RRB NTPC CBT-I Official Paper (Held On: 23 Feb 2021 Shift 1) (Previous Year Paper)

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

Take this paper as a timed mock test

Practise under exam conditions, then review your answers after you submit.

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

Q1. What is the full form of DPI with regard to digital images?

(a) Decimal per inch
(b) Digits per inch
(c) Dots per inch
(d) Data per inch

Q2. For humans, the audible waves are those that:

(a) have the frequency below 20 Hz
(b) have the frequency range between 20 Hz to 2000 Hz
(c) have the frequency above 2000 Hz
(d) have the frequency range between 20 Hz to 20000 Hz

Q3. In a certain code language, PISTA is written as OGPPV. How will ALMOND be written as in that language?

(a) ZJIJIY
(b) ZJJKIX
(c) VMNPOE
(d) VKKLDM

Q4. Two numbers are such that the sum of 1over 3 of the first number and 1over 2 of the second number is 8. The sum of 1over 5 of the first number and 1over 6 of the second number is 4. What is the largest of the two numbers?

(a) 11
(b) 15
(c) 21
(d) 6

Q5. Which committee was constituted for banking sector reforms?

(a) Malhotra Committee
(b) Kelkar Committee
(c) Narsimham Committee
(d) Chelliah Committee

Q6. Four words have been given, out of which three are alike in some manner and one is different. Select the odd one.

(a) RBI
(b) SBI
(c) HDFC
(d) ICICI

Q7. The Jain monastic establishments are called as:

(a) Aparigraha
(b) Svetambara
(c) Basadis
(d) Tirth

Q8. What number must be subtracted from both the donominator and numerator of the fraction 42over 45 so that it becomes 5over 6 ?

(a) 13
(b) 12
(c) 27
(d) 25

Q9. Read the given statement and courses of action carefully and decide which of the courses of action logically follow(s) from the statement.

Statement:

Tonight, If I Knead the dough, along with yeast and sugar, for my doughnuts, I will be able to bake and serve them fresh to my guest tomorrow evening.

Courses of Action:

(i) I must make arrangement to prevent the dough from getting spoilt and give good baking results.

(ii) I must cancel on my guest for tomorrow.

(iii) I must follow my doughnut recipe properly and bake them at the right temperature.

(a) Both (i) and (ii) follow.
(b) Only (iii) follows.
(c) All (i), (ii) and (iii) follow.
(d) Both (i) and (iii) follow.

Q10. Which one of the following is a Biological catalysts?

(a) Minerals
(b) Hormones
(c) Enzymes
(d) Radiation

Q11. Who amongst the following was appointed as Chairman of DRDO in 2018?

(a) Nihal Sarin
(b) S Ramesh
(c) G Satheesh Reddy
(d) Rekha Sharma

Q12. "No Nation for Women' is written by:

(a) Kishwer Desai
(b) Manav Kaul
(c) Indumati Desai
(d) Priyanka Dubey

Q13. The Nagarhole National Park is located in the state of:

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

Q14. Which of the following does NOT match?

(a) Compass- used for navigation and indicates north-south directions
(b) Cyclotron- measures small magnitude Cyclones.
(c) Electroscope- detects the presence of electric charge
(d) Actinometer- measures the intensity of radiation

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Q15. Which of the following does NOT match?

(a) Swaraj Dal- CR Das
(b) Ved Samaj- Gharalu Naidu
(c) Scientific Society- Syed Ahmed Khan
(d) Bhoodan movement- Vinoba Bhave

Q16. If 15% of A is equal to 18% of B, then what percentage of B is equal to 20% of A?

(a) 25%
(b) 42%
(c) 20%
(d) 24%

Q17. Which one of the following limbs of Vedas is known for the explanation and meaning of complex words?

(a) Vyakaran
(b) Nirukta
(c) Chhanda
(d) Kalpa

Q18. Select the option in which the words share the same relationship as that shared by the given pair of words.
Sheep : Ram

(a) Lion : Cub
(b) Deer : Stag
(c) Wolf : Howl
(d) Cow : Calf

Q19. The Value of 0.5656... + 0.4343... + 0.8989... is:

(a) 1.8888...
(b) 1.9898...
(c) 1.8989...
(d) 1.8787...

Q20. Select the option that is related to the third term in the same way as the second term is related to the first term.
Lost : Found :: Spent :: ?

(a) Pay
(b) Use
(c) Budget
(d) Saved

Q21. Dumhal, dance form belongs to which Indian state/union territory?

(a) Chandigarh
(b) Haryana
(c) Jammu & Kashmir
(d) Punjab

Q22. When were the words " Socialist, Secular and Democratic Republic' added in the Indian Constitution?

(a) In the 44^(th)amendment in 1978
(b) In the 35th amendment in 1974
(c) In the 42^(nd)amendment in 1976
(d) In the 42^(nd) amendment in 1985

Q23. The normal temperature of a human body is _____

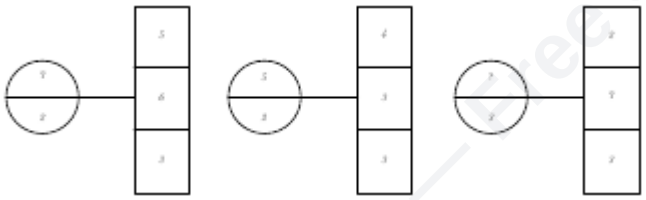
(a) 40° C
(b) 37° F
(c) 98.6° F
(d) 98.6° C

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Q24. Which Indian athlete has been appointed as a Puma Brand ambassador in 2019?

(a) Mary Kom
(b) PV Sindhu
(c) Virat Kohli
(d) Dutee Chand

Q25. Study the given pattern carefully and select the number that can replace the question mark(?) in it.



(a) 12
(b) 9
(c) 4
(d) 15

Q26. Where is the headquarters of Geological Survey of India located?

(a) Bhopal
(b) Ahmedabad
(c) Mumbai
(d) Kolkata

Q27. A train overtakes two boys who are walking in the same direction as the train, at the rate of 5 km/hr and 7 km/hr and passes them completely in 6 seconds and 9 seconds respectively. Find the length of the train.

(a) 30 m
(b) 10 m
(c) 20 m
(d) 5 m

Q28. Study the given pattern carefully and select the number that can replace the question mark(?) in it.



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(a) 5
(b) 6
(c) 1
(d) 9

Q29. If the area of an incircle of an equilateral triangle is 462 cm^(2 ,)find the perimeter of the triangle.

(a) 42√6 cm
(b) 126 cm
(c) 186 cm
(d) 21√3 cm

Q30. Which Andaman Island is named after Subhash Chandra Bose in 2018?

(a) Havelock Island
(b) Jolly Buoy Island
(c) Neil Island
(d) Ross Island

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Q31. Which country will host the Summer Paralympics in the year 2021?

(a) Paris, France
(b) Tokyo, Japan
(c) Rio, Brazil
(d) Shanghai, China

Q32. As of October 2020, What is the total count of member states of WHO?

(a) 181
(b) 184
(c) 194
(d) 191

Q33. A man buys a machine for Rs. 2,400 and sells it at a loss of 10%. What is the selling price of the machine?

(a) Rs. 2,166
(b) Rs. 2,016
(c) Rs. 2,610
(d) Rs. 2,160

Q34. What are the peripheral devices?

(a) These are internal or external device that connect directly to a computer but do not contribute to the computer's primary functions
(b) These devices help in storing and analysing data
(c) Those that connect computer to the internet
(d) Those that help in calculation

Q35. Which northeastern Indian state is also called as 'Nye-Mal-Ale' by its actual inhabitants?

(a) Manipur
(b) Nagaland
(c) Sikkim
(d) Meghalaya

Q36. As of October 2020, who is the Chairman of the Department of Atomic Energy in India?

(a) Sh. K.N. Vyas
(b) Sh. Ajit Kumar Doval
(c) Sh. Homi J. Bhabha
(d) Smt. Nirmala Sitharaman

Q37. Which of the following fractions is the smallest?

(a) 7 over 8
(b) 3 over 4
(c) 7 over 10
(d) 5 over 7

Q38. The ratio of bases of two triangles is 4 : 5 and that of their areas is 8 : 15. What is the ratio of their corresponding altitudes?

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

Q39. Which of the following Indian states are situated on the Bangladesh border?

(a) Sikkim, Nagaland, Meghalaya, West Bengal, Mizoram
(b) Mizoram, Tripura, Sikkim, Manipur, West Bengal
(c) West Bengal, Assam, Meghalaya, Tripura, Mizoram
(d) West Bengal, Assam, Sikkim, Nagaland, Meghalaya

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Q40. Which foreign constitution is the source of 'The idea of the Rule of Law' of the Indian Constitution?

(a) Erstwhile USSR
(b) USA
(c) Germany
(d) UK

Q41. If each interior angle of a regular polygon is 120°, then find the number of diagonals of the polygon.

(a) 4
(b) 8
(c) 6
(d) 9

Q42. Find the value of 4 x {2.4/0.9 × 0.27/0.08 × 0.50/0.05}.

(a) 306
(b) 603
(c) 360
(d) 630

Q43. 4^7- 4 is NOT a multiple of:

(a) 2
(b) 7
(c) 4
(d) 8

Q44. Which of the following is an advantage of LAN?

(a) backing up data
(b) saving all data
(c) sharing peripherals
(d) automatic pricing of data

Q45. What does the writ 'Habeas- Corpus' in the Indian Judicial system literally mean?

(a) We Command
(b) To be certified
(c) You shall have the body
(d) What is your authority

Q46. The inspiration to build temperature regulated green homes at IIT Kanpur in 2012 came from:

(a) Thermal mass of the rock
(b) Cocoon structure
(c) The use of insulation technique
(d) Hydronic System

Q47. Which Viceroy of British India organised the statistical survey of India?

(a) Lord Auckland
(b) Lord Canning
(c) Lord Mayo
(d) Lord Dalhousie

Q48. When 38 is added to 30% of a number. The result is 50. What is the number?

(a) 20
(b) 60
(c) 40
(d) 80

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Q49. The median of a set of 7 distinct observations is 21.5. If each of the largest 3 observations of the set is increased by 4, then the median of the new set -

(a) will remain the same as that of the original set
(b) will decrease by 4
(c) will be four times the original median
(d) will increase by 4

Q50. What is the budgetary disinvestment target of the Union government of India for FY20?

(a) Rs. 85,000 crore
(b) Rs. 90,000 crore
(c) Rs. 78,000 crore
(d) Rs. 1,05,000 crore

Q51. Which word is chosen as Oxford Hindi word of the year 2019?

(a) Namaste
(b) Sabhyata
(c) Vigyaan
(d) Samvidhaan

Q52. Where is the Radio Astronomy Centre of India located?

(a) Trombay
(b) Udhagamandalam
(c) Trivandrum
(d) Thumba

Q53. The floor of a room is 3 m long and 1m 50 cm broad. Find the number of the largest possible square slabs which can be used to pave the floor.

(a) 4
(b) 6
(c) 5
(d) 2

Q54. if √x + 10 = √529, then the value of x is:

(a) 166
(b) 167
(c) 169
(d) 168

Q55. If (sec θ + tan θ)/(sec θ - tan θ) = 5over 3, then the value of sin θ is:

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

Q56. What was the main agenda of United Nations Katowice Conference held in December 2018?

(a) International trade negotiations
(b) Climate change
(c) World peace
(d) Wildlife conservation

Q57. What is the sub-duplicate ratio of 225 : 144?

(a) 5 : 12
(b) 12 : 5
(c) 15 : 12
(d) 12 : 15

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Q58. Find the value of $((74 + 47)^2 + (74 - 47)^2)/(74^2 + 47^2)$

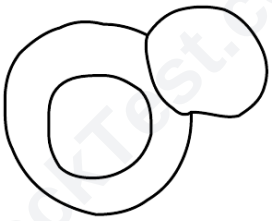
(a) 74
(b) 1
(c) 2
(d) 47

Q59. Which among the following is the largest country in the Europe according to land area (in sq km)?

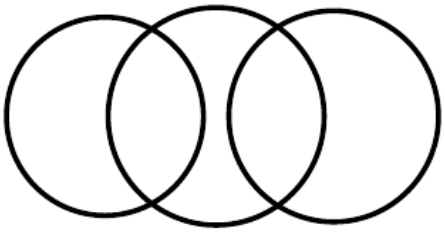
(a) Italy
(b) Russia
(c) United Kingdom
(d) Romania

Q60. Select the Venn diagram that best represents the relationship between Females, Toddlers and Teachers.

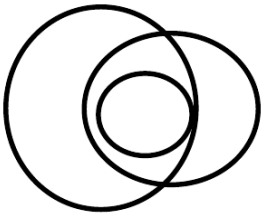
(a)



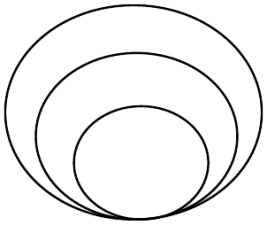
(b)



(c)

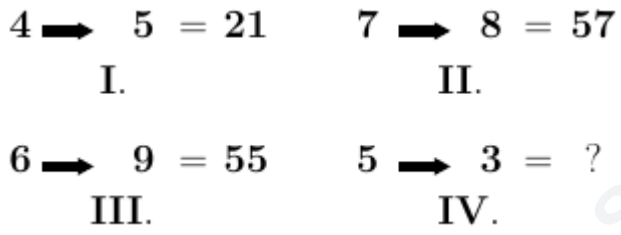


(d)



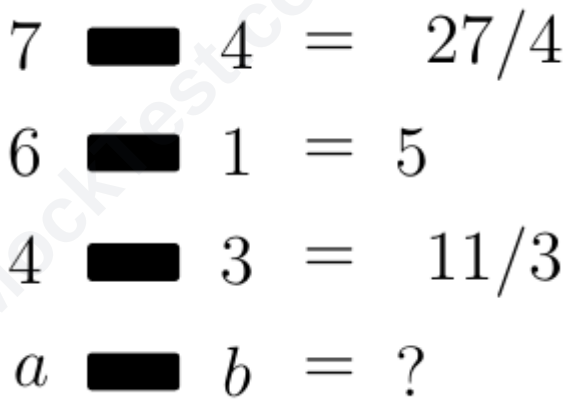
Q61. The arrow represents a set of calculations that are common across all the given equations. Identify the calculations involved and solve the fourth equation on the same basis:

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(a) 15
(b) 16
(c) 2
(d) 8

Q62. The rectangle represents a set of calculations that are common across all the given equations. Identify the calculations involved and solve the fourth equation on the same basis:



(a) (a - b) / ab
(b) ab / (a + b)
(c) (ab + 1) / a
(d) (ab - 1) / b

Q63. What is the area of the region swept by the minute hand 6 cm long, of a wall clock, in an interval of 5 minutes?

(a) 9.63 cm²
(b) 9.43 cm²
(c) 9.8 cm²
(d) 9.6 cm²

Q64. Sandhya has only one daughter. Sukhi's sister, Reena, is Sandhya's maternal aunt. Sukhi's mother, Bruna, has only two great-granddaughters, Anum and Jasmine. Reena has two grandchildren, Rohan and Anum. Who is Sandhya's daughter?

(a) Anum
(b) Bruna
(c) Jasmine
(d) Reena

Q65. What is the sum of the first 25 odd numbers?

(a) 150
(b) 144
(c) 625
(d) 250

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Q66. Whom does the Census 2011 identify as a literate person?

(a) A person aged 7 years and above who can read and write with understanding in any language
(b) A person aged 5 years and above who can read and write in any of the languages listed in the 8^(th) schedule of the constitution
(c) A person aged 7 years and above who can read and write and solve basic arithmetic problems
(d) A person who can read his/her name and address in any language

Q67. A and B can do a work in 4 hours. B and C can complete the same work in 6 hours, while A and C take 8 hours to complete the work. C can complete the work independently in:

(a) 24 hours
(b) 12 hours
(c) 36 hours
(d) 48 hours

Q68. The formation of World Trade Organisation (WTO) was preceded by:

(a) General Agreement on Trade in Services
(b) General Agreement on Intellectual Property Rights
(c) Multilateral Trade Agreement
(d) General Agreement on Trade and Tariffs

Q69. How will you write 9.23 hours in hours, minutes and seconds?

(a) 9 hours, 13 minutes, 48 seconds
(b) 9 hours, 23 minutes
(c) 9 hours, 23 seconds
(d) 9 hours, 20 minutes, 3 seconds

Q70. Read the given statements and conclusions carefully and decide which of the conclusions logically follow(s) from the statements.

Statement:

(i) Some of the dance forms taught in all the dance classes of Delhi are Hip- Hop, Contemporary and Kathakali.

(ii) None of the dance classes of Delhi teach Kuchipudi.

(iii) Some of the dance classes of Delhi teach Salsa and Odissi.

Conclusions:

(i) Salsa is taught in every dance class of Delhi.

(ii) Some of the dance classes of Delhi do not teach Kathakali

(iii) There isn't a single dance class in Delhi that doesn't teach Hip-Hop.

(a) Only conclusion (iii) follows.
(b) Only conclusion (i) follows.
(c) Both conclusions (i) and (iii) follow.
(d) Both conclusions (i) and (ii) follow.

Q71. When did the Swadeshi Movement begin?

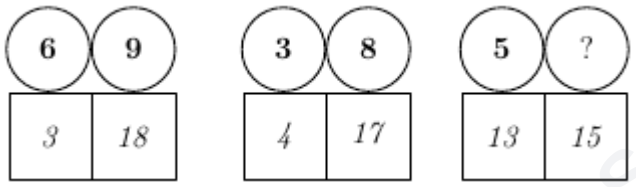
(a) 1847
(b) 1881
(c) 1921
(d) 1905

Q72. If √(15 × 27 × x) = 180, then x is equal to:

(a) 50
(b) 70
(c) 80
(d) 60

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Q73. Study the given pattern carefully and select the number that can replace the question mark(?) in it.



(a) 21
(b) 7
(c) 11
(d) 23

Q74. A can do ^(1/5th) of some work in 12 days, B can do 20% of the same work in 10 days, C can do ^(1/6th) of the work in 8 days and D can do ^(1/5th) of the work in 12 days. Who will complete the work first if all four started to work at the same time?

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

Q75. If ^(1/3) of A = ^(3/4) of B= ^(1/6) of C, then what is A : B : C?

(a) 18 : 9 : 4
(b) 9 : 18 : 4
(c) 4 : 9 :18
(d) 9 : 4 : 18

Q76. The perimeters of two similar triangles Δ XYZ and Δ LMN are 48 cm and 32 cm respectively. If LM=12 cm, then what is the length of XY?

(a) 16 cm
(b) 18 cm
(c) 14 cm
(d) 12 cm

Q77. Mr Ram invests an amount of Rs. 12,200 at the rate of 2% per annum for 4 years to obtain a simple interest .Later he invests the principal amount as well as the amount obtained as simple interest for another 4 years at the same rate of interest. What amount of simple interest will he get at the end of the last 4 years?

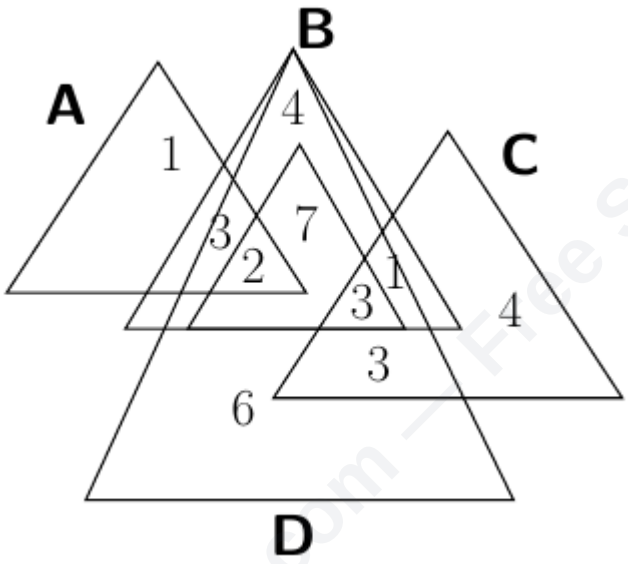
(a) Rs. 1,0567.07
(b) Rs. 1,054.00
(c) Rs. 1,054.08
(d) Rs. 1,055.08

Q78. Who is the first woman President of the Astronomical Society of India?

(a) Dr. Mithali Raj
(b) Dr .GC Anupama
(c) Dr. H Helina
(d) Dr. R Hemlata

Q79. Observe the following triangles A, B, C and D. Triangle A represents the number of people who play football. Triangle B represents the number of people who play basketball .Triangles C and D represent the number of people who play tennis and volleyball, respectively. How many people play football or basketball but NOT tennis?

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(a) 5
(b) 21
(c) 17
(d) 15

Q80. Who gave the term 'Hindu rate of growth', which referred to as the low growth rate period in the Indian economy?
(a) Kaushik Basu
(b) Jagdish Bhagwati
(c) Raj Krishna
(d) Amartya Sen

Q81. Which of the following is a simplified form of the expression:
sinAcosA(tanA - cotA), where ((0° ≤ A ≤ 90°) ?
(a) $2\sin^2A - 1$
(b) 2cos2A - 1
(c) 1-cos2A
(d) 1

Q82. What is the overall length of Golden Quadrilateral in India?
(a) 6033 km
(b) 4088 km
(c) 5846 km
(d) 7956 km

Q83. Some fruits were divided amongst A, B, C, and D in the ratio 3 : 4 : 5 : 7. If A got 192 fruits, then how many fruits did B and C together get?
(a) 567
(b) 675
(c) 576
(d) 756

Q84. The ratio of two numbers is 4 : 5 and their HCF is 3. What will be their LCM?
(a) 40
(b) 60
(c) 30
(d) 20

Q85. Who had established the 'Prarthana Samaj'?

(a) Atmaram Pandurang
(b) Swami Vivekananda
(c) Swami Dayanand Saraswati
(d) Mahatma Gandhi

Q86. Observe the given pie chart and answer the question.

The pie chart shows the spending of a country on importing various products from neighboring countries during a particular year.

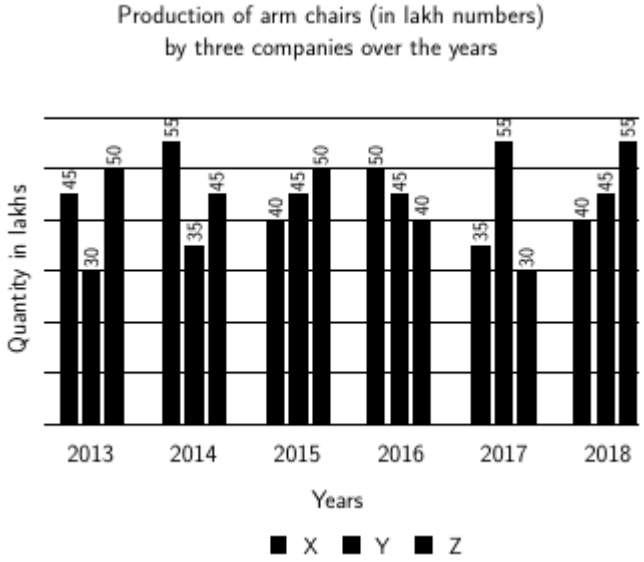


If the total amount spent on import during the year was Rs. 1.72 crore, then what was the approximate amount spent on cereals and textile together?

(a) Rs. 0.6 lakh
(b) Rs. 72 lakh
(c) Rs. 6 lakh
(d) Rs. 60 lakh

Q87. Observe the given bar graph and answer the question.

The bar graph shows the production of arm chairs by three companies X, Y and Z for the years 2013 to 2018.



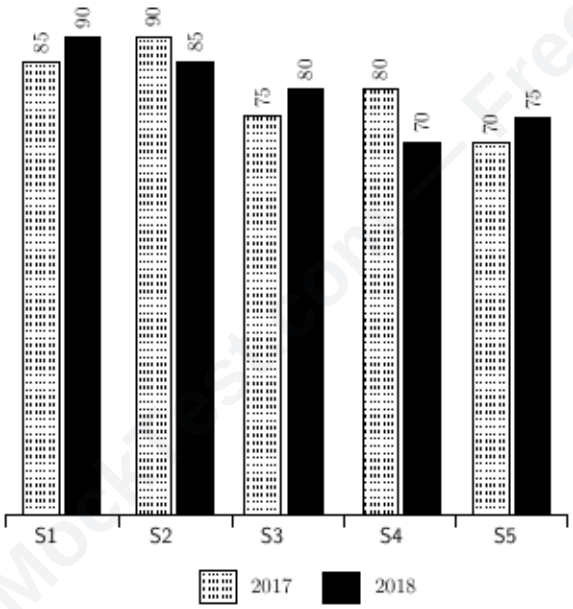
What is the ratio of the production of company Z in 2017 to that of company Y in 2014?

(a) 9 : 7

(b) 7 : 9
(c) 7 : 6
(d) 6 : 7

Q88. Observe the given bar graph and answer the question.

The bar graph shows the sales of computers (in thousands) from five different shops S1,S2, S3, S4 and S5 for the years 2017 and 2018.

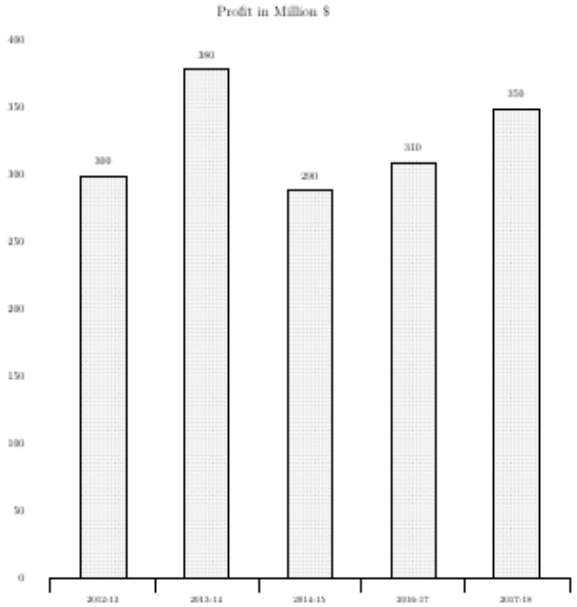


Which of the following statements is true?

(a) Total combined Sales for all shops in 2018 is higher than in 2017
(b) Four shops recorded higher sales in 2018 as compared to 2017
(c) Total combined Sales for all shops in 2018 is the same as that in 2017
(d) Total combined Sales for all shops in 2018 is lower than in 2017

Q89. Observe the given bar graph and answer the question.

The bar graph shows the profit made by a software company (in million $)from 2012 to 2018.



The profit made by the software company in 2013-2014 was approximately how many times that made in 2014-15?

(a) 1.31
(b) 2.52
(c) 0.5

(d) 0.7

Q90. Read the given statements carefully and select the option that CANNOT be concluded from the given statements.

Statement 1: Every fruit is a bug.

Statement 2: Some fruits are shoes.

Statement 3: Some shoes are bugs.

Statement 4: Not all the shoes that are bugs are fruit.

(a) Not every fruit that is a shoe is a bug.

(b) Some of the shoes that are bugs are fruits.

(c) Some bugs are shoes.

(d) Not all bugs are fruits.

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

4	**5**	**3**
16	7	7
?	24	20

(a) 40

(b) 12

(c) 20

(d) 22

Q92. Four words have been given, out of which three are alike in some manner and one is different. Select the odd one.

(a) Helmet

(b) Veil

(c) Turban

(d) Hat

Q93. Select the number that can replace the question mark(?) in the following series.

3, 5, 9, 15, 23, 33, 45, 59, ?

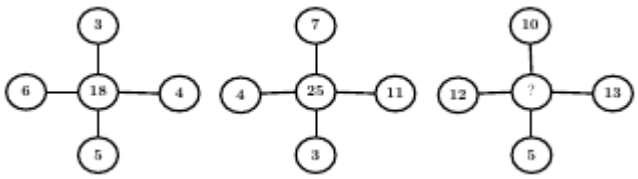
(a) 76

(b) 73

(c) 75

(d) 74

Q94. Study the given pattern carefully and select the number that can replace the question mark(?) in it.



(a) 25

(b) 40

(c) 15

(d) 0

Q95. Jitesh's brother-in-law Jagdish is also Suresh's father-in-law. How could Suresh's wife be related to Jitesh?

(a) Niece

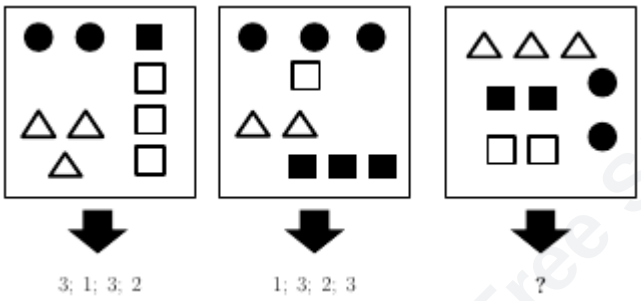
(b) Sister-in-law

(c) Aunt

(d) Cousin

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Q96. Study the given pattern carefully and select the option that can replace the question mark (?) in it.



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

Q97. Study the given pattern carefully and select the number that can replace the question mark(?) in it.

35	**35**
33	42
49	31
?	56

(a) 33
(b) 47
(c) 29
(d) 45

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

(a) Pearls
(b) Diamonds
(c) Hearts
(d) Spades

Q99. In a certain code language, LION is written as OLRQ and BEAR is written as EHDU. How will CAMEL be written as in that language?

(a) BDOGO
(b) FDPHO
(c) BDNFO
(d) GDQIO

Q100. From his house, Arjun walked 40 m towards the north, then 50 m towards the east, then 35 m towards the north and then 50 m towards the west. He stopped at this point to buy some fruits from a fruit shop. He again walked 40 m towards the north. How far and in which direction is Arjun's house from the fruit shop?

(a) 115 m, north
(b) 75 m, south
(c) 115 m, south
(d) 80 m, east

ANSWER KEY

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

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

SOLUTIONS

Q1. Answer: (c) Dots per inch

The correct answer is Dots per inch

Key Points

• DPI stands for Dots per inch, which is a measure of spatial printing or video dot density.

• It is commonly used to describe the resolution number of dots per inch in a digital print or digital image.

• Higher DPI means higher resolution and more detail in the image.

Additional Information

• DPI is important in various fields such as printing, scanning, and digital imaging.

• Printers with higher DPI produce clearer and more detailed printouts.

• In digital screens, higher DPI results in sharper and more detailed images.

• The term is also used in reference to mouse sensitivity in computer graphics.

Q2. Answer: (d) have the frequency range between 20 Hz to 20000 Hz

The correct answer is have the frequency range between 20 Hz to 20000 Hz

Key Points

• For humans, the audible waves are those that have the frequency range between 20 Hz to 20000 Hz.

• The human ear is capable of detecting sound frequencies from approximately 20 Hz to 20,000 Hz, which is the range of sound wave frequencies that can be heard by the average person.

• Frequencies below 20 Hz are referred to as infrasound, while frequencies above 20,000 Hz are known as ultrasound.

• This range of audible frequencies can vary slightly between individuals, particularly with age and exposure to loud noises.

Additional Information

• Infrasound (below 20 Hz) is often felt rather than heard, as it can cause vibrations in the body.

• Ultrasound (above 20,000 Hz) is used in various applications such as medical imaging (ultrasound scans) and industrial nondestructive testing.

• The sensitivity of human hearing varies with frequency, being most sensitive between 2,000 and 5,000 Hz.

• Prolonged exposure to high decibel levels, even within the audible range, can lead to hearing loss.

Q3. Answer: (b) ZJJKIX

The logic followed here is:

For, PISTA is coded as OGPPV

Similarly, for ALMOND

So, ALMOND will be coded as ZJJKIX.

Hence, the correct answer is "Option 2".

Q4. Answer: (b) 15

Given:

The sum of 1/3 of the first number and 1/2 of the second number is 8.

The sum of 1/5 of the first number and 1/6 of the second number is 4.

Formula used:

Let the first number be x and the second number be y.

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1/3x + 1/2y = 8

1/5x + 1/6y = 4

Calculations:

1/3x + 1/2y = 8

=> 2x + 3y = 48

1/5x + 1/6y = 4

=> 6x + 5y = 120

Multiply equation (i) by 5:

=> 10x + 15y = 240

Multiply equation (ii) by 3:

=> 18x + 15y = 360

Subtract equation (iii) from (iv):

=> (18x + 15y) - (10x + 15y) = 360 - 240

=> 8x = 120

=> x = 15

Substitute x = 15 in equation (i):

=> 2(15) + 3y = 48

=> 30 + 3y = 48

=> 3y = 18

=> y = 6

Therefore The correct answer is option (2).

Q5. Answer: (c) Narsimham Committee

The correct answer is Narsimham Committee

Key Points

• Narsimham Committee was constituted for banking sector reforms in India.

• The committee was formed under the chairmanship of M. Narasimham in 1991 and again in 1998.

• It aimed at enhancing the efficiency and productivity of the banking sector.

• Key recommendations included measures for financial sector liberalization, improving the health of financial institutions, and introducing prudential norms.

• The committee's recommendations led to significant changes in the Indian banking system, including reduction in statutory pre-emptions, deregulation of interest rates, and strengthening of banking supervision.

Additional Information

• The Narasimham Committee I (1991) focused on the broader aspects of financial sector reforms.

• The Narasimham Committee II (1998) focused on banking sector reforms to make Indian banks more competitive and efficient.

• Some of the major reforms included reduction in CRR and SLR, introduction of capital adequacy norms, and setting up of Asset Reconstruction Companies (ARCs).

• The recommendations have played a crucial role in the modernization and improvement of the Indian banking sector.

Q6. Answer: (a) RBI

The logic followed here is:

Logic: Type of Financial Institutions.

Here,

SBI : Bank → SBI is a Bank.

HDFC : Bank → HDFC is a Bank.

ICICI : Bank → ICICI is a Bank.

Whereas,

RBI : Central Bank → RBI is a Central Bank, not a commercial bank like the others.

Hence, the correct answer is "Option 1".

Q7. Answer: (c) Basadis

The correct answer is Basadis

Key Points

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• The Jain monastic establishments are called Basadis.
• Basadis are Jain temples or monasteries, primarily found in Karnataka, India.
• They are important centers for religious and cultural activities of the Jain community.
• Basadis often house images of Tirthankaras and are places where Jain monks and nuns reside and practice their faith.

Additional Information

• Aparigraha is a principle of non-possessiveness in Jainism.
• Svetambara is one of the two main sects of Jainism, the other being Digambara.
• Tirth refers to a pilgrimage site in Jainism.
• Jainism emphasizes principles such as non-violence (Ahimsa), truth (Satya), and non-attachment (Aparigraha).
• Jain monastic life is highly disciplined and involves strict adherence to ethical principles.

Q8. Answer: (c) 27

Given:

Initial fraction = 42/45

Final fraction = 5/6

Let the number to be subtracted from both numerator and denominator be x.

Formula used:

(42 - x)/(45 - x) = 5/6

Calculations:

Cross-multiply:

=> 6(42 - x) = 5(45 - x)

=> 252 - 6x = 225 - 5x

=> 252 - 225 = 6x - 5x

=> 27 = x

Therefore The number to be subtracted is 27.

Q9. Answer: (d) Both (i) and (iii) follow.

Given:

Statement: Tonight, If I knead the dough, along with yeast and sugar, for my doughnuts, I will be able to bake and serve them fresh to my guest tomorrow evening.

Course of Action:

I. I must make arrangement to prevent the dough from getting spoilt and give good baking results - True (Because, This ensures the dough remains fresh and suitable for baking, allowing the doughnuts to be served fresh.)

II. I must cancel on my guest for tomorrow - False (Because, This is not necessary if the dough is properly prepared and the doughnuts can be baked fresh as planned.)

III. I must follow my doughnut recipe properly and bake them at the right temperature - True (Because, Following the recipe accurately is crucial for achieving the desired outcome of fresh, well-baked doughnuts.)

So, Both I and III follow.

Hence, the correct answer is "Option 4".

Q10. Answer: (c) Enzymes

The correct answer is Enzymes

Key Points

• Enzymes are biological catalysts that speed up biochemical reactions in living organisms.
• They are crucial for various physiological processes including digestion, metabolism, and DNA replication.
• Enzymes are highly specific, meaning each enzyme only catalyzes a specific type of reaction or acts on a specific substrate.
• They operate under mild conditions of temperature and pH, which are compatible with life.
• Enzymes are proteins, and their activity can be affected by factors such as temperature, pH, and the presence of inhibitors or activators.
• Examples of enzymes include amylase (breaks down starches), lipase (breaks down fats), and DNA polymerase (synthesizes DNA).

Additional Information

• Minerals are inorganic elements that play various roles in the body but are not catalysts.
• Hormones are chemical messengers that regulate physiological processes but do not act as catalysts.

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• Radiation refers to the emission of energy as electromagnetic waves or particles, which is not related to catalysis.

• The study of enzymes and their kinetics is a crucial aspect of biochemistry and molecular biology.

• Enzymes can be used in various industrial applications, including in the production of biofuels, food processing, and pharmaceuticals.

Q11. Answer: (c) G Satheesh Reddy

The correct answer is G Satheesh Reddy

Key Points

• G Satheesh Reddy was appointed as the Chairman of DRDO in 2018.

• He succeeded S Christopher who completed his term in May 2018.

• G Satheesh Reddy is a renowned aerospace scientist and has been a part of several key projects in DRDO.

• His appointment was significant in continuing the momentum in defense research and development in India.

Additional Information

• The Defence Research and Development Organisation (DRDO) is an agency under the Department of Defence Research and Development in Ministry of Defence, Government of India.

• DRDO is charged with the military's research and development, headquartered in New Delhi, India.

• It was formed in 1958 by the merger of the Technical Development Establishment and the Directorate of Technical Development and Production with the Defence Science Organisation.

• DRDO's primary responsibility is to develop defense technologies covering various fields, including aeronautics, armaments, electronics, land combat engineering, life sciences, materials, missiles, and naval systems.

• Over the years, DRDO has grown multi-directionally in terms of the variety of subject disciplines, number of laboratories, achievements, and stature.

Q12. Answer: (d) Priyanka Dubey

The correct answer is Priyanka Dubey

Key Points

• Priyanka Dubey is the author of the book "No Nation for Women."

• The book explores the issue of gender violence in India through investigative journalism.

• Priyanka Dubey is known for her work as a journalist and has written extensively on social issues, including gender violence.

• "No Nation for Women" provides a deep insight into the systemic issues and individual stories surrounding gender-based violence in India.

Additional Information

• The book has received critical acclaim for shedding light on a critical and often overlooked issue in Indian society.

• Priyanka Dubey has been recognized for her courageous journalism and dedication to bringing these stories to light.

• Gender violence remains a significant challenge in India, and works like "No Nation for Women" play a vital role in raising awareness and pushing for change.

Q13. Answer: (b) Karnataka

The correct answer is Karnataka

Key Points

• Nagarhole National Park is located in the state of Karnataka, India.

• This national park is also known as Rajiv Gandhi National Park.

• It is part of the Nilgiri Biosphere Reserve and is known for its rich wildlife, including tigers, elephants, and a variety of bird species.

• The park is named after the river Nagarhole which flows through its rich forest landscape.

• It is one of the premier tiger reserves in India and is part of the Project Tiger initiative.

Additional Information

• Karnataka is a state in the southwestern region of India, known for its diverse geography and rich cultural heritage.

• The state is home to several important national parks and wildlife sanctuaries, including Bandipur National Park, Bannerghatta National Park, and Bhadra Wildlife Sanctuary.

• Tourism in Karnataka is well-developed, with attractions ranging from natural landscapes to historical monuments and temples.

• The capital city of Karnataka is Bengaluru, which is also known as the Silicon Valley of India due to its thriving information technology industry.

• Karnataka has a rich history and is known for its contributions to classical music, dance, and literature.

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Q14. Answer: (b) Cyclotron- measures small magnitude Cyclones.

The correct answer is Cyclotron- measures small magnitude Cyclones.

Key Points

• Cyclotron is a type of particle accelerator that is used to accelerate charged particles to high energies.

• It does not measure small magnitude cyclones; rather, it is used in physics and medical applications to study subatomic particles and produce radioactive isotopes.

• It employs a magnetic field and an electric field to accelerate particles in a spiral path.

• The term "cyclone" refers to a meteorological phenomenon, whereas a cyclotron is a device used in particle physics.

Additional Information

• Compass is a navigational instrument used for determining direction relative to the Earth's magnetic poles.

• Electroscope is a device used to detect the presence and magnitude of electric charge.

• Actinometer is an instrument used for measuring the intensity of radiation, typically solar radiation.

• Each of these instruments has specific applications within their respective fields of study or usage.

Q15. Answer: (b) Ved Samaj- Gharalu Naidu

The correct answer is Ved Samaj- Gharalu Naidu

Key Points

• Swaraj Dal was founded by CR Das.

• Ved Samaj is associated with Keshab Chandra Sen, not Gharalu Naidu.

• Scientific Society was established by Syed Ahmed Khan.

• Bhoodan movement was initiated by Vinoba Bhave.

Additional Information

• CR Das, also known as Chittaranjan Das, was a prominent freedom fighter and political leader in India.

• Keshab Chandra Sen was a prominent leader of the Brahmo Samaj, a socio-religious reform movement in India.

• Syed Ahmed Khan was a prominent Muslim reformer and the founder of the Aligarh Muslim University.

• Vinoba Bhave was a close associate of Mahatma Gandhi and a prominent social reformer who initiated the Bhoodan (land gift) movement.

Q16. Answer: (d) 24%

Given:

If 15% of A is equal to 18% of B, then what percentage of B is equal to 20% of A?

Formula used:

0.15A = 0.18B

Calculation:

0.15A = 0.18B

=> A/B = 0.18/0.15

=> A/B = 18/15

=> A/B = 6/5

=> B = (5/6)A

We need to find what percentage of B is equal to 20% of A.

Let x% of B = 20% of A

=> (x/100)B = 0.2A

Substitute B = (5/6)A

=> (x/100)×(5/6)A = 0.2A

=> (x/100)×(5/6) = 0.2

=> x/100 = (0.2×6)/5

=> x/100 = 1.2/5

=> x/100 = 0.24

=> x = 0.24×100

=> x = 24

Therefore The correct answer is option (4).

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Q17. Answer: (b) Nirukta

The correct answer is Nirukta

Key Points

• Nirukta is one of the six Vedangas, which are auxiliary disciplines associated with the study and understanding of the Vedas.

• The primary function of Nirukta is to provide explanations and meanings of complex and archaic words found in the Vedic texts.

• It serves as an important tool for interpreting the Vedic hymns and mantras, thereby facilitating a deeper comprehension of the Vedic literature.

• The most famous work on Nirukta is the Nirukta of Yaska, an ancient Indian scholar.

• Yaska's Nirukta is a lexicon that systematically explains the etymology and meaning of difficult Vedic words.

Additional Information

• The Vedangas are six auxiliary disciplines developed to support the understanding and practice of the Vedas. These include Shiksha (phonetics), Chhanda (meter), Vyakarana (grammar), Nirukta (etymology), Jyotisha (astronomy and astrology), and Kalpa (ritual).

• Each Vedanga plays a crucial role in preserving and interpreting the Vedic texts, ensuring that the knowledge contained within them is accurately transmitted through generations.

• Nirukta, in particular, helps scholars and practitioners to decode the ancient language and context of the Vedas, which is essential for accurate ritual performance and philosophical understanding.

• The Vedangas are considered essential for anyone engaged in serious Vedic study, as they provide the necessary tools to unlock the deeper meanings and applications of the Vedic hymns.

Q18. Answer: (b) Deer : Stag

The logic followed here is:

Logic: Animal and its male counterpart.

Here,

Sheep : Ram → Ram is the male counterpart of Sheep.

Similarly,

Deer : Stag → Stag is the male counterpart of Deer.

Hence, the correct answer is "Option 2".

Q19. Answer: (c) 1.8989...

To solve 0.5656... + 0.4343... + 0.8989..., let's first convert each repeating decimal into a fraction.

Step 1: Convert 0.5656...

Let x = 0.5656....

So,

x = 0.56565656…

Multiply by 100 to shift the decimal places:

100x = 56.565656…

Now subtract the original equation from this:

100x - x = 56.565656… - 0.565656…

99x = 56

=> x = 56/99

Step 2: Convert 0.4343...

Let y = 0.4343.... So,

y = 0.43434343…

Multiply by 100:

100y = 43.434343…

Subtract the original equation:

100y - y = 43.434343… - 0.434343…

99y = 43

=> y= 43/99

Step 3: Convert 0.8989...

Let z = 0.8989....

So,

z = 0.8989....

Multiply by 100:

100z = 89.898989…

Subtract the original equation:

100z - z = 89.898989… - 0.898989…

99z = 89

=> z= 89/99

Step 4: Adding the fractions

Now add all the fractions:

x+ y + z = 56/99 + 43/99 + 89/99

=> (56 + 43 + 89)/99 = 188/99

Therefore The correct answer is option 3.

Q20. Answer: (d) Saved

The logic followed here is:

Logic: Opposites.

Here,

Lost : Found → Lost is the opposite of Found.

Similarly,

Spent : Saved → Spent is the opposite of Saved.

Hence, the correct answer is "Option 4".

Q21. Answer: (c) Jammu & Kashmir

The correct answer is Jammu & Kashmir

Key Points

• Dumhal is a traditional dance form that originates from Jammu & Kashmir.

• The dance is performed by the Wattal tribe of the region.

• It is typically performed by men, who wear long, colorful robes and tall, conical caps, which are studded with beads and shells.

• The dance is usually performed on special occasions and involves singing and dancing in a circle, accompanied by a drum.

Additional Information

• Jammu & Kashmir is known for its rich cultural heritage and diverse traditions.

• Aside from Dumhal, the region is also famous for other traditional dance forms such as Rouf and Bhand Pather.

• The cultural practices of Jammu & Kashmir are heavily influenced by its historical and geographical context, blending elements from Central Asian, Persian, and Indian traditions.

• These dance forms play a significant role in the social and cultural life of the people of Jammu & Kashmir.

Q22. Answer: (c) In the 42^(nd)amendment in 1976

The correct answer is In the 42nd amendment in 1976

Key Points

• The words "Socialist, Secular, and Democratic Republic" were added to the Preamble of the Indian Constitution by the 42nd amendment in 1976.

• This amendment is often referred to as the mini-Constitution due to the extensive changes it brought about.

• The inclusion of these words aimed to emphasize the commitment of the Indian state to socialism, secularism, and democracy.

• The 42nd Amendment was enacted during the Emergency period under the Prime Ministership of Indira Gandhi.

Additional Information

• The 42nd Amendment is one of the most comprehensive amendments to the Indian Constitution.

• It also brought changes to several other parts of the Constitution, including the Directive Principles of State Policy and the Fundamental Duties.

• The amendment aimed to reduce the power of the judiciary and increase the power of the Parliament and the central government.

• The amendment has been subject to criticism and praise, with some viewing it as an attempt to strengthen the Indian state and others seeing it as a move towards authoritarianism.

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Q23. Answer: (c) 98.6° F

The correct answer is 98.6º F

Key Points

• The normal temperature of a human body is 98.6º F.

• This temperature is considered the average body temperature for a healthy individual.

• Body temperature can vary slightly depending on the time of day and the method used for measurement.

• Factors such as physical activity, age, and external temperature can also influence body temperature.

Additional Information

• The average body temperature of 98.6º F was established by German physician Carl Reinhold August Wunderlich in the 19th century.

• Modern studies suggest that the average body temperature might be slightly lower, around 97.8º F (36.5º C), but 98.6º F is still widely accepted.

• Body temperature is an important indicator of health and can signal the presence of infection or illness when it deviates from the norm.

• Common methods of measuring body temperature include oral, rectal, ear (tympanic), and forehead (temporal) thermometers.

Q24. Answer: (d) Dutee Chand

The correct answer is Dutee Chand

Key Points

• Dutee Chand, an Indian professional sprinter and current national champion in the women's 100 meters event, was appointed as a Puma Brand ambassador in 2019.

• She is the third Indian athlete to sign up with Puma, joining the likes of Virat Kohli and Mary Kom.

• Dutee Chand has been a prominent figure in Indian athletics and her association with Puma highlights her contributions and achievements in the sport.

• This partnership with Puma aims to inspire and encourage more young athletes to pursue their passion in sports.

Additional Information

• Dutee Chand has represented India in multiple international competitions, including the Asian Games and the Commonwealth Games.

• She became the first Indian woman to win a gold medal in the 100 meters at the World University Games in 2019.

• Her journey and achievements have been a source of inspiration for many aspiring athletes in India.

• Puma's association with Dutee Chand is part of their broader strategy to support and promote sports and athletes in India.

Q25. Answer: (c) 4

The logic followed here is:

=> 7 × 2 = 5 + 6 + 3

=> 14 = 14 (LHS = RHS)

And,

=> 5 × 2 = 4 + 3 + 3

=> 10 = 10 (LHS = RHS)

Similarly,

=> ? × 3 = 2 + 7 + 3

=> ? × 3 = 12

=> ? = 4

Hence, "Option 3" is the correct answer.

Q26. Answer: (d) Kolkata

The correct answer is Kolkata

Key Points

• The headquarters of the Geological Survey of India (GSI) is located in Kolkata.

• The GSI is a government organization in India, established in 1851, which is responsible for conducting geological surveys and studies.

• The organization plays a crucial role in the exploration and assessment of mineral resources in the country.

• It also provides important geoscientific information for the sustainable development of the nation.

Additional Information

• The Geological Survey of India operates under the Ministry of Mines and has regional offices in various parts of the country.

• It provides crucial data for the exploration of minerals, groundwater, and other natural resources.

• The GSI also conducts geotechnical investigations and natural hazard assessments to support infrastructure development and disaster management.

• Its contributions are vital for the economic and industrial development of India, providing a scientific basis for resource management and environmental protection.

Q27. Answer: (b) 10 m

Given:

• Speed of the first boy = 5 km/h

• Speed of the second boy = 7 km/h

• Time taken to pass the first boy = 6 seconds

• Time taken to pass the second boy = 9 seconds

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

Step 1: Convert speeds of boys to meters per second

Speed of the first boy = (5 × 1000)/3600 = 25/18 m/s

Speed of the second boy = (7 × 1000)/3600 = 35/18 m/s

Step 2: Calculate relative speed of the train with respect to the boys

Since the train and the boys are moving in the same direction, the relative speed of the train with respect to each boy will be:

• For the first boy: (V - 25/18) m/s

• For the second boy: (V - 35/18) m/s

Step 3: Use the formula for distance (length of the train)

Distance = Speed × Time, and for both boys:

1. For the first boy (6 seconds):

L = (V - 25/18) × 6

Simplifying:

L = 6V - 150/18 = 6V - 25/3

2. For the second boy (9 seconds):

L = (V - 35/18) × 9

Simplifying:

L = 9V - 315/18 = 9V - 35/2

Step 4: Equate both equations for L

6V - 25/3 = 9V - 35/2

Step 5: Solve for V

Multiply both sides by 6 to eliminate the denominators:

36V - 50 = 54V - 105

Rearranging:

105 - 50 = 54V - 36V

55 = 18V

V = 55/18 ≈ 3.06 m/s

Step 6: Calculate the length of the train L

Using the first equation for L:

L = 6V - 25/3

Substitute V = 55/18 :

L = 6 × 55/18 - 25/3

Simplifying:

L = 330/18 - 25/3 = 55/3 - 25/3 = 30/3 = 10 meters

Therefore The length of the train is 10 meters.

Q28. Answer: (c) 1

The logic followed here is:

=> 6 × 6 = 36

And,

=> 4 × 8 = 32

Similarly,

=> 7 × 2 = 14 => ? = 1

Hence, "Option 3" is the correct answer.

Q29. Answer: (b) 126 cm

Shortcut Trick

Inradius (r) of an equilateral triangle = √(Area ÷ π) = √(462 × 7 ÷ 22) = √147 = 7√3 cm.

The relationship between side (a) and inradius (r) is: a = 2√3 × r.

=> a = 2√3 × 7√3 = 14 × 3 = 42 cm.

Perimeter = 3 × side = 3 × 42 = 126 cm.

Therefore The correct answer is 126 cm.

Alternate Method

Given:

Area of incircle = 462 cm²

Formula Used:

1. Area of circle = πr²

2. Inradius (r) of equilateral triangle = a / (2√3)

3. Perimeter of triangle = 3a

Calculations:

=> πr² = 462

=> (22/7) × r² = 462

=> r² = (462 × 7) ÷ 22

=> r² = 21 × 7 = 147

=> r = √147 = 7√3 cm

Now, using the inradius formula for equilateral triangle:

=> r = a / (2√3)

=> 7√3 = a / (2√3)

=> a = 7√3 × 2√3

=> a = 14 × 3 = 42 cm

Calculating the perimeter:

=> Perimeter = 3 × a

=> Perimeter = 3 × 42

=> Perimeter = 126 cm

Therefore The correct answer is 126 cm.

Additional Information

Circumradius of Equilateral Triangle

The circumradius (R) is the radius of the circle passing through all vertices, given by R = a / √3.

Radius Relationship

For any equilateral triangle, the circumradius (R) is always double the inradius (r), i.e., R = 2r.

Area of Equilateral Triangle

The area of an equilateral triangle with side 'a' is calculated as (√3/4) × a².

Height of Equilateral Triangle

The altitude or height (h) is given by h = (√3/2) × a. Also, r = h/3 and R = 2h/3.

Q30. Answer: (d) Ross Island

The correct answer is Ross Island

Key Points

• Ross Island was renamed as Netaji Subhash Chandra Bose Island in 2018.

• This renaming was done to honor the contributions of Subhash Chandra Bose to India's freedom struggle.

• Ross Island is one of the Andaman Islands, located about 3 km east of Port Blair.

• It was the administrative headquarters of the British in the Andaman Islands before an earthquake rocked it in 1941.

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Additional Information

• Subhash Chandra Bose was a prominent leader in the Indian independence movement against British colonial rule.

• He was the head of the Indian National Army (INA) and played a key role in mobilizing Indian expatriates and others to fight against British rule.

• Netaji Subhash Chandra Bose's legacy is celebrated annually on his birth anniversary, January 23rd.

Q31. Answer: (b) Tokyo, Japan

The correct answer is Tokyo, Japan

Key Points

• The Summer Paralympics in the year 2021 were hosted by Tokyo, Japan.

• The games were originally scheduled for 2020 but were postponed due to the COVID-19 pandemic.

• The event took place from August 24 to September 5, 2021.

• Tokyo previously hosted the Summer Paralympics in 1964, making it the first city to host the Paralympics twice.

Additional Information

• The Paralympics are a major international multi-sport event for athletes with disabilities.

• The event is governed by the International Paralympic Committee (IPC).

• The Paralympic Games are held every four years, following the Olympic Games and in the same host city.

• The Tokyo 2020 Paralympics featured 22 sports, including new additions like badminton and taekwondo.

• Tokyo's successful hosting of the event showcased the city's commitment to accessibility and inclusion.

Q32. Answer: (c) 194

The correct answer is 194

Key Points

• As of October 2020, there are 194 member states in the World Health Organization (WHO).

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

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

• The WHO's mission is to promote health, keep the world safe, and serve the vulnerable.

• Membership in the WHO is open to all countries which accept the organization's constitution.

Additional Information

• The WHO works with member states to achieve better health outcomes for all populations.

• It provides leadership on global health matters, shapes the health research agenda, sets norms and standards, articulates evidence-based policy options, provides technical support to countries, and monitors and assesses health trends.

• The WHO also coordinates international responses to health emergencies and provides advice on public health practices.

• The organization's current priorities include communicable diseases, non-communicable diseases, health systems, and promoting health through the life-course.

• The WHO is governed by the World Health Assembly, composed of representatives from all member states.

Q33. Answer: (d) Rs. 2,160

Given:

Cost Price (CP) = Rs. 2,400

Loss = 10%

Formula used:

Selling Price (SP) = CP - (Loss% of CP)

Calculations:

Loss amount = 10% of Rs. 2,400

=> Loss amount = (10/100) × 2400

=> Loss amount = 0.1 × 2400

=> Loss amount = 240

Selling Price (SP) = Rs. 2,400 - Rs. 240

=> SP = Rs. 2,160

Therefore The correct answer is option (4).

Q34. Answer: (a) These are internal or external device that connect directly to a computer but do not contribute to the comp...

The correct answer is These are internal or external device that connect directly to a computer but do not contribute to the computer's primary functions

Key Points

• Peripheral devices are hardware components that are not part of the core computer architecture but connect to the computer to provide additional functionality.

• These devices can be classified into input devices (like keyboards and mice), output devices (like monitors and printers), and storage devices (like external hard drives and USB flash drives).

• Examples of peripheral devices include scanners, microphones, webcams, and external CD/DVD drives.

• Peripheral devices are essential for various tasks but do not perform the primary functions of the computer's central processing unit (CPU), memory, and main storage.

Additional Information

• Peripheral devices can be connected to a computer via various ports such as USB, HDMI, and Bluetooth.

• Some peripherals are essential for basic operations, such as a monitor and keyboard, while others enhance the computer's capabilities, like graphic tablets or VR headsets.

• Advancements in technology continually expand the range and capabilities of peripheral devices, making them more versatile and integral to computing tasks.

Q35. Answer: (c) Sikkim

The correct answer is Sikkim

Key Points

• Sikkim is referred to as 'Nye-Mal-Ale' by its actual inhabitants.

• This name reflects the unique cultural and linguistic heritage of the indigenous people of Sikkim.

• Sikkim is known for its diverse culture, rich traditions, and beautiful landscapes, making it a significant state in northeastern India.

• The state is bordered by Tibet in the north and northeast, Bhutan in the east, Nepal in the west, and West Bengal in the south.

Additional Information

• Sikkim joined the Indian Union in 1975, becoming the 22nd state of India.

• The state is renowned for its biodiversity, including alpine and subtropical climates, and is home to India's highest peak, Kangchenjunga.

• Sikkim has a vibrant mix of different communities such as Lepchas, Bhutias, and Nepalis, each contributing to the state's rich cultural tapestry.

• It is also known for its organic farming practices and has been declared as the first fully organic state in India.

Q36. Answer: (a) Sh. K.N. Vyas

The correct answer is Sh. K.N. Vyas

Key Points

• Sh. K.N. Vyas is the Chairman of the Department of Atomic Energy in India as of October 2020.

• The Department of Atomic Energy (DAE) is directly under the Prime Minister of India and is responsible for nuclear technology, including nuclear power production and research.

• Sh. K.N. Vyas has been instrumental in advancing India's nuclear capabilities and promoting the peaceful use of nuclear energy.

• The DAE oversees various research institutions and nuclear power plants across the country, contributing significantly to India's energy security and scientific advancements.

Additional Information

• The Department of Atomic Energy was established on August 3, 1954, and is headquartered in Mumbai.

• The DAE operates under the framework of India's Atomic Energy Act, 1962, which governs the development and regulation of atomic energy in the country.

• The DAE is involved in various areas such as nuclear power generation, nuclear fuel cycle, waste management, and radiation technology applications in medicine, agriculture, and industry.

• India's significant achievements in the field of nuclear science and technology are largely attributed to the efforts and leadership within the DAE.

• The DAE also plays a crucial role in international nuclear cooperation and safeguards, ensuring the peaceful use of nuclear energy.

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Q37. Answer: (c) 7 over 10

Given:

We need to compare the following fractions:

1) 7/8

2) 3/4

3) 7/10

4) 5/7

Method:

To compare the fractions, we can convert them to decimals or find a common denominator. Here, we will convert them to decimals:

1) 7/8 = 0.875

2) 3/4 = 0.75

3) 7/10 = 0.7

4) 5/7 ≈ 0.714 (approximate)

Conclusion:

The smallest fraction is 7/10.

Therefore The smallest fraction is 7/10.

Q38. Answer: (a) 2 : 3

Given:

Ratio of bases = 4 : 5

Ratio of areas = 8 : 15

Formula used:

Area of triangle = 1/2 × Base × Height

Ratio of Areas = (Base1 × Height1)/(Base2 × Height2)

Calculation:

8/15 = (4 × h1)/(5 × h2)

=> 8/15 = 4/5 × h1/h2

=> 8/15 × 5/4 = h1/h2

=> 2/3 = h1/h2

Therefore The ratio of their corresponding altitudes is 2 : 3.

Q39. Answer: (c) West Bengal, Assam, Meghalaya, Tripura, Mizoram

The correct answer is West Bengal, Assam, Meghalaya, Tripura, Mizoram

Key Points

• West Bengal, Assam, Meghalaya, Tripura, Mizoram are the Indian states that share a border with Bangladesh.

• These states have significant geographical, cultural, and economic interactions with Bangladesh.

• The India-Bangladesh border is one of the longest international borders in the world, stretching over 4,096 kilometers.

• This border is crucial for bilateral trade, security, and cross-border cooperation between India and Bangladesh.

• Border management and security are key concerns for both countries due to issues such as illegal immigration, smuggling, and border disputes.

Additional Information

• The Indo-Bangladesh Land Boundary Agreement was signed in 2015 to resolve longstanding border disputes and facilitate better management of the border.

• Several border haats (markets) have been established to promote trade and economic cooperation between border communities of both countries.

• The border areas are often characterized by diverse ethnic communities with rich cultural heritages.

• Cross-border initiatives have been undertaken to enhance infrastructure, connectivity, and people-to-people exchanges.

• The border regions are also important for environmental conservation, with several transboundary rivers and ecosystems.

Q40. Answer: (d) UK

The correct answer is UK

Key Points

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• The idea of the Rule of Law in the Indian Constitution is derived from the UK Constitution.

• The concept emphasizes that all individuals and institutions are subject to and accountable to law that is fairly applied and enforced.

• It forms a fundamental principle of governance in a democratic society, ensuring equality before the law.

• The Rule of Law is crucial for the protection of individual rights and the limitation of arbitrary power.

Additional Information

• The Indian Constitution adopted various principles from different foreign constitutions to create a comprehensive and balanced legal framework.

• For instance, the concept of Fundamental Rights is borrowed from the USA, while the Directive Principles of State Policy are inspired by the Irish Constitution.

• The Rule of Law, as established in the UK, has been a guiding principle in ensuring that the law is supreme and no one is above the law in India.

• This principle has been upheld by the Indian judiciary to maintain the integrity and fairness of the legal system.

Q41. Answer: (d) 9

Given:

If each interior angle of a regular polygon is 120°, then find the number of diagonals of the polygon.

Formula used:

Interior angle of a regular polygon = ((n-2) × 180)/n

Number of diagonals of a polygon = (n(n-3))/2

Where, n = number of sides

Calculation:

120 = ((n-2) × 180)/n

=> 120n = 180n - 360

=> 180n - 120n = 360

=> 60n = 360

=> n = 6

Number of diagonals = (6(6-3))/2

=> (6 × 3)/2

=> 9

Therefore The correct answer is option (4).

Q42. Answer: (c) 360

Calculation:

=> 4 x {2.4/0.9 × 0.27/0.08 × 0.50/0.05}

=> 4 × (24 / 9) × (27 / 8) × (50 / 5)

=> 4 × { 90} = 360

Q43. Answer: (d) 8

Given:

4^7 - 4

Formula used:

Check divisibility of 4^7 - 4 by the given options

Calculations:

4^7 - 4 = 16384 - 4

=> 16380

Check divisibility:

16380 ÷ 2 = 8190 (divisible)

16380 ÷ 7 = 2340 (divisible)

16380 ÷ 4 = 4095 (divisible)

16380 ÷ 8 = 2047.5 (not divisible)

Therefore The correct answer is option (4).

Q44. Answer: (c) sharing peripherals

The correct answer is sharing peripherals

Key Points

• Sharing peripherals is a significant advantage of a Local Area Network (LAN).

• LANs allow multiple computers and devices to share resources such as printers, scanners, and storage devices.

• This sharing capability can lead to cost savings by reducing the need for multiple peripheral devices.

• It also enhances efficiency and convenience, as all connected devices can access shared peripherals without the need for physical transfers or manual connections.

• LANs are commonly used in offices, schools, and homes to create a networked environment for resource sharing and communication.

Additional Information

• A Local Area Network (LAN) is a network that connects computers and devices within a limited geographical area such as a home, school, or office building.

• LANs can be established using wired (Ethernet) or wireless (Wi-Fi) connections.

• They provide high-speed connectivity and are essential for enabling communication and resource sharing within a localized environment.

• Other advantages of LANs include improved data security, easier data management, and enhanced collaboration among users.

• LANs can also be connected to larger networks, such as Wide Area Networks (WANs), to extend their reach and capabilities.

Q45. Answer: (c) You shall have the body

The correct answer is You shall have the body

Key Points

• The writ of Habeas Corpus literally means "You shall have the body".

• It is a fundamental right in the Indian Judicial system to protect individuals from unlawful detention.

• This writ is issued to produce the detained person before the court to examine the legality of the detention.

• The objective is to ensure that no person is detained without lawful justification.

Additional Information

• The writ of Habeas Corpus is a vital safeguard against arbitrary detention and is enshrined in Article 21 of the Indian Constitution, which guarantees the protection of life and personal liberty.

• It can be filed by the detained person or any person on their behalf.

• The importance of this writ is underscored by its role in upholding the rule of law and ensuring that individual freedoms are not infringed upon without due process.

• Various landmark cases in India have highlighted the significance of the writ of Habeas Corpus in protecting human rights.

Q46. Answer: (b) Cocoon structure

The correct answer is Cocoon structure

Key Points

• The inspiration to build temperature regulated green homes at IIT Kanpur in 2012 came from the cocoon structure.

• The cocoon structure is an architectural design that helps in maintaining optimal temperature within the building, reducing the need for artificial heating and cooling systems.

• This design is particularly effective in extreme weather conditions, providing a sustainable and energy-efficient solution.

• Such innovations are part of a broader effort to incorporate green building practices and promote environmental sustainability.

Additional Information

• Green homes are designed to be environmentally friendly and resource-efficient throughout their lifecycle, from siting to design, construction, operation, maintenance, renovation, and demolition.

• Key features of green homes include the use of renewable energy sources, efficient use of water, improved indoor air quality, and the use of sustainable building materials.

• Institutions like IIT Kanpur are at the forefront of research and development in sustainable architecture and green technologies.

Q47. Answer: (c) Lord Mayo

The correct answer is Lord Mayo

Key Points

• The Viceroy who organized the statistical survey of India was Lord Mayo.

• Lord Mayo served as the Viceroy of India from 1869 to 1872.

• He is credited with initiating the first comprehensive census of India, which laid the groundwork for future statistical surveys and data collection in the country.

• The census aimed to gather detailed information on the population, economic conditions, and various social aspects of India during British rule.

• His efforts in organizing the statistical survey were crucial for administrative and policy-making purposes.

Additional Information

• Lord Mayo was also known for his efforts in improving the financial administration of India and promoting public works.

• He was assassinated in 1872 by Sher Ali Afridi, a convict at the Andaman Islands, making him the only Viceroy of India to be murdered while in office.

• Lord Mayo's tenure is often remembered for his significant contributions to the administrative and infrastructural development of British India.

Q48. Answer: (c) 40

Given:

30% of a number + 38 = 50

Formula used:

Let the number be x.

30% of the number is 0.3x.

We have: 0.3x + 38 = 50.

Calculations:

=> 0.3x = 50 - 38

=> 0.3x = 12

=> x = 12/0.3

=> x = 40

Therefore The number is 40.

Q49. Answer: (a) will remain the same as that of the original set

Shortcut Trick

For a set of n = 7 observations, the median is the 4^(th) term when arranged in ascending order.

Increasing the largest 3 observations (the 5^(th), 6^(th), and 7^(th) terms) does not affect the value or position of the 4^(th) term.

Since the middle term remains unchanged, the median remains the same.

Therefore The correct answer is will remain the same as that of the original set.

Alternate Method

Given:

Number of observations (n) = 7 (odd)

Original Median = 21.5

Calculations:

=> Let the observations in ascending order be x1, x2, x3, x4, x5, x6, x7.

=> Median for odd n = [(n + 1)/2]^(th) observation.

=> Median = [(7 + 1)/2]^(th) observation = 4^(th) observation.

=> 4^(th) observation (x4) = 21.5.

=> The largest 3 observations are x5, x6, and x7.

=> After increasing x5, x6, and x7 by 4, the new set becomes x1, x2, x3, x4, (x5+4), (x6+4), (x7+4).

=> Since x4 < x5 < (x5+4), the ascending order remains the same.

=> New Median = New 4^(th) observation = x4 = 21.5.

Therefore The correct answer is will remain the same as that of the original set.

Additional Information

Median for Even Number of Terms

If n is even, the median is the average of the (n/2)^(th) and (n/2 + 1)^(th) observations.

Robustness of Median

The median is a measure of central tendency that is not affected by extreme values (outliers) as long as the relative order of the middle elements is unchanged.

Linear Transformation Rule

If every observation in a set is increased by a constant k, the median also increases by k. However, changing only a subset of values may not affect the median.

Q50. Answer: (d) Rs. 1,05,000 crore

The correct answer is Rs. 1,05,000 crore

Key Points

• The budgetary disinvestment target of the Union government of India for FY20 is Rs. 1,05,000 crore.

• This target was set to help the government meet its fiscal deficit goals and to generate revenue by selling stakes in public sector enterprises.

• Disinvestment involves the sale of government stakes in public sector undertakings (PSUs) to private entities or the general public.

• The funds generated from disinvestment are often used to finance various government expenditures and to reduce the fiscal burden.

• The target for FY20 was one of the highest set by the Indian government, reflecting its commitment to fiscal prudence and economic reforms.

Additional Information

• Disinvestment targets are announced annually as part of the Union Budget.

• The Department of Investment and Public Asset Management (DIPAM) is responsible for overseeing disinvestment processes in India.

• Disinvestment helps in improving the efficiency and competitiveness of PSUs by involving private sector management practices.

• The proceeds from disinvestment can also be used for social and infrastructure development programs.

• In recent years, strategic disinvestment has been emphasized, where a substantial portion of government stakes in certain PSUs is sold to strategic partners.

Q51. Answer: (d) Samvidhaan

The correct answer is Samvidhaan

Key Points

• Samvidhaan was chosen as the Oxford Hindi Word of the Year for 2019.

• The word 'Samvidhaan' means 'Constitution' in English.

• The selection of 'Samvidhaan' reflects the significance of the Constitution in the public discourse during the year 2019.

• Oxford University Press (OUP) said that the word was selected as it "generated a great deal of discussion" and was widely used in 2019.

Additional Information

• The Oxford Hindi Word of the Year is a word or expression that has attracted a great deal of interest over the last year.

• This word is chosen to reflect the ethos, mood, or preoccupations of that particular year.

• Previous words of the year include 'Aadhaar' in 2017 and 'Nari Shakti' in 2018.

Q52. Answer: (b) Udhagamandalam

The correct answer is Udhagamandalam

Key Points

• The Radio Astronomy Centre of India is located in Udhagamandalam, also known as Ooty.

• It is one of the premier institutes for radio astronomy research in India.

• The centre operates under the National Centre for Radio Astrophysics (NCRA), which is a part of the Tata Institute of Fundamental Research (TIFR).

• The observatory is equipped with the Ooty Radio Telescope (ORT), which is one of the largest radio telescopes in the world.

• The facility conducts research in various areas of radio astronomy including the study of pulsars, interstellar medium, and the cosmic microwave background radiation.

Additional Information

• The Ooty Radio Telescope was commissioned in 1970 and has been instrumental in numerous significant discoveries in the field of radio astronomy.

• Radio astronomy is a subfield of astronomy that studies celestial objects at radio frequencies.

• India has made significant contributions to radio astronomy, and the Radio Astronomy Centre in Udhagamandalam is a key institution in this field.

• Research conducted at the centre has implications for our understanding of the universe, including the study of cosmic phenomena such as black holes, neutron stars, and the large-scale structure of the cosmos.

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Q53. Answer: (d) 2

Shortcut Trick

Convert dimensions: Length = 300 cm, Breadth = 150 cm.

Side of the largest square slab = HCF(300, 150) = 150 cm.

Number of slabs = (Length × Breadth) ÷ (Side × Side) = (300 × 150) ÷ (150 × 150) = 2.

Therefore The correct answer is 2.

Alternate Method

Given:

Length of the floor = 3 m

Breadth of the floor = 1 m 50 cm

Formula used:

Side of the largest square slab = HCF (Highest Common Factor) of Length and Breadth

Number of square slabs = Area of the floor ÷ Area of one square slab

Calculations:

=> Length of the floor = 3 × 100 cm = 300 cm

=> Breadth of the floor = 100 cm + 50 cm = 150 cm

=> To find the largest square slab size, find the HCF of 300 and 150:

=> HCF(300, 150) = 150 cm

=> Therefore, the side of the largest possible square slab is 150 cm.

=> Area of the rectangular floor = Length × Breadth = 300 × 150 = 45000 cm^2

=> Area of one square slab = Side × Side = 150 × 150 = 22500 cm^2

=> Number of square slabs required = 45000 ÷ 22500 = 2

Therefore The correct answer is 2.

Additional Information

Highest Common Factor (HCF)

The HCF of two or more numbers is the greatest number that divides each of them without leaving any remainder. For maximum size tiling problems, the side of the square tile is always the HCF of the floor dimensions.

Paving Area Concept

The total number of required tiles to pave a floor is calculated by dividing the total area of the floor by the area of a single tile: Number of tiles = (Total Area of Floor) ÷ (Area of one Tile).

Q54. Answer: (c) 169

Given:

$\sqrt{x} + 10 = \sqrt{529}$

Formula used:

Isolate x by solving the equation step-by-step.

Calculation:

$\sqrt{x} + 10 = \sqrt{529}$

=> $\sqrt{529} = 23$

=> $\sqrt{x} + 10 = 23$

=> $\sqrt{x} = 23 - 10$

=> $\sqrt{x} = 13$

=> $x = 13 \times 13$

=> $x = 169$

Therefore The correct answer is option (3).

Q55. Answer: (a) 1over 4

Calculation:

$(\sec\theta + \tan\theta)/(\sec\theta - \tan\theta) = 5/3$

=> $3\sec\theta + 3\tan\theta = 5\sec\theta - 5\tan\theta$

=> $8\sec\theta = 2\tan\theta$

=> $8(1/\cos\theta) = 2(\sin\theta / \cos\theta)$

=> $8 = 2\sin\theta$

=> sinθ = 1/4

Therefore The value of sinθ is 1/4

Q56. Answer: (b) Climate change

The correct answer is Climate change

Key Points

• The main agenda of the United Nations Katowice Conference held in December 2018 was Climate change.

• The conference, known as COP24, was the 24th session of the Conference of the Parties to the United Nations Framework Convention on Climate Change (UNFCCC).

• It aimed to finalize the rules for the implementation of the Paris Agreement, which seeks to limit global warming to well below 2 degrees Celsius above pre-industrial levels.

• Delegates from around the world gathered to discuss and negotiate measures to combat climate change and to ensure transparency and accountability in the implementation of climate actions.

Additional Information

• The Paris Agreement was adopted in December 2015 and has been signed by 196 countries.

• The agreement emphasizes the need for global cooperation in reducing greenhouse gas emissions and adapting to the impacts of climate change.

• Key components of the agreement include nationally determined contributions (NDCs), financial support for developing countries, and mechanisms for transparency and accountability.

• The Katowice Climate Package, adopted at COP24, provides detailed guidelines for the implementation of the Paris Agreement.

Q57. Answer: (c) 15 : 12

Given:

Ratio = 225 : 144

Formula used:

Sub-duplicate ratio of a : b = √a : √b

Calculation:

Sub-duplicate ratio of 225 : 144

=> √225 : √144

=> 15 : 12

Therefore The correct answer is option (3).

Q58. Answer: (c) 2

Formula Used:

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

Calculation:

We have,

$((74 + 47)^2 + (74 - 47)^2)/(74^2 + 47^2)$

$=> ((74 + 47)^2 + (74 - 47)^2)/(74^2 + 47^2)$

$=> (2(74^2 + 47^2))/(74^2 + 47^2)$

$=> ((74 + 47)^2 + (74 - 47)^2)/(74^2 + 47^2) = 2$

Therefore The value of the given fraction is 2

Q59. Answer: (b) Russia

The correct answer is Russia

Key Points

• Russia is the largest country in Europe by land area.

• It spans approximately 3,969,100 square kilometers in Europe, although its total area extends into Asia as well.

• Russia's vast land area in Europe makes it significantly larger than other European countries.

• The country has a rich history and diverse geography, ranging from tundra and forests to mountains and rivers.

• Despite its size, a significant portion of Russia's population resides in the European part of the country.

Additional Information

• Russia's capital, Moscow, is located in the European part of the country.

• It is a transcontinental country, meaning it spans more than one continent—Europe and Asia.

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• Russia's total area, including both its European and Asian parts, is approximately 17,098,242 square kilometers, making it the largest country in the world.
• Russia plays a significant role in global politics, economics, and culture.
• It is a member of various international organizations, including the United Nations, G20, and BRICS.

Q60. Answer: (b) [figure]

The logic followed here is:
Some Females are Toodlers
Some Toodlers are Teachers
Some Toodlers are both Females and Teachers
Hence the correct answer is "Option 2".

Q61. Answer: (b) 16

The logic followed here is:
I)
=> (4 × 5) + 1 = 21
=> 20 + 1 = 20
=> 21 = 21 (LHS = RHS)
And,
II)
=> (7 × 8) + 1 = 57
=> 56 + 1 = 57
=> 57 = 57 (LHS = RHS)
III)
=> (6 × 9) + 1 = 55
=> 54 + 1 = 55
=> 55 = 55 (LHS = RHS)
Similarly,
IV)
=> (5 × 3) + 1 = ?
=> 15 + 1 = ?
=> 16 = ?
Hence, "Option 2" is the correct answer.

Q62. Answer: (d) (ab - 1) / b

The logic followed here is:
I)
=> [(7 × 4) - 1] ÷ 4 => [28 - 1] ÷ 4 => 27/4
II)
=> [(6 × 1) - 1] ÷ 1 => [5 - 1] ÷ 1 => 5
III)
=> [(4 × 3) - 1] ÷ 3 => [12 - 1] ÷ 3 => 11/3
Similarly,
IV)
=> [(a × b) - 1] ÷ b => (ab - 1)/b
Hence, "Option 4" is the correct answer.

Q63. Answer: (b) 9.43 cm²

Given:
Length of the minute hand (r) = 6 cm
Interval of time (t) = 5 minutes
Formula used:
Area swept by the minute hand = $\theta/(360°) \times \pi r^2$

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Where, θ is the angle swept by the minute hand in degrees.

Calculation:

In 1 minute, the minute hand sweeps 6 degrees (since 360 degrees / 60 minutes = 6 degrees per minute).

In 5 minutes, the minute hand sweeps:

=> 6^° × 5 = 30^°

Now, calculate the area swept by the minute hand:

=> 30/360 × π × 6^2

=> 1/12 × π × 36

=> (36 π)/12

=> 3π

Using π = 22/7 :

=> 3 × 22/7 = 9.43 cm^2

Therefore The correct answer is option (2).

Q64. Answer: (c) Jasmine

Given:

1) Sukhi's sister, Reena, is Sandhya's maternal aunt.

2) Sandhya has only one daughter.

As the gender of the person cannot be determined based on the name, therefore the gender of Sandhya cannot be determined yet.

As Sukhi's sister, Reena, is Sandhya's maternal aunt, and Sukhi gender is not known yet, therefore there are two possible cases.

Case 1) Sukhi is the mother of Sandhya

Case 2) Sukhi is the sibling of the Sandhya's mother

3) Reena has two grandchildren, Rohan and Anum.

4) Sukhi's mother, Bruna, has only two great-granddaughters, Anum and Jasmine.

Case 1)

Case 2)

Thus, in both cases, Jasmine is Sandhya's daughter.

Hence, the correct answer is "Option 3".

Q65. Answer: (c) 625

Given:

We need to find the sum of the first 25 odd numbers.

Formula:

The sum of the first n odd numbers is given by the formula:

Sum = n^2

Calculation:

Here, n = 25

Sum = 25^2 = 625

Therefore The sum of the first 25 odd numbers is 625.

Q66. Answer: (a) A person aged 7 years and above who can read and write with understanding in any language

The correct answer is A person aged 7 years and above who can read and write with understanding in any language

Key Points

• A person aged 7 years and above who can read and write with understanding in any language is identified as a literate person by Census 2011.

• The literacy criteria focus on the ability to read and write with comprehension in any language, emphasizing understanding rather than merely the ability to read and write.

• This definition helps in assessing the educational development and literacy rate of the population accurately.

• The age threshold of 7 years is set to ensure that the data reflects a more accurate representation of literacy, as children below this age are generally not expected to have developed reading and writing skills.

Additional Information

• Census 2011 is the 15th National Census of India, conducted by the Census Commissioner of India.

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• The census collects various demographic data, including population count, literacy rate, employment status, and housing conditions.

• It plays a crucial role in policy-making, planning, and administration by providing accurate and comprehensive data about the country's population.

• The literacy rate is a key indicator of educational attainment and is used to measure the progress and effectiveness of educational policies and programs.

• Efforts to improve literacy rates include government initiatives like the Sarva Shiksha Abhiyan (SSA) and the National Literacy Mission (NLM).

Q67. Answer: (d) 48 hours

Given:

A and B can do a work in 4 hours.

B and C can do the same work in 6 hours.

A and C can do the same work in 8 hours.

Formula used:

Work done by A+B in 1 hour = 1/4

Work done by B+C in 1 hour = 1/6

Work done by A+C in 1 hour = 1/8

Calculation:

Let work done by A, B, and C in 1 hour be a, b, and c respectively.

1/4 = a + b

1/6 = b + c

1/8 = a + c

Adding all three equations:

1/4 + 1/6 + 1/8 = a + b + b + c + a + c

=> 1/4 + 1/6 + 1/8 = 2a + 2b + 2c

=> 1/4 + 1/6 + 1/8 = 2(a + b + c)

=> (6 + 4 + 3)/24 = 2(a + b + c)

=> 13/24 = 2(a + b + c)

=> 13/48 = a + b + c

Now, subtracting the equation a + b from a + b + c :

13/48 - 1/4 = c

=> 13/48 - 12/48 = c

=> 1/48 = c

Therefore, C can complete the work independently in:

=> 1/c = 1/(1/48) = 48 hours

Therefore The correct answer is option (4).

Q68. Answer: (d) General Agreement on Trade and Tariffs

The correct answer is General Agreement on Trade and Tariffs

Key Points

• The formation of the World Trade Organisation (WTO) was preceded by the General Agreement on Trade and Tariffs (GATT).

• The GATT was a legal agreement between many countries, whose overall purpose was to promote international trade by reducing or eliminating trade barriers such as tariffs or quotas.

• GATT was signed in 1947 and lasted until 1994, when it was replaced by the WTO during the Uruguay Round negotiations.

• The WTO officially commenced on January 1, 1995, and it is an organization that intends to supervise and liberalize international trade.

Additional Information

• The GATT was the first worldwide multilateral free trade agreement.

• The WTO agreements cover goods, services, and intellectual property.

• The WTO provides a forum for negotiating agreements aimed at reducing obstacles to international trade and ensuring a level playing field for all, thus contributing to economic growth and development.

• The WTO also provides a legal and institutional framework for the implementation and monitoring of these agreements, as well as for settling disputes arising from their interpretation and application.

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Q69. Answer: (a) 9 hours, 13 minutes, 48 seconds

Given:

Time = 9.23 hours

Formula used:

1 hour = 60 minutes and 1 minute = 60 seconds.

To convert decimal hours to hours, minutes, and seconds:

1. Separate the integer part for hours.

2. Multiply the decimal part by 60 to get minutes.

3. Multiply the remaining decimal part by 60 to get seconds.

Calculations:

=> 9 hours is the integer part.

Decimal part = 0.23 hours

Minutes = 0.23 * 60 = 13.8 minutes

13 minutes is the integer part.

Decimal part = 0.8 minutes

Seconds = 0.8 * 60 = 48 seconds

Therefore 9.23 hours = 9 hours 13 minutes and 48 seconds.

Q70. Answer: (a) Only conclusion (iii) follows.

Given,

Statement:

(i) Some of the dance forms taught in all the dance classes of Delhi are Hip-Hop, Contemporary, and Kathakali.

(ii) None of the dance classes of Delhi teach Kuchipudi.

(iii) Some of the dance classes of Delhi teach Salsa and Odissi.

Conclusions:

I. Salsa is taught in every dance class of Delhi - False (Because, it is mentioned that only some of the dance classes of Delhi teach Salsa, not all).

II. Some of the dance classes of Delhi do not teach Kathakali - False (Because, nothing discussed about the dance Kathakali in the statement).

III. There isn't a single dance class in Delhi that doesn't teach Hip-Hop - True (Because, it is mentioned that Some of the dance forms taught in all the dance classes of Delhi are Hip-Hop, Contemporary, and Kathakali).

So, only conclusion III follows.

Hence, the correct answer is "Option 1".

Q71. Answer: (d) 1905

The correct answer is 1905

Key Points

• The Swadeshi Movement began in the year 1905.

• It was a part of the Indian independence movement and aimed at removing the British Empire from power by following the principles of swadeshi or self-sufficiency.

• The movement involved the boycott of British products and the revival of domestic products and production processes.

• It was initiated as a response to the partition of Bengal announced by Lord Curzon in 1905.

• The Swadeshi Movement played a crucial role in fostering Indian nationalism and encouraging the use of Indian goods and services.

Additional Information

• The Swadeshi Movement was one of the first organized movements in India against British rule.

• Prominent leaders such as Bal Gangadhar Tilak, Bipin Chandra Pal, Lala Lajpat Rai, and Aurobindo Ghosh were key figures in the movement.

• It led to the establishment of several Indian institutions and industries, including educational institutions, banks, and textile mills.

• The movement laid the foundation for future large-scale campaigns against British rule, including the Non-Cooperation Movement and the Civil Disobedience Movement.

• It also had a significant impact on the Indian economy by promoting the use of indigenous goods and reducing dependency on British imports.

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Q72. Answer: (c) 80

Given:

√(15 × 27 × x) = 180

Formula used:

Calculation:

= 180

=> 15 × 27 × x = 180²

=> 15 × 27 × x = 32400

=> x = 32400(15×27)32400(15×27)32400(15×27)32400(15×27)32400(15×27)32400(15×27)

[Math Processing Error]

=> x = 3240040532400405324004053240040532400405324004053240040532400405

[Math Processing Error]

=> x = 80

Therefore The correct answer is option (3).

Q73. Answer: (c) 11

The logic followed here is:

=> (6 + 3 + 18) ÷ 3 = 9

=> (27 ÷ 3) = 9

=> 9 = 9 (LHS = RHS)

And,

=> (3 + 4 + 17) ÷ 3 = 8

=> (24 ÷ 3) = 8

=> 8 = 8 (LHS = RHS)

Similarly,

=> (5 + 13 + 15) ÷ 3 = ?

=> (33 ÷ 3) = ?

=> 11 = ?

Hence, "Option 3" is the correct answer.

Q74. Answer: (a) C

Shortcut Trick

Calculate the total time taken by each person to complete 100% of the work.

A: 1/5 work in 12 days → Total = 12 × 5 = 60 days.

B: 20% (1/5) work in 10 days → Total = 10 × 5 = 50 days.

C: 1/6 work in 8 days → Total = 8 × 6 = 48 days.

D: 1/5 work in 12 days → Total = 12 × 5 = 60 days.

The person with the least number of days completes the work first.

Therefore The correct answer is C.

Alternate Method

Given: Work fractions and days for A, B, C, and D.

Formula Used: Total Time = (Days taken) ÷ (Fraction of work done)

Person	Days	Total Work	Efficiency
A	60	1200	20
B	50	24	
C	48	25	
D	60	20	

Calculations:

=> Time for A = 12 ÷ (1/5) = 12 × 5 = 60 days

=> Time for B = 10 ÷ (20/100) = 10 ÷ (1/5) = 50 days

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=> Time for C = 8 ÷ (1/6) = 8 × 6 = 48 days

=> Time for D = 12 ÷ (1/5) = 12 × 5 = 60 days

=> Comparing the total days: 48 < 50 < 60.

=> Since C takes the minimum time (48 days), C will complete the work first.

Therefore The correct answer is C.

Additional Information

Work and Time Relation

Time taken to complete a work is inversely proportional to the efficiency of the person. More efficiency means less time.

Percentage to Fraction Conversion

Always convert percentages to fractions for faster calculation: 20% = 1/5, 25% = 1/4, 16.66% = 1/6.

Combined Work Formula

If two people A and B can do a work in x and y days respectively, together they do it in (x × y) ÷ (x + y) days.

Q75. Answer: (d) 9 : 4 : 18

We are given:

1/3 of A = 3/4 of B = 1/6 of C

Let this common value be x.

Step 1: Express A, B, and C in terms of x

From the given relationships:

1/3 A = x => A = 3x

3/4 B = x => B = 4/3 x

1/6 C = x => C = 6x

Step 2: Find the ratio A : B : C

Now we express the ratio A : B : C :

A : B : C = 3x : 4/3x : 6x

To simplify, multiply each term by 3 to eliminate the fraction:

A : B : C = 9x : 4x : 18x

Final ratio:

A : B : C = 9 : 4 : 18

Q76. Answer: (b) 18 cm

Given:

Perimeter of Δ XYZ : Perimeter of Δ LMN = 48 : 32, and LM = 12

Concept Used:

The ratio of the perimeter of two triangles is equal to the ratio of the corresponding sides.

(Perimeter of Δ XYZ)/(Perimeter of Δ LMN) = XY/LM = YZ/MN = XZ/LN

Calculation:

=> (Perimeter of Δ XYZ)/(Perimeter of Δ LMN) = XY/LM

=> 48 /32 = XY/ 12

=> XY = (48 × 12)/32 = 18

Therefore The value of XY is 18 cm.

Q77. Answer: (c) Rs. 1,054.08

Given:

Principal = Rs. 12,200

Rate = 2%

Time = 4 year

Formula used:

Simple Interest = PRT / 100

Calculation:

=> Simple Interest for first 4 years = PRT / 100

=> (12200 × 2 × 4) / 100 = Rs. 976

=> Total amount = Rs. 13176 (principal + Interest)

New principal = Rs. 13176

=> Simple Interest for last 4 years = PRT / 100

=> (13176 × 2 × 4) / 100

Therefore Simple Interest for last 4 years = 1054.08

Q78. Answer: (b) Dr .GC Anupama

The correct answer is Dr. GC Anupama

Key Points

• Dr. GC Anupama is the first woman President of the Astronomical Society of India.

• The Astronomical Society of India (ASI) is the primary association of professional astronomers in India.

• Dr. GC Anupama has made significant contributions to the field of astronomy and has held various prestigious positions in her career.

• Her leadership role in the ASI marks a significant milestone in promoting gender equality in the field of astronomy in India.

Additional Information

• The Astronomical Society of India was established in 1972 to promote the growth and development of astronomy and astrophysics in India.

• It organizes annual meetings, seminars, and workshops to facilitate the exchange of scientific knowledge among astronomers.

• Dr. GC Anupama's election as President is seen as an inspiration for many young women aspiring to pursue careers in science and astronomy.

• The ASI also engages in outreach programs to popularize astronomy among students and the general public.

Q79. Answer: (c) 17

The region that best represents the number of people who play football or basketball but NOT tennis is shown below:

Here, the marked area shows the number of people who play football or basketball but NOT tennis.

So, the number of people who play football or basketball but NOT tennis = (1 + 3 + 2 + 4 + 7) => 17

Hence, "Option 3" is the correct answer.

Q80. Answer: (c) Raj Krishna

The correct answer is Raj Krishna

Key Points

• Raj Krishna coined the term 'Hindu rate of growth' to describe the low annual growth rate of the Indian economy, which averaged around 3.5% from the 1950s to the 1980s.

• This term was used to highlight the slow pace of economic development in India during the period of planned economy and socialist policies.

• The 'Hindu rate of growth' contrasted with the higher growth rates observed in other developing countries during the same period.

• Raj Krishna, an Indian economist, used this term to draw attention to the need for economic reforms and liberalization.

Additional Information

• Raj Krishna was a prominent Indian economist and professor at the Delhi School of Economics.

• The economic reforms initiated in the 1990s helped India break away from the 'Hindu rate of growth' and achieve higher growth rates.

• These reforms included liberalization of the economy, reduction of trade barriers, and encouragement of foreign investments.

• The term 'Hindu rate of growth' is often used in discussions on Indian economic history to emphasize the importance of policy changes in achieving economic progress.

Q81. Answer: (a) $2\sin^2 A - 1$

Shortcut Trick

Substitute a standard angle A = 45° into the expression.

Expression = $\sin 45° \times \cos 45° \times (\tan 45° - \cot 45°)$

=> $(1/\sqrt{2}) \times (1/\sqrt{2}) \times (1 - 1) = (1/2) \times 0 = 0$

Check Option 1: $2\sin^2(45°) - 1 = 2(1/\sqrt{2})^2 - 1 = 2(1/2) - 1 = 1 - 1 = 0$ (Matches)

Therefore The correct answer is $2\sin^2 A - 1$.

Alternate Method

Given: $\sin A \cos A (\tan A - \cot A)$

Formula Used: $\tan A = \sin A / \cos A$ | $\cot A = \cos A / \sin A$ | $\sin^2 A + \cos^2 A = 1$

Step-by-step Simplification:

=> sin A cos A [(sin A / cos A) − (cos A / sin A)]

=> sin A cos A [(sin² A − cos² A) / (sin A cos A)]

Cancelling sin A cos A from the numerator and denominator:

=> sin² A − cos² A

Substitute cos² A = 1 − sin² A:

=> sin² A − (1 − sin² A)

=> sin² A − 1 + sin² A

=> 2sin² A − 1

Therefore The correct answer is 2sin² A − 1.

Additional Information

Trigonometric Pythagorean Identities

Fundamental identities include sin² θ + cos² θ = 1, 1 + tan² θ = sec² θ, and 1 + cot² θ = cosec² θ.

Double Angle Formulas for Cosine

cos 2A can be expressed in three ways: cos² A − sin² A, or 2cos² A − 1, or 1 − 2sin² A. The expression in this question simplifies to −cos 2A.

Reciprocal and Quotient Relations

tan A = sin A / cos A and cot A = cos A / sin A. These are essential for simplifying expressions involving mixed trigonometric functions.

Q82. Answer: (c) 5846 km

The correct answer is 5846 km

Key Points

• The overall length of the Golden Quadrilateral in India is 5846 km.

• The Golden Quadrilateral is a highway network connecting India's four major metropolitan cities: Delhi, Mumbai, Chennai, and Kolkata.

• This project was launched by the Government of India under the National Highways Development Project (NHDP).

• The objective of the Golden Quadrilateral is to improve road connectivity and facilitate faster movement of goods and people across the country.

• The project has significantly reduced travel time between these major cities and has boosted economic activities along the route.

Additional Information

• The Golden Quadrilateral project was initiated in 2001 and completed in 2012.

• It is one of the largest highway projects in the world and has played a pivotal role in improving the infrastructure and economy of India.

• The project was executed by the National Highways Authority of India (NHAI).

• The Golden Quadrilateral forms a quadrilateral connecting the four major economic hubs of India, facilitating efficient transportation and trade.

• This highway network also connects several important industrial, agricultural, and cultural regions of India, making it a crucial infrastructure project for the nation.

Q83. Answer: (c) 576

Given:

The fruits were divided amongst A, B, C, and D in the ratio 3 : 4 : 5 : 7.

A received 192 fruits.

Step 1: Find the total number of parts in the ratio

Total parts = 3 + 4 + 5 + 7 = 19 parts

Step 2: Find the value of 1 part

A’s share = 3 parts

Since A received 192 fruits, we can find the value of 1 part:

1 part = 192 ÷ 3 = 64 fruits

Step 3: Find the number of fruits received by B and C

B’s share = 4 parts

C’s share = 5 parts

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Total fruits received by B and C together = 4 parts + 5 parts = 9 parts

Total fruits received by B and C = 9 × 64 = 576 fruits

Therefore B and C together received 576 fruits.

Q84. Answer: (b) 60

Given:

• The ratio of the two numbers is 4 : 5.

• The HCF of the two numbers is 3.

Step 1: Find the numbers

The two numbers are 4 × 3 = 12 and 5 × 3 = 15.

Step 2: Find the LCM of 12 and 15

The prime factorization is:

$12 = 2^2 \times 3$

$15 = 3 \times 5$

The LCM is found by taking the highest power of each prime factor:

$LCM(12, 15) = 2^2 \times 3 \times 5 = 60$

Therefore The LCM of the two numbers is 60.

Q85. Answer: (a) Atmaram Pandurang

The correct answer is Atmaram Pandurang

Key Points

• Atmaram Pandurang established the 'Prarthana Samaj'.

• Prarthana Samaj was founded in 1867 in Bombay (now Mumbai).

• The movement aimed at reforming the social customs and religious practices of the Hindu community.

• It was influenced by the Brahmo Samaj and emphasized monotheism and social reforms such as widow remarriage, women's education, and abolition of caste discrimination.

• Atmaram Pandurang was a prominent social reformer and was instrumental in the spread of rational and progressive ideas in the society of that time.

Additional Information

• The Prarthana Samaj was part of a larger socio-religious reform movement in India during the 19th century.

• It worked towards creating a society based on the values of human dignity, social justice, and equality.

• The movement also sought to de-emphasize ritualism and priestly dominance in Hindu religion.

• Other notable leaders of the Prarthana Samaj included Mahadev Govind Ranade and R.G. Bhandarkar.

Q86. Answer: (d) Rs. 60 lakh

Solution:

Total percentage for cereals and textiles = 6

Total sum of all percentages = 17.2

Total amount spent on imports = Rs. 1.72 crore

Step 1: Calculate the ratio

Ratio of cereals and textiles to total = 6/17.2

Step 2: Calculate the amount spent

Amount spent on cereals and textiles = 6/17.2 × 1.72 = 0.6 crore

Convert to lakhs: 0.6 crore = 60 lakhs

Final Answer:

The approximate amount spent on cereals and textiles together is Rs. 60 lakhs.

Q87. Answer: (d) 6 : 7

Solution:

The production of Company Z in 2017 = 30 lakhs

The production of Company Y in 2014 = 35 lakhs

Step 1: Calculate the ratio

Ratio = 30/35 = 6/7

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Final Answer:

The ratio of the production of company Z in 2017 to that of company Y in 2014 is 6 :7.

Q88. Answer: (c) Total combined Sales for all shops in 2018 is the same as that in 2017

Correct Data Observations from the Bar Graph:

S1: Sales in 2017 = 85, Sales in 2018 = 90

S2: Sales in 2017 = 90, Sales in 2018 = 85

S3: Sales in 2017 = 75, Sales in 2018 = 80

S4: Sales in 2017 = 80, Sales in 2018 = 70

S5: Sales in 2017 = 70, Sales in 2018 = 75

Step 1: Calculate total sales for each year

Total Sales in 2017 = 85 (S1) + 90 (S2) + 75 (S3) + 80 (S4) + 70 (S5) = 400

Total Sales in 2018 = 90 (S1) + 85 (S2) + 80 (S3) + 70 (S4) + 75 (S5) = 400

Conclusion:

The total sales in 2017 and 2018 are the same at 400 thousand units.

Q89. Answer: (a) 1.31

Solution:

Step 1: Identify the profits

From the graph:

• Profit for 2013-2014 = 380 million $

• Profit for 2014-2015 = 290 million $

Step 2: Calculate the ratio

=> Ratio = 380 ÷ 290 ≈ 1.31

Step 3: Approximation

The profit made in 2013-2014 was approximately 1.31 times that made in 2014-2015.

Therefore The profit made by the software company in 2013-2014 was approximately 1.31 times that made in 2014-2015.

Q90. Answer: (a) Not every fruit that is a shoe is a bug.

Given,

Statement:

Every fruit is a bug.

Some fruits are shoes.

Some shoes are bugs.

Not all the shoes that are bugs are fruit.

Conclusion:

I. Not every fruit that is a shoe is a bug. - False (Because, every fruit is a bug as per Statement 1, hence every fruit that is a shoe must also be a bug).

II. Some of the shoes that are bugs are fruits. - True (Because, some fruits are shoes and since every fruit is a bug, some shoes that are bugs must also be fruits).

III. Some bugs are shoes. - True (Because, some shoes are bugs as per Statement 3).

IV. Not all bugs are fruits. - True (Because, Statement 4 explicitly states that not all the shoes that are bugs are fruit, implying that not all bugs are fruits).

So, Only conclusion I cannot be concluded from the given statements.

Hence, the correct answer is "Option 1".

Q91. Answer: (a) 40

The pattern followed here is: The pattern followed here is column-wise.

=>(5 + 7) × 2 = 24

=>12 × 2 = 24

=>24 = 24 (LHS = RHS)

And,

=>(3 + 7) × 2 = 20

=>10 × 2 = 20

=>24 = 24 (LHS = RHS)

Similarly,

=>(4 + 16) × 2 = ?

=>20 × 2 = ?

=>40 = ?

Hence, "Option 1" is the correct answer.

Q92. Answer: (b) Veil

The logic followed here is:

Helmet	Headgear
Veil	Face covering
Turban	Headgear
Hat	Headgear

Helmet, Turban, Hat all are types of Headgear,

Whereas,

Veil is a type of Face covering.

Hence, the correct answer is "Veil".

Q93. Answer: (c) 75

The logic followed here is:

So, the missing term of the series is '75'

Hence, the correct answer is "Option3".

Q94. Answer: (b) 40

The logic followed here is:

Addition of values of outer circle = value of inner circle

Figure 1: 6 + 5 + 4 + 3 = 18

Figure 2: 4 + 3 + 11 + 7 = 25

Figure 3: 12 + 5 + 13 + 10 = 40

Hence the correct answer is "Option 2".

Q95. Answer: (a) Niece

Given: Jitesh's brother-in-law Jagdish is also Suresh's father-in-law.

Case 1) Jagdish is Jitesh's sister's brother

Case 2) Jagdish is Jitesh's wife's brother.

Thus, in both cases, Suresh's wife is Jitesh's niece.

Hence, the correct answer is "Option 1".

Q96. Answer: (d) 2; 2; 3; 2

The logic followed here is:

;

;

;

=> 3; 1; 3; 2

And,

;

;

;

=> 1; 3; 2; 3

Similarly,

;

;

;

=> 2; 2; 3; 2

Hence, "Option 4" is the correct answer.

Q97. Answer: (c) 29

The logic followed here is: The logic followed here is diagonally.

1st series)

35 + 7 = 42

42 + 7 = 49

49 + 7 = 56

Similarly,

2nd series)

35 - 2 = 33

33 - 2 = 31

31 - 2 = 29

Hence, "Option 3" is the correct answer.

Q98. Answer: (a) Pearls

The logic followed here is:

Pearls	Gemstone
Diamonds	Card Suit
Hearts	Card Suit
Spades	Card Suit

Pearls are Gemstones,

Whereas,

Diamonds, Hearts and Spades are Card Suits.

Hence, the correct answer is "Pearls".

Q99. Answer: (b) FDPHO

The logic followed here is:

For 'LION' is coded as 'OLRQ'

For 'BEAR is coded as 'EHDU'

Similarly, for 'CAMEL'

So, 'CAMEL' will be coded as 'FDPHO'

Hence the correct answer is "Option 2".

Q100. Answer: (b) 75 m, south

Given: From his house, Arjun walked 40 m towards the north, then 50 m towards the east, then 35 m towards the north and then 50 m towards the west.

He stopped at this point to buy some fruits from a fruit shop.

He again walked 40 m towards the north

So, Arjun's house is 75m south from fruit shop

Hence the correct answer is "Option 2".

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