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Que. 1   Where is the headquarters of the International Court of Justice located?

1.   Paris
2.   The Hague
3.   New York
4.   Geneva

Solution Correct Option **- 2**

- The headquarters of the International Court of Justice "**The Hague**" is located in the Netherlands.
- The International Court of Justice is the principal judicial body of the United Nations.
- It comprises of 193 member countries.
- Its official languages are English and French.
- The World Health Organization is headquartered in Geneva, Switzerland.
- UNESCO has its headquarters in Paris France.
- The headquarters of the United Nations is in New York.

International Court of Justice	**International Criminal Court**
It is the official court of the United Nations.	It is an intergovernmental organization.
Established in the year 1946.	Established in the year 2002
It is not applicable to Individuals.	It can be applied to Individuals(for war crimes)
UN Charter must be ratified by the member countries.	Member countries must be a part of the Rome Statute.
All members of the UN are a party.	Only Signatories are a party.
Sovereignty, boundary disputes, maritime disputes, trade, natural resources, human rights, treaty violations, treaty interpretation, etc.	Genocide, crimes against humanity, war crimes, crimes of aggression.

Que. 2   B is twice efficient than A and the total time taken to complete the work by both A and B together is 22 days. Find the number of days taken by B to complete the work alone.

1.   11 days
2.   44 days
3.   33 days
4.   30 days

Solution Given: Correct Option **- 3**

B is twice efficient than A

The total time taken to complete the work by both A and B together is 22 days

Concept used:

Total Work = total efficiency × number of days

Calculation:

B is twice efficient than A

Efficiency ratio of A and B = 1 : 2

Total work = total efficiency × number of days

⇒ 3 × 22 = 66 unit

Number of days required to complete the work along

⇒ Total work / efficiency of B

⇒ 66/2

⇒ **33 Days**

Que. 3 Select the related number from the given alternatives.

3 : 28 :: 9 : ?

1. 330
2. 730
3. 630
4. 830

Solution   Correct Option **- 2**

Logic is as follows

$3 : 28 → 3 : (3^3 + 1) → 3 : (27 + 1)$

Similarly

$9 : ? → 9 : 9^3 + 1 → 9 : (729 + 1) → 9 : 730$

Hence, "730" is the correct answer.

Que. 4 Who is the author of the book "Why I Am a Hindu"?

1. Shashi Tharoor
2. Mohan Bhagwat
3. Yogi Adityanath
4. Ram Nath Kovind

Solution Correct Option **- 1**

The correct answer is **Shashi Tharoor**.

- The book "Why I Am a Hindu" is authored by Shashi Tharoor.
- Tharoor in this book explains how Hinduism is different from the ideology of Hindutva.
- Some other popular books written by Shashi Tharoor are 'An Era of Darkness: The British Empire in India', 'Inglorious Empire, and India: From Midnight to the Millennium'.

Que. 5 If $x = 3^2 × 2$ and $y = 2^3 × 3$ and $z = 3^2 × 4$, then find the LCM of xy, yz and zx.

1. 2592
2. 2416
3. 2748
4. 2936

Solution Given   Correct Option **- 1**

$x = 3^2 × 2$

$y = 2^3 × 3$

$z = 3^2 × 4$

Formula used

Prime factorization method

Calculation

$x = 9 × 2$

⇒ 18

⇒ $y = 8 × 3$

⇒ 24

⇒ $z = 9 × 4$

⇒ 36

⇒ xy =18 × 24

⇒ 432

⇒ yz = 24 × 36

⇒ 864

⇒ zx = 18 × 36

⇒ 648

⇒ LCM of number 432, 864, 648

⇒ 432 = 2 × 2 × 2 × 2 × 3 × 3 ×3

⇒ 864 = 2 × 2 × 2 × 2 × 2 × 3 × 3 × 3

⇒ 648 = 2 × 2 × 2 × 3 × 3 × 3 × 3

⇒ Multiply each factor the greater number of times it occurs in steps i) or ii) above to find the LCM

⇒ LCM = 2 × 2 × 2 × 2 × 2 × 3 × 3 × 3 × 3

⇒ **2592**

Alternate Method

⇒ xy = 432

⇒ yz = 864

⇒ zx = 648

⇒ Largest number is 864

⇒ 864 × 3 = 2592

⇒ 2592 is divide by 432 and 648

⇒ **2592 is LCM**

Que. 6 In a certain code language,

12 × 7 = 408

9 × 8 = 207

13 × 7 = ?

What will replace the '?' mark sign.

1. 190
2. 910
3. 901
4. 109

Solution Correct Option - **4**

Logic : Multiply the number reverse the resultant and write 0 in between

12 × 7 = 84 → Reverse and 0 in between = 408

9 × 8 = 72 → Reverse and 0 in between = 207

13 × 7 = 91→ Reverse and 0 in between = 109

Hence, "109" is the correct answer.

Que. 7 The other name of Yarlung Tsangpo river in India is_____.

1. Ganga
2. Indus
3. Brahmaputra
4. Mahanadi

Solution Correct Option - **3**

The correct answer is **Brahmaputra**.

- The **Yarlung Tsangpo River** is the highest major river in the world. It is the **longest river** of **Tibet Autonomous Region, China**.
- Downstream from Arunachal Pradesh, the river becomes wider and after reaching **Assam**, the river is known as the **Brahmaputra**.
- The river has been called the **"Everest of Rivers"** because of the extreme conditions of the river.

Additional Information

- **Ganga river** originates from the **Gangotri Glacier** of the **western Himalayas** in the Indian state of **Uttarakhand**.
- **Indus river** originates in the **Tibetan Plateau** in the close proximity o**f Lake Manasarovar**, the river runs a course through the Ladakh region of India.
- **Mahanadi river** flows through the states of **Chhattisgarh and Odisha**. Mahanadi is also known for the **Hirakud Dam**.

Que. 8 The price of an article depreciates 10% per year. If the present price of the article is Rs. 162,000 then, find the price of the article before 2 years.

1. Rs. 2,00,000
2. Rs. 1,81,000
3. Rs. 1,92,000
4. Rs. 2,05,000

Solution Given   Correct Option **- 1**

price of an article depreciates 10% per

present price of the article is Rs 162,000

Calculation

Let the value of machine 2 years ago = x

Then, $x \times \frac{90}{100} \times \frac{90}{100} = 162000$

$\Rightarrow x \times \frac{9}{10} \times \frac{9}{10} = 162000$

$\Rightarrow x = \frac{10}{9} \times \frac{10}{9} \times 162000$

$\Rightarrow x = 200000$

∴ **Price of article 2 years ago is 2,00,000**

Alternate Method

$\Rightarrow$ Succesive percentage = -10% -10% -(10%× 10%)/100

$\Rightarrow$ decrease in percentage = 21%

$\Rightarrow$ 81% = 162000

$\Rightarrow$ 100% = 200000

∴ **Price of article 2 years ago is 2,00,000**

Que. 9   **Question:-**

In the following question below some statements are given followed by some conclusions. Taking the given statements to be true even if they seem to be at variance from commonly known facts, read all the conclusions and then decide which of the given conclusions logically follows the given statements.

Statement:
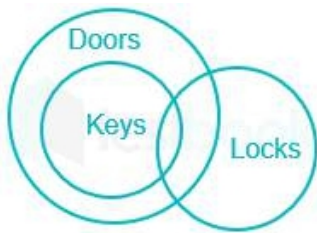
I. All keys are doors

II. Some locks are keys

Conclusion:

I. Some keys are doors.

II. All doors are locks.

1. Only conclusion I follow
2. Only conclusion II follow

3. Neither conclusion I nor II follow
4. Both conclusion I and II follow

Solution Correct Option - **1**
Least possible Venn diagram is:

I. Some keys are doors.→ True (All keys are doors)

II. All doors are locks. →False (It is possible but not definite)

Hence, only conclusion I follow.

| Que. 10 | In Which year, did Mahatma Gandhi return to India from South Africa? |

1. 1905
2. 1920
3. 1915
4. 1910

Solution Correct Option - **3**
The correct answer is **1915**.

🔑 **Key-Points**

- **Mahatma Gandhi returns to India from South Africa on 9 January 1915**.
- After arriving in India, Mahatma Gandhi successfully organized Satyagraha Movements in various places.
- Gandhi returned to India from South Africa in 1915 at the request of Gopal Krishna Gokhale.
- Gandhi Ji returns from South Africa can be seen as perfect timing for the future of development of the Indian national movement. Gokhale helped Gandhiji at the time of hardships in raising funds when Gandhiji was in South Africa.
- Gokhale insisted Gandhiji that he has been far away from his nation. He wanted Gandhiji to come to India and know the situation of India under British Rule.

💡 Important Point

- **Things Mahatma Gandhi did in South Africa:**
  - He organised non-violent protests against the racial discrimination directed towards the native Africans and Indians in 1894.
  - He came to India for a short time in 1896 to gather fellow India to serve in South Africa,
  - He organised the Indian Ambulance corps for the British during the outbreak of the Boer War in 1899.
  - Het set up Phoenix Farm near Durban where Gandhi trained his cadre for peaceful restraint or non-violent Satyagraha.
  - He also set up another farm which was Tolstoy Farm which is considered the place where Satyagraha was moulded into a weapon of protest.
- **Movements Started by Gandhiji in India:**
  - Champaran Satyagraha of 1917
  - Kheda Satyagrah of 1918
  - Khilafat Movement Post World War I
  - Non-Co-operation Movement
  - Civil Disobedience Movement
  - Negotiations over Round Table Conferences
  - Gandhi Irwin Pact
  - Quit India Movement

📋 Additional Information

Mahatama Gandhi:

- Born: 2 October 1869
- Died: 30 January 1948
- He was undoubtedly a great man, both in personal force and in political effect.
- He was an Indian Lawyer, Politician, social activist, and writer who moulded the character of the struggle for freedom in India, and impressed his own ideals upon the new governing class that came into power when the English went home.

Que. 11   A, B and C invested in a firm. Out of the total profit of Rs. 15,000, A and B got Rs. 4500 and Rs. 5500 respectively. If the total investment was Rs. 24,000, then find the investment done by C.

1. Rs. 7500
2. Rs. 8000
3. Rs. 8500
4. Rs. 9500

Solution Given   Correct Option **- 2**

Total investment = Rs.24,000

Total profit = Rs.15,000

A and B got Rs.4500 and Rs.5500

Concept used

The ratio of profit share is same as the ratio of the investment.

Calculation

Profit of A = Rs.4500

Profit of B = Rs.5500

Total Profit = Rs.15000

Profit of C =Total Profit - Profit of A and B

⇒ 15000 - 10000

⇒ Rs.5000

⇒ Ratio of Profit by A, B and C = 4500 : 5500 : 5000

⇒ 9 : 11 : 10

⇒ Ratio of investment is same as the ratio of profit

⇒ 9 : 11 : 10

⇒ Total investment = Rs.24000

⇒ 9x + 11x + 10x = 24000

⇒ 30x = 24000

⇒ x = Rs.800

⇒ C's investment = 800 × 10

⇒ **Rs.8000**

📌**Alternate Method**

Total profit = Rs.15,000

Profit of C = Total profit - profit of A and B

⇒ 15000 - 10000

⇒ Rs.5000

⇒ Profit ratio of A, B and C = 9 : 11 : 10

⇒ Ratio of investment is same as the ratio of profit

⇒ 9 : 11 : 10

⇒ (9 + 11 + 10) part = 24000

⇒ 1 part = Rs.800

⇒ **10 part = Rs.8000, It is investment of C**

Que. 12 In the group of 85 people speak three language English, French and Japanese. 15 people speak only the French language, 10 people speak only the English language. 10 people speak both French and English language, 20 people speak both Japanese and French language and 15 people speak both English and Japanese language. 10 people speak all three kinds of language. Find how many people speak only Japanese language?

1. 15
2. 10
3. 5
4. 12

Solution Correct Option - 3

people speak only the French language = 15

people only the English language = 10

people speak both French and English language = 10

people speak both Japanese and French language = 20

people speak both English and Japanese language = 15

people speak all three kinds of language = 10

Total Number of people in the group is = 85

The people speak only Japanese is = 85 - (15 +10 + 10 + 20 + 15 + 10)

The people speak only Japanese is = 5

Hence, '5' is the correct answer.

Que. 13 Who was the first President of the Indian National Congress?

1. Womesh Chunder Bonnerjee
2. Bal Gangadhar Tilak
3. Allan Octavian Hume
4. Dadabhai Naoroji

Solution Correct Option - 1

Womesh Chunder Bannerjee was an Indian barrister and was the first president of Indian National Congress. He was the first Indian to contest the election for the British House of Commons although he lost the election

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Que. 14 The present ratio of age of two brothers is 5 : 4. If the ratio of their age become 11 : 9 after 3 years then what is the present age of the younger brother?

1. 25
2. 30
3. 18
4. 24

Solution Given   Correct Option - 4

The present ratio of age of two brothers is 5 : 4

Ratio of their age become 11 : 9 after 3 years

Concept used

Ratio method

Calculation

Let present age of younger brother be (x years)

Present age of elder brother be (y years)

$\Rightarrow$ The ratio of the present ages of two brother is 5 : 4

$\Rightarrow$ x : y = 5 : 4

$\Rightarrow$ 4x = 5y_____(i)

$\Rightarrow$ After 3 years , x : y = 11 : 9

$\Rightarrow$(x + 3)/(y + 3) = 11 : 9

$\Rightarrow$ 9x + 27 = 11y + 33

⇒ 9x = 11y + 6

⇒ From equation (i) 9 × 5/4y = 11y + 6

⇒(45/4)y - 11y = 6

⇒ y = 24

⇒ From equation (i), 4x = 5 × 24

⇒ x = 30

→ **age of younger brother will be 24 years**

Alternate Method

Ratio of brother's age = 5 : 4

After 3 years = 11 : 9

Multiply first ratio by 2 to make equal difference on both ratio

⇒ 10 : 8

⇒ 11 : 9

⇒ According to question, 1p = 3

∴ 8p = 8 × 3

⇒ 24 years

Que. 15 Pointing to Rahul, Sohan Said "He is the husband of my wife's only daughter" how Rahul related to Sohan ?

1. Son
2. Brother
3. Brother- in l-aw
4. Son - in - law

Solution Correct Option - **4**

Preparing the family tree using the following symbols,

Symbol in Diagram	Meaning
◯	Female
▢	Male
═	Married couple
─	Siblings
│	Difference of a generation

According to the question:

Sohan said Rahul is the husband of my wife's daughter means Rahul is the son in law of Sohan.

The least possible Venn diagram for the above statement is :
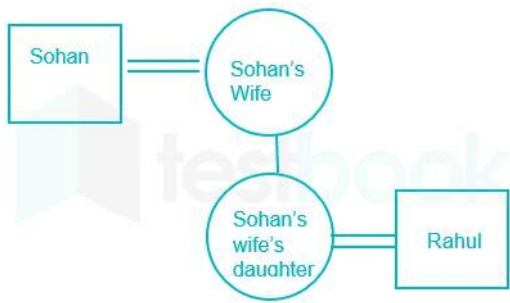
Hence, 'Son in law' is the correct answer.

Que. 16 What does the word 'F' stand for in the term "NEFT"?

1.   Futures
2.   Fasts
3.   Funds
4.   None of the above

Solution Correct Option **- 3**

The correct answer is **option 3) i.e. Funds.**

- "NEFT" stands for **National Electronic Funds Transfer.**
- It is an online payment system that can be used by individuals and organizations to transfer funds.
- Individuals who do not have bank accounts can deposit the money at NEFT enabled branches to avail this facility by providing their basic details.

Que. 17 Find the average of the numbers 5, 8, 0, 12 and 15

1.   8
2.   10
3.   12.6
4.   9.6

Solution Given   Correct Option **- 1**

 numbers are 5, 8, 0, 12 and 15

Formula used

Average = total sum of all observations / total number of observations

Calculation

⇒ sum of all observations = 5 + 8 + 0 + 12 + 15

⇒ 40

⇒ number of observations = 5

⇒ Average = 40 / 5

⇒ **8**

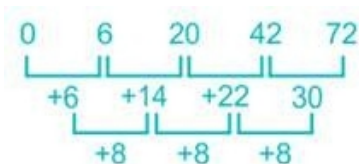**Que. 18** Select the missing number from the given series.

       0, 6, 20, 42, ?

1.   72
2.   65
3.   62
4.   75

Solution   Correct Option **- 1**

Here the logic is :

Hence, '72' is the correct answer.

Que. 19 Which of the following states has the lowest population density, according to Census 2011?

1. Sikkim
2. Arunachal Pradesh
3. Nagaland
4. Goa

Solution Correct Option **- 2**

The correct answer is **Arunachal Pradesh.**

 Key-Points

The state with the **lowest population density** is **Arunachal Pradesh is 17 per sq. km. Hence Option 2 is correct.**

- **The density of population** is defined as the number of persons per sq.km.
- The population density of India in 2011 was **382 per sq.km.**
- **Bihar with 1,106** population persons per sq.km is the **most thickly populated** state followed by **West Bengal (1,028) and Kerala (860).**
- **NCT of Delhi with 11297** has the highest density in India, followed by Chandigarh where population density stands at 9252.
- Lowest Population density among UT's is of **Andaman & Nicobar Islands (46).**

Que. 20 Find how many odd factors are there in the number 1240.

1. 2
2. 4
3. 5
4. 16

Solution Given   Correct Option **- 2**

number 1240

Formula used

Factorization method

odd factors of $p^a \times q^b = (a+1)(b+1)$

Calculation

Factor of $1240 = 2^3 \times 5^1 \times (31)^1$

$\Rightarrow$ odd number are $5^1 \times (31)^1$

$\Rightarrow$ odd factors of $p^a \times q^b$

$\Rightarrow (a+1)(b+1)$

$\Rightarrow (1+1)(1+1)$

$\Rightarrow$ **4**

Que. 21 In a certain code language 'PASSPORT' is coded as 'RCUUNMPR' .How is 'PANDEMIC' written in the same code language?

1. RCPFCHGB
2. QCPFDIGA
3. RCPFCKGA
4. SCPFDHGB

Solution Correct Option **- 3**

The positions of the letters According to the English alphabet series is:

Alphabets	A	B	C	D	E	F	G	H	I	J	K	L	M
Positional value	1	2	3	4	5	6	7	8	9	10	11	12	13
Positional value	26	25	24	23	22	21	20	19	18	17	16	15	14
Alphabets	Z	Y	X	W	V	U	T	S	R	Q	P	O	N

The pattern followed here is :

P   A   S   S   P   O   R   T
|+2 |+2 |+2 |+2 |-2 |-2 |-2 |-2
R   C   U   U   N   M   P   R

Similarly,

P   A   N   D   E   M   I   C
|+2 |+2 |+2 |+2 |-2 |-2 |-2 |-2
R   C   P   F   C   K   G   A

Hence, 'RCPFCKGA' is the correct answer.

Que. 22 Which Indian actress was honored with the UNICEF Humanitarian Award?

1. Deepika Padukone
2. Aishwarya Rai
3. Sonam Kapoor
4. Priyanka Chopra

Solution Correct Option **- 4**

- **Priyanka Chopra** was awarded the **UNICEF Humanitarian Award** in December 2019 at the snowflake Ball.
- She is a UNICEF Goodwill Ambassador and visited Ethiopia in May 2019
- At the event, She spoke on the topic of children's education and she has also contributed to improving girl safety in India.
- Ethiopia's capital is Addis Ababa and its currency is Birr.

Que. 23 A shopkeeper sells his articles in such a way that the selling price of 5 articles is equals to the cost price of 3 articles. Find his profit or loss percentage in that transaction.

1. 40% profit
2. 40% loss
3. 33.33 profit
4. 33.33 loss

Solution Given Correct Option **- 2**

selling price of 5 articles is equals to the cost price of 3 articles

Formula used

Profit % = $\frac{SP-CP}{CP}$ × 100

Calculation

SP of 5 article = CP of 3 article

⇒ 5 SP = 3 CP

⇒ $\frac{CP}{SP} = \frac{5}{3}$

⇒ Loss = 5 - 3

⇒ 2

$\Rightarrow$ Loss% = $\frac{2}{5}$ × 100 = 40%

∴ **Loss % is 40%**

 Alternate Method

$\Rightarrow \frac{CP}{SP} = \frac{5}{3}$

$\Rightarrow$ loss = 2

$\Rightarrow$ loss% = 2/5 × 100

$\Rightarrow$ **40%**

Que. 24 In the question, a statement is given, followed by two arguments, I and II. You have to consider the statement to be true even if it seems to be at variance from commonly known facts. You have to decide which of the given arguments, if any, is a strong argument.

Statement : Should there be a plastic ban in India ?

Argument :

I. Yes, because of plastic uses pollution increases.

II. No, colorful things can be made from plastic.

1. Both follows.
2. Only I follows
3. Only II follows
4. None follows

Solution Correct Option **- 2**

Given data :

Statement : Should there be a plastic ban in India ?

I. Yes, because of plastic uses pollution increases → True

II. No, colorful things can be made from plastic → False (Colorful things can also be made from the different materials)

Hence, 'Only I follows' is the correct answer.

Que. 25 Which city was the capital of India from 1772 to 1912?

1. Calcutta
2. Daulatabad
3. Delhi
4. Bombay

Solution Correct Option **- 1**
The correct answer is **Calcutta**.

 Important Point

- From 1772 to 1911, **Calcutta** was the capital of British India.
- 1772 Calcutta became the capital of British India when the first governor-general, Warren Hastings, transferred all important offices to the city from Murshidabad.
- From 1912 to India's Independence in 1947, Calcutta was the capital of all of Bengal.
- On **12th December, 1911**, at the historic **Delhi Durbar**, the George V, the Emperor of the British Empire proclaimed the shifting of the capital of India from **Calcutta to Delhi**.

Que. 26 If sinA + cosecA = 2 then what will be the value of $\sin^8 A + \csc^8 A$?

1. 1
2. 2
3. 1/2
4. 3/4

Solution Correct Option - **2** Given

$\sin A + \csc A = 2$

Concept used

If $x + \frac{1}{x} = 2$ then $x = 1$

$\sin A = \frac{1}{\csc A}$

Calculation

$\sin A + \csc A = 2$

$\Rightarrow \sin A + \frac{1}{\sin A} = 2$

$\Rightarrow \sin A = 1$

$\Rightarrow A = 90°$

$\Rightarrow \sin^8 A + \csc^8 A$

$\Rightarrow \sin^8 90 + \csc^8 90$

$\Rightarrow 1 + 1$

$\Rightarrow 2$

$\therefore \sin^8 A + \csc^8 A = 2$

📌 Alternate Method

$\Rightarrow \sin A + \csc A = 2$

$\Rightarrow A = 90°$

$\Rightarrow \Rightarrow \sin^8 90 + \csc^8 90$

$\Rightarrow \mathbf{2}$

Que. 27 Select the related word from the given alternatives.

Court : Justice :: University : ?

1. Degree
2. Teachers
3. School
4. College

Solution Correct Option - **1**

Here the logic is :

Court: Justice → Justice is related to court.

Similarly,

The degree is related to University.

Hence, 'Degree' is the correct answer.

Que. 28 Which among these ports is also known as the New Mangalore Port?

1. Mormugao Port
2. Panambur Port
3. Kandla Port
4. Tuticorin Port

Solution Correct Option - **2**

The correct answer is option 2 i.e **Panambur Port**

- **Panambur Port** is also known as the **New Mangalore Port.**

- It is located in Dakshina Kannada district of Karnataka.
- **Kandla Port** is located at the eastern end of **Gulf of Kutch.**
- **Mormugao** is an important **Port of Goa** located at the entrance of Zuvari estuary.
- **Tuticorin Port** is a port located in **Tamil Nadu**.
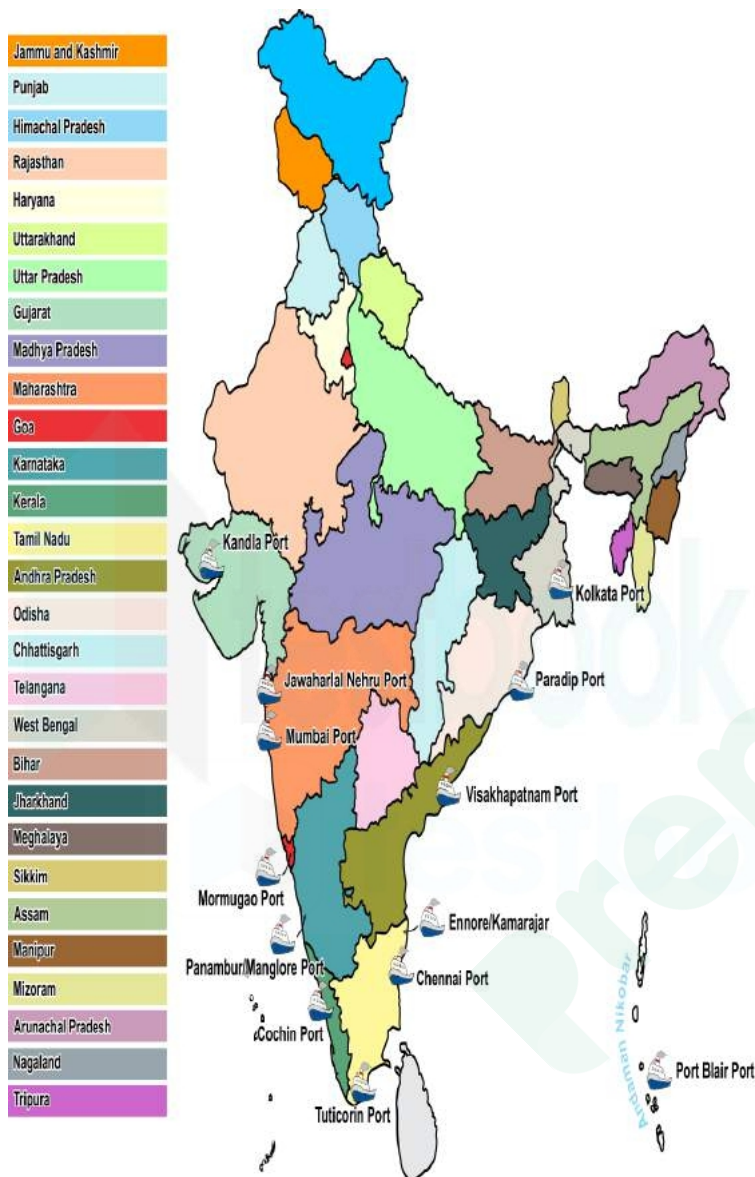
Que. 29 A and B invested Rs. 7000 and Rs. 8000 in a firm. If the total profit after 2 years is Rs. 56,000 then, find the profit of B (approx).

1. Rs. 28,545
2. Rs. 27,396
3. Rs. 29,866
4. Rs. 28, 934

Solution Given Correct Option **- 3**

A invested Rs.7.000

B invested Rs.8,000

Total profit after 2 Years = Rs.56,000

Concept used

The ratio of profit share is same as the ratio of the investment

Calculation

Ratio of invested by A and B

$\Rightarrow$ A : B = 7000 : 8000

$\Rightarrow$ A : B = 7 : 8

$\Rightarrow$ profit also share in same ratio as the investment

$\Rightarrow$ A : B = 7 : 8

$\Rightarrow$ 7x + 8x = 56000

$\Rightarrow$ 15x = 56000

$\Rightarrow$ x = 3733

$\Rightarrow$ Profit of B = 8 × 3733

$\Rightarrow$ **Rs. 29,866**

Que. 30 Find the odd one out?

1.   21 - 11
2. 33 -15
3. 31- 16
4. 33 -17

Solution Correct Option - **2**

The pattern followed here is,

1) 11 × 2 - 1 = 21

2) **15 × 2 - 1 = 29 ≠ 33**

3) 16 × 2 - 1 = 31

4) 17 × 2 - 1 = 33

Hence, '33 - 15' is odd among all.

Que. 31 Which among the following monuments was not built by Shah Jahan?

1.   Taj Mahal
2. Red Fort
3. Jama Masjid
4. Buland Darwaza

Solution Correct Option - **4**

- **Buland Darwaza was built by Akbar.**
- It was built to mark Akbar's victory over Gujarat.
- It is located at Fatehpur Sikri.
- Taj Mahal at Agra, Red fort and Jama Masjid at delhi were built by Shah jahan of Mughal Dynasty.

Que. 32 If 3x/2y = 48/36, find the value of x : y.

1.   7 : 8
2. 7 : 9
3. 8 : 9
4. 9 : 7

Solution Given :   Correct Option - **3**

3x/2y = 48/36

Calculation:

$\Rightarrow$ 3x/2y = 48/36

$\Rightarrow$ x/y = 48× 2/3× 36 = 16/18

$\therefore$ x/y = 8/9

Que. 33 In a certain code "G" is written as "21" and "GAME" is written as "86". How is "BASIC" written in that code?

1. 98
2. 108
3. 106
4. 110

Solution Correct Option - 3

The positions of the letters according to the English alphabet series.

Alphabets	A	B	C	D	E	F	G	H	I	J	K	L	M
Positional value	1	2	3	4	5	6	7	8	9	10	11	12	13
Positional value	26	25	24	23	22	21	20	19	18	17	16	15	14
Alphabets	Z	Y	X	W	V	U	T	S	R	Q	P	O	N

The pattern followed here is:

G = 21

So the reverse position of G = 20 and 20 + 1 = 21

GAME = 21 + 27 + 15 + 23 = 86

Similarly,

BASIC = 26 + 27 + 9 + 19 + 25 = 106

Hence, '106' is the correct answer.

Que. 34 The headquarters of the ASEAN is located in which of the following country?

1. Indonesia
2. Vietnam
3. Thailand
4. Singapore

Solution Correct Option - 1

The **Association of Southeast Asian Nations, or ASEAN**, was established on 8 August 1967 in Bangkok, Thailand. Currently, there are 10 permanent members of this association. **Its headquarter is in Jakarta (Indonesia)**.

Key-Points

1. The creation of ASEAN was motivated by a common **fear of communism.**
2. The Association of Southeast Asian Nations is a **regional intergovernmental organization** comprising ten countries in **Southeast Asia,** which promotes intergovernmental cooperation and facilitates economic, political, security, military, educational, and sociocultural integration among its members and other countries in Asia.
3. Members are *Indonesia, Philippines, Vietnam, Thailand, Myanmar, Malaysia, Cambodia, Laos, Singapore, and Brunei. Observers are East Timor and Papua New Guinea.*
4. **India** could not become a member of this association due to its geographical location. India is a part of South-Asia while ASEAN is an organization of South-East Asian Nations. On July 23, 1996; ASEAN gave advisory status to India.

Thus, option 1 is the correct answer.

Que. 35 The present age of Ram is 25 years and Mohan is 10 years younger than Ram. Find after how many years the ratio between their ages will become 16 : 11.

1. 5 years
2. 8 years
3. 7 years
4. 6 years

Solution Given: Correct Option - 3

The present age of Ram is = 25 years and Mohan is 10 years younger than Ram, i.e = 25 – 10 = 15 years. Let us assume after x years their age will be

In the ratio of = 16 : 11

Calculation:

⇒ After x years the age of Ram = 25 + x years

⇒ After x years the age of Mohan = 15 + x years

⇒ As given there age Ratio will be = 16 : 11

⇒ (25 + x)/(15 + x) = 16/11

⇒ (25 + x)× 11 = (15 + x)× 16

⇒ 25× 11 + 11x = 15× 16 + 16x

⇒ 275 – 240 = 16x – 11x

⇒ 35 = 5x

∴ **x = 7**

Que. 36 A series is given with one term missing. Select the correct alternative from the given ones that will complete the series.
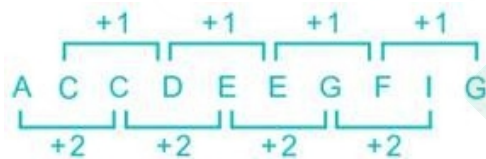
AC, CD, EE, GF, ?

1. IG
2. CX
3. ZD
4. DF

Solution   Correct Option **- 1**

Here the logic is :

Alphabets	A	B	C	D	E	F	G	H	I	J	K	L	M
Positional value	1	2	3	4	5	6	7	8	9	10	11	12	13
Positional value	26	25	24	23	22	21	20	19	18	17	16	15	14
Alphabets	Z	Y	X	W	V	U	T	S	R	Q	P	O	N

Hence, 'IG' is the correct answer.

Que. 37 Which of the following city with population more than 10 lakh as the cleanest city of India in the list of 'Swachh Survekshan 2020'?

1. Surat
2. Indore
3. Patna
4. Ahmadabad

Solution Correct Option **- 2**

The correct answer is **Indore**.

Madhya Pradesh's Indore has been declared the **cleanest city with a population more than 10 lakh** in India in 'Swachh Survekshan 2020' ranking list followed by **Surat, Navi Mumbai** and **Vijayawada**.

- **Patna** is the **dirtiest city** in the same category.
- The **Union Ministry of Housing and Urban Affairs** announce **Swachh Survekshan awards** every year.
- Swachh Survekshan monitors **Swachh Bharat Abhiyan** which was launched by **Prime Minister Narendra Modi in 2014**.
- Swachh Survekshan 2020 has been conducted in **4,242 cities, 62 cantonment boards and 92 Ganga** towns in the country.
- Swachh Survekshan awards 2020 conducted in an event - **Swachh Mahotsav** in which a total of 129 awards are given in different categories.

Que. 38 Find the value of sin15°.
1. (√3 + 1)/2√2
2. (√3 + 1)/2
3. (√3 − 1)/2√2
4. (√3 − 1)/2

Solution Given: Correct Option - **3**

Find the value of sin15°.

Formula Used:

sin(A − B) = sinA × cosB − sinB × cosA

Calculation:

Now, form the above used formula

⇒ sin15° = sin(45° − 30°)

⇒ sin45° × cos30° − sin30° × cos45°

⇒ (1/√2) × (√3/2) − (1/√2) × (1/2)

⇒ (√3 − 1)/(2 × √2)

∴ **(√3 − 1)/ 2√2**

Que. 39 In the question, a statement is given, followed by two arguments, I and II. You have to consider the statement to be true even if it seems to be at variance from commonly known facts. You have to decide which of the given arguments, if any, is a strong argument.

Statement : Should vegetarian food be banned in India ?

Argument:

I. No, everybody can buy vegetarian food as it is affordable

II. Yes, Protein is found in small amounts in vegetarian food.

1. Only I follows
2. Only II follows
3. Both follows
4. None follows

Solution Correct Option - **1**

Given data :

Statement: Should vegetarian food be banned in India ?

Inference :

I. No, everybody can buy vegetarian food as it is affordable → True (Most of the people can afford vegetarian food as compared to non-vegetarian food)

II. Yes, Protein is found in small amounts in vegetarian food.→ False (It is not mentioned in the statement)

Hence, 'Only I follows' is the correct answer.

Que. 40 Which of the following states of India is the folk dance Oyilattam associated with?
1. Tamil Nadu
2. Kerela
3. Karnataka
4. Andhra Pradesh

Solution Correct Option - **1**

- Oyilattam folk dance belongs to Madurai region of Tamil Nadu.
- This dance is mainly performed at village festivals.
- This dance highlights the epics of Ramayana and Mahabaratha.

State	Folk Dance
Kerala	Kanniyar Kali

Karnataka	Yakshagana
Andhra Pradesh	Lambadi

Que. 41 **Directions:** The following questions are based on the bar graph given below which represents the Jan Dhan accounts opened in different years 2010, 2011, 2012, 2013. (All the accounts opened data are in thousands)
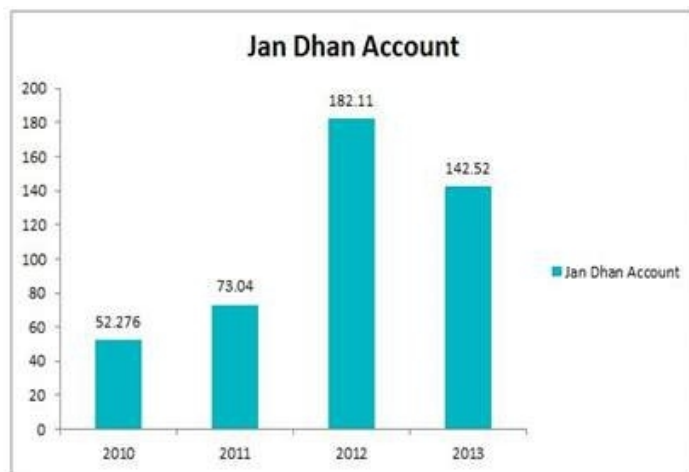
The total accounts opened in 2013 is decreased by how much percent to the total accounts opened in 2012.

1. 19.5%
2. 25%
3. 23.7%
4. 21.73%

Solution Given: Correct Option - 4

Number of Jan Dhan accounts opened in years 2010 = 52.276, in 2011 = 73.04, in 2012 = 182.11, in 2013 = 142.52

All are in (thousand = 1000)

Calculation:

⇒ The difference between the accounts from 2012 to 2013

⇒ 182110 – 142520 = 39590

Now, the percentage of the difference between 2012 and 2013 to 2012 will be

⇒ **Percentage% = (39590/182110)× 100 = 21.73%**

Que. 42 Find the number related to the given number :

61, 19, 31

1. 27
2. 79
3. 16
4. 33

Solution Correct Option - 2

The numbers given in the question are all prime number.

So, '79' is the number related to the given numbers

Hence, '79' is the correct answer.

Que. 43 Which of the following article states about "the Power of the Parliament to amend the constitution and procedure, therefore"?

1. Article 368

2. Article 369

3. Article 371

4. Article 371A

Solution Correct Option - **1**

- ♦ **Article 368** states about the **"Power of the Parliament to amend the constitution and procedure, therefor".**
- ♦ According to Article 368**,** Parliament may amend the constitution by way of addition, variation or repeal any provision of this Constitution in accordance with the procedure laid down in this article.

Article 367	States about the Interpretation of miscellaneous provisions.
Article 368	**States about the Power of the Parliament to amend the constitution and procedure, therefore.**
Article 369	States about the Temporary power of the parliament to make laws concerning certain state lists as if they were matter on the concurrent list.
Article 371	States about the Special provision concerning the state of Maharashtra, and Gujarat.

Que. 44 Find the difference between accounts opened in 2010 and 2011 to the total accounts opened in 2013.

1.   17204

2.   15000

3.   16000

4.   19200

Solution Given: Correct Option - **1**

Number of Jan Dhan accounts opened in years 2010 = 52.276, in 2011 = 73.04, in 2012 = 182.11, in 2013 = 142.52

all are in (thousand = 1000)

Calculation:

⇒ Total Account opened in 2010 and 2011

⇒ 73040 + 52276 = 125316

Also Account opened in 2013 = 142520

⇒ Difference of accounts opened in 2010, 2011 to 2013

⇒ **142520 – 125316 = 17204**

Que. 45 Select the missing number from the given series.

        1, 8, 27, 64, ?

1.   126

2.   125

3.   141

4.   81

Solution   Correct Option - **2**

Here the logic is :

$1^3 = 1$

$2^3 = 8$

$3^3 = 27$

$4^3 = 64$

Similarly,

$5^3 = 125$

Hence, '125' is the correct answer.

Que. 46 Who among the following is the first Indian Prime Minister to resign from office?

1. Morarji Desai
2. VP Singh
3. Atal Bihari Vajpayee
4. IK Gujral

Solution Correct Option - 1

The correct answer is **Morarji Desai.**

Morarji Desai was the **first Indian Prime Minister** to **resign** from office.

- **Morarji Desai** was an **Indian independence activist** and served **between 1977 and 1979** as the **4th Prime Minister of India**.
- He was appointed as **Deputy Prime Minister** and **Minister of Finance** in **Indira Gandhi's cabinet**, until **1969**.
- He became the **first non-Congress Prime Minister of India**.
- He was conferred with **India's highest civilian honour**, the **Bharat Ratna**.
- **VP Singh** was the **7th Prime minister of India**.
- **Atal Bihari Vajpayee** was the **10th Prime Minister of India** and served **three terms as the Prime Minister of India**.
- **IK Gujral** was the **12th Prime Minister of India**.

Que. 47 The difference between accounts opened in 2010 and 2011 is what percent of the total account opened in these 4 years?

1. 5%
2. 4.6%
3. 3.6%
4. 5.4%

Solution Given: Correct Option - 2

Number of Jan Dhan accounts opened in years 2010 = 52.276, in 2011 = 73.04, in 2012 = 182.11, in 2013 = 142.52

all are in (thousand = 1000)

Calculation:

The difference of accounts opened in 2010 and 2011 =

$\Rightarrow$ (73.04 – 52.276)× 1000 = 20764

Also, the total number of accounts is = 449946

$\Rightarrow$ The percentage of difference of accounts opened to total accounts

$\Rightarrow$ **(20764/449946)× 100 = 4.6 (approx.)**

Que. 48 Six friends A, B, C, D, E and F are sitting around a circular table facing towards the center. C is not adjacent to A or B. E is in the middle of A and B. F is not an immediate neighbor of B.

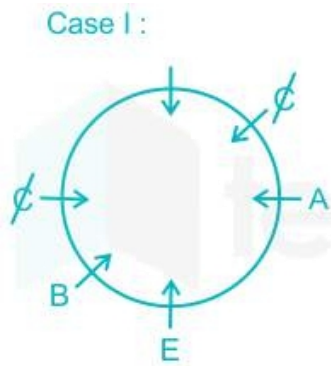Other than F, who is adjacent to C?

1. D
2. E
3. B
4. A

Solution Correct Option - 1

1. Six friends A, B, C, D, E and F are sitting around a circular table facing towards the centre.

2. E is in the middle of A and B.

3. C is not adjacent to A or B.

Case I :   Case II :
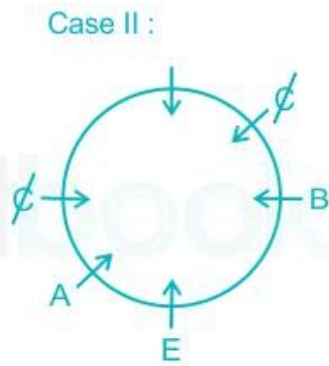
In the arrangement shown above, only one position is left for C to occupy. So, C is sitting opposite to E as shown below.
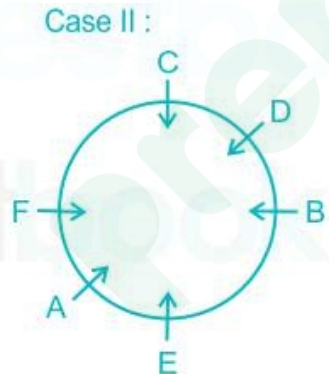
4. F is not an immediate neighbor of B.

So, the only position left for F is between C and A.

Case I :   Case II :
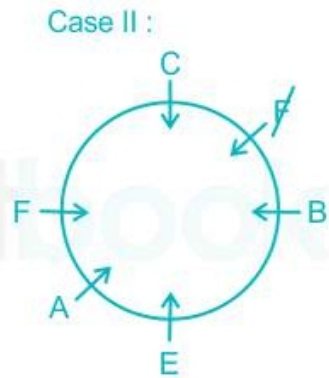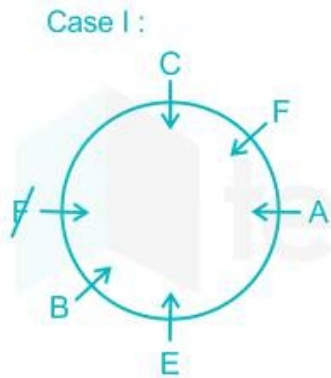
Only one person D is left who will occupy the vacant position.

The final arrangement is shown below:

Case I :   Case II :
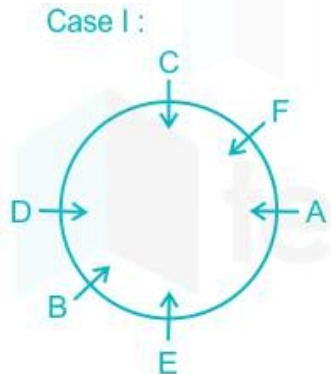
Other than F, D is adjacent to C. Hence,

Other than F, D is adjacent to C.

Que. 49   Who was the founder of Indian Reform Association' in 1870?

1.   Raja Rammohan Roy
2.   Kesava Chandra Sen
3.   Devendranath Tagore
4.   Eswarachandra Vijay Sagar

Solution Correct Option **- 2**
The correct option is 2 i.e., **Kesava Chandra Sen**.

- Kesava Chandra Sen was the founder of the Indian Reform Association' in 1870.
- Kesava Chandra Sen became a member of the Brahmo Samaj in 1856.
- In 1854, Keshub Chunder Sen became the secretary of the Asiatic Society.
- Kesava Chandra Sen established the British India Society in 1855.

Indian Reform Association:

- The Indian Reform Association was formed on 29 October 1870.
- Indian Reform Association represented the secular side of the Brahmo Samaj and included many who did not belong to the Brahmo Samaj.

Que. 50 | Find the average of the Jan Dhan accounts opened in 4 years.

1.   112586.5
2.   112386.5
3.   112486.5
4.   112286.5

Solution Correct Option - **3**

Que. 51 | In a code language, if 'fast and furious' is written as 'co mo jo', 'do it fast' is written as 'cha mo ga', and 'she did it' is written as 'ga la nop', then what will be the code for the word 'do' in this language?

1.   nop
2.   ga
3.   mo
4.   cha

Solution Correct Option - **4**
According to the given information,

Code for 'it' is 'ga'.

Code for 'fast' is 'mo'

So, the remaining word is 'do' and remaining code is 'cha'

Code for 'do' is 'cha'.

Hence, the correct answer is **cha.**

Que. 52 | What does TCP stand for with respect to computer networks?

1.   Transmission Control Protocol
2.   Transfer Call Plan
3.   Transfer Control Process
4.   Transmission Call Protocol

Solution Correct Option - **1**
The Transmission Control Protocol (TCP) is one of the main protocols of the Internet protocol suite. It originated in the initial network implementation in which it complemented the Internet Protocol (IP). Therefore, the entire suite is commonly referred to as TCP/IP

Additional Information

- https://kb.iu.edu/d/abkr#:~:text=TCP%2FIP%20stands%20for%20Transmission,adopted%20as%20a%20networking%20standard.

Que. 53 | If A can complete a work in 80 min and B can complete the same work in 40 min. Then in how much time A and B together can complete the work.

1.   26 min 20 seconds
2.   26 min 40 seconds

3. 25 min 40 seconds
4. 28 min 40 seconds

Solution Correct Option - **2 Given:**

A can complete a work in 80 min and B can complete the same work in 40 min.

Calculation:

⇒ The efficiency of A = 1/80 perminute

⇒ The efficiency of B = 1/40 perminute

⇒ Time taken by both A, B to complete the work = (1/A + 1/B)

⇒ (1/80 + 1/40) = (1 + 2)/80 = 3/80

⇒ **Time Taken = 80/3 = 26 minutes 40 seconds**

Que. 54 Suresh said to Sushant, "He is the one and only son of my mother's father's brother". How is Sushant related to Suresh?

1. Uncle
2. Cousin
3. Brother-in-law
4. Brother

Solution Correct Option - **1**

From the given information,

Symbol in Diagram	Meaning
○	Female
□	Male
=	Married couple
—	Siblings
|	Difference of a generation

Based on the given data, we can draw the following family tree-
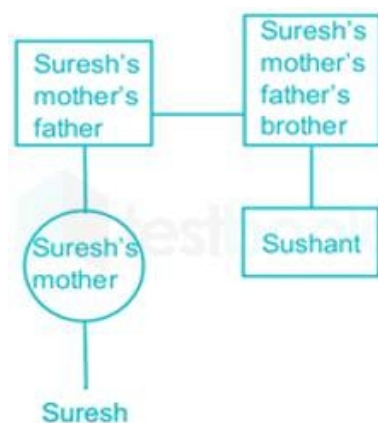
Hence, Sushant is an uncle of Suresh.

Que. 55 Chandrayan-1 was launched in which year?

1. 2008
2. 2004
3. 1969

4. 2020

Solution Correct Option - **1**

The correct answer is **2008.**

- It was the first lunar space probe of the Indian Space Research Organisation (ISRO) and found water on the Moon.
- It lifted off on 22 October 2008.
- It was under the control of the Indian Space Research Organisation (ISRO).

Additional Information

- The first moon landing occurred on **July 20, 1969**, on the Apollo 11 mission.
- The crew of Apollo 11 was Neil Armstrong, Michael Collins, and Buzz Aldrin.
- Armstrong and Aldrin crawled from the command module through an interconnecting tunnel into the lunar module, Eagle.

Que. 56 If A can complete work in 6 days, B can complete the work in 8 days and C can complete the same work in 12 days. In how much time A, B, and C can complete the work.

1. 3/4 days
2. 8/3 days
3. 5/2 days
4. 3/8 days

Solution Given: Correct Option - **2**

A can do a work in 6 days, B can do the same work in 8 days

And C can do the same work in 12 days

Calculation:

⇒ The efficiency of A = 1/6 per day

⇒ The efficiency of B = 1/8 per day

⇒ The efficiency of C = 1/12 per day

⇒ A, B, C can do the same work in = (1/6 + 1/8 + 1/12)

⇒ (4 + 3 + 2)/24 = 9/24

∴ **Time taken to complete work is 8/3 days.**

Que. 57 Study the given pattern carefully and select the number that can replace the question mark (?) in it.

36	55	49
64	47	39
49	?	61

1. 68
2. 88
3. 72
4. 120

Solution Correct Option - **1**

The pattern follows here is:

36, 55, 49

$6^2 = 36$

49 + 6 = 55

64, 47, 39

$8^2 = 64$

39 + 8 = 47

So,

49, 68, 61

$7^2 = 49$

$61 + 7 = 68$

Hence, the correct answer is **68**.

Que. 58 Who among the following is known as the father of Indian Railways?

1.   M.Visweswariah
2. Lord Ripon
3. Mahatma Gandhi
4. Lord Dalhousie

Solution Correct Option **- 4**

- **Lord Dalhousie** is known was **the father of Indian Railways.**
- Lord Dalhousie was a British officer and **"Governor-General of India.**
- **Lord Dalhousie introduced the railway and telegraph services** in India during the British rule.
- Trains in India were **started in 1853** by the British for their administrative convenience.
- The **first** passenger rail in India was **run between Bombay and Thane** on **16th April 1853.**

Que. 59 In two isosceles ΔABC and ΔPQR, the ratio of sides AB : PQ is 1 : 3. Find the ratio of area of ΔABC and area of ΔPQR.

1.   1 : 3
2. 1 : 9
3. 9 : 1
4. 3 : 1

Solution Given: Correct Option **- 2**

If two triangles are similar, then the ratio of the area of both triangles is proportional to the square of the ratio of their corresponding sides.

Theorem Used:

Consider two similar triangles ΔABC and ΔPQR;

According to the stated theorem,

(area of ΔABC)/(area of ΔPQR) = $(AB/PQ)^2$ = $(BC/QR)^2$ = $(CA/RP)^2$
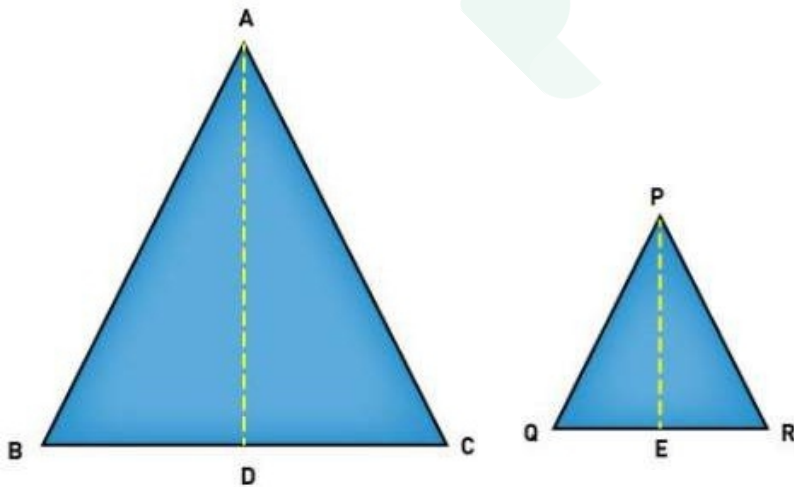
Calculation:

(area of ΔABC)/(area of ΔPQR) = $(AB/PQ)^2$

⇒ $(AB/PQ)^2$

⇒ $(1/3)^2$

⇒ 1/9

∴ **Area of Δ ABC / area of Δ QPR is 1/9.**

Que. 60 Read the statement and choose one conclusion from the given alternatives.:

Statement:

All rats are books

All rats are mice

Conclusions:

1. Some books are mice

2. All books are mice

3. Some mice are not rats

A. Only 1 follow

B. Only 1 and 3 follow

C. Only 1 and 2 or 3 follows

D. Both 2 and 3 follow

1. B

2. A

3. C

4. D

Solution   Correct Option **- 2**

Given,

Statement:

All rats are books

All rats are mice

Conclusions:

1. Some books are mice

2. All books are mice

3. Some mice are not rats

The least possible Venn diagram for the given statements is as follows,

Conclusions:

1. Some books are mice → **True** (From Venn diagram we see it is possible)

2. All books are mice → **False** (It is possible but not definite)

3. Some mice are not rats → **False** (It is possible but not definite)

Hence, the correct answer is **A. Only 1 follow.**

Que. 61 The procedure to remove waste products and excess fluid from the blood when the kidneys stop working properly is called
_____.

1. circulation

2. filtration

3. purification

4. dialysis

Solution Correct Option **- 4**

The correct answer is **<u>Dialysis</u>**.

- The procedure to remove waste products and excess fluid from the blood when the kidneys stop working properly is called dialysis.
  - The dialysis method is useful for the person whose kidneys can no longer perform these functions naturally.
  - The first succes

- The first dialysis system was developed by Leonard Rowntree and John Abel in 1913.
- Dialysis works on the principles of the diffusion of solutes and the ultrafiltration of fluid across a semi-permeable membrane.
- Hemodialysis and peritoneal dialysis are the two main types of dialysis.
- The blood is **filtered** by nephrons, the functional units of the kidney.
- This blood is **purified** by the kidneys and circulated on to the rest of the body.

Que. 62 What will come in the place of the question mark '?' in the following question?

1224 + 122.4 + 12.24 + 1.224 = ?

1. 1359.864
2. 1358.854
3. 1284.424
4. 1366.394

Solution Ans: 1   Correct Option **- 1**

Calculation:

⇒ 1224 + 122.4 + 12.24 + 1.224

Que. 63 In the question, two statements are given, followed by two conclusions, I and II. You have to consider the statements to be true even if it seems to be at variance from commonly known facts. You have to decide which of the given conclusions, if any, follows from the given statements.

Statement: Rajan bought a pencil yesterday.

Conclusions:

I: Rajan did not have any pencil.

II: Rajan's sister asked her to get a pencil.

1. Only conclusion I follows
2. Only conclusion II follows
3. Neither I or II follows
4. Both I and II follow

Solution Correct Option **- 3**

From the information above, we cannot conclude that earlier Rajan did not have any pencil.

Therefore, conclusion I does not follow.

Similarly, the information above is not sufficient for us to conclude the reason behind Rajan buying a pencil.
Therefore, conclusion II does not follow.

Hence, Neither I or II follows.

Que. 64 The electron was discovered by_____.

1. J. J. Thomson
2. John Dalton
3. James Chadwick
4. Rutherford

Solution Correct Option - **1**
The Correct answer is **J. J. Thomson**.

Additional Information

- A British physicist J.J.Thomsom Heightened the theory of Dalton.
- Thomson found the **existence of extremely minute particles inside the atom**.
- He compared the atom with a **'watermelon'** in which the Red part resembles the positively charged portions while the black seed resembles the negatively charged electrons.
- **The atom itself is neutral in nature, as it has equal positive and negative charged electrons**.

Key-Points

- **Thomson discovered 'Electrons' for which he got Nobel prize in 1906 A.D**.
- Thomson proposed a better atomic theory than Dalton's atomic model.
- According to him, a positive charge is dispersed everywhere and the idea that atoms are made up of negative electrons embedded in a gel of positive charge was wrong.
- **Electrons were accidentally discovered by J. J. Thomson while studying the cathode rays**.
- The name electron was given by 'stony'.
- Cathode rays are emitted from the cathode in a straight line if these rays strike on metal objects there is the formation of 'X-rays'.

Important Point

James Chadwick-

- Sir James Chadwick **was awarded the 1935 Nobel Prize in Physics for his discovery of the neutron in 1932**.
- By 1920, physicists knew that **most of the mass of the atom was located in a nucleus at its center** and that this central core contained protons.
- In May 1932 **James Chadwick announced that the core also contained a new uncharged particle, which he called the neutron**.

Rutherford-

- Rutherford overturned Thomson's atom model in 1911 with his well known **Gold Foil experiment**.
- Rutherford made an experiment, he beamed **alpha particles through a thin gold foil**. From this, he came to know that:
    - **Most alpha particles passed through the gold foil**, very few particles bounced back exactly towards the source.
    - **Some of the particles deviate at various angles**.
    - He concluded that an atom has a tiny, dense, **'positively charged' core, where all mass is concentrated; known as Nucleus**.
    - The thickness of gold foil - 0.00004 cm.
    - Alpha particle - A helium nucleus.

John Dalton-

- In 1803 A.D. he put forth his famous **atomic theory**.
    - The matter is made up of **small particles called atoms**.
    - Atoms **can not be created, divided into smaller particles, nor destroyed** in the chemical process.
    - Atom is a **rigid**

Que. 65 If $\dfrac{A}{3} = \dfrac{B}{4} = \dfrac{C}{5}$, then A : B : C is:

1. 3 : 5 : 6
2. 3 : 4 : 6
3. 3 : 4 : 5
4. 2 : 3 : 5

Solution Ans: 3   Correct Option **- 3**

Given:

A/3 = B/4 = C/5

Calculation:

Let A/3 = B/4 = C/5 = K   [Where K is a constant]

⇒ A = 3K, B = 4K, C = 5K

⇒ A : B : C = 3K : 4K : 5K

⇒ A : B : C = 3 : 4 : 5

∴ **A : B : C is 3 : 4 : 5.**

Que. 66   In the family, Ranbir is elder than Mahesh but younger than Guru. Aryan is elder than Shiv but younger than Mahesh. Who is the second eldest person in the family?

1. Aryan
2. Shiv
3. Ranbir
4. Guru

Solution Correct Option **- 3**

1) There are five people in the family.

2) Ranbir is elder than Mahesh but younger than Guru.

Guru > Ranbir > Mahesh

3) Aryan is elder than Shiv but younger than Mahesh.

Mahesh > Aryan > Shiv

Combining (2) and (3), we get:

Guru > Ranbir > Mahesh > Aryan > Shiv

Therefore, Ranbir is the second eldest person in the family.

Hence, "Ranbir" is the correct answer.

Que. 67   Which gland in the human body is called the master gland?

1. Pancreas
2. Thyroid
3. Pituitary
4. Spleen

Solution Correct Option **- 3**

- The **pituitary gland** is called the **"master gland"** of the **endocrine system**, because it **controls the functions of the other endocrine glands**.
- The **pituitary gland** is about the **size of a pea** and is located at the **base of the brain**.
- It is called as **master gland** because its secretion regulates and controls the secretion of the other **endocrine glands** such as **thyroid gland**, **adrenal gland**, **pancreas** etc. The hormones of this **gland** are also required for the different activities in the body.

Que. 68 In a triangle ΔABC, ∠B = 90° and tanA = √3 then what is the value of sinA.cosC + cosA.sinC?

1. 1
2. 2
3. $\frac{\sqrt{3}+1}{2}$
4. $\frac{\sqrt{3}-1}{2}$

Solution Given: Correct Option **- 1**

In a triangle ΔABC, ∠B = 90° and tanA = √3

Formula used:

Sum of angles of a triangle = 180°

Calculation:

⇒ tanA = √3

⇒ tanA = tan60°

⇒ ∠A = 60°, ∠B = 90°

⇒ ∠A + ∠B + ∠C = 180°

⇒ 60° + 90° + ∠C = 180°

⇒ ∠C = 30°

⇒ sin60°cos30° + cos60°sin30°

⇒ √3/2 × √3/2 + 1/2 × 1/2

⇒ 3/4 + 1/4

⇒ 1

∴ **The value of sinAcosC + cosAsinC is 1.**

📖 **Alternate Method**

We have to find the value of sinAcosC + cosAsinC

sinAcosC + cosAsinC

⇒ sin(A + C)

Given that ∠B = 90°, and A, B, C are three angles of the triangle ΔABC

⇒ A + B + C = 180°

⇒ A + C = 180° - B

⇒ A + C = 180° - 90°

⇒ A + C = 90°

sin(A + C) = sin90° = 1

∴ **sinA.cosC + cosA.sinC is 1.**

Que. 69 Four letter clusters have been given, out of which three are alike in some manner, while one is different. Select the odd letter cluster.

1. SVY
2. WZC
3. ILO
4. MPR

Solution Correct Option **- 4**

Alphabets	A	B	C	D	E	F	G	H	I	J	K	L	M
Positional value	1	2	3	4	5	6	7	8	9	10	11	12	13
Positional value	26	25	24	23	22	21	20	19	18	17	16	15	14
Alphabets	Z	Y	X	W	V	U	T	S	R	Q	P	O	N

The pattern followed here is:

$$S \xrightarrow{+3} V \xrightarrow{+3} Y$$
$$W \xrightarrow{+3} Z \xrightarrow{+3} C$$
$$I \xrightarrow{+3} L \xrightarrow{+3} O$$
$$M \xrightarrow{+3} P \xrightarrow{+2} R$$
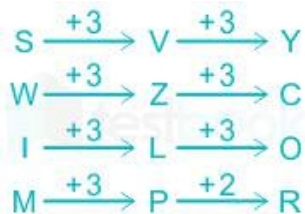
Therefore, "MPR" is odd among them.

Hence, "MPR" is the correct answer.

Que. 70   The major ingredient of sweetened soft drink is?

1.   Carbonated water
2.   Hydrochloric acid
3.   Phosphoric acid
4.   Caffeine

Solution Correct Option **- 1**

The correct answer is **Carbonated water**.

Key-Points

- The main ingredient in sweetened soft drinks is water; they are about **90 percent carbonated water**.
- Carbonated water is water that has been infused with **carbon dioxide gas under pressure**.
  - This produces a bubbly drink that's also known as **sparkling water, club soda, soda water, seltzer water, and fizzy water**.
  - Apart from seltzer water, carbonated waters usually have salt added to improve their taste.
- Carbonated beverage consumption has been linked with **diabetes, hypertension**, and **kidney stones**, all risk factors for **chronic kidney disease**.
- Soft drinks typically contain carbonated water, high fructose corn syrup (sugar), caramel color, caffeine, phosphoric acid, citric acid, natural flavors, carbon dioxide, organic diol, and Brominated vegetable oil (BVO).

- **Caffeine**, a stimulant, is one of the major ingredients in sodas.
- **Phosphoric acid (H_3PO_4) was a corrosive acid**. As a colorless and odorless agent, it was found in most acidic soft drinks.
  - **Osteoporosis** is linked to **phosphoric acid**.
- **Caramel Color** is the world's most widely used **food colorant**.
  - It is used largely to impart color in numerous foods and beverages including colas, soy sauce, seasonings, bread, pet foods, cereals, etc.

Que. 71   The circumference of a circle is 8.8 cm. What is the length of the diameter of the circle?

1.   1.4 cm
2.   3.5 cm
3.   2.8 cm
4.   2.1 cm

Solution Ans: 3   Correct Option **- 3**

Given:

The circumference of a circle is 8.8 cm.

Formula used:

Circumference of a circle = $2\pi r$

Diameter of a circle = $2r$

Calculation:

$\Rightarrow 2\pi r = 8.8$

⇒ 2 × 22/7 × r = 8.8

⇒ r = 1.4

⇒ 2r = 2.8 cm

∴ **The length of the diameter of the circle is 2.8cm.**

Que. 72 In a certain code language, '-' represents '+', '+' represents '×', '×' represents '÷' and '÷' represents '-'. Find out the answer to the following question.

27 - 9 + 3 - 3 ÷ 3

1. 15
2. 12
3. 54
4. 50

Solution Correct Option **- 3**

As per the given information,

Symbols	-	+	×	÷
Codes	+	×	÷	-

Given: 27 - 9 + 3 - 3 ÷ 3

Changing symbols as per the given information

We get, 27 + 9 × 3 + 3 - 3

Using **BODMAS** we get

= 27 + 27

= 54

Hence, the correct answer is 54

Que. 73 'Borlaug Award' is given in which of the following field?

1. Literature
2. Music
3. Science
4. Agriculture

Solution Correct Option **- 4**

The Correct Answer is **Option (4)** i.e **Agriculture** -

- Borlaug Award is conferred by a fertilizer company, **Coromandel International.**
- This award is conferred to the Indian scientists for their research and contribution to the field of **agriculture and the environment.**
- This award was created in **1972** and named in honour of **Nobel Laureate and the 'Father of Green Revolution' Norman Borlaug**.

Field	Awards
Literature	Man Booker Prize, Bhartiya Jananpith Award, Sahitya Academy Awards, Saraswati Samman, etc.
Music	Grammy, Mirchi Music Awards, etc.
Science	Kalinga, Nobel Prize, Shanti Swarup Bhatnagar Awards, etc

Que. 74 Find the value of cosec(75° + x) – sec(15° - x) + tan(55° + x) – cot(35° -x)

1. 1

2. 0
3. 2
4. 1/2

Solution Correct Option - 2 Ans: 2

Concept used:

cosec(90° - x) = sec x

tan(90° - x) = cot x

Calculation:

⇒ cosec(75° + x) – sec(15° - x) + tan(55° + x) – cot(35° - x)

⇒ cosec[90° - (15° - x)] – sec(15° - x) + tan[90° - (35° - x)] – cot(35° - x)

⇒ sec(15° - x) – sec(15° - x) + cot(35° - x) – cot(35° - x)

⇒ 0 + 0 = 0

∴ **The value of cosec(75° + x) – sec(15° - x) + tan(55° + x) – cot(35° - x) is 0.**

Que. 75   In the question, two statements are given, followed by two conclusions, I and II. You have to consider the statements to be true even if it seems to be at variance from commonly known facts. You have to decide which of the given conclusions, if any, follows from the given statements.

Statement: Government has started a new campaign called "Know your Constitution" in all Indian schools.

Conclusions:

I: Government wants the kids to be aware of the Indian Constitution.

II: It will enhance the conditions of the schools in India.

1. Only conclusion I follows
2. Only conclusion II follows
3. Neither I or II follows
4. Both I and II follow

Solution Correct Option - 1

From the information above, we can easily conclude that the intention behind the Government to launch a campaign named "Know your Constitution" in schools is to focus on increasing the awareness among the kids about their Constitution.
Therefore, conclusion I follows.

But the information above is not sufficient for us to conclude the consequence of this campaign, especially regarding the improvement in the conditions of school.
Therefore, conclusion II does not follow.

Hence, Only conclusion I follows.

Que. 76   Chlorine gas is a major component of which of the following?

1.   Water
2. Tear gas
3. Liquefied Petroleum Gas
4. Gobar gas

Solution Correct Option - 2

- Chlorine gas is a major component of **tear gas**.
- Tear gas comprises substances that irritate the eyes and its mucous membranes and cause tears and stinging sensation.
- The major components of tear gas are o-chlorobenzylidenemalononitrile, or CS and ω-chloroacetophenone, or CN.
- Liquefied Petroleum Gas or LPG consists of butane or propane.
- **Gobar** gas is also known as **biogas**. It is produced by breaking down organic matter in the absence of oxygen.

Que. 77   If $a^3 - b^3 = 158$ and $a^3 + b^3 = 185$. Find the value of a/b.

1.   3/7
2.   7/3
3.   7/√2
4.   3/√2

Solution Ans: 2   Correct Option **- 2**

Given:

$a^3 - b^3 = 158$

$a^3 + b^3 = 185$

Calculation:

$a^3 - b^3 = 158$........1

$a^3 + b^3 = 185$........2

By adding equation 1 and equation 2

$\Rightarrow 2a^3 = 343$

$\Rightarrow a = 7/\sqrt{2}$

By subtracting equation 1 from equation 2

$\Rightarrow 2b^3 = 27$

$\Rightarrow b = 3/\sqrt{2}$

$\Rightarrow a/b = (7/\sqrt{2})/(3/\sqrt{2})$

$\Rightarrow a/b = 7/3$

∴ **The value of a/b is 7/3.**

Que. 78   Consider the following information and answer the questions based on it.

Out of the 75 birders, 15 wanted to see only sunbird, 10 wanted to see only flycatcher, 12 wanted to see both sunbird and nuthatch, 15 wanted to see only bee-eater, 13 wanted to see both sunbird and bee-eater, 5 wanted to see both flycatcher and nuthatch and the remaining wanted to see only nuthatch.

The difference between the birders who want to see sunbird and those who want to see flycatcher is

A. 12

B. 25

C. 30

D. 15

1.   B
2.   C
3.   A
4.   D

Solution Correct Option **- 1**
The venn diagram for the problem is shown below:

The birders who want to see sunbird = (13 + 15 + 12) = 40

Those who want to see flycatcher = (10 + 5) = 15

Difference = (40 – 15) = 25

Hence, '25' is the correct answer.

Que. 79 Lightning rod conductor was invented by_____.

1. Benjamin Franklin
2. Ernest Rutherford
3. Chadwick
4. J.J Thomson

Solution Correct Option **- 1**
The correct answer is **Benjamin Franklin.**

- In June 1752, the American inventor and statesman Benjamin Franklin, with the aid of his son, lofted a flat kite fitted with a pointed wire and silk sail during a thunderstorm.
- Somehow both father and son avoided electrocution as a metal key attached to the flying line became electrified.
- Franklin proved that lightning was the natural phenomenon called electricity, not the wrath of the gods.
- One immediate and practical outcome of the experiment was **Franklin's invention of the lightning rod.**

Que. 80 Find the area of an equilateral triangle if the side of the triangle is $(2 \times 3^{1/4})$cm

1. 3 cm^2
2. 4 cm^2
3. 9 cm^2
4. 16 cm^2

Solution Ans: 1   Correct Option **- 1**

Given:

The side of the triangle is $(2 \times 3^{1/4})$ cm.

Formula used:

Area of equilateral triangle $= \frac{\sqrt{3}}{4} \times \text{side}^2$

Calculation:

$\Rightarrow \frac{\sqrt{3}}{4} \times (2 \times 3^{1/4})^2$

$\Rightarrow \frac{\sqrt{3}}{4} \times 4 \times 3^{1/2}$

$\Rightarrow \sqrt{3} \times 3^{1/2}$

$\Rightarrow \sqrt{3} \times \sqrt{3}$
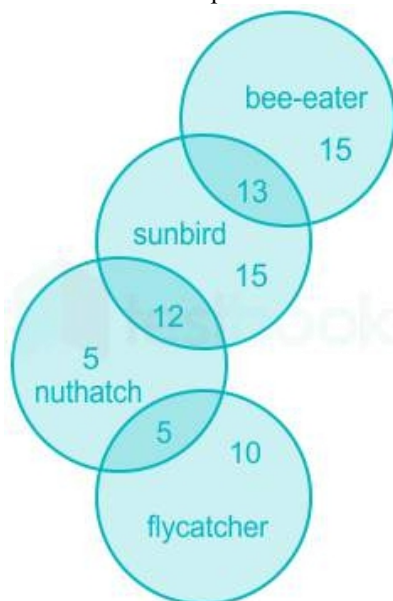
$\Rightarrow 3 \text{ cm}^2$

$\therefore$ The area of an equilateral triangle if the side of the triangle is 3 cm^2.

Que. 81 How many birders wanted to see only one bird?

      A. 30

B. 40

C. 45

D. 50

1.   A
2.   D
3.   B
4.   C

Solution Correct Option **- 4**

Birders who wanted to see only one bird = (15 + 15 + 5 + 10) = 45

Hence, '45' is the correct answer.

Que. 82   What is the SI unit of electric resistance?

1.   Volt
2.   Ampere
3.   Ohm
4.   Joules

Solution   Correct Option **- 3**

CONCEPT:

- **Resistance**: The property of any conductor that opposes the flow of electric current through it is called resistance.
- It is denoted by R and the SI unit is the **ohm (Ω).**

Explanation:

As explained above, **Ohm** is the unit of **resistance**. Named after German physicist Georg Simon Ohm.

- **Volt** is the unit for electric **potential**.
- **Ampere** is the unit for electric **current** and **Joules** is the unit for **energy**.

Hence option 3 is correct among all

Que. 83   The length of a rectangle is 10% more than its breadth. Find the breadth if the area of the rectangle is 110 cm^2.

1.   11 cm
2.   12 cm
3.   9 cm
4.   10 cm

Solution Ans: 4   Correct Option **- 4**

Given:

The length of a rectangle is 10% more than its breadth.

the area of the rectangle is 110 cm^2.

Formula used:

Area of rectangle = Length × breadth

Calculation:

Let the breadth of the rectangle be 100y.

Length of the rectangle = 100y × 110/100 = 110y

Area of the rectangle = 100y × 110y = 110 cm^2

$\Rightarrow 100y^2 = 1$

$\Rightarrow y^2 = 1/100$

$\Rightarrow y = 1/10$

Breadth of the rectangle = 100y = 100 × 1/10 = 10 cm

∴ **The breadth of the rectangle is 10 cm.**

Que. 84   Select the option that is related to the third letter-cluster in the same way as the second letter-cluster is related to the first letter-cluster.

VOWEL : ZPAFP :: FRICK : ?

1.   JVGOK
2.   JVMGO
3.   JVJGO
4.   OGMVH

Solution Correct Option - **3**

Alphabets	A	B	C	D	E	F	G	H	I	J	K	L	M
Positional value	1	2	3	4	5	6	7	8	9	10	11	12	13
Positional value	26	25	24	23	22	21	20	19	18	17	16	15	14
Alphabets	Z	Y	X	W	V	U	T	S	R	Q	P	O	N

The pattern follows here is: Every vowel is added by 1 and Every consonant is added by 4.

```
V    O    W    E    L
|+4  |+1  |+4  |+1  |+4
↓    ↓    ↓    ↓    ↓
Z    P    A    F    P
```

Similarly,

```
F    R    I    C    K
|+4  |+4  |+1  |+4  |+4
↓    ↓    ↓    ↓    ↓
J    V    J    G    O
```

Hence, the correct answer is **JVJGO**.

Que. 85 Which among the following gases is also known as 'Laughing Gas'?

1.   Sulphur dioxide
2.   Nitrous oxide
3.   Carbon dioxide
4.   Carbon monoxide

Solution Correct Option - **2**

Nitrous oxide is also known as **"Laughing Gas".**

- The chemical formula of **Nitrous oxide is N_2O.**
- It is a **colourless, non-flammable gas at room temperature, with a faint metallic smell and taste.**
- It is a potent oxidizer similar to molecular oxygen at elevated temperatures.
- It has important medical uses for its anesthetic and pain-reducing effects, especially in surgery and dentistry.
- The name **"Laughing Gas" is coined by Humphry Davy.**

Que. 86 Find the value of x if 12 : 51 :: x : 17.

1.   3
2.   4
3.   5
4.   6

Solution Ans: 2   Correct Option - **2**

Formula used:

$\Rightarrow$ a : b :: c : d

$\Rightarrow$ a/b = c/d

Calculation:

$\Rightarrow$ 12/51 = x/17

$\Rightarrow$ 12 × 17 = 51x

$\Rightarrow$ 12 = 3x

$\Rightarrow$ 4 = x

∴ value of x is 4.

Que. 87 Which assumptions are implied from the below statement?

Statement: Jadeja took 3 wickets and scored 55 not out in today's match.

Assumptions:

I: Jadeja was the man of the match.

II: Jadeja was injured.

1. Only I is implicit.
2. Only II is implicit.
3. Both I and II are implicit.
4. Neither I nor II is implicit.

Solution Correct Option **- 4**

From the information above we cannot assume that Jadeja was the man of the match as there can be other players as well who performed better than him.

Therefore, assumption I is not implicit.

Similarly, the information available in the statement above is completely contradicting the fact mentioned in the statement. If he was injured he can't play and score.

Therefore, assumption II is also not implicit.

Hence, Neither I nor II is implicit.

Que. 88 Which is NOT an example of one-sided symbiotic relationship?

1. Cattle egrets and cattle
2. A hermit crab and an empty seashells
3. A spider on a tree
4. Tapeworm in host's stomach

Solution Correct Option **- 4**

The correct answer is **Tapeworm in the host's stomach.**

- Tapeworm in the host's stomach is NOT an example of a one-sided symbiotic relationship (Commensalism).
- Tapeworm in the host's stomach is an example of Parasitism.
- **Symbiosis** is a close relationship between two species in which at least one species benefits. For the other species, the relationship may be positive, negative, or neutral.
- There are three different types of symbiotic relationships:
  Mutualism
  Commensalism (one-sided symbiotic relationship)
  Parasitism
- **Mutualism:** It is a type of symbiotic relationship in which both species benefit. **Example**: goby fish and shrimp.
- **Commensalism:** It is a type of symbiotic relationship in which one species benefits while the other species is not affected. **Example**: mites attach themselves to larger flying insects to get a "free ride".
- **Parasitism:** It is a type of symbiotic relationship in which one species (the parasite) benefits while the other species (the host) is harmed. **Example**: Roundworms are parasites of mammals, including humans, cats, and dogs.

Que. 89 If two quadratic equations $x^2 + ax + b = 0$ and $x^2 + bx + a = 0$ ($a \neq 0$) hava a common root. Find the value of $a + b$.

1. 1
2. -1
3. 2
4. 0

Solution Given: Correct Option **- 2**

Two quadratic equations $x^2 + ax + b = 0$ and $x^2 + bx + a = 0$ ($a \neq 0$) have a common root.

Calculation:

Let common root in both equations be α.

α satisfies both equation, so we put x = α in both equations

$\Rightarrow \alpha^2 + a\alpha + b = 0$------- 1

$\Rightarrow \alpha^2 + b\alpha + a = 0$------- 2

By equating both equations

$\Rightarrow \alpha^2 + a\alpha + b = \alpha^2 + b\alpha + a$

$\Rightarrow a\alpha + b = b\alpha + a$

$\Rightarrow \alpha(a - b) = a - b$

$\Rightarrow \alpha = 1$

Put $\alpha = 1$ in equation 1

$\Rightarrow 1 + a + b = 0$

$\Rightarrow a + b = -1$

∴ **The value of a + b is -1.**

Que. 90 If in a certain language, HUSTLE is coded as SUHELT, how is TEXTER coded in that code?

1.   RETXET
2.   XETRET
3.   XETETR
4.   TRETXE

Solution   Correct Option **- 2**
The logic here is:

Hence, 'XETRET' is the correct answer.

Que. 91 ECG records

1.   Rate of heartbeats
2.   Shape of Heart
3.   Ventricular concentration
4.   Volume of blood pumped

Solution Correct Option **- 1**
The correct answer is **Rate of heartbeats**.

- ECG records **rate of heartbeats**.
    ECG stands for **Electrocardiogram**.

Key-Points

- In ECG, electrodes are placed on the skin to note the normal working condition of the heart.
- ECG was first developed by **Willem Einthoven.**
- A normal ECG has 5 deflection waves **P, Q, R, S and T.** Out of the **P, R and T waves** are above the baseline and are called **positive waves. The Q and S waves** are below the baseline and are called **negative waves.**
- There are three **types of ECT tests-**
    Resting ECG
    Exercise ECG
    24 hour ECG

Additional Information

- **CT Scan** - It was invented by **Allan Mcleod Cormack and Godfrey n Hounsfield**.
- **Open Heart Surgery** - It was invented by **Walton Lillehei**.
- **Magnetometer**- It was invented by **Sheldon Breiner**.
- **Stethoscope**- It was invented by Rene Laennec.

Que. 92   Which of the following carries blood from the heart to the kidneys?

1.   Renal artery
2.   Coronary artery
3.   Vena cava
4.   Renal vein

Solution Correct Option **- 1**

The correct answer is **Renal artery**.

- **Renal Arteries carry unfiltered blood from the aorta to the kidneys**.
- The arteries are obscured by the renal veins; they are dorsal to the renal veins.

Key-Points

- The **blood travels** to each kidney through the Renal artery.
  Renal arteries usually originate from the left inside of the abdominal aorta, directly below the upper mesenteric artery, and supply blood to the kidneys.
  It holds half of the overall blood supply to the kidneys.
  Up to a third of the overall cardiac production will pass through the kidney-filtering renal arteries.
  A capillary is a small blood vessel with a diameter of between 5 and 10 micrometres (μm).

- The **renal artery** is the branch of the abdominal aorta that carries blood to the kidney.
  It enters in the kidney through the hilum part.
- The **pulmonary artery** is the only artery that carries deoxygenated blood. It carries deoxygenated blood from the right ventricle to the lungs.
- The **hepatic artery** is a blood vessel that supplies oxygenated blood to the liver, duodenum, pancreas, and gallbladder.
- **Carotid arteries** are major blood vessels in the neck that supply blood to the brain, neck, and face.

Que. 93   Which instrument is used for viewing the sun?

1.   Stroboscope
2.   Telescope
3.   Helioscope
4.   Sun meter

Solution Concept: Correct Option **- 3**

Helioscope was first used by Benedetto Castelli in 1578

Since observing sun directly can damage eyesight and its difficult to observe anything directly in Helioscope sunlight is projected on a white sheet of paper with a help of telescope-like equipment and then any changes like eclipse can be observed easily by observing the sheet

Explanation:

- A helioscope is an instrument used for observing the sun and sunspots.
- The helioscope was first used by Benedetto Castelli and refined by Galileo Galilei.

Que. 94 Which Vitamin is used by the body to help blood clot?

1.   Vitamin A
2.   Vitamin D
3.   Vitamin C
4.   Vitamin K

Solution Correct Option **- 4**

The correct answer is **Vitamin K**.

- Vitamin K is used by the body to help blood clot.
- Warfarin is used to slow blood clotting.

Vitamins	Chemical name	Deficiency Disease
Vitamin A	Retinol	Color Blindness
Vitamin B1	Thymine	Beriberi
Vitamin B2	Riboflavin	Pellagra or 4D syndrome
Vitamin B3	Niacin	Whitening of skin, mentally retardedness
Vitamin B5	Pantothenic	Cracking of skin
Vitamin B6	Pyridoxine	Anemia, skin disease
Vitamin B7	Biotin	Paralysis, Body pain, hair falling
Vitamin B11	Folic Acid	Anemia, dysentery
Vitamin B12	Cyanocobalamin	Jaundice, Anemia
Vitamin C	Ascorbic Acid	Scurvy, Swelling of Gum
Vitamin D	Calciferol	Rickets
Vitamin E	Tocopherol	Less fertility
Vitamin K	Phylloquinone	Non-Clotting of blood

Que. 95 Which blood group is universal acceptor?

1.   O+
2.   O–
3.   AB–
4.   AB+

Solution Correct Option **- 4**

AB+ is the blood group which is a universal acceptor since it has both kinds of antigens, which are Antigen A and Antigen B. People having a blood group of AB+ can accept blood from any person of any blood group.

Que. 96 Which of the following bacteria causes Cholera?

1.   Coccus
2.   Spirillum
3.   Vibrio

4. Bacillus

Solution Correct Option - **3**
Cholera is an infectious disease that causes severe watery diarrhea which can lead to dehydration and even death if untreated. It is caused by eating food or drinking water contaminated with a bacterium called Vibrio cholerae.

Que. 97 A person is said to be anemic if his body has deficiency of -

1. Calcium and phosphorous
2. Red Blood Corpuscles
3. White Blood Corpuscles
4. Vitamins

Solution Correct Option - **2**
Option **2** is correct, i.e. **Red Blood Corpuscles**.

Red Blood Corpuscles:

- The main function of RBC is to carry oxygen from the lungs to all the other parts of the body and bring back the carbon-di-oxide from all such parts.
- **Deficiency of RBC causes Anemia**.
- RBC is formed in the bone marrow and its destruction takes place in the liver and the spleen.

White Blood Corpuscles:

- **Monocytes** are the **largest white blood corpuscles**. Their count is used to diagnose various kinds of diseases.
- Monocytes serve as a part of the defence against infection by "eating" up foreign particles. When a monocyte is found in a tissue, it is called a macrophage.
- They are irregular in shape and larger in size than lymphocytes.
- They are present in very small quantities(1-6%).

Que. 98 Which gas is filled in the balloon?

1. Hydrogen
2. Carbon dioxide
3. Helium
4. Oxygen

Solution Correct Option - **3**
A gas balloon is a balloon that flies in the air because it is filled with a gas less dense than air or lighter than air such as helium.

Que. 99 Which pigment gives red colour to blood?

1. Serum globulin
2. Serum albumin
3. Haemoglobin
4. Plasma protein

Solution Correct Option - **3**
The Correct Answer is **Haemoglobin.**

Key-Points

- Blood has four main components: **plasma, red blood cells, white blood cells, and platelets**.
- Red Blood cells contain a special protein called **hemoglobin.**
- **Blood** appears red because of the large number of red blood cells, which get their color from the **hemoglobin.**
- **Hemoglobin** helps to carry oxygen from the lungs to the rest of the body and then returns carbon dioxide from the body to the lungs.

Additional Information

Plasma

- The liquid component of blood is called plasma.
- Plasma is a mixture of water, sugar, fat, protein, and salts.
- The main job of the plasma is to transport blood cells throughout the body along with nutrients, waste products, antibodies, clotting proteins, chemical messengers such as hormones, and proteins that help maintain the body's fluid balance.

Globulin

- Globulins are a group of proteins in the blood.
- They are made in the liver by the immune system.
- Globulins play an important role in liver function, blood clotting, and fighting infection.

Albumin

- Albumin is a protein made by the liver.
- Albumin helps keep fluid in the bloodstream so it doesn't leak into other tissues.
- It also carries various substances throughout the body, including hormones, vitamins, and enzymes.

Que. 100 Which enzyme is present in gastric juice?

1. Pepsin
2. Renin
3. Trypsin
4. Amylase

Solution Correct Option **- 1**
The correct answer is Option 1 i.e. **Pepsin.**

Pepsin:

- **Pepsin** is the digestive enzyme that breaks down proteins.
- The **Gastric Glands** secrete the enzyme **Pepsin**.
- Gastric glands are found in the **stomach.**
- They secrete enzymes like **Pepsin, Rennin** which act upon the Proteins.
- Glands in the **mucous-membrane** which line the stomach make and store an inactive protein known as **pepsinogen.**
- When pepsinogen is released into the stomach and mixed with gastric juice, it is converted into **pepsin**.
- Pepsin partially degrades proteins into smaller units called **peptides.**

Renin:

- It is also known as **Chymosin.**
- The structure of Renin contains **340 amino acids.** It helps in coagulating milk.
- Large amounts of this enzyme are secreted in the stomach of **infant mammals.**
- It is also present in the stomach of **cud-chewing animals.**

Amylase:

- **Salivary amylase** is an enzyme present in the human **saliva** which is produced by the **salivary glands.**
- It helps in the process of **digestion** as it breaks down complex **carbohydrates** such as **starch into simpler sugars like glucose and maltose.**

Note: Trypsin is also secreted by the Salivary glands in our mouth.

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