P × R)/100] (13 - 8)

=> 7500 = 5 × (P × R)/100

=> 150000 = P × R .....(3)

Substituting the value of (3) in equation (1)

=> 24500 - P = (P × R × 8)/100

=> 24500 - P = (150000 × 8)/100

=> 24500 - P = 1500 × 8

=> P = 24500 - 12000 = Rs. 12500

Therefore The sum invested. is Rs. 12500

Q52. Answer: (d) Sunita occupies third place from Ram in the clockwise direction

EXPLANATION:

1. Ram is to the immediate left of Rohan.

2. Sunita is not an immediate neighbour of Ram.

Case1

Case2

3. Chandan is an immediate neighbour of both Sunita and Seema. So case 2 gets cancelled.

Hence "Sunita occupies third place from Ram in the clockwise direction" is the correct answer.

.

Q53. Answer: (d) Amit

EXPLANTION:

Intelligent	Raj, Amit, Vikram
Hardworking	Raj, Amar, Shivani
Teacher	Amit, Shivani
Scholar	Raj, vikram, Shivani

Hence "Amit" neither hardworking nor a scholar.

Q54. Answer: (a) Mizoram

The correct answer is Mizoram.

Key Points

Forest cover of Mizoram

• Minister for Environment, Forest and Climate Change, Bhupender Yadav, released the 'Indian State of Forest Report 2021' on 13 January 2022.

• According to the report, Mizoram has the highest forest cover as a percentage of the total geographical area.

• The forest cover percentage of Mizoram is 84.53%.

• Followed by Mizoram the second highest cover has Arunachal Pradesh, then Manipur and Nagaland respectively.

Additional Information

Forest cover of Arunachal Manipur and Nagaland

• Arunachal Pradesh has a forest cover of 79.33% as a percentage of the total geographical area.

• Manipur has a forest cover of 74.34% as a percentage of the total geographical area..

• Nagaland has a forest cover of 73.90% as a percentage of the total geographical area..

Q55. Answer: (b) 200

Given:

Sunita scored 90% of Anita's score,

Anita's score was 110% of what Vinita scored.

Sunita scored 198 marks

Calculations:

Let the marks obtained by Anita be 'a' and of Vinita be 'v'

According to the question,

Marks of Sunita = 90% of marks of Anita

=> 198 = 90% × a

=> a = 220 marks.

Anita scored 22 marks

Now for the marks of Vinita

Marks of Anita = 110% of marks of Vinita

=> 220 = 110 % × v

=> v = 200 marks

Therefore Vinita scored 200 marks.

Q56. Answer: (c) Khelo India Scheme

The correct answer is Khelo India Scheme.

Key Points

Khelo India Scheme

• Khelo India Programme is a national yojana/scheme for the development of sports in India.

• It was launched in the year 2018 by Sports Minister Col. Rajyavardhan Singh Rathore in Delhi.

• This program has been launched to improve the sports culture in India.

• The Ministry has chosen to extend the Khelo India program through 2025–2026.

• The Ministry of Finance has received a document from the Expenditure Finance Committee (EFC) requesting the continuation of the Khelo India Scheme from 2021–2022 to 2025–2026

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Additional Information

Come and Play Scheme

• The Come and Play Scheme was established to encourage local athletes in locations where SAI sports facilities/Centres are open in order to make the best use of the organization's sporting resources in Delhi and around the nation.

Sports and Games for Persons with Disabilities Scheme

• The Ministry of Youth Affairs & Sports launched the "Sports and Games for Persons with Disabilities Scheme" as a Central Sector Scheme in 2009–2010, which was part of the XI Plan Period.

• The Scheme's main goal is to get as many disabled people involved in sports as possible.

Target Olympic Podium Scheme

• Target Olympic Podium Scheme (TOPS) seeks to give potential competitors for the Olympic Games/Paralympic Games and other important international competitions all the necessary support and assistance so they can take home medals.

Q57. Answer: (c) C is paternal grandmother of B and D.

Family Chart:

Given:

If 'A # B' means A is the father of B.

'A & B' means A is the brother of B.

'A @ B' means A is the mother of B.

Let us first decode the given symbols and then draw a family tree.

A is			
Symbol	#	&	@
Meaning	Father	Brother	Mother
of B			

Given : C@ A # B & D

1) C@ A which means C is mother of A.

2) A # B which means A is father of B.

3) B & D which means B is brother of D.

Now, check all the options.

1) C is mother of A and D → False (C is mother of only A and not D)

2) D is daughter of A → False (Gender of D is not known)

3) C is paternal grandmother of B and D → True (C is paternal grandmother of B and D)

4) D is granddaughter of C → False (Gender of D is not known)

Hence, "C is paternal grandmother of B and D" is the correct answer.

Q58. Answer: (d) 300

Given:

Profit % = 20%

Reduction in cost price = 10%

Increment in selling price = Rs.18

New profit % = 40%

Formula Used:

Profit = Selling price - Cost price

Calculation:

When the profit % is 20%

Let's assume that the cost price is Rs. 100

Profit % = 20%

=> Profit = Rs. 20

=> Selling price = Rs. 120.

=> Cost price: Selling price = 100:120

When the profit % is 40%

=> Cost price after reduction = 100 - 10 = 90

=> Profit % = 40%

=> Profit = 90 × 40% = Rs. 36

=> Selling price = 90 + 36 = Rs.126

Difference in selling price (126 - 120) = Rs. 6

According to the question,

Change in selling price = Rs. 18

=> 6 units = Rs.18

=> 1 unit = Rs. 3

=> 100 units = 3 × 100 = Rs. 300

Therefore The original cost price is Rs. 300

Q59. Answer: (d) Bhutan

The correct option is Bhutan.

Key Points

Thimphu

• Bhutan's capital is Thimphu, often written as 'Thimbu'.

• The city, which is located in the west-central region of the nation, is on the Raidak River in the Himalaya Mountains at a height of roughly 7,000 feet (2,000 meters).

• The government's official seat was moved there in 1962 before, it was wherever the king lived, and a significant construction project was launched with Indian assistance.

Additional Information

• Bangladesh's capital city is Dhaka, often written as 'Dacca'.

• It is situated in the south-central region of the nation, immediately north of the Buriganga River, a branch of the Dhaleswari River.

• The capital of Bangladesh and one of the biggest metropolises in South Asia is Dhaka.

• The country of Myanmar, often known as Burma, is situated in the western part of mainland Southeast Asia.

• The capital of Myanmar is Nay Pyi Taw, often written Nay Pyi Daw or Naypyidaw (Burma).

• Early in the twenty-first century, Nay Pyi Taw was constructed in Myanmar's central basin to act as the nation's new administrative hub.

• Nepal's capital is Kathmandu, often written Katmandu or Kantipur.

• It is located close to the intersection of the Baghmati and Vishnumati rivers in a steep area.

Q60. Answer: (a) 12

Given:

√(12.5 × 8 × 1.44)

Calculations:

=> √[(12.5) × (8) × (1.44)]

=> √[100 × (1.44)]

=> √(144) = 12

Therefore The simplified value is 12.

Q61. Answer: (c) South-west

Detailed solution :

1) Awadh walks 20m towards West.

2) Then, he turns to his left and walks 10m

.

3)Then, he again takes a left turn and walks 10m.

4) Now, he takes a right and again walks 10m.

5) He takes a right turn and stops after walking 10m.

Final, direction according to the given information. Hence, he is in south- west direction with respect to his starting point.

Q62. Answer: (d) Odisha

The correct answer is Odisha.

Key Points

• The majority of India's manganese is produced in Odisha, which has numerous mines spread out across the country's iron ore

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belt.

• Odisha produced one-third of the nation's total output in 2000–2001.

• Bonai, Kendujhar, Sundergarh, Gangpur, Koraput, Kalahandi, and Bolanger are a few of the more significant mines.

• Karnataka, Maharashtra, Telangana, Goa, and Jharkhand are the other states in India that produce manganese after Odisha.

Additional Information

• Alloys are made with manganese.

• It is employed in the production of glassware, dry cell batteries, polymers, and chemicals.

• To produce one tonne of steel, around 10 kg of manganese are needed.

Q63. Answer: (a) Rs. 2325

Given:

CP of 120 m cloth = Rs. 15000

Gain% on 45% of cloth = 40%

Loss% on 25% of cloth = 10%

Formula used:

=> SP = CP + Profit

=> SP = CP - Loss

Calculations:

According to the question,

CP of 120 m cloth = Rs. 15000

=> CP of 1 m cloth = 15000/120 = Rs. 125/m

Now for SP of 45% of cloth,

45% of 120 m cloth = (45 × 120)/100

=> 5400/100 = 54 m

CP of 54 m cloth = 54 × 125 = Rs. 6750

=> SP = CP + 40% of CP

=> SP = 6750 + 40% × 6750

=> SP = 6750 + 2700 = Rs. 9450

SP of 45% of cloth is Rs. 9450

Now for SP of 25% of cloth,

=> 25% of 120 m cloth = (25 × 120)/100

=> 3000/100 = 30 m

=> CP of 30m cloth = 30 × 125 = Rs. 3750

=> SP = CP - 10% of CP

=> SP = 3750 - 10% × 3750

=> SP = 3750 - 375 = Rs. 3375

SP of 25% of cloth is Rs. 3375

Now for SP of the rest of the cloth,

Remaining cloth = 45% + 25% + x% = 100%

=> Remaining cloth = 30%

=> 30% of 120 m cloth = (30 × 120)/100

=> 3600/100 = 36 m

=> CP of 36m cloth = 36 × 125 = Rs. 4500

=> SP = CP

SP of rest of the cloth is Rs. 4500

Now to find the total profit,

[(SP of 45% of the cloth) + (SP of 25 of the cloth) + (SP of rest of the cloth)] - [CP of the whole cloth]

=> [(9450) + (3375) + (4500)] - [15000]

=> Total Profit = 17325 - 15000 = Rs.2325

Therefore His profit (in Rs.) in the entire transaction is Rs. 2325

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Q64. Answer: (d) 126/7

Calculations:

According to the question,

Let the difference be 'x'.

x = [12/(13/14)] - [(12/13)/14]

=> x = [(12 × 14)/13] - [12/(13 × 14)]

=> x = [168/13] - [6/91]

=> x = [(168 × 7) - 6]/91

=> x = (1176 - 6)/91

=> x = 1170/91 = 12.85 or 126/7.

Therefore The difference will be 12.85 or 126/7.

Q65. Answer: (b) 1867

The correct answer is 1867.

Key Points

Prarthana Samaj

• Prarthana Samaj was a movement for religious and social reforms in Bombay, India.

• It was founded by Dadoba Pandurang and his brother Atmaram Pandurang in 1867 to make people believe in one God.

• After some time, Mahadev Govind Ranade also joined it and from then it became popular.

• Based on past reform movements, the Prarthana Samaj movement, often known as the "Prayer Society," was a religious and social reform movement in Bombay, India.

Additional InformationBrahmo Samaj

• The Brahmo Samaj was a monotheistic sect of Hinduism.

• The movement began through meetings of Bengalis in Calcutta in 1828.

• One of the leading figures was Ram Mohun Roy.

• The chief aim of the Brahmo Samaj was the worship of the eternal God.

• It was against priesthood, rituals and sacrifices.

• It focused on prayers, meditation and reading of the scriptures.

• The samaj has had considerable success with its programs of social reform but has never had a significant popular following.

Q66. Answer: (d) ÷ and ×

BODMAS rule:

1. ÷ and +

Given equation: 24 × 36 ÷ 27 + 6 - 2 = 22

After interchanging the signs, we get:

L.H.S = 24 × 36 + 27 ÷ 6 - 2

= 864 + 4.5 - 2

= 868.5 - 2

= 866.5 ≠ R.H.S

2. + and ×

Given equation: 24 × 36 ÷ 27 + 6 - 2 = 22

After interchanging the signs, we get:

L.H.S = 24 + 36 ÷ 27 × 6 - 2

= 24 + 4 ÷ 3 × 6 - 2

= 24 + 8 - 2

= 32 - 2

= 30 ≠ R.H.S

3. - and +

Given equation: 24 × 36 ÷ 27 + 6 - 2 = 22

After interchanging the signs, we get:

L.H.S = 24 - 36 ÷ 27 × 6 + 2

= 24 - 4 ÷ 3 × 6 + 2

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= 24 - 8 + 2

= 26 - 8

= 18 ≠ R.H.S

4. ÷ and ×

Given equation: 24 × 36 ÷ 27 + 6 - 2 = 22

After interchanging the signs, we get:

L.H.S = 24 ÷ 36 × 27 + 6 - 2

= 2 ÷ 3 × 27 + 6 - 2

= 18 + 6 - 2

= 24 - 2

= 22 = R.H.S

Hence, '÷ and ×' is the correct answer.

Q67. Answer: (b) 237

Given:

(44.97% of 226) + 55.03 × 4.98 - ? = 140

Calculations:

Let unknown no. be 'x'.

(0.45 × 226) + 55 × 5 - (x) = 140

=> (102) + 275 - 140 = x

=> x = 377 - 140 = 237.

Therefore The simplified value is 237.

Q68. Answer: (b) Project-75 India

The correct answer is Project-75 India.

Key Points

• Project-75 India

• Under Project-75 India, Government of India has issued a tender of 50,000 crore to build six conventional diesel-electric submarines.

• This submarine would be bigger than the under-construction Scorpene-class submarines being built at the Mazagon Dockyards Limited in Mumbai.

• The tender has been issued for the construction of six conventional diesel-electric submarine to Mazagaon Dockyard limited and Larsen and Toubro.

• The submarines would be equipped with heavy-duty firepower so that the boats will have at least 12 Land Attack Cruise Missiles (LACM) along with Anti-Ship cruise missiles (ASCM).

Additional Information

• Defence minister of India is shri Rajnath Singh.

• Larsen and toubro headquarter is situated in Mumbai.

Q69. Answer: (a) Ginning

The correct answer is Ginning.

Key Points

• The process of separating cotton fibres from seeds is called ginning.

• From the field, seed cotton moves to nearby gins for separation of lint and seed.

• The cotton first goes through dryers to reduce moisture content and then through cleaning equipment to remove foreign matter.

• These operations facilitate processing and improve fiber quality.

• The cotton is then air conveyed to Cotton Ginning in stands where revolving circular saws pull the lint through closely spaced ribs that prevent the seed from passing through.

• The lint is removed from the saw teeth by air blasts or rotating brushes, and then compressed into bales weighing approximately 500 pounds.

• Cotton is then moved to a warehouse for storage until it is shipped to a textile mill for use.

• A typical gin will process about 12 bales per hour, while some of today's more modern gins may process as many as 60 bales an hour.

Additional Information

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• Yarning is the process where the cotton yarn is spinned at the initial stage of textile processing.

• Thermoforming is a manufacturing process where a plastic sheet is heated to a pliable forming temperature, formed to a specific shape in a mold, and trimmed to create a usable product.

• Molding is the process where specific thing is moulded into the desired shape.

Q70. Answer: (d) Sanjay

Given,

1. Asha is third to the right of Chirag. Lalit is an immediate neighbour of both Chirag and Pihu.

case 1:

case2:

2. Kiran is to the immediate right of Sanjay. so case 1 gets cancelled. Only three people sit between Kiran and Rajiv.

3. Sia is an immediate neighbour of Rajiv and Asha.

so Sanjay is sitting to the immediate right of Asha.

Q71. Answer: (d) North-east

Given,

1. Shreya starts walking towards the north from her shop and she walks 15 m. Then takes a right turn and walks 30 m.

2. She now takes a left turn and walks 15 m.

3. Again she takes a left turn and walks 15 m.

4. Finally, she turns left again and stops after walking 15 m.

Final Direction according to the given information.

She is in North-east direction.

Q72. Answer: (c) 1990

The correct answer is 1990.

Key Points

• The commercial paper was formally introduced in India on 1st January,1990.

• However, the commercial paper were first introduced on 27th March 1989.

• The commercial paper in India was introduced by RBI in the Indian money market.

• Commercial paper is the money market instrument in which individuals, non-resident Indians, banks, companies and foreign institutional investors (FII) can invest.

• The minimum amount to invest in commercial paper is 5 Lakh INR.

• They are either in physical or dematerialized form.

• There are 4 types of commercial paper i.e. drafts, checks, notes and certificate of deposit.

Q73. Answer: (b) Sharangdev

The correct answer is Sharangdev.

Key Points

• Sangeet Ratnakar, the earliest known treatise on music was composed by Sharangdev.

• Sangeet Ratnakar was called the "Ocean of Music and Dance", is one of the most important musicological texts from India.

• The text is divided into seven chapters

• The first six chapters Svaragatadhyaya, Ragavivekadhyaya, Prakirnakadhyaya, Prabandhadhyaya, Taladhyaya and Vadyadhyaya.

• Sarnga Deva, was the 13th-century Musician who authored Sangeet Ratnakar – the classical Sanskrit text on music and drama.

Additional Information

• Amir Khusrau is called the father of qawwali and was the one who introduced ghazal in India.

• Tansen is also known to as Tan Sen or Ramtanu, was a well known person of North Indian classical music.

• Muhammad Shah was a great patron of the arts, including musical, cultural and administrative developments.

Q74. Answer: (b) Raj Angad Bawa

The correct answer is Raj Angad Bawa.

Key Points

• Raj Angad Bawa became the first Indian cricketer to bag a fifer in an ICC tournament final when he finished with figures of 5/31 in the U19 World Cup final against England in North Sound, Antigua on Saturday.

• Raj Angad Bawa combined with Ravi Kumar, who bagged 4/34, to bowl England out for 189 in the summit clash.

• Raj Angad Bawa also became the first player since Pakistan's Anwar Ali in 2006 to pick a five-wicket haul in an ICC U19 World Cup final.

• In finals, Raj Angad Bawa and Ravi's heroics helped India win the title.

Additional Information

• The World cup was held against England in North Sound, Antigua.

• India lifted the U19 World cup for the fifth time.

• The 2023 ICC Men's Cricket World Cup will be the 13th edition of the men's Cricket World Cup, scheduled to be hosted by India during October and November 2023.

• This will be the first time the competition is held entirely in India.

Q75. Answer: (c) 71.8

Given:

Scores = 82, 60, 62, 63, 78, 75, 86, 75, 91, 46

Formula Used:

Mean = (Sum of all the values)/(Total no. of values)

Calculations:

=> M = (82 + 60 + 62 + 63 + 78 + 75 + 86 + 75 + 91 + 46)/(10)

=> M = 718/10 = 71.8

Therefore The arithmetic mean of their scores is 71.8.

Q76. Answer: (a) Cache memory

The correct answer is Cache Memory.

Key Points

• Cache memory is a chip-based computer component that makes retrieving data from the computer's memory more efficient.

• Cache, which is pronounced "cash" (not "catch" or "cashay"), stores recently used information so that it can be quickly accessed at a later time.

• Computers incorporate several different types of caching in order to run more efficiently, thereby improving performance.

• Common types of caches include browser cache, disk cache, memory cache and processor cache.

Additional Information

• Tertiary memory is a level below secondary storage

• Typically, it involves a robotic mechanism which will mount (insert) and dismount removable mass storage media into a storage device according to the system's demands; such data are often copied to secondary storage before use.

• Optical memory

• Optical memory is an electronic storage medium that uses a laser beam to store and retrieve the data. If we classify the memory system then optical memory comes under the external memory in the computer system.

• Auxiliary memory

• Auxiliary memory units are among computer peripheral equipment.

• They trade slower access rates for greater storage capacity and data stability.

• Auxiliary memory holds programs and data for future use, and, because it is nonvolatile (like ROM).

• It is used to store inactive programs and to archive data.

Q77. Answer: (b) 148°

Shortcut Trick

In isosceles triangle ΔRST, two angles must be equal. Given mangle R = 16°.

Condition TR > ST implies angle opposite to TR must be greater than angle opposite to ST.

Therefore mangle S > mangle R, so mangle S cannot be 16°.

If equal angles are mangle R = mangle T = 16°, then mangle S = 180° − (16° + 16°) = 148°.

Since 148° > 90°, it satisfies the obtuse condition.

Therefore The correct answer is 148°.

Alternate Method

Given:

ΔRST is obtuse isosceles triangle.

mangle R = 16°

m(TR) > m(ST)

Formula Used:

Sum of angles in a triangle = 180°

Side-Angle Inequality: The side opposite to the greater angle is longer.

Calculations:

=> In ΔRST, the side TR is opposite to angle S and side ST is opposite to angle R.

=> Given TR > ST => mangle S > mangle R

=> Since mangle R = 16°, we must have mangle S > 16°.

=> For an isosceles triangle, two angles must be equal. Possible cases for (mangle R, mangle S, mangle T):

=> Case 1: If mangle S = mangle T, then 16° + 2 × mangle S = 180° => 2 × mangle S = 164° => mangle S = 82°. (Triangle is 16°, 82°, 82° which is acute, so rejected).

=> Case 2: If mangle R = mangle T = 16°, then mangle S = 180° − (16° + 16°) = 148°.

=> Here 148° > 16°, which satisfies the condition mangle S > mangle R (TR > ST).

=> Also, 148° > 90°, making the triangle obtuse.

Therefore The correct answer is 148°.

Additional Information

Angle-Side Relationship

In any triangle, the side opposite to the largest angle is the longest side, and the angle opposite to the longest side is the largest angle.

Obtuse Isosceles Triangle

A triangle where one angle is greater than 90° and two sides (and their opposite angles) are equal. The equal angles must always be acute.

Sum of Angles Property

The interior angles of any Euclidean triangle always sum up to exactly 180°.

Q78. Answer: (b) Pandit Brij Bhushan Kabra

The correct answer is Pandit Brij Bhushan Kabra.

Key Points

• Pandit Brij Bhushan Kabra

• He is one of the gems of Indian Classical Music and belongs from Jodhpur Rajasthan.

• Pandit Brij Bhushan Kabra is accredited for being the only musician to introduce and include the guitar artistically to Indian classical music and he was the first artiste to play raga on guitar.

• This artist has received many prestigious awards and has been acclaimed by the musicians worldwide for his soulful music and for his flawless work in the world of music.

Additional Information

• Ustad Ali Akbar Khan

• He played the sarod, a stringed, flute like instrument that is part of the musical tradition in Hindustan.

• Pandit shivkumar sharma

• He was an Indian classical musician and santoor player who is credited with adapting the santoor for Indian classical music.

• Hariprasad Chaurasia

• He is an Indian music director and classical flautist, who plays the flute, in the Hindustani classical tradition.

Q79. Answer: (c) bcbbbab

Given : ab_ _ da _ bcda _ _ cd _ _ bcd

Let's check each option:

1) bcbbaab → abbcd - abbcd - abacd - abbcd → No visible pattern

2) bcabbab → abbcd - aabcd - abbcd - abbcd → No visible pattern

3) bcbbbab → abbcd - abbcd - abbcd - abbcd → Here, 'abbcd' is repeating itself

4) bcbabab → abbcd - abbcd - aabcd - abbcd → No visible pattern

Hence, "bcbbbab" is the correct answer.

Q80. Answer: (c) Puri

The correct answer is Puri.

Key Points

• Puri is the city in Odisha where Nabakalebar Rath Yatra is held.

• Nabakalebar is a ritual in which the wooden figures of Lord Jagannath, Balabhadra, Subhadra, and Sudarshan are periodically renewed.

• Nabakalebara is an important festival in the Hindu Odia Calendar, observed in the Jagannath Temple, Puri.

• It was first organized in 1575 A.D. by Yaduvansh Bhoi King Ramchandra Deva.

• It marks the symbolic demise and rebirth of Jagannath at Puri.

• The event involves the installation of new images in the Jagannath temple and the burial of the old ones on the temple premises at Koili Baikuntha.

Additional Information

• The capital of Odisha is Bhubaneshwar.

• The chief minister of Odisha is Naveen Patnaik.

• The Minister of culture is chaired by G. Kishan Reddy.

Q81. Answer: (b) 14 : 220

The logic followed here is:

Logic: First number × First number + First number = Second number

1. 3 : 12 → 3 × 3 + 3 = 12

2. 14 : 220 → 14 × 14 + 14 = 210 ≠ 220

3. 11 : 132 → 11 × 11 + 11 = 132

4. 5 : 30 → 5 × 5 + 5 = 30

Hence, '14 : 220' is the odd one out.

Q82. Answer: (a) fifth

The correct answer is Fifth.

Key Points

• The most important of all Jain festivals, "Gyan Panchami" is also known as Laabh paacham and Jnan Panchami.

• This day is also celebrated as Jaya Panchami, Pandava Panchami and Birth day of Sri Guru Gobind Singh, Saubhagya Panchami and as the Labha Panchami.

• Celebrated on the fifth day after Diwali, the festival is purely for the purpose of gaining more wisdom.

Additional Information

• "Gyan" is the natural light of inner soul. It is this light that is believed to help us differentiate between good and bad.

• Hence, Gyan is also known as 'the third eye' or 'the second sun'.

• It is this natural inner light that is prayed to ward off ignorance and reveal the knowledge of karma, thus, wisdom replaces ignorance or foolishness.

Q83. Answer: (d) 4400

Given:

Principle (P) = Rs. 9200

Rate of interest (R1) = 5% per annum

Rate of interest (R2) = 8% per annum

Time period (T) = 3 years

Total interest received = Rs. 1812

Formula used:

Simple Interest (SI) = (P × R × T)/100

Calculations:

According to the question,

Let the sum lent at a 5% rate be 'x', then the sum lent at 8% be (9200 - x)

=> SI = (SI at 5%) + (SI at 8%)

=> 1812 = [(x × 5 × 3)/100] + {[(9200 - x) × 8 × 3]/100}

=> 1812 = [15x/100] + {[220800 - 24x]/100}

=> 1812 = 15x + 220800 - 24x

=> 181200 = 220800 - 9x

=> x = (220800 - 181200)/9

=> x = 39600/9 = Rs. 4400

Therefore The sum (in Rs.) lent at 5% p.a. was Rs. 4400.

Q84. Answer: (a) The Second Five-Year Plan

The correct answer is the Second Five-Year Plan.

• The Second Five-Year Plan pointed out that 'the benefits of economic development must accrue more and more to the relatively less privileged classes of society'.

Key Points

• The Second Five Year Plan covers the period from April 1956 through March 1961.

• The Second Plan focused on the development of the public sector and "rapid Industrialisation".

• The plan followed the Mahalanobis model, an economic development model developed by the Indian statistician Prasanta Chandra Mahalanobis in 1953.

• The plan attempted to determine the optimal allocation of investment between productive sectors in order to maximise long-run economic growth.

• It used the prevalent state-of-the-art techniques of operations research and optimization as well as the novel applications of statistical models developed at the Indian Statistical Institute.

• The plan assumed a closed economy in which the main trading activity would be centred on importing capital goods.

• From the Second Five-Year Plan, there was a determined thrust towards substitution of basic and capital good industries.

Additional Information

• From 1947 to 2017, the Indian economy was premised on the concept of planning.

• This was carried through the Five-Year Plans, developed, executed, and monitored by the Planning Commission (1951-2014) and the NITI Aayog (2015-2017).

• With the prime minister as the ex-officio chairman, the commission has a nominated deputy chairman, who holds the rank of a cabinet minister.

• Montek Singh Ahluwalia is the last deputy chairman of the commission (resigned on 26 May 2014).

• The Twelfth Plan completed its term in March 2017.

• With the Planning Commission dissolved, no more formal plans are made for the economy, but Five-Year Defence Plans continue to be made.

• The latest would have been 2017–2022. However, there is no Thirteenth Five-Year Plan.

Q85. Answer: (d) JVIQCWY

The position of letters according to the English alphabet series:

The pattern followed here is as follows:

'FEATURE' is written as 'ZIUXOVY'

And,

'CONSULT' is written as 'WSHWOPN

Similarly,

'PROMISE' is written as '?'

Hence, "JVIQCWY" is the correct answer.

Q86. Answer: (b) Russia

The correct answer is Russia.

Key Points

• The Trans–Siberian Railway is a network of railways connecting Western Russia to the Russian Far East.

• It is the longest railway line in the world.

• It has a length of over 9,289 kilometers (5,772 miles).

• It stretches from Moscow, the capital of Russia and the largest city entirely within Europe, to Vladivostok, which is situated along the Sea of Japan.

Additional Information

• Trans Arabian Railway

• This is a concept as yet that has been approved by Saudi Arabia.

• This rail route will connect Saudi Arabia, UAE, Oman, Bahrain, Kuwait, and Qatar.

• This ambitious project is called the GCC Rail network.

• Russian Railways is interested in constructing this project.

• Trans European Railway
• It is a project by United Nations Economic Commission for Europe
• It is a joint project along with Tran European Motorways.
• It aims at connecting Central, East, and South-Eastern Countries.
• Trans Asian Railway
• It is a plan to construct a freight train network across Asia to Europe.
• The project is under the United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP).

Q87. Answer: (a) Laterite soil

The correct answer is Laterite soil.

Key Points

Laterite Soil

• The tea plant grows well in deep and fertile well-drained laterite soil, rich in humus and organic matter, coupled with tropical and sub-tropical climates.
• Laterite soils are good for tea, coffee and cashew cultivation.
• This soil is rock type rich in iron and aluminum.
• It is commonly considered to have formed in hot and wet tropical areas.
• It is when wet are as soft as butter but become hard and cloddy on drying.
• They are particularly found on high flat erosion surfaces in areas of high and seasonal rainfall.
• They are commonly found in the hilly areas of Orissa and Assam, Karnataka, Tamil Nadu, Madhya Pradesh, and Kerala.
• These soils are reddish-brown in color due to the presence of iron oxide.

Additional InformationAlluvial soil

• Alluvial soil is one of the best soils, requiring the least water due to its high porosity.
• The consistency of alluvial soil ranges from drift sand and rich, loamy soil to silt clays.
• India is one of the richest countries in the world in terms of alluvial soil, which covers more than 46% of its total land area.
• Alluvial soils remove sediments and nutrients flowing in the adjacent water.
• They can also remove other contaminants from rivers and improve water quality for downstream communities.
• All alluvial soils form by flooding.

Black soil

• Black soils are mineral soils which have a black surface horizon, enriched with organic carbon.
• This soil is a derivative of trap lava and are spread mostly across interior Gujarat, Maharashtra, Karnataka, and Madhya Pradesh on the Deccan lava plateau and the Malwa Plateau.
• It is fine textured and clayey in nature.
• It has high amounts of lime, iron, magnesium and generally low quantities of phosphorus, nitrogen and organic matter.
• It is black in colour since it is formed from weathered lava rocks.

Arid soil

• Arid soils are formed from the fragmentation of adjacent rocks and are largely blown from Indus valley area and coastal regions.
• They mainly can be seen developing western Rajasthan.
• It mainly ranges from red to brown in colour.
• It is generally sandy to gravelly in texture, and have a high percentage of soluble salts.
• Due to the absence of vegetation and dry climate, it comprises a small percentage of organic matter.

Q88. Answer: (b) 36

Given:

288 and 468

Concept used:

HCF = Highest Common Factor

Calculations:

HCF of 468 = 2 × 2 × 3 × 3 × 13

=> HCF of 288 = 2 × 2 × 2 × 2 × 2 × 3 × 3

=> HCF = 2 × 2 × 3 × 3 = 36

Therefore The largest number that will divide both 288 and 468 without leaving any remainder is 36.

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Q89. Answer: (a) 125

Given:

Lost matches % = 40%

Win matches = 75 matches

Calculations:

Percent matches won = 100% - lost% = 100 - 40 = 60%

According to the question,

Let no. of total matches played be 'x'

60% of x = 75

=> 60/100 × (x) = 75

=> x = (75/60) × 100

=> x = 5/4 × 100

=> x = 5 × 25 = 125 matches

Therefore The total no. of matches played is 125.

Q90. Answer: (d) Directive Principles of State Policy

The correct answer is Directive Principles of State Policy.

Key PointsDirective Principles of State Policy - Part IV of the Constitution of India

• Part IV of the Constitution of India contains the Directive Principles of State Policy (DPSP).

• These principles aim at ensuring socio-economic justice to the people and establishing India as a Welfare State.

• After colonial rule for almost two hundred years, the country and the society was left with widespread poverty, hunger and deep rooted socio-economic inequalities.

• The framers of the Constitution felt that certain policy directions, guidelines or instructions for the governance of the country were required to handle these problems.

• Legislature, executive and administration of Independent India were expected to exercise their powers in accordance with the direction and guidelines given in this part of the Constitution.

Additional Information

• Article 1 to 4 contained in Part I of the Constitution. This part 1 of the indian constitution contains the law in the following examples,establishment, renaming, merging or altering the borders of the states or union territories.

• Article 5 to 11 contained in Part II of the Constitution. The article provides that any person who was born or his parents /grandparents were born in undivided India but living abroad and wants to return to India would need to be registered at the as Citizen of India by the diplomatic or consular representative of India in that country.

• Article 12 to 35 contained in Part III of the Constitution deal with Fundamental Rights. These are: Right to equality, including equality before law, prohibition of discrimination on grounds of religion, race, caste, sex or place of birth, and equality of opportunity in matters of employment.

• Article 36 to 51 contained in Part IV of the Constitution. It contains promotion of educational and economic interests of Scheduled Castes, Scheduled Tribes and other weaker sections.

• The table of articles is given below:

Parts	Subject	Articles
Part-1	Union and Its territories	Art.1 to Art.4
Part-2	Citizenship	Art.5 to Art.11
Part-3	Fundametal Right	Art.12 to Art.35
Part-4	DPSP	Art.36 to Art.51

Q91. Answer: (d) Parliament

The correct answer is Parliament.

Key Points

• The Fifth Amendment of the Constitution of India, officially known as The Constitution Act, 1955.

• It empowered the President to prescribe a time limit for a State Legislature to convey its views on proposed Central laws relating to the formation of new States and alteration of areas, boundaries or names of existing States.

• The amendment also permitted the President to extend the prescribed limit, and prohibited any such bill from being introduced in Parliament until after the expiry of the prescribed or extended period.

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• Parliament can form a new state by separating the territory from any state, by merging two or more states or parts of states.

• Parliament can also reduce or increase the area or alter the boundary of any state or even change its name.

• But first, a bill on the matter has to be referred by the President to the legislature of the affected state so that the legislature can express its views within a certain period.

Additional Information

• The 5th Amendment re-enacted the proviso to Article 3 of the Constitution.

• The full text of Article 3 of the Constitution, before the 5th Amendment is given below:

• Formation of new States and alteration of areas, boundaries or names of existing States. Parliament may by law—

• form a new State by separation of territory from any State or by uniting two or more States or parts of States or by uniting any territory to a part of any State

• increase the area of any State

• diminish the area of any State

• alter the boundaries of any State

• alter the name of any State:

Q92. Answer: (a) 77

Number of days starting from 26^(th)February 2020 to 26^(th) May 2020 = February (4) + March (31) + April (30) + May (25) = 90 days as 2020 is a leap year.

26^(th) February is held on Wednesday. So 26 February (Wednesday) + 4 = 1 March (Sunday)

Since it was Sunday on 1^(st)March, every 7th day from 1^(st) March will be a Sunday

Total number of Sundays from 26^(th) February 2020 to 26^(th) May 2020 = March (5) + April (4) + May (4) = 13

Total number of working days = Total number of days - Total number of Sundays = 90 - 13 = 77

Therefore, there are 77 active working days.

Hence, the correct answer is "77".

Q93. Answer: (d) 5112

Given:

Length (l) = 4.2 m = 42 dm

Breadth (b) = 30 dm

Height (h) = 180 cm = 18 dm

Formula used:

Surface Area (SA) of Cuboid = 2 [(l × b) + (b × h) + (h × l)]

Calculations:

According to the question,

SA = 2 [(42 × 30) + (30 × 18) + (18 × 42)]

=> SA = 2 [(1260) + (540) + (756)]

=> SA = 2 [2256]

=> SA = 2 × 2556 = 5112 dm^2

Therefore The surface area (in dm2) of a cuboid is 5112 dm^2.

Q94. Answer: (c) marginal revenue has a positive value; marginal revenue has a negative value

The correct answer is marginal revenue has a positive value; marginal revenue has a negative value.

Key Points

• The demand curve is a concept in economics that plots the price of a product or service against how much of the product or service people buy.

• Typically, the lower the price of an item, the more people buy.

• However, that relationship varies depending on the item.

• An elastic demand curve means that a change in price has a large effect on buying, while an inelastic demand curve means that a price change has less effect on buying.

Additional Information

• Marginal revenue is related to the price elasticity of demand — the responsiveness of quantity demanded to a change in price.

• When marginal revenue is positive, demand is elastic; and when marginal revenue is negative, demand is inelastic.

• On a graph with both a demand curve and a marginal revenue curve, demand will be elastic at all quantities where marginal revenue is positive.

• Demand is unit elastic at the quantity where marginal revenue is zero.

• If the elasticity of demand is less than zero then it denotes that the change in quantity demand is opposite to the change in its own price.

• It means that the slope of the demand curve is negative at this point and the marginal revenue is also negative due to negative slope.

Q95. Answer: (c) 45

Given:

The data: 16, 78, 26, 91, 29, 71, 31, 46, 9, 51, 54, 56, 61, 21, 62, 65, 73, 86, 41, 89

Formula Used:

Median for even no. of observations = Average of (n/2)th & (n/2 + 1)/2^(th) term

Calculations:

Let the Median of original data be 'x'

Arranging the data in ascending order,

9, 16, 21, 26, 29, 31, 41, 46, 51, 54, 56, 61, 62, 65, 71, 73, 78, 86, 89, 91

=> Total no. of observations = 20

=> Median = 20/2^(th)+ (20/2 + 1)/2th = 10th & 11th term

=> Median = (54 + 56)/2 = 55

Now observations 26 and 41 are replaced by 59 and 75 the new data will be,

Let the New Median be 'y',

9, 16, 21, 29, 31, 46, 51, 54, 56, 59, 61, 62, 65, 71, 73, 75, 78, 86, 89, 91

=> Total no. of observations = 20

=> New Median = 20/2^(th) & (20/2 + 1)^(th) = 10th & 11th term

=> New Median = (59 + 61)/2 = 60

According to the question,

(3x - 2y) = (3 × 55) - (2 × 60)

=> 165 - 120 = 45

Therefore The value of (3x - 2y) is 45

Additional Information

=> Median for odd no. of observations = [(n + 1)/2]th term.

Q96. Answer: (a) The Supreme Court and the High Court

The correct answer is The Supreme Court and the High Court.

Key Points

• Habeas corpus is the Latin term which means ‘you must have the body’.

• It is the order issued by the court to present the detenu before the court and to check whether the arrest was lawful or not.

• The supreme court under Article 32 and the high court under Article 226 have the power to issue writs of 'Habeas corpus'.

• Though under Article 32 the supreme courts issue the writs if there is any violation of the fundamental rights of a person but the High Court under Article 226 has a wider jurisdiction to issue the writ for both a violation of the legal as well as the fundamental rights.

Additional Information

• The concept of the writs is to enable the immediate determination of the rights of an individual and help the person to achieve the benefit of his right.

• There are five types of writs in our constitution those are as follows:

• Writ of habeas corpus

• Writ of Mandamus

• Writ of prohibition

• Writ of certiorari

• Writ of quo warranto

• The writ of mandamus is the order or command issued by any statute or any authority sanctioned by law to any person, corporation or any other authority in order to perform any public duty.

• The writ of prohibition means is a writ issued by the higher authority to its subordinate authority in order to stop something which the law prohibits.

• This writ can only be issued against a judicial and quasi-judicial body.
• The term certiorari is a Latin word that means to be informed.
• This writ is issued by the higher court to review the actions of the lower court.
• Writ of quo warranto means by what authority.
• This writ is issued which requires a person to show by what authority he has exercised his powers or rights.

Q97. Answer: (c) Sri Lanka

The correct answer is Sri Lanka.

Key Points

Sinhala - Language in Sri Lanka

• Sinhala is the native language of the Sinhalese people.
• It constitutes approximately 70 percent of Sri Lanka's population, which equals approximately 13 million people.
• Sinhala is also spoken among other ethnic groups on the island as a second language, making it the most widely spoken language in Sri Lanka.
• It was greatly influenced by Pali, the liturgical language of Sri Lankan Buddhists.
• Due to the centuries of colonial rule in Sri Lanka, Sinhala contains many Portuguese, Dutch and English loanwords.
• Sinhala also has a number of words borrowed from Tamil.

Additional InformationMalay - Language in Malaysia

• The national language of Malaysia is Malay.
• It is also called Malaysian Malay or Malay.
• It is spoken by over 80% of the population.
• The three main Malaysian languages are Malay, Mandarin and Tamil.

Indonesian - Language of Indonesia

• Indonesian (locally referred to as Bahasa Indonesia) is the primary lingua franca.
• Indonesian is spoken by over 94% of the population, but it is the primary language of only 20% of the population.
• Javanese (Jawa) is the most common primary language, spoken by over 30% of the population.

Burmese - Language of Myanmar

• The official language is Burmese, spoken by the people of the plains and, as a second language, by most people of the hills.
• During the colonial period, English became the official language, but Burmese continued as the primary language in all other settings.

Q98. Answer: (b) Khajuraho

The correct answer is Khajuraho.

Key Points

• The Kandariya Mahadeva Temple, meaning "the Great God of the Cave", is the largest and most ornate Hindu temple.
• It is considered one of the best examples of temples preserved from the medieval period in India.
• Kandariya Mahadeva Temple is located in the Chhatarpur district of Madhya Pradesh in Central India.
• It is in the Khajuraho village, and the temple complex is spread over an area of 6 square kilometers (2.3 sq mi).
• It is in the western part of the village to the west of the Vishnu temple.

Additional Information

• Most Khajuraho temples were built between 950 and 1050 by the Chandela dynasty.
• Historical records note that the Khajuraho temple site had 85 temples by the 12th century.

Q99. Answer: (d) 16

People facing North : A, B, C, D, E

1) E sits fourth to the right of D.

2) B sits third to the left of D.

3) Exactly seven people sit between A and D. A sits third to the right of C.

4) E and C occupy the extreme end positions of the row. (so case 1 is eliminated)

Hence, there are 16 people seated in the row.

Hence, the correct answer is 16.

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Q100. Answer: (d) P

Friends : P, Q, R, S, T, U and V

Cities : Shimla, Manali, Agra, Jaipur, Goa, Guhawati and Darjeeling

1) T belongs to Darjeeling.

People	Cities
P	
Q	
R	
S	
T	Darjeeling
U	
V	

2) S and V belong to Manali and Shimla, respectively.

People	Cities
P	
Q	
R	
S	Manali
T	Darjeeling
U	
V	Shimla

3) Q belongs to Agra.

People	Cities
P	
Q	Agra
R	
S	Manali
T	Darjeeling
U	
V	Shimla

4) One among R and U belongs to Guwahati.

People	Cities
P	
Q	Agra
R	Guhawati
S	Manali
T	Darjeeling
U	Guhawati
V	Shimla

5) P does not belong to Goa.

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People	Cities
P	Jaipur
Q	Agra
R	Guhawati/Goa
S	Manali
T	Darjeeling
U	Guhawati/Goa
V	Shimla

So, P belongs to Jaipur.

Hence, the correct answer is P.

Q101. Answer: (d) Garbhagriha

The correct answer is Garbhagriha.

Key Points

• A garbhagriha or sannidhanam is the sanctum sanctorum, the innermost sanctuary of a Hindu and Jain temples where resides the murti of the primary deity of the temple.

• Literally the word means "womb chamber", from the Sanskrit words garbha for womb and griha for the house.

• Although the term is often associated with Hindu temples, it is also found in Jain and Buddhist temples.

• Traditionally, in Hinduism only 'priests' are allowed to enter this chamber, though in modern practice this is often considerably relaxed.

Additional Information

• Vimana is the structure over the garbhagriha or inner sanctum in the Hindu temples of South India and Odisha in East India.

• Shikhara, a Sanskrit word translating literally to "mountain peak", refers to the rising tower in the Hindu temple architecture of North India, and also often used in Jain temples.

• Mandapa in Indian architecture, especially Hindu temple architecture, is a pillared hall or pavilion for public rituals.

• Mandapas are described as open or closed depending on whether they have walls.

• In temples, one or more mandapas very often lie between the sanctuary and the temple entrance, on the same axis.

Q102. Answer: (c) 24√3 cm

Given

Altitude of triangle = 12 cm

Concept

Altitude of an equilateral triangle is a median of an equilateral triangle.

Length of altitude of equilateral triangle = √3/2 × side of the triangle

Calculation

Let the side of an equilateral triangle is x cm.

12 = √3/2 × x

=> 24/√3 cm

Perimeter of triangle = 3(side)

=> 3 × (24/√3)

=> 24√3 cm.

Alternate MethodGiven:

Height of the equilateral triangle = 12 cm

Formula used:

The perimeter (P) of a triangle is = Sum of all the sides

Concept used:

Pythagorean Theorem = $(\text{Hypotenuse})^2 = (\text{Perpendicular})^2 + (\text{Base})^2$

=> sin 60° = √3/2

Calculations:

Considering the height of the triangle as perpendicular then,

=> sinθ = (Perpendicular)/(Hypotenuse)

=> sin 60° = 12/H

=> H = (12 × 2)/√3 = 24/√3

Now the perimeter of the triangle,

=> P = 3 × Side

=> P = 3 × 24/√3 = 24√ 3

Therefore The perimeter of the triangle is 24√3.

Q103. Answer: (b) 135 m

Given:

Total Length of the pole = 405 m

The ratio of Saffron: White: Green = 8: 9: 10

Calculations:

Let the variable be 'x'

Total Length of the pole = Length of Saffron + Length of White + Length of Green

=> 405 = 8x + 9x + 10x

=> 27x = 405

=> x = 405/27 = 15

Now the length of the White part,

=> 9x = 9 × 15 = 135 m

Therefore The length of the White part is 135 m.

Q104. Answer: (a) 87

The correct answer is 87.

Key Points

• Article 87 of the Indian Constitution deals with the special address by the President to the Parliament.

• Article 87 of the constitution provides two instances when the President specially addresses both Houses of Parliament.

• The President of India addresses both the Rajya Sabha and the Lok Sabha at the beginning of the first Session after each general election when the reconstituted lower house meets for the first time.

• The President also addresses both the houses at beginning of the first session of each year.

Additional Information

• Article 79 of the Constitution of India, the council of the Parliament of the Union consists of the President and two Houses known as the Council of States (Rajya Sabha) and the House of the People (Lok Sabha).

• Article 85 of the Indian Constitution deals with the provisions of Sessions of Parliament, prorogation and dissolution.

• Article 81 of the Indian Constitution defines the makeup of the House of The people, Lok Sabha.

• The House of Representatives shall have no more over 550 members elected, with little than 20 from Territories.

Q105. Answer: (a) P

Option 1 is the correct answer.

Students : P, Q, R, S and T

1) T scored more than only one student. (Thus, T is at the fourth position)

_>_>_>T>_

2) S scored more than Q but less than P. Q did not score less than T. (So Q cannot be the one who scored least marks)

P>S>Q>T>R

Hence, P scored the highest marks.

Q106. Answer: (a) Karsten Warholm

The correct answer is Karsten Warholm.

Key Points

• Karsten Warholm

• Karsten Warholm,of Norway obliterated his own 400-meter hurdles world record in Tokyo 2020 Summer Olympic.

• He made history by running the first 400-meter hurdles in under 45.94 seconds.

• He win his first Olympic gold medal in Tokyo 2020.

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• He broke Young's record by running in front of a cheering crowd at Bislett Stadium in Oslo, in Tokyo.
• He overtakes American Kevin Young's 29-year-old world record, which he had held since the Olympics in Barcelona.
Additional Information
• Rai Benjamin
• He is from the United states.
• Benjamin finished second in Tokyo 2020 Summer Olympic.
• He also broke the previous mark in 46.17 seconds.
• With a time of 46.72 second, Brazilian Alison dos Santos came in third.
• Melaine Walker is a 400 meter hurdler from Jamaica. She misses medal at Tokyo 2020.

Q107. Answer: (a) 3

Floors : 1 (lowest) to 7 (highest)

1) She does not live on an even numbered floor. (Either she lives on 1^(st), 3^(rd), 5^(th) or 7^(th) floor)

Floors	Case1	Case2	Case3	Case4
7	Anu			
6				
5		Anu		
4				
3			Anu	
2				
1				Anu

2) At least two floors are above and two floors are below the floor where she lives. (Thus, Anu neither lives at 1^(st)floor nor at 7^(th) floor) So case 1 and 4 are eliminated.

Floors	Case2	Case3
7		
6		
5	Anu	
4		
3		Anu
2		
1		

3) There are at least two floors between her and her friend who lives on the topmost floor. (So Anu doesn't lives at 5^(th) floor) So case 2 is also eliminated.

Floors	Persons
7	Her friend
6	
5	
4	
3	Anu
2	
1	

So, Anu's flat is on 3^(rd) floor.

Hence, the correct answer is 3.

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Q108. Answer: (d) Rs. 81440

Given:

Principle (P) = Rs. 100000

Rate of interest (R) = 20% per annum

Time period (T) = 3 years 3 months = 3 + 1/4 = 3.25 years

Formula Used:

Interest = (P × R × T)/100

Interest = Amount - Principle

Calculations:

According to the question interest is compounded annually,

For first-year = P × R% × T1

=> Interest (I1) = 100000 × 0.2 × 1 = 20000

For the second year P2 = P + P1 = 100000 + 20000 = Rs. 120000

=> Interest (I2) = 120000 × 0.2 × 1 = 24000

For the third year P3 = P2 + I2= 120000 + 24000 = 144000

=> Interest (I3) = 144000 × 0.2 × 1 = 28800

For the last year P4 = P3 + I3 = 144000 + 28800 = 172800

=> Interest (I3) = 172800 × 0.2 × 0.25 = 8640

New amount = 172800 + 8640 = 181440

Total Interest = 181440 - 100000 = Rs. 81440

Therefore The total compound interest will be Rs. 81440.

Shortcut Trick3 years 3 months

=> 3 years + 3/12 years

=> 3 years + 1/4 years

So, the amount becomes after 3 years and 3 months

=> $100000(1 + 20/100)^3 \times (1 + (1/4 \times 20)/100) - 100000$

=> 172800 × (1 + 0.05) - 100000

=> 181440 - 100000

=> Rs. 81440

Therefore The total compound interest will be Rs. 81440.

Shortcut Trick

Amount at the end of 3 years

=> $100000 (1 + 20/100)^3$

=> 172800

Amount at the end of 3 years and 3 months

=> 172800 + (172800 × 5%)

=> 181440

CI = 181440 - 100000

=> 81440

Q109. Answer: (a) 350%

Given:

LCM = 252

HCF = 14

One Number = 28

Formula used:

Percentage = Required Value/Total Value × 100

Concept used:

LCM × HCF = Product of the two numbers

Calculations:

Let the other no. be 'a'

=> 252 × 14 = 28 × a

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=> a = (252 × 14)/28
=> a = 3528/28 = 126
Required % = (126 - 28)/28 × 100 = (98 × 100)/28 = 350%
Therefore 350% percentage is the other number more than 28.

Q110. Answer: (b) 60

Given:
$(15^3 + 20^3 + 25^3 - 22500)/(15^2 + 20^2 + 25^2 - 300 - 500 - 375)$
Formula used:
$a^3 + b^3 + c^3 - 3abc = (a + b + c)(a^2 + b^2 + c^2 - ab - bc - ca)$
$(a + b + c) = (a3 + b3 + c3 - 3abc)/(a2 + b2 + c2 - ab - bc - ca)$
Calculation:
According to the formula, we can see,
a = 15, b = 20, c = 25 and 3abc = 3 × 15 × 20 × 25 = 22500
=> (a + b + c) = 15 + 20 + 25 = 60
Therefore The simplified value is 60.

Q111. Answer: (a) Nagpur

The correct answer is Nagpur.
Key Points
• Nagpur
• Nagpur, often known as the city of oranges, is very famous for its oranges.
• It is in the state of Maharashtra, India.
• After Mumbai and Pune, it is the third-largest city in Maharashtra.
• It serves as Maharashtra's wintertime capital.
• The Tiger Capital of India and the Tiger Gateway of India are other names for Nagpur.
Additional Information

City	Nickname
Varanasi	"City of Lights"
Chennai	The cultural capital of India
Amritsar	"The Holy City"

Q112. Answer: (b) EJ

The position of letters according to the English alphabet series:
The pattern followed here is as follows :
Therefore, "EJ" is the correct answer.

Q113. Answer: (b) Gaurikund

The correct answer is Gaurikund.
Key Points
• Gaurikund
• One of the holiest places for Hindus is the hot spring of Gaurikund.
• It is situated on the banks of the Mandakini River and is approximately 2040 metres above sea level.
• The spring is located in the Garhwal Himalayas at a height of roughly 6,000 feet.
• Gaurikund, which is surrounded by breathtaking views, is where the well-known trek to the Kedarnath temple begins.
• It is thought that bathing in the holy water of the pond will purify a person's soul.
• Mawsynram
• It is located in the northeastern Indian state of Meghalaya's East Khasi Hills area.
• Mawsynram is known for being the wettest place on earth.
• It has a Guinness World Record for having nearly 26,000 mm of rainfall in one year, 1985.
• Jaisalmer

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• It is located in the Indian state of Rajasthan and is also known as "The Golden City."
• Jaisalmer is well-known for its majestic Jaisalmer fort that encircles the city.
• Coorg
• Coorg commonly referred to as Kodagu, is located in the Indian state of Karnataka.
• It is known for its coffee plantations, diversity of flora and fauna, rocky terrain, and spectacular views.

Q114. Answer: (a) 150

The pattern followed here is:
=> 40 × 0.5 = 20
=> 20 × 1 = 20
=> 20 × 1.5 = 30
=> 30 × 2 = 60
=> 60 × 2.5 = 150
=> 150 × 3 = 450
=> 450 × 3.5 = 1575
=> 1575 × 4 = 6300
Hence, The correct answer is 150.

Q115. Answer: (d) Somya

Option 4 is the correct answer.
Seven friends: Garima, Pakhi, Parul, Shikha, Ruby, Ana and Somya
1) Ruby is seated at one of the extreme ends of the bench. Only three people are seated Ana and Ruby.
2) Ruby is an immediate neighbour of Pakhi. Parul is an immediate neighbour of both Somya and Pakhi.
3) Shikha is an immediate neighbour of the person who is seated at one of the extreme ends.
In both the cases Somya sits in the middle of the row.
Hence, the correct answer is "Somya".

Q116. Answer: (c) 102/9 days

Given:
A can complete a piece of work alone in 20 days,
B can do it alone in 15 days,
C can complete it alone in 18 days
B and C started the work together but both were forced to leave after 4 days
Calculations:
According to the question,
=> Work done by A in 1 day = 1/20
=> Work done by B in 1 day = 1/15
=> Work done by C in 1 day = 1/18
=> Work done by B and C in 1 day = 1/15 + 1/18 = (6 + 5)/90 = 11/90
=> Work done by B and C in 4 days = 4 × 11/90 = 22/45
Assuming the total work in the job as a whole = 1
The remaining work = Total work - Work done by B and C in 4 days = 1 - 22/45 = 23/45
Time taken to complete the work,
=> (23/45)/ (1/20)
=> (23/45) × 20 = 92/9 days = 102/9
Therefore The remaining work was done by A in 102/9 days.

Q117. Answer: (d) Maharashtra Bhushan Award

The correct answer is Maharashtra Bhushan Award.
Key Points
• Maharashtra Bhushan Award
• The Maharashtra Bhushan Award is established in 1996.
• It is the highest honour given by the Maharashtra government to recognise the outstanding efforts and accomplishments of

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notable state residents from all areas of life.

• It comes with a citation and a monetary prize of Rs. 10 lakh.

• The iconic playback singer Asha Bhosle has been chosen unanimously for this honour by the Maharashtra Bhushan Selection Committee in 2021.

• This committee is led by Chief Minister Uddhav Thackeray.

• She receive the esteemed Maharashtra Bhushan Puraskar in March 2021.

Additional Information

• Yash Chopra Memorial Award

• The TSR Foundation of T. Subbarami Reddy established the Yash Chopra Memorial Award ceremonies.

• It comes with a citation and Rs 10,000,000.

• These award shows were established in 2013, the night before Yash Chopra passed away, and are held in his honour.

• Deenanath Mangeshkar Award

• The Deenanath Mangeshkar Award was instituted in Lata Mangeshkar's honour and memory.

• The person who has made ground-breaking, remarkable, and exemplary contributions to the country will receive the award each year.

• Prime Minister Narendra Modi has got the first Lata Deenanath Mangeshkar Award.

• Banga Bhushan Award

• The West Bengal government created the title "Banga Bhushan" to recognise individuals for their contributions in a variety of sectors.

• It comes with a citation and Rs, 100,000.

Q118. Answer: (b) 241926189

Alphabetical order with its place value:

LOGIC: In the table T is opposite to G so, T is denoted as 7 in the same way other letters are denoted

'TABLE' is related to '726251522'

'FORMS' is related to '21129148'

Similarly

'CHAIR' is related to 241926189

Hence, 241926189 is the correct answer.

Q119. Answer: (c) 31

Given:

(15 ÷ 3) - [{(19 - 1) ÷ 2} - {5 × 20 - (7 × 9 - (-2))}]

Concept Used:

Follow BODMAS rule to solve this question, as per the order given below,

Calculations:

(15 ÷ 3) - [{(19 - 1) ÷ 2} - {5 × 20 - (7 × 9 - (-2))}]

=> (5) - [{(18) ÷ 2} - {100 - (63 + 2)}]

=> (5) - [{9} - {100 - 65}]

=> (5) - [{9} - {35}]

=> (5) - [9 - 35]

=> (5) - [- 26] = 31

Therefore The simplified value of the given equation is 31.

Q120. Answer: (c) 2018

Given:

Sr. No.	Year	Rupees (in Cr.)
1	2016	75
2	2017	85
3	2018	125
4	2019	145

5	2020	190

Formula used:

Percentage (P) = [(Current Year - Previous Year)/Previous Year] × 100

Calculation:

Percentage growth in the loan disbursement over the previous years,

For the Year 2016 - 2017

=> Growth in 2017 = (10/75) × 100 = 13.33%

For the Year 2017 - 2018

=> Growth in 2017 = (40/85) × 100 = 47.05%

The year 2018 - 2019

=> Growth in 2017 = (20/125) × 100 = 16%

The year 2019 - 2020

=> Growth in 2017 = (45/145) × 100 = 31.03%

Therefore The maximum percentage growth in the loan disbursement over the previous year was in 2018.

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