RRB NTPC CBT-I Official Paper (Held On: 8 Jan 2021 Shift 1) (Previous Year Paper)

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

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Q1. Select the letter-cluster from among the given options that can replace the question mark (?) in the following series
ABF, BCG, CDH, DEI, EFJ, ?

(a) FGL
(b) FGK
(c) FGA
(d) FGC

Q2. In the Computer field, FORTRAN stands for:

(a) Format Transformer
(b) Foreign Transmitter
(c) Forensic Transistor
(d) Formula Translation

Q3. Simplify
3/4 ÷ 5/12 - 1/3 × 9/5 (2/3 ÷ 1/3 - 1)

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

Q4. Which former ISRO chairman has been awarded France’s highest civilian honour in 2019?

(a) Kailasavadivoo Sivan
(b) G Madhavan Nair
(c) K. Radhakrishnan
(d) A.S. Kiran Kumar

Q5. Three consecutive integers when taken in increasing order and multiplied by 2, 3 and 4 respectively adds up to 74. What is the greatest number?

(a) 9
(b) 10
(c) 8
(d) 14

Q6. If the number 356yx is divisible by 90, then (y - x) is:

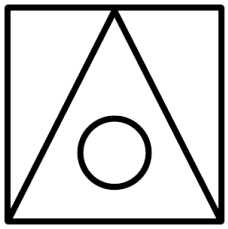
(a) 3
(b) 4
(c) 1
(d) 2

Q7. Who said the following when laying the foundation stone ceremony of Banaras Hindu University, "There is no salvation for India unless you strip yourself of this jewellery and hold it in trust for your countrymen in India."?

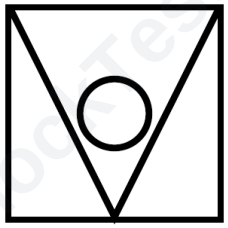
(a) Mohammad Ali Jinnah
(b) Annie Besant
(c) Gopal Krishna Gokhale
(d) Mahatma Gandhi

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

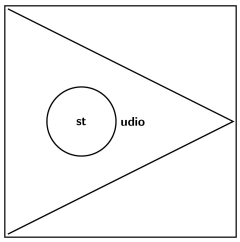
(a)



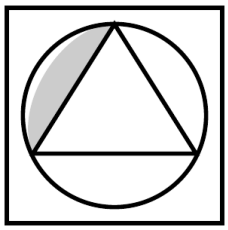
(b)



(c)



(d)



Q9. In an examination, 41% of students failed in Economics, 35% of students failed in Geography and 39% of students failed in History, 5% of students failed in all the three subjects, 14% of students failed in Economics and Geography, 21% of students failed in Geography and History and 18% of students failed in History and Economics. Find the percentage of students who failed in only Economics.

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

Q10. Which missile-destroyer of the Indian Navy has been decommissioned after 36 years in May, 2019 ?

(a) INS Rana
(b) INS Vikramaditya
(c) INS Ranjit

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(d) INS Vikrant

Q11. INTERPOL has its headquarters in _____

(a) Germany
(b) France
(c) Switzerland
(d) Spain

Q12. Which is the world's largest freshwater lake in terms of volume?

(a) Lake Baikal
(b) Lake Michigan-Huron
(c) Caspian Sea
(d) Lake Superior

Q13. Which is the second highest constitutional office in India?

(a) Prime Minister
(b) President
(c) Vice President
(d) Governor

Q14. As of Nov 2020, who is the President of the World Bank?

(a) Shanta Devrajan
(b) Kristalina Georgieva
(c) Jim Yong Kim
(d) David R. Malpass

Q15. 25% of a number is 7 more than 30% of another number. The difference between the numbers is 29. What are the numbers?

(a) 39 and 10
(b) 40 and 11
(c) 37 and 8
(d) 34 and 5

Q16. Rahim invested a certain sum at 5% simple interest for 3 years. His friend Hiralal invested the same sum for 2 years at 7% simple interest. Rahim got Rs. 30 more interest than Hiralal. What was the amount invested by them?

(a) Rs. 2,000.00
(b) Rs. 3,000.00
(c) Rs. 5,000.00
(d) Rs. 7,000.00

Q17. The first Indian flag to be hoisted on foreign soil was unfurled in _____ by Bhikaji Cama in 1907.

(a) Germany
(b) France
(c) England
(d) Russia

Q18. Identify the name of the traditional folk theatre form of Maharashtra.

(a) Rasleela
(b) Nautanki
(c) Tamasha
(d) Swang

Q19. The present MD and CFO of the World Bank, Anshula Kant was earlier the MD of _____.

(a) Oriental Bank of Commerce
(b) Bank of Baroda
(c) IndusInd Bank

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(d) SBI

Q20. Who invented 'www' ?

(a) Vint Cerf
(b) Robert E. Kahn
(c) Charles babbage
(d) Tim Berners-Lee

Q21. The floor of a hall measuring 16 meters in length and 12 meters in width is to be paved with square tiles. If the least number of tiles are to be used, then what is the length of each square tile?

(a) 12 meters
(b) 4 meters
(c) 24 meters
(d) 48 meters

Q22. The Virupaksha temple at Hampi is dedicated to _____

(a) Lord Ganesha
(b) Lord Brahma
(c) Lord Shiva
(d) Lord Vishnu

Q23. Which state in India has the highest coal reserves?

(a) Chhattisgarh
(b) Orissa
(c) West Bengal
(d) Jharkhand

Q24. Which one of the following is a nuclear research reactor operated by Bhabha Atomic Research Centre?

(a) Shiva
(b) Narayana
(c) Dhruva
(d) Vishnu

Q25. Who was responsible for introducing Enfield rifles that used the greased cartridges which became the immediate reason of 1857 revolt?

(a) Henry Hardinge
(b) Captain Hearsey
(c) Francis Grant
(d) Lord William Bentinck

Q26. The difference between the fractions 5 minutes of an hour and 20 seconds of an hour is:

(a) 7/12
(b) 28/270
(c) 16/180
(d) 0.7/9

Q27. As of Nov 2020, who is the Chief Justice of India ?

(a) Kurian Joseph
(b) J Chelameswar
(c) Deepak Mishra
(d) S Arvind Bobde

Q28. The difference between two numbers is 5. If 25 is subtracted from the smaller number and 20 is added to the greater number the ratio becomes 1 : 2. What is the greater number?

(a) 80
(b) 90

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(c) 85
(d) 75

Q29. In an effort to provide a safe and secure e-payment option, RBI has launched _____
(a) Vision 2022
(b) Vision 2020
(c) Vision 2021
(d) Vision 2019

Q30. Name the President of Confederation of Indian Industry (CII) for 2020-21.
(a) Rakesh Bharti Mittal
(b) Uday Kotak
(c) Vikram Kirloskar
(d) TV. Narendran

Q31. The product of any two even consecutive numbers is always divisible by
(a) 12
(b) 16
(c) 8
(d) 6

Q32. A drum of water is 3/4 full. When 9 litres of water is drawn from it, it is 1/2 full. What is the capacity of the drum?
(a) 27 litres
(b) 20 litres
(c) 28 litres
(d) 36 litres

Q33. Where was 11^(th) WTO Ministerial Meeting organized?
(a) Argentina
(b) Switzerland
(c) England
(d) China

Q34. Which country won the first ICC Men's T20 Cricket world cup title?
(a) India
(b) West Indies
(c) England
(d) Pakistan

Q35. Which one of the following contains CFC?
(a) Refrigerants
(b) Varnish
(c) Aerated drinks
(d) Wall Paints

Q36. Which Bollywood celebrity has collaborated with the famous American talk show host, David Letterman for Netflix?
(a) Shahrukh Khan
(b) Salman Khan
(c) Anil Kapoor
(d) Amitabh Bachchan

Q37. Which two signs need to be interchanged to make the following equation correct?
3 + 3 × 3 - 3 ÷ 3 = 3
(a) • and +
(b) • and ÷

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(c) • and ×
(d) × and ÷

Q38. Which session of the congress led to the divide between extremists and moderates in 1907?
(a) Calcutta
(b) Surat
(c) Madras
(d) Bombay

Q39. Which of the following is an example of non-infectious disease?
(a) Pneumonia
(b) High Blood Pressure
(c) Influenza
(d) Typhoid

Q40. Three statements are given, followed by three conclusions I, II and III. You have to consider the statements to be true even if they seem to be at variance with commonly known facts and then decide which of the given conclusions logically follow(s) from the given statements.
Statements:
Some tigers are rats.
All rats are elephants.
All tigers are cats.
Conclusions:
I. Some cats are elephants.
II. Some elephants are tigers.
III. Some cats are rats.
(a) Only conclusions II and III follow.
(b) All conclusions I, II and III follow.
(c) Only conclusions I and II follow.
(d) Only conclusions I and III follow

Q41. The area of triangle ABC is 39 cm^2, D and E are two points on BC such that BD = DE = EC, then what is the area of triangle ADC?
(a) 52 cm2
(b) 9/4 cm2
(c) 26 cm2
(d) 13 cm2

Q42. Three friends arranged a party. Tanveer paid 2/3 as much as Yusuf paid. Yusuf paid 1/2 as much as Sachin paid. The fraction of the total expenditure by Yusuf was:
(a) 7/11
(b) 5/11
(c) 3/11
(d) 2/11

Q43. simplify
1.8 + 2 × 3/2 × 1/2 {2/5 ÷ (3/5 × 2/3) × 3/2 - 1}
(a) 1
(b) 0.2
(c) -1
(d) 2.55

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Q44. A guard observes an enemy boat, from an observation tower at a height of 180 meters above the sea level, to be at an angle of depression of 60°. What is the distance of the boat from the foot of the tower?

(a) 60/√3 m
(b) 30√3 m
(c) 60√3 m
(d) 30/√3 m

Q45. Select the number from among the given options that can replace the question mark (?) in the following series.

3, 11, 27, 59, ?

(a) 123
(b) 129
(c) 121
(d) 122

Q46. Find the approximate value of

$(2.697 + 0.498)^2 - (2.697 - 0.498)^2$

(a) 2.00
(b) 5.37
(c) 2.199
(d) 3.195

Q47. Seven chocolates, A, B, C, D, E, F and G, are bought at different costs between Rs. 40 and Rs. 50 (excluding both Rs. 40 and Rs. 50) but not necessarily in the same order.

The cost of chocolate C is Rs. 5 less than that of chocolate E. The cost of chocolate A is a prime number. The cost of chocolate F is Rs. 2 more than that of chocolate A. The cost of chocolate F is more than that of chocolate E. The cost of chocolate D is an odd number. The cost of chocolate G is Rs. 3 more than the cost of chocolate D. None of the chocolates cost Rs. 44. The cost of chocolate B is an even number. What is the cost of chocolate E?

(a) Rs. 45
(b) Rs. 47
(c) Rs. 42
(d) Rs. 46

Q48. 'Natyashastra' the famous treatise on dramatic art was written by _____

(a) Bharata Muni
(b) Harsha Vardhan
(c) Vishnu Sharma
(d) Kalidasa

Q49. Select the option that is related to the fourth number in the same way as the first number is related to the second number.

3 : 36 :: ? : 20736

(a) 3456
(b) 1728
(c) 728
(d) 81

Q50. Find the value of

$\cos^2(270 - \varphi) - \sin^2(180 - \varphi) + \sin^2 \pi/2 \sin^2(270 - \varphi)$

(a) $\sin^2(\varphi) - 1$
(b) $\sin^2(\pi/2)$
(c) $\sin^2 \varphi$
(d) $\cos^2 \varphi$

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Q51. Introducing a boy, Virat said, “His mother is the only daughter of my mother-in-law.” How is the boy related to Virat?

(a) Husband
(b) Son
(c) Brother
(d) Uncle

Q52. At present the average age of 20 students of class ten is 15.5 years. The present age of the class teacher is 47 years. What will be the average age of the students and the class teacher after 5 years?

(a) 21.8 years
(b) 21.5 years
(c) 22 years
(d) 22.5 years

Q53. A small text file created by a website that is stored in the user’s computer temporarily for that session is called _____.

(a) malware
(b) bug
(c) cookie
(d) cache

Q54. The first passenger train in India was operated between _____.

(a) Bombay and Thane
(b) Howrah and Hoogly
(c) Royapuram and Wallajah Road
(d) Roorkee and Piran Kaliyar

Q55. Two poles of height 20 and 14 meters are joined at the top by a wire which makes an angle of 30° with the horizontal. The length of the wire is:

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

Q56. Which one of the following is a similarity between acids and bases?

(a) Process of mixing acid or base with water is exothermic
(b) They are used as preservatives
(c) They are bitter
(d) They have pH less than 7

Q57. Read the given statements and conclusions carefully. Assuming that the information given in the statements is true, even if it appears to be at variance with commonly known facts, decide which of the given conclusions logically follow(s) from the statements.

Statements:

1: All cricketers are players.

2: Some cricketers are fielders.

Conclusions:

1: Some fielders are cricketers.

2: Some fielders are players.

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

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Q58. Rajni can do 25% less work than Mohan and Mohan can do 20% more work than Rizwan. At the end of the completion of the work, what will be Mohan's share out of the profit of Rs. 930 ?

(a) Rs. 360
(b) Rs. 260
(c) Rs. 350
(d) Rs. 300

Q59. Which article of the Indian constitution grants the right to equal opportunity in public employment ?

(a) Article 15
(b) Article 13
(c) Article 14
(d) Article 16

Q60. Glucose molecule breaks down into _____.

(a) pyruvic acid
(b) lactic acid
(c) cytoplasm
(d) mitochondria

Q61. In a school the ratio of the number of boys and girls is 5 : 6, 20% boys and 25% girls are scholarship holders. How many students did not get a scholarship ?

(a) (950/11)%
(b) (850/11)%
(c) (8000/11)%
(d) (750/11)%

Q62. Introducing Deveshi to the guests, Ashish said, "Her father is the only son of my paternal grandfather's only son". How is Ashish related to Deveshi ?

(a) Maternal uncle
(b) Father
(c) Brother
(d) Grandfather

Q63. Which of the following medicinal plant can be used to treat blood pressure?

(a) Sarpagandha
(b) Babool
(c) Jamun
(d) Tulsi

Q64. Which of the following is one of the founding countries of ASEAN?

(a) India
(b) Malaysia
(c) Cambodia
(d) Australia

Q65. Which Indian state has the highest power generation capacity from thermal energy?

(a) Uttar Pradesh
(b) Maharashtra
(c) Andhra Pradesh
(d) Gujrat

Q66. If × means +, ÷ means -, + means × and - means ÷, then what will be the value of the following expression?

40 × 20 ÷ 28 - 4 + 2

(a) 46
(b) 45

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(c) 64
(d) 54

Q67. Two numbers are in the ratio 19 : 17. Their HCF is 11. Find the numbers.
(a) 221, 247
(b) 1700, 1900
(c) 209, 187
(d) 190, 170

Q68. In India, river dolphins are found in _____ river
(a) Godavari
(b) Ghaghara
(c) Luni
(d) Krishna

Q69. Which corporate organization has signed an MoU to plant Rudraksha trees in Uttarakhand as part of their Corporate Social Responsibility under “Namami Gange Programme” in 2019?
(a) Infosys
(b) HCL Foundation
(c) Wipro
(d) IBM

Q70. A man standing on the banks of a river observes that the angle subtended by a tree on the opposite bank is 60°. He walks 36 meters backward on the bank and observes the angle to be 30°. What is the breadth of the river?
(a) 10 meters
(b) 20 meters
(c) 18 meters
(d) 28 meters

Q71. Which of the following buildings was designed by F.W. Stevens?
(a) Horniman Circle (Formerly Elphinstone Circle)
(b) Bombay Secretariat
(c) The Town Hall, Bombay
(d) Chatrapati Shivaji Maharaj Terminus (Formerly Victoria Terminus)

Q72. Two angles of a triangle are in the ratio 1 : 2 and the sum of these angles is equal to the third angle. What is the measure of the smallest angle?
(a) 25°
(b) 30°
(c) 20°
(d) 40°

Q73. A student takes 1.5 hours from home to school at a speed of 5 km/h. By what percent should he increase his speed to reduce the time by 20% and cover the same distance from school to home?
(a) 15%
(b) 25%
(c) 16%
(d) 20%

Q74. In an election, there were only two candidates. The losing candidate got 48% of the total votes. His opponent got 6000 votes more and won by a margin of 3% votes. What was the number of invalid votes?
(a) 2000
(b) 6000
(c) 3000
(d) 3200

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Q75. If -5 is a root of the quadratic equation $2x^2 + px - 15 = 0$ and also of the quadratic equation $p(kx^2 + x) = 0$, then what are the values of p and k?

(a) 7, 0.2
(b) -7, 0.4
(c) 7, -0.2
(d) -7, -0.2

Q76. If DO is coded as 60 and SO is coded as 285, then which of the following will be the code for RED?

(a) 27
(b) 299
(c) 94
(d) 360

Q77. A question and two statements are given. Identify which of the statements is/are sufficient to answer the question.

Question:

On which date is Evanshu's birthday?

Statements:

1: Evanshu's birthday is on the Republic Day of a country.

2: The country's national flag is a tri-colour flag with an Ashoka Chakra in its centre.

(a) Both statements 1 and 2 are sufficient together
(b) Both statements 1 and 2 are sufficient independently
(c) Statement 1 is sufficient but statement 2 is not sufficient.
(d) Statement 2 is sufficient but statement 1 is not sufficient

Q78. The speed of a boat in still water is 15 km/h. The speed of the current is 3 km/h. The difference between the time taken for upstream and downstream to complete two trips (i.e., from one end to the other coming back and repeating the same again) is 10 minutes. What is the distance between the two ends?

(a) 2.5 km
(b) 2 km
(c) 3 km
(d) 3.5 km

Q79. The price of sugar increased by 10%. A family of 5 members did not want to increase their expenditure. What is the percentage reduction in their consumption of sugar?

(a) 12
(b) 9 1/11
(c) 10
(d) 8

Q80. A sum of money becomes Rs.10648 after 3 years and Rs.9680 after 2 years of compound interest computed yearly. What is the rate of interest?

(a) 9%
(b) 8%
(c) 10%
(d) 12%

Q81. When is National Science Day celebrated in India?

(a) 19^(th) February
(b) 21^(st) March
(c) 20^(th) January
(d) 28^(th) February

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Q82. Six persons - Seema, Vaibhav, Ajay, Manisha, Tulika and Ananya - were born in six different states, namely Assam, Gujarat, Madhya Pradesh, Punjab, Bihar and Rajasthan, but not necessarily in the same order. They all play six different games, namely Chess, Football, Hockey, Ludo, Badminton and Cricket, but not necessarily in the same order. Ananya was born in Gujarat and she plays Cricket. Ajay does not play Chess or Ludo. The person who was born in Bihar plays Football. Seema plays Hockey and she was not born in Assam or Madhya Pradesh. Manisha was born in Rajasthan and she plays badminton.

Identify the state in which Ajay was born?

(a) Assam
(b) Bihar
(c) Madhya Pradesh
(d) Punjab

Q83. Jon Beel Mela is the only fair in India where barter system is still used. In which state does it take place?

(a) Tripura
(b) Assam
(c) Nagaland
(d) Manipur

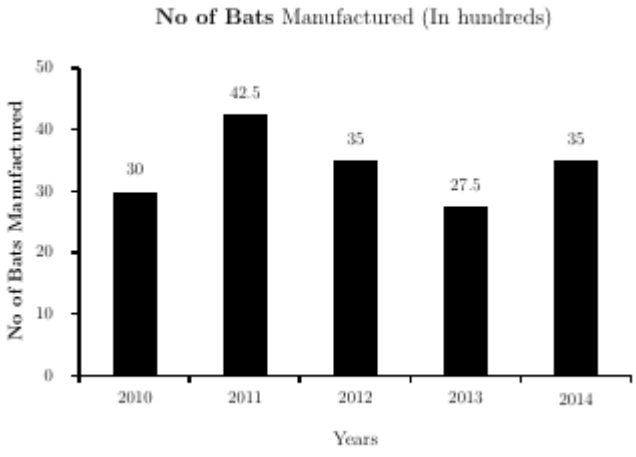
Q84. Name the mission ISRO has conceived to study the sun.

(a) Aditya L1
(b) Exoworld
(c) Exposat
(d) Suraj

Q85. The diagonal of a square is √200 cm. If the ratio of length and breadth of a rectangle is 5 : 2, whose area is equal to the area of a square, then what is the length of the rectangle?

(a) √250 cm
(b) √200 cm
(c) 2√10 cm
(d) √20 cm

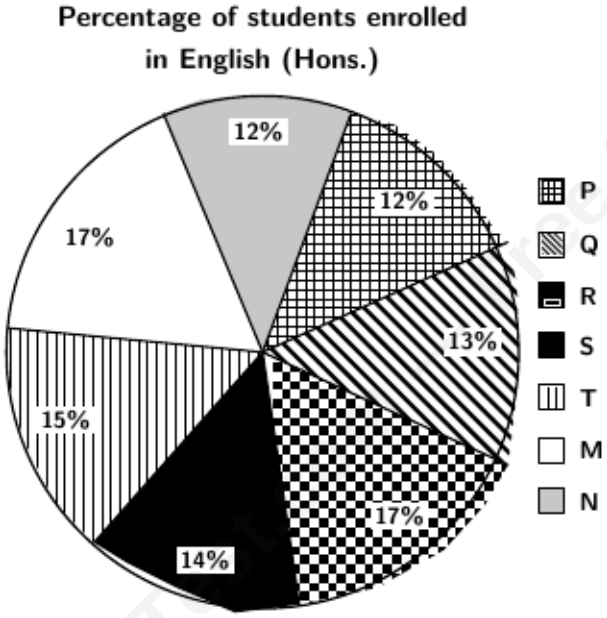
Q86. The following graph shows the number (in hundreds) of bats manufactured by a factory in Meerut over the period of 2010 to 2014.



What is the average number of bats manufactured during 2010 to 2014 ?

(a) 3450
(b) 3655
(c) 3600
(d) 3400

Q87. The following pie chart shows the distribution of students enrolled in an English (Hons.) course in seven different colleges (P, Q, R, S, T, M and N) of a university.



If the total number of students enrolled in the English (Hons.) course from all the seven colleges is 2800, then how many students from colleges M and S are enrolled in the course?

(a) 752
(b) 940
(c) 868
(d) 913

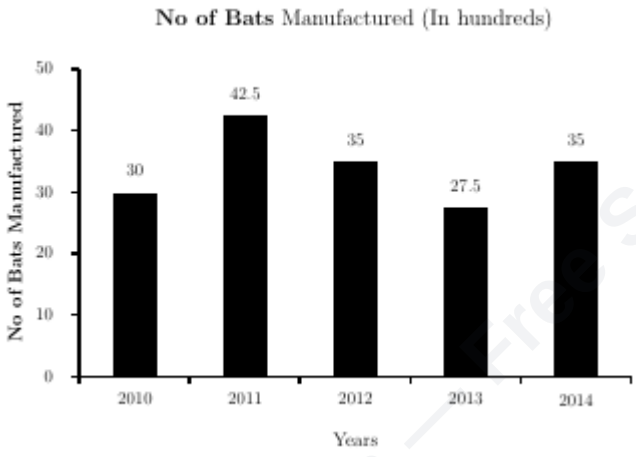
Q88. The given table shows the number of people who joined four different gyms in Delhi during 2014 to 2018.

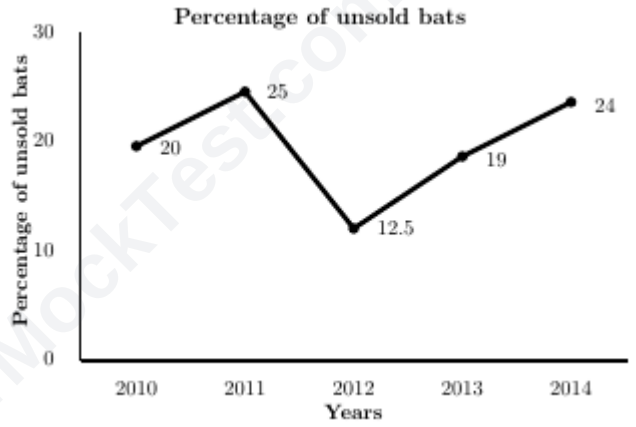
GYM → YEAR↓	A	B	C	D
2014	190	113	95	176
2015	210	227	310	277
2016	183	161	191	239
2017	169	117	225	196
2018	278	269	213	293

By what approximate percentage is the number of people who joined gym A in 2018 greater than that who joined gym D in 2016?

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

Q89. The given graph shows the number (in hundreds) of bats manufactured and the following line graph shows the percentage of unsold bats by a factory in Meerut over the period of 2010 to 2014.





What is the difference between the number of bats sold in the year 2010 and year 2014?

(a) 240
(b) 500
(c) 200
(d) 260

Q90. Consider the given statement and decide which of the given assumptions is/are implicit in the statement.

Statement:

In the last year, Pune University has launched a number of vocational courses for the better future of students.

Assumptions:

A. Pune University believes that vocational education provides a better future for students.

B. Pune University is conscious about the future of students.

(a) Only assumption B is implicit.
(b) Neither assumption A nor B is implicit
(c) Both assumptions A and B are implicit.
(d) Only assumption A is implicit

Q91. A question and two statements are given. Identify which of the statements is/are sufficient to answer the question.

Question:

Find the area of the equilateral triangle.

Statements:

1: The measure of one of the sides of the triangle side is 7 cm.

2: The perimeter of the triangle is 21 cm.

(a) Both statements 1 and 2 are sufficient independently
(b) Statement 1 is sufficient but statement 2 is not sufficient.
(c) Neither statement 1 nor 2 is sufficient independently.
(d) Statement 2 is sufficient but statement 1 is not sufficient

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Q92. Letters of a word are jumbled and each letter has been given a unique number. Select the combination of numbers from among the given options, so that the letters arranged accordingly will form the meaningful word.

R A M S T

1 2 3 4 5

(a) 32514
(b) 13245
(c) 25431
(d) 43215

Q93. If p + q implies p - q, p - q implies p × q, p × q implies p ÷ q and p ÷ q implies p + q, then find the value of

5 + 6 - 75 × 15 ÷ 30

(a) 5
(b) 0
(c) -5
(d) 10

Q94. In a certain language, ABHIMANYU is written as BAIJNBOUY. How will KARMPUTRA be written as in that language?

(a) AKSNQVUAR
(b) ABRNVUTAR
(c) ABRNQVUSR
(d) AKSPMTUSB

Q95. Read the given statements and conclusions carefully and decide which of the conclusions logically follow(s) from the statements.

Statements:

John is a renowned sportsperson.

All renowned sportspersons are fit and active.

John earns a large amount every year through advertisements of various products.

Conclusions:

A. All renowned sportspersons earn large amount through advertisements.

B. John is fit and active.

C. John being popular advertises only famous products.

(a) Only conclusion B follows
(b) Both conclusions A and C follow
(c) Only conclusion C follows
(d) Both conclusions A and B follow

Q96. Select the option that is related to the third word in the same way as the second word is related to the first word.

Painter : Brush :: Author : ?

(a) Book
(b) Story
(c) Words
(d) Pen

Q97. Read the following set of statements, A, B, C, D and select the set/s in which the third statement is a logical conclusion of the first two.

A. Rahul is an actor. Some actors are smart. Rahul is smart.

B. Some men are soldiers. All soldiers are patriotic. Some men are patriotic.

C. All cricketers are athletes. Some cricketers are famous. All athletes are famous.

D. All actors are handsome. Aman is not an actor. Aman is not handsome.

(a) Only A, B and C
(b) Only B

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(c) Only D and B
(d) Only D

Q98. In a certain code language, MINIATURE is written as 495912395. How will PRIVATE be written as in that language?
(a) 7919125
(b) 7904125
(c) 7994125
(d) 9749125

Q99. Four words have been given, out of which three are similar in meaning and one is different. Select the odd one.
(a) Apprehensive
(b) Scared
(c) Composed
(d) Afraid

Q100. The average weight of a group of 20 boys was calculated to be 65 kg and it was later discovered that the weight of a boy was misread as 76 kg instead of the correct weight 66 kg. The correct average weight was:
(a) 66 kg
(b) 63 kg
(c) 65.5 kg
(d) 64.5 kg

ANSWER KEY

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

SOLUTIONS

Q1. Answer: (b) FGK

The logic here is: Each letter is increasing by + 1, as shown below.

Hence, FGK is the correct answer.

Q2. Answer: (d) Formula Translation

The correct answer is Formula Translation.

Key Points

• Fortran

• It is a computer programming language that is extensively used in numerical, scientific computing.

• FORTRAN stands for Formula Translation. Hence, Option 4 is correct.

• The programming language was created in 1957 by John Backus that shortened the process of programming and made computer programming more accessible.

• The creation of FORTRAN marked a significant stage in the development of computer programming languages.

• The previous programming was written in machine (first-generation) language or assembly (second-generation) language, which

required the programmer to write instructions in binary or hexadecimal arithmetic.

• It is used in computationally intensive areas such as numerical weather prediction, computational fluid dynamics, finite element analysis, geophysics, crystallography, computational physics and computational chemistry.

• It is a popular language for high-performance computing and is used for programs that benchmark and rank the world's fastest supercomputers.

Q3. Answer: (d) 6/5

Concept Used:

Follow the BODMAS rule according to the table given below:

Calculation:

3/4 ÷ 5/12 - 1/3 × 9/5 (2/3 ÷ 1/3 - 1)

=>3/4 ÷ 5/12 – 1/3 × 9/5 × (2/3 × 3/1 – 1)

=> 3/4 ÷ 5/12 – 1/3 × 9/5 × (2 – 1)

=> 3/4 ÷ 5/12 – 1/3 × 9/5 × 1

=> 3/4 ÷ 5/12 – 1/3 × 9/5

=> 3/4 × 12/5 – 1/3 × 9/5

=> 9/5 – 1/3 × 9/5

=> 9/5 – 3/5

=> 6/5

Therefore The required value is 6/5

Q4. Answer: (d) A.S. Kiran Kumar

The correct answer is A.S. Kiran Kumar.

Key Points

• A.S. Kiran Kumar

• Former ISRO chairman A S Kiran Kumar was, on May 2, 2019, conferred with France's highest civilian honour, Chevalier de l'Ordre national de la Legion d'Honneur, for his contribution to India-France space cooperation. Hence, Option 4 is correct.

• He was conferred with the prestigious honour by France’s Ambassador to India Alexandre Ziegler on behalf of the French President.

• The award aims to recognize his invaluable contribution to the development of India-France space cooperation.

• During his whole career span at the Indian space agency, including when he was the Chairman, Kumar worked to foster ambitious space cooperation between India and France.

• He directly contributed to making it cooperation of the people as well as one of the cornerstones of Indo-French strategic partnership.

Important Points

• Chevalier de l'Ordre national de la Legion d'Honneur

• The National Order of the Legion of Honour is the highest French order of merit for military and civil merits, established in 1802 by Napoleon Bonaparte and retained by all later French governments and regimes.

• It is the highest civilian award conferred by France for outstanding service to the nation, regardless of the nationality of the recipient.

• The President of the French Republic is the Grand Master of the Ordre National de la Legion d'Honneur

• The order is divided into five degrees of increasing distinction: Chevalier (Knight), Officier (Officer), Commandeur (Commander), Grand Officier (Grand Officer), and Grand-Croix (Grand Cross).

Additional Information

• | A.S. Kiran Kumar | - He served as the Chairman of the Indian Space Research Organisation from 2015 to 2018. - He was succeeded by K Sivan. |

Kailasavadivoo Sivan	**• He is the current Secretary and ex-officio chairman of the Indian Space Research Organisation and Space Commission. - He has previously served as the Director of the Vikram Sarabhai Space Center and the Liquid Propulsion Systems Centre.**

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G Madhavan Nair	• He is an Indian space scientist and a former Chairman of the Indian Space Research Organisation (2003-2009), and Secretary to the Department of Space, Government of India. - He has also been the Chairman of the Space Commission and Chairman of the Governing Body of the Antrix Corporation, Bangalore.
K. Radhakrishnan	• He headed the Indian Space Research Organisation (ISRO) between November 2009 and December 2014 as Chairman of Space Commission, Secretary of the Department of Space, and Chairman of ISRO. - Prior to this, he was the Director of Vikram Sarabhai Space Centre (2007-2009) and Director of National Remote Sensing Agency (2005-2008) of the Department of Space.

Q5. Answer: (a) 9

Calculation:

Let the three consecutive integers be x, x + 1 and x + 2 respectively

According to the question

=> 2x + 3(x + 1) + 4(x + 2) = 74

=> 2x + 3x + 3 + 4x + 8 = 74

=> 9x + 11 = 74

=> 9x = 74 – 11

=> 9x = 63

=> x = 63/9

=> x = 7

Thus, the integers are:

First integer. = x = 7

Second integer = x + 1 = 8

Third integer = x + 2 = 9

Therefore The greatest number is 9

Q6. Answer: (b) 4

Given:

The number 356yx is divisible by 90

Calculation:

For divisibility by 10 the last digit of the number must be 0

Similarly, for divisibility by 9, sum of digits of that number must be divisible by 9

Here, 356yx is divisible by 90 .i.e. 356yx is divisible by 9 and 10

356yx is divisible by 10

So, the value of x = 0

Now, 356y0 is divisible by 9

So, (3 + 5 + 6 + y + 0) = (14 + y) is divisible by 9

So, the smallest number that should be added to 14 that is also divisible by 9 is 4

=> y = 4

Now,

(y – x) = (4 – 0)

=> 4

Therefore The required value is 4

Q7. Answer: (d) Mahatma Gandhi

The correct answer is Mahatma Gandhi.

Key Points

• Mahatma Gandhi's Banaras Speech (1916):

• His first major public appearance was at the opening of the Banaras Hindu University (BHU) in February 1916.

• When his turn came to speak, Gandhiji charged the Indian elite with a lack of concern for the labouring poor.

• The opening of the BHU, he said, was "certainly a most gorgeous show".

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• But he worried about the contrast between the "richly bedecked noblemen" present and "millions of the poof Indians who were absent.

• Gandhiji told the privileged invitees that there is no salvation for India unless you strip yourself of this jewellery and hold it in trust for your countrymen in India. Hence, Option 4 is correct.

• There can be no spirit of self-government about us, he went on if we take away or allow others to take away from the peasants almost the whole of the results of their labour.

• Our salvation can only come through the farmer. Neither the lawyers, nor the doctors, nor the rich landlords are going to secure it.

• Gandhiji's speech at Banaras in February 1916 was, at one level, merely a statement of fact - namely, that Indian nationalism was an elite phenomenon, a creation of lawyers and doctors and landlords.

• At the annual Congress, held in Lucknow in December 1916, he was approached by a peasant from Champaran in Bihar, who told him about the harsh treatment of peasants by British indigo planters.

Additional Information

Muhammad Ali Jinnah	**• He was a barrister, politician, and the founder of Pakistan. Jinnah served as the leader of the All-India Muslim League from 1913 until the inception of Pakistan on 14 August 1947, and then as the Dominion of Pakistan's first governor-general until his death.**
Annie Besant	• She was a British socialist, theosophist, women's rights activist, writer, orator, educationist, and philanthropist. - Regarded as a champion of human freedom, she was an ardent supporter of both Irish and Indian self-rule. - She was a prolific author with over three hundred books and pamphlets to her credit.
Gopal Krishna Gokhale	• He was an Indian liberal political leader and a social reformer during the Indian Independence Movement. - Gokhale was a senior leader of the Indian National Congress and the founder of the Servants of India Society.

Q8. Answer: (d) [figure]

The logic followed here is:

All figures have a circle inside a triangle except in option figure (4). Option figure (4) has a triangle inside a circle.

Hence, "Option 4" is the odd one.

Q9. Answer: (b) 14%

According to the question, let the following Venn diagram,

Now,

e = 5%

b + e = 14%

=> b = 9%

and,

d + e = 18%

=> d = 13%

Therefore,

Percentage of students who failed only in Economics = a = 41% - (b + e + d)

a = 41% - (9 + 5 + 13)%

a = 41% - 27%

a = 14%

Hence, 14% is the correct answer.

Q10. Answer: (c) INS Ranjit

The correct answer is INS Ranjit.

Key Points

• INS Ranjit

• The Indian Navy’s frontline missile destroyer INS Ranjit decommissioned after 36 years of service. Hence, Option 3 is correct.

• It was commissioned on September 15, 1983, with Captain Vishnu Bhagwat in command.

• The decommissioning ceremony will be held at Visakhapatnam's naval dockyard on 6 May 2019.

• It was the third of five Kashin-class destroyers (a series of anti-aircraft guided-missile destroyers) built by the former USSR.

• As of 2019, only one Kashin-class destroyers ship remains in service with the Russian Navy, and five with the Indian Navy as Rajput-class destroyers.

• It is the first of five Rajput class destroyers to go out of service.

• It was constructed with serial number 'Yard 2203' in 61 Communards shipyard in Nikolaev town, in Ukraine.

• It was launched formally on 16 June 1979 and was given its Russian name "Lovkly" meaning "Agile".

• With a motto of Sada Rane Jayate or Ever Victorious in Battle, INS Ranjit has been at the forefront in keeping the nation secure and deployed in a number of operations including IPKF (Indian Peace Keeping Force) operations and Operation Talwar (1999) during the Kargil conflict.

Additional Information

• | INS Rana | - It is a Rajput-class destroyer in active service with the Indian Navy. - It was commissioned on 28 June 1982. - It is a redesigned Soviet Kashin-class guided-missile destroyer. |

INS Vikramaditya	**• It is a modified Kiev-class aircraft carrier and the flagship of the Indian Navy, which entered into service in 2013. - Originally built as Baku and commissioned in 1987, the carrier served with the Soviet Navy and later with the Russian Navy before being decommissioned in 1996.**
INS Vikrant	• It is also known as Indigenous Aircraft Carrier 1. - Which is an aircraft carrier constructed by the Cochin Shipyard Limited for the Indian Navy. - It is the first aircraft carrier to be built in India. The name Vikrant means courageous.

Q11. Answer: (b) France

The correct answer is France.

Key Points

The International Criminal Police Organization (INTERPOL)

• The International Criminal Police Organisation (INTERPOL) is an international organization that facilitates worldwide police cooperation and crime control.

• It originated with the first International Criminal Police Congress in 1914, which brought officials from 24 countries to discuss cooperation on law enforcement matters.

• It was founded in 1923 as the International Criminal Police Commission (ICPC).

• In 1946, after the end of World War II, the organization was revived as the International Criminal Police Organization (ICPO) by officials from Belgium, France, Scandinavia, and the UK.

• In 1956, the ICPC adopted a new constitution and the name INTERPOL.

• It is headquartered in Lyon, France. Hence, Option 2 is correct.

• It has seven regional bureaus worldwide and a National Central Bureau (NCB) in all 194 member states, making it the world's largest police organization.

• India has been a member since 1949.

• India maintains NCB which serves as the national platform for cooperation between domestic law enforcement units and the international police community.

• The Central Bureau of Investigation (CBI) is designated as the National Central Bureau of India.

Additional Information

France	**• Capital: Paris - Currency: Euro - President: Emmanuel Macron**
Germany	• Capital: Berlin - Currency: Euro - Chancellor: Friedrich Merz
Switzerland	• Currency: Swiss franc - Continent: Europe
Spain	• Capital: Madrid - Currency: Euro

Q12. Answer: (a) Lake Baikal

The correct answer is Lake Baikal.

Key Points

• Lake Baikal:

• It is a rift lake in Russia, located in southern Siberia, between Irkutsk Oblast to the northwest and the Buryat Republic to the southeast.

• Lake Baikal is the largest freshwater lake by volume in the world, containing roughly 20% of the world's unfrozen surface freshwater. Hence, Option 1 is correct.

• It contains more water than the North American Great Lakes combined.

• It is the world's deepest lake.

• It is considered among the world's clearest lakes and is considered the world's oldest lake — at 25 million years.

• It is the seventh-largest lake in the world by surface area.

• Lake Baikal was formed as an ancient rift valley, having the typical long crescent shape.

• This lake was declared a UNESCO World Heritage Site in 1996.

Additional Information

Superior Lake	**• The largest freshwater lake in the world was Lake Superior (by surface area). It is located on the border of the United States of America & Canada. - It has a surface area of around 82,103 km sq. - Cities on its bank: Marie, Thunder Bay, Duluth, Superior, Sault Ste, Marquette.**
Lake Michigan–Huron	• It is the body of water consisting of Lake Michigan and Lake Huron, which are joined through the 5-mile-wide, 20-fathom-deep, open-water Straits of Mackinac.
The Caspian Sea	• It is the world's largest inland body of water, variously classed as the world's largest lake or a full-fledged sea. - As an endorheic basin, it lies between Europe and Asia. - An endorheic basin is a drainage basin that normally retains water and allows no outflow to other external bodies of water, such as rivers or oceans, but converges instead into lakes or swamps, permanent or seasonal that equilibrates through evaporation

Q13. Answer: (c) Vice President

The correct answer is Vice President.

Key Points

• Vice President of India

• Part V of the Constitution of India discusses the office of the Vice-President of India.

• Articles 63 to Article 73 deal with the qualifications, election, and removal of the Vice-President of India.

• Article 63 states that there shall be a vice-president of India.

• The Vice President of India is the second-highest constitutional office in India after the President. Hence, Option 3 is correct.

• The Vice President acts as President in the absence of the President due to death, resignation, impeachment, or other situations.

• Article 64 states that the Vice-President shall be the ex-officio Chairman of the Rajya Sabha.

• Article 65 states that Vice-President shall act as President in the vacancy of the office of the President until the new President is elected.

• Article 66 deals with the provision of the Election of the Vice-President.

• Article 67 mentions the Term of Office of Vice-President.

• Article 68 states the Vacancy of office of the Vice-President.

• Article 69 deals with Oaths & Affirmation by the Vice-President.

• Article 71 deals with matters relating to or connected with, the election of a President and Vice-President.

• Jagdeep Dhankhar is the current Vice President of India. (2022)

Additional Information

Prime Minister	**• He is the head of the cabinet and the leader of the ministers in the executive branch of government, often in a parliamentary or semi-presidential system. - The present Prime Minister is Narendra Modi. (2021)**

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President of India	• The Highest Post in India. - The first citizen of India. - Officially the president of the Republic of India is the ceremonial head of the state of India and the commander-in-chief of the Indian Armed Forces. - Draupadi Murmu is the 15th and current President. (2022)
Governor	• The Governors of the states of India have similar powers and functions at the state level as those of the President of India at the Central level. - Governors exist in the states while Lieutenant Governors or Administrators exist in union territories including the National Capital Territory of Delhi. - The governor acts as the nominal head whereas the real power lies with the chief ministers of the states[and his/her councils of ministers.

Q14. Answer: (d) David R. Malpass

The correct answer is David R. Malpass.

Key Points

• David R. Malpass:

• He was selected as 13^(th) President of the World Bank Group by its Board of Executive Directors on April 5, 2019. Hence, Option 4 is correct.

• His five-year term began on April 9, 2019.

• Mr Malpass previously served as Under Secretary of the Treasury for International Affairs for the United States.

• Mr Malpass represented the United States in international settings, including the G-7 and G-20 Deputy Finance Ministerial, World Bank–IMF Spring and Annual Meetings, and meetings of the Financial Stability Board, the Organization for Economic Cooperation and Development, and the Overseas Private Investment Corporation.

Important Points

• World Bank Group

• With 189 member countries, the World Bank Group is a unique global partnership: five institutions working for sustainable solutions that reduce poverty and build shared prosperity in developing countries.

• Together, the International Bank for Reconstruction and Development (IBRD) and International Development Association (IDA) form the World Bank, which provides financing, policy advice, and technical assistance to governments of developing countries. While the World Bank Group consists of five development institutions.

• International Bank for Reconstruction and Development (IBRD) provides loans, credits, and grants.

• International Development Association (IDA) provides low- or no-interest loans to low-income countries.

• The International Finance Corporation (IFC) provides investment, advice, and asset management to companies and governments.

• The Multilateral Guarantee Agency (MIGA) insures lenders and investors against political risk such as war.

• The International Centre for the Settlement of Investment Disputes (ICSID) settles investment disputes between investors and countries.

• All of these efforts support the Bank Group’s twin goals of ending extreme poverty by 2030 and boosting shared prosperity of the poorest 40% of the population in all countries.

Additional Information

Shanta Devarajan	**• He is Senior Director for Development Economics and a former Acting Chief Economist of the World Bank Group.**
Kristalina Ivanova Georgieva-Kinova	• She is a Bulgarian economist serving as Chairman and Managing Director of the International Monetary Fund since 2019.
Jim Yong Kim	• Jim Yong Kim is, also known as Kim Yong, an American physician and anthropologist who served as the 12th President of the World Bank from 2012 to 2019. - On January 7, 2019, he announced that he would step down effective February 1, 2019.

Q15. Answer: (d) 34 and 5

Given:

25% of a number = 7 more than 30% of another number

Difference between the numbers = 29

Calculation:

Let the numbers be x and y respectively

According to the question

=> 25/100 × x = (30/100 × y) + 7

=> x/4 = (3y + 70)/10

=> x/2 = (3y + 70)/5

=> 5x = 6y + 140

Now,

(x – y) = 29

=> y = x – 29

Put the value in the equation we get,

=> 5x = 6x – 174 + 140

=> -x = (-34)

=> x = 34

(x – y) = 29

=> 34 – y = 29

=> y = 5

Therefore The numbers is 34 and 5

Q16. Answer: (b) Rs. 3,000.00

Given:

R1 = 5%

T1 = 3 years

R2 = 7%

T2 = 2 years

Rahim got Rs. 30 more than Hiralal

Formula used:

SI = (P × R × T)/100

Calculation:

Let the Principal be x

Then,

According to the question

=> (x × 5 × 3)/100 – (x × 7 × 2)/100 = 30

=> 15x/100 – 14x/100 = 30

=> x/100 = 30

=> x = Rs. 3000

Therefore The amount invested by them is Rs. 3,000

Q17. Answer: (a) Germany

The correct answer is Germany.

Key Points

• Bhikaiji Rustom Cama:

• She played a crucial role in the Indian freedom struggle abroad and was known as the Mother of the Indian Revolution.

• On August 22, 1907, Madam Bhikaji Cama became the first person to hoist the Indian flag on foreign soil in Stuttgart in Germany. Hence, Option 1 is correct.

• Appealing for human rights, equality, and autonomy from Great Britain, she described the devastating effects of a famine that had struck the Indian subcontinent.

• Her Words – ‘This is the flag of independent India. I appeal to all gentlemen to stand and salute the Flag’.

• This flag, which was a modification of the ‘Calcutta Flag’, was designed by Madame Cama and Shyamji Krishna Varma.

• She was born to Sorabji and Jaijibai Patel on 24th September 1861 at Bombay.

• She belonged to an affluent Gujarati-speaking Parsi family.

• She attended the Alexandra Native Girl’s English Institution and was said to be a diligent student. In 1885, she was married to Rustom Cama, a pro-British lawyer.

• Her husband’s loyal attitude towards the British and her nationalist feelings led to an unhappy marriage.

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• She went to Paris. There, along with Rana and Munchershah Burjorji Godrej, she co-founded the 'Paris Indian Society.

• She also authored, published, and distributed revolutionary material from Paris.

• When the British banned the 'VandeMataram', she composed the 'BandeMataram'. She also wrote 'Madan's Talwar in reaction to the execution of Madan Lal Dhingra

Additional Information

France	**• Capital: Paris - Currency: Euro - President: Emmanuel Macron**
Germany	• Capital: Berlin - Currency: Euro - President: Frank-Walter Steinmeier - Chancellor: Friedrich Merz
England	• Capital: London - Area: 130,279 km² - Currency: Pound sterling
Russia	• President: Vladimir Putin - Capital: Moscow - Currency: Russian ruble

Q18. Answer: (c) Tamasha

The correct answer is Tamasha.

Key Points

• Tamasha :

• Folk theatre is popular in Maharashtra and it is known for its humour and erotic content. Hence, Option 3 is correct.

• The unique feature of this theatre is the presence of female actors who play even male roles.

• Tamasha's performances are accompanied by Lavani songs.

• The word has its origins in the Persian language where it means a show or a theatrical performance.

• In its Marathi equivalent, it means fun or play. It is usually performed by local or travelling theatre groups across Maharashtra.

• The traditional form of Tamasha has been highly influenced by various Indian forms of song and dance such as Kaveli, Kathak, Ghazals, Lalit, and Kirtan.

• It is also believed that this dance form has been derived from the ancient forms of Sanskrit drama – Prahsana and Bhana. There are two main branches of Tamasha – Dholki Bhaari and Sangeet Bhaari.

• The Mahar and Kolhati groups in Maharashtra are known to perform Tamasha.

• Today, there are around 10,000 artists and over 450 dance troupes who are involved in its performance.

• This form of satirical theatre makes fun of almost anyone, be they, saints or politicians.

• The performers generally belonged to the lower castes like Kolhati, Mang, Mahar, and Bhatu.

• The religious reformers of the late 19th century used Tamasha as a way to criticize the existing caste system.

• The Yaman, Bhairavi, and Pilu are the popular ragas used in the musical score accompanying the dance.

Additional Information

• Folk Dances of India:

Folk Dance	Details
Chhau	Mask dance with vigorous movements that narrate mythological stories. Chhau is performed in Odisha, West Bengal, and Jharkhand. In 2010 it was added to UNESCO's list of intangible heritage items.
Garba	Popular in Gujarat and it is held at the time of Navratra.
Swang	Rajasthan, Haryana, Uttar Pradesh, and Malwa region of Madhya Pradesh.
Dandiya raas	It represents the mock fight between Durga and mahishasura
Tarangmel	The folk dance of Goa is performed during Dussehra and Holi.
Ghumar	Performed by bhil women of Rajasthan
Kalbelia	Performed by kalbeli women of Rajasthan. In 2010 it was added to UNESCO's list of intangible heritage items.
Charba	Popular folk dance of Himachal Pradesh
Bhangra	Highly energetic folk dance of Punjab.

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Raslila, and Nautanki	Popular folk dance of Uttar Pradesh
Dadra	Semiclassical form of dance popular in Uttar Pradesh
Jawara	Harvest dance popular in Bundelkhand region of Madhya Pradesh
Rangma / Bamboo dance	War dance of Nagas
Bihu	Popular folk dance of Assam
Gaur Maria	The important ritualistic dance form of Bison horn maria tribes
Thang-Ta	Martial dance in Manipur.

Q19. Answer: (d) SBI

The correct answer is SBI.

Key Points

• Anshula Kant:

• She was appointed Managing Director and World Bank Group Chief Financial Officer on October 7, 2019.

• Through her work at the State Bank of India (SBI), Ms. Kant has more than 35 years of experience in banking, including retail and corporate banking, mortgage finance, local currency and foreign exchange instruments, and a diverse array of leadership challenges covering finance, risk, operations, treasury, funding, regulatory compliance, and general management.

• As CFO of SBI, Ms. Kant managed $38 billion of revenues and total assets of $500 billion.

• Stewarding the organization, she greatly improved the capital base and focused on the long-term sustainability of SBI within her mandate.

• She was a Managing Director and member of the Board of SBI from September 2018 till August 2019. Hence, Option 4 is correct.

• She earned her bachelor's degree with honours in Economics from Lady Shri Ram College for Women and a master's degree in Economics from Delhi School of Economics.

Additional Information

• State Bank of India:

• It is an Indian multinational public sector bank and financial services statutory body headquartered in Mumbai, Maharashtra.

• It is the 43rd largest bank in the world and ranked 221st in the Fortune Global 500 list of the world's biggest corporations of 2020, being the only Indian bank on the list.

• Oriental Bank of Commerce:

• It was an Indian public sector bank headquartered at Gurgaon, Haryana.

• It had 2390 branches and 2625 ATMs across India.

• In April 2020, the bank along with the United Bank of India has been merged with Punjab National Bank, making the latter the second-largest public sector bank in India.

• Bank of Baroda:

• It is an Indian nationalized banking and financial services company.

• It is under the ownership of the Ministry of Finance of the government of India.

• IndusInd Bank Limited:

• It is a new-generation Indian bank headquartered in Mumbai.

• The bank offers commercial, transactional, and electronic banking products and services.

• IndusInd Bank was inaugurated in April 1994 by then Union Finance Minister Manmohan Singh.

Q20. Answer: (d) Tim Berners-Lee

The correct answer is Tim Berner-Lee.

Key Points

• Tim Berner-Lee:

• He invented the World Wide Web in 1989. Hence, Option 4 is correct.

• The full form of WWW is the World Wide Web.

• The World Wide Web connected the world in a way that was not possible before and made it much easier for people to get information, share, and communicate.

• It allowed people to share their work and thoughts through social networking sites, blogs, and video sharing.

• Tim Berner-Lee was knighted by Queen Elizabeth II in the year 2004.

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• Internet Protocol was introduced by Robert E. Kahn and Vint Cerf in 1974.

Important Points

• World-Wide-Web:

• It uses hypertext over the internet and the linked documents may be located at different internet sites.

• It also consists of different text formats and different methods of organizing information.

• It is the main method to access Internet resources. Special index documents have been created in the World Wide Web information space and these can be searched for given keywords. And the result will be a new document that contains links to documents selected from the index.

Additional Information

• Vint Cerf:

• Widely known as the Father of the Internet, Cerf is the co-designer of the TCP/IP protocols and the architecture of the Internet.

• Robert Kahn:

• He is the co-inventor of the TCP/IP protocols and was responsible for originating DARPA's Internet program.

• Known as one of the Fathers of the Internet, Kahn demonstrated the ARPNET by connecting 20 different computers at the International Computer Communication Conference.

• It was then that people realized the importance of packet switching technology.

• Charles Babbage:

• He was born on Dec. 26, 1791, in England.

• He was a polymath and became a mathematician, mechanical engineer, inventor, and philosopher.

• He contributed to many different scientific fields but his most famous work is designing a programmable computing device.

• He is considered the father of the computer and is given credit for devising the first-ever mechanical computer. His design served as the blueprint for other, more complex machines.

Q21. Answer: (b) 4 meters

Given:

Length of hall = 16 m

Breadth of hall = 12 m

Formula used:

Area of rectangle = length × breadth

Calculation:

Area of hall = (16 × 12) m^2

=> 192 m^2

Now,

LCM of 16 and 12 is 48

According to the question

Length of each square tile = (192/48) m

=> 4 m

Therefore Required length is 4 meters

Q22. Answer: (c) Lord Shiva

The correct answer is Lord Shiva.

Key Points

• The Virupaksha Temple:

• It is the largest monument of Chalukyas of Badami.

• This was later improvised in the Vijayanagar empire.

• This temple is special because it has a Panchayat hall kind of design with 12 pillars.

• This was the earliest experiment for a pillar-based structure in temple architecture.

• It is located in Hampi and, is dedicated to Lord Shiva. Hence, Option 3 is correct.

• The distance from Bangalore to Hampi is about 350 km.

• Hampi is a temple town in South India and is acknowledged as one of the World Heritage Sites of UNESCO.

• This temple was constructed in Lakkana Dandesha's assistance who was a commander under King Deva Raya II.

Additional Information

• Hampi:

• It comprises mainly the remnants of the Capital City of the Vijayanagara Empire. It is located in the Tungabhadra basin in central Karnataka.

• It was founded by Harihara and Bukka in 1336.

• Classified as a World Heritage Site by UNESCO (1986), it is also the World's Largest Open-air Museum.

• Famous places include the Krishna temple complex, Narasimha, Ganesa, Hemakuta group of temples, Achyutaraya temple complex, Vitthala temple complex, Pattabhirama temple complex, Lotus Mahal complex, etc.

• The Battle of Talikota (1565 CE) led to massive destruction of its physical fabric.

• Battle of Talikota, confrontation in the Deccan region of southern India between the forces of the Hindu King of Vijayanagar and the four allied Muslim sultans of Bijapur, Bidar, Ahmadnagar, and Golconda.

Q23. Answer: (d) Jharkhand

The correct answer is Jharkhand.

Key Points

• The Coal Resources of India

• It is mainly available in older Gondwana Formations of peninsular India and younger Tertiary formations of the north-eastern region.

• About 80 percent of the coal deposits in India are of the bituminous type and are of non-coking grade.

• Jharkhand has the largest reserves of coal in India followed by Odisha and Chhattisgarh. Hence, Option 4 is correct.

• The most important Gondwana coal fields of India are located in Damodar Valley.

• They lie in the Jharkhand-Bengal coal belt and the important coalfields in this region are Raniganj, Jharia, Bokaro, Giridih, and Karanpura.

• Jharia is the largest coalfield followed by Raniganj.

• The other river valleys associated with coal are the Godavari, Mahanadi, and Sone.

• The most important coal-mining center is Singrauli in Madhya Pradesh (part of Singrauli coalfield lies in Uttar Pradesh), Korba in Chhattisgarh, Talcher, and Rampur in Odisha, Chanda–Wardha, Kamptee, and Bander in Maharashtra and Singareni in Telangana and Pandur in Andhra Pradesh.

• Tertiary coals occur in Assam, Arunachal Pradesh, Meghalaya, and Nagaland. It is extracted from Darangiri, Cherrapunji, Mewlong, and Langrin (Meghalaya); Makum, Jaipur, and Nazira in upper Assam, Namchik – Namphuk (Arunachal Pradesh), and Kalakot (Jammu and Kashmir).

• The lignite reserves stand at a level of around 36 billion tons, of which 90 % occur in the southern State of Tamil Nadu.

Q24. Answer: (c) Dhruva

The correct answer is Dhruva.

Key Points

• Dhruva:

• The largest research reactor is the Dhruva at the Bhabha Atomic Research Centre (BARC) in Mumbai.

• Dhruva and CIRUS are the two weapons-grade plutonium-producing reactors that are crucial to the Indian strategic program.

• DHRUVA Reactor at BARC was designed, constructed, and commissioned by Indian Engineers and scientists.

• Natural U is the fuel used and heavy water as moderator and coolant, Dhruva enabled India to attain self-sufficiency in the production of radioisotopes.

• Dhruva is a 100MW (thermal) research reactor with metallic natural uranium as fuel, heavy water as moderator, coolant, and reflector, giving a maximum thermal neutron flux of 1.8×1014n/cm2/s.

• Since its first criticality on 8th August 1985, several experimental facilities have been added which have proven to be highly attractive for universities and industrial researchers for their scientific merits in various fields.

• It produces medical isotopes, operated at full power throughout the year, and touched its highest ever capacity factor since its commissioning.

Additional Information

• Bhabha Atomic Research Centre (BARC), Trombay

• A series of 'research' reactors and critical facilities were built here.

• Reprocessing of used fuel was first undertaken at Trombay in 1964.

• It is also responsible for the transition to thorium-based systems.

• It is responsible for India's uranium enrichment projects, the pilot Rare Materials Plant (RMP) at Ratnahalli near Mysore.

• Nuclear Power Plants in India 2021- Operational

Power Plant	Location	Operator	Type	Total Capacity (MW)

Kaiga	Karnataka	NPCIL	IPHWR-220	880
Kakrapar	Gujarat	NPCIL	IPHWR-220 IPHWR-700	1,140
Kudankulam	Tamil Nadu	NPCIL	VVER-1000	2,000
Madras (Kalpakkam)	Tamil Nadu	NPCIL	IPHWR-220	440
Narora	Uttar Pradesh	NPCIL	IPHWR-220	440
Rajasthan	Rajasthan	NPCIL	CANDU IPHWR-220	1,180
Tarapur	Maharashtra	NPCIL	BWR IPHWR-520	1,400

All the Nuclear Plants in India:

Q25. Answer: (a) Henry Hardinge

The correct answer is Henry Hardinge.

Key Points

• Immediate Reason of Revolt of 1857:

• The immediate factor was the introduction of the Enfield rifle.

• The cartridge had to be bitten off before loading it into the gun.

• Henry Hardinge, who was governor-general of India from 1844 to 1848, attempted to modernize the army's equipment as governor-general. The Enfield rifles that were first introduced used the greased cartridges that the Sepoys had rebelled against. Hence, Option 1 is correct.

• Muslims had a belief that the cartridge was greased with pig fat where Hindus believed the grease was made from cow fat.

• Thus the Hindu and Muslim soldiers were reluctant to use the ‘Enfield’ rifle. This was a flashpoint to enrage the soldiers against the Britishers.

• This was believed to be the immediate factor for the revolt of 1857.

Additional Information

• Lord Hardinge (1844-48):

• First Sikh war (1845-1846)

• Treaty of Lahore (1846) - end of Sikh sovereignty in India

• Prohibition of female infanticide and human sacrifice among Gonds of central India

• Lieutenant General Sir John Bennet Hearsey:

• He was a commanding officer during the revolt of 1857 in Barrackpore.

• Sir Francis Grant:

• He was a Scottish portrait painter who painted Queen Victoria and many distinguished British aristocratic and political figures.

• He served as President of the Royal Academy.

• Lord William Bentinck(1828-1835):

• First Governor-General of India as per the rules in the Charter Act of 1833.

• He abolished the Sati system, suppressed the Thugee system along with infanticide and child sacrifices.

• It was in his regime the English Education Act of 1835 was proposed and Medical College and Hospital, Kolkata was established.

Q26. Answer: (d) 0.7/9

Concept used:

1 min = 60 seconds

1 sec = 1/3600 hour

Calculation:

According to the question

=> (5 × 60)3600 – (20/3600)

=> (300/3600) – (20/3600)

=> 280/3600

=> 0.7/9

Therefore The required answer is 0.7/9

Q27. Answer: (d) S Arvind Bobde

The correct answer is S Arvind Bobde.

Key Points

• Justice Sharad Arvind Bobde

• He was the 47th Chief Justice of India (CJI), by the President.

• He will take oath as the CJI on 18th November 2019, a day after incumbent Ranjan Gogoi demits office.

• He had a tenure of 17 months He retired from the office on 23rd April 2021. Hence, Option 4 is correct.

• As per convention, outgoing CJI Ranjan Gogoi recommended the name of Justice Bobde, the most senior judge of the Supreme Court as his successor.

• In the initial days of his career; Justice Sharad Arvind Bobde had enrolled on the Roll of the Bar Council of Maharashtra in 1978.

• Arvind Bobde was designated as Senior Advocate in 1998.

• He had served around 21 years as a lawyer and judge before reaching to Supreme Court of India.

• Currently, the 48th Chief Justice of India (CJI) is Mr. Nuthalapati Venkata Ramana (As of Nov 2021).

Additional Information

• Justice Kurian Joseph

• He was nominated to the Board of Lissie Medical Institutions in 2020.

• As Judge of the Supreme Court of India Justice Joseph was involved in landmark cases like the Constitutional Amendment of NJAC (National Judicial Appointments Commission) and in striking down the practice of Triple Talaaq.

• He was one of the ten judges in the history of the Supreme Court of India to have delivered more than 1000 judgments.

• Jasti Chelameswar

• He is the former Judge of the Supreme Court of India.

• He retired on 22 June 2018 as the second most senior Supreme court judge.

• Earlier, he was the Chief Justice of Kerala High Court and Gauhati High Court.

• Justice Dipak Misra

• He is an Indian jurist who served as the 45th Chief Justice of India from 28 August 2017 till 2 October 2018.

• He is also former Chief Justice of the Patna and Delhi High Courts.

• He is the nephew of Justice Ranganath Misra, who was the 21st Chief Justice from 1990 to 1991.

Q28. Answer: (a) 80

Shortcut Trick

Initial difference between the greater and smaller number = 5.

By adding 20 to the greater and subtracting 25 from the smaller, the new difference becomes: 5 + 20 − (−25) = 50.

The new ratio is 1 : 2, so the difference in ratio parts = 2 − 1 = 1 part.

Since 1 part = 50, the new greater number (which corresponds to 2 parts) = 2 × 50 = 100.

Original greater number = 100 − 20 = 80.

Therefore The correct answer is 80.

Alternate Method

Given:

Difference between two numbers = 5

When 25 is subtracted from the smaller and 20 is added to the greater, the ratio becomes 1 : 2.

Formula Used:

Linear equations and ratio proportion concepts.

Smaller Number

Greater Number

x

x + 5

− 25

• 20

x − 25

x + 25

Ratio 1 : 2

Equation: (x − 25) / (x + 25) = 1 / 2

Calculations:

=> Let the smaller number be x.

=> Then, the greater number = x + 5

=> New smaller number = x − 25

=> New greater number = (x + 5) + 20 = x + 25

=> According to the question, the ratio becomes 1 : 2

=> (x − 25) / (x + 25) = 1 / 2

=> 2 × (x − 25) = 1 × (x + 25)

=> 2x − 50 = x + 25

=> 2x − x = 25 + 50

=> x = 75

=> The greater number = x + 5 = 75 + 5 = 80

Therefore The correct answer is 80.

Additional Information

Ratio & Proportion Basics

When two quantities are in the ratio a : b, they can be represented as ax and bx, where x is a common multiplier.

Constant Difference Method

If the same value is added or subtracted to both parts of a ratio, the difference between the two numbers remains constant. This is highly useful in age-related problems.

Cross-Multiplication Method

For equations of the form a / b = c / d, the variables can be easily solved using cross-multiplication: a × d = b × c.

Q29. Answer: (c) Vision 2021

The correct answer is Vision 2021.

Key Points

• Vision 2021:

• The Reserve Bank of India (RBI) has released 'Payment and Settlement Systems in India: Vision 2019 – 2021', a vision document for a safe, secure, quick, and affordable e-payment system.

• The core theme of the vision document is 'Empowering Exceptional (E)payment Experience', which stresses empowering every Indian to access a bunch of e-payment options safely and conveniently. Hence, Option 3 is correct.

• The main agenda of the vision document is the 'no-compromise approach towards safety and security of payment systems.

• Vision 2021 outlined the measures that the central bank will undertake to foster innovation, cybersecurity, financial inclusion, customer protection, and competition.

• The vision document aims to achieve a 'highly digital and cash-lite society through Goal Posts (4Cs): Competition, Cost-effectiveness, Convenience, and Confidence.

• Key focus areas:

• Boosting customer experience with robust grievance redressal

• Empowering e-payment service providers

• Enabling eco-system and infrastructure for the e-payment system

• Putting down forward-looking regulations

• Undertaking Risk-focused Supervision

Additional Information

• The Reserve Bank of India:

• It was established on April 1, 1935, under the provisions of the Reserve Bank of India Act, 1934.

• The Central Office of the Reserve Bank was initially established in Calcutta but was permanently moved to Mumbai in 1937.

• The Central Office is where the Governor sits and where policies are formulated.

• Though originally privately owned, since nationalization in 1949, the Reserve Bank is fully owned by the Government of India.

• The current Governor of RBI is Sanjay Malhotra.

Q30. Answer: (b) Uday Kotak

The correct answer is Uday Kotak.

Key Points

• Uday Kotak

• MD & CEO, Kotak Mahindra Bank, Uday Kotak has taken over as the President of Confederation of Indian Industry (CII) for the year 2020-21. Hence, Option 2 is correct.

• He has replaced the chairman and MD of Kirloskar Systems, Vikram Kirloskar as the President of CII.

• Kotak takes over from Vikram Kirloskar, chairman and managing director of Kirloskar Systems Ltd and vice-chairman of Toyota Kirloskar Motor.'

• An MBA from Jamnalal Bajaj Institute of Management Studies, Mumbai, Kotak, the president-designate for the last two years, was the Chairman of CII Economic Affairs Council, Financial Sector Development Council, among others.

• He was also was appointed as the non-executive chairman of the new IL&FS board to steer the company out of its financial crisis.

• He was also chairman of the Sebi panel on corporate governance.

• Link: https://www.thehindu.com/business/uday-kotak-takes-over-as-cii-president/article31742098.ece

Important Points

• Confederation of Indian Industries

• CII is a non-government, not-for-profit, industry-led, and industry-managed organization.

• It works to create and sustain an environment conducive to the development of India, partnering industry, Government, and civil society, through advisory and consultative processes.

• Founded in 1895, it is headquartered in New Delhi.

Additional Information

• Rakesh Bharti Mittal

• He is the Vice-Chairman and Managing Director of Bharti Enterprises, one of India's leading business groups with interests in telecom, agri-business, financial services, retail, realty, and communication and media devices.

• Vikram Kirloskar

• He is the 4th Generation scion of the Kirloskar Group.

• He is the Chairman and Managing Director of Kirloskar Systems Ltd. and the Vice Chairman of Toyota Kirloskar Motor Pvt.

• T. V. Narendran

• He is an Indian business executive.

• He is currently the global CEO and Managing Director of Tata Steel, one of the largest steel producers in the world.

• He is the current President of the Confederation of Indian Industry.

Q31. Answer: (c) 8

Concept:

Consecutive even numbers are 2, 4, 6, 8, 10, 12.....etc

Calculation:

The product of 2 & 4 = 8

The product of 4 & 6 = 8 × 3

The product of 6 & 8 = 8 × 6

The product of 8 & 10 = 8 × 10

The product of 10 & 12 = 8 × 15

Therefore Clearly, the product of any two even consecutive numbers is always divisible by 8.

Q32. Answer: (d) 36 litres

Given:

Initially, drum was 3/4 full

After taking out 9 liters of water = Drum was 1/2 full

Calculation:

Let the capacity of drum be = y

As per the question;

3/4 × y - 1/2 × y = 9 liters

=> (3 - 2)y/4 = 9 liters

=> y/4 = 9 liters

=> y = 36 liters

Therefore The capacity of drum is 36 liters.

Shortcut TrickCapacity of drum = 1

3/4 - 1/2 = 9

=> (3 - 2)4 = 9

=> 1/4 = 9

Therefore 1 = 36 liters

Q33. Answer: (a) Argentina

The correct answer is Argentina.

Key Points

• The Eleventh Ministerial Conference (MC11)

• It took place from 10 to 13 December 2017 in Buenos Aires, Argentina. It was chaired by Minister Susana Malcorra of Argentina. Hence, Option 1 is correct.

• The Conference ended with several ministerial decisions, including on fisheries subsidies and e-commerce duties, and a commitment to continue negotiations in all areas.

• The Ministerial Conference, which is attended by trade ministers and other senior officials from the organization's 164 members, is the highest decision-making body of the WTO.

• Under the Marrakesh Agreement Establishing the WTO, the Ministerial Conference is to meet at least once every two years.

• For the first time in the history of the World Trade Organization, WTO members and observers have endorsed a collective initiative to increase the participation of women in trade.

• To help women reach their full potential in the world economy, 118 WTO members and observers agreed to support the Buenos Aires Declaration on Women and Trade, which seeks to remove barriers to, and foster, women's economic empowerment.

• A new initiative designed to drive public-private dialogue on e-commerce was launched today (11 December) by the World Trade Organization, the World Economic Forum, and the Electronic World Trade Platform (eWTP).

• The initiative, entitled 'Enabling E-commerce', aims to bring together leading voices from governments, businesses, and other stakeholders to begin a high-level conversation on e-commerce policies and practices that can benefit small businesses.

Important Points

• The World Trade Organization (WTO)

• It is the only global international organization dealing with the rules of trade between nations.

• It came into existence on January 1, 1995, and has its headquarters in Geneva, Switzerland.

• All major decisions are made by the WTO's member governments, either by ministers (who usually meet at least every two years) or by their ambassadors or delegates (who meet regularly in Geneva).

Additional Information

• The 12th Ministerial Conference (MC12)

• It will take place from 30 November to 3 December 2021 in Geneva, Switzerland.

• Ministers from across the world will have the opportunity to review the functioning of the multilateral trading system, deliver prepared statements, and take action on the future work of the WTO.

• The Conference will be co-hosted by Kazakhstan and chaired by the Minister of Trade and Integration of Kazakhstan, Bakhyt Sultanov. Kazakhstan was originally scheduled to host MC12 in June 2020 but the conference was postponed due to the COVID-19 pandemic.

Q34. Answer: (a) India

The correct answer is India.

Key Points

• First ICC Men's T20 Cricket world cup

• The ICC Men's T20 world cup is the International Championship of Twenty20 Cricket.

• The 2007 ICC World Twenty20 was the inaugural Twenty20 International cricket World Championship from 11 to 24 September 2007.

• 2007 ICC Twenty20 World Cup host was Cricket South Africa.

• Indian won the first ICC Men's T20 Cricket World Cup title beating Pakistan in the final.

• Twelve teams took part in the tournament.

Additional Information

List of Winners in ICC Men's Twenty20 World cup.

Year	Host	Winner	Runner-up
2007	South Africa	India	Pakistan

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2009	England	Pakistan	Sri Lanka
2010	West Indies	England	Australia
2012	Sri Lanka	West Indies	Sri Lanka
2014	Bangladesh	Sri Lanka	India
2016	India	West Indies	England

Q35. Answer: (a) Refrigerants

The correct answer is Refrigerants.

Key Points

• Chlorofluorocarbons (CFCs) are gases used for a variety of purposes, including solvents, refrigerants, and aerosol sprays. They are organic chemicals and contain carbon, chlorine and fluorine.

• CFCs are used in a variety of applications due to their low toxicity, reactivity and flammability.

• Its uses include refrigerants, blowing agents, propellants in medicinal applications, and reducing solvents.

• CFCs are a group of odorless manufactured chemicals.

• Chlorofluorocarbons have a direct impact on the entire environment.

• An example of a refrigerant CFC is dichlorodifluoromethane.

Additional Information

• Ozone Depletion

• Ozone depletion is the destruction of stratospheric ozone by free radicals like chlorine, bromine when they reach the upper atmosphere.

• The UV radiations break down the Chlorine molecules into Chlorine atoms. These Chlorine atoms combine with Oxygen atoms broken from Ozone molecules to form CIO molecules leaving fewer amounts of Oxygen atoms to form Ozone again.

• The causes for ozone depletion are free radicals like, chlorine and bromine which are called Ozone Depleting Substances (ODS).

• Natural processes like volcanic eruptions also contribute to ozone depletion by the release of aerosols.

Q36. Answer: (a) Shahrukh Khan

The correct answer is Shahrukh Khan.

• India's Shah Rukh Khan collaborates with veteran American talk show host David Letterman for Netflix.

Key Points

• David Letterman

• He is an American television host, comedian, writer, writer, and producer.

• He hosted late-night television talk shows for 33 years.

• Letterman hosted 6,080 episodes of Late Night and Late Show, surpassing his friend and mentor Johnny Carson as the longest-serving late-night talk show host in American television history.

• Letterman currently hosts the Netflix series My Next Guest Needs No Introduction with David Letterman.

• Shahrukh Khan

• He is an Indian actor, film producer and television personality who works in Hindi films.

• He has acted in over 80 films and has earned several awards including 14 Filmfare Awards.

• He was awarded the Padma Shri by the Government of India.

Additional Information

• Salman Khan

• Salman Khan is an Indian actor, film producer, singer, painter and television personality.

• In a film career spanning over thirty years, he has received numerous awards, including two National Film Awards as a film producer, and two Filmfare Awards for acting.

• He is also known as the host of the reality show, Bigg Boss since 2010.

• Anil Kapoor

• He is an Indian actor and film producer.

• He has also won numerous awards in his career, including two National Film Awards and six Filmfare Awards.

• Amitabh Bachan

• He is an Indian actor, film producer, television host.

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• He is regarded as one of the most influential actors in the history of Indian cinema.

• He also entered politics for a time in the 1980s.

• He has won sixteen Filmfare Awards and is the most nominated performer in any major acting category at Filmfare, with 42 nominations overall.

Q37. Answer: (b) • and ÷

Given: 3 + 3 × 3 - 3 ÷ 3 = 3

By checking options and interchanging accordingly,

(1) - and +

LHS = 3 - 3 × 3 + 3 ÷ 3

= 3 - 3 × 3 + 1

= 3 - 9 + 1

= 4 - 9

= - 5

≠ 3

LHS ≠ RHS

(2) + and ÷

LHS = 3 ÷ 3 × 3 - 3 + 3

= 1 × 3 - 3 + 3

= 3 - 3 + 3

= 6 - 3

= 3

LHS = RHS

(3) + and ×

LHS = 3 × 3 + 3 - 3 ÷ 3

= 3 × 3 + 3 - 1

= 9 + 3 - 1

= 12 - 1

= 11

≠ 3

LHS ≠ RHS

(4) × and ÷

LHS = 3 + 3 ÷ 3 - 3 × 3

= 3 + 1 - 3 × 3

= 3 + 1 - 9

= 4 - 9

= - 5

≠ 3

LHS ≠ RHS

Hence, + and ÷ is the correct answer.

Q38. Answer: (b) Surat

The correct answer is Surat.

Key Points

• The Surat split was a major setback for the Indian National Congress. In fact, the distinction between moderates and extremists provided an opportunity for the British.

• Moderates and extremists settled their differences for a year, but in 1907 the two groups split permanently.

• The Moderates were quite reluctant to pass the resolution demanding Swaraj. The Arya-Samaj concept of Swaraj and Swadeshi was the hallmark of the program of the extremists.

Important Points

• At the Surat session of the INC, the extremists wanted Lala Lajpat Rai to be the presidential candidate, while the moderates were in support of Ras Behari Ghosh.

• Surat was a victory for the British policy of divide, divide and rule, and not long after, the British believed they were in control of

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the affairs of the moderates over the Congress.

• The extremists were to be repressed, although mildly in the first phase, with the aim being to intimidate the moderates.

Q39. Answer: (b) High Blood Pressure

The correct answer is High Blood Pressure.

• Noncommunicable diseases (NCDs), also known as chronic diseases, tend to be of long duration and are the result of a combination of genetic, physiological, environmental and behavioral factors.

• The main types of NCD are cardiovascular diseases (such as heart attacks and stroke), cancers, chronic respiratory diseases (such as chronic obstructive pulmonary disease and asthma) and diabetes.

• Unhealthy diets and a lack of physical activity may show up in people as raised blood pressure, increased blood glucose, elevated blood lipids and obesity. These are called metabolic risk factors that can lead to cardiovascular disease, the leading NCD in terms of premature deaths.

Key Points

High blood pressure

• High blood pressure, often referred to as a condition of high blood pressure, is a medical condition with increased blood pressure levels in the arteries.

• If it persists for a long time, it can lead to many other life-threatening diseases including heart disease and even stroke.

• Blood pressure is the force of your blood pushing against the walls of your arteries. Every time your heart beats, it pumps blood into the arteries. Your blood pressure is highest when your heart beats, pumping blood. This is called systolic pressure.

• It is easy to diagnose a person's blood pressure using a medical device called a sphygmomanometer.

Additional Information

Pneumonia

• Pneumonia is a serious infection of the lungs caused by various bacteria, viruses and fungi.

• It can be mild and sometimes even prove fatal.

• It affects people with weakened immune systems, older people above 65 years of age, infants and young children.

• Pneumonia can be bacterial, viral or mycoplasmic.

Influenza

• Influenza is an acute viral infection of the upper or lower respiratory tract that is marked by fever, chills, and a generalized feeling of weakness and pain in the muscles, together with varying degrees of soreness in the head and abdomen.

• Influenza viruses are categorized as types A, B, C, and D.

Typhoid

• Typhoid is an infectious bacterial disease that mainly spreads through contaminated food or water.

• It can also spread due to poor hygienic conditions.

• The major symptoms of this disease are characterized by high fever, loss of appetite and diarrhoea.

Q40. Answer: (b) All conclusions I, II and III follow.

The least possible Venn diagram is:

Conclusions:

I. Some cats are elephants → True (as some part of tiger and rats are common for cats and elephants as shown in the diagram above)

II. Some elephants are tigers → True (as some tigers are cats and all rats are elephants, implies some part of rats that are tigers are elephants too)

III. Some cats are rats → True (as some tigers are cats and all tigers are cats, implies some part of rats that are tigers are cats too)

Hence, all conclusions I, II and III follow.

Additional Information

Q41. Answer: (c) 26 cm2

Concept:

Two or more triangles on the same base and with the same height are equal in area.

Given:

Area of triangle ABC = 39 cm2

D and E are two points on BC such that BD = DE = EC

Calculation:

Let AP as the perpendicular to BC, so AP is the height of triangle ABD, ADE, and AEC
Area of ABD = 1/2 × BD × AP
Area of ADE = 1/2 × DE × AP
Area of AEC = 1/2 × EC × AP
Ar (ABD) = Ar (ADE) = Ar (AEC)
Therefore The area of triangle ADC = 2/3 × Area of triangle ABC
=> 2/3 × 39 cm2
=> 26 cm2

Q42. Answer: (c) 3/11

Let Sachin paid 'S'.
Then, according to question,
Yusuf paid = 1/2 × S
And,
Tanveer paid = 2/3(1/2 × S)
= 1/3 × S
Thus, total contribution = S + S/2 + S/3
Fraction of total expenditure by Yusuf = S/2over S + S/2 + S/3
= 6over 2 × 11
= 3over 11
Hence, 3over 11 is the correct answer.
Alternate MethodLet, Sachin paid = 10 rupees,
Then, Yusuf paid = 10/2 = 5 rupees.
And, Tanveer paid = 5 ×2/3 = 10/3 rupees.
Now, total paid = 10 + 5 + 10/3
= (30 + 15 + 10)/3 = 55/3 rupees.
Now, the fraction of the total expenditure by Yusuf was:
= 3/55 × 5 = 3/11.
Hence, the correct answer is "Option 3".

Q43. Answer: (d) 2.55

Given:
1.8 + 2 × 3/2 × 1/2 {2/5 ÷ (3/5 × 2/3) × 3/2 - 1}
Follow the BODMAS rule to solve this question, as per the order given below,
Calculation:
1.8 + 2 × 3/2 × 1/2 {2/5 ÷ (3/5 × 2/3) × 3/2 - 1}
=>1.8 + 2 × 3/2 × 1/2 { 2/5 ÷ (2/5) × 3/2 - 1}
=>1.8 + 2 × 3/2 × 1/2 { 2/5 × 5/2 × 3/2 - 1}
=>1.8 + 2 × 3/2 × 1/2 {3/2 - 1}
=>1.8 + 2 × 3/2 × 1/2 × 1/2
=>18/10 + 3/4
=>9/5 + 3/4
=>(9 × 4 + 3 × 5)/20
=>(36 + 15)/20
=>51/20
=> 2.55
Therefore The required result is 2.55.

Q44. Answer: (c) 60√3 m

Given:
Height of the observation tower = 180 m
Angle of depression = 60°
Calculation:

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In triangle ABC, AB/BC = tan 60°
=> 180/a = √3
=> √3a = 180
=> a = 180/√3 × √3/√3
=> a = 60√3
Therefore The distance of the boat from the foot of the tower is 60√3 m.
Here, √3 = 180
=> 1 = 180/√3
Therefore 1 = 180/√3 × √3/√3 = 60√3 m

Q45. Answer: (a) 123

Given: 3, 11, 27, 59, ?
The logic followed here is:
Hence, 123 is the correct answer.
Alternate Method
→ (3 × 2) + 5 = 6 + 5 = 11;
→ (11 × 2) + 5 = 22 + 5 = 27;
→ (27× 2) + 5 = 54 + 5 = 59;
→ (59 × 2) + 5 = 118 + 5 = 123;

Q46. Answer: (b) 5.37

Given:
(2.697 + 0.498)2 - (2.697 - 0.498)2
Formula used:
$a^2 - b^2 = (a - b)(a + b)$
Calculation:
(2.697 + 0.498)2 - (2.697 - 0.498)2
=> (2.697 + 0.498 + 2.697 - 0.498)(2.697 + 0.498 - 2.697 + 0.498)
=> (5.394)(0.996)
=> 5.372424
Therefore (2.697 + 0.498)2 - (2.697 - 0.498)2 = 5.37
Shortcut Trick We know that,
$(a + b)^2 - (a - b)^2 = 4ab$
(2.697 + 0.498)2 - (2.697 - 0.498)2 = 4 × 2.697 × 0.498 = 5.372424 ≈ 5.37

Q47. Answer: (d) Rs. 46

Seven chocolates: A, B, C, D, E, F and G.
Cost: 41, 42, 43, 45, 46, 47, 48, and 49 (none of the chocolates cost Rs. 44)
(1) The cost of chocolate C is Rs. 5 less than that of chocolate E, implies C = E - 5.
(2) The cost of chocolate A is a prime number.
(3) The cost of chocolate F is Rs. 2 more than that of chocolate A, implies F = A + 2.

Chocolates	Costs
A	41, 43, or 47
B	
C	43, 42, or 41
D	
E	48, 47, or 46
F	43, 45, or 49
G	

(4) The cost of chocolate F is more than that of chocolate E, implies F > E. Therefore, the cost of F is 49 and A is 47

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(5) The cost of chocolate D is an odd number.

(6) The cost of chocolate G is Rs. 3 more than the cost of chocolate D, implies G = D + 3.

(7) The cost of chocolate B is an even number. Therefore, the final arrangement is as follows:

Chocolates	Costs
A	47
B	42
C	41
D	45
E	46
F	49
G	48

Hence, the cost of chocolate E is Rs. 46.

Q48. Answer: (a) Bharata Muni

The correct answer is Bharata Muni.

• Natyashastra is a Sanskrit treatise on the performing arts. The text is attributed to the sage Bharata Muni, and its first complete compilation dates to between 200 BCE and 200 CE, but estimates vary between 500 BCE and 500 CE.

Key Points

• Natyashastra

• The Natyashastra, in full Bharata Natyashastra, is a detailed treatise and pamphlet on the dramatic arts that deals with all aspects of classical Sanskrit theatre.

• It is believed to have been written by the mythical Brahmin sage and priest Bharata (200 BC–200 AD).

• Its many chapters contain a detailed treatment of all the diverse arts embodied in the classical Indian concept of drama, including dance, music, politics and general aesthetics.

• It is also known as the fifth Veda as it is developed by taking words from Rigveda, music from Samaveda, gestures from Yajurveda and emotions from Atharvaveda.

• Bharata Muni

• Bharata Muni was an ancient Indian dramatist and musicologist who wrote the Natya Shastra, a theoretical treatise on ancient Indian dramaturgy and historiography, especially Sanskrit theatre.

• Bharata is considered the father of Indian theatrical art forms.

• He dates to between 200 BCE and 200 CE, but estimates vary between 500 BCE and 500 CE.

• The Natya Shastra by Bharata Muni and "Abhinaya Darpan" by Nandikeshwara are considered to be the original sources of Bharatanatyam.

Q49. Answer: (b) 1728

Given: 3 : 36 :: ? : 20736

The logic followed here is:

3 : 36 → 3 × 12 = 36

Similarly,

? : 20736 → ? × 12 = 20736

? = 20736 ÷ 12

? = 1728

Hence, 1728 is the correct answer.

Q50. Answer: (d) $\cos^2 \varphi$

Given:

$\cos^2 (270 - \varphi) - \sin^2 (180 - \varphi) + \sin^2 \pi/2 \sin^2 (270 - \varphi)$

Formulas used:

$\cos(270 - x) = - \sin x$

$\sin(180 - x) = \sin x$

$\sin(270 - x) = - \cos x$

Calculation:

$\cos^2 (270 - \varphi) - \sin^2 (180 - \varphi) + \sin^2 \pi/2 \sin^2 (270 - \varphi)$

$\Rightarrow (- \sin\varphi)^2 - (\sin\varphi)^2 + 1 \times (- \cos\varphi)^2$

$\Rightarrow \sin^2\varphi - \sin^2\varphi + \cos^2\varphi$

$\Rightarrow \cos2\varphi$

Therefore The required value is $\cos2\varphi$

Q51. Answer: (b) Son

From the given information,

His (boy's) mother is the only daughter of my mother-in-law, implies the mother of boy is the wife of Virat.

Therefore, the final family tree is as follows:

Hence, boy is the son of Virat.

Q52. Answer: (c) 22 years

Given:

Average age of 20 students = 15.5 years

Present age of the class teacher = 47 years

Formula used:

Average age = Sum of the ages/No of persons

Calculation:

Sum of the present ages of 20 students = 15.5 × 20 = 310 years

Sum of the present ages of 20 students and the teacher = 310 + 47 = 357 years

Sum of the ages of 20 students and the teacher after 5 years = 357 + 21 × 5 = 462 years

Therefore The average age of 20 students and the teacher = 462/21 = 22 years

Q53. Answer: (c) cookie

The correct answer is cookie.

Key Points

• A cookie is a small text file (up to 4 KB) created by a website that is stored in the user's computer temporarily for only that session or permanently in storage.

• Cookies provide a way for the website to recognize you and track your preferences.

• Cookies are typically used to "maintain the state" of the browser session. For example, users can place items in a shopping cart, switch to another page or another site, and when they return, the site recognizes them and the current state of the cart.

• Cookies consist of a series of URLs (addresses) for which they are valid. When the web browser or other HTTP application again sends a request to the webserver containing those URLs, it sends it along with the associated cookies.

• For example, if your user ID and password are stored in a cookie, this saves you from typing the same information over and over again the next time you access that service.

• Cookies allow the website to customize the pages and create a custom experience for each individual.

Additional Information

• Malware

• Malware is malicious software intended to cause damage to a computer or network.

• Types of malware include viruses, worms, spyware, and ransomware.

• Malware can find its way onto computers when a user clicks a link or email attachment that installs malicious software.

• Bug

• A bug computer definition is referred to as a failure or a flaw in the software program.

• A Bug produces an incorrect or undesired result that deviates from the expected result or behaviour.

• When you add two numbers using this app and if it shows you a wrong total, then we can say this app has a bug.

• Cache

• The cache is the temporary memory officially termed "CPU cache memory".

• "Cache" is also used to refer to any temporary collection of data, either in hardware or software.

Q54. Answer: (a) Bombay and Thane

The correct answer is Bombay and Thane.

Key Points

• The first passenger train was on 16 April 1853 between Bori Bunder (Bombay) and Thane at a distance of 34 km.
• It was powered by three locomotives named Sahib, Sultan and Siddha, and had thirteen carriages.
• It was dedicated by Lord Dalhousie.
• The passenger line was built and operated by the Great Indian Peninsula Railway.
• It was built in a 1,676 mm broad gauge, which became the country's standard for railways.

Q55. Answer: (d) 12 m

Given:
Height of one pole = 20 m
Height of another pole = 14 m
Angle made by the top of the poles with the horizontal = 30°
Calculation:
In triangle AED, AE/AD = sin 30°
=> 6/AD = 1/2
=> AD = 12 m
Therefore The length of the wire is 12 m.

Q56. Answer: (a) Process of mixing acid or base with water is exothermic

The correct answer is Process of mixing acid or base with water is exothermic.
• When acid or base is added to water heat is liberated so the process is exothermic.
Key Points
• Acid
• Acids are substances that have a sour taste, have one or more replaceable hydrogen atoms.
• It turns blue litmus and methyl orange to red.
• The acid reacts with the metal to liberate hydrogen gas.
• The acid reacts with the base to give salt and water.
• Its pH is less than 7.
• Examples: Hydrochloric Acid, Nitric Acid, Sulphuric Acid, Acetic Acid, etc.
• Base
• Bases are substances that have a bitter taste.
• Bases turn red litmus to blue, methyl orange to yellow.
• Their solutions are soapy to touch.
• Base reacts with the metal to form salt and liberates hydrogen gas.
• Base reacts with an acid to form salt and water which is called a neutralization reaction.
• Examples: Potassium hydroxide, Magnesium Hydroxide, Sodium hydroxide, etc.

Q57. Answer: (d) Both conclusions 1 and 2 follow

The least possible Venn diagram is:
Conclusions:
1: Some fielders are cricketers → True (as some cricketers are fielders)
2: Some fielders are players → True (as all cricketers are players and some cricketers are fielders, implies some some fielders that are cricketers are players too)
Hence, both conclusions 1 and 2 follow.
Additional Information

Q58. Answer: (a) Rs. 360

Given:
Rajni can do 25% less work than Mohan.
Mohan can do 20% more work than Rizwan.
Total profit = Rs.930
Concept:
Ratio of the shares of profit = Ratio of the efficiency
Calculation:

Ratio of the efficiency of Rajni & Mohan = 75% : 100%

=> Rajni : Mohan = 3 : 4 (1)

Ratio of the efficiency of Mohan & Rizwan = 120% : 100%

=> Mohan : Rizwan = 6 : 5 (2)

By multiplying equation (1) by 3 and equation (2) by 2;

The ratio of profit distribution:

Rajni : Mohan : Rizwan

9 : 12 : 10

Therefore Mohan's share = Rs.930 × 12/31

=> Rs.360

Q59. Answer: (d) Article 16

The correct answer is Article 16.

Key Points

• Article 16 (Equality of opportunity in public employment):

• There shall be equality of opportunity for all citizens in matters relating to employment or appointment to any office under the State.

• No citizen shall be ineligible or discriminated against for any employment or post under the State on grounds only of religion, race, caste, sex, race, place of birth, residence or any of them.

• Nothing in this article shall prevent Parliament from making any law with respect to the employment of any class or class of people or appointment to any office under the Government or to any local or other authority within a State or Union territory. Residence within that State or Union Territory prior to such employment or appointment.

• Nothing in this article shall prevent the State from making any provision for the reservation of appointments or posts in favor of any backward class of citizens who, in the opinion of the State, are not adequately represented in the services under the State.

• Nothing in this article shall affect the operation of any law which provides that in relation to the affairs of any religious or sectarian institution or any member of its governing body, the office bearer of any person professing a particular religion will be of or belong to a particular denomination.

Additional Information

• Article 15 - Prohibition of discrimination on grounds of religion, race, caste, sex or place of birth.

• Article 13 - Laws are inconsistent or violate fundamental rights.

• Article 14 - Equality before law The State shall not deny to any person equality before the law or equal protection of laws within the territory of India Prohibition of discrimination on grounds of religion, race, caste, sex or place of birth

Q60. Answer: (a) pyruvic acid

The correct answer is pyruvic acid.

Key Points

• Glucose

• Glucose is a simple sugar with six carbon atoms and one aldehyde group.

• Glucose is a Monosaccharide

• Its Chemical formula is C6H12O6.

• The molar mass of Glucose is 180.16 g/mol.

• Glucose can be called aldohexose as well as dextrose.

• It is used in the treatment of hypoglycemia (low blood sugar).

• Pyruvic Acid

• Pyruvic acid is produced during the Krebs Cycle- the oxidation of glucose for the release of energy during cellular respiration.

• The site of cellular respiration is the mitochondria with internal folds where the oxidation of glucose takes place.

Additional Information

• Lactic Acid

• Lactic Acid is an organic acid with the chemical formula C3H6O3.

• It is also known as milk acid.

• Levo and Dextro are two forms of optical isomers of lactic acid.

• The PH of 1 mM of lactic acid is about 3.51.

• Cytoplasm

• The fluid that fills up the cells is referred to as the cytoplasm.

• It encompasses the cytosol with filaments, ions, proteins, and macromolecular structures and also other organelles suspended in the cytosol.

• The cytoplasm in the eukaryotic cells is associated with the cell contents except for the nucleus. But in prokaryotic cells, as they do not possess a defined nuclear membrane, the Cytoplasm possesses the genetic material of the cell.

• Mitochondria

• Mitochondria is a rod-shaped, double-membrane cell organelle, which plays a prominent role in producing energy through the process of oxidative phosphorylation.

• They are called the powerhouse of the cell, as these cell organelles are responsible for producing ATP molecules, the energy currency of the cell.

Q61. Answer: (b) (850/11)%

Shortcut Trick

Non-scholarship percentage: Boys = 80% (100 − 20), Girls = 75% (100 − 25).

Using Weighted Average method for the ratio 5 : 6:

Result = [(5 × 80) + (6 × 75)] ÷ (5 + 6)

Result = [400 + 450] ÷ 11 = 850/11 %

Therefore The correct answer is (850/11)%.

Alternate Method

Given: Ratio of Boys to Girls = 5 : 6. Scholarship holders: Boys = 20%, Girls = 25%.

Formula: Percentage = (Part ÷ Whole) × 100

=> Let number of Boys = 500 and Girls = 600

=> Total Students = 500 + 600 = 1100

=> Boys without scholarship = 80% of 500 = 400

=> Girls without scholarship = 75% of 600 = 450

=> Total students without scholarship = 400 + 450 = 850

=> Required percentage = (850 ÷ 1100) × 100

=> Required percentage = 850/11 %

Therefore The correct answer is (850/11)%.

Additional Information

Weighted Average Concept

When components are in a specific ratio, the overall average is calculated as A_(avg) = (n1A1 + n2A2) ÷ (n1 + n2).

Complementary Percentage

If x% of a population has a certain attribute, then (100 − x)% of that population does not have that attribute.

Ratio to Actual Value

Assuming common multiples like 100x for ratios (500, 600) simplifies percentage calculations significantly during exams.

Q62. Answer: (b) Father

From the given information,

Her (Deveshi's) father is the only son of my (Ashish's) paternal grandfather’s only son, implies Ashish is father of Deveshi. Thus, the final family tree is as follows:

Hence, Ashish is the father of Deveshi.

Q63. Answer: (a) Sarpagandha

The correct answer is Sarpagandha.

Key Points

Sarpagandha

• Sarpagandha is used for the treatment of high blood pressure, insomnia, asthma, acute stomach ache and painful delivery and for mental illnesses such as neuropsychiatric disorders, psychosis, and schizophrenia.

• The root of Rauvolfia serpentina is the genuine source drug of Sarpagandha.

• They grow widely in the sub-Himalayan moist forests in Sikkim, Assam in India.

• Sarpagandha brings down high blood pressure and facilitates the circulation of blood through the heart passages at a normal, healthy pace.

Additional Information

Blood pressure:

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• High blood pressure, often referred to as a condition of high blood pressure, is a medical condition with increased blood pressure levels in the arteries.

• If it persists for a long time, it can lead to many other life-threatening diseases including heart disease and even stroke.

• Blood pressure is the force of your blood pushing against the walls of your arteries. Every time your heart beats, it pumps blood into the arteries. Your blood pressure is highest when your heart beats, pumping blood. This is called systolic pressure.

• It is easy to diagnose a person's blood pressure using a medical device called a sphygmomanometer.

Q64. Answer: (b) Malaysia

The correct answer is Malaysia.

Key Points

• ASEAN

• The Association of Southeast Asian Nations is a regional organization that was established to promote political and social stability amid rising tensions among the Asia Pacific's post-colonial states.

• The Founding countries of ASEAN: Indonesia, Malaysia, Philippines, Singapore and Thailand.

Additional Information

• 8th August is observed as ASEAN Day.

• The Motto of ASEAN is "One Vision, One Identity, One Comunity".

• Its purpose is to promote peace and stability in the region by incorporating respect for justice and the rule of law in the relationship between nations and adherence to the United Nations principles.

• The body is headquartered in Jakarta, Indonesia.

Q65. Answer: (b) Maharashtra

The correct answer is Maharashtra.

• As of 30 June 2021 Maharashtra installed power generation capacity is 28,173 MW.

Key Points

• Thermal energy

• Thermal energy is the energy that comes from the heated up substance. The hotter the substance, the more its particles move, and the higher it's thermal energy.

• Heat is the flow of thermal energy.

• Thermal energy comes from a substance whose molecules and atoms are vibrating faster due to a rise in temperature.

• Heat energy is another name for thermal energy.

• Kinetic energy is the energy of a moving object. As thermal energy comes from moving particles, it is a form of kinetic energy.

• Electricity demand varies greatly by season and time of day, because thermal power generation can flexibly adapt to changes in demand, it plays a central role in maintaining the power supply.

Additional Information

• Maharashtra

• State Parks - Chandoli National Park, Gugamal National Park, Nawegaon National Park, Pench(Jawaharlal Nehru) National Park, Sanjay Gandhi (Borivali) National Park, Tadoba National Park.

• State Flower - Pride of India/Jarul (Lagerstroemia speciosa)

• State Tree - Mango Tree

• State Animal - Indian giant squirrel (Ratufa Indica)

• State bird - Yellow-footed green pigeon

Important Points As of 31st July 2022, the installed capacity is 404,132.95 MW. Gujarat (43.6 GW) leads in power generation capacity, followed by Maharashtra (42.3 GW) and Tamil Nadu (36.3 GW), though Karnataka leads in renewable energy capacity.

Q66. Answer: (a) 46

Given: 40 × 20 ÷ 28 - 4 + 2

The logic follows here is:

Symbols	**×**	**÷**	**•**	**•**
Meaning	•	•	×	÷

By inserting codes and then using BODMAS Rule:

40 + 20 - 28 ÷ 4 × 2

= 40 + 20 - 7 × 2

= 40 + 20 - 14

= 60 - 14

= 46

Hence, 46 is the correct answer.

Q67. Answer: (c) 209, 187

Given:

Ratio of two numbers = 19 : 17

HCF = 11

Concept:

HCF = Highest Common Multiple

Calculation:

Let the numbers be 19h and 17h respectively, where h is the HCF.

=> 19h = 19 × 11 = 209

=> 17h = 17 × 11 = 187

Therefore The numbers are 209 and 187.

Q68. Answer: (b) Ghaghara

The correct answer is Ghaghara.

• An extensive census of about 1,000 km of the Ganges and its two tributaries, the Gandak and the Ghaghra Rivers in Bihar has found about 1,150 Ganges dolphins.

Key Points

• Ghaghara River is a Ganga River tributary.

• Ghaghara River

• This river originates in the Tibetan Plateau near Lake Mansarovar.

• The Ghaghara River is also known as the Nepali Kauriala, Manchu, or Karnali.

• The River's literal meaning is "Turquoise River".

• The battle between Amin Khan Aitigin and Tughral Tughan Khan took place in the Ghaghara.

Additional Information

• Godavari River

• The Godavari river is the largest river system in Peninsular India.

• The Godavari Basin extends over the States of Maharashtra, Andhra Pradesh, Chhattisgarh and Odisha in addition to smaller parts in Madhya Pradesh, Karnataka and Puducherry.

• Apart from Ganga and Yamuna, Godavari also holds special religious importance in India.

• The Godavari is considered one of the sacred rivers in India.

• Luni

• It originates in the Naga hills of Aravalli Ranges near Pushkar valley in Ajmer District.

• It is also known as Sagarmati.

• The Luni River is not salty until it reaches Balotra, where high salt content in the soil impacts the river.

• Dams in Luni River are : Dantiwada Dam, Sipu Dam.

• Krishna

• The Krishna River is the second largest river in peninsular India, the first being the Godavari River.

• The Krishna River originates from the Western Ghats at Jor village in Maharashtra near Mahabaleshwar, about 64 km from the Arabian Sea.

• The Krishna River starts from Maharashtra and flows through Karnataka, Telangana and Andhra Pradesh and joins the Bay of Bengal.

• The delta of the Krishna river appears to merge with the Godavari river.

Q69. Answer: (b) HCL Foundation

The correct answer is HCL Foundation.

Key Points

• Namami Gange Program is an integrated conservation mission, approved by the Central Government in June 2014 as a 'Principal Programme', to fulfill the twin objectives of effective abatement of pollution and conservation and rejuvenation of the National River Ganga.

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• It is being operated under the Ministry of Water Resources, Department of River Development and Ganga Rejuvenation, Ministry of Jal Shakti.

• The program is being implemented by the National Mission for Clean Ganga (NMCG) and its state counterpart organizations.

• NMCG has signed a Memorandum of Understanding (MoU) with INTACH and HCL Foundation to undertake a project of 'Plantation of 10000 Rudraksha Trees in Uttarakhand'. This is part of their Corporate Social Responsibility initiative under the 'Namami Gange' program.

• HCL Foundation was established in 2011 as the Corporate Social responsibility arm of HCL Technologies in India.

Additional Information

• Infosys

• Infosys Limited is an Indian Information Technology company that provides global business consulting and information technology services.

• It was established in the year 1981.

• Wipro

• Wipro Limited is a leading global information technology, consulting and business process services company.

• In Feb 2002, Wipro became the first software technology and services company in India.

• IBM

• IBM is an American multinational technology corporation headquartered in Armonk, New York, with operations in over 171 countries.

• Organizations are used to define the hierarchical structure of your company.

• IBM can also represent external companies that you do business with, such as vendors, co-tenants, partners, and customers.

Q70. Answer: (c) 18 meters

Given:

Angle subtended by the tree on the opposite bank = 60°

Angle subtended by the tree 36 m backward from the bank = 30°

Calculation:

Let the height of the treee be = h

Let the breadth of the river be = a

In triangle BCD, CD/BC = tan 60°

=> h/a = √3

=> a = h/√3 .....(1)

In triangle ACD, CD/AC = tan 30°

=> h/(36 + a) = 1/√3

=> √3h = 36 + a

=> a = √3h - 36 .....(2)

By comparing (1) and (2), we get

=> h/√3 = √3h - 36

=> h = 3h - 36√3

=> 2h = 36√3

=> h = 18√3 m

By putting the value of h = 18√3 m in equation (1)

=> a = 18√3/√3

=> a = 18 m

Therefore The breadth of the river is 18 m.

Q71. Answer: (d) Chatrapati Shivaji Maharaj Terminus (Formerly Victoria Terminus)

The correct answer is Chatrapati Shivaji Maharaj Terminus (Formerly Victoria Terminus).

• Chatrapati Shivaji Maharaj Terminus (formerly Victoria Terminus):

• It is an excellent example of Victorian Gothic architecture in India.

• The building, designed by the British architect F.W. Stevens, became the symbol of Bombay as the Gothic City and the major international mercantile port of India.

• The terminal was completed in 10 years commenced in 1878. This was the first terminus station in the subcontinent.

• Its remarkable stone dome, turrets, pointed arches and eccentric ground plan are close to traditional Indian palace architecture.

• All legal rights of the property are in the hands of the Ministry of Railways, Government of India.

• F.W. Stevens

• His most notable design was the railway station Victoria Terminus in Bombay (in 1986 renamed the Chhatrapati Shivaji Terminus).

• He has also designed the Municipal Corporation Building, Mumbai the Royal Alfred Sailor's Home, the Post-Office Mews at Apollo Bunder, the head Offices Heof the BB&Ci Railway at Churchgate, and the Oriental Life Assurance Offices at the Flora Fountain. He also designed the Rajamahal Palace at Mehsana.

Q72. Answer: (b) 30°

Shortcut Trick

Let the first two angles be 1 part and 2 parts.

Third angle = sum of first two angles = 1 + 2 = 3 parts.

Ratio of all three interior angles = 1 : 2 : 3

Total sum of ratio parts = 1 + 2 + 3 = 6 parts.

Since the sum of interior angles of a triangle is always 180°.

6 parts = 180° => 1 part (the smallest angle) = 30°.

Therefore The correct answer is 30°.

Alternate Method

3x = 90°

x = 30°

2x = 60°

C

A

B

Triangle ABC

Given:

Ratio of two angles of a triangle = 1 : 2

The sum of these two angles equals the third angle.

Formula Used:

Sum of all interior angles of a triangle = 180°

Calculations:

=> Let the measures of the first two angles be x and 2x.

=> Measure of the third angle = x + 2x = 3x

=> According to the angle sum property of triangles:

=> x + 2x + 3x = 180°

=> 6x = 180°

=> x = 180° ÷ 6 = 30°

=> The measures of all the three angles are 30°, 60°, and 90°.

=> The measure of the smallest angle is x = 30°.

Therefore The correct answer is 30°.

Additional Information

Right-Angled Triangle Property

If one angle in a triangle is exactly equal to the sum of the other two angles, the triangle is always a right-angled triangle. Because the sum of all angles is 180°, the largest angle accounts for half of this sum, making it exactly 90°.

Angle Sum Property

The sum of interior angles of a triangle is always 180°. In general, for any closed polygon with n sides, the sum of all its interior angles is calculated using the formula (n − 2) × 180°.

Types of Triangles Based on Angles

1. Acute Triangle: All the three interior angles are strictly less than 90°.

2. Right Triangle: Exactly one interior angle is exactly 90°.

3. Obtuse Triangle: Exactly one interior angle is strictly greater than 90°.

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Q73. Answer: (b) 25%

Given:

Time taken by the student to travel from home to school at 5 km/h = 1.5 hours

Formula used:

Distance = Time × Speed

Calculation:

Distance between home and school = 1.5 × 5 = 7.5 km

New Time = 1.5 × 80/100 = 1.2 hours

New Speed = 7.5/1.2 = 6.25 km/h

=> Old Speed : New Speed = 5 : 6.25

=> 4 : 5

Increase in the speed = 5 - 4 = 1

Therefore Percentage increase in the speed = 1/4 × 100 = 25%

Q74. Answer: (a) 2000

Given:

Votes got by losing candidate = 48% of the total votes

The opponent got 6000 votes more and won by a margin of 3% votes

Calculation:

Let the total votes be = 100%

3% votes = 6000

Votes received by losing candidate = 48%

Votes received by winning candidate = 48% + 3% = 51%

Invalid votes = 100% - 48% - 51% = 100% - 99% = 1%

=> 3% = 6000 votes

Therefore 1% of total votes = 6000/3 = 2000

Q75. Answer: (a) 7, 0.2

Shortcut Trick

Since −5 is a root of 2x2 + px − 15 = 0, substituting x = −5 gives the value of p directly.

=> 2(−5)2 + p(−5) − 15 = 0 => 50 − 5p − 15 = 0 => 5p = 35 => p = 7

Now, substitute x = −5 and p = 7 into the second equation p(kx2 + x) = 0.

=> 7[k(−5)2 + (−5)] = 0 => 25k − 5 = 0 => 25k = 5 => k = 0.2

Therefore The correct answer is 7, 0.2.

Alternate Method

Given:

First quadratic equation: 2x2 + px − 15 = 0

Second quadratic equation: p(kx2 + x) = 0

Root of both equations = −5

Calculations:

Since x = −5 is a root, it must completely satisfy the first equation.

=> 2(−5)2 + p(−5) − 15 = 0

=> 2(25) − 5p − 15 = 0

=> 50 − 5p − 15 = 0

=> 35 − 5p = 0

=> 5p = 35

=> p = 7

Now, substitute x = −5 and p = 7 into the second equation.

=> 7[k(−5)2 + (−5)] = 0

Dividing both sides by 7:

=> k(25) − 5 = 0

=> 25k = 5

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=> k = 5 ÷ 25

=> k = 1/5

=> k = 0.2

Therefore The correct answer is 7, 0.2.

Additional Information

Roots of a Quadratic Equation

A real number α is called a root of the quadratic equation ax2 + bx + c = 0 if substituting x = α satisfies the equation (i.e., aα2 + bα + c = 0).

Sum and Product of Roots

For a quadratic equation ax2 + bx + c = 0, the sum of roots = −b/a and the product of roots = c/a.

Nature of Roots

Determined by the Discriminant (D = b2 − 4ac). If D > 0, roots are real and distinct. If D = 0, roots are real and equal. If D < 0, roots are non-real or imaginary.

Q76. Answer: (d) 360

Given: DO is coded as 60 and SO is coded as 285.

The logic followed here is:

Product of positional values as shown below,

And,

Similarly,

Hence, 360 is the correct answer.

Q77. Answer: (a) Both statements 1 and 2 are sufficient together

On which date is Evanshu’s birthday.

By using Statement 1:

Evanshu’s birthday is on the Republic Day of a country.

From this we don't know republic day of which country so, we can not find the birth date of Evanshu using statement 2 alone.

By using Statement 2:

The country’s national flag is a tri-colour flag with an Ashoka Chakra in its centre.

So, we can not find the birth date of Evanshu using statement 2 alone.

Thus statement I and II together:

We know that the national flag of India is a tri-colour flag with an Ashoka Chakra in its centre and the Republic Day in India, i.e., on 26th January.

So, we can say that Evanshu's birthday is on 26thJanuary.

Hence, Both statements 1 and 2 are sufficient together.

Additional InformationThe National Flag of India (Hindi: Tirangā) is a horizontal rectangular tri-colour of India saffron, white and India green; with the Ashoka Chakra, a 24-spoke wheel, in navy blue at its centre.

Q78. Answer: (c) 3 km

Given:

Speed of boat in still water = 15 km/h

Speed of the current = 3 km/h

Formulas used:

Speed upstream = (Speed of the boat - Speed of the current)

Speed downstream = (Speed of the boat + Speed of the current)

Time = Distance/Speed

Calculation:

Speed upstream = 15 - 3 = 12 km/h

Speed downstream = 15 + 3 = 18 km/h

Let the distance be = D

As per the question;

For two trip,

2(D/12 - D/18) = 10/60

=> 2(3D - 2D)/36 = 1/6

=> 2D/36 = 1/6

=> D = 3

Therefore The distance between the two ends is 3 km

Q79. Answer: (b) 9 1/11

Given:

Increase percent in the price of sugar = 10%

Formulas used:

Expenditure = Price × Quantity

Percentage reduction in quantity = (Old quantity - New Quantity)/Old Quantity × 100

Calculation:

Let the price of sugar be = 100a

Increased price = 100a × 110/100 = 110a

Let the quantity of sugar purchased = 10

Old Expenditure = 100a × 10 = 1000a

The family wants to keep their expenditure unchanged.

So, New Expenditure = 1000a = 110a × New Quantity

=> New Quantity = 1000a/110a = 100/11

Therefore Percentage reduction in quantity = (10 - 100/11)/10 × 100

=> (110 - 100)/(11× 10) × 100

=> 100/11%

=> 9 1/11 %

Alternate MethodBy Ratio Method

10% = 1/10

Here, reduction of 1 unit in quantity has occured over old quantity.

Therefore The required percentage = 1/11 × 100 = 100/11 = 9 1/11 %

Q80. Answer: (c) 10%

Given:

Amount after 3 years at compound interest = Rs.10648

Amount after 2 years at compound interest = Rs.9680

Formula used:

Rate = (Interest × 100)/Principal × Time

Calculation:

Rs.9680 becomes Rs.10648 in one year

=> (10648 - 9680) = Interest on Rs.9680

=> 968 = Interest on Rs.9680

Therefore Rate = (968 × 100)/9680 × 1 = 10%

Alternate Method$P(1 + r/100)^3/P(1 + r/100)^2 = 10648/9680$

=> 1 + r/100 = 10648/9680

=> r/100 = (10648 - 9680)/9680

=> r/100 = 968/9680

=> r = 10%

Q81. Answer: (d) 28^(th) February

The correct answer is 28th February.

Key Points

• National Science Day

• National Science Day (NSD) is celebrated every year on 28 February to commemorate the discovery of the 'Raman Effect' by Sir Chandrashekhar Venkata Raman, for which he was awarded the Nobel Prize in 1930.

• The first National Science Day was celebrated in 1987.

• Its objective is to spread the message of the importance of science and its application among the people.

• 'Future STOs (Science, Technology and Innovation): Impact on Education, Skills and Work' is the theme of the 2021 National Science Day.

Additional Information

• Raman Effect:

• Raman is the inelastic scattering of a photon by molecules that are excited to higher vibrational or rotational energy levels.

• It is the change in wavelength of light that occurs when a light beam is deflected by molecules.

• The Raman effect forms the basis of Raman spectroscopy which is used by chemists and physicists to obtain information about materials.

• Most of this scattered light is of unchanged wavelength. However, a small portion has a wavelength different from that of the incident light and its presence is a consequence of the Raman effect.

Q82. Answer: (b) Bihar

Six persons - Seema, Vaibhav, Ajay, Manisha, Tulika and Ananya.

States - Assam, Gujarat, Madhya Pradesh, Punjab, Bihar and Rajasthan.

Games - Chess, Football, Hockey, Ludo, Badminton and Cricket.

(1) Ananya was born in Gujarat and she plays Cricket.

(2) The person who was born in Bihar plays Football.

(3) Seema plays Hockey and she was not born in Assam or Madhya Pradesh. Therefore she was born in Punjab,

(4) Manisha was born in Rajasthan and she plays badminton.

Person	State	Game
Ananya	Gujarat	Cricket
	Bihar	Football
Seema	Punjab	Hockey
Manisha	Rajasthan	Badminton
		Ludo
		Chess

(5) Ajay does not play Chess or Ludo. Therefore, he plays football.

Person	State	Game
Ananya	Gujarat	Cricket
Ajay	Bihar	Football
Seema	Punjab	Hockey
Manisha	Rajasthan	Badminton
Tulika / Vaibhav	Assam/Madhya Pradesh	Ludo
Tulika / Vaibhav	Assam/Madhya Pradesh	Chess

Hence, Ajay was born in Bihar.

Q83. Answer: (b) Assam

The correct answer is Assam.

Key Points

• The Jonbeel Mela usually takes place a few days after Magh Bihu, the harvest festival, in Dayang Belguri in Morigaon district in Assam.

• The Jonbeel lake that lends its name to the fair (Jon is moon and beel is a lake) also witnesses community fishing during the fair.

• Jonbeel Mela is organized by the Tiwa community, with participants from the Tiwa, Karbi, Khasi and Jaintia communities, from the interiors of the state's Morigaon and Karbi Anglong districts, as well as some border villages of Meghalaya.

• The Jonbeel Mela is organized under the patronage of the Gobha Kingdom.

Additional Information

• Assam

• State bird - Deo haah

• State animal - Gor

• State flower - Kopau phul

• State tree - Hollong

• State Parks - Dibru-Saikhowa National Park, Kaziranga National Park, Manas National Park, Nameri National Park, Rajiv Gandhi Orang National Park.

Q84. Answer: (a) Aditya L1

The correct answer is Aditya L1.

Key Points

• Aditya L1

• It is India's first scientific expedition to study the Sun. It will be ISRO's (Indian Space Research Organisation) second space-based astronomy mission after AstroSat, which was launched in 2015.

• L1 refers to Lagrangian/Lagrange Point 1, one of 5 points in the orbital plane of the Earth-Sun system.

• ISRO categorizes Aditya L1 as a 400kg-class satellite that will be launched using the Polar Satellite Launch Vehicle (PSLV) in XL configuration.

• It will be inserted in a halo orbit around the L1 which is 1.5 million km from the Earth.

• Aditya L1 will have some moving components which increase the risks of collision.

Additional Information

• ISRO

• ISRO is the space agency under the Department of Space of Government of India, headquartered in the city of Bengaluru, Karnataka.

• Its vision is to harness space technology for national development while pursuing space science research and planetary exploration.

• Antrix Corporation Limited is a Marketing arm of ISRO for promotion and commercial exploitation of space products, technical consultancy services and transfer of technologies developed by ISRO.

• The Indian National Committee for Space Research (INCOSPAR) was established by Jawaharlal Nehru in 1962 under the Department of Atomic Energy (DAE). The INCOSPAR became ISRO in 1969.

• ISRO Chairman: Dr. S Somanath

Q85. Answer: (a) √250 cm

Shortcut Trick

Area of the square = $d^2 \div 2 = (\sqrt{200})^2 \div 2 = 100$ cm².

Let rectangle dimensions be 5x and 2x, so Area = $5x \times 2x = 10x^2$.

Equating areas: $10x^2 = 100 \Rightarrow x^2 = 10 \Rightarrow x = \sqrt{10}$.

Length = $5x = 5\sqrt{10} = \sqrt{250}$ cm.

Therefore The correct answer is √250 cm.

Alternate Method

Given:

=> Diagonal of the square, d = √200 cm

=> Ratio of Length to Breadth of the rectangle = 5 : 2

=> Area of the rectangle = Area of the square

Formula Used:

=> Area of a square = $d^2 \div 2$

=> Area of a rectangle = Length × Breadth

Calculations:

=> Area of the square = $(\sqrt{200})^2 \div 2$

=> Area of the square = $200 \div 2 = 100$ cm²

=> Let the length and breadth of the rectangle be 5x and 2x respectively.

=> Area of the rectangle = $5x \times 2x = 10x^2$

=> Since their areas are strictly equal:

=> $10x^2 = 100$

=> $x^2 = 10$

=> $x = \sqrt{10}$ cm

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=> Length of the rectangle = 5x = 5√10 cm

=> Expressing 5√10 under a single square root factor: √(5² × 10) = √(25 × 10) = √250 cm

Therefore The correct answer is √250 cm.

Additional Information

Area of a Square

It can be directly calculated using the side length as Area = a^2, or by using the diagonal length as Area = $d^2 \div 2$.

Rectangle Perimeter

The total length of the continuous boundary of a given rectangle is algebraically calculated as Perimeter = 2 × (Length + Breadth).

Diagonal of a Rectangle

Both diagonals are strictly equal in length. The spatial length of each diagonal is calculated systematically using Pythagoras theorem as d = √(L^2 + B^2).

Q86. Answer: (d) 3400

Given:

No of bats manufactured in 2010 = 30

No of bats manufactured in 2011 = 42.5

No of bats manufactured in 2012 = 35

No of bats manufactured in 2013 = 27.5

No of bats manufactured in 2014 = 35

Formula used:

Average bats manufactured over the years = Total number of bats/ No of years

Calculation:

Average bats manufactured over 5 years = (30 + 42.5 + 35 + 27.5 + 35)/5

=> 170/5 = 34 in hundread

=> 3400

Q87. Answer: (c) 868

Given:

Total number of students enrolled in English (Hons) course = 2800

Formula used:

No of students in the English (Hons) course = Total students × Percentage of the students enrolled

Calculation:

Percentage of students enrolled in college M = 17%

Percentage of students enrolled in college S = 14%

Therefore No of students enrolled from college M and S = 2800 × (17% + 14%)

=> 2800 × 31/100 = 868

Q88. Answer: (a) 16

Given:

No of people who joined gym A in 2018 = 278

No of people who joined gym D in 2016 = 239

Calculation:

Difference between the people who joined gym A in 2018 and 2016 = 278 - 239 = 39

Therefore The required percentage = 39/239 × 100 = 16.31%

=> 16% (Approximately)

Q89. Answer: (d) 260

Given:

No of bats manufactured in 2010 = 3000

Percentage of unsold bats in 2010 = 20%

No of bats manufactured in 2014 = 3500

Percentage of unsold bats in 2014 = 24%

Calculation:

No of sold bats in 2010 = (100 - 20)% × 3000

=> 80/100 × 3000

=> 2400

No of sold bats in 2014 = (100 - 24)% × 3500

=> 76/100 × 3500 = 2660

Therefore The difference between the number of bats sold in 2014 and 2010

=> 2660 - 2400

=> 260

Q90. Answer: (c) Both assumptions A and B are implicit.

Assumptions:

A. Pune University believes that vocational education provides a better future for students → Implicit (as it is given in the statement that vocational courses are launched for the better future of students)

B. Pune University is conscious about the future of students → Implicit (as it is given in the statement that Pune University has launched a number of vocational courses for the better future of students, so we can assume that they are conscious about the future of students)

Hence, both assumptions A and B are implicit.

Additional Information

1. Read the statement with an approach that the assumptions would be true with regard to the statement.

2. Do not go too logical with the statements. Analyze the given information and the assumption must only be made based on the information in the statement. Do not over-complicate it.

3. Common assumptions can always be followed but other than that do not align the statement with General Knowledge or other facts

4. Use the elimination method if you are unable to apprehend the answer. Read the statement and then the assumptions given in the options, you shall notice that a few of them will most definitely not follow. Eliminate them and then choosing from lesser options may prove to be more convenient

5. One thing to make a note of is that the assumption is something that the author believes to be true so while choosing the correct option, keep this thought in mind as well. If any option contradicts the statement, then that assumption will not follow.

Q91. Answer: (a) Both statements 1 and 2 are sufficient independently

By using statement 1:

The measure of one of the sides of the triangle side is 7 cm.

We know that the triangle is equilateral, therefore, the area of triangle can be determined using formula:

$\sqrt{3}/4 \times (7)^2 = 49\sqrt{3}/4$ cm²

Therefore, statement 1 alone is sufficient.

By using statement 2:

The perimeter of the triangle is 21 cm.

We know that the triangle is equilateral, therefore,

Perimeter = 3 × side

Side = 21 ÷ 3

Side = 7 cm

Area of triangle = $\sqrt{3}/4 \times (7)^2 = 49\sqrt{3}/4$ cm²

Therefore, statement 2 alone is sufficient.

Hence, both statements 1 and 2 are sufficient independently.

Q92. Answer: (d) 43215

Given :

R A M S T

1 2 3 4 5

By checking options:

(1) 32514 → MATRS

(2) 13245 → RMAST

(3) 25431 → ATSMR

(4) 43215 → SMART

Only option (4) 43215 forms the meaning word i.e., SMART.

Hence, 43215 is the correct order.

Q93. Answer: (a) 5

Given: 5 + 6 - 75 × 15 ÷ 30

The logic follows here is:

Symbols	•	•	×	÷
Meaning	•	×	÷	•

By inserting codes and then using BODMAS Rule:

5 - 6 × 75 ÷ 15 + 30

= 5 - 6 × 5 + 30

= 5 - 30 + 30

= 35 - 30

= 5

Hence, 5 is the correct answer.

Q94. Answer: (a) AKSNQVUAR

Given: ABHIMANYU is written as BAIJNBOUY.

The logic followed here is:

Similarly,

Hence, AKSNQVUAR is the correct answer.

Q95. Answer: (a) Only conclusion B follows

Conclusions:

A. All renowned sportspersons earn large amount through advertisements → False (it is possible but not definite as John is a renowned sportsperson and he earns a large amount every year through advertisements of various products but it is not applicable for all)

B. John is fit and active → True (as john is a renowned sportsperson and all renowned sportspersons are fit and active, implies John is fit and fine too)

C. John being popular advertises only famous products → False (no mention of famous products, so can't say)

Hence, only conclusion B follows.

Additional Information

• If there are two or more sentences that are used to frame a statement, then, the sentences must be interrelated, and mutual contradiction should be there.

• Do not look for truthful notions. The information provided in the statement is the only requirement for a student to answer the question. No assumptions must be made.

• Read the statement carefully and look for keywords that are common between the statement and the conclusions.

• If there is more than one conclusion that is applicable to the statement, students must ensure that the conclusions they opt for have some relation with each other.

Q96. Answer: (d) Pen

Given: Painter : Brush :: Author : ?

The logic followed here is:

Painter uses Brush to paint.

Similarly,

Author uses Pen to write.

Hence, pen is the correct answer.

Q97. Answer: (b) Only B

By checking all the statements:

A. Rahul is an actor. Some actors are smart. The least possible Venn diagram is:

Conclusion: Rahul is smart → False (it is possible but not definite as shown in the figure above)

B. Some men are soldiers. All soldiers are patriotic. The least possible Venn diagram is:

Conclusion: Some men are patriotic → True (as some men who are soldiers are patriotic too)

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C. All cricketers are athletes. Some cricketers are famous. The least possible Venn diagram is:

Conclusion: All athletes are famous → False (it is possible but not definite as shown in the figure above)

D. All actors are handsome. Aman is not an actor. The least possible Venn diagram is:

Conclusion: Aman is not handsome → False (it is possible as shown in diagram above but not definite as Aman is not an actor but he can be handsome)

Hence, only B is correct.

Additional Information

Q98. Answer: (c) 7994125

Given: MINIATURE is written as 495912395.

The logic followed here is:

Similarly,

Hence, 7994125 is the correct answer.

Q99. Answer: (c) Composed

The pattern followed here is:

By checking options:

(1) Apprehensive → anxious or fearful that something bad or unpleasant will happen.

(2) Scared → fearful; frightened.

(3) Composed → having one's feelings and expression under control; calm.

(4) Afraid → feeling fear or anxiety; frightened.

Hence, composed is the correct answer.

Q100. Answer: (d) 64.5 kg

Shortcut Trick

Net change in weight = Correct weight − Incorrect weight

=> Net change = 66 − 76 = −10 kg

Change in average = Net change ÷ Total boys = −10 ÷ 20 = −0.5 kg

Correct average = Initial average + Change in average

=> Correct average = 65 − 0.5 = 64.5 kg

Therefore The correct answer is 64.5 kg.

Alternate Method

Given:

Number of boys (n) = 20

Calculated average weight = 65 kg

Incorrect weight read = 76 kg

Correct weight = 66 kg

Formula Used:

Average = Total sum of values ÷ Total number of values

Correct Sum = Incorrect Sum − Incorrect Value + Correct Value

Initial Average of 20 boys = 65 kg

Sum correction: 66 kg - 76 kg = -10 kg

Average change: -10 / 20 = -0.5 kg

Correct Average = 64.5 kg

Calculations:

=> Incorrect sum of weights = 20 × 65 = 1300 kg

=> Correct sum of weights = Incorrect sum − Incorrect weight + Correct weight

=> Correct sum = 1300 − 76 + 66

=> Correct sum = 1300 − 10 = 1290 kg

=> Correct average = 1290 ÷ 20

=> Correct average = 64.5 kg

Therefore The correct answer is 64.5 kg.

Additional Information

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Combined Average

If group A has n1 items with average A1 and group B has n2 items with average A2, then combined average = (n1A1 + n2A2) ÷ (n1 + n2).

Replacing a Member

If a new person replaces an old person and the average increases, New weight = Old weight + (Increase in average × Total members).

Including a New Member

If a new person joins the group, New value = Old Average + [Total New Members × Change in Average ÷ Total Members].

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