# RRB NTPC CBT-I Official Paper (Held On: 25 Jan 2021 Shift 2) (Previous Year Paper)

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

**Take this paper as a timed mock test**

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

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

**Q1.** A train is moving with the speed of 90 km/h. How many meters will it cover in 15 min?

**(a)** 22500
**(b)** 24500
**(c)** 21500
**(d)** 23500

**Q2.** Find the median and the mode of the following data: 2, 3, 5, 7, 2, 3, 3, 5, 7 and 9.

**(a)** 3, 3
**(b)** 4, 3
**(c)** 4, 4
**(d)** 3, 4

**Q3.** The ratio of the length to the breath of a rectangular field is 6 : 5. If the breath is 25 m less than the length, the perimeter of the field is:

**(a)** 550 m
**(b)** 540 m
**(c)** 530 m
**(d)** 560 m

**Q4.** Which one of the following Committees in India is related to Tax reforms?

**(a)** Meera Seth Committee
**(b)** Ghosh Committee
**(c)** Raja Chelliah Committee
**(d)** Anand Sinha Committee

**Q5.** Which of the following statements is correct in the context of Swachh Bharat Abhiyan?

**(a)** North-Eastern states are not involved in the campaign.
**(b)** It was launched on October 2, 2015.
**(c)** It was launched to achieve the goal of universal sanitation.
**(d)** It's only for rural areas.

**Q6.** Select the number that can replace the question mark (?) in the following series.

1, 5, 32, 288 ?

**(a)** 2879
**(b)** 3413
**(c)** 2754
**(d)** 4329

**Q7.** The sum of the place values of 3 in 3636 is:

**(a)** 3030
**(b)** 330
**(c)** 3

**(d)** 3003

**Q8.** Read the given statement and conclusion carefully. Although the information given in the statements differs from generally known facts, determine which of the following conclusions are logical with the statements, assuming that they are true.

Statement:

1. All bench are bags.
2. Some bags are pillows.
3. Some bags are not chairs.

Conclusion:

1. Some benches are pillows.
2. There are some pillows chairs.

**(a)** Only conclusion 1 is logical.
**(b)** Neither of the conclusions 1 and 2 is logical.
**(c)** Only conclusion 2 is logical.
**(d)** Conclusions 1 and 2 are both logical.

**Q9.** Which among the following Articles of the Indian Constitution deals with financial emergency?

**(a)** Article-260
**(b)** Article-460
**(c)** Article-360
**(d)** Article-160

**Q10.** Which of the following statements is correct about black soil?

**(a)** It covers most of the Deccan Plateau.
**(b)** It is the least fertile of all soil types.
**(c)** It covers most of the North Indian Gangetic Plain.
**(d)** Black soils are rich in phosphorus, nitrogen.

**Q11.** 35% of 35% of X = _____% of X

**(a)** 12.25
**(b)** 0.1225
**(c)** 0.01225
**(d)** 1.225

**Q12.** If 24 persons can complete a task in 5 days, in how many days, 6 persons would be able to complete it?

**(a)** 22
**(b)** 18
**(c)** 16
**(d)** 20

**Q13.** HCF of 1/3, 3/4, 4/5 and 5/6 is:

**(a)** 1/6
**(b)** 1/60
**(c)** 1/360
**(d)** 1/30

**Q14.** In a certain code language, C is written as 24 and O is written as 12. How will COLONY be written as in that language?

**(a)** 24121612132
**(b)** 24121412132
**(c)** 24121312132
**(d)** 24121512132

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**Q15.** Who among the following calculated per capita income of India in 1867 and published in his book 'Poverty and Un-British Rule of India'?

**(a)** Sir Arthur Cotton
**(b)** Dadabhai Naoroji
**(c)** Motilal Nehru
**(d)** Lord Cornwallis

**Q16.** Mandatorily, the government announces Minimum Support Prices (MSP) for how many crops?

**(a)** 8
**(b)** 22
**(c)** 17
**(d)** 34

**Q17.** Which of the following is a part of six Schools of Indian Philosophy?

**(a)** Shruti
**(b)** Astik
**(c)** Yoga
**(d)** Padma

**Q18.** A man keeps a fixed deposit of Rs. 16,000 for 2 years at 10% compound interest. If the interest is compounded semi-annually, how much (in Rs.) will he get after full term?

**(a)** 19,445.1
**(b)** 19,448.1
**(c)** 19,446.1
**(d)** 19,447.1

**Q19.** Which metal is used in the making of microchips?

**(a)** Steel
**(b)** Tungsten
**(c)** Silicon
**(d)** Duralumin

**Q20.** The Shalimar Gardens located in Lahore and Kashmir are architectures of the _____.

**(a)** British
**(b)** Delhi Sultanate
**(c)** Sikhs
**(d)** Mughals

**Q21.** Which of the following is a component of Central Processing Unit?

**(a)** Keyboard
**(b)** Memory
**(c)** Monitor
**(d)** Mouse

**Q22.** The ratio of the area of an equilateral triangle of side x to the area of a square of side x is:

**(a)** √ 3 : 8
**(b)** √ 3 : 4
**(c)** √ 3 : 1
**(d)** √ 3 : 2

**Q23.** When $x^4 + x^3 - x^2 + x + 1$ is divided by x - 3, the remainder is:

**(a)** 104
**(b)** 105
**(c)** 106
**(d)** 103

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**Q24.** Which of the following represents the correct order of occurrence of the layers of the atmosphere, starting from the surface of the earth?

**(a)** Troposphere - Mesosphere - Stratosphere - Ionosphere - Exosphere
**(b)** Troposphere - Stratosphere - Ionosphere - Mesosphere - Exosphere
**(c)** Troposphere - Stratosphere - Exosphere - Ionosphere - Mesosphere
**(d)** Troposphere - Stratosphere - Mesosphere - Ionosphere - Exosphere

**Q25.** The price of tea has been reduced by 20%. In order to restore the original price, the new price must be increased by:

**(a)** 35%
**(b)** 25%
**(c)** 20%
**(d)** 30%

**Q26.** As per 13^(th) Edition of "Handbook on Fisheries Statistics", which state of India is the largest producer of marine fish?

**(a)** Gujarat
**(b)** Andhra Pradesh
**(c)** Kerala
**(d)** West Bengal

**Q27.** Select the option that is related to the fourth term in the same way as the first term is related to the second term.
Seed : Fruit :: ? : Paper

**(a)** Iron
**(b)** Plastic
**(c)** Grease
**(d)** Wood

**Q28.** Who invented the small pox vaccine?

**(a)** James Chadwick
**(b)** D Rutherford
**(c)** Edward Jenner
**(d)** Louis Pasteur

**Q29.** Ten years ago, X was 5 years old and his age was half of the age of Y. At that time, Z was 8 years younger than his brother P. Z was 18 years old at that time. What is the ratio of the respective ages of Z and P at present?

**(a)** 14 : 19
**(b)** 7 : 9
**(c)** 4 : 5
**(d)** 9 : 7

**Q30.** A vendor sells 10 oranges for Rs. 1 and gains 30%. How many oranges did he buy for Rs. 1?

**(a)** 9
**(b)** 7
**(c)** 13
**(d)** 11

**Q31.** While introducing a woman, Sohan said, "She is the mother of my father-in-law's daughter's son's aunt." What is the woman's relationship to Sohan's daughter?

**(a)** Mother
**(b)** Daughter-in-law
**(c)** Aunt
**(d)** Mother's mother

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**Q32.** The magnitude of an earthquake is measured in/on _____.

**(a)** Kilogram
**(b)** Pascal
**(c)** Bar
**(d)** the Richter Scale

**Q33.** Marsh and paddy fields emit which of the following gases?

**(a)** Nitrogen
**(b)** Helium
**(c)** Oxygen
**(d)** Methane

**Q34.** Solve the following: 8.75 × 8.75 - 135.625 + 7.75 × 7.75 = ?

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

**Q35.** Which of the following is an important female sex hormone?

**(a)** Nucleosome
**(b)** Estrogen
**(c)** Testosterone
**(d)** Chromatin

**Q36.** Who chaired the commission that drafted the Indian Penal code which was enacted in 1860?

**(a)** Lord Hardinge
**(b)** Lord Macauly
**(c)** Lord Linlithgow
**(d)** Lord Curzon

**Q37.** Which of the following statements is correct in the context to Aurora Borealis?

**(a)** It is mainly seen in the equatorial region.
**(b)** It is a beautiful natural light seen in the earth's sky.
**(c)** The emission of nitrogen into the Earth's atmosphere produces polar radiation (auroras).
**(d)** It is also called Southern Lights.

**Q38.** The value of x satisfying the equation $x^2 + a^2 = (b - x)^2$ is:

**(a)** $(b^2 - a^2)/2b$
**(b)** $(b^2 + a^2)/2b$
**(c)** $(b^2 - a^2)/2a$
**(d)** $(a^2 - b^2)/2b$

**Q39.** With reference to the Rajya Sabha, which of the following statement is correct?

**(a)** It is a directly elected body like Lok Sabha.
**(b)** The term of Rajya Sabha is six years.
**(c)** Rajya Sabha is the lower house of parliament.
**(d)** The Rajya Sabha is never dissolved.

**Q40.** A genetically modified form of brinjal was developed. What was its purpose?

**(a)** Making it insect-resistant
**(b)** Extending its storage period
**(c)** Making it drought-resistant
**(d)** Improving its taste

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**Q41.** Simplify the following. 1/5 ÷ (5/3 × 3/25)

**(a)** 0
**(b)** 2
**(c)** 3
**(d)** 1

**Q42.** Select the option that can replace the question mark (?) in the following series.

LB, MC, ?, OG, PK

**(a)** NF
**(b)** NE
**(c)** ND
**(d)** NJ

**Q43.** Which mountain range is located in Switzerland?

**(a)** The Urals
**(b)** Caucasus peaks
**(c)** The Alps
**(d)** Pyrenees

**Q44.** 15 men or 25 women can reap a field in 22 days. How many days will 9 men and 18 women take to reap it?

**(a)** 172/3
**(b)** 152/3
**(c)** 162/3
**(d)** 182/3

**Q45.** There are eight persons, i.e. A, B, C, D, E, F, G and H are sitting around a rectangular table. Four of the eight are sitting on four corners of the table facing opposite to the center while those who are sitting on the sides are facing the center. B is sitting at one of the corners. There are two people between A and B. G is sitting on one of the corners with E as his left neighbour. D is sitting second to the right of A. C and F are neighbours of A. There are two persons between H and C to the right of H. Who is sitting at the second place to the right of B?

**(a)** D
**(b)** C
**(c)** F
**(d)** G

**Q46.** Which of the following countries is a permanent member of the United Nations Security Council?

**(a)** Germany
**(b)** France
**(c)** Italy
**(d)** Japan

**Q47.** One of the mission under the National Action Plan for Climate Change (NAPCC) published by Govt. of India in 2008 is:

**(a)** National Mission for Sustaining the Himalayan Ecosystem
**(b)** National Sustainable Mission
**(c)** National Milk Mission
**(d)** National Mission for Agriculture

**Q48.** (41^(43) + 43^(43)) is divisible by:

**(a)** 74
**(b)** 84
**(c)** 32
**(d)** 86

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**Q49.** The Arjuna Award is given in the area of:

**(a)** Sports
**(b)** Entertainment
**(c)** Literature
**(d)** Military

**Q50.** Which of the following features provided by the constitution of India is related to 'Indian Judiciary'?

**(a)** Supremacy of judiciary
**(b)** Judicial independence
**(c)** Each state has its own high court
**(d)** Judges of high courts are elected

**Q51.** Find the difference of the place and face values of 6 in 516372.

**(a)** 6698
**(b)** 5394
**(c)** 5998
**(d)** 5994

**Q52.** Consider the given statements and decide which of the given assumptions is/are implicit in the statement.

Statement:
"Besides cricket, Indian Government should also promote other games".
Assumptions:
I. Cricket is world's most famous game.
II. Cricket receives the maximum support from the Indian Government

**(a)** Neither I nor II is implicit.
**(b)** Only assumption II is implicit.
**(c)** Only assumption I is implicit.
**(d)** Both I and II are implicit.

**Q53.** Panch Mahal built by Akbar is located in _____.

**(a)** Agra
**(b)** Delhi
**(c)** Fatehpur Sikri
**(d)** Ajmer

**Q54.** The award given to the coaches of sports and games in India is:

**(a)** Dronacharya Award
**(b)** Vir Chakra
**(c)** Arjuna Award
**(d)** Golden Boot

**Q55.** If $\sin\theta - \cos\theta = 0$, and $0 \le \theta \le 90^o$, then the value of $\sin\theta + \cos\theta$ is:

**(a)** $\sqrt{2}$
**(b)** $2\sqrt{2}$
**(c)** $3/\sqrt{2}$
**(d)** $1/\sqrt{2}$

**Q56.** Among the following, name the software components of a computer?

**(a)** CMOS
**(b)** CPU
**(c)** Memory
**(d)** Programs

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**Q57.** Which scientist invented the Periodic table?

**(a)** Ernest Rutherford
**(b)** Dalton
**(c)** Dmitri Mendeleev
**(d)** Newton

**Q58.** Which of the following is India's longest-range ballistic missile?

**(a)** Aakash III
**(b)** Agni V
**(c)** Naag Missile
**(d)** BrahMos

**Q59.** If every interior angle of a regular polygon is 144º, then the polygon has _____ sides.

**(a)** 15
**(b)** 12
**(c)** 8
**(d)** 10

**Q60.** Which of the following reasons can be attributed to 'Arctic Greening'?

**(a)** Global warming
**(b)** Increasing pollution
**(c)** Depletion of the ozone layer
**(d)** Ocean current

**Q61.** Select the number from the given options, that has the same relation to the fifth number as the second and fourth numbers have with the first and third numbers respectively.

15 : 1365 :: 27 : 2817 :: 43 : ?

**(a)** 4123
**(b)** 4493
**(c)** 3489
**(d)** 4893

**Q62.** In a list of total teachers of a school, a chemistry teacher is ranked eleventh from the top and thirty-second from the bottom. How many teachers are there in the school?

**(a)** 43
**(b)** 42
**(c)** 41
**(d)** 44

**Q63.** If the price of sugar falls by 25%, by how much percentage must a household increase its consumption so that the budget remains the same?

**(a)** 33(1)/(3)% %
**(b)** 33(1)/(4)% %
**(c)** 33(3)/(4)% %
**(d)** 33(2)/(3)% %

**Q64.** If $1 + \tan\theta = \sqrt{3}$, then, $\sqrt{3}\cot\theta - 1 = ?$

**(a)** $(\sqrt{3} + 1)/(2)$
**(b)** $(2\sqrt{3} - 1)/(2)$
**(c)** $(2\sqrt{3} + 1)/(2)$
**(d)** $(\sqrt{3} - 1)/(2)$

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**Q65.** The Salt march was launched by Mahatma Gandhi in the year:

**(a)** 1931
**(b)** 1930
**(c)** 1928
**(d)** 1929

**Q66.** Article 368 of the Indian constitution is related to:

**(a)** amendment of the constitution
**(b)** election to the post of president
**(c)** federal feature of our country
**(d)** national emergency

**Q67.** What is the incident of 'Komagata Maru' related to?

**(a)** Indian freedom struggle
**(b)** A terrorist attack in Mali
**(c)** Israel's attack on Palestine
**(d)** The Arab Revolution

**Q68.** $\cos(x - y) = (\sqrt{3})/2$, and $\sin(x + y) = 1$, where x and y are positive acute angles and $x \geq y$, then x and y are:

**(a)** $60^o$, $30^o$
**(b)** $70^o$, $20^o$
**(c)** $80^o$, $10^o$
**(d)** $50^o$, $40^o$

**Q69.** Ibn Battuta, a famous Moroccan traveller visited India during the time of:

**(a)** The British
**(b)** Chandragupta Maurya
**(c)** Delhi Sultanate
**(d)** Mughals

**Q70.** Which of the following two regions are biodiversity hot-spots of India?

**(a)** Simplipal National Park and Satkosia Tiger Reserve
**(b)** Kaziranga National Park and Eastern Ghats
**(c)** Krishna Wildlife Sanctuary and Kolleru Bird Sanctuary
**(d)** Western Ghats and Eastern Himalayas

**Q71.** The ratio of the numbers of sides of two regular polygons is 1 : 2. If each interior angle of the first polygon is $140^o$, then the measure of each interior angle of the second polygon is:

**(a)** $150^o$
**(b)** $170^o$
**(c)** $140^o$
**(d)** $160^o$

**Q72.** Pick the odd one out.

**(a)** TJ
**(b)** VK
**(c)** QD
**(d)** LF

**Q73.** Modern computers follow a set of instructions to perform any task. These instructions can be better known as:

**(a)** Programs
**(b)** Commands
**(c)** Guidelines
**(d)** Language

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**Q74.** Solve the following: √(7+ √(7+ √(7 + √(7 + ,...))))

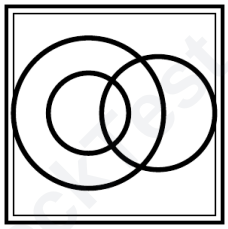
**(a)** (1 ± √31)/2
**(b)** (1 ± √28)/2
**(c)** (1 ± √30)/2
**(d)** (1 ± √29)/2

**Q75.** Sohan lost 20% by selling his old fan for Rs. 1,500. At what price (in Rs.) he should have sold it to get 20% profit?

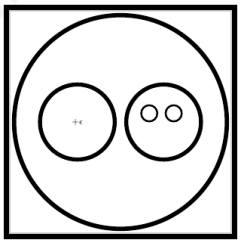
**(a)** 2,150
**(b)** 2,300
**(c)** 2,250
**(d)** 2,200

**Q76.** Select the Venn diagram that best represents the relationship between the following classes.
Wood, Furniture, Chair

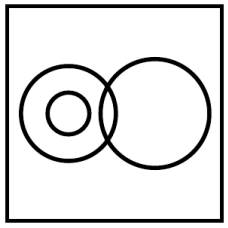
**(a)**



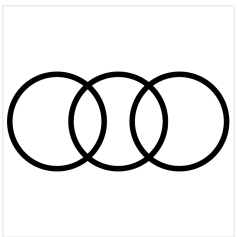
**(b)**



**(c)**



**(d)**



**Q77.** Which of the following kings was sent by Aurangzeb against Chhatrapati Shivaji Maharaj?

**(a)** Adil Shah
**(b)** Bahadurshah Zafar
**(c)** Jai Singh
**(d)** Man Singh

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**Q78.** How will you write 2.6 years in years, months and days?

**(a)** 2 years, 7 months and 6 days
**(b)** 2 years and 6 months
**(c)** 2 years, 6 months and 6 days
**(d)** 2 years, 5 months and 2 days

**Q79.** Bank rate is the interest rate at which:

**(a)** commercial banks lend money to the central bank
**(b)** the central bank lends money to the commercial banks
**(c)** the Government borrows from the central bank
**(d)** the central bank borrows from the government

**Q80.** The face value of 8 in 758639 is:

**(a)** 800
**(b)** 80
**(c)** 8
**(d)** 8000

**Q81.** Solve the following. (0.6 × 0.6 × 0.6 + 0.7 × 0.7 × 0.7)/(0.6 × 0.6 - 0.42 + 0.7 × 0.7), = ,?

**(a)** 1.3
**(b)** 1.5
**(c)** 1.4
**(d)** 1.6

**Q82.** A question is given followed by two arguments. Decide which of the arguments is/are strong with respect to the question.

Question:

Should different types of bowlers be included in the Indian cricket team?

Arguments:

I. Yes, because different types of bowlers play different roles in a team.

II. No, because the spectators like seeing fast bowlers.

**(a)** Neither I nor II is strong.
**(b)** Only Argument I is strong.
**(c)** Both I and II are strong.
**(d)** Only Argument II is strong.

**Q83.** Find percentage loss when cost price = Rs. 850 and selling price = Rs. 680.

**(a)** 30%
**(b)** 25%
**(c)** 35%
**(d)** 20%

**Q84.** Nayi Manzil Scheme launched by the government of India is related to:

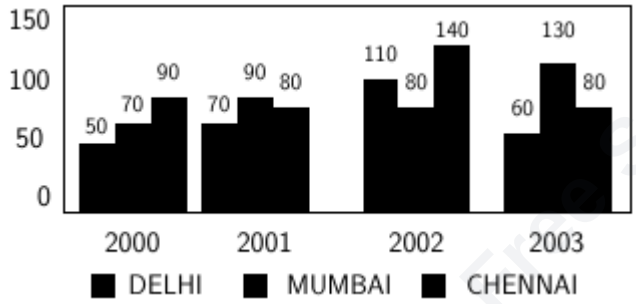
**(a)** Scholarship scheme for minority students.
**(b)** Prevention of child trafficking
**(c)** Leadership development of minority women
**(d)** Skill training for minority youths.

**Q85.** Which of the following is the least number that should be added to 3496, so that the sum is exactly divisible by 2, 6, 4 and 3

**(a)** 4
**(b)** 11
**(c)** 15
**(d)** 8

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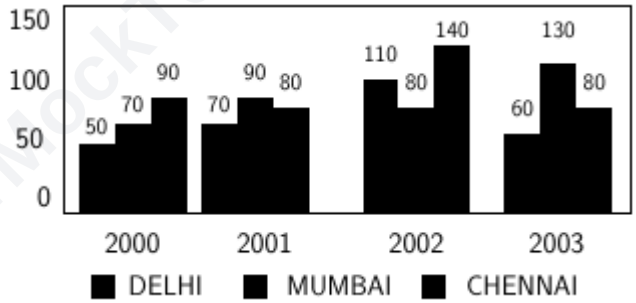
**Q86.** Study the given graph showing the rainfall (in mm) in three cities, i.e. Delhi, Mumbai and Chennai from the year 2000 to 2003 and answer the question that follows.




What is the average rainfall in Mumbai?

**(a)** 90.5 mm
**(b)** 87.5 mm
**(c)** 92.5 mm
**(d)** 91.5 mm

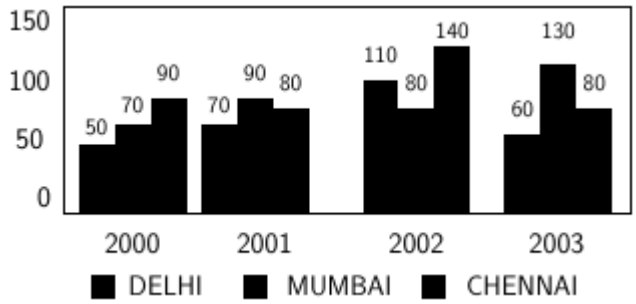
**Q87.** Study the given graph showing the rainfall (in mm) in three cities, i.e. Delhi, Mumbai and Chennai from the year 2000 to 2003 and answer the question that follows.




What is the highest percentage of increase or decrease in average rainfall in a particular year in comparison to its previous year?

**(a)** 15.5
**(b)** 20.5
**(c)** 37.5
**(d)** 25.5

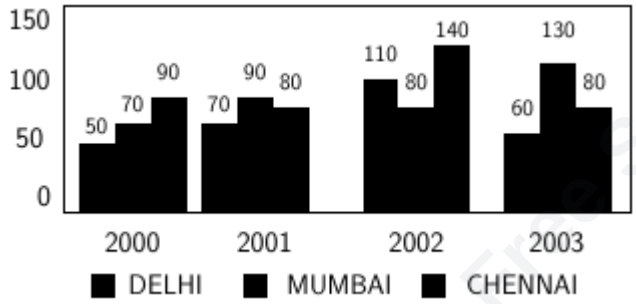
**Q88.** Study the given graph showing the rainfall (in mm) in three cities, i.e. Delhi, Mumbai and Chennai from the year 2000 to 2003 and answer the question that follows.




In which year was there the highest percentage difference (increase or decrease) in rainfall in Chennai?

**(a)** 2001
**(b)** 2000
**(c)** 2002
**(d)** 2003

**Q89.** Study the given graph showing the rainfall (in mm) in three cities, i.e. Delhi, Mumbai and Chennai from the year 2000 to 2003 and answer the question that follows.




Select the option indicating the city with the highest rainfall along with its average rainfall?

**(a)** Mumbai, 92.5
**(b)** Mumbai, 99.5
**(c)** Chennai, 97.5
**(d)** Delhi, 72.5

**Q90.** Among the following words, which one will come third if they are arranged as per their order in an English dictionary?

**(a)** Sentimentally
**(b)** Sentinel
**(c)** Sententious
**(d)** Sentence

**Q91.** There are six members in a family, i.e. K, L, W, X, M and Z. Each has a car of different colour. L has a white car. W does not have a black or yellow car. M has a red car and K does not have a blue car. Z has a brown car. Which of the following is the colour of W's car?

**(a)** Yellow
**(b)** Blue
**(c)** Black
**(d)** Red

**Q92.** Select the option in which the numbers share the same relationship as that shared by the given triad.

(15, 22, 29)

**(a)** (21, 41, 49)
**(b)** (44, 67, 17)
**(c)** (17, 42, 38)
**(d)** (9, 13, 17)

**Q93.** 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. Some glasses are mugs.
2. All mugs are plates.
3. No plate is a telephone.

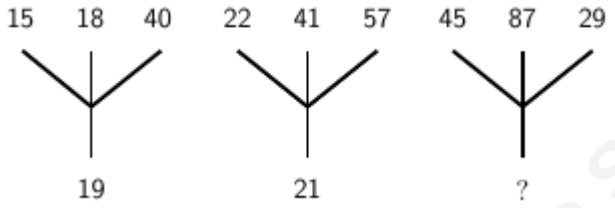
Conclusions:

1. Some glasses are plates.
2. Some mugs are not telephones.

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

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




**(a)** 42
**(b)** 24
**(c)** 35
**(d)** 53

**Q95.** Select the option that can replace the question mark (?) in the following series.

EC, GE, KG, MI, ?

**(a)** JP
**(b)** QK
**(c)** FI
**(d)** LF

**Q96.** Select the number that can replace the question mark (?) in the following series.

2/3, 2, 4, 20/3, ?

**(a)** 10
**(b)** 30
**(c)** 15/2
**(d)** 40/3

**Q97.** In the question below is given a statement followed by two conclusions numbered I and II. You have to assume everything in the statement to be true, then consider the two conclusions together and decide which of them logically follows beyond a reasonable doubt from the information given in the statement.

Statement:

If A was there in XYZ cricket team, XYZ would have been the invincible team in the world.

Conclusion:

I. Without A, XYZ cannot win.

II. A is more talented than anyone else in the XYZ cricket team.

**(a)** Only I follows.
**(b)** Only II follows.
**(c)** Both I and II follow.
**(d)** Neither I nor II follows.

**Q98.** Out of the four vegetables listed, three are alike in some manner and one is different. Select the odd one.

**(a)** Onion
**(b)** Cabbage
**(c)** Brinjal
**(d)** Ladyfinger

**Q99.** Which two signs are to be interchanged to make the given equation correct?

15 - 3 + 40 ÷ 5 × 30 = 23

**(a)** ÷ and -
**(b)** • and -
**(c)** • and ÷
**(d)** • and ×

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**Q100.** There are six persons, i.e. A, B, C, D, E and F sitting on a round table facing center, not necessarily in same order. D is not a neighbour of A or B. A is second to the left of B. B is a neighbour of E and F. Who is the second to the right of D?

**(a)** E
**(b)** B
**(c)** A
**(d)** F

## ANSWER KEY

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

## SOLUTIONS

**Q1. Answer: (a) 22500**

Given:
Speed of the train = 90 km/h.
Time = 15 min.
Formula Used:
Distance = Speed × Time
Calculation:
Convert time from minutes to hours:
Time = 15 min = 15/60 h = 0.25 h
Now, calculate the distance:
Distance = Speed × Time
=> Distance = 90 km/h × 0.25 h
=> Distance = 22.5 km
Convert distance from kilometers to meters:
1 km = 1000 meters
=> Distance = 22.5 km × 1000 m/km
=> Distance = 22500 meters
The train will cover 22500 meters in 15 minutes.

**Q2. Answer: (b) 4, 3**

Given:
Data: 2, 3, 5, 7, 2, 3, 3, 5, 7, 9
Formula Used:
1. Median: The middle value in an ordered data set.
2. Mode: The value that appears most frequently in a data set.
Calculation:
Ordered data: 2, 2, 3, 3, 3, 5, 5, 7, 7, 9

Median:

Number of data points (n) = 10 (even number)

Median is the average of the 5th and 6th values.

5th value = 3

6th value = 5

=> Median = (3 + 5) / 2

=> Median = 8 / 2

=> Median = 4

Mode:

The value that appears most frequently = 3

Frequency of 3 = 3 times

The median of the data is 4 and the mode is 3.

**Q3. Answer: (a) 550 m**

Given:

Ratio of length to breadth = 6 : 5

Difference between length and breadth = 25 m

Formula Used:

Perimeter of rectangle = 2 × (Length + Breadth)

Calculation:

Let the length be 6x and the breadth be 5x.

According to the given condition:

6x - 5x = 25

=> x = 25

Therefore,

Length = 6x = 6 × 25 = 150 m

Breadth = 5x = 5 × 25 = 125 m

Perimeter = 2 × (Length + Breadth)

Perimeter = 2 × (150 + 125)

Perimeter = 2 × 275

Perimeter = 550 m

The perimeter of the field is 550 m.

**Q4. Answer: (c) Raja Chelliah Committee**

The correct answer is Raja Chelliah Committee

Key Points

• Raja Chelliah Committee is known for its significant contributions to tax reforms in India.

• The committee was established to recommend measures for the reform of the tax system in the country, aiming to create a more efficient and equitable tax structure.

• It played a pivotal role in the rationalization of tax policies, including the introduction of Value Added Tax (VAT) and other reforms.

• The recommendations of the Raja Chelliah Committee have had a lasting impact on the fiscal policy and tax administration in India.

Additional Information

• Meera Seth Committee was related to the development of handloom industry.

• Ghosh Committee was related to the functioning of the money market in India.

• Anand Sinha Committee was set up to review the governance of boards of banks in India.

• Tax reforms are crucial for ensuring a fair and effective tax system, which can boost economic growth and public welfare.

**Q5. Answer: (c) It was launched to achieve the goal of universal sanitation.**

The correct answer is It was launched to achieve the goal of universal sanitation.

Key Points

• Swachh Bharat Abhiyan was launched to achieve the goal of universal sanitation.

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• The campaign was officially launched by the Government of India on October 2, 2014.

• It aims to eliminate open defecation and improve solid waste management across the country.

• The initiative covers both urban and rural areas, involving all states and Union Territories, including the North-Eastern states.

• Swachh Bharat Abhiyan is a significant step towards promoting cleanliness, hygiene, and public health in India.

Additional Information

• The campaign was launched on the birth anniversary of Mahatma Gandhi, who emphasized cleanliness and sanitation as an integral part of his philosophy.

• It is one of the largest cleanliness drives ever organized, with millions of government employees, students, and volunteers participating.

• The mission has led to the construction of millions of toilets in rural and urban areas, significantly reducing open defecation.

• Swachh Bharat Abhiyan also promotes behavioral change through awareness campaigns and community engagement.

**Q6. Answer: (b) 3413**

The logic followed here is:

So, '3413' is the missing number in the given series.

Hence, the correct answer is "Option 2".

**Q7. Answer: (a) 3030**

Given:

Number: 3636

Formula Used:

Place value of a digit in a number = Digit × Position value

Calculation:

Number: 3636

Place value of the first 3 (thousands place) = 3 × 1000 = 3000

Place value of the second 3 (tens place) = 3 × 10 = 30

Sum of the place values of 3 in 3636 = 3000 + 30

=> Sum of the place values = 3030

The sum of the place values of 3 in 3636 is 3030.

**Q8. Answer: (b) Neither of the conclusions 1 and 2 is logical.**

Given Statements:

1. All are bench bags.

2. Some bags are pillows.

3. Some bags are not chairs.

The least possible Venn diagram for the given statement is:

Conclusions:

I. Some benches are pillows - False (Because, No definite relation given between benches and pillows, so it can be possible only).

II. There are some pillows chairs - False (Because, No definite relation given between chairs and pillows, so it can be possible only).

So, Neither of the conclusions 1 and 2 is logical.

Hence, the correct answer is "Option 2".

**Q9. Answer: (c) Article-360**

The correct answer is Article-360

Key Points

• Article-360 of the Indian Constitution deals with the provision of financial emergency.

• Under Article-360, if the President of India is satisfied that a situation has arisen where the financial stability or credit of India or any part of its territory is threatened, he/she may declare a financial emergency.

• During the financial emergency, the executive authority of the Union extends to the giving of directions to any State to observe such canons of financial propriety as may be specified in the directions.

• It also allows the President to issue directions for the reduction of salaries and allowances of all or any class of persons serving in connection with the affairs of the Union, including the judges of the Supreme Court and the High Courts.

Additional Information

• The Constitution of India came into effect on 26th January 1950.

• It establishes the structure, procedures, powers, and duties of government institutions and sets out fundamental rights, directive principles, and the duties of citizens.

• India's Constitution is the longest written constitution of any country in the world.

• It declares India a sovereign, socialist, secular, and democratic republic, assuring its citizens justice, equality, and liberty, and endeavors to promote fraternity.

• The Constitution contains provisions for three types of emergencies: National Emergency (Article 352), State Emergency (Article 356), and Financial Emergency (Article 360).

• Amendments to the Constitution can be made through a process outlined in Article 368.

**Q10. Answer: (a) It covers most of the Deccan Plateau.**

The correct answer is It covers most of the Deccan Plateau.

Key Points

• Black soil covers most of the Deccan Plateau.

• It is also known as Regur soil or cotton soil due to its suitability for growing cotton.

• Black soil is rich in calcium carbonate, magnesium, potash, and lime but poor in nitrogen and phosphorus.

• This type of soil is known for its capacity to hold moisture and become sticky when wet, which helps in growing crops like cotton, cereals, oilseeds, and citrus fruits.

• The soil is formed from the weathering of volcanic rocks and is predominantly found in states like Maharashtra, Madhya Pradesh, Gujarat, Andhra Pradesh, and Tamil Nadu.

Additional Information

• Black soil is highly moisture-retentive and becomes very hard when dry.

• It is one of the most fertile soils in India and is extensively used for agriculture.

• The soil's color ranges from deep black to chestnut brown.

• Black soil is ideal for growing crops like cotton, wheat, sorghum, and millet.

• This soil type is also known for its self-ploughing nature, which means it develops cracks during dry periods, helping in natural aeration and reducing the need for mechanical ploughing.

**Q11. Answer: (a) 12.25**

Given:

35% of 35% of X

Formula Used:

Percentage of a number Y is given by (P/100) × Y

Calculation:

Let X be the number.

First, calculate 35% of X:

35% of X = (35/100) × X

Next, calculate 35% of the result:

35% of (35% of X) = 35% of ((35/100) × X)

=> (35/100) × ((35/100) × X)

=> (35/100) × (35/100) × X

=> $(35^2 / 100^2) \times X$

=> (1225 / 10000) × X

=> 0.1225 × X

Therefore, 35% of 35% of X = 12.25% of X

The correct answer is option 1.

**Q12. Answer: (d) 20**

Given:

24 persons can complete a task in 5 days.

Formula Used:

Work = Number of persons × Number of days

Number of days required = Total work / Number of persons

Calculation:

Total work = 24 persons × 5 days

Total work = 120 person-days

Number of days required for 6 persons = Total work / Number of persons

Number of days required for 6 persons = 120 person-days / 6 persons

=> Number of days required for 6 persons = 20 days

The correct answer is option 4.

**Q13. Answer: (b) 1/60**

Given:

HCF of 1/3, 3/4, 4/5, and 5/6

Formula used:

The HCF of fractions is given by:

HCF = HCF of numerators / LCM of denominators

Calculation:

Numerators: 1, 3, 4, 5

Denominators: 3, 4, 5, 6

HCF of 1, 3, 4, and 5 = 1

LCM of 3, 4, 5, and 6 = 60

=> HCF = 1 / 60

Therefore The correct answer is 1/60.

**Q14. Answer: (d) 24121512132**

The logic followed here is:

'C' is written as '24',

'O' is written as '12',

Similarly, for 'COLONY'

So, 'COLONY' will be written as '24121512132'.

Hence, the correct answer is "Option 4".

**Q15. Answer: (b) Dadabhai Naoroji**

The correct answer is Dadabhai Naoroji

Key Points

• Dadabhai Naoroji calculated the per capita income of India in 1867 and published his findings in the book 'Poverty and Un-British Rule in India'.

• He is known for his significant contributions to Indian economic thought and nationalist movement.

• Naoroji's work highlighted the economic exploitation of India under British rule and is considered a foundational text in Indian economic history.

• His calculations and arguments provided a critical perspective on the impact of British policies on India's economy.

Additional Information

• Dadabhai Naoroji is also known as the Grand Old Man of India and was one of the founding members of the Indian National Congress.

• He was the first Indian to be elected to the British Parliament, where he advocated for Indian rights and self-governance.

• Naoroji's book, 'Poverty and Un-British Rule in India', is a detailed critique of British economic policies and their detrimental impact on India's economy.

• His work laid the foundation for economic nationalism in India and inspired future leaders of the Indian independence movement.

**Q16. Answer: (b) 22**

The correct answer is 22

Key Points

• 22 crops are currently announced with Minimum Support Prices (MSP) by the government.

• The Minimum Support Price is a form of market intervention by the Government of India to insure agricultural producers against any sharp fall in farm prices.

• MSP is announced by the Government of India at the beginning of the sowing season for certain crops on the basis of the recommendations of the Commission for Agricultural Costs and Prices (CACP).

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• The MSP is aimed at ensuring the farmer a minimum profit for the harvest, if the open market has a lesser price than the cost incurred.

Additional Information

• The Commission for Agricultural Costs and Prices (CACP) is an attached office of the Ministry of Agriculture and Farmers Welfare, Government of India.

• The CACP submits separate reports recommending prices for Kharif and Rabi seasons.

• MSP is fixed on the recommendations of the CACP, taking into account various factors including the cost of production, changes in input prices, input-output price parity, trends in market prices, demand and supply, and a reasonable margin for farmers.

• The crops for which MSP is announced include cereals (paddy, wheat, barley, maize, ragi, jowar, bajra), pulses (gram, arhar/tur, moong, urad, lentil), oilseeds (groundnut, rapeseed and mustard, toria, soyabean, sunflower, safflower, nigerseed, sesamum), and commercial crops (cotton, sugarcane, copra, raw jute).

**Q17. Answer: (c) Yoga**

The correct answer is Yoga

Key Points

• Yoga is one of the six schools of Indian philosophy, collectively known as "Shad Darshanas".

• These six schools are: Nyaya, Vaisheshika, Samkhya, Yoga, Mimamsa, and Vedanta.

• The Yoga school of philosophy focuses on the mind-body connection and is known for its practices of meditation and physical postures.

• Founded by Sage Patanjali, Yoga philosophy emphasizes the eightfold path (Ashtanga Yoga) for achieving spiritual enlightenment.

Additional Information

• The six schools of Indian philosophy are categorized into orthodox (Astika) and unorthodox (Nastika) systems based on their acceptance of the Vedas.

• Astika systems accept the authority of the Vedas, while Nastika systems, such as Buddhism and Jainism, do not.

• Each school offers a unique perspective on the nature of reality, the self, and the universe, contributing to the rich tapestry of Indian philosophical thought.

• Yoga, as a practice, has gained global recognition for its benefits to mental and physical health, transcending its philosophical roots.

**Q18. Answer: (b) 19,448.1**

Given:

Principal (P) = Rs. 16,000

Time (t) = 2 years

Annual interest rate (r) = 10%

Interest compounded semi-annually

Formula used:

Compound Interest formula: A = P (1 + r/(n × 100))^(n × t)

Where:

A = Amount

P = Principal

r = Annual interest rate

t = Time (in years)

n = Number of times interest applied per time period

Calculation:

Given n = 2 (since interest is compounded semi-annually):

A = 16000 (1 + 10/(2 × 100))^(2 × 2)

A = 16000 (1 + 10/200)^4

A = 16000 (1 + 0.05)^4

A = 16000 (1.05)^4

A = 16000 × 1.21550625

A ≈ 16000 × 1.21550625 = 19448.10

Therefore, the man will get approximately Rs. 19,448.10 after the full term.

**Q19. Answer: (c) Silicon**

The correct answer is Silicon

Key Points

• Silicon is the primary material used in the manufacturing of microchips.

• Microchips, also known as integrated circuits, are essential components in various electronic devices, including computers, smartphones, and other digital gadgets.

• Silicon is preferred due to its excellent semiconducting properties, which make it ideal for controlling electrical currents.

• It is abundant in nature and can be purified to a high degree, making it cost-effective for large-scale production.

• Silicon wafers are used as substrates on which microelectronic devices are built through processes like doping, etching, and photolithography.

Additional Information

• Microchips have revolutionized the electronics industry by enabling miniaturization and enhancing the performance of electronic devices.

• The development of silicon-based microchips has led to significant advancements in computing power, data storage, and communication technologies.

• Silicon Valley, located in California, USA, is named after silicon because it is the hub of the world's leading high-tech companies and semiconductor industry.

• Silicon's role in microchip production has made it a cornerstone material in the field of modern electronics and information technology.

**Q20. Answer: (d) Mughals**

The correct answer is Mughals

Key Points

• The Shalimar Gardens located in Lahore and Kashmir are masterpieces of Mughal architecture.

• The gardens were constructed during the reign of the Mughal Emperor Shah Jahan in the 17th century.

• The Shalimar Gardens in Lahore are a UNESCO World Heritage Site and are known for their terraced lawns, fountains, and marble pavilions.

• The Shalimar Bagh in Kashmir, also known as the "abode of love," is famed for its exquisite design and scenic beauty, reflecting the grandeur of the Mughal era.

Additional Information

• The Mughal Empire, which ruled most of India and Pakistan in the 16th and 17th centuries, is known for its contributions to art, culture, and architecture.

• Other notable Mughal architectural achievements include the Taj Mahal, the Red Fort, and the Jama Masjid.

• Mughal gardens are characterized by their symmetrical layout, use of water features, and incorporation of Persian design elements.

• The Mughal period is often regarded as a golden age of Indian architecture and culture, marked by significant advancements in building techniques and artistic expression.

• The influence of Mughal architecture can still be seen in many structures across South Asia today.

**Q21. Answer: (b) Memory**

The correct answer is Memory

Key Points

• Memory is an essential component of the Central Processing Unit (CPU).

• The CPU is responsible for executing instructions and processing data in a computer.

• Memory, also known as RAM (Random Access Memory), temporarily stores data and instructions that the CPU needs while performing tasks.

• Other components such as the Keyboard, Monitor, and Mouse are peripheral devices, not part of the CPU.

Additional Information

• The CPU consists of the Arithmetic Logic Unit (ALU), which performs arithmetic and logical operations, and the Control Unit (CU), which directs all the operations within the computer.

• Cache memory is another type of memory that is used to speed up the processing by storing frequently accessed data.

• The CPU interacts with other components of the computer system through the system bus.

• Modern CPUs also include multiple cores, allowing them to perform multiple tasks simultaneously, enhancing performance.

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**Q22. Answer: (b) √ 3 : 4**

Given:

Side of the equilateral triangle = x

Side of the square = x

Formula Used:

Area of an equilateral triangle = √3/4 x²

Area of a square = x2

Calculation:

Area of the equilateral triangle = √3/4 x²

Area of the square = x2

Ratio of the areas = (√3/4 x²)/(x²)

=> Ratio of the areas = √3/4

=> Ratio of the areas = √3 : 4

The ratio of the area of an equilateral triangle of side x to the area of a square of side x is √ 3 : 4.3–√:43–√:4

**Q23. Answer: (d) 103**

Given:

x4+x3−x2+x+1x4+x3−x2+x+1x4+x3−x2+x+1x4+x3−x2+x+1x4+x3−x2+x+1 x−3x−3x−3x−3x−3x−3

When x4 + x3 - x2 + x + 1 is divided by x - 3, the remainder is:

Formula used:

Remainder Theorem: If a polynomial (f(x)) is divided by (x - a), the remainder is (f(a)).

Calculation:

Let (f(x) = x^4 + x³ - x² + x + 1).

According to the Remainder Theorem:

=> f(3) = 3^4 + 3³ - 3² + 3 + 1)

=> f(3) = 81 + 27 - 9 + 3 + 1)

=> f(3) = 103)

Therefore The remainder is 103.

**Q24. Answer: (d) Troposphere - Stratosphere - Mesosphere - Ionosphere - Exosphere**

The correct answer is Troposphere - Stratosphere - Mesosphere - Ionosphere - Exosphere

Key Points

• Troposphere - Stratosphere - Mesosphere - Ionosphere - Exosphere is the correct order of the layers of the atmosphere starting from the surface of the Earth.

• The Troposphere is the lowest layer, where most of the Earth's weather occurs.

• The Stratosphere contains the ozone layer, which absorbs and scatters ultraviolet solar radiation.

• The Mesosphere is where most meteorites burn up upon entering the Earth's atmosphere.

• The Ionosphere is a part of the thermosphere and is ionized by solar radiation, playing a crucial role in atmospheric electricity.

• The Exosphere is the outermost layer, where atmospheric particles are so sparse that they can travel hundreds of kilometers without colliding with one another.

Additional Information

• The Troposphere extends up to about 8 to 15 kilometers above sea level.

• The Stratosphere extends from about 15 to 50 kilometers above the Earth's surface.

• The Mesosphere extends from about 50 to 85 kilometers above the Earth.

• The Ionosphere overlaps the mesosphere and thermosphere, ranging from about 60 to 1,000 kilometers.

• The Exosphere extends from the top of the thermosphere to about 10,000 kilometers above the Earth.

• These atmospheric layers play critical roles in various environmental and communication processes.

**Q25. Answer: (b) 25%**

Given:

The price of tea has been reduced by 20%.

Formula used:

Let the original price of tea be 100 units.

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New price after 20% reduction = Original price - 20% of Original price

Percentage increase required to restore the original price = Increase/(New price) × 100

Calculation:

Original price = 100 units

Reduction = 20% of 100 = 20 units

New price = 100 - 20 = 80 units

To restore the original price, the new price must be increased by:

Increase required = Original price - New price = 100 - 80 = 20 units

Percentage increase = 20/80 × 100 = 25%

Therefore, the new price must be increased by 25% to restore the original price.

**Q26. Answer: (a) Gujarat**

The correct answer is Gujarat

Key Points

• Gujarat is the largest producer of marine fish in India.

• This information is based on the 13th Edition of the "Handbook on Fisheries Statistics".

• Gujarat's coastline and extensive fishing activities contribute significantly to its leading position in marine fish production.

• Other states like Andhra Pradesh and Kerala also have significant marine fish production, but Gujarat tops the list.

Additional Information

• The "Handbook on Fisheries Statistics" is published by the Department of Fisheries, Ministry of Fisheries, Animal Husbandry, and Dairying, Government of India.

• The handbook provides comprehensive data on India's fisheries sector, including marine, inland, and aquaculture fisheries.

• Fisheries play a crucial role in India's economy, providing employment and contributing to food security.

• Gujarat's dominance in marine fish production is supported by its long coastline, advanced fishing techniques, and robust infrastructure.

**Q27. Answer: (d) Wood**

The logic followed here is:

Logic: The first term is a raw material that goes through a specific process to become the finished product in the second term.

Here,

Seed : Fruit → A seed grows into a fruit.

Similarly,

Wood : Paper → Paper is made from the pulp of wood.

Hence, the correct answer is "Option 4".

**Q28. Answer: (c) Edward Jenner**

The correct answer is Edward Jenner

Key Points

• Edward Jenner is credited with the invention of the smallpox vaccine.

• Jenner, an English physician and scientist, developed the first successful vaccine in 1796.

• He used material from cowpox pustules to create immunity to smallpox, a method that proved to be effective.

• This groundbreaking work laid the foundation for modern immunology and vaccination practices.

• Smallpox was declared eradicated in 1980, thanks to the widespread use of the vaccine initiated by Jenner's discovery.

Additional Information

• Edward Jenner was born on 17 May 1749 and died on 26 January 1823.

• He is often referred to as the "father of immunology."

• Jenner's method of vaccination was initially met with skepticism but eventually gained acceptance and led to the development of other vaccines.

• The World Health Organization (WHO) has recognized Jenner's contribution as a milestone in the field of medicine.

• Jenner's work has saved countless lives and continues to influence public health policies worldwide.

**Q29. Answer: (b) 7 : 9**

Given:

Ten years ago, X was 5 years old.

At that time, X's age was half of Y's age.
Z was 8 years younger than his brother P ten years ago.
Z was 18 years old ten years ago.
Formula Used:
Ratio = Z's present age / P's present age
Calculation:
Ten years ago, X's age = 5 years
Y's age ten years ago = 2 × 5 = 10 years
Z's age ten years ago = 18 years
P's age ten years ago = Z's age ten years ago + 8
P's age ten years ago = 18 + 8
P's age ten years ago = 26 years
Present age of Z = Z's age ten years ago + 10
=> Present age of Z = 18 + 10
=> Present age of Z = 28 years
Present age of P = P's age ten years ago + 10
=> Present age of P = 26 + 10
=> Present age of P = 36 years
Ratio of Z's age to P's age = Z's present age / P's present age
=> Ratio = 28 / 36
=> Ratio = 7 / 9
The ratio of the respective ages of Z and P at present is 7:9.

**Q30. Answer: (c) 13**

Given:
A vendor sells 10 oranges for Rs. 1 and gains 30%.
Formula used:
Cost Price (CP) = Selling Price (SP) / (1 + Gain%)
Gain% = 30%, SP = Rs. 1 for 10 oranges
Calculation:
Let the cost price of 10 oranges be CP.
Given, SP = Rs. 1 and Gain% = 30%.
=> CP = SP/(1 + Gain%)
=> CP = 1/(1 + 0.30)
=> CP = 1/1.30
=> CP = 10/13 Rs. for 10 oranges
Cost price of 1 orange = 10/13 ÷ 10 = 1/13 Rs.
For Rs. 1, number of oranges = 13
Therefore He bought 13 oranges for Rs. 1.

**Q31. Answer: (d) Mother's mother**

Preparing the family tree using the following symbol:
1) "She is the mother of my father-in-law's daughter's son's aunt."
Clearly, the woman is the grandmother of Sohan's daughter.
Hence, the correct answer is "mother's mother".

**Q32. Answer: (d) the Richter Scale**

The correct answer is the Richter Scale
Key Points
• The magnitude of an earthquake is measured on the Richter Scale.
• The Richter Scale quantifies the amount of seismic energy released by an earthquake.
• It is a logarithmic scale, meaning each whole number increase on the scale represents a tenfold increase in measured amplitude and roughly 31.6 times more energy release.

• The scale was developed in 1935 by Charles F. Richter in collaboration with Beno Gutenberg of the California Institute of Technology.

• While the Richter Scale is widely known, other scales like the Moment Magnitude Scale (Mw) are also used for more accurate measurements of larger earthquakes.

Additional Information

• The Richter Scale was the first standardized scale for measuring the magnitude of earthquakes.

• It has largely been replaced by the Moment Magnitude Scale (Mw) for modern scientific use, although the term "Richter Scale" is still commonly used by the general public.

• Earthquakes with a magnitude of about 4.5 or higher are strong enough to be recorded by seismographs all around the world.

• The largest earthquake ever recorded was a magnitude 9.5 in Chile in 1960.

• Seismographs are the instruments used to detect and record the vibrations caused by earthquakes.

**Q33. Answer: (d) Methane**

The correct answer is Methane

Key Points

• Methane is the primary gas emitted from marsh and paddy fields.

• Marshes and paddy fields are environments where anaerobic conditions prevail, leading to the production of methane by methanogenic bacteria.

• Methane is a potent greenhouse gas with a global warming potential significantly higher than that of carbon dioxide.

• In paddy fields, the waterlogged conditions create an anaerobic environment conducive to the activity of methanogens, which decompose organic matter to produce methane.

Additional Information

• Methane emissions from paddy fields can be influenced by various factors such as water management, soil type, temperature, and the use of fertilizers.

• Efforts to mitigate methane emissions from paddy fields include practices such as intermittent irrigation (alternate wetting and drying), use of methane inhibitors, and improved rice varieties.

• Methane is also emitted from other natural sources such as wetlands, termites, and oceans, as well as anthropogenic sources like livestock, landfills, and fossil fuel extraction.

• Reducing methane emissions is crucial for combating climate change and achieving global greenhouse gas reduction targets.

**Q34. Answer: (c) 1**

Given:

8.75 × 8.75 - 135.625 + 7.75 × 7.75

Formula Used:

Use the BODMAS/BIDMAS rules (Brackets, Orders (i.e. powers and square roots, etc.), Division and Multiplication, Addition and Subtraction) to solve the equation.

Calculation:

First, calculate the squares:

8.75 × 8.75 = 76.5625

7.75 × 7.75 = 60.0625

Next, substitute the values into the equation:

76.5625 - 135.625 + 60.0625

Now, perform the subtraction and addition:

=> 76.5625 - 135.625 = -59.0625

=> -59.0625 + 60.0625 = 1

The answer is 1.

**Q35. Answer: (b) Estrogen**

The correct answer is Estrogen

Key Points

• Estrogen is a primary female sex hormone responsible for the development and regulation of the female reproductive system and secondary sexual characteristics.

• It plays a crucial role in the menstrual cycle and reproductive system and affects bones, brain, and cardiovascular health.

• There are three major forms of estrogen in women: estradiol, estrone, and estriol.

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• Estrogen is produced mainly in the ovaries, but also in smaller amounts by the adrenal glands and fat tissues.

Additional Information

• Testosterone is primarily a male sex hormone, although it is present in smaller amounts in females.

• Nucleosome and Chromatin are related to DNA packaging in cells and are not hormones.

• Estrogen levels can be affected by age, menstrual cycle, pregnancy, and certain medical conditions.

• Hormone replacement therapy (HRT) can be used to manage symptoms of menopause by supplementing estrogen levels.

**Q36. Answer: (b) Lord Macauly**

The correct answer is Lord Macaulay

Key Points

• Lord Macaulay chaired the commission that drafted the Indian Penal Code, which was enacted in 1860.

• The Indian Penal Code (IPC) is the official criminal code of India, covering all substantive aspects of criminal law.

• It was drafted in 1860 on the recommendations of the first law commission of India established in 1834 under the Charter Act of 1833 under the chairmanship of Lord Macaulay.

• The IPC has since been amended several times and is now supplemented by other criminal provisions.

Additional Information

• Thomas Babington Macaulay, commonly known as Lord Macaulay, was a British historian and politician.

• He played a significant role in the introduction of English and Western concepts to education in India.

• His efforts laid the groundwork for the modern Indian legal system, and the IPC remains a cornerstone of Indian law to this day.

• The IPC is divided into 23 chapters, comprising 511 sections, and is applicable to the whole of India except the state of Jammu and Kashmir.

**Q37. Answer: (b) It is a beautiful natural light seen in the earth's sky.**

The correct answer is It is a beautiful natural light seen in the earth's sky.

Key Points

• Aurora Borealis, also known as the Northern Lights, is a beautiful natural light display predominantly seen in high-latitude regions around the Arctic.

• It is caused by the collision of energetic charged particles with atoms in the high-altitude atmosphere (thermosphere).

• The phenomenon is most commonly visible in the polar regions, particularly in countries like Norway, Sweden, Finland, Iceland, Canada, and Alaska (USA).

• The lights are typically seen in a variety of colors including green, pink, red, yellow, blue, and violet.

Additional Information

• Aurora Australis, or the Southern Lights, is a similar phenomenon occurring in the southern hemisphere.

• The term "aurora" is derived from the name of the Roman goddess of dawn, Aurora, while "borealis" comes from the Greek name for the north wind, Boreas.

• Auroras are not only limited to Earth; they have been observed on other planets in our solar system, such as Jupiter and Saturn.

• Scientific studies of auroras help in understanding the Earth's magnetosphere and the solar wind.

**Q38. Answer: (a) $(b^2 - a^2)/2b$**

Given:

x2 + a2 = (b - x)2

Formula used:

Expand the right-hand side and solve for x.

Calculation:

Given equation: x2 + a2 = (b - x)2

Expand the right-hand side:

$x^2 + a^2 = b^2 - 2bx + x^2$

Subtract x2 from both sides:

$a^2 = b^2 - 2bx$

Rearrange to solve for x:

a2 - b2 = - 2bx

$-1(b^2 - a^2) = 2bx$

Divide both sides by -2b:

$x = (b^2 - a^2) / 2b$

Therefore The value of x satisfying the equation is x = (b2 - a2) / 2b.

**Q39. Answer: (d) The Rajya Sabha is never dissolved.**

The correct answer is The Rajya Sabha is never dissolved

Key Points

• The Rajya Sabha is never dissolved and is a permanent body. Members serve staggered six-year terms, with one-third of the members retiring every two years.

• Rajya Sabha, also known as the Council of States, is the upper house of the Parliament of India.

• It represents the states and union territories of India.

• Unlike the Lok Sabha, which is a directly elected body, members of the Rajya Sabha are elected by the elected members of State Legislative Assemblies, and by the members of the Electoral college for Union Territories, using a single transferable vote through proportional representation.

• The Vice President of India is the ex-officio Chairman of the Rajya Sabha.

Additional Information

• Article 80 of the Indian Constitution outlines the composition of the Rajya Sabha.

• The maximum strength of the Rajya Sabha is fixed at 250, out of which 238 are representatives of the States & Union territories, and 12 are nominated by the President.

• The nominations are made from among persons who have special knowledge or practical experience in literature, science, art, and social service.

• The Rajya Sabha has equal footing in all areas of legislation with the Lok Sabha except in the case of Money Bills, where the Lok Sabha has the overriding powers.

• It plays a crucial role in the federal structure of the country by representing the interests of the states.

**Q40. Answer: (a) Making it insect-resistant**

The correct answer is Making it insect-resistant

Key Points

• A genetically modified form of brinjal was developed with the purpose of making it insect-resistant.

• This modification helps in reducing the damage caused by insects, thereby leading to better yield and reduced need for chemical pesticides.

• The insect-resistant trait is achieved by introducing a gene from the bacterium Bacillus thuringiensis (Bt), which produces a protein toxic to certain insects.

• This form of brinjal is commonly referred to as Bt brinjal.

Additional Information

• Genetic modification in crops aims to improve various traits such as resistance to pests, diseases, environmental conditions, and to enhance nutritional content.

• Bt brinjal has been a subject of debate and regulatory scrutiny in various countries due to concerns about its impact on health, environment, and biodiversity.

• The development and commercialization of genetically modified crops are regulated by national and international agencies to ensure their safety and efficacy.

• Bt crops have been successfully used in other plants like cotton and maize, contributing to increased agricultural productivity.

**Q41. Answer: (d) 1**

Calculation:

1/5 ÷ (5/3 × 3/25)

=> 1/5 ÷ 1/5

=> 1/5 × 5

=> 1

Therefore The correct answer is option (4).

**Q42. Answer: (b) NE**

The logic followed here is:

1st Letter:- Increase by +1 in the positional value of alphabets

2nd Letter:- Positional value of Alphabets follows the Prime number series.

So, 'NE' will replace the question mark in the given series.

Hence, the correct answer is "Option 2".

**Q43. Answer: (c) The Alps**

The correct answer is The Alps

Key Points

• The Alps are a major mountain range located in Switzerland.

• The Alps stretch across eight countries in Europe: France, Switzerland, Monaco, Italy, Liechtenstein, Austria, Germany, and Slovenia.

• They are famous for their stunning landscapes, which include some of the highest and most rugged peaks in Europe, such as Mont Blanc and the Matterhorn.

• The region is a popular destination for skiing, mountaineering, hiking, and other outdoor activities.

• The Alps play a crucial role in the climate and water systems of Europe, acting as a natural barrier and water source for many rivers.

Additional Information

• Switzerland is known for its picturesque Alpine scenery, which attracts millions of tourists each year.

• The Swiss Alps are home to numerous glaciers, including the Aletsch Glacier, the largest glacier in the Alps.

• Switzerland's economy benefits significantly from tourism, winter sports, and alpine agriculture.

• The Alps have a rich cultural heritage, with local traditions, languages, and cuisines varying across different regions.

• Efforts are being made to preserve the natural environment of the Alps, addressing challenges such as climate change, habitat loss, and sustainable tourism.

**Q44. Answer: (c) 162/3**

Given:

15 men or 25 women can reap a field in 22 days.

Formula Used:

Work done = Number of people × Number of days

Combined work rate = (Work rate of men) + (Work rate of women)

Total work = Work rate × Time

Calculation:

Let the total work be W.

Work rate of 15 men = Work rate of 25 women = W / 22

=> Work rate of 1 man = (W / 22) / 15 = W / (22 × 15)

=> Work rate of 1 woman = (W / 22) / 25 = W / (22 × 25)

Combined work rate of 9 men and 18 women:

=> 9 × (W / (22 × 15)) + 18 × (W / (22 × 25))

=> (9W / 330) + (18W / 550)

Find a common denominator (1650):

=> (9W / 330) = (9W × 5) / 1650 = 45W / 1650

=> (18W / 550) = (18W × 3) / 1650 = 54W / 1650

=> Combined work rate = (45W / 1650) + (54W / 1650)

=> Combined work rate = 99W / 1650

=> Combined work rate = W / (1650 / 99)

=> Combined work rate = W / $16^2/3$ days

Therefore, the number of days required for 9 men and 18 women to reap the field is $16^2/3$ days.

The correct answer is option 3.

**Q45. Answer: (c) F**

Let's analyze the given information step by step to determine the seating arrangement around the rectangular table.

1. B is sitting at one of the corners facing opposite to the center.

2. There are two people between A and B. So there are two possibilities.

Case I:

Case II:

3. D is sitting second to the right of A. C and F are neighbors of A.

Case I:

Case II:

4. G is sitting on one of the corners with E as his left neighbor. so, option I is eliminated.

Case II:

5. There are two persons between H and C to the right of H.

Therefore, second place of B is F.

Hence, the correct answer is : Option 3.

**Q46. Answer: (b) France**

The correct answer is France

Key Points

• France is one of the five permanent members of the United Nations Security Council (UNSC).

• The other four permanent members are China, Russia, the United Kingdom, and the United States.

• These five countries hold veto power, which allows them to block any substantive resolution.

• The permanent members were established after World War II, reflecting the major Allied powers' roles in the war.

• The UNSC is responsible for maintaining international peace and security.

Additional Information

• The United Nations was established on 24th October 1945, shortly after the end of World War II.

• The UN Charter was signed on 26th June 1945, in San Francisco, at the conclusion of the United Nations Conference on International Organization.

• The UNSC has a total of 15 members: 5 permanent and 10 non-permanent members elected for two-year terms by the General Assembly.

• The non-permanent members are chosen to achieve equitable geographic representation.

• The primary responsibilities of the UNSC include the establishment of peacekeeping operations, the establishment of international sanctions, and the authorization of military action through resolutions.

• The decisions of the UNSC are binding on all member states of the United Nations.

**Q47. Answer: (a) National Mission for Sustaining the Himalayan Ecosystem**

The correct answer is National Mission for Sustaining the Himalayan Ecosystem

Key Points

• National Mission for Sustaining the Himalayan Ecosystem is one of the missions under the National Action Plan for Climate Change (NAPCC) published by the Government of India in 2008.

• The NAPCC comprises eight missions which focus on various aspects of climate change and sustainable development.

• These missions aim to promote understanding of climate change, adaptation, mitigation, energy efficiency, and natural resource conservation.

• The National Mission for Sustaining the Himalayan Ecosystem aims to understand the complex processes affecting the Himalayan ecosystem and evolve suitable management and policy measures for sustaining and safeguarding the Himalayan glaciers and mountain ecosystems.

• Other missions under NAPCC include the National Solar Mission, National Mission for Enhanced Energy Efficiency, National Mission on Sustainable Habitat, and others.

Additional Information

• The National Action Plan for Climate Change (NAPCC) was launched by the Prime Minister's Council on Climate Change in June 2008.

• It primarily focuses on promoting understanding of climate change, adaptation, mitigation, energy efficiency, and conservation of natural resources.

• The NAPCC is guided by the principles of protecting the poor and vulnerable sections of society through an inclusive and sustainable development strategy.

• It also emphasizes the importance of international cooperation and the need for a global effort in addressing climate change.

**Q48. Answer: (b) 84**

Given:

Expression: (4143 + 4343)

Formula Used:

To check divisibility, calculate the sum and then check divisibility by each option.

Calculation:

(4143 + 4343) = 84^(43)

Now check divisibility:

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84^(43) ÷ 74 ≠ integer

84^(43) ÷ 84 = 101

84^(43) ÷ 32 ≠ integer

84^(43) ÷ 86 ≠ integer

Since 84^(43) is divisible by 84, the correct answer is option 2.

**Q49. Answer: (a) Sports**

The correct answer is Sports

Key Points

• The Arjuna Award is presented to recognize outstanding achievement in national sports.

• It was established in 1961 by the Government of India.

• The award includes a bronze statuette of Arjuna, a certificate, and a cash prize.

• It aims to encourage athletes to excel and bring glory to the country through their performance and dedication.

• Recipients of the Arjuna Award are selected based on their performance over the previous four years, as well as their contribution to the sport.

Additional Information

• The awards were expanded in 1977 to include indigenous games and the physically handicapped category.

• In 2001, the criteria for the award were modified to include performance at the international level and leadership qualities.

• Other major sports awards in India include the Rajiv Gandhi Khel Ratna, Dronacharya Award, and the Dhyan Chand Award.

• The Ministry of Youth Affairs and Sports is responsible for the administration and selection process of the Arjuna Award.

**Q50. Answer: (b) Judicial independence**

The correct option is 'Judicial independence'.

Key Points

• Judicial Independence, is a cornerstone principle of the constitution of India, making it the correct choice.

• The independence of the judiciary ensures that it can operate without influence from the other branches of government or from private or partisan interests.

• The Indian constitution provides for a comprehensive, independent and powerful judicial system.

• Judges are appointed and not elected, ensuring that they are not subjected to the volatility or pressures of politics, and can give verdicts without any pressure or influence.

• The Supreme Court and High Courts have the power of Judicial Reviews and can declare any law passed by the Parliament as unconstitutional if it infringes upon the rights provided by the Constitution of India.

• This ensures that legislature and executive cannot impinge upon the rights of the individuals.

• Moreover, the proposed removal of judges is a complex process that further ensures their independence.

• For example, a judge can only be removed from office by order of the President, based on a resolution passed by both houses of Parliament on the grounds of proven misbehavior or incapacity.

• This is a rare and difficult process, which effectively guarantees the safety of the judges' tenure, promoting their independence.

Therefore, the Indian Constitution is designed in a way to uphold and protect the independence of the judiciary.

**Q51. Answer: (d) 5994**

Given:

Number = 516372

Formula Used:

Place value of a digit = digit × (position value)

Face value of a digit = digit itself

Difference = Place value - Face value

Calculation:

Place value of 6 in 516372 = 6 × 1000

Face value of 6 in 516372 = 6

=> Place value of 6 = 6000

=> Face value of 6 = 6

Difference = 6000 - 6

=> Difference = 5994

The difference between the place and face values of 6 in 516372 is 5994.

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**Q52. Answer: (b) Only assumption II is implicit.**

The given statement is: "Besides cricket, Indian Government should also promote other games".

Assumptions:

I. Cricket is world's most famous game → Not implicit (This assumption is about the global popularity of cricket. However, the statement is focused on what the Indian Government should do within India, not on the worldwide context of the game's popularity).

II. Cricket receives the maximum support from the Indian Government → Implicit (This assumption suggests that cricket receives significant attention and support from the Indian Government. The statement implies that, in addition to cricket, other games should also receive attention and support. For this implication to make sense, it must be assumed that cricket is already receiving substantial support).

Hence, the correct answer is "Only assumption II is implicit".

**Q53. Answer: (c) Fatehpur Sikri**

The correct answer is Fatehpur Sikri

Key Points

• Panch Mahal is a five-storied palace in Fatehpur Sikri, which was built by the Mughal Emperor Akbar.

• This architectural marvel is known for its unique design, which features tiers of pillars and open pavilions.

• The Panch Mahal served as a pleasure palace and was used for entertainment and relaxation.

• It is one of the prominent structures in the Fatehpur Sikri complex, which includes other notable buildings like the Buland Darwaza and Jama Masjid.

• Fatehpur Sikri was the capital of the Mughal Empire for a brief period and is now a UNESCO World Heritage Site.

Additional Information

• Fatehpur Sikri was founded in 1571 by Emperor Akbar as the capital of the Mughal Empire but was abandoned after only 14 years due to water scarcity.

• The city is a fine example of Mughal architecture, blending influences from Hindu, Persian, and Islamic styles.

• Key attractions in Fatehpur Sikri include the Diwan-i-Khas, Diwan-i-Aam, Jodha Bai's Palace, and the Tomb of Salim Chishti.

• The architectural layout of Fatehpur Sikri reflects Akbar's vision of a unified India, incorporating diverse cultural and religious elements.

• Today, Fatehpur Sikri is a major tourist destination, attracting visitors from around the world who come to marvel at its historical and architectural significance.

**Q54. Answer: (a) Dronacharya Award**

The correct answer is Dronacharya Award

Key Points

• Dronacharya Award is given to outstanding coaches in sports and games in India.

• The award was instituted in 1985 by the Ministry of Youth Affairs and Sports.

• It is named after Dronacharya, a character from the Indian epic Mahabharata who was a master of advanced military arts.

• The award carries a bronze statuette of Dronacharya, a certificate, ceremonial dress, and a cash prize.

• Recipients of the award are selected based on their performance and contribution to the promotion of sports and coaching excellence in India.

Additional Information

• Arjuna Award is another prestigious sports award in India, given to athletes for their outstanding achievements in national sports.

• The Vir Chakra is a military decoration awarded for acts of bravery on the battlefield.

• The Golden Boot is an award given to the top goal scorer in a football league or tournament.

• The Dronacharya Award aims to recognize and honor the hard work and dedication of coaches who play a crucial role in shaping the careers of athletes.

• Recipients of the Dronacharya Award have included coaches from various sports disciplines, such as athletics, boxing, wrestling, and cricket.

**Q55. Answer: (a) √2**

Given:

If $\sin\theta - \cos\theta = 0$, and $0 \le \theta \le 90^o$

Formula Used:

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

Calculation:

sin θ - cos θ = 0

=> sin θ = cos θ

We know that sin 45º = cos 45º = 1/√2

Therefore, θ = 45º

Now, sin θ + cos θ = sin 45º + cos 45º

=> sin 45º + cos 45º = 1/√2 + 1/√2

=> 2 × 1/√2

=> √2

The value of sin θ + cos θ is √2.

**Q56. Answer: (d) Programs**

The correct answer is option 4

Key Points

• Programs are considered software components of a computer.

• Software components include applications, operating systems, and utilities that help the computer perform tasks.

• These components are essential for the computer to execute various functions and operations as per user commands.

• Unlike hardware components, software components are intangible and stored digitally.

Additional Information

• Hardware components include physical parts of a computer such as the CPU, memory, and CMOS.

• Software and hardware work together to make the computer functional.

• The distinction between software and hardware is crucial for understanding computer architecture and operation.

• Software can be categorized into system software, application software, and middleware.

**Q57. Answer: (c) Dmitri Mendeleev**

The correct answer is Dmitri Mendeleev

Key Points

• Dmitri Mendeleev is credited with the invention of the Periodic Table.

• He arranged the 63 known elements into a table based on atomic mass, which revealed that chemical properties of elements showed a periodic pattern.

• Mendeleev's periodic table was first published in 1869.

• His table predicted the existence and properties of new elements that had not yet been discovered.

• The periodic table is a fundamental tool in chemistry, organizing elements in a way that highlights their properties and relationships.

Additional Information

• Ernest Rutherford is known for his model of the atom and the discovery of the nucleus.

• John Dalton developed the atomic theory of matter.

• Isaac Newton is famous for his laws of motion and universal gravitation.

• The periodic table has been revised and expanded as new elements have been discovered and new theoretical models have been developed.

• It is a key reference for scientists in chemistry, physics, and related fields.

**Q58. Answer: (b) Agni V**

The correct answer is Agni V

Key Points

• Agni V is India's longest-range ballistic missile.

• The Agni V missile has a range of over 5,000 kilometers, making it capable of reaching targets deep inside neighboring countries and beyond.

• It is part of the Agni series of missiles developed by the Defence Research and Development Organisation (DRDO).

• Agni V is a three-stage, solid-fueled missile and can carry a nuclear warhead.

• The missile enhances India's strategic deterrence and strengthens its defense capabilities.

Additional Information

• The Agni missile series includes Agni I, II, III, IV, and V, each with varying ranges and capabilities.

• The DRDO is India's premier agency for defense research and development.

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• India's missile program aims to ensure national security and establish credible deterrence.
• The development of Agni V signifies India's advancements in missile technology and strategic defense.
• Agni V's successful test launches demonstrate India's commitment to maintaining a robust defense posture.

**Q59. Answer: (d) 10**

Given:
Every interior angle of a regular polygon = 144º
Formula Used:
Sum of interior angles of a polygon with n sides = (n - 2) × 180º
Each interior angle of a regular polygon = Sum of interior angles / n
Calculation:
Each interior angle = 144º
Sum of interior angles = (n - 2) × 180º
Each interior angle = (n - 2) × 180º / n
Given that each interior angle is 144º:
144 = (n - 2) × 180 / n
=> 144n = (n - 2) × 180
=> 144n = 180n - 360
=> 180n - 144n = 360
=> 36n = 360
=> n = 360 / 36
=> n = 10
The polygon has 10 sides.

**Q60. Answer: (a) Global warming**

The correct answer is Global warming
Key Points
• Global warming is the primary reason attributed to 'Arctic Greening'.
• Global warming leads to higher temperatures, which extend the growing season and allow plants to thrive in the Arctic region.
• This phenomenon results in increased vegetation growth and changes in the composition and distribution of plant species in the Arctic.
• The greening of the Arctic has significant implications for local ecosystems, wildlife, and global climate patterns.
Additional Information
• Arctic Greening refers to the increase in plant growth and biomass in the Arctic region due to rising temperatures.
• It can affect carbon cycling, as plants absorb carbon dioxide during photosynthesis, potentially impacting the global carbon budget.
• The changes in vegetation can also influence the albedo effect, where the Earth's surface reflects sunlight, potentially contributing to further warming.
• Research and monitoring are ongoing to understand the long-term impacts of Arctic greening on both regional and global scales.

**Q61. Answer: (b) 4493**

The logic followed here is,
15: 1365
27: 2817
Similarly,
43 : ?
Hence, the correct answer is "4493".

**Q62. Answer: (b) 42**

According to the given information,
1) A chemistry teacher is ranked eleventh from the top.
2) A chemistry teacher is ranked thirty-second from the bottom.
On combining we get:
Here, number of teachers = (10 + 1 + 31) = 42

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Hence, the correct answer is "42".

**Q63. Answer: (a) 33(1)/(3)% %**

Given:

The price of sugar falls by 25%.

Formula Used:

To keep the budget the same, the percentage increase in consumption = (Percentage decrease in price) / (1 - Fractional decrease in price)

Calculation:

Let the original price per unit of sugar be P.

Let the original consumption be C.

The original cost = P × C.

The new price per unit after a 25% decrease = 0.75P.

Let the new consumption be C'.

The new cost = 0.75P × C'.

To keep the budget the same: P × C = 0.75P × C'.

Calculation:

P × C = 0.75P × C'

=> C = 0.75C'

=> C' = C/0.75 = 4/3C

The percentage increase in consumption:

(C' - C)/C × 100 = ((4/3C - C)/C) × 100 = ((4C - 3C)/3C) × 100 = C/3C × 100 = 1/3 × 100 = 33.33%

Therefore, the household must increase its consumption by 33.33% to keep the budget the same.

**Q64. Answer: (a) (√3 + 1)/(2)**

Given:

(1 + tan θ = √3)

Formula used:

(tan θ = (sin θ)/(cos θ))

(cot θ = 1/(tan θ))

Calculation:

(1 + tan θ = √3)

(=> tan θ = √3 - 1)

(cot θ = 1/(tan θ) = 1/(√3 - 1))

Rationalize the denominator:

(cot θ = 1/(√3 - 1) × (√3 + 1)/(√3 + 1) = (√3 + 1)/((√3)² - 1²))

=> cot θ = (√3 + 1)/(3 - 1) = (√3 + 1)/2

Now, (√3 cot θ - 1) :

(√3 cot θ - 1 = √3 × (√3 + 1)/2 - 1)

=> ((√3 × √3 + √3)/2 - 1)

=> ((3 + √3)/2 - 1)

=> ((3 + √3)/2 - 2/2)

=> ((3 + √3 - 2)/2)

=> ((1 + √3)/2)

Therefore (√3 cot θ - 1 = (1 + √3)/2)

**Q65. Answer: (b) 1930**

The correct answer is 1930

Key Points

• The Salt March was a significant event in the Indian independence movement led by Mahatma Gandhi.

• It commenced on March 12, 1930, and was a direct action campaign of tax resistance and nonviolent protest against the British salt monopoly.

• The march lasted for 24 days, covering a distance of 240 miles from Sabarmati Ashram to the coastal village of Dandi.

• Upon reaching Dandi on April 6, 1930, Gandhi defied the salt laws by making salt from seawater, sparking widespread acts of civil disobedience against British rule.

Additional Information

• The Salt March is also known as the Dandi March or the Salt Satyagraha.

• This event was a pivotal turning point in the Indian independence struggle and helped galvanize the Indian population against British colonial rule.

• Gandhi's leadership and the nonviolent approach inspired many future movements for civil rights and freedom across the world.

• The march demonstrated the power of mass mobilization and nonviolent resistance in challenging oppressive systems.

**Q66. Answer: (a) amendment of the constitution**

The correct answer is amendment of the constitution

Key Points

• Article 368 of the Indian Constitution deals with the amendment of the Constitution.

• It provides the procedure for both simple and complex amendments depending on the nature of the change required.

• Amendments can be initiated only by the introduction of a Bill in either House of Parliament and must be passed by a specified majority.

• Some amendments require ratification by at least half of the State Legislatures in addition to being passed by both Houses of Parliament.

• This Article ensures that the Constitution can be adapted to changing needs and circumstances while maintaining its core principles.

Additional Information

• The process for amending the Constitution is designed to be rigorous to prevent hasty or ill-considered changes.

• Article 368 has been used to make several significant amendments, including the addition of new fundamental rights and the restructuring of the nation's federal framework.

• The most notable amendments include the 42nd Amendment (1976), which is often referred to as the "Mini-Constitution" due to its wide-ranging impact.

• Other important amendments include the 73rd and 74th Amendments, which established a framework for local self-governance in rural and urban areas respectively.

• Despite its flexibility, Article 368 maintains the basic structure doctrine as propounded by the Supreme Court, ensuring that the fundamental framework of the Constitution remains intact.

**Q67. Answer: (a) Indian freedom struggle**

The correct answer is Indian freedom struggle

Key Points

• The Komagata Maru incident is a significant event in the history of the Indian freedom struggle.

• It involved a Japanese ship named Komagata Maru, which was hired to transport Indian immigrants to Canada in 1914.

• The passengers, mostly Sikhs, were denied entry into Canada due to discriminatory immigration laws, and the ship was forced to return to India.

• Upon arrival in India, the British authorities attempted to arrest the passengers, leading to a violent confrontation.

• This incident highlighted the racial discrimination faced by Indians abroad and fueled the Indian independence movement.

Additional Information

• The Komagata Maru incident took place during the British Raj, a period when India was under British colonial rule.

• The incident is often cited as an example of the broader struggles faced by Indian immigrants in the early 20th century.

• It also serves as a reminder of the global dimensions of the Indian freedom struggle, influencing not just events in India but also those involving the Indian diaspora.

**Q68. Answer: (a) 60º, 30º**

Given:

$\cos(x - y) = (\sqrt{3})/2$

$\sin(x + y) = 1$

Concept used:

Calculation:

According to the concept used,

If $\cos(x - y) = (\sqrt{3})/2$

$\Rightarrow x - y = 30°$.....(1)

Again, sin(x + y) = 1

=> x + y = 90°....(2)

Now add 1 & 2

=> 2x = 120°

=> x = 60°

Similary, the value of y = 30°.

Therefore The value of x and y is 60°, 30° respectively.

**Q69. Answer: (c) Delhi Sultanate**

The correct answer is Delhi Sultanate

Key Points

• Ibn Battuta, a famous Moroccan traveller, visited India during the time of the Delhi Sultanate.

• The Delhi Sultanate was a period of Muslim rule in India that lasted from 1206 to 1526 AD.

• Ibn Battuta arrived in India in 1334 AD during the reign of Sultan Muhammad bin Tughlaq.

• He served as a judge (Qadi) in the court of Muhammad bin Tughlaq for several years.

• Ibn Battuta's accounts provide valuable insights into the culture, politics, and society of India during the 14th century.

Additional Information

• Ibn Battuta was born on February 25, 1304, in Tangier, Morocco.

• His travels are documented in his travelogue known as the Rihla (The Journey), which covers his journeys across Africa, Asia, and Europe over a period of almost 30 years.

• During his travels, Ibn Battuta visited many regions including North Africa, the Horn of Africa, West Africa, Southern Europe, Eastern Europe, the Middle East, South Asia, Central Asia, Southeast Asia, and China.

• His travel accounts are considered one of the most comprehensive sources of information about the medieval world.

• Ibn Battuta's journey to India was part of his larger quest to explore the Islamic world and beyond.

**Q70. Answer: (d) Western Ghats and Eastern Himalayas**

The correct answer is Western Ghats and Eastern Himalayas

Key Points

• The Western Ghats and the Eastern Himalayas are two of the most significant biodiversity hotspots in India.

• Biodiversity hotspots are regions with a high level of endemic species that are also under significant threat from humans.

• The Western Ghats are known for their rich biodiversity, including a large number of endemic flora and fauna.

• The Eastern Himalayas are also recognized for their unique biodiversity and are home to many rare and endangered species.

• Conservation efforts are critical in these regions to protect the diverse ecosystems and species they harbor.

Additional Information

• The concept of biodiversity hotspots was first introduced by Norman Myers in 1988.

• India is one of the 17 megadiverse countries in the world, hosting around 7-8% of all recorded species, including over 45,000 plant species and 91,000 species of animals.

• Efforts to protect these hotspots include the establishment of protected areas, wildlife sanctuaries, and national parks.

• Human activities such as deforestation, habitat destruction, and climate change pose significant threats to these regions.

• International cooperation and local community involvement are essential for the effective conservation of biodiversity hotspots.

**Q71. Answer: (d) 160º**

Given:

The ratio of the numbers of sides of two regular polygons is 1:2.

Each interior angle of the first polygon is 140º.

Formula used:

The measure of each interior angle of a regular polygon with n sides is given by:

Interior angle = [(n-2) × 180º] / n

Calculation:

Let the number of sides of the first polygon be n.

Then the number of sides of the second polygon is 2n.

Each interior angle of the first polygon is 140º:

[(n-2) × 180º] / n = 140º

Simplify the equation to find n:

(n-2) × 180º = 140º * n

180n - 360 = 140n

180n - 140n = 360

40n = 360

n = 9

So, the first polygon has 9 sides.

The second polygon has 2n = 2 × 9 = 18 sides.

Now, calculate the measure of each interior angle of the second polygon:

Interior angle of second polygon = [(18-2) * 180º] / 18

= [16 × 180º] / 18

= 2880º / 18

= 160º

Therefore, the measure of each interior angle of the second polygon is 160º.

**Q72. Answer: (c) QD**

The logic followed here is:

Option 1) TJ

Option 2) VK

Option 3) QD

Option 4) LF

Here, 'QD' is odd among the given options.

Hence, the correct answer is "Option 3".

**Q73. Answer: (a) Programs**

The correct answer is Programs

Key Points

• Modern computers follow a set of instructions to perform any task. These instructions are known as Programs.

• A program is a collection of instructions that can be executed by a computer to perform a specific task.

• Programs are written in programming languages and are essential for computer operations.

• Examples of programming languages include Python, Java, C++, and many others.

• Commands and guidelines can be part of programs, but they do not encompass the entire set of instructions needed to perform tasks on a computer.

Additional Information

• Programs can be categorized into system software and application software.

• System software includes operating systems and utility programs that manage computer resources.

• Application software includes programs that perform specific tasks for users, such as word processors, spreadsheets, and database management systems.

• Writing and debugging programs is a fundamental skill for software developers and computer scientists.

• Integrated Development Environments (IDEs) are commonly used tools that provide comprehensive facilities to programmers for software development.

**Q74. Answer: (d) (1 ± √29)/2**

Given:

√(7+ √(7+ √(7 + √(7 + ,...))))

Formula used:

Let x = √7 + √7 + √7 + √7 + ,...

Then, x = √7 + x

Square both sides:

Calculation:

x = √7 + x

=> x^2 = 7 + x

=> x^2 - x - 7 = 0

Solve the quadratic equation:

=> $x = (-b \pm \sqrt{(b^2 - 4ac)})/2a$

where a = 1, b = -1, and c = -7

=> $x = (1 \pm \sqrt{(1 + 28)})/2$

=> $x = (1 \pm \sqrt{29})/2$

Since x must be positive:

=> $x = (1 + \sqrt{29})/2$

Therefore The correct answer is $(1 + \sqrt{29})/2$.

**Q75. Answer: (c) 2,250**

Given:

Selling price (SP) of the old fan = Rs. 1,500

Loss percentage = 20%

Desired profit percentage = 20%

Formula Used:

Cost Price (CP) = SP / (1 - Loss%)

Selling Price for desired profit (SP) = CP × (1 + Profit%)

Calculation:

Let CP be the cost price of the fan.

Loss of 20% means:

CP = SP / (1 - 0.20)

=> CP = 1500 / 0.80

=> CP = 1875

To get a profit of 20%:

SP = CP × (1 + 0.20)

=> SP = 1875 × 1.20

=> SP = 2250

The price at which Sohan should have sold the fan to get a 20% profit is Rs. 2,250.

**Q76. Answer: (a) [figure]**

The logic followed here is:

All the chairs are part of furniture,

And, Some Chairs & Furniture are made from wood.

Hence, the correct answer is "Option 1".

**Q77. Answer: (c) Jai Singh**

The correct answer is Jai Singh

Key Points

• Jai Singh was a Rajput ruler who was sent by the Mughal Emperor Aurangzeb to subdue Chhatrapati Shivaji Maharaj.

• He played a significant role in the Mughal campaigns against the Marathas.

• Jai Singh led a large army and successfully captured several Maratha forts, compelling Shivaji to sign the Treaty of Purandar in 1665.

• This treaty resulted in Shivaji ceding 23 forts and territory to the Mughals.

Additional Information

• Aurangzeb was the sixth Mughal emperor, ruling from 1658 to 1707, and is known for his expansionist policies.

• Chhatrapati Shivaji Maharaj was the founder of the Maratha Empire in western India and is known for his guerrilla warfare tactics and administrative reforms.

• The conflict between the Mughals and the Marathas was part of a larger struggle for control over the Indian subcontinent during the 17th century.

• The Treaty of Purandar marked a temporary setback for Shivaji, but he later recaptured most of the lost territories.

**Q78. Answer: (a) 2 years, 7 months and 6 days**

To convert 2.6 years into years, months, and days, follow these steps:

Step 1. Extract the whole number of years - 2.6 years means 2 full years.

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Step 2. Convert the fractional part of the year into months - 0.6 years × 12 months/year = 7.2 months.

Step 3. Extract the whole number of months - 7.2 months means 7 full months.

Step 4. Convert the remaining fractional part of the month into day - 0.2 months × 30 days/month = 6 days (approximately, assuming 30 days in a month).

So, 2.6 years can be expressed as: 2 years, 7 months, and 6 days.

Hence, the correct answer is "Option 1".

**Q79. Answer: (b) the central bank lends money to the commercial banks**

The correct answer is option 2

Key Points

• The bank rate is the interest rate at which the central bank lends money to commercial banks.

• This rate is a tool used by central banks to control liquidity and inflation in the economy.

• When the central bank raises the bank rate, borrowing becomes more expensive for commercial banks, which can lead to a reduction in the money supply in the economy.

• Conversely, a lower bank rate can make borrowing cheaper for commercial banks, potentially increasing the money supply.

• The bank rate is different from the repo rate, which is the rate at which the central bank lends short-term funds to commercial banks against securities.

Additional Information

• The bank rate is also known as the discount rate in some countries.

• Changes in the bank rate can influence overall economic activity, including investment and consumption patterns.

• Central banks, such as the Reserve Bank of India (RBI) in India, periodically review and adjust the bank rate based on current economic conditions.

• Understanding the bank rate is crucial for financial analysts, economists, and policy makers as it affects monetary policy and economic stability.

**Q80. Answer: (c) 8**

Shortcut Trick

The face value of any digit in a number is always the digit itself.

It remains constant and does not change based on its positional place in the number.

In the number 7,58,639, the digit 8 represents the value 8.

Therefore The correct answer is 8.

Alternate Method

Given:

Number = 758639

Digit to find = 8

Method:

Identify the digit in the given sequence and state its intrinsic value.

Calculations:

=> In 758639, 8 is at the thousands place.

=> Place Value = 8 × 1000 = 8000.

=> Face Value = The actual value of the digit = 8.

Therefore The correct answer is 8.

Additional Information

Difference Between Place Value and Face Value

Place Value depends on the position (unit, ten, hundred, etc.), while Face Value is just the digit. Formula: Place Value = Face Value × Value of the Place.

Property of Zero

The Face Value and Place Value of the digit 0 are always 0, no matter where it appears in a number.

Units Place Property

For the digit at the units place, the Place Value is always equal to its Face Value.

**Q81. Answer: (a) 1.3**

Given:

Solve the following:

(0.6 × 0.6 × 0.6 + 0.7 × 0.7 × 0.7)/(0.6 × 0.6 - 0.42 + 0.7 × 0.7)

Formula Used:

Perform arithmetic operations (multiplication, addition, and subtraction) as per the given equation.

Calculation:

Calculate the numerator:

Numerator = 0.6 × 0.6 × 0.6 + 0.7 × 0.7 × 0.7

=> Numerator = 0.216 + 0.343

=> Numerator = 0.559

Calculate the denominator:

Denominator = 0.6 × 0.6 - 0.42 + 0.7 × 0.7

=> Denominator = 0.36 - 0.42 + 0.49

=> Denominator = -0.06 + 0.49

=> Denominator = 0.43

Now, divide the numerator by the denominator:

Value = 0.559 / 0.43

=> Value ≈ 1.3

The correct answer is option 1.

**Q82. Answer: (b) Only Argument I is strong.**

The given question is: Should different types of bowlers be included in the Indian cricket team?

Arguments:

I. Yes, because different types of bowlers play different roles in a team → Strong (This argument discusses a strategic aspect of including different types of bowlers in a cricket team. Different types of bowlers, such as spinners, fast bowlers, and medium pacers, are necessary because they offer a variety of skills and strategies that can be crucial in different match situations).

II. No, because the spectators like seeing fast bowlers → Weak (This argument is based on the preference of the spectators for fast bowlers. While spectator enjoyment is an important aspect of the sport, team composition should primarily be based on strategic effectiveness and the overall balance of the team).

Hence, the correct answer is "Only Argument I is strong".

**Q83. Answer: (d) 20%**

Given:

Cost Price (CP) = Rs. 850

Selling Price (SP) = Rs. 680

Formula used:

Loss = CP - SP

Percentage Loss = (Loss/CP) × 100

Calculations:

Loss = 850 - 680

=> Loss = 170

Percentage Loss = (170/850) × 100

=> Percentage Loss = (1/5) × 100

=> Percentage Loss = 20%

Therefore The percentage loss is 20%.

**Q84. Answer: (d) Skill training for minority youths.**

The correct answer is Skill training for minority youths.

Key Points

• The Nayi Manzil Scheme was launched by the Government of India to provide skill training for minority youths.

• It aims to bridge the academic and skill development gaps of the minority youth who are school dropouts or educated in the community education institutions like Madrasas.

• The scheme ensures that the youth from minority communities have access to skill training that will make them employable.

• It also focuses on providing formal education up to Class XII and offers certification that is recognized by both government and private employers.

• The initiative is part of the government's efforts to promote inclusive growth and improve the socio-economic conditions of the

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minority communities in India.

Additional Information

• The scheme is implemented by the Ministry of Minority Affairs in collaboration with other central and state government agencies.

• It is part of the broader mission to enhance the educational and employment opportunities for minorities in India.

• Beneficiaries of the scheme are provided with training in various trades and sectors that are in demand in the job market.

• The scheme also includes soft skills training, career counseling, and job placement support to ensure holistic development and better employability.

**Q85. Answer: (d) 8**

Given:

Number (N) = 3496

Formula used:

The least number to be added to make N divisible by LCM of given divisors.

LCM of 2, 6, 4, 3

Calculations:

Finding the LCM of 2, 6, 4, 3

Prime factorization:

2 = 2

6 = 2 × 3

4 = $2^2$

3 = 3

LCM = $2^2 \times 3 = 4 \times 3 = 12$

Next multiple of 12 after 3496:

Calculate remainder of 3496 ÷ 12

3496 ÷ 12 = 291 remainder 4

=> 12 - 4 = 8

Therefore The least number to be added is 8.

**Q86. Answer: (c) 92.5 mm**

Given:

Rainfall in Mumbai in the year 2000 (in mm) = 70

Rainfall in Mumbai in the year 2001 (in mm) = 90

Rainfall in Mumbai in the year 2002 (in mm) = 80

Rainfall in Mumbai in the year 2003 (in mm) = 130

Calculation:

Total Rainfall in Mumbai in all the four year (2000, 2001, 2002, 2003) = 70 + 90 + 80 + 130

Total Rainfall in Mumbai in all the four year = 370 mm

Average rainfall in Mumbai = 370 / 4 = 92.5 mm

Therefore The average rainfall in Mumbai = 92.5 mm

**Q87. Answer: (c) 37.5**

Calculation:

Total rainfall in year 2000 (in mm) = 50 + 70 + 90 = 210

Average rainfall in year 2000 = 210 / 3 = 70 mm

Total rainfall in year 2001 (in mm) = 70 + 90 +80 = 240

Average rainfall in year 2001 = 240 / 3 = 80 mm

Total rainfall in year 2002 (in mm) = 110 + 80 + 140 = 330

Average rainfall in year 2002 = 330 / 3 = 110 mm

Total rainfall in year 2003 (in mm) = 60 + 130 + 80 = 270

Average rainfall in year 2003 = 270 / 3 = 90 mm

Increase in average rainfall from 2000 to 2001 = 80 - 70 = 10

% in increase is given by:

=> (10 / 70) × 100

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=> 14.28 % increase

Increase in average rainfall from 2001 to 2002 = 110 - 80 = 30

% in increase is given by:

=> (30 / 80) × 100

=> 37.50 % increase

Decrease in average rainfall from 2002 to 2003 = 110 - 90 = 20

% in decrease is given by:

=> (20 / 110) × 100

=> 18.18 % decrease

So, the highest percentage of increase in average rainfall is in 2002 as compared to 2001 and the percentage increase is 37.50%.

**Q88. Answer: (c) 2002**

Given:

Rainfall in Chennai in year 2000 (in mm) = 90

Rainfall in Chennai in year 2001 (in mm) = 80

Rainfall in Chennai in year 2002 (in mm) = 140

Rainfall in Chennai in year 2003 (in mm) = 80

Calculation:

Decrease in rainfall in Chennai from 2000 to 2001 = 90 - 80 = 10

% in decrease is given by:

=> (10 / 90) × 100

=> 11.11 % decrease

Increase in rainfall in Chennai from 2001 to 2002 = 140 - 80 = 60

% in increase is given by:

=> (60 / 80) × 100

=> 75.00 % increase

Decrease in rainfall in Chennai from 2002 to 2003 = 140 - 80 = 60

% in decrease is given by:

=> (60 / 140) × 100

=> 42.85 % decrease

Therefore The highest percentage difference (increase or decrease) in rainfall in Chennai is in year 2002 i.e. 75.00 % increase.

**Q89. Answer: (c) Chennai, 97.5**

Calculation:

Total rainfall in Delhi in all 4 years (in mm)= (50 + 70 + 110 + 60) = 290

Average rainfall in Delhi in all four years = 290 / 4 = 72.5 mm

Total rainfall in Mumbai in all 4 years (in mm)= (70 + 90 + 80 + 130) = 370

Average rainfall in Mumbai in all four years = 370 / 4 = 72.5 mm

Total rainfall in Chennai in all 4 years (in mm)= (90 + 80 + 140 + 80) = 390

Average rainfall in Chennai in all four years = 290 / 4 = 97.5 mm

Therefore The city with the highest rainfall along with its average rainfall is Chennai with 97.5 mm rainfall.

**Q90. Answer: (a) Sentimentally**

The correct order as per the English dictionary is shown below,

1) Sentence

2) Sententious

3) Sentimentally

4) Sentinel

Here, we can see that the third letter is Sentimentally.

Hence, the correct answer is "Sentimentally".

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**Q91. Answer: (b) Blue**

According to the given information,

1) L has a white car. M has a red car. Z has a brown car.

| Member | Car's colour |
|---|---|
| K | |
| L | White |
| W | |
| X | |
| M | Red |
| Z | Brown |

2) W does not have a black or yellow car.

3) K does not have a blue car.

| Member | Car's colour |
|---|---|
| K | Black/Yellow |
| L | White |
| W | Blue |
| X | Black/Yellow |
| M | Red |
| Z | Brown |

Here, we can see that W has a blue colour car.

Hence, the correct answer is "Blue".

**Q92. Answer: (d) (9, 13, 17)**

The logic followed here is:

Logic: Second number × 2 = (First number + Third number)

(15, 22, 29)

→ 22 × 2 = (15 + 29)

→ 44 = 44

Now, let's check each option,

1) (21, 41, 49)

→ 41 × 2 = (21 + 49)

→ 82 ≠ 70

2) (44, 67, 17)

→ 67 × 2 = (44 + 17)

→ 134 ≠ 61

3) (17, 42, 38)

→ 42 × 2 = (17 + 38)

→ 84 ≠ 55

4) (9, 13, 17)

→ 13 × 2 = (9 + 17)

→ 26 = 26 => Follows the logic.

Hence, the correct answer is "(9, 13, 17)".

**Q93. Answer: (b) Both conclusions 1 and 2 follow.**

Given Statements:

1. Some glasses are mugs.

2. All mugs are plates.

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3. No plate is a telephone.

The least possible Venn diagram for the given statement is:

Conclusions:

I. Some glasses are plates - True (Because, those part of glasses which is mugs will plates also).

II. Some mugs are not telephones - True (Because, those part of mugs which is plates will definitely not telephones).

So, Both conclusions 1 and 2 follow.

Hence, the correct answer is "Option 2".

**Q94. Answer: (c) 35**

The logic followed here is:

=> (1 + 5) + (1 + 8) + (4 + 0) = 19.

=> (2 + 2) + (4 + 1) + (5 + 7) = 21.

Similarly,

=> (4 + 5) + (8 + 7) + (2 + 9) = 35.

So, '35' will replace the question mark from the given question figure.

Hence, the correct answer is "Option 3".

**Q95. Answer: (b) QK**

The logic followed here is:

So, 'QK' will replace the question mark in the given series.

Hence, the correct answer is "Option 2".

**Q96. Answer: (a) 10**

The logic followed here is:

2/3

2/3 + 4/3 = 2

2 + 6/3 = 4

4 + 8/3 = 20/3

20/3 + 10/3 = 10

Hence, the correct answer is 10.

**Q97. Answer: (d) Neither I nor II follows.**

The given statement is: If A was there in XYZ cricket team, XYZ would have been the invincible team in the world.

Conclusion:

I. Without A, XYZ cannot win → Not follows (The statement indicates that the presence of A would make XYZ an invincible team. However, it does not provide enough information to conclude that without A, XYZ cannot win at all).

II. A is more talented than anyone else in the XYZ cricket team → Not Follows (The statement suggests that A's presence would elevate the team to a level of invincibility. This implies that A brings a unique and extraordinary level of talent or value to the team. However, the statement does not provide direct information about the comparative talent levels of other players in the team).

Hence, the correct answer is "Neither I nor II follows".

**Q98. Answer: (a) Onion**

The logic followed here is,

Logic: Here, three vegetables (Brinjal, Cabbage, Ladyfinger) either are leafy, fruit, or pod-based while Onion stands out as a bulb vegetable.

Hence, the correct answer is "Onion".

**Q99. Answer: (d) • and ×**

The given equation is: 15 - 3 + 40 ÷ 5 × 30 = 23

Now, let's check each option,

1) ÷ and -

→ 15 ÷ 3 + 40 - 5 × 30 = 23

→ 5 + 40 - 5 × 30 = 23

→ 5 + 40 - 150 = 23

→ 45 - 150 = 23

→ - 105 ≠ 23

→ LHS ≠ RHS

2) + and -

→ 15 + 3 - 40 ÷ 5 × 30 = 23

→ 15 + 3 - 8 × 30 = 23

→ 15 + 3 - 240 = 23

→ 18 - 240 = 23

→ - 222 ≠ 23

→ LHS ≠ RHS

3) + and ÷

→ 15 - 3 ÷ 40 + 5 × 30 = 23

→ 15 - 3/40 + 5 × 30 = 23

→ 15 - 3/40 + 150 = 23

→ 165 - 3/40 ≠ 23

→ LHS ≠ RHS

4) - and ×

→ 15 × 3 + 40 ÷ 5 - 30 = 23

→ 15 × 3 + 8 - 30 = 23

→ 45 + 8 - 30 = 23

→ 53 - 30 = 23

→ 23 = 23

→ LHS = RHS => Justifies the equation.

Hence, the correct answer is "- and ×".

**Q100. Answer: (c) A**

Given: There are six persons, i.e. A, B, C, D, E and F sitting on a round table facing center, not necessarily in same order.

1) A is second to the left of B.

2) D is not a neighbour of A or B.

3) B is a neighbour of E and F.

And, C will sit on the remaining place.

So, 'A' is the second to the right of D.

Hence, the correct answer is "Option 3".

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