RRB NTPC CBT 2 (Level-5) Official Paper (Held On: 15 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. A certain quantity of a 35% sugar solution is mixed with 8 litres of a 48% sugar solution to obtain a 40% sugar solution. How many litres of the 35% sugar solution was there in the mixture?

(a) 13.6
(b) 13.2
(c) 12.5
(d) 12.8

Q2. Rohan is facing west. He turns 45 degrees anti-clockwise and then turns 180 degrees towards his right. In which direction is he facing now?

(a) North
(b) South-West
(c) North-East
(d) East

Q3. In which of the Five-Year Plans, was the main slogan 'towards Faster and more inclusive growth' used?

(a) 8^(th)
(b) 10^(th)
(c) 9^(th)
(d) 11^(th)

Q4. Evaluate the following:

sin60° + tan30° + cos45°

(a) (5√2+3√3)/4
(b) (3√2+5√3)/6
(c) (5√2+3√3)/6
(d) (3√2+5√3)/4

Q5. Which of the following services was NOT present in India for the common man at the time of Independence?

(a) Call centres
(b) Postal services
(c) Telegraph services
(d) Railways

Q6. If each of the letters of the word 'STADIUM' are re-arranged in the English alphabetical order, then the position of which letter will remain unchanged?

(a) All letters change their position
(b) T
(c) U
(d) D

Q7. The LCM of two numbers is 28 times their HCF, and the difference in the LCM and HCF is 405. If the numbers are in the ratio 4 : 7, then find the positive difference between the numbers.

(a) 45
(b) 52
(c) 49
(d) 42

Q8. The statement that the upward buoyant force that is exerted on a body immersed in a fluid, whether fully or partially, is equal to the weight of the fluid that the body displaces is related to:

(a) Archimedes' Principle
(b) Bernoulli's Principle
(c) Beer Lambert Law
(d) Pascal's Law

Q9. The area of a trapezium is 140 cm^2 and the perpendicular distance between its parallel sides is 7 cm. If the length of one of the parallel sides is 28 cm, what is the length of the other parallel side?

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

Q10. Select the option that is related to the fifth letter cluster in the same way as the second letter-cluster is related to the first letter-cluster and the fourth letter-cluster is related to the third letter-cluster.

BRELF : CFGMS :: MJCLH : DIKMN :: EODET : ?

(a) FFEPU
(b) EFFPU
(c) FFAYT
(d) EFFBT

Q11. A sum of Rs. 7,500 amounts to Rs. 11,700 in 8 years at a certain rate of simple interest. Find the rate of interest per annum.

(a) 8%
(b) 7%
(c) 6%
(d) 7.5%

Q12. What is a Per unit Tax (or Unit Tax)?

(a) A tax that the factory, imposes on total unit purchase on imports.
(b) A tax that the factory imposes per unit sale of output.
(c) A tax that the government imposes per unit sale of output.
(d) A tax that the government imposes per unit purchase on imports.

Q13. What is the median of 5, 2, 7, 8, 1 and 4?

(a) 7.5
(b) 4.5
(c) 7
(d) 8

Q14. Who was conferred with the Tansen Samman 2020 by Madhya Pradesh government in January 2021?

(a) Satish Vyas
(b) Vidyadhar Vyas
(c) Manju Mehta
(d) Dalchand Sharma

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Q15. Eight people F, H, K, N, P, S, V, X are sitting in a straight line and all are facing north.

Neither F nor H sit at any of the extreme ends of the line. F sits fourth to the right of H. Only two people sit between F and K. More than two people sit between P and K. P does not sit at an extreme end. S sits to the immediate right of V. X sits at one of the positions to the left of V.

What is the position of N from the right end of the line?

(a) First
(b) Second
(c) Fourth
(d) Sixth

Q16. Neeraj Chopra ranked at which position in the World Athletics Men's Javelin rankings as of 10 August 2021?

(a) Seventh
(b) Third
(c) Second
(d) Fifth

Q17. The actual or realised value of a variable as opposed to its planned value is called _____.

(a) Ex flow
(b) Ex post
(c) Ex ante
(d) Ex barter

Q18. The selling price of 32 items is equal to the cost price of 38 items. Find the profit percentage.

(a) 19.25%
(b) 18.75%
(c) 16.25%
(d) 15.79%

Q19. The tribal people of which Indian state celebrate Sarhul festival where a sal tree is worshipped for health and prosperity?

(a) Jharkhand
(b) Gujarat
(c) Rajasthan
(d) Meghalaya

Q20. India falls in which of the following categories, according to the Human Development Index (as per HDI, 2020)?

(a) Medium human development
(b) Very high human development
(c) Low human development
(d) High human development

Q21. A, B, C, D, E, F, G and H are sitting around a square table facing the centre of the table. Four of them are sitting at each of the corners, while the other four are sitting at the exact centre of each of the sides.

B sits at one of the corners of the table. Only two people sit between B and D. C sits second to the right of D. Only three people sit between C and A. E sits to the immediate left of A. F sits second to the right of G. Who sits second to the left of H?

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

Q22. 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) 14 : 207

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(b) 12 : 155
(c) 18 : 345
(d) 16 : 267

Q23. Shilpa and Radhika started walking from two different points, 'A' and 'B', respectively. Shilpa walks 4 km North, turns to the East and walks 6 km, again turns to the North and walks 8 km, and finally turns to the East and walks 10 km to reach point 'C'. Similarly, Radhika walks 4 km North, and turns to the West and walks 6 km, and finally turns to the North and walks 8 km and meets Shilpa at point 'C'. What is the shortest distance between Shilpa's and Radhika's starting points?

(a) 26 km
(b) 22 km
(c) 10 km
(d) 16 km

Q24. Which of the following places is known for copper mines in India?

(a) Khetri
(b) Ratnagiri
(c) Kudremukh
(d) Kolar

Q25. A can do a job alone in 66 days. B can do it alone in 55 days, while A, B and C working together can complete the job in 22 days. In how many days can C do the job alone?

(a) 81.5
(b) 85
(c) 82.5
(d) 84

Q26. Which Article of the Indian Constitution deals with the provision of protection of monuments and places and objects of national importance?

(a) Article 43
(b) Article 49
(c) Article 48
(d) Article 48A

Q27. The perimeters of two squares differ by 48 cm. If the side of one square is four times the side of the other square, then find the area of the larger square (in cm^2).

(a) 196
(b) 289
(c) 225
(d) 256

Q28. How many sex chromosomes are there in a normal human being?

(a) One
(b) Eight
(c) Two
(d) Four

Q29. Which of the following ports in NOT located in Asia?

(a) Osaka
(b) Rotterdam
(c) Shanghai
(d) Singapore

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Q30. In a queue of commanders, Andry is 17^(th) from the extreme front-end and Brooke is 32^(nd) from the extreme back-end. If the two exchange their positions, Andry becomes 37^(th) from the front end. What is the total number of commanders?

(a) 70
(b) 69
(c) 67
(d) 68

Q31. In a certain code language 'COCK' is written as 'EQEM', and 'DUCK' is written as 'FWEM'. How will 'SWAN' be written in that language?

(a) VYDP
(b) UYCP
(c) UXDP
(d) VXCQ

Q32. Which technology was developed by Defence Research and Development Organisation to protect naval ships against missile attacks in April 2021?

(a) Imaging Infra-Red Technology
(b) Man-portable Radar Technology
(c) Advanced Chaff Technology
(d) Baffle Range Technology

Q33. Data was gathered from a survey as to what sport was liked by the people surveyed. The data was represented by a pie chart, and the sector representing people who liked soccer had a central angle of 54°. What percentage of the people surveyed liked soccer?

(a) 20%
(b) 12.5%
(c) 10%
(d) 15%

Q34. Six students, P, Q, R, S, T and U have been instructed to keep their books on six different shelves of a bookshelf having only six shelves one over the other. Books of S are kept on the topmost shelf. Books of P and U are kept on third shelves from the extreme top and extreme bottom, respectively. Only books of R are kept between the shelves containing books of U and Q. Books of student T are kept on which shelf from the extreme top?

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

Q35. Select the letter-cluster from among the given options that can replace the question mark (?) in the following series.

BOY, FMU, ?, NIM, RGI

(a) ILR
(b) IKR
(c) JKQ
(d) JLQ

Q36. If 15% of A : 25% of B :: 8 : 11, then A : B is equal to:

(a) 4 : 3
(b) 5 : 4
(c) 40 : 33
(d) 33 : 32

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Q37. 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 papers are tables.

Some ropes are tables.

All tables are clothes.

Conclusions:

(I) Some papers are clothes.

(II) Some ropes are clothes.

(III) No cloth is a rope.

(IV) No paper is a rope.

(a) Only conclusions III and IV follow
(b) None of the conclusions follow
(c) Only conclusions I, II follow
(d) Only conclusion I follows

Q38. Who among the following co-founded the Calcutta Unitarian Society and founded the Brahma Samaj?

(a) Raja Ram Mohan Roy
(b) Iswar Chandra Vidyasagar
(c) Debendranath Tagore
(d) Keshab Chandra Sen

Q39. B's mother is the daughter of F. C is the son of F and D. G is the son of C and E. D is the mother of R. How is F related to G?

(a) Father's father
(b) Brother
(c) Mother's father
(d) Father's mother

Q40. Find the value of k, if 18% of 450 = 30% of k.

(a) 270
(b) 750
(c) 250
(d) 320

Q41. In MS-Word 2016, the 'Aa' feature within the Font group of the Home tab represents the _____ option.

(a) Text Effects and typography
(b) Change Case
(c) Clear All Formatting
(d) Strikethrough

Q42. The Annual Financial Statement, which is presented as a part of budget, is covered under which Article of the Constitution of India?

(a) Article 115
(b) Article 114
(c) Article 112
(d) Article 113

Q43. If 10^(th) May of a given year is Monday, what day of the week will be 11^(th) July of the same year?

(a) Monday
(b) Tuesday
(c) Thursday
(d) Sunday

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Q44. A question is given, followed by three statements labelled I, II and III. Identify which of the statements is/are sufficient to answer the question.

Question:

What is Mala's age?

Statements:

I. The sum of Rohan's, Sheela's and Mala's age is 95.

II. Rohan is younger than Mala.

III. Mala is 10 years older than Sheela.

(a) Statement II alone is sufficient, while Statement III alone is not sufficient

(b) Statements I, II and III together are sufficient.

(c) Statement I, II and III together are not sufficient.

(d) Statement I alone is sufficient, while Statement II alone is not sufficient.

Q45. Article 315 of the Constitution of India is related to the:

(a) establishment of NTA and SSC

(b) establishment of UPSC and SPSC

(c) establishment of NTA

(d) establishment of SSC

Q46. The Kandariya Mahadeva temple dedicated to Lord Shiva was constructed in c.999 CE by king Dhangadeva of the _____.

(a) Rashtrakuta dynasty

(b) Chalukya dynasty

(c) Chandela dynasty

(d) Kalachuri dynasty

Q47. Which of the following options is the closest approximate value which will come in place of question mark(?) in the following equation?

$3 \times 16.13 + 15.03 - 7.86 + \sqrt{15} = ?$

(a) 47

(b) 121

(c) 61

(d) 98

Q48. Ten people are sitting in two parallel rows 1 and 2. A, B, C, D and E are sitting in row I facing south, and V, W, X, Y and Z are sitting in row 2 facing north, in such a way that each member in row 1 faces a member of row 2.

W sits second from the left end of the row. W faces an immediate neighbour of A. B sits second to the left of A. Only one person sits between C and the one who faces V. Neither C nor V sit at any of the extreme ends. V faces an immediate neighbour of D. The one who faces E sits to the immediate left of X. Only one person sits between Y and X. Who faces Z?

(a) A

(b) D

(c) B

(d) C

Q49. In each of the given number-clusters, the number on the right side of = (the equal to sign) is calculated by performing certain mathematical operations on the two numbers on the left of = (the equal to sign). All three number-clusters follow the same pattern. Select the number from among the given options that can replace the question mark (?) in the third number-cluster.

69, 87 = 39

93, 95 = 47

52, 64 = ?

(a) 53

(b) 37

(c) 45
(d) 29

Q50. In a certain code language, "TEACHER is written as 'CAHEETR', and 'STUDENT' is written as 'DUETNST'. How will 'SUCCESS' be written in that language?
(a) CECSUSS
(b) CCEUSSS
(c) SCUSCES
(d) UCSECSS

Q51. _____ is the world's second largest and second most populous continent as per UN World Population Prospects 2019.
(a) Africa
(b) Asia
(c) Europe
(d) North America

Q52. If in a certain code language, 'chef' is coded as 'glass', and 'glass' is coded as 'cup', 'cup' is coded as 'cool', and 'cool' is coded as 'rich', then who cooks the food?
(a) cup
(b) cook
(c) glass
(d) rich

Q53. Which of the following is NOT a coniferous tree?
(a) Cedar
(b) Pine
(c) Spruce
(d) Jatropha

Q54. Which of the following fractions is the greatest?
(a) 22/25
(b) 37/40
(c) 8/9
(d) 17/20

Q55. Colossal statues of Kushana rulers have been found installed in a shrine at Mat. Which of the following is that state?
(a) Bihar
(b) Uttar Pradesh
(c) Madhya Pradesh
(d) Odisha

Q56. If cos A = √3/2, A is an acute angle, then find the value of (tan A - cotA)/(√3-secA).
(a) –2
(b) –2.5
(c) –3.5
(d) 2.5

Q57. Evaluate:
$(2.91^2-1.09^2)/1.82$
(a) 5
(b) 4
(c) 3
(d) 2

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Q58. The Fundamental Duties in the Constitution of India were adopted from the _____.

(a) USSR Constitution
(b) Japanese Constitution
(c) US Constitution
(d) Irish Constitution

Q59. A sum of money invested at a certain rate of compound interest per annum amounts to Rs. 96,800 in 2 years and to Rs. 1,06,480 in 3 years. Find the rate of compound interest per annum.

(a) 10%
(b) 12%
(c) 10.5%
(d) 11%

Q60. Select the number from among the given options that can replace the question mark (?) in the following series.

1, 64, 343, 1000, ?, 4096

(a) 3065
(b) 2197
(c) 2098
(d) 2245

Q61. Seven people A, B, C, D, E, F and G live in a seven-floor building. The lowermost floor is numbered as 1, the floor above it is numbered 2, and so on till the topmost floor is numbered 7. Only four people live below the floor on which D lives. Only two people live below C. B lives on the lowermost floor. E lives immediately above B. A lives on one of the floors above F but on one of the floors below G. Who lives on the floor numbered 4?

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

Q62. Study the given information carefully and answer the question that follows.

Colleagues Karna, Michelli, Prabhu, Vanaja, Mohan, Raghu, Jockey and Neelima are sitting around a square table in such way that four of them sit at corners and four of them at the middle of the sides. The ones who sit at the corners face outside (opposite to the centre) and the ones who sit at the middle of the sides face towards centre. Vanaja is seated third to the right of Jockey. Vanaja faces towards the centre. Mohan is third to the left of Prabhu. Prabhu is not sitting at middle of any of the sides. Only one person sits between Mohan and Raghu. Raghu is not an immediate neighbour of Prabhu. Neelima faces towards the centre. Karna is not an immediate neighbour of Raghu.

Who is an immediate neighbour of both Mohan and Raghu?

(a) Michelli
(b) Prabhu
(c) Vanaja
(d) Jockey

Q63. 105 people could complete a work in 36 days. But after they worked together for 8 days their employer wanted that the work should be completed in a total of 29 days. How many more workers need to be employed to meet the deadline?

(a) 40
(b) 42
(c) 28
(d) 35

Q64. Which Article of the Indian Constitution is related with the High Court for States?

(a) 214
(b) 248
(c) 188
(d) 148

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Q65. 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 bats are balls.

All balls are caps.

All caps are players.

No player is a hat.

Conclusions:

I. No bat is a cap.

II. All caps are balls.

III. Some hats are caps

IV. No hat is a ball.

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

Q66. Four years ago, the age of the mother was 13 times the age of her daughter. Two years hence, the mother's age will be 4 times the daughter's age. After how many years will the mother's age be 3 times that of her daughter?

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

Q67. The style of temple architecture that became popular in _____ is known as Nagara.

(a) northern India
(b) western India
(c) southern India
(d) eastern India

Q68. According to the Census of India 2011, _____ has the highest sex ratio of 1084 females per 1000 males.

(a) Tamil Nadu
(b) Punjab
(c) Kerala
(d) Karnataka

Q69. Select the option that is related to the fifth letter-cluster in the same way as the fourth letter-cluster is related to the third letter-cluster and the second letter-cluster is related to the first letter-cluster.

WINTER : EINRTW :: TRAY : ARTY :: LADIES : ?

(a) ADIELS
(b) DAEILS
(c) ADEILS
(d) DAIELS

Q70. The difference between the external and internal curved surface areas of a 7 cm long cylindrical metallic pipe is 110 cm^2. If the pipe is made of 302.5 cm^3 metal, then find the inner radius of the pipe.

(Use $\pi = 22/7$)

(a) 1.5 cm
(b) 1.6 cm
(c) 2.2 cm
(d) 1.8 cm

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Q71. What is the length of IPv4 address in terms of nibble?

(a) 16 nibbles
(b) 6 nibbles
(c) 8 nibbles
(d) 4 nibbles

Q72. Pandit Bhimsen Joshi who received Bharat Ratna in 2009 was popular for the khayal form of singing and belonged to the _____ Gharana.

(a) Gwalior
(b) Kirana
(c) Patiala
(d) Agra

Q73. Read the given statements and conclusions carefully. Assuming that the information given in the statements is true, even if it appears to be at variance with commonly known facts, decide which of the given conclusions logically follow(s) from the statements

Statements:

All computers are laptops.

Some laptops are mobiles.

Conclusions:

I. Some computers are mobiles.

II. Some mobiles are computers.

III. Some mobiles are laptops.

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

Q74. Who was the successor of Shahjehan Begum, the ruler of Bhopal, who provided money for the preservation of the ancient site Sanchi?

(a) Chand Bibi
(b) Mariam-uz-Zamani
(c) Razia Sultana
(d) Sultan Jehan Begum

Q75. Which of the following regions is known for oil extraction in India?

(a) Mumbai High
(b) Kolar
(c) Bokaro
(d) Jharia

Q76. Find the radius of a sphere having a surface area of 900 π cm^2.

(a) 15 cm
(b) 12 cm
(c) 18 cm
(d) 20 cm

Q77. Select the combination of letters that when sequentially placed in the blanks of the given series will complete the series.

TUP _ _ _ PKT _ _ KTUP_

(a) TTUUPK
(b) UTTPKT
(c) KTUUPK
(d) TUUUPK

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Q78. In 1851, who among the following described the kingdom of Awadh as 'a cherry that will drop into our mouth one day'?

(a) Warren Hastings
(b) Robert Clive
(c) William Bentick
(d) Lord Dalhousie

Q79. What is the measure of each interior angle of a regular octagon?

(a) 130°
(b) 125°
(c) 140°
(d) 135°

Q80. Read the given statement and conclusions carefully. Decide which of the given conclusion's is are true based on the given statement.

Statement:

$K \geq L > M < N \leq X$

Conclusions:

I. $X > M$

II. $X > L$

III. $M < K$

IV. $L > K$

(a) Only conclusions I and III are true
(b) Only conclusions I and IV are true
(c) Only conclusion II is true
(d) Only conclusion I is true

Q81. A sum of Rs. 22,100 was divided between Timir and Monali in such a way that if both invested their shares at 10% compound interest per annum, the amount payable on maturity to Monali after 18 years would be the same as the amount payable on maturity to Timir after 20 years. What was the share of Monali in the initial sum?

(a) Rs. 12,050
(b) Rs. 12,180
(c) Rs. 12,150
(d) Rs. 12,100

Q82. Which Indian-American player has won the Wimbledon junior men's title in July 2021?

(a) Siddhant Banthia
(b) Adil Kalyanpur
(c) Dhruv Sunish
(d) Samir Banerjee

Q83. Which of the following numbers is divisible by 8?

(a) 12318
(b) 12312
(c) 12316
(d) 12314

Q84. 'Natural Levees' are:

(a) erosional landforms of river
(b) depositional landforms of wind
(c) erosional landforms of wind
(d) depositional landforms of river

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Q85. Rohan had a cuboidal box having dimensions of 36 cm × 25 cm × 20 cm. He packed into it as many cubes as possible, each of which has edges 4 cm long, How much space will be still left in the box?

(a) 780 cm^3
(b) 820 cm^3
(c) 680 cm^3
(d) 720 cm^3

Q86. Where is the world's highest waterfall, the 'Angel falls', located?

(a) Belgium
(b) China
(c) Venezuela
(d) Australia

Q87. Which of the following rivers originates from Aravalli range and disappears into Rann of Kachchh?

(a) Chambal
(b) Luni
(c) Sabarmati
(d) Banas

Q88. Which is the Indian state with highest percentage of Scheduled Castes (SCs) in their population as per the Census of 2011?

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

Q89. Two cylinders have the same volume, but the radius of the base of the second cylinder is 20% less than the radius of the base of the first. How much greater should the height of the second cylinder be in comparison to the height of the first?

(a) 56.25%
(b) 55.25%
(c) 56.75%
(d) 55.75%

Q90. In Natya Shastra, Bharat Muni has clubbed musical instruments into how many groups?

(a) 6
(b) 7
(c) 4
(d) 3

Q91. A batsman scored 84 runs in his 12^(th) innings, thereby improving his average score per innings by 4 runs. What is the average score per innings of the batsman after the 12^(th) innings?

(a) 40
(b) 36
(c) 44
(d) 42

Q92. Aamish's birthday on 25^(th) February 2020 was a Tuesday. Which day of the week was his brother's birthday, which was on 13^(th) May 2020?

(a) Wednesday
(b) Tuesday
(c) Monday
(d) Thursday

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Q93. Simplify:

6√4096 +4√4096+cbrt4096+ √4096

(a) 90
(b) 92
(c) √2/2
(d) √2

Q94. In a bag full of pencils, 3/4 of the pencils were coloured pencils, and 8/15 of the coloured pencils were red. If there were 40 red pencils in the bag, what was the total number of pencils in the bag?

(a) 120
(b) 150
(c) 100
(d) 180

Q95. A major population of Israel is:

(a) Jewish
(b) Lurish
(c) Beja
(d) Toda

Q96. The Jawaharlal Nehru Port is situated in which of the following cities?

(a) Kandla
(b) Mormugao
(c) Kochi
(d) Navi Mumbai

Q97. Manyata rowed a certain distance downstream in 2 hours while it took her 30 minutes more to row the same distance upstream. How much time will she take to make the two-way journey in still water?

(a) 4:02:20 hours
(b) 4:10 hours
(c) 4:26:40 hours
(d) 4:15:10 hours

Q98. Count the total number of days from 10 April 2020 to 25 July 2020, by including both the days.

(a) 105
(b) 107
(c) 106
(d) 108

Q99. Which of the following is the third-generation fire-and-forget anti-tank guided missile that was successfully flight tested by DRDO in July 2021?

(a) SAMHO
(b) HELINA
(c) SANT
(d) MPATGM

Q100. What will be the amount payable on maturity if Rs. 2,000 is invested for a period of three years at 30% p.a. interest compounded yearly?

(a) Rs. 4,384
(b) Rs. 4,398
(c) Rs. 4,388
(d) Rs. 4,394

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Q101. Simplify: 65 – [40 – (60 ÷ 5 – (18 – 24 ÷ 4) ÷ 6)]

(a) 40
(b) 35
(c) 30
(d) 37

Q102. Select the option that is related to the fifth letter-cluster in the same way as the fourth letter cluster is related to the third letter-cluster and the second letter-cluster is related to the first letter-cluster.

EYBRD : VBYIW :: AJKBC : ZQPYX :: JEWAD :?

(a) MHREA
(b) KRESD
(c) VRTYU
(d) QVDZW

Q103. If tanθ = √5/2 and θ is an acute angle, find the value of secθ.

(a) 2
(b) √6/2
(c) 1
(d) 3/2

Q104. Which award was conferred by the Indian Chamber of Commerce (ICC) to IREDA on 11 May 2021?

(a) India Power Award
(b) Global Energy Award
(c) National Energy Conservation Award
(d) Green Urja Award

Q105. In a certain code language,

'Space Thee Bliss' is written as 'is jk th',

'Bliss Youth Last' is written as 'th cu wn',

'River Last God' is written as 'cu gd ap'

'Bliss Thee Bad' is written as 'jk th if'.

How will 'Bliss Thee Youth' be written in that language?

(a) th cu wn
(b) th jk wn
(c) th jk gd
(d) jk cu wn

Q106. In a school, the number of students in Grades 6, 7 and 8 was 184, 276 and 322, respectively. Students in each grade were divided into different sections, but every section across grades had the same number of students. For each section, a class teacher was appointed. What was the minimum number of class teachers required for the purpose?

(a) 17
(b) 23
(c) 46
(d) 18

Q107. On which day is Gudi Padwa celebrated in the month of Chaitra as per the Hindu calendar?

(a) Second
(b) Fourth
(c) Fifth
(d) First

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Q108. Which one of the following poverty alleviation program was launched before year 2000 in India?

(a) Swaranjayanti Gram Swarozgar Yojana
(b) Sampoorna Grameen Rozgar Yojana
(c) National Food for Work Programme
(d) Valmiki Ambedkar Awas Yojana

Q109. Gir forest, which is famous for the Asiatic lion, is located in:

(a) Gujarat
(b) Punjab
(c) Odisha
(d) Andaman and Nicobar Islands

Q110. What is the name of the new geospatial planning portal launched by the Union Minister of Rural Development and Panchayati Raj Sri Giriraj Singh in 2021?

(a) Akashdhara
(b) Yojanadhara
(c) Muktidhara
(d) Yuktdhara

Q111. The difference between the value of exports and the value of imports of goods of a country in a given period of time is called _____.

(a) Balance of Trade
(b) Capital Trade
(c) Exchange of Trade
(d) Marginalised Trade

Q112. Embarked upon in 1965-66 as an integral part of the Green Revolution, the High Yielding Varieties Programme (HYVP) included which of the following crops?

(a) Tea, coffee
(b) Wheat, rice
(c) Cotton, jute
(d) Peas, gram

Q113. Rengma is primarily a folk dance of _____.

(a) Rajasthan
(b) Bihar
(c) West Bengal
(d) Nagaland

Q114. The ratio of the speeds of a bus and a car is 7 : 11. If the car covers a distance of 396 km in 6 hours, what is the speed of the bus in km/h?

(a) 38.5
(b) 42
(c) 45.5
(d) 35

Q115. The Prime Minister of Bangladesh, Sheikh Hasina was conferred with which of the following prestigious awards on 20 September 2021?

(a) UN Environment Prize
(b) Swadhinata Puraskar
(c) Indira Gandhi Prize
(d) SDG Progress Award

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Q116. Read the given statement and conclusions carefully. Assuming that the information given in the statement is true, even if it appears to be at variance with commonly known facts, decide which of the given conclusions is are true based on the given statements.

Statement: £ < π ≤ μ > Ω, μ ≥ β = prop. to

Conclusions:

I. £ ≤ β

II. Ω < π

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

Q117. The average of five consecutive natural numbers is 12. What will be the average of the seven numbers if the next two natural numbers are also included?

(a) 15
(b) 13.5
(c) 14
(d) 13

Q118. The Sattriya dance form was introduced in the _____ by the great Vaishnava saint and reformer of Assam, Mahapurusha Sankaradeva.

(a) 11^(th) century A.D
(b) 19^(th) century A.D
(c) 15^(th) century A.D
(d) 17^(th) century A.D

Q119. Refer to the given letter, number, symbol series and answer the question that follows.

(Left) K L % Y & 4 E 2 * 3 M & 7 S W # 8 2 H * L (Right)

If all the symbols are dropped from the series, which of the following will be seventh from the left?

(a) M
(b) 2
(c) 7
(d) 3

Q120. The following table depicts the number of people in 4 different villages (A, B, C and D), and the ratio of literate to illiterate people in those villages.

Villages	Population	Literate : Illiterate
A	1500	2:3
B	4000	11:9
C	3000	13:2
D	5500	4:1

What is the percentage of literate people in all the four villages together?

(a) 72%
(b) 67%
(c) 70%
(d) 65%

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ANSWER KEY

1	d	2	c	3	d	4	b	5	a	6	a	7	a	8	a	9	a	10	b
11	b	12	c	13	b	14	a	15	a	16	c	17	b	18	b	19	a	20	a
21	c	22	c	23	b	24	a	25	c	26	b	27	d	28	c	29	b	30	d
31	b	32	c	33	d	34	d	35	c	36	c	37	c	38	a	39	a	40	a
41	b	42	c	43	d	44	c	45	b	46	c	47	c	48	a	49	d	50	b
51	a	52	c	53	d	54	b	55	b	56	a	57	b	58	a	59	a	60	b
61	d	62	d	63	d	64	a	65	c	66	d	67	a	68	c	69	c	70	a
71	c	72	b	73	a	74	d	75	a	76	a	77	c	78	d	79	d	80	a
81	d	82	d	83	b	84	d	85	d	86	c	87	b	88	b	89	a	90	c
91	a	92	a	93	b	94	c	95	a	96	d	97	c	98	b	99	d	100	d
101	b	102	d	103	d	104	d	105	b	106	a	107	d	108	a	109	a	110	d
111	a	112	b	113	d	114	b	115	d	116	b	117	d	118	c	119	d	120	c

SOLUTIONS

Q1. Answer: (d) 12.8

Shortcut Trick

Using the alligation cross method, the ratio of quantities = (48 − 40) : (40 − 35) = 8 : 5

Here, 5 parts correspond to 8 litres of the 48% solution.

So, 1 part = 8 ÷ 5 = 1.6 litres.

Quantity of 35% solution = 8 parts = 8 × 1.6 = 12.8 litres.

Therefore The correct answer is 12.8 litres.

Alternate Method

Given:

Concentration of first sugar solution = 35%

Concentration of second sugar solution = 48%

Quantity of second solution = 8 litres

Desired mixture concentration = 40%

35% Solution

48% Solution

35%

48%

40%

8

5

Ratio = 8 : 5

Calculations:

Let the quantity of the 35% sugar solution be x litres.

=> Total sugar in 35% solution + Total sugar in 48% solution = Total sugar in final mixture

=> (35 ÷ 100) × x + (48 ÷ 100) × 8 = (40 ÷ 100) × (x + 8)

=> 35x + 384 = 40(x + 8)

=> 35x + 384 = 40x + 320

=> 40x − 35x = 384 − 320

=> 5x = 64

=> x = 64 ÷ 5 = 12.8

Therefore The correct answer is 12.8 litres.

Additional Information

Rule of Alligation

When two mixtures of different concentrations are mixed, the ratio of their quantities is inversely proportional to the absolute difference of their concentrations from the average mixture concentration.

Repeated Replacement Formula

If from a vessel containing volume V of pure liquid, a quantity R is drawn out and replaced by water n times, the final quantity of pure liquid left = $V \times (1 - R \div V)^n$.

Q2. Answer: (c) North-East

The logic followed here is :-

1) Rohan is facing west and then he turns 45 degrees anti-clockwise.

2) Then Rohan turns 180 degrees towards his right.

Therefore Here, Rohan is facing towards "North-East".

Hence, the correct answer is "North-East".

Q3. Answer: (d) 11^(th)

The Correct answer is 11th.

Key Points

• Manmohan Singh served as leader during 11^(th) five year plan's tenure, which lasted from 2007 to 2012.

• C. Rangarajan was the one who prepared it.

• The total outlay of the Eleventh Plan has been placed at Rs.3644718 crore.

• The Central Government will provide Rs.2156571 crore, and the State Governments will contribute Rs.1488147 crore.

• From 2.13 percent in the Tenth Plan, the Eleventh Plan proposes raising the growth rate for the agriculture sector to 4%.

• The industries and services sectors' growth targets range from 9 to 11 percent.

• The creation of 7 crore new jobs, a 10% reduction in poverty, and guaranteeing that every village has access to electricity are all significant goals.

• Increased spending on the infrastructure sector, which includes sewage, drinking water, and irrigation, from 5% of the GDP in 2005–2006 to 9% in 2011–12.

Q4. Answer: (b) (3√2+5√3)/6

Given:

sin60° + tan30° + cos45°

Concept used:

Calculation:

sin60° + tan30° + cos45°

=> √3 over 2 + 1 over √3 + 1 over √2

=> √3 over 2 + √3 over 3 + √2 over 2

=> 3√3 + 2√3 + 3√2 over 6

=> 5√3 + 3√2 over 6

=> (3√2+5√3)/6

Therefore The value of sin60° + tan30° + cos45° is (3√2+5√3)/6.

Q5. Answer: (a) Call centres

The correct answer is Call centres.

Key Points

• Call centres service was NOT present in India for the common man at the time of Independence.

• India started to become a popular location for call centres that engage with consumers who are based in developed markets that speak English, like the US, the UK, and Australia, around 1999–2000.

• Since then, the call centre work of the vast majority of consumer companies on the Fortune 500 list has been outsourced to India, and it has been a wonderful growth story. A multi-billion dollar industry has been developed in India around it.

• In 1998, Mr Bhasin established the nation's first call centre with only 18 workers fielding calls in a space where booths were divided by saris suspended from the ceiling.

Important Points

• India Post, a division of the Department of Post under the Ministry of Communications, is a postal service that is run by the government.

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• It is the most widely used postal system in the entire globe and is commonly referred to as the Post Office. In 1766, Warren Hastings undertook the initiative on behalf of the East India Company to launch the nation's first postal service. When it first started, it was known as "Company Mail."

• From Calcutta to Diamond Harbour, the first experimental electric telegraph connection was established.

• It was made available to the British East India Company in 1851.

• For telegraph facilities, a separate department was established in 1854. The Indian Telegraph Act was first introduced in India in 1885.

• The first passenger train travelled the 34 km route between Thane and Bori Bunder on April 16, 1853.

• It had thirteen carriages and was driven by three engines with the names Sahib, Sultan, and Sindh.

Q6. Answer: (a) All letters change their position

The logic followed here is:

Given word: STADIUM

On arranging as per English alphabetical order : A < D < I < M < S < T < U

Therefore Here, all letters of the word 'STADIUM' have changed their position.

Hence, the correct answer is "All letters change their position".

Q7. Answer: (a) 45

Given:

The LCM of two numbers is 28 times their HCF, and the difference in the LCM and HCF is 405.

The numbers are in the ratio 4 : 7

Concept used:

HCF of two or more numbers is the greatest factor that divides the numbers.

Calculation:

Let the LCM and HCF of the aforementioned two numbers be L and H respectively.

Now, the numbers are 4H and 7H respectively.

According to the question,

L = 28 × H ....(1)

L - H = 405

=> 28H - H = 405 (From 1)

=> 27H = 405

=> H = 405/27

=> H = 15 ....(2)

Now, the difference between the numbers

=> 7H - 4H

=> 3H

=> 3 × 15 (From 2)

=> 45

Therefore The positive difference between the two numbers is 45.

Q8. Answer: (a) Archimedes' Principle

The correct answer is Archimedes' Principle.

Key Points

• The upward buoyant force that is applied to a body submerged in a fluid, whether wholly or partially, is equal to the weight of the fluid that the body displaces and acts in the upward direction at the centre of mass of the displaced fluid, according to Archimedes' principle.

• The Archimedes law, which was developed by Archimedes of Syracuse in Greece, provides the thrust force value.

• When an object is submerged in a liquid, whether completely or partially, the apparent weight loss is equal to the weight of the liquid that it has displaced.

Important Points

• According to Bernoulli's principle, the total mechanical energy of a moving fluid, which includes the kinetic energy of the fluid's motion as well as the gravitational potential energy of elevation and pressure, remains constant.

• According to the Beer-Lambert law, there is a linear relationship between a solution's concentration and absorbance, making it possible to determine a solution's concentration by observing its absorbance.

• According to Blaise Pascal's law, a pressure change in a confined, incompressible fluid that happens at any place is distributed evenly throughout the fluid, causing the identical change to occur everywhere.

Q9. Answer: (a) 12 cm

Shortcut Trick

Sum of parallel sides = (2 × Area) ÷ Height

=> Sum = (2 × 140) ÷ 7 = 280 ÷ 7 = 40 cm

Other parallel side = Sum − Given side

=> Other side = 40 − 28 = 12 cm

Therefore The correct answer is 12 cm.

Alternate Method

Given:

Area of trapezium = 140 cm²

Perpendicular distance (h) = 7 cm

One parallel side (a) = 28 cm

Formula Used:

Area of Trapezium = (1/2) × (a + b) × h

Where 'a' and 'b' are the lengths of the parallel sides and 'h' is the height.

h = 7 cm

a = 28 cm

b = ?

Area = 140 cm²

Calculation:

=> 140 = (1/2) × (28 + b) × 7

=> 140 × 2 = (28 + b) × 7

=> 280 = (28 + b) × 7

=> 280 ÷ 7 = 28 + b

=> 40 = 28 + b

=> b = 40 − 28

=> b = 12 cm

Therefore The correct answer is 12 cm.

Additional Information

Perimeter of a Trapezium

The perimeter is the sum of all its four sides. Perimeter = a + b + c + d, where a and b are parallel sides and c and d are non-parallel sides.

Median of a Trapezium

The median (or mid-segment) connects the midpoints of the non-parallel sides. Its length is the average of the parallel sides: Median = (a + b) ÷ 2.

Isosceles Trapezium

In an isosceles trapezium, the non-parallel sides are equal in length, and the base angles are equal. The diagonals of an isosceles trapezium are also equal.

Q10. Answer: (b) EFFPU

The logic followed here is:

1) Letters are arranged in ascending order (i.e. dictionary order).

2) And then letters are increased by +1.

BRELF : CFGMS

• Letters are arranged in ascending order (i.e. dictionary order).

BRELF → Dictionary order → BEFLR.

• And then letters are increased by +1.

MJCLH : DIKMN

• Letters are arranged in ascending order (i.e. dictionary order).

MJCLH → Dictionary order → CHJLM.

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• And then letters are increased by +1.

Similarly,

EODET : ?

• Letters are arranged in ascending order (i.e. dictionary order).

EODET → Dictionary order → DEEOT.

• And then letters are increased by +1.

Hence, the correct answer is "EFFPU".

Q11. Answer: (b) 7%

Shortcut Trick

Total Simple Interest (SI) earned in 8 years = 11,700 − 7,500 = Rs. 4,200.

SI for 1 year = 4,200 ÷ 8 = Rs. 525.

Rate of interest (R%) = (Yearly Interest ÷ Principal) × 100.

R% = (525 ÷ 7,500) × 100 = 525 ÷ 75 = 7%.

Therefore The correct answer is 7%.

Alternate Method

Given:

Principal (P) = Rs. 7,500

Amount (A) = Rs. 11,700

Time (T) = 8 years

Formula Used:

1) Simple Interest (SI) = Amount (A) − Principal (P)

2) Rate (R) = (SI × 100) ÷ (P × T)

Calculations:

=> SI = 11,700 − 7,500 = 4,200

=> R = (4,200 × 100) ÷ (7,500 × 8)

=> R = 420,000 ÷ 60,000

=> R = 7%

Therefore The correct answer is 7%.

Additional Information

Simple Interest Formula

SI = (P × R × T) ÷ 100, where P is Principal, R is Rate per annum, and T is Time in years.

Total Amount Formula

A = P + SI = P × [1 + (R × T) ÷ 100].

Rate and Time Relation

For a constant Principal, the Simple Interest is directly proportional to both Rate and Time.

SI vs CI

In Simple Interest, the interest is calculated only on the initial principal, whereas in Compound Interest, interest is calculated on the principal plus accumulated interest.

Q12. Answer: (c) A tax that the government imposes per unit sale of output.

The correct answer is A tax that the government imposes per unit sale of output.

Key Points

• A fixed tax on a product, unrelated to the purchase price, is known as a per-unit tax.

• It can be shown as a wedge between the supply and demand curves. P_S denotes the price sellers receive after taxes, while P_B denotes the amount purchasers pay.

• The tax revenue is indicated by the orange rectangle (the per unit tax times the quantity sold).

• The producer surplus is coloured in pink, the consumer surplus in blue, and the deadweight loss in purple.

Important Points

• A tariff is a charge a nation imposes on imports of goods and services from another nation.

• A unit tax is a tax levied by the government on each sale of output, per unit. A unit tax's implementation changes the marginal.

• The rising cost curve for the company The supply curve will move to the left as a result.

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Q13. Answer: (b) 4.5

Given:

5, 2, 7, 8, 1 and 4

Concept used:

The median is defined to be the mean of the two middle values in the case of an even data set.

Calculation:

Given series in the sorted form

=> 1, 2, 4, 5, 7, 8

Now, the median of the distribution = (4 + 5)/2 = 4.5

Therefore 4.5 is the median 5, 2, 7, 8, 1 and 4.

Q14. Answer: (a) Satish Vyas

The correct answer is Satish Vyas.

Key Points

• Satish Vyas was conferred with the Tansen Samman 2020 by the Madhya Pradesh government in January 2021.

• Strict COVID-19 regulations were in place as the 96th Tansen Music Festival in Madhya Pradesh got underway in Gwalior.

• Pandit Satish Vyas, a renowned santoor player, received the prestigious Tansen Samman during the opening ceremony.

Important Points

• Every year in the month of December, the Gwalior district of Madhya Pradesh celebrates Tansen Samaroh.

• This year's festival is the 97th. The musical spectacular lasts for 5 days.

• Here, musicians and artists from all over the world come to honour the legendary Indian musical maestro Tansen.

• The Academy of the Department of Culture, Government of Madhya Pradesh, is in charge of organising the event close to Tansen's tomb.

Additional Information

• The Indian classical vocalist C. R. Vyas' son, Satish Vyas, is a singer. With Shivkumar Sharma, he began studying the santoor in 1978.

• The modern representative of the Paluskar style of North Indian classical singing is the Hindustani vocalist Pandit Vidyadhar Vyas.

• An Indian classical sitar player is Vidushi Manju Mehta.

• Dalchand Sharma is an eminent Pakhawaj exponent of “Nathdwara Gharana”.

Q15. Answer: (a) First

Eight people F, H, K, N, P, S, V, X are sitting in a straight line and all are facing north.

1) F sits fourth to the right of H.

2) Only two people sit between F and K.

Case (i) :

Case (ii) :

3) Neither F nor H sits at any of the extreme ends of the line. More than two people sit between P and K and P does not sit at an extreme end.

So, here case (ii) gets eliminated.

4) S sits to the immediate right of V. X sits at one of the positions to the left of V.

Therefore Here, the position of 'N' is 'first' from right end of the line.

Hence, the correct answer is "First".

Q16. Answer: (c) Second

The correct answer is second.

Key Points

• In the most recent World Athletics Men's Javelin Rankings, Neeraj Chopra rose 14 spots to take 2^(nd) position overall.

• Neeraj Chopra is only rated second to Johannes Vetter of Germany in the World Athletics rankings with 1315 points.

• Vetter has 1396 points, which puts him in first place.

• Neeraj Chopra became the first Indian track and field athlete to win the gold medal in the men's javelin event at the Tokyo 2020 Olympics.

• Neeraj won the competition with a throw of 87.58 meters.

• He celebrated his comeback on June 14, 2022, by setting a new national record at the Paavo Nurmi Games in Turku, Finland, of

89.30 meters.

• After only 15 days, he achieved 89.94m on June 30, 2022, at the Stockholm Diamond League in Sweden, shattering his own personal best of 89.30m.

Additional Information

• Indian track and field athlete Subedar Neeraj Chopra PVSM VSM is the current javelin throw Olympic champion.

• He is from India's Khandra, Haryana.

Q17. Answer: (b) Ex post

The correct answer is Ex post.

Key Points

• The actual or realised value of a variable, as opposed to its planned value, is called Ex post.

• Ex-post, which means "after the fact" in Latin, is another term for actual returns.

• The most well-known method for predicting the likelihood of experiencing a loss on investment on any given day has traditionally been to use previous results.

• Ex-post stands in contrast to ex-ante, which is Latin for "before the event." Companies gather ex-post data in order to project future earnings.

• Studies like value at risk (VaR), and probability research that estimates the greatest loss an investment portfolio may sustain on any given day, make use of ex-post information.

Important Points

• ExFlow is a special add-on module for Microsoft Dynamics AX and Microsoft Dynamics 365 for Finance & Operations that improves your accounts payable and procurement operations' productivity and efficiency over the long term.

• Ex-ante refers to future occurrences, such as potential returns on a certain security or firm returns.

• Instead of selling or exchanging items for money, parties to a barter agreement transfer goods or commodities for other goods.

Q18. Answer: (b) 18.75%

Shortcut Trick

Let the Cost Price (CP) of 1 item be 1 unit.

Given: SP of 32 items = CP of 38 items.

Ratio method: SP ÷ CP = 38 ÷ 32 = 19 ÷ 16.

Profit units = 19 − 16 = 3 units.

Profit% = (Profit ÷ CP) × 100 => (3 ÷ 16) × 100 = 18.75%.

Therefore The correct answer is 18.75%.

Alternate Method

Given: Selling Price (SP) of 32 items = Cost Price (CP) of 38 items.

Formulas: Profit = SP − CP | Profit% = (Profit ÷ CP) × 100

=> Let CP of 1 item = x. Then CP of 38 items = 38x.

=> SP of 32 items = 38x => SP of 1 item = 38x ÷ 32 = 1.1875x.

=> Profit per item = 1.1875x − x = 0.1875x.

=> Profit% = (0.1875x ÷ x) × 100 = 18.75%.

Therefore The correct answer is 18.75%.

Additional Information

Inverse Relationship

When the SP of 'a' items equals the CP of 'b' items, the profit or loss percentage is calculated as [(b − a) ÷ a] × 100. If a, it is a Profit; if a > b, it is a Loss.

Percentage to Fraction

The fraction 3/16 is equivalent to 18.75% because 1/16 = 6.25%, and 3 × 6.25% = 18.75%.

Q19. Answer: (a) Jharkhand

The correct answer is Jharkhand.

Key Points

• In the Jharkhand region, many tribes participate in the popular event known as Sarhul.

• The Munda, Oraon, Ho, and other Jharkhand tribal groups commemorate the celebration, which is also known as the tribal New Year.

• The word "sarhul" implies "tree worship" or "worship of the sal tree."

• Due to their proximity to the natural world, tribal people begin the Sarhul festival by worshipping various natural objects, such as trees.

• After this festival, the natives begin the majority of agricultural chores like seeding, etc. In addition, the indigenous people bring new crops including paddy, fruits, tree leaves, and flowers for use in worship.

Important Points

• On the third Monday of the first month of the Hindu calendar or the fortnight of "Chaitra," Sarhul is observed during the springtime.

• The Sarhul celebration marks the start of "Phaagun," or the arrival of spring. It is observed through the month of June, or "Jeth."

Q20. Answer: (a) Medium human development

The correct answer is Medium human development.

Key Points

• India is placed 131st out of 189 nations in the Human Development Report 2020, which was created by the United Nations Development Programme (UNDP).

• The nation was classified as having a medium level of human development with an HDI score of 0.645.

It is challenging to appropriately compare India's rating between this year and 2019.

• The UNDP has updated and altered the underlying data and changed the goalpost.

• However, the UNDP provided some information in its country report charting India's progress in human development between 1990 and 2019.

Important Points

• The Human Development Index (HDI) is a summary indicator of average performance in three important areas of human development: living a long and healthy life, having access to education, and having a respectable level of living.

• The geometric mean of the normalised indices in each of the three dimensions is the HDI.

• Life expectancy at birth is used to evaluate the health component, while the education dimension is evaluated using the average number of years spent in school for persons 25 years and older and the anticipated number of years spent in school for young children.

Additional Information

• HDI classification (value):

• Low (< 0.550)

• Medium (0.550-0.699)

• High (0.700-0.799)

• Very high (≥ 0.800)

Q21. Answer: (c) C

A, B, C, D, E, F, G and H are sitting around a square table facing the centre of the table. Four of them are sitting at each of the corners, while the other four are sitting at the exact centre of each of the sides.

1) B sits at one of the corners of the table. Only two people sit between B and D.

Case (i) :

Case (ii) :

2) C sits second to the right of D.

Case (i) :

Case (ii) :

3) Only three people sit between C and A.

Case (i) :

Case (ii) :

4) E sits to the immediate left of A.

• Therefore, case 2 gets eliminated.

5) F sits second to the right of G.

Therefore Here, 'C' sits second to the left of 'H'.

Hence, the correct answer is "C".

Q22. Answer: (c) 18 : 345

The logic followed here is :-

First number^2 + 11 = Second number.

1) 14 : 207 → $14^2 + 11 = 196 + 11 = 207$

2) 12 : 155 → $12^2 + 11 = 144 + 11 = 155$

3) 18 : 345 → $18^2 + 11 = 324 + 11 = 335$

4) 16 : 267 → $16^2 + 11 = 256 + 11 = 267$

Therefore Here, '18 : 345' is different from other three alternatives.

Hence, the correct answer is "18 : 345".

Q23. Answer: (b) 22 km

Shilpa and Radhika started walking from two different points, 'A' and 'B', respectively.

1) Shilpa walks 4 km North, turns to the East and walks 6 km, again turns to the North and walks 8 km, and finally turns to the East and walks 10 km to reach point 'C'.

2) Radhika walks 4 km North, and turns to the West and walks 6 km, and finally turns to the North and walks 8 km and meets Shilpa at point 'C'.

The shortest distance between Shilpa's and Radhika's starting points = 6km + 10km + 6km.

The shortest distance between Shilpa and Radhika = 22km.

Hence, the correct answer is "22km".

Q24. Answer: (a) Khetri

The correct answer is Khetri.

Key Points

• Khetri is known for copper mines in India.

• The Khetri Copper Belt is an 80 km long metallogenetic province that stretches from Singhana in the north to Raghunathgarh in the south.

• Khetri is located at the foothills of the Aravalli Range, which supports copper mineralization.

• The belt is a component of the North Delhi fold belt and is made up of tightly folded Proterozoic metasediments that lay above basement gneisses.

• Khetri, Kolihan, Banwas, Chandmari, Dhani Basri, and Baniwali Ki Dhani are notable deposits of the belt (Neem Ka Thana, Rajasthan).

• Dholamala, Akwali, Muradpura-Pacheri (Jhunjhunu, Rajasthan), and Devtalai are additional deposits (Bhilwara, Rajasthan).

Important Points

• Maharastra is home to the Ratnagiri mines. It is a port city in Maharastra and a portion of the Konkan division. The British established this area. These mines contain minerals such as ilmenite and bauxite.

• The Kudremukh mines are located in Karnataka's the Western Ghats. One of the largest iron ore resources in the world may be found in these mines, which are well recognised for it.

• A mining area called Kolar Gold Fields is located in Karnataka, India's Kolar district and K.G.F taluk.

Q25. Answer: (c) 82.5

Shortcut Trick

Total Work = LCM(66, 55, 22) = 330 units.

Efficiency of A = 5, B = 6, and (A+B+C) = 15.

Efficiency of C = 15 − (5 + 6) = 4.

Time taken by C = 330 ÷ 4 = 82.5 days.

Therefore The correct answer is 82.5 days.

Alternate Method

Given: Time taken by A = 66 days, B = 55 days, and (A + B + C) = 22 days.

We calculate the Total Work as the LCM of the individual number of days.

Person	Days	Total Work	Efficiency
A	66	330 units	5
B	55	6	
A + B + C	22	15	

=> Efficiency of A = 330 ÷ 66 = 5 units/day.

=> Efficiency of B = 330 ÷ 55 = 6 units/day.

=> Combined Efficiency of A, B and C = 330 ÷ 22 = 15 units/day.

=> Efficiency of C = Efficiency(A+B+C) − [Efficiency(A) + Efficiency(B)]

=> Efficiency of C = 15 − (5 + 6) = 15 − 11 = 4 units/day.

=> Time taken by C alone = Total Work ÷ Efficiency of C

=> Time taken by C = 330 ÷ 4 = 82.5 days.

Therefore The correct answer is 82.5 days.

Additional Information

Work and Efficiency Relation

Efficiency is the amount of work done in one day. Efficiency = Total Work ÷ Time Taken.

Time and Efficiency Inverse Rule

Time taken to complete a job is inversely proportional to the efficiency of the person (Time prop. to 1 ÷ Efficiency).

Combined Work Formula

If two people X and Y can do a job in 'x' and 'y' days respectively, they together complete it in (x × y) ÷ (x + y) days.

Q26. Answer: (b) Article 49

The correct answer is Article 49.

Key Points

• Article 49:

• It shall be the obligation of the State to protect every monument or place or object of artistic or historic interest, declared by or [under law made by Parliament] to be of national importance, from spoliation, disfigurement, destruction, removal, disposal or export, as the case may be.

Additional Information

• Article 43:

• The State shall endeavour to secure, by suitable legislation or economic organisation or in any other way, to all workers, agricultural, industrial or otherwise, work, a living wage, conditions of work ensuring a decent standard of life and full enjoyment of leisure and social and cultural opportunities and, in particular, the State shall endeavour to promote cottage industries on an individual or co-operative basis in rural areas.

• Article 48A:

• The State shall endeavour to protect and improve the environment and to safeguard the forests and wild life of the country.

• Article 48:

• The State shall endeavour to organise agriculture and animal husbandry on modern and scientific lines and shall, in particular, take steps for preserving and improving the breeds, and prohibiting the slaughter, of cows and calves and other milch and draught cattle.

Q27. Answer: (d) 256

Given:

The perimeters of the two squares differ by 48 cm.

The side of one square is four times the side of the other square.

Concept used:

Area of a square = A^2

Perimeter of square = 4A

Where A is the length of each side

Calculation:

Let the length of the side of the smaller square be Q cm.

The perimeter of the smaller square = 4Q cm

Length of the side of larger square = 4Q cm

Perimeter of the larger square = 4 × 4Q = 16Q cm

According to the question,

16Q - 4Q = 48

=> 12Q = 48

=> Q = 4

Now, 4Q = 4 × 4 = 16

Area of the larger square = 16^2 = 256 cm^2

Therefore The area of the larger square is 256 cm².

Q28. Answer: (c) Two

The correct answer is Two.

Key Points

• A specific form of chromosome involved in determining sex is called a sex chromosome.

• Humans typically have 46 chromosomes, or 23 pairs of them in each cell.

• The appearance of 22 of these pairs, known as autosomes, is the same in both sexes.

• The 23rd pair of chromosomes, known as the sex chromosomes, is unique to males and females.

• The two sex chromosomes, X and Y, found in humans and the majority of other mammals, together define an individual's sex.

• Male cells include one X and one Y chromosome.

• Female cells contain two X chromosomes.

Additional Information

• The X chromosome has a long and short arm, similar to a large autosomal chromosome.

• One long arm and a very short second arm make up the Y chromosome.

• This process to becoming male or female begins during meiosis, when a cell divides to form gametes, or sex cells with half as many chromosomes as normal.

• The male XY sex-chromosome pair divides during meiosis and transmits either an X or a Y to distinct gametes; as a result, one-half of the newly created gametes (sperm) have the X chromosome and the other half the Y chromosome.

• All female egg cells typically possess a single X chromosome, and the female has two X chromosomes. When X-bearing sperm fertilizes eggs, the result is girls (XX), while Y-bearing sperm produces men (XY).

Q29. Answer: (b) Rotterdam

The correct answer is Rotterdam.

Key Points

• Rotterdam ports in NOT located in Asia.

• The Port of Rotterdam, which is situated in and around the city of Rotterdam, in the Dutch province of South Holland, is the largest seaport in Europe and the largest seaport outside of East Asia.

• By annual cargo tonnage, it was the busiest port in the world from 1962 until 2004.

• The port of Singapore overtook it first in 2004; since then, Shanghai and other sizable Chinese seaports have surpassed it.

• In terms of the volume of twenty-foot equivalent units (TEU) handled, Rotterdam was the tenth-largest container port in the world in 2020.

Important Points

• The main port in Japan is the Port of Osaka, which is situated in Osaka within Osaka Bay. The Port of Busan is one of many sister ports of the Port of Osaka.

• A deep-sea port and a river port make up the Port of Shanghai, which is close to Shanghai. The Shanghai International Port Group, Shanghai's primary port corporation, was created when the Shanghai Port Authority was reorganised.

• The collective buildings and terminals that manage Singapore's harbours and shipping are referred to as the Port of Singapore.

Q30. Answer: (d) 68

The logic followed here is:

• In a queue of commanders, Andry is 17th from the extreme front-end and Brooke is 32nd from the extreme back-end.

• After interchanging their positions, Andry becomes 37th from the front end.

• Total number of commanders = Position of Andry from the front end after interchanging positions + Position of Andry from the back end after interchanging positions - 1 = 37 + 32 - 1

Therefore Total number of commanders = 68

Hence, the correct answer is "68".

Q31. Answer: (b) UYCP

The logic followed here is :-

'COCK' is written as 'EQEM'.

And

'DUCK' is written as 'FWEM'.

Similarly,

'SWAN' will be written as :

Hence, the correct answer is "UYCP".

Q32. Answer: (c) Advanced Chaff Technology

The correct answer is Advanced Chaff Technology.

Key Points

• Advanced Chaff Technology was developed by Defence Research and Development Organisation to protect naval ships against missile attacks in April 2021.

• To protect naval ships from enemy missile attacks, the Defense Research and Development Organization (DRDO) has created an Advanced Chaff Technology.

• It is an additional step in the direction of Atmanirbhar Bharat.

• Chaff is an electronic countermeasure device that is employed by militaries all over the world to shield naval ships or other sensitive targets from the radar and radio frequency (RF) guiding mechanisms of the adversary missile.

• The deployed chaff rockets in the air serve as various targets for missile guidance systems and deflect enemy missiles, thereby defending their own assets.

• Short Range Chaff Rocket (SRCR), Medium Range Chaff Rocket (MRCR), and Long Range Chaff Rocket are the three indigenous versions of the crucial technology that DRDO has developed (LRCR).

Important Points

• The temperature of an object is measured using infrared (IR) imaging technology. All objects give off electromagnetic radiation, mostly in the infrared (IR) range, which is invisible to the unaided eye.

• Lightweight surveillance radar that can be operated by one person only is known as man-portable radar.

• Covered shooting ranges called baffle firing ranges guard against mishaps caused by stray bullet wounds.

Q33. Answer: (d) 15%

Given:

The data was represented by a pie chart, and the sector representing people who liked soccer had a central angle of 54°.

Concept used:

360° of a pie chart represents the 100% of it.

Calculation:

According to the concept,

54° represents = 54/360 × 100%

=> 15%

Therefore 15% of the people surveyed liked soccer.

Q34. Answer: (d) 2^(nd)

Six students, P, Q, R, S, T and U have been instructed to keep their books on six different shelves of a bookshelf having only six shelves one over the other.

1) Books of S are kept on the topmost shelf.

2) Books of P and U are kept on third shelves from the extreme top and extreme bottom, respectively.

3) Only books of R are kept between the shelves containing books of U and Q.

Therefore Here, the books of student 'T' is kept on 2^(nd) shelve from extreme top.

Hence, the correct answer is "2^(nd)".

Q35. Answer: (c) JKQ

The logic followed here is :-

Hence, the correct answer is "JKQ".

Q36. Answer: (c) 40 : 33

Shortcut Trick

In a proportion a : b :: c : d, the product of extremes equals the product of means.

(15% × A) × 11 = (25% × B) × 8

15 × A × 11 = 25 × B × 8 (Percentage cancels out)

A / B = (25 × 8) / (15 × 11) = (5 × 8) / (3 × 11) = 40 / 33

Therefore The correct answer is 40 : 33.

Alternate Method

Given:

15% of A : 25% of B = 8 : 11

Formula Used:

Ratio of x% of A to y% of B is (x × A) / (y × B).

Calculations:

=> (15/100) × A / (25/100) × B = 8 / 11

=> (15 × A) / (25 × B) = 8 / 11

=> (3 × A) / (5 × B) = 8 / 11

=> 3A × 11 = 8 × 5B

=> 33A = 40B

=> A / B = 40 / 33

Therefore The correct answer is 40 : 33.

Additional Information

Properties of Proportion

If a : b :: c : d, then the product of extremes (a × d) is always equal to the product of means (b × c).

Percentage Ratios

When comparing percentages of two different quantities, the common denominator (100) can be canceled out directly: x% of A / y% of B = (x × A) / (y × B).

Compounded Ratio

The compounded ratio of (a : b) and (c : d) is (a × c) : (b × d). This is useful when multiple ratios are linked.

Q37. Answer: (c) Only conclusions I, II follow

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

Conclusions:

(I) Some papers are clothes → True (As Some papers are tables and All tables are clothes so, Some papers are clothes is true)

(II) Some ropes are clothes → True (As Some ropes are tables and All tables are clothes so, Some ropes are clothes is true)

(III) No cloth is a rope → False (As Some ropes are tables and All tables are clothes so, No cloth is a rope is false)

(IV) No paper is a rope → False (it is possible but not definite)

Therefore Here, conclusions I and II are true.

Hence, the correct answer is "Only conclusions I, II follow".

Q38. Answer: (a) Raja Ram Mohan Roy

The correct answer is Raja Ram Mohan Roy.

Key Points

• The Brahmo Sabha served as the forerunner of the Brahmo Samaj, a social-religious reform movement in the Indian subcontinent.

• It was founded in 1828 with help from Indian reformer Ram Mohan Roy.

• Akbar II, the Mughal emperor, bestowed the title "Raja" upon him.

• Ram Mohan Roy was well-known for his efforts to end child marriage and the sati customs.

• Many historians regard Roy as the "Father of the Bengal Renaissance."

Additional Information

• Iswar Chandra Vidyasagar:

• In the nineteenth century, Iswar Chandra Vidyasagar was a social reformer and educator from India.

• His efforts to simplify and modernise Bengali prose were significant.

• He is regarded as the "Father of Bengali Prose."

• Debendranath Tagore:

• Indian Hindu philosopher and religious reformer Debendranath Tagore was prominent in the Brahmo Samaj.

• In 1848, he established the Brahmo religion, which is now known as Brahmoism.

• Keshab Chandra Sen:

• Hindu philosopher and social reformer Keshab Chandra Sen made an effort to integrate Christian theology within the Hindu philosophical tradition.

• He was a Hindu who was born in British India's Bengal Presidency and joined the Brahmo Samaj in 1857 before starting his own breakaway group, the "Bharatvarshiya Brahmo Samaj," in 1866.

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Q39. Answer: (a) Father's father

Family chart :-

Family Tree :

1) C is the son of F and D and G is the son of C and E.

2) D is the mother of R and B's mother is the daughter of F.

Therefore Here, 'F' is paternal grandfather of 'G' and paternal grandfather = father's father.

Hence, the correct answer is "Father's father".

Q40. Answer: (a) 270

Given:

18% of 450 = 30% of k

Calculation:

18% of 450 = 30% of k

=> 0.18 × 450 = 0.3 × k

=> 81 = 0.3k

=> k = 81/0.3

=> k = 270

Therefore The value of k is 270.

Q41. Answer: (b) Change Case

The correct answer is Change Case.

Key Points

• In MS-Word 2016, the 'Aa' feature within the Font group of the Home tab represents the Change Case option.

• The case menu offers four options;

• Sentence case: It capitalizes the first letter of each sentence.

• Lowercase: It changes the text from uppercase to lowercase.

• Uppercase: It capitalizes all the letters of your text.

• Capitalize Each Word: It capitalizes the first letter of each word.

• Toggle Case: This feature enables you to switch between two different case views, such as Capitalize Each Word and Capitalize Each Word.

Q42. Answer: (c) Article 112

The correct answer is Article 112.

Key Points

• The Annual Financial Statement, which is presented as a part of the budget, is covered under Article 112 of the Constitution of India.

• It states that the annual financial statement, also known as the statement of the estimated income and expenditures of the Government of India for each fiscal year, shall be placed before both Houses of Parliament by the President.

• Every financial year, as part of the budgeting process, a document called the Annual Financial Statement is delivered to Parliament.

• The records include the government's receipts and outlays for the current fiscal year, the prior fiscal year, and the budget year in three distinct parts: the Consolidated Fund of India, the Contingency Fund of India, and the Public Account of India.

Important Points

Articles	covered under article
Article 115	Supplementary, additional or excess grants
Article 114	Appropriation Bills
Article 113	Procedure in Parliament with respect to estimates

Q43. Answer: (d) Sunday

We know that:

In an ordinary year, there are 365 days and on dividing 365 by 7,

• We get remainder = 1 so this extra one day is taken as odd day.

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Similarly, in an leap year, there are 366 days and on dividing 366 by 7,

• we get remainder = 2 so this extra two days is taken as odd days.

Thus, the remainder, which we get after dividing the number of days by 7 is considered as odd days.

Given 10th May of a given year is Monday.

Number of days in month of May = 31 days

Number of days in month of June = 30 days

Number of days in month of July = 31 days

Number of days from 10th May to 11th July of the same year = 21 + 30 + 11

Therefore Number of days from 10th May to 11th July of the same year = 62

The number of odd days from 10th May to 11th July = 6

Therefore On 10th May of a given year, it was Monday + 6 = Sunday.

Therefore Here, 'Sunday' is day of the week on 11th July of the same year.

Hence, the correct answer is "Sunday".

Q44. Answer: (c) Statement I, II and III together are not sufficient.

Calculation:

Let the age of Rohan, Sheela, and Mala be R, SH, and M respectively.

According to the statement II,

M > R ....(1)

According to the statement III,

M = SH + 10

=> SH = M - 10 ....(2)

According to the statement I,

R + SH + M = 95 ....(3)

=> R + M - 10 + M = 95

=> R + 2M = 95 + 10

=> R + 2M = 105 ....(4)

Even using (1), (2), (3), and (4) simultaneously, we can not evaluate M.

Therefore Statement I, II, and III together are not sufficient.

Q45. Answer: (b) establishment of UPSC and SPSC

The correct answer is establishment of UPSC and SPSC.

Key Points

• Article 315:

• There shall be a Public Service Commission for the Union and a Public Service Commission for each State.

• Two or more States may agree that there shall be one Public Service Commission for that group of States, and if a resolution to that effect is passed by the House or, where there are two Houses, by each House of the Legislature of each of those States, Parliament may by law provide for the appointment of a Joint State Public Service Commission to serve the needs of those States.

• Any such law as aforesaid may contain such incidental and consequential provisions as may be necessary or desirable for giving effect to the purposes of the law.

• The Public Service Commission for the Union, if requested so to do by the Governor of a State, may, with the approval of the President, agree to serve all or any of the needs of the State.

• References in this Constitution to the Union Public Service Commission or a State Public Service Commission shall, unless the context otherwise requires, be construed as references to the Commission serving the needs of the Union or, as the case may be, the State as respects the particular matter in question.

Q46. Answer: (c) Chandela dynasty

The correct answer is Chandela dynasty.

Key Points

• The Kandariya Mahadeva temple dedicated to Lord Shiva was constructed in c.999 CE by king Dhangadeva of the Chandela dynasty.

• King Dhangadeva of the Chandela dynasty built the Shiva-dedicated Kandariya Mahadeva temple in 999.

• An elaborate gateway at the temple's entrance was decorated.

• Its maha mandapa main hall was where dance performances took place.

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• An Indian dynasty in Central India was known as the Chandelas of Jejakabhukti.

• Between the 9th the 13th centuries, the Chandelas dominated a large portion of the Bundelkhand region. They belonged to the Rajput Chandel clan.

• The Gurjara-Pratiharas of Kanyakubja were the earliest feudatories of the Chandelas.

Important Points

• Between the sixth and tenth centuries, the Indian kingdom Rashtrakuta (r. 753–982 CE) ruled over a sizable portion of the Indian subcontinent.

• Between the sixth through the twelfth centuries, the Chalukya dynasty, a Classical Indian monarchy, ruled over a sizable portion of southern and central India.

• An Indian dynasty known as the Kalachuris, also referred to as the Kalachuris of Mahishmati, ruled in west-central India throughout the sixth and seventh centuries.

Q47. Answer: (c) 61

Given:

3 × 16.13 + 15.03 – 7.86 + √15

Calculation:

Approximating the values we get,

3 × 16 + 15 - 8 + √16

=> 48 + 15 - 8 + 4

=> 59

Option 3 i.e. 61 is the closest possible number to 59.

Therefore The value of 3 × 16.13 + 15.03 – 7.86 + √15 is 59.

Q48. Answer: (a) A

Ten people are sitting in two parallel rows 1 and 2. A, B, C, D and E are sitting in row I facing south, and V, W, X, Y and Z are sitting in row 2 facing north, in such a way that each member in row 1 faces a member of row 2.

1) W sits second from the left end of the row. W faces an immediate neighbour of A.

Case (i) :

Case (ii) :

2) B sits second to the left of A.

Case (i) :

Case (ii) :

3) Only one person sits between C and the one who faces V. Neither C nor V sit at any of the extreme ends.

• Therefore, case (ii) gets eliminated.

4) V faces an immediate neighbour of D and The one who faces E sits to the immediate left of X.

5) Only one person sits between Y and X.

Therefore Here, 'Z' faces 'A'.

Hence, the correct answer is "A".

Q49. Answer: (d) 29

The logic followed here is:

• (1st number + 2nd number) ÷ 4 = Number on the right side

69, 87 = 39

=> (69 + 87) ÷ 4 = 156 ÷ 4 = 39

And,

93, 95 = 47

=> (93 + 95) ÷ 4 = 188 ÷ 4 = 47

Similarly,

52, 64 = ?

=> (52 + 64) ÷ 4 = 116 ÷ 4 = 29

Hence, the correct answer is "29".

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Q50. Answer: (b) CCEUSSS

The logic followed here is :-

'TEACHER' is written as 'CAHEETR'.

and

'STUDENT' is written as 'DUETNST'.

Similarly,

'SUCCESS' will be written as :

Hence, the correct answer is "CCEUSSS".

Q51. Answer: (a) Africa

The correct answer is Africa.

Key Points

• The 2019 revision of the World Population Prospects is the twenty-sixth edition of the official United Nations population estimates and projections.

• It presents population estimates from 1950 to the present for 235 countries or areas, underpinned by analyses of historical demographic trends.

• The world's population is expected to increase by 2 billion persons in the next 30 years, from 7.7 billion currently to 9.7 billion in 2050, according to this report.

• Africa has the highest rate of population growth among major areas. The population of sub-Saharan Africa is projected to double by 2050.

• Africa is the second-largest and second-most populous continent in the world, making up 20% of the planet's land area and 6% of its total surface.

• As of 2018, it had 1.3 billion inhabitants, or nearly 17% of all humans on the earth.

Additional Information

• Asia:

• The Eastern and Northern Hemispheres are home to Asia, the planet's largest and most populous continent.

• Asia is home to 49 countries, according to the UN.

• Europe:

• The second-smallest continent in the globe, Europe is made up of Eurasia's western-facing peninsulas and makes up almost one-fifth of the planet's total land area.

• North America:

• It includes the world's largest island Greenland and the sovereign states of Canada, the United States, and Mexico. About 498 million people live in Northern America (in 2019.)

Q52. Answer: (c) glass

The logic followed here is :-

Given	Coded as
chef	glass
glass	cup
cup	cool
cool	rich

Thus food is cooked by 'chef'.

Therefore Here, 'chef' is coded as 'glass'.

Hence, the correct answer is "glass".

Q53. Answer: (d) Jatropha

The correct answer is Jatropha.

Key Points

• Jatropha is NOT a coniferous tree.

• The flowering plant genus Jatropha belongs to the Euphorbiaceae (spurge) family.

• It has about 170 species of succulent trees, shrubs, and plants (some are deciduous, like Jatropha curcas).

• With 66 species found in the Old World, the Americas are home to the majority of these species.

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• Traditional uses for jatropha species include basket making, tanning, and dying.

Important Points

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

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

Additional Information

• Cedar is a genus of coniferous trees in the family Pinaceae of plants (subfamily Abietoideae). They can be found at elevations of 1,000 to 2,200 metres in the Mediterranean and 1,500 to 3,200 metres in the western Himalayas, where they are native.

• Any conifer tree or shrub in the genus Pinus of the family Pinaceae is referred to as a pine.

• Spruce is a member of the family Pinaceae and belongs to the genus Picea, which contains roughly 35 species of coniferous evergreen trees that are native to the northern temperate and boreal parts of the planet.

Q54. Answer: (b) 37/40

Given:

Given fractions are 22/25, 37/40, 8/9, 17/20.

Calculation:

LCM (25, 40, 9, 20) = 1800

22/25 => 22/25 × 1800 = 1584

37/40 => 37/40 × 1800 = 1665

8/9 => 8/9 × 1800 = 1600

17/20 => 17/20 × 1800 = 1530

Therefore 37/40 is the greatest among all the following fractions.

Q55. Answer: (b) Uttar Pradesh

The correct answer is Uttar Pradesh.

Key Points

• Huge statues of Kushana emperors have been discovered erected at a sanctuary at Mat, close to Mathura (Uttar Pradesh).

• Additionally, a shrine in Afghanistan contained similar figures. This, in the opinion of some historians, shows that the Kushanas thought of themselves as divine.

• Many Kushana kings also took the term devaputra, which means "son of god," presumably as a result of Chinese emperors referring to themselves as sons of heaven.

• Evidence of larger nations, including the Gupta Empire, dates to the fourth century.

• Many of these were dependent on samantas, or self-sufficient men who controlled local resources like the land.

Important Points

• Kushanas, who ruled over a wide kingdom spanning from Central Asia to northwest India, lived in the first century BCE or first century CE.

• The inscriptions and textual traditions have been used to reconstruct their history.

• Perhaps their coinage and art best demonstrate the ideas of kingship they intended to represent.

Q56. Answer: (a) –2

Given:

cos A = √3/2 (A is an acute angle)

Concept used:

Calculation:

cos A = √3/2

=> cosA = cos30°

=> A = 30°

Now,

(tan A - cotA)/(√3-secA)

=> (tan 30° - cot30°)/(√3-sec30°)

=> (1/√3 - √3)/(√3- 2/√3)

=> (1 - 3)/√3 over (3 - 2)/√3

=> -2

Therefore The value of (tan A - cotA)/(√3-secA) is -2.

Q57. Answer: (b) 4

Given:

$(2.91^2-1.09^2)/1.82$

Concept used:

$A^2 - B^2 = (A + B) (A - B)$

Calculation:

$(2.91^2-1.09^2)/1.82$

$=> (2.91+1.09)(2.91 - 1.09)/1.82$

$=> (4 \times 1.82)/1.82$

$=> 4$

Therefore The value of $(2.91^2-1.09^2)/1.82$ is 4.

Q58. Answer: (a) USSR Constitution

The correct answer is USSR Constitution.

Key Points

• The notion of fundamental duties first appeared in the Soviet Union's Constitution, ie, Constitution of USSR.

• In 1976, the Swaran Singh Committee recommended the establishment of Fundamental Duties.

• The 42nd Amendment Act of 1976 added 10 Fundamental Duties to the Indian Constitution.

• Following that, the 86th Amendment Act of 2002 added what is now known as the 11th Fundamental Duty to the list.

Additional Information

• List of 11 Fundamental Duties:

• Abide by the Constitution and respect national flag & National Anthem

• Follow ideals of the freedom struggle

• Protect sovereignty & integrity of India

• Defend the country and render national services when called upon

• Sprit of common brotherhood

• Preserve composite culture

• Preserve natural environment

• Develop scientific temper

• Safeguard public property

• Strive for excellence

• Duty of all parents/guardians to send their children in the age group of 6-14 years to school.

Q59. Answer: (a) 10%

Given:

A sum of money invested at a certain rate of compound interest per annum amounts to Rs. 96,800 in 2 years and to Rs. 1,06,480 in 3 years.

Concept used:

Simple Interest, $SI = (P \times R \times T)/100$

Amount = P + SI

where

P = Principal amount

R = Rate of interest per year

T = Time in years

One year of simple interest on a certain sum of money is equal to the compound interest incurred on it for one year.

Calculation:

Rs. 96,800 that amounts to Rs. 1,06,480 in the 3rd year acts the principal amount for one-year simple interest.

Let the interest rate be R% per annum.

According to the concept,

$96800 + (96800 \times R \times 1)/100 = 106480$

$=> (96800 \times R \times 1)/100 = 9680$

$=> R = (9680 \times 100)/96800$

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=> R = 10

Therefore The rate of compound interest is 10% per annum.

Q60. Answer: (b) 2197

The logic followed here is :-

Hence, the correct answer is "2197".

Q61. Answer: (d) F

Seven people A, B, C, D, E, F and G live in a seven-floor building. The lowermost floor is numbered as 1, the floor above it is numbered 2, and so on till the topmost floor is numbered 7.

1) Only four people live below the floor on which D lives and Only two people live below C and B lives on the lowermost floor.

2) E lives immediately above B and A lives on one of the floors above F but on one of the floors below G.

Therefore Here, 'F' lives on floor numbered four.

Hence, the correct answer is "F".

Q62. Answer: (d) Jockey

Colleagues Karna, Michelli, Prabhu, Vanaja, Mohan, Raghu, Jockey and Neelima are sitting around a square table in such way that four of them sit at corners and four of them at the middle of the sides. The ones who sit at the corners face outside (opposite to the centre) and the ones who sit at the middle of the sides face towards centre.

1) Mohan is third to the left of Prabhu. Prabhu is not sitting at middle of any of the sides.

2) Only one person sits between Mohan and Raghu. Raghu is not an immediate neighbour of Prabhu.

3) Vanaja is seated third to the right of Jockey. Vanaja faces towards the centre.

Case (i) :

Case (ii) :

4) Neelima faces towards the centre. Karna is not an immediate neighbour of Raghu.

• Therefore, case (ii) gets eliminated.

Therefore Here, 'Jockey' is immediate neighbour of both Mohan and Raghu.

Hence, the correct answer is "Jockey".

Q63. Answer: (d) 35

Given:

105 people could complete a work in 36 days.

After they worked together for 8 days their employer wanted that the work should be completed in a total of 29 days.

Concept used:

Total work = Efficiency of each worker × Number of days to finish × Number of total workers

Calculation:

Let the efficiency of each worker be M.

Now, the total work = 105 × M × 36

Let N number of workers need to be employed to get the work done in 29 days.

Work done in 8 days = 105 × M × 8 = 840M

Remaining days = 29 - 8 = 21 days

Work done in 21 days = (105 + N) × M × 21

According to the concept,

105 × M × 36 = 840M + (105 + N) × M × 21

=> 105 × 36 = 840 + (105 + N) × 21

=> 3780 = 840 + 2205 + 21N

=> 21N = 735

=> N = 735/21

=> N = 35

Therefore 35 more workers need to be employed to meet the deadline.

Q64. Answer: (a) 214

The correct answer is 214.

Key Points

• Article 214: There shall be a High Court for each State.

Additional Information

• Article 248:

• Parliament has exclusive power to make any law with respect to any matter not enumerated in the Concurrent List or State List.

• Such power shall include the power of making any law imposing a tax not mentioned in either of those Lists.

• Article 188:

• Every member of the Legislative Assembly or the Legislative Council of a State shall, before taking his seat, make and subscribe before the Governor, or some person appointed in that behalf by him, an oath or affirmation according to the form set out for the purpose in the Third Schedule.

• Article 148:

• There shall be a Comptroller and Auditor-General of India who shall be appointed by the President by warrant under his hand and seal and shall only be removed from office in like manner and on the like grounds as a Judge of the Supreme Court.

Q65. Answer: (c) Only conclusion IV follows.

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

Conclusions:

I. No bat is a cap → False (As Some bats are balls and All balls are caps so, No bat is a cap is false)

II. All caps are balls → False (it is possible but not definite)

III. Some hats are caps → False (As All caps are players and No player is a hat so, Some hats are caps is false)

IV. No hat is a ball → True (As All balls are caps and All caps are players and No player is a hat so, No hat is a ball is true)

Therefore Here, Conclusion IV is true.

Hence, the correct answer is "Only conclusion IV follows".

Q66. Answer: (d) 6

Shortcut Trick

Ratio of Mother to Daughter (4 yrs ago) = 13 : 1 (Diff = 12)

Ratio (2 yrs hence) = 4 : 1 (Diff = 3 × 4 = 12) → 16 : 4

Change in units = 16 − 13 = 3 units; Total time gap = 4 + 2 = 6 years.

Therefore 3 units = 6 years => 1 unit = 2 years. Mother's current age = (16 × 2) − 2 = 30; Daughter = (4 × 2) − 2 = 6.

Let after x years ratio be 3 : 1 => (30 + x) = 3(6 + x) => 30 + x = 18 + 3x => 2x = 12 => x = 6.

Therefore The correct answer is 6 years.

Alternate Method

Given: Mother's age was 13 times daughter's 4 years ago. After 2 years, it will be 4 times.

Let the age of the daughter and mother 4 years ago be x and 13x respectively.

Current age: Mother = 13x + 4, Daughter = x + 4

Two years hence: Mother = 13x + 6, Daughter = x + 6

=> 13x + 6 = 4(x + 6)

=> 13x + 6 = 4x + 24

=> 9x = 18 => x = 2

=> Current Mother's age = 13(2) + 4 = 30 years

=> Current Daughter's age = 2 + 4 = 6 years

Let after 'n' years, mother's age be 3 times daughter's age:

=> 30 + n = 3(6 + n)

=> 30 + n = 18 + 3n

=> 2n = 12 => n = 6

Therefore The correct answer is 6 years.

Additional Information

Constant Age Difference

The difference between the ages of two people remains constant regardless of how many years pass.

Ratio Balancing Method

To solve age problems quickly, balance the difference in ratio parts by multiplying the ratios by the difference of the opposite ratio's parts.

General Formula

If current ages are M and D, then after 'n' years, the ratio becomes (M + n) / (D + n) = R1 / R2.

Q67. Answer: (a) northern India

The correct answer is northern India.

Key Points

• The construction of temples in North India is done in the Nagara style.
• There is only one pinnacle, or Shikhara, in the temple designed in this manner.
• Sun Temple in Modhera, Sun Temple in Khajuraho, Jagannath Temple in Puri, etc. are some of the most notable examples.
• High stone platforms serve as the foundation for the entire temple.
• They typically lack substantial enclosures and entrances.
• Above the Garbagriha, the temple featured a solitary summit, or shikhara.
• On the Shikara of a temple, there was a Kalasha.
• Mandapas, or gathering spaces, are located in front of the main shrine.
• The height is provided by Sikhara (the tower), which gently bends inward and is topped by an Amalaka (a spheroid plate with ribs around the edge).

Q68. Answer: (c) Kerala

The correct answer is Kerala.

Key Points

• Kerala has the highest sex ratio in India, according to the 2011 census, with 1084 girls for every 1000 males.
• Tamil Nadu ranks second with 996 girls for every 1000 males.
• With a sex ratio of 993, Andhra Pradesh ranks third, followed by Chhattisgarh (991) and Meghalaya (989).
• With 879 girls for every 1000 males, Haryana has the poorest sex ratio among the states.
• The greatest sex ratio among Union Territories is 1037 in Puducherry, while the lowest sex ratio is 618 in Daman and Diu.

Additional Information

• Sex ratio is defined as the proportion of females to males per thousand.
• It is a crucial sociological indicator for determining the degree of gender equality that exists in a nation at any particular period.
• The sex ratio of the population affects, and is affected by, birth, death, immigration, and emigration rates.

Q69. Answer: (c) ADEILS

The logic followed here is :-

WINTER : EINRTW

And

TRAY : ARTY

Similarly,

LADIES : ?

Hence, the correct answer is "ADEILS".

Q70. Answer: (a) 1.5 cm

Given:

The difference between the external and internal curved surface areas of a 7 cm long cylindrical metallic pipe is 110 cm2.

The pipe is made of 302.5 cm3 metal

Concept used:

In the case of a cylindrical pipe, volume = $\pi \times (R^2 1 - R^2 2) \times H$

Here R1 and R2 are the external and internal radius of the pipe and H = Height of the pipe

Curved surface area of a cylinder = $2\pi RH$

Here R = Radius of the base and H = Height

A2 - B2 = (A + B) (A - B)

Calculation:

Let the outer and inner radius of the pipe be R and r centimeter respectively.

According to the question,

$2\pi R \times 7 - 2\pi r \times 7 = 110$

$\Rightarrow 2 \times 22/7 \times 7 \times (R - r) = 110$

=> 44(R - r) = 110

=> (R - r) = 110/44

=> (R - r) = 2.5 ....(1)

According to the question,

$\pi \times (R^2 - r^2) \times 7 = 302.5$

=> $22/7 \times 7 \times (R^2 - r^2) = 302.5$

=> (R2 - r2) = 302.5/22

=> (R2 - r2) = 13.75

=> (R + r) (R - r) = 13.75

=> (R + r) × 2.5 = 13.75 (From 1)

=> (R + r) = 13.75/2.5

=> (R + r) = 5.5 ....(2)

Solving (1) and (2),

R = 4 and r = 1.5

Therefore The inner radius of the pipe is 1.5 cm.

Q71. Answer: (c) 8 nibbles

The correct answer is 8 nibbles.

Key Points

• The length of IPv4 address in terms of nibble is 8 nibbles.

• The most used IP version was IPv4. In 1983, it was delivered to the ARPANET for creation.

• It is a frequently used IP modification.

• The 32-bit address format is used by IPv4.

• There is a dot (.) between each binary bit in IPv4 and broadcast is supported. A dot represents a binary bit in IPv4 (.).

• IPv4 security allows encryption to maintain security and privacy.

• Redefining IPV4 addresses allows for faultless encoding. Because addressing is collectively done more successfully, routing is far more scalable and cost-effective.

• IP addresses come in two different sizes: IPv4 (four bytes) and IPv6 (Sixteen bytes).

• The RARP protocol allows a device with an IP address to retrieve information.

• The network layer is where IP Address operates.

Additional Information

• In the world of computers and digital technology, a nibble is four binary digits or one-half of an eight-bit byte.

• One hexadecimal digit can conveniently represent a nibble.

Q72. Answer: (b) Kirana

The correct answer is Kirana.

Key Points

• Pandit Bhimsen Joshi who received Bharat Ratna in 2009 was popular for the khayal form of singing and belonged to the Kirana Gharana.

• Pandit Bhimsen Gururaj Joshi, often known by his honorific title Pandit, was one of the best vocalists in the Hindustani classical genre.

• Both his popular versions of devotional music and his khayal style of singing are what make him famous (bhajans and abhangs).

• A well-known performer, Joshi travelled to Afghanistan, Italy, France, Canada, and the United States between 1964 and 1982.

• He was the first musician from India whose concerts in New York City were promoted through posters.

• In honour of his teacher, Sawai Gandharva, Joshi played a key role in the annual Sawai Gandharva Music Festival's establishment.

Important Points

• One of the Indian classical khyal gharanas is Kirana, and it places a high priority on note intonation (swara).

• One of the oldest Khyal Gharanas in Indian classical music is the Gwalior Gharana. The Mughal emperor Akbar's (1542–1605) reign marked the beginning of the Gwalior Gharana's ascent.

• One of the vocal gharanas (traditions, schools, or musical styles) of Hindustani classical music is called the Patiala Gharana after the city of Patiala in Punjab, India, where it originated.

• The Nauhar Bani is the ancestor of the Agra Gharana, a school of Hindustani classical vocal music.

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Q73. Answer: (a) Only conclusion III follows

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

Conclusions:

I. Some computers are mobiles → False (it is possible but not definite)

II. Some mobiles are computers → False (it is possible but not definite)

III. Some mobiles are laptops → True (As Some laptops are mobiles so, Some mobiles are laptops is true)

Therefore Here, Conclusion III is true.

Hence, the correct answer is "Only conclusion III follows".

Q74. Answer: (d) Sultan Jehan Begum

The correct answer is Sultan Jehan Begum.

Key Points

• Sultan Jehan Begum was the successor of Shahjehan Begum, the ruler of Bhopal, who provided money for the preservation of the ancient site Sanchi.

• The Bhopal Begums contributed significantly to the Sanchi Stupa's preservation.

• The Sanchi Stupa received significant endowments from Shahjahan Begum and Sultan Jahan Begum, the rulers of Bhopal.

• Because of Begum Sultan Jahan Begum's financial support, a museum was built close to the stupa.

• The stupa was preserved in part by Europeans. The plaster cast copies of the stupa pillars were seized by the French and the British to be displayed in their respective national museums in France and Britain.

Important Points

• Ibne Hajjah Nawab Begum Between 1901 and 1926, Dame Sultan Jahan was the begum in charge of Bhopal.

• Sultana Chand Bibi served as the regent of the Sultanates of Ahmednagar and Bijapur during the minorities of Ibrahim Adil Shah II (1580–1590) and Bahadur Shah (1595–1600), respectively.

• Mariam-uz-Zamani, also known as Jodha Bai, was the favoured imperial consort of the third Mughal emperor Akbar and served as his chief consort and primary Rajput wife.

• In the north of the Indian subcontinent, Razia Sultana presided over the Delhi Sultanate.

Q75. Answer: (a) Mumbai High

The correct answer is Mumbai High.

Key Points

• An offshore oilfield known as Bombay High, now Mumbai High, field is situated in the Arabian Sea about 160 km west of the Mumbai coast in India.

• The field was found in 1974, started producing in 1976, and is run by the Oil and Natural Gas Corporation (ONGC).

• The Russian and Indian crew working aboard the seismic exploration vessel Academic Arkhangelsky made the discovery of the Mumbai High field in February 1974 while exploring the Gulf of Cambay between 1964 and 1967.

• Two blocks known as Mumbai High North (MHN) and Mumbai High South make up the oil field (MHS).

• Currently, the Mumbai High field has 1,659 million metric tonnes (MMt) of oil in it, and it produces about 12MMt annually.

Additional Information

• Kolar:

• Kolar city is known for its milk production and the gold mines.

• The Kolar Gold Fields (K.G.F.) mining area is located in the Kolar district's K.G.F. township. A decline in gold prices forced the mine to shut on February 28, 2001.

• Between the 1960s until 1992, the mine complex served as the site of some particle physics experiments.

• Bokaro:

• Bokaro, often known as Bokaro Steel City, is a significant city of Jharkhand. Bokaro is renowned for both its top-notch educational system.

• Jharia:

• Jharkhand's Dhanbad city contains the neighborhood known as Jharia.

• Jharia is famous for a coal field fire that has burned underground for a century.

• In 1916, the first fire was discovered. Records show that one of the first mines to collapse in an underground fire in 1930 was Seth Khora Ramji's Khas Jharia mines, a pioneer in Indian coal mining.

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Q76. Answer: (a) 15 cm

Shortcut Trick

Surface Area = $4 \times \pi \times r^2$

$900\pi = 4\pi \times r^2$

$r^2 = 900 \div 4 = 225$

$r = \sqrt{225} = 15$ cm

Therefore The correct answer is 15 cm.

Alternate Method

Given: Surface Area of sphere = 900π cm²

Formula Used: Surface Area of sphere = $4\pi r^2$

r = ?

Sphere Surface Area = 900π

$\Rightarrow 4 \times \pi \times r^2 = 900 \times \pi$

$\Rightarrow 4r^2 = 900$

$\Rightarrow r^2 = 900 \div 4$

$\Rightarrow r^2 = 225$

$\Rightarrow r = \sqrt{225}$

$\Rightarrow r = 15$ cm

Therefore The correct answer is 15 cm.

Additional Information

Volume of a Sphere

The volume of a sphere with radius r is given by the formula $V = (4/3) \times \pi \times r^3$.

Surface Area of Hemisphere

Curved Surface Area (CSA) = $2\pi r^2$ and Total Surface Area (TSA) = $3\pi r^2$.

Relation between Radius and Diameter

The diameter d of a sphere is twice the radius r, expressed as $d = 2 \times r$.

Q77. Answer: (c) KTUUPK

Given :- TUP _ _ _ PKT _ _ KTUP_

By checking options and substituting accordingly.

1) TTUUPK → T U P T - T U P K - T U P K - T U P K

2) UTTPKT → T U P U - T T P K - T P K K - T U P T

3) KTUUPK → T U P K - T U P K - T U P K - T U P K

• Here, "TUPK" is repeated.

4) TUUUPK → T U P T - U U P K - T U P K - T U P K

• Option (3) gives the pattern of :- T U P K - T U P K - T U P K - T U P K.

Hence, the correct answer is "KTUUPK".

Q78. Answer: (d) Lord Dalhousie

The correct answer is Lord Dalhousie.

Key Points

• In 1851, Lord Dalhousie described the kingdom of Awadh as 'a cherry that will drop into our mouth one day'.

• Awadh had been subjected to the Subsidiary Alliance since 1801. According to the terms of this agreement, the Nawab was required to dissolve his military force, permit the British to station troops inside the country, and follow the British Resident's instructions.

• Lacking his military, the Nawab was forced to rely more and more on the British to keep the peace in the realm. He was unable to maintain authority over the dissident chiefs and taluqdars.

• In fact, the British purchased Awadh to produce cotton and indigo.

• The region was in a prime location to develop into Upper India's primary market and was anticipated to complete the process of territorial annexation.

• Wajid Ali Shah's overthrow was justified by the argument that the area was being poorly governed and that he was unpopular.

Additional Information

• Warren Hastings:

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• As the first Governor of the Presidency of Fort William (Bengal), the chairman of the Supreme Council of Bengal, and consequently the first Governor-General of Bengal from 1772 to 1785, Warren Hastings was a British colonial administrator.

• Robert Clive:

• Robert Clive, commonly referred to as Clive of India, served as the Bengal Presidency's first British governor.

• Clive is usually regarded as having laid the groundwork for Bengali British East India Company dominance.

• William Bentick:

• Britain's William Bentick was a statesman and soldier.

• From 1828 until 1835, he presided as the Governor-General of India.

• He is credited with leading important social and educational reforms in India, including the elimination of sati and the prohibition of women from attending cremations on Varanasi's ghats, as well as the suppression of female infanticide and human sacrifice.

Q79. Answer: (d) 135°

Shortcut Trick

For a regular polygon with n sides, each interior angle is calculated as:

Each Interior Angle = ((n − 2) × 180°) ÷ n

For a regular octagon, n = 8.

Each Interior Angle = ((8 − 2) × 180°) ÷ 8 = (6 × 180°) ÷ 8 = 1080° ÷ 8 = 135°

Therefore The correct answer is 135°.

Alternate Method

Given:

Polygon type = Regular Octagon

Number of sides (n) = 8

Formula Used:

1. Exterior Angle of a regular polygon = 360° ÷ n

2. Interior Angle + Exterior Angle = 180°

Calculations:

=> Each Exterior Angle = 360° ÷ 8

=> Each Exterior Angle = 45°

=> Each Interior Angle = 180° − 45°

=> Each Interior Angle = 135°

Therefore The correct answer is 135°.

Additional Information

Sum of Interior Angles

The sum of all interior angles of any n-sided polygon is given by (n − 2) × 180°. For an octagon, it is 1080°.

Number of Diagonals

The number of diagonals in a polygon with n sides is n(n − 3) ÷ 2. For an octagon, it is 8(8 − 3) ÷ 2 = 20.

External Angle Property

The sum of all exterior angles of any convex polygon is always 360°, regardless of the number of sides.

Q80. Answer: (a) Only conclusions I and III are true

Given statement is :- K ≥ L > M < N ≤ X

Conclusions:

I. X > M → True (As M < N ≤ X so, X > M is true)

II. X > L → False (As L > M < N ≤ X, the relationship between X and L cannot be determined)

III. M < K → True (As K ≥ L > M so, M < K is true)

IV. L > K → False (As K ≥ L so, L > K is false)

Therefore Here, Conclusions I and III are true.

Hence, the correct answer is "Only conclusions I and III are true".

Q81. Answer: (d) Rs. 12,100

Given:

Total amount = Rs. 22,100

Rate of interest = 10% per annum

The amount payable on maturity to Monali after 18 years would be the same as the amount payable on maturity to Timir after 20 years.

Concept used:

Compound interest, CI = P(1 + R/100)^N - P

where

P = Principal amount

R = Rate of interest per year

N = Time in years

Calculation:

Let the share of Monali and Timir be Q and (22100 - Q) respectively.

Amount payable in case of Monali

=> Q(1 + 10 over 100)^(18)

Amount payable in case of Timir

=> (22100 - Q)(1 + 10 over 100)20

According to the question,

(22100 - Q)(1 + 10 over 100)20 = Q(1 + 10 over 100)18

=> (22100 - Q)(1 + 10 over 100)^(20 - 18) = Q

=> (22100 - Q)(1 + 10 over 100)2 = Q

=> (22100 - Q) × 1.21 = Q

=> 26741 - 1.21Q = Q

=> 2.21Q = 26741

=> Q = 26741/2.21

=> Q = 12100

Therefore The initial share of Monali was Rs. 12,100.

Q82. Answer: (d) Samir Banerjee

The correct answer is Samir Banerjee.

Key Points

• The men's singles champion at Wimbledon in 2021 was Samir Banerjee.

• The 17-year-old Samir Banerjee beat fellow American Victor Lilov 7-5, 6-3 on Court 1 at the All England Lawn Tennis and Croquet Club in London.

• This was Samir Banerjee's second appearance at a junior Grand Slam.

• According to the junior International Tennis Federation (ITF) rankings, the adolescent is ranked 19.

Additional Information

• Siddhant Banthia:

• Tennis player Siddhant Banthia is from India.

• Banthia's highest ATP singles ranking till date is 1125, attained on August 23, 2021.

• Additionally, on May 27, 2019, he attained a career-high ATP doubles ranking of 591.

• Adil Kalyanpur:

• Indian tennis player Adil Kalyanpur, 22, has a career-high doubles ranking of 591.

• Dhruv Sunish:

• He is a tennis player from India who has a career-high singles ranking of No. 942.

Q83. Answer: (b) 12312

Concept used:

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

Calculation:

Option 1:

12318

=> last three digits are 318

=> 318 isn't divisible by 8

=> 12318 isn't divisible by 8

Option 2:

12312

=> last three digits are 312

=> 312 is divisible by 8 (312 ÷ 8 = 39)

=> 12312 is divisible by 8

Since we've already encountered such an options that is divisible by 8, we're not required to check any further.

Therefore 12312 is divisible by 8.

Q84. Answer: (d) depositional landforms of river

The correct answer is depositional landforms of river.

Key Points

• 'Natural Levees' are depositional landforms of rivers.

• A natural levee is formed when silt is pushed to one side by the movement of a body of water.

• A river's banks are frequently just slightly higher than the riverbed.

• Sediment, silt, and other debris are pushed aside by the flowing water to build levees along the banks.

• Levees can help direct the flow of a river because they are often parallel to the river's course.

• It can also be constructed or strengthened artificially.

• On a flat, cleared surface, piles of dirt, sand, or rocks are typically used to construct artificial levees.

• It can also be constructed out of wood, plastic, or metal blocks in areas where rivers flow rapidly.

Important Points

• Rivers provide erosional landforms such as river valleys, waterfalls, structural benches, river terraces, river meanders, ox-bow lakes, and peneplains.

• Pediments, Pediplains, Playas, Deflation Hollows, and Caves, as well as Mushroom Rocks, are examples of wind-eroded landforms.

• Erosional Landforms of Wind: Deflation Hollows, Mushroom Rock, Yardang and Zeugen.

Q85. Answer: (d) 720 cm^3

Given:

Dimension of the cuboidal = 36 cm × 25 cm × 20 cm

Dimension of the cube = 4 cm × 4 cm × 4 cm

Concept used:

Volume of a cuboidal = L × B × H

where L, B, and H are length, breadth, and height respectively.

Calculation:

Volume of the cuboidal = (36 × 25 × 20) cm^3

Maximum volume of the cubes which can fit into the box

=> (36 × 24 × 20) cm^3 (Because 24 cm because that is the max dimension of the cube of 4 cm that can cover for space of 25 cm)

Now, the space left

=> (36 × 25 × 20) - (36 × 24 × 20)

=> 18000 - 17280

=> 720 cm^3

Therefore 720 cm^3 space will be still left in the box.

Q86. Answer: (c) Venezuela

The correct answer is Venezuela.

Key Points

• Venezuela's Angel Falls, also known as Kerepakupai Mer, or "waterfall of the deepest place," which is said to drop 979 meters, is the tallest or highest waterfall in the world.

• Surveyor Perry Lowrey took measurements of the waterfall in 1949 as part of an expedition supported by National Geographic and headed by Ruth Robertson.

• The single uninterrupted drop of 2648 feet is also the world's highest.

• Two world records are held by Angel Falls: The waterfall with the largest height overall, as well as the one with the biggest uninterrupted drop.

Additional Information

• Venezuela is a nation on South America's northern coast with a variety of natural features. The petroleum sector, biodiversity,

and stunning natural attractions like Angel Falls are all well-known for Venezuela.

• President: Nicolás Maduro

Capital: Caracas

Currency: Venezuelan bolívar

Q87. Answer: (b) Luni

The correct answer is Luni.

Key Points

• The Luni is the largest river in northwest India's Thar Desert.

• It begins in the Pushkar valley of the Aravalli Range, close to Ajmer, travels 495 kilometers through the southern Thar Desert, and then ends in the marshlands of Rann of Kutch in Gujarat.

• Prior to meeting its tributary Sarasvati, which rises from Pushkar Lake, it was known as Sagarmati. After passing Govindgarh, it became known as Luni.

• Due to the excessive salinity of its water, the Luni is often referred to as the Lavanavari or Lavanavati, which in Sanskrit means "salt river."

• The Jawai, Sukri, Guhiya, Bandi and Jojari rivers are the main tributaries of Luni river.

• Dantiwada, Sipu, and Jaswant Sagar dams are located on the Luni River.

• Maharaja Jaswant Singh completed the Jaswant Sagar Dam in 1892. It is one of the largest artificial lakes in India.

• Sardar Samand and Jawai Dam are the two principal irrigation projects on the Luni River.

Additional Information

• Chambal:

• In Central and Northern India, the Chambal River is a tributary of the Yamuna River and is thus a part of the larger Gangetic drainage system.

• The river travels north-northeast through the state of Madhya Pradesh, briefly traversing Rajasthan, marking the border between the two states, and then turning southeast to join the Yamuna in the state of Uttar Pradesh.

• Sabarmati:

• One of India's main west-flowing rivers is the Sabarmati.

• It begins in the Aravalli Range of the Udaipur District of Rajasthan and, after traveling 371 kilometers in a south-westerly direction across Rajasthan and Gujarat, reaches the Gulf of Khambhat of the Arabian Sea.

• Banas:

• The Banas is a river that flows wholly through the western Indian state of Rajasthan.

• It is a branch of the Chambal River, which is a branch of the Yamuna and joins the Ganga.

• The length of the Banas is roughly 512 kilometers.

Q88. Answer: (b) Punjab

The correct answer is Punjab.

Key Points

• The 2011 census recorded nearly 20.14 crore people belonging to various scheduled castes in the country.

• The highest SC population, 31.9 per cent of the state's total number, is in Punjab.

• Lakshadweep has the highest proportion of STs at 94.8 per cent.

Additional Information

• A census is a survey that is conducted on all observation objects that are a part of a particular population or universe.

• The first comprehensive census was done in 1881, but it had been conducted in India every ten years since 1872, while British Viceroy Lord Mayo was in charge.

• Since 1949, it has been managed by the Ministry of Home Affairs, Government of India, through the Registrar General and Census Commissioner of India.

Q89. Answer: (a) 56.25%

Given:

Two cylinders have the same volume, but the radius of the base of the second cylinder is 20% less than the radius of the base of the first.

Concept used:

Volume of a cylinder = πR^2H

where r = Radius of the base, h = height

Calculation:

Let the radius of the first cylinder be R.

Now, the radius of the base of the second cylinder

=> R - R × 20%

=> R - 0.2R

=> 0.8R

Let height of the first and second cylinder be H1 and H2 respectively.

According to the question,

$\pi \times R^2 \times H1 = \pi \times (0.8R)^2 \times H2$

=> $R^2 \times H1 = 0.64R2 \times H2$

=> H1 = 0.64H2

Now, % greater = (H2 - 0.64H2)/0.64H2 × 100%

=> 0.36/0.64 × 100%

=> 56.25%

Therefore 56.25% greater the height of the second cylinder should be in comparison to the height of the first.

Q90. Answer: (c) 4

The correct answer is 4.

Key Points

• Instruments were categorised into four groups in Bharat Muni's Natya Shastra (written between 200 BC and 200 AD): Avanaddha Vadya (membranophones or percussion instruments), Ghan Vadya (idiophones or solid instruments), Sushir Vadya (aerophones or wind instruments), and Tat Vadya (solid instruments) (chordophones or stringed instruments).

• This historic classification of Indian musical instruments devised by Bharat Muni was later applied to the musical instruments of Europe in the 12th century.

• The four divisions were later given Greek names: Chordophones for Tat Vadya, Membranophones for Avanaddha Vadya, Aerophones for Sushir Vadya, and Autophones for Ghan Vadya.

• As a result, the Natya Shastra is the foundation for the western classification system.

Important Points

• The musical treatise Natya Shastra is typically credited to the ancient sage Bharata Muni.

• The book discusses Sanskrit theatre as well as ancient Indian dramaturgy and histrionics. Bharata is regarded as the originator of Indian theatre.

• Although estimates range from 500 BCE to 500 CE, he is dated to between 200 BCE and 200 CE.

Q91. Answer: (a) 40

Given:

The batsman scored 84 runs in his 12th innings, thereby improving his average score per innings by 4 runs.

Concept used:

Total = Average × Number of entities

Calculation:

Let the average of the batman in the first 11 innings be N.

The total run scored by the batsman in the first 11 innings = 11 × N = 11N

The total run scored by the batsman in all 12 innings = 11N + 84

New average score after 12th innings = N + 4

According to the question,

(11N + 84)/12 = (N + 4)

=> (11N + 84) = (N + 4) × 12

=> 11N + 84 = 12N + 48

=> 12N - 11N = 84 - 48

=> N = 36

Now, N + 4 = 36 + 4

=> 40

Therefore 40 is the average score per innings of the batsman after the 12th innings.

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Q92. Answer: (a) Wednesday

We know that:

In an ordinary year, there are 365 days and on dividing 365 by 7,

• We get remainder = 1 so this extra one day is taken as odd day.

Similarly, in an leap year, there are 366 days and on dividing 366 by 7,

• we get remainder = 2 so this extra two days is taken as odd days.

Thus, the remainder, which we get after dividing the number of days by 7 is considered as odd days.

Given Aamish's birthday on 25th February 2020 was a Tuesday.

As 2020 is a leap year number of days in month of February = 29 days

• Remaining days in February after 25^(th) = 4 days.

• Number of days in month of March = 31 days.

• Number of days in month of April = 30 days.

• Number of days in month of May by 13th May 2020 = 13 days

Number of days from 25th February 2020 to 13th May 2020 = 4 + 31 + 30 + 13.

Number of days from 25th February 2020 to 13th May 2020 = 78

The number of odd days from 25th February 2020 to 13th May 2020 = 1 odd day.

Therefore On 25th February 2020, it was a Tuesday + 1 = Wednesday

Therefore Here, Aamish's brother's birthday, which was on 13th May 2020 is 'Wednesday'.

Hence, the correct answer is "Wednesday".

Q93. Answer: (b) 92

Given:

6√4096 +4√4096+cbrt4096+ √4096

Calculation:

6√4096 +4√4096+cbrt4096+ √4096

=> 6√(2^{12}) + 4√(2^{12}) + cbrt(2^{12}) + √(2^{12})

=> $2^{12}/6 + 2^{12}/4 + 2^{12}/3 + 2^{12}/2$

=> $2^2 + 2^3 + 2^4 + 2^6$

=> 4 + 8 + 16 + 64

=> 92

Therefore The simplified value of 6√4096 +4√4096+cbrt4096+ √4096 is 92.

Q94. Answer: (c) 100

Given:

In a bag full of pencils, 3/4 of the pencils were coloured pencils, and 8/15 of the coloured pencils were red.

40 red pencils were there in the bag.

Calculation:

LCM (4, 15) = 60

Let the total numbers of pencils be 60Q.

Number of coloured pencils = 60Q × 3/4

=> 45Q

Number of red coloured pencils = 45Q × 8/15

=> 24Q

According to the question,

24Q = 40

=> 3Q = 5

=> Q = 5/3

Now, total number of pencils = 60Q

=> 60 × 5/3

=> 100

Therefore The total number of pencils in the bag was 100.

Q95. Answer: (a) Jewish

The correct answer is Jewish.

Key Points

• A major population of Israel is Jewish.

• Israeli citizens and nationals who are Jewish by virtue of either their Jewish ethnicity or their practice of Judaism are known as Israeli Jews or Jewish Israelis.

• The word also refers to the offspring of Jewish Israelis who left the country and moved elsewhere.

• Jewish Israelis are the modern offspring of the ancient Israelites and Hebrews, together with Samaritans and communities from the scattered Jewish diaspora.

• As well as in smaller numbers in other nations throughout the world, they are mostly found in Israel and the West.

• Hebrew is a Semitic language spoken as a first language by the vast majority of Israeli Jews.

• The only nation with a majority of Jews is the Jewish state of Israel.

Important Points

• Iranians known as Lurs inhabit the highlands of western Iran. The Bakhtiari, Mamasani, Kohgiluyeh, and Lur proper are the four Luri branches, and they are primarily connected through the Luri language.

• With 35,734 residents, Beja is a municipality in the Alentejo Region of southern Portugal.

• A Dravidian ethnic group known as the Toda lives in Tamil Nadu, India's Nilgiri Mountains.

Q96. Answer: (d) Navi Mumbai

The correct answer is Navi Mumbai.

Key Points

• After Mundra Port, Jawaharlal Nehru Port Trust (JNPT) or JLN Port or Nhava Sheva Port, is India's second-largest container port.

• This port on the Arabian Sea is situated in Navi Mumbai's Raigad district and is reached via Thane Creek.

• The port was established on 26 May 1989.

• It has a great marine transportation importance in our country.

Additional Information

• Kandla:

• Kandla is a seaport and town in the Kutch district of Gujarat state in Western India, close to the city of Gandhidham.

• It is one of India's principal ports on the west coast and is situated on the Gulf of Kutch.

• In accordance with the Indian Ports Act of 1908, Kandla Port was renamed Deendayal Port in 2017.

• Mormugao:

• The seaport city of Mormugao is located in the South district's Mormugao taluka, Goa.

• It is still Goa's primary port and features a deep natural harbor.

• Kochi:

• Kochi is a significant port city on India's Malabar Coast, bordering the Arabian Sea's Laccadive Sea.

• It is known as the "Queen of the Arabian Sea" due to its all-weather harbor and expansive seascape.

Q97. Answer: (c) 4:26:40 hours

Given:

Manyata rowed a certain distance downstream in 2 hours while it took her 30 minutes more i.e. 2.5 hours to row the same distance upstream.

Concept used:

Time × Speed = Distance

While rowing upstream, the upstream speed is the difference between the speed of the boat in still water and the speed of the flow.

While rowing downstream, the downstream speed is the addition of the speed of the boat in still water and the speed of the flow.

30 minutes = 0.5 hour

Calculation:

Let S be the speed of the boat in the still water and R be the speed of the water.

Now,

The downstream speed = (S + R)

The upstream speed = (S - R)

According to the question,

(S + R) × 2 = (S - R) × 2.5

=> (S + R)/(S - R) = 2.5/2

=> 2S + 2R = 2.5S - 2.5R

=> 0.5S = 4.5R

=> S/R = 4.5/0.5

=> S/R = 9/1

Let the common ratio be Q.

The speed of the boat in still water is 9Q and the speed of the water Q.

Rowing distance = (S + R) × 2

=> (9Q + Q) × 2

=> 20Q

Time taken to complete the two-way journey in still water

=> (20Q × 2)/9Q

=> 4 4/9 hours

=> 4 hours (4/9 × 60) minutes

=> 4 hours 26 minutes 2/3 seconds

=> 4 hours 26 minutes (2/3 × 60) seconds

=> 4 hours 26 minutes 40 seconds

Therefore She will take 4 hours 26 minutes 40 seconds to make the two-way journey in still water.

Q98. Answer: (b) 107

We know that:

In an ordinary year, there are 365 days and on dividing 365 by 7,

• We get remainder = 1 so this extra one day is taken as odd day.

Similarly, in an leap year, there are 366 days and on dividing 366 by 7,

• we get remainder = 2 so this extra two days is taken as odd days.

Thus, the remainder, which we get after dividing the number of days by 7 is considered as odd days.

Given number of days from 10 April 2020 to 25 July 2020, by including both the days.

• Number of days in month of April from including 10 April 2020 = 10 April 2020 to 30 April 2020 = 21 days

• Number of days in month of May = 31 days

• Number of days in month of June = 30 days

• Number of days in month of July up to 25 July 2020 = 25 days

Total number of days = 21 + 31 + 30 +25

Total number of days = 107 days.

Hence, the correct answer is "107".

Q99. Answer: (d) MPATGM

The correct answer is MPATGM.

Key Points

• The Man Portable Anti-Tank Guided Missile (MPATGM) is a step above Anti-Tank Guided Missiles, which can pierce the armours of tanks.

• It is a long, low-weight missile with four fins arranged in a circle in the middle that is equipped with a high-explosive anti-tank (HEAT) payload.

• It has a built-in thermal sight that enables use in low-light situations, including complete darkness.

• To determine whether the MPATGM was effective against tank targets at the lower end of its range spectrum, which is between 200 and 300 meters, tests were conducted.

• MPATGM will be manufactured by Bharat Dynamics Limited at a facility located in Bhanoor, Telangana.

Additional Information

• SAMHO:

• The Armament Research and Development Establishment (ARDE) created the SAMHO, an Indian gun-launched anti-tank guided missile, for the Arjun tanks of the Indian Army.

It is a versatile anti-armour guided missile that can be used against both tanks and low-flying assault helicopters.

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• HELINA:
• HELINA is one of the most advanced anti-tank weapons in the world. The missile has a maximum range of 7 kilometres.
• SANT:
• Stand off anti-tank missile is a surface-to-air missile.
• The weapon can reach targets at a distance of up to ten kilometers. The DRDO developed the missile.

Q100. Answer: (d) Rs. 4,394

Given:
Principal amount (P)= Rs. 2000
Rate of interest (R)= 30% p.a.
Time (N) = 3 years
Concept used:
Compound interest, CI = P(1 + R/100)^N - P
where
P = Principal amount
R = Rate of interest per year
N = Time in years
Calculation:
Amount payable on the maturity
=> $2000(1 + 30/100)^3$
=> 2000×1.3^3
=> 2000×2.197
=> Rs. 4394
Therefore Rs. 4394 will be the amount payable on maturity if Rs. 2,000 is invested for a period of three years at 30% p.a. interest compounded yearly.

Q101. Answer: (b) 35

Given:
65 – [40 – (60 ÷ 5 – (18 – 24 ÷ 4) ÷ 6)]
Concept used:
Calculation:
65 – [40 – (60 ÷ 5 – (18 – 24 ÷ 4) ÷ 6)]
=> 65 – [40 – (60 ÷ 5 – (18 – 6) ÷ 6)]
=> 65 – [40 – (60 ÷ 5 – 12 ÷ 6)]
=> 65 – [40 – (12 – 2)]
=> 65 – [40 – 10]
=> 65 - 30
=> 35
Therefore The simplified value of 65 – [40 – (60 ÷ 5 – (18 – 24 ÷ 4) ÷ 6)] is 35.

Q102. Answer: (d) QVDZW

The logic followed here is :-
EYBRD : VBYIW
And
AJKBC : ZQPYX
Similarly,
JEWAD :?
Hence, the correct answer is "QVDZW".

Q103. Answer: (d) 3/2

Given:
$\tan\theta = \sqrt{5}/2$ and θ is an acute angle
Concept used:

sec2θ - tan2θ = 1

Calculation:

tanθ = √5/2

According to the concept,

sec2θ - (√5/2)²= 1

=> sec2θ - 5/4 = 1

=> sec2θ = 1 + 5/4

=> sec2θ = (4 + 5)/4

=> sec2θ = 9/4

=> secθ = 3/2 (Because θ is an acute angle)

Therefore The value of secθ is 3/2.

Q104. Answer: (d) Green Urja Award

The correct answer is Green Urja Award.

Key Points

• Indian Renewable Energy Development Agency Ltd. (IREDA) has received the "Green Urja Award" from the Indian Chamber of Commerce for being the top public institution financing renewable energy this year.

• The prize goes to IREDA in recognition of the crucial and pioneering role it plays in green energy financing.

• Indian Renewable Energy Development Agency Limited (IREDA) was established on 11th March, 1987 as a Public limited Government Company under the Companies Act, 1956.

• It promotes, develops and extends financial assistance for Renewable Energy and Energy Efficiency/Conservation Projects.

• Pradip Kumar Das is the Chairman & Managing Director of IREDA.

Additional Information

• India Power Award:

• The India Power Awards is pioneering initiative taken to acknowledge and recognize the great work done by individuals and organizations in the Power sector.

• National Energy Conservation Award:

• The Ministry of Power, Government of India has launched a scheme in 1991, to give national recognition through awards to industries and establishments that have taken special efforts to reduce energy consumption while maintaining their production.

• The awards were given away for the first time on December 14, 1991, which was declared as the `National Energy Conservation Day'.

Q105. Answer: (b) th jk wn

The logic followed here is :-

Therefore Here, 'Bliss Thee Youth' is coded as 'th jk wn'.

Hence, the correct answer is "th jk wn".

Q106. Answer: (a) 17

Given:

In a school, the number of students in Grades 6, 7 and 8 was 184, 276 and 322, respectively.

Concept used:

HCF of two or more numbers is the greatest factor that divides the numbers.

Calculation:

Since the students in each grade were divided into different sections, and every section across grades had the same number of students, the minimum number of sections across grades will be the HCF of the numbers of students in Grade 6,7, and 8.

HCF (184, 276, 322) = 46

Number of students in each class = 46

Number of sections in grade 6 = 184/46 = 4

Number of sections in grade 7 = 276/46 = 6

Number of sections in grade 8 = 322/46 = 7

Therefore Minimum number of sections = 4 + 6 + 7 = 17.

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Q107. Answer: (d) First

The correct answer is First.

Key Points

• Gudi Padwa, which is mostly observed in the state of Maharashtra, ushers in the harvest season.

• According to the lunisolar Hindu calendar, Maharashtrians celebrate the day as New Year's Day.

• Gudi, which refers to Brahma's flag, and Padwa, Padva, or Paddava, which refers to the first day of the moon's bright phase, are the two terms that make up the phrase "Gudi Padwa."

• According to the Hindu lunisolar calendar, Gudi Padwa is observed on the first day of Chaitra, which, according to the Gregorian calendar, often occurs between March and April.

• In 2022, Gudi Padwa was celebrated on 2nd April.

Important Points

• Gudi Padwa is mentioned in numerous myths and legends.

• It is stated in the Brahma Purana, one of the revered Hindu texts, that Lord Brahma restored the universe after a natural disaster killed everyone and stopped time.

• After Brahma's efforts, time was reset on this day, ushering in a new era of truth and justice. On this day, Lord Brahma is worshipped as a result.

Q108. Answer: (a) Swaranjayanti Gram Swarozgar Yojana

The correct answer is Swaranjayanti Gram Swarozgar Yojana.

Key Points

• The Swarnajayanti Gram Swarozgar Yojana (SGSY) was implemented at the beginning of the 1999–2000 fiscal year to replace six other related programmes.

• The initiative was created as a comprehensive plan to support rural impoverished people who work for themselves.

• It is funded by the Centre and the State in a 75:25 ratio and is implemented by commercial banks, regional banks and cooperative banks.

Additional Information

• Sampoorna Grameen Rozgar Yojana:

• The Government of India introduced the Sampoorna Grameen Rozgar Yojana with the aim of giving the rural poor gainful work.

By combining the terms of the Jawahar Gram Samridhi Yojana and the Employment Assurance Scheme (EAS), it was introduced on September 25, 2001.

• National Food for Work Programme:

• On November 14, 2004, the National Food for Work Program was introduced by the central government's minister of rural development in 150 of India's most underdeveloped districts with the aim of creating supplementary wage employment.

• It is implemented as a centrally-sponsored scheme.

• Valmiki Ambedkar Awas Yojana:

• Launched in 2001, the Valmiki Ambedkar Awaas Yojana is a centrally sponsored scheme which aims to improve the living conditions of slum dwellers across India.

Q109. Answer: (a) Gujarat

The correct answer is Gujarat.

Key Points

• The Gir Forests, the biggest contiguous area of dry deciduous forests in the semi-arid western section of India, are home to the only remaining population of the Asiatic lion (Panthera leo persica).

• In 1965, it was designated as a sanctuary.

• The majority of people associate Gir with "Maldharis," a species that has endured through the millennia thanks to a symbiotic association with the lion.

• They reside in Gir and are pastoral religious communities. Their settlements are referred to as "nesses."

Additional Information

State/ Union Territory	National Park
Punjab	Abohar Wildlife Sanctuary, Harike Wildlife Sanctuary, Jhajjar Bacholi, Bir Moti Bagh Wildlife Sanctuary and Bir Bhadson Wildlife Sanctuary.

Odisha	Simlipal National Park , Bhitarkanika National Park, Tikarpada Wildlife Sanctuary, Chilika Wildlife Sanctuary, Sunabeda Wildlife Sanctuary , Kotagarh Wildlife Sanctuary, Hadagarh Wildlife Sanctuary, etc.
Andaman and Nicobar Islands	Mahatma Gandhi Marine National Park, Mount Harriet National Park, Campbell Bay National Park, North Button Island National Park, Saddle Peak National Park, Galathea National Park, etc.

Q110. Answer: (d) Yuktdhara

The correct answer is Yuktdhara.

Key Points

• With the aid of remote sensing and GIS-based data, the Ministry of Rural Development has introduced a new geospatial planning site, "Yuktdhara," to facilitate the new MGNREGA (Mahatma Gandhi National Rural Employment Guarantee Act) assets.

• The new portal is located under "Bhuvan."

• It is the result of cooperative work by the Ministry of Rural Development and ISRO to establish a G2G (Government-to-Government) service for rural planning in support of decentralized decision-making.

• Along with the field photos, it will act as a repository for the assets (geotags) produced by the various National Rural Development Programs, including MGNREGA, Per Drop More Crop Programs, Integrated Watershed Management Program, and Rashtriya Krishi Vikas Yojana.

• It integrates a wide variety of thematic layers, multi-temporal high resolution earth observation data with analysis tools.

Additional Information

• Bhuvan:

• Bhuvan, ISRO’s geo-portal, is providing visualisation services and Earth observation data to users in the public domain.

• Besides, the portal also services several users for their remote sensing application needs.

Q111. Answer: (a) Balance of Trade

The correct answer is Balance of Trade.

Key Points

• The main component of a country's balance of payments (BOP) is the balance of trade (BOT), which is the difference between the value of a country's imports and exports for a specific period.

• A nation with a trade deficit is one that imports more goods and services than it exports in value terms, whereas a nation with a trade surplus is one that sells more goods and services than it imports.

• Despite the current trade battle with China, the United States had the highest trade deficit in 2019, surpassing the United Kingdom and Brazil.

• Germany had the largest trade surplus in 2019, followed by Japan and China.

• The current account, which also includes other activities like income from net international investment position and foreign aid, contains the balance of trade as one of its components.

• The nation's net international asset position improves proportionately if the current account is in surplus. A deficit also results in a decline in the net position of foreign assets.

Important Points

• Trading capital is the sum of money allocated to a person or business to buy and sell different assets.

• People who possess one thing and desire another can freely exchange or trade it with one another. This behaviour is described by the words "exchange" and "trade."

Q112. Answer: (b) Wheat, rice

The correct answer is Wheat, rice.

Key Points

• The High Yielding Varieties Programme (HYVP), which was launched in 1965–1966 as a crucial component of the so-called Green Revolution, was an effort to transform archaic Indian agriculture, particularly with regard to a few crops.

• Following the Joint Report on the operation of the HYVP in India, which was published in 1971 by the Programme Evaluation Organisation (PEO) and the Australian National Academy, the same team published a more technical and in-depth evaluation of the program's success from 1970 to 1975 in 1976.

• The 1976 study, which focused only on wheat and paddy, aimed to clarify the long-term trends in these crops for use in more analytical planning and agricultural research.

• The method used to choose the states, districts, blocks, and villages was the same as the method used in the earlier research.

• HYVP area targets of more than one lakh hectares for the Fourth Five Year Plan were granted to the States that grew the chosen crop widely.

Important Points

• The set of research and technology transfer initiatives that took place between 1950 and the late 1960s, known as the "Green Revolution," or the "Third Agricultural Revolution" (after the Neolithic Revolution and the British Agricultural Revolution), increased agricultural production in various parts of the world, starting most noticeably in the late 1960s.

• As a result of the activities, new technologies were adopted, including high-yielding (HYV) crop varieties, particularly dwarf wheat and rice.

• It was connected to mechanised farming, artificial fertilisers, agrochemicals, controlled water supply (typically using irrigation), and innovative farming techniques.

• These were all viewed as a "bundle of activities" that could replace "conventional" technology and be used as a whole.

Q113. Answer: (d) Nagaland

The correct answer is Nagaland.

Key Points

• Rengma is primarily a folk dance of Nagaland. The singing, in harmony and with echo effects is done by the dancers themselves while performing so energetically to create a happy vibe.

• The major folk dances of Nagaland include Modse, Agurshikukula, Butterfly Dance, Aaluyattu, Sadal Kekai, Changai Dance, Kuki Dance, Leshalaptu, Khamba Lim, Mayur Dance, Monyoasho, Rengma, Seecha and Kukui Kucho, Shankai and Moyashai etc.

Additional Information

State	Folk Dance
Rajasthan	Bhavai, Chakri Dance, Chari Dance, Drum Dance, Fire Dance, Gair, Gawari, Ghoomar, etc.
Bihar	Jata-Jatin, Bakho-Bakhain, Panwariya, Sama Chakwa, Bidesia
West Bengal	Kathi, Gambhira, Dhali, Jatra, Baul, Marasia, Mahal, Keertan.

Q114. Answer: (b) 42

Shortcut Trick

Car speed = 396 ÷ 6 = 66 km/h.

According to the ratio 7 : 11, the car speed is represented by 11 units.

11 units → 66 km/h => 1 unit = 6 km/h.

Bus speed (7 units) = 7 × 6 = 42 km/h.

Therefore The correct answer is 42 km/h.

Alternate Method

Given:

Ratio of speeds (Bus : Car) = 7 : 11

Distance covered by car = 396 km

Time taken by car = 6 hr

Formula used:

Speed = Distance ÷ Time

Calculations:

=> Speed of Car = 396 ÷ 6

=> Speed of Car = 66 km/h

=> Let the Speed of Bus be 7x and Speed of Car be 11x.

=> 11x = 66

=> x = 66 ÷ 11 = 6

=> Speed of Bus = 7x = 7 × 6

=> Speed of Bus = 42 km/h

Therefore The correct answer is 42 km/h.

Additional Information

Conversion of Speed Units

To convert speed from km/h to m/s, multiply by 5/18. To convert from m/s to km/h, multiply by 18/5.

Average Speed

Average Speed = Total Distance ÷ Total Time. For two equal distances at speeds x and y, Average Speed = 2xy/(x+y).

Relative Speed

If two objects move in the same direction, relative speed = S1 − S2. If they move in opposite directions, relative speed = S1 + S2.

Q115. Answer: (d) SDG Progress Award

The correct answer is SDG Progress Award.

Key Points

• Bangladesh's consistent progress toward reaching the Sustainable Development Goals (SDGs) has earned Prime Minister Sheikh Hasina the SDG Progress Award from the UN-sponsored SDSN.

• In order to advance the Sustainable Development Goals, the United Nations established the United Nations Sustainable Development Solutions Network (SDSN) in 2012.

• President: Professor Jeffrey Sachs

• Headquarters: New York, United States

• Founded: August 2012

Additional Information

• Swadhinata Puraskar:

• The highest state honor bestowed by the Bangladeshi government is known as the Independence Day Award, or Independence Award, Swadhinata Padak, or Swadhinata Puroskar.

• Indira Gandhi Prize:

• The distinguished prize given each year by the Indira Gandhi Memorial Trust is known as the Indira Gandhi Prize, or the Indira Gandhi Peace Prize or the Indira Gandhi Prize for Peace, Disarmament and Development.

• In order to ensure that scientific advancements are exploited for the greater welfare of humanity and to broaden the definition of freedom, it is granted to people or organizations in appreciation of their innovative work in advancing international peace, development, and a new international economic system.

• The honor includes a citation and a cash reward of 2.5 million Indian rupees.

Q116. Answer: (b) Neither I nor II is true

Given statements is :- £ < π ≤ μ > Ω, μ ≥ β = prop. to

Conclusions:

I. £ ≤ β → False (As £ < π ≤ μ ≥ β so, the relationship between £ and β cannot be determined)

II. Ω < π → False (As π ≤ μ > Ω so, the relationship between Ω and π cannot be determined)

Therefore Here, Both conclusion I and II are false.

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

Q117. Answer: (d) 13

Given:

The average of five consecutive natural numbers is 12.

Concept used:

Total = Average × Number of entities

Calculation:

Let the first natural number be N.

According to the question,

N + (N + 1) + (N + 2) + (N + 3) + (N + 4) = 12 × 5

=> 5N + 10 = 60

=> 5N = 50

=> N = 50/5

=> N = 10

Sum of the seven numbers

=> N + (N + 1) + (N + 2) + (N + 3) + (N + 4) + (N + 5) + (N + 6)

=> 7N + 21

=> 7 × 10 + 21

=> 91

Average of the seven numbers = 91/7 = 13

Therefore The average of the seven numbers if the next two natural numbers are also included will be 13.

Q118. Answer: (c) 15^(th) century A.D

The correct answer is 15th century A.D.

Key Points

• The great Assamese reformer and Vaishnava saint Mahapurusha Sankaradeva established the Sattriya dancing style in the 15th century A.D. as a potent means of spreading the Vaishnava religion.

• Later, the dancing style developed and broadened as a distinct dance genre.

• The Sattras, which are Vaishnava mathematics or monasteries, have dedicatedly nourished and protected this neo-Vaishnava treasure of Assamese dance and drama for generations.

• This dance form has been appropriately dubbed Sattriya due to its religious nature and connection to the Sattras.

Important Points

• Sankaradeva invented this dance style by fusing components from many treatises, regional folk dances, and his singular perspective.

• Ojapali and Devadasi, two dance styles with numerous classical elements, were popular in Assam before the neo-Vaishnava movement.

• The branch of Hinduism known as Vaishnavism regards Lord Vishnu or one of his incarnations as the only true God. Vaishnavites and Vaishnavas are terms for followers of Vaishnavism.

Additional Information

• Srimanta Sankardev was an Assamese saint-scholar, poet, writer, dancer, actor, singer, artist, social-religious reformer, and significant person in the cultural and religious history of Assam, India, Srimanta Sankardev lived in the 15th and 16th centuries.

• The creation of new genres of music (Borgeet), theatrical performance (Ankia Naat, Bhaona), dance (Sattriya), and literary language (Sattriya) are all credited to him (Brajavali).

• Additionally, he left behind a sizable literary corpus that includes poetry, theological writings, and trans-created scriptures (Bhagavat of Sankardev) in Sanskrit, Assamese, and Brajavali.

Q119. Answer: (d) 3

The logic followed here is :-

Given series is :- (Left)K L % Y & 4 E 2 * 3 M & 7 S W # 8 2 H * L (Right)

After all the symbols are dropped from the series the series is as follows :

(Left) K L Y 4 E 2 3 M 7 S W 8 2 H L (Right)

The element which is seventh from the left in the series is as shown below :

(Left) K L Y 4 E 2 3 M 7 S W 8 2 H L (Right)

Hence, the correct answer is "3".

Q120. Answer: (c) 70%

Calculation:

Literate people in Village A = 1500 × 2/(2 + 3) = 600

Literate people in Village B = 4000 × 11/(11 + 9) = 2200

Literate people in Village C = 3000 × 13/(13 + 2) = 2600

Literate people in Village D = 5500 × 4/(4 + 1) = 4400

Total population across four village

=> 1500 + 4000 + 3000 + 5500

=> 14000

Total literate people across four villages

=> 600 + 2200 + 2600 + 4400

=> 9800

Now, % = 9800/14000 × 100%

=> 70%

Therefore There are 70% literate people in all four villages.

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