Que. 1 The chemical formula of lime water is:

1. CaO
2. $CaCO_3$
3. $Ca(HCO_3)_2$
4. $Ca(OH)_2$

Solution Correct Option **- 4**

The correct answer is **$Ca(OH)_2$**

- When quick lime (CaO)reacts with water, lime water is produced.
- $CaO + H_2O \rightarrow Ca(OH)_2$
- Here the product is $Ca(OH)_2$, which is slaked lime or lime water.
- Mainly Calcium carbonate disassociates to produce quick lime and carbon dioxide.
- Then the quick lime reacts with water and produces lime water.
- Calcium hydroxide is used in many applications, including food preparation.
- Limewater is the common name for a saturated solution of calcium hydroxide.

Que. 2 A can do a work in 40 days, B can do the same work in 60 days and C can do the same work in 80 days. They all together started the work and A left 11 days before also B left 8 days before the completion of whole task, find the number of days taken to complete the work.

1. 13 days
2. 26 days
3. 39 days
4. 52 days

Solution GIVEN: Correct Option **- 2**

A can complete work in 40 days, B in 60 days and C in 80 days & A left 11 days, and B left 8 days before the completion of the whole task

FORMULA USED:

Total work = Efficiency × Time taken

CALCULATION:

A can complete work in 40 days, B in 60 days and C in 80 days & A left 11 days, and B left 8 days before the completion of the whole task

⇒ Total work = L.C.M(40, 60, 80)

⇒ 240

⇒ The efficiency of A, B, C are (240/40, 240/60, 240/80)

⇒ The efficiency of A, B, C are (6, 4, 3)

⇒ Total work of (A for 11 days & B for 8 days) = (11 × 6 + 8 × 4)

⇒ (66 + 32) = 98

⇒ Now total work = (240 + 98) = 338

⇒ total number of days required to finish the work by working together = Total work/Efficiency of (A + B + C)

⇒ 338/13 = 26

∴ Total number of days required to finish the work by working together is 26 days

Alternate Method

Work done by A in 1 day = 1/40

Work done by B in 1 day = 1/60

Work done by C in 1 day = 1/80

Let total days to complete the work be x days

A worked for (x – 11) days, B worked for (x – 8) days and C worked for x days

Work done by A in (x – 11) days = (x – 11)/40

Work done by B in (x – 8) days = (x – 8)/60

Work done by C in x days = x/80

Total work = (x – 11)/40 + (x – 8)/60 + x/80 = (13x – 98)/240

⇒ (13x – 98)/240 = 1

⇒ 13x = 240 + 98 = 338

⇒ x = 26

∴ Total number of days required to finish the work by working together is 26 days

---

Que. 3 A group of five students has different height. Raj is shorter than Simran. Simran is shorter than Manoj. Manu is taller than only Kriti. Who among the following is the tallest?

1. Manu
2. Raj
3. Simran
4. Manoj

Solution Correct Option **- 4**

According to the given statement;

A group of five students has different heights. Raj is shorter than Simran.

Simran
Raj

Simran is shorter than Manoj.

Manoj
Simran
Raj

Manu is only taller than Kriti.

Manoj
Simran
Raj
Manu
Kirti

Hence, **Manoj** is the tallest in the group.

Note:

Manu is taller than only Kriti or Manu is only taller than Kriti means Manu cannot be taller than any other person, except Kriti, so ultimately it means Manu is second smallest. If many is taken as tallest than he will be taller that 4 people which violates the statement.

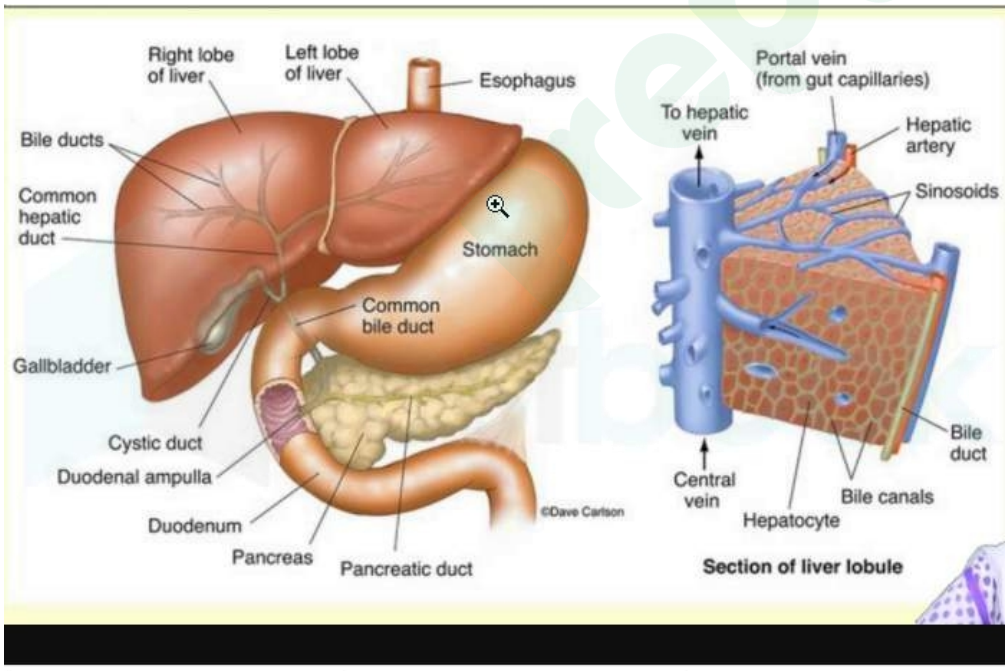
Que. 4 Bile Juice is formed in the

1. Kidney
2. Salivary Gland
3. Liver
4. Lung

Solution Correct Option **- 3**
The Correct answer is **Liver**.

Liver-

- The liver is the **largest gland in the body**.
- The liver mainly secretes **'Bile Juice'** which is stored in a Gall bladder.
- Bile Juice and Pancreatic juice are released into the small intestine by a common duct.
- Unused glucose is stored in the liver in the form of glycogen.
- **Heparin, Urea, and Bile Juice are produced in the liver**.
- The major supply of blood to the liver is by 'portal vein'(75%) & remaining (25%) by Hepatic artery.
- That is why the liver is known to have a 'Dual blood supply'.



Que. 5 Find the unit digit of $(432)^{412} \times (499)^{431}$.

1. 2
2. 4
3. 6
4. 8

Solution Correct Option **- 2**

Given:

$(432)^{412} \times (499)^{431}$

Concept:

$9^{\text{even no.}}$ = unit digit 1

$9^{\text{odd no.}}$ = unit digit 9

Calculation:

$(432)^{412} \times (499)^{431}$

Taking unit digits

$\Rightarrow 2^{412} \times 9^{431}$

As we know unit digit of $2^1 = 2$, $2^2 = 4$, $2^3 = 8$, $2^4 = 6$

$\Rightarrow 2^{4(103)} \times 9^{431}$

$\Rightarrow 6 \times 9$

$\Rightarrow 54$

$\therefore$ The unit digit of $(432)^{412} \times (499)^{431}$ is 4.

Additional Information

To determine the last digit of the number 432^{412}, we need to focus on the last digit of base 432 i.e. 2 and the exponential part 412.

We know,

Power of 2	Last digit
2^1	2
2^2	4
2^3	8
2^4	6
2^5	2
2^6	4
2^7	8
2^8	6
2^9	2

Notice the pattern of the last digit. It is 2,4,8,6,2,4,8,6,2…… so on.

Thus the last digit is repetitive and is a four-digit long i.e. 1, 2, 8, 6. If we keep on writing this table till the power of 2 reaches 412 then how many times this pattern repeated can be found by dividing 412 by 4.

412 divided by 4 is 103 with remainder 0 which indicates that the pattern gets fully repeated 412 times and then ends up with the digit i.e. 4. (if it is fully divisible we take power as 4)

$\therefore$ The Last digit of the number 432^{412} is 6.

$9^{\text{even no.}}$ = unit digit 1

$9^{\text{odd no.}}$ = unit digit 9

$\therefore$ The Last digit of the number 9^{431} is 9

$\therefore$ The unit digit of $(432)^{412} \times (499)^{431}$ is 4.

Que. 6 **Directions**: In the following question, the statement is given followed by two conclusions. You have to consider the statement to be true, even if it seems to be at variance from commonly known facts. You are to decide which of the given conclusions can be drawn definitely from the given statement.

Statements: Spinner bowler takes 6 wickets in a T -20 match.

Conclusions:

I. 80% of bowlers are spinners.

II. The opener will be a spinner.

1. Only I is true
2. Only II is true
3. Neither I nor II is true
4. Either I or II is true

Solution Correct Option **- 3**

Given:

Statements: Spinner bowler takes 6 wickets in a T -20 match.

Conclusions:

I. 80% of bowlers are spinners. (**False**, as there is no mention of the percentage of spinner bowlers in the team)

II. The opener will be a spinner. (**False,** it is not given that the opener is a spinner.)

Hence, **Neither I nor II is true**

Que. 7 Who is the present Secretary General of the United Nations Organization?

1. Ban Ki Moon
2. Antonio Guterres
3. Kofi Annan
4. Kurt Waldheim

Solution Correct Option **- 2**

The correct answer is **Antonio Guterres.**

- The United Nations is an intergovernmental organization formed to maintain international peace and security. develop positive relationships among nations.
  - The United Nations Organization was formed on **24th October 1945**, after World War II.
  - The headquarters of the United Nations Organization is in **New York City.**
  - The Charter of the UN was signed on **26th June 1945** bt representatives of 50 nations.
  - At present, the UN consists of **193 countries** as its members.
  - **South Sudan** is the last member joined in the UN.
- **Antonio Guterres** is the incumbent Secretary-General of the United Nations Organization.
  - He was appointed as the ninth secretary-general of the United Nations in 2017.
  - Antonio Guterres is a **Portuguese** citizen.
- **Kurt Waldheim** was the fourth Secretary-General of the United Nations(1972 to 1981).
- **Kofi Annan** was the seventh Secretary-General of the United Nations(1997 to 2006).
- **Ban Ki-moon** was the eighth Secretary-General of the United Nations(2007 to 2016).

Que. 8 Find the value of (60^2 - 54^2).

1. 342
2. 684
3. 400
4. 604

Solution Correct Option **- 2 Given:**

$(60^2 - 54^2)$

Formula used:

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

Calculations:

$(60^2 - 54^2)$

$\Rightarrow (60 + 54) \times (60 - 54)$

$\Rightarrow 114 \times 6$

$\Rightarrow 684$

$\therefore$ The value of $(60^2 - 54^2)$ is 684.

Que. 9 **Directions**: In each of the following questions, the statement is given followed by four conclusions. You have to consider the statement to be true, even if it seems to be at variance from commonly known facts. You are to decide which of the given conclusions can be drawn definitely from the given statement.

Statements: When Savita hear its birthday, then she orders the cake.

Conclusions:

I. She orders the cake

II. She hear someone birthday.

III. She does not order the cake.

IV. She does not hear someone birthday.

1. IV and III follow
2. I and II follow
3. II and III follow
4. I and IV follow.

Solution Correct Option **- 2**

Given:

Statements: When Savita hear its birthday, then she orders the cake.

Conclusions:

I. She orders the cake. (**True** as mentioned in the statement that she orders the cake.)

II. She hear someone birthday. (**True,** she hears someone birthday and then order the cake.)

III. She does not order the cake. (**False,** given in the statement that she orders the cake.)

IV. She does not hear someone birthday. (**False,** she hears someone birthday.)

Hence, **I and II follows.**

Que. 10 The Indian National Congress (INC) was formed by the_____in 1885.

1. W.C. Bannerjee
2. Dadabhai Naoroji

3. Allan Octavian Hume
4. Badruddin Tyyabji

Solution Correct Option **- 3**
The correct answer is **Allan Octavian Hume.**

- The Indian National Congress (INC) was formed by the **Allan Octavian Hume in 1885.**
- INC was the **first modern nationalist movement to emerge in the British Empire in Asia and Africa** and it grew to become one of the most important political parties in pre-independence India.
- The **first session** of INC was held in **Bombay** from 28–31 December 1885 under the **chairmanship of W.C. Bonnerjee**.
- The session of the Indian National Congress is held **at the gap of one year**.
- INC started as an organization comprising only of the educated elite in India, but it later became a party of commoners with prominent leaders like **Lajpat Rai, Tilak, Gandhi, Nehru, Bose**, etc. as its members.
- **From the late 19th century**, and especially after 1920, Congress **became the principal leader of the Indian independence movement** under the leadership of Mahatma Gandhi,
- Congress **lead India to independence from Great Britain** and powerfully influenced other anti-colonial nationalist movements in the British Empire.
- **The list of some of the sessions of the Indian National Congress before the Indian Independence.**

Year	Location	President and significance
1885	Bombay	Womesh Chandra Bannerjee [1st session attended by 72 delegates]
1886	Calcutta	Dadabhai Naoroji National [Congress and National Conference]
1887	Madras	Badruddin Tyyabji [fist Muslim President]
1889	Bombay	Sir William Wedderburn

Que. 11 The average of 45 numbers is 150. Later it is found that a number 46 is wrongly written as 91, then find the correct average.

1. 151
2. 147
3. 149
4. 153

Solution Given: Correct Option **- 3**

The average of 45 data is 150

46 is wrongly written as 91

Concept used:

Average = Sum of total observations/Total number of observations

Calculation:

The total sum of all 45 number = 150 × 45 = 6750

Now, 46 is wrongly written as 91

The correct sum of data = 6750 – (91 – 46) = 6705

Then, Correct average of the data = 6705/45 = 149

∴ **The correct average is 149**

Shortcut Trick

Difference between wrong and actual numbers = 91 – 46 = 45

As the actual number is less than the wrong number

So the average decreased by 45/45 = 1

The correct average = 150 – 1 = 149

∴ **The correct average is 149**

Que. 12 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. Some bells are golden

II. Some bells are red.

Conclusion:

I. Some red are golden

II. No golden is red

1. Only conclusion I follows
2. Both conclusions I and II follow
3. Only conclusion II follows
4. Either conclusion I or II follow

Solution Correct Option **- 4**

According to the given statement,

Statement:

I. Some bells are golden

II. Some bells are red.

The possible Venn diagram is as follows:

Conclusion:

I. Some red are golden. (**False,** it can be true but not definite.)

II. No golden is red. (**False,** it can be true but not definite.)

Both the Conclusions are complimentary terms.

Hence, **Either conclusion I or II follow**

Que. 13 Lichen is a combination of

1. An algae and a fungus
2. An algae and a bacteria
3. A bacterium and a fungus

4. A bacterium and a gymnosperm

Solution Correct Option **- 1**

A lichen is a composite organism that arises from algae or cyanobacteria (or both) living among filaments of a fungus in a symbiotic relationship.

Que. 14 Two trains are going from Bangalore to Chennai with a speed of 80km/hr and 100km/hr. If the train with slower speed starts 1 hour before then find the time taken by the second train to catch the 1st train.

1. 6 hours
2. 5 hours
3. 4 hours
4. 8 hours

Solution GIVEN: Correct Option **- 3**

Speed of trains are 80 km/hr and 100 km/hr and lower speed train start 1 hour earlier

FORMULA USED:

Distance = Time × Speed

CALCULATION:

Speed of trains are 80 km/hr and 100 km/hr and slower speed train start 1 hour earlier

⇒ Distance covered by slower train in 1 hour = 80 × 1 = 80 km

Relative speed = 100 - 80 = 20 km/hr

So the time is taken by the faster train to cross the slower train = 80/20 = 4 hours

∴ **Time taken by 2nd train to catch the 1st train is 4 hours**

Que. 15 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 cats are dogs

II. All dogs are rats

Conclusion:

I. Some cats are rats.

II. No cats are rats.

1. Only conclusion I follows
2. Both conclusions I and II follow
3. Only conclusion II follows
4. Either conclusion I or II follow

Solution Correct Option **- 1**

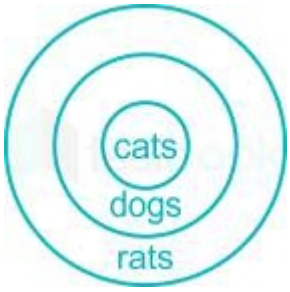
Given:

Statement:

I. All cats are dogs

II. All dogs are rats

The possible Venn diagram is as follows:



Conclusion:

I. Some cats are rats. (**True,** as all cats are dogs and all dogs are rats. So, some cats are rats true.)

II. No cats are rats. (**False,** as according to the diagram cats are a part of rats also.)

Hence, **Only conclusion I follows.**

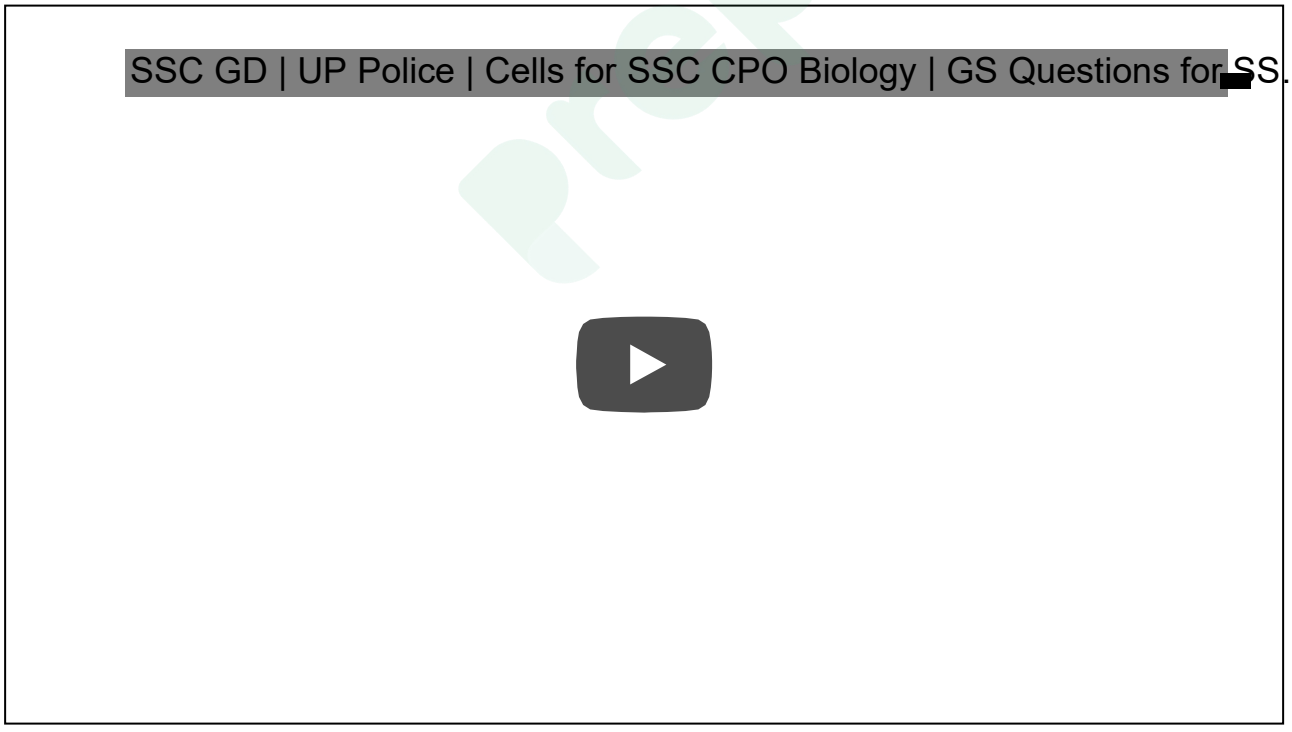
Que. 16 Who discovered cell in 1665?

1. Robert Hooke
2. Robert Crook
3. David Thomson
4. Marie Francois

Solution Correct Option **- 1**

The cell was discovered by **Robert Hooke** in 1665. Since it looked strangely similar to Cellula or small rooms which monks inhabited, thus deriving the name.

However, what Hooke actually saw was the dead cell walls of **plant cells (cork)** under **Simple Microscope**.



Que. 17 If A, B, and C can do a piece of work in 5 days, B, C, and D can do the same work in 10 days, C, D, and A can do the same work in 15 days, D, A, and B can do the same work in 30 days. Find the time taken by A + B + C + D?

1. 9 days
2. 7 days

3. 9.5 days
4. 7.5 days

Solution Correct Option **- 4 Given:**

Time is taken by:

A + B + C = 5 days

B + C + D = 10 days

C + D + A = 15 days

D + A + B = 30 days

Concept used:

Total time = Work/One-day work

Calculation:

If the time is taken to do work by A + B + C = 5 days

⇒ 1 day work by A + B + C = 1/5 ……(1)

If the time is taken to do work by B + C + D = 10 days

⇒ 1 day work by B + C + D = 1/10 ……(2)

If the time is taken to do work by C + D + A = 15 days

⇒ 1 day work by C + D + A = 1/15 ……(3)

If the time is taken to do work by D + A + B = 30 days

⇒ 1 day work by D + A + B = 1/30 ……(4)

Adding (1),(2),(3), and (4), we get

1 day work by (A + B + C), (B + C + D), (C + D + A), and (D + A + B) = 1/5 + 1/10 + 1/15 + 1/30

⇒ 1 day work by 3A + 3B + 3C + 3D = (6 + 3 + 2 + 1)/30

⇒ 1 day work by 3(A + B + C + D) = 12/30

⇒ 1 day work by 3(A + B + C + D) = 2/5

Total time = Work/One-day work

Total time taken by 3(A + B + C + D) = 1/(2/5)

⇒ Total time taken by 3(A + B + C + D) = 5/2

⇒ Total time taken by (A + B + C + D) = 5/2 × 3

⇒ Total time taken by (A + B + C + D) = 15/2 days

⇒ Total time taken by (A + B + C + D) = 7.5 days

∴ **The total time taken to do a work by A + B + C + D is 7.5 days**

Mistake Point

Please don't get confused by the point that if A, B and C are taking 5 days to complete the work then, A, B, C and D will take less time than 5 days to complete the work because there may be a possibility that D is destroying the work due to which they are taking more time to complete the work

We can understand this point by taking the case of a leak in a tank like Time taken by a filling pipe will always be less than the time taken by a pipe and a leak together.

Que. 18 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 chocolates are toffees.

II. All toffees are sweet

Conclusion:

I. Some chocolates are sweet.

II. All chocolates are sweet.

1. Only conclusion I follows
2. Both conclusions I and II follow
3. Only conclusion II follows
4. Either conclusion I or II follow

Solution Correct Option **- 2**

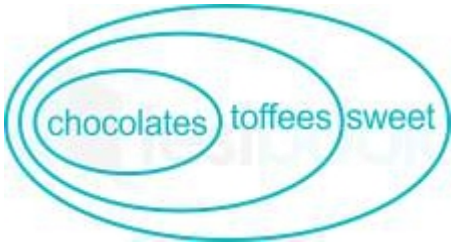
Given:

Statement:

I. All chocolates are toffees.

II. All toffees are sweet

The possible Venn diagram is as follows;



Conclusion:

I. Some chocolates are sweet. (**True,** as all chocolates are toffees and all toffees are sweet. So, chocolates are a part of sweet.)

II. All chocolates are sweet. (**True,** according to the diagram all chocolates are a part of sweet.)

Hence, **both conclusions I and II follow.**

Que. 19 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. 20 If cost price of 5 articles is equal to selling price of 8 articles then find the profit or loss percentage?

1. 25.5% loss
2. 35% profit
3. 37.5% loss
4. 40% profit

Solution Correct Option **- 3 Given:**

5CP = 8SP

Formula used:

Loss% = (CP – SP)/CP × 100

Calculation:

5CP = 8SP

⇒ CP/SP = 8/5

⇒ SP/CP = 5/8

⇒ 1 – SP/CP = 1 – 5/8 [Subtract 1 both sides]

⇒ (CP – SP)/CP = (8 – 5)/8

⇒ (CP – SP)/CP × 100 = 3/8 × 100

⇒ Loss% = 37.5% [Loss% = (CP – SP)/CP × 100]

∴ **The loss% is 37.5%.**

Que. 21 In a given code form:

P + Q means P - Q

P ÷ Q means P × Q

P × Q means P + Q

P - Q means P ÷ Q

What is the correct answer for given mathematical equation 5 × 32 - 16 ÷ 7 + 19 = ?

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

Solution Correct Option **- 4**

According to the given statement;

Symbol	+	÷	×	-
Code	-	×	+	÷

Given equation:

5 × 32 - 16 ÷ 7 + 19

Using code:

5 + 32 ÷ 16 × 7 - 19;

5 + 2 × 7 - 19

19 - 19 = **0**

Hence, the correct answer is **0**

Que. 22 Who is considered as the Father of Indian Constitution?

1. Bal Gangadhar Tilak
2. Rajendra Prasad
3. Bhim Rao Ambedkar
4. Jawaharlal Nehru

Solution Correct Option **- 3**
The correct answer is option **3** i.e **Bhim Rao Ambedkar**.

- **Bhim Rao Ambedkar** is considered as the **Father of the Indian Constitution.**
- He was the chief architect of the Constitution of India.
- He was appointed Chairman of the Constitution Drafting Committee in 1947.
- He was independent India's first **Minister of Law and Justice.**
- Newspaper published by Ambedkar: *Mooknayak* (Leader of the Silent).
- Participated in all 3 round table conference.
- His birth anniversary (April 14) is observed as "**National Water Day**" in India.
- Honoured with the Bharat Ratna(posthumously) award in 1990.
- Notable works:
  - The Annihilation of Caste (1936).
  - Pakistan or the Partition of India.
  - Riddles in Hinduism.
  - The Buddha and his Dhamma.
  - Riddles in Hinduism.
  - The Untouchables.

Bal Gangadhar Tilak	• Popularly known as "**Lokmanya**". • He raised the famous slogan "*Swaraj is my birthright and I shall have it".* • Notable works: *Gita Rahasya, The Arctic Home in the Vedas.* • He is well known as the father of Indian unrest
Rajendra Prasad	• **First President of India.** • President of the Constituent Assembly of India. • Honoured with Bharat Ratna in 1962. • Notable works: *Satyagraha at Champaran, Division of India, At the feet of Mahatma Gandhi.*
Jawaharlal Nehru	• **First Prime Minister of India**. • Honoured with Bharat Ratna in 1955. • The **Preamble** of the Indian constitution was written by him. • Notable works: *Letters from a Father to His Daughter, The Discovery of India, and Glimpses of World History.*

Que. 23 A sum of Rs 10000 amounts to 12200 in 2 years and Rs 13300 in 3 years at simple interest. Find the rate of interest.

1. 10%
2. 11%

3. 12%
4. 22%

Solution Correct Option **- 2 Given-**

Concept Used-

Simple Interest = P × R × T/100 [where P = Principal, R = Rate, T = Time]

Interest = Amount - Prinicipal

Calculation-

Interest for 3rd year = Amount after 3 years - Amount after 2nd years

⇒ 13300 - 12200

⇒ 1100

According to Question-

1100 = 10000 × R × 1/100

⇒ R = 11%

∴ Rate of interest = 11%

Que. 24 In a given code form:

P + Q means P - Q

P ÷ Q means P × Q

P × Q means P + Q

P - Q means P ÷ Q

What is the correct answer for given mathematical equation 49 - 7 × 6 ÷ 3 + 20 = ?

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

Solution Correct Option **- 3**

According to the given statement;

Symbol	+	÷	×	-
Code	-	×	+	÷

Given equation:

49 - 7 × 6 ÷ 3 + 20

Using code:

49 ÷ 7 + 6 × 3 - 20;

7 + 18 - 20;

25 - 20 = **5**

Hence, the correct answer is **5**

Que. 25 Who won the IPL 2020?

1. Chennai Super Kings
2. Mumbai Indians
3. Delhi Daredevils

4. Rajasthan Royals

Solution Correct Option **- 2**
The correct answer is **Mumbai Indians.**

- The **current IPL title holders are the Mumbai Indians, who won the 2020 season**.
  - Mumbai Indians have the maximum number of titles, won five titles.

Additional Information

- **Chennai Super Kings**:
  - 2010, 2011, 2018 IPL titles have been won by the CSK.
- **Sunrisers Hyderabad**:
  - Sunrisers Hyderabad has won the IPL trophy so far only once I.e in the 2016 IPL season.
  - 2016 IPL final was held between Sunrisers Hyderabad and Royal Challengers Bangalore at M. Chinnaswamy Stadium.
- **Kolkata Knight Riders** won 2012 and 2014 IPL titles.

Que. 26 If a number is in the form of $8^{10} \times 9^7 \times 7^8$, find the total number of prime factors of the given number.

1. 52
2. 560
3. 3360
4. 25

Solution Correct Option **- 1 Given:**

The number is $8^{10} \times 9^7 \times 7^8$

Concept used:

If a number of the form $x^a \times y^b \times z^c$ ..... and so on, then total prime factors = a + b + c..... and so on
Where x, y, z,.....are prime numbers

Calculation:

The number $8^{10} \times 9^7 \times 7^8$ can be written as $(2^3)^{10} \times (3^2)^7 \times 7^8$

The number can ve written as $2^{30} \times 3^{14} \times 7^8$

Total number of prime factors = 30 + 14 + 8

∴ **The total number of prime factors are 52**

Que. 27 **Direction:** Study the following information carefully and answer the given questions.
In a certain code language,
'Go jump there' coded as 'lo fa la'
'She Go there' coded as 'ka fa la'
'She there got' coded as 'po ka la'

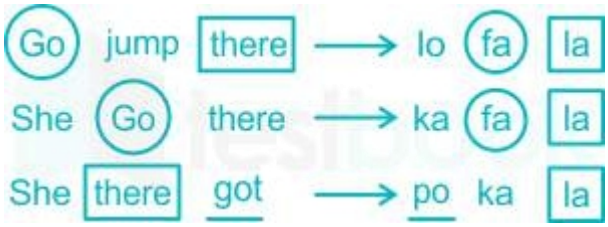
Question:-

How is 'Go got' coded in the given language?

1. lo ka
2. fa po

3. fa ka
4. ka la

Solution Correct Option **- 2**
According to the given coded form;



Hence, 'Go got' is coded as **fa po**

Que. 28 Mahatma Gandhi was elected as the President of the Indian National Congress (INC) in the Annual Session held at

1. Ahmedabad
2. Poona
3. Belgaum
4. Kanpur

Solution Correct Option **- 3**
The correct answer is option **3**, i.e. **Belgaum.**

- Mahatma Gandhi was elected as the President of the Indian National Congress (INC) in the Annual Session held at **Belgaum** in 1924.
- He held the position of the President of the INC only once.
- The Congress Annual Sessions were held at **Ahmedabad** twice in 1902 and 1921 where Surendranath Banerjea and C.R. Das were elected presidents respectively.
- The **Poona** Annual Congress Session was held in 1895 with Surendranath Banerjea as its new elected president.
- The **Kanpur** Annual Congress Session was held in 1925 with Sarojini Naidu as its new elected president.

Que. 29 An equal amount of sum is invested in two different schemes for 2 years at simple interest with rates 14% p.a and 11% p.a. If the total interest after 2 years is Rs.2724, then find the sum invested on each scheme.

1. Rs.4688
2. Rs.5448
3. Rs.4680
4. Rs.5746

Solution Given: Correct Option **- 2**
Sum is invested for 2 years at the rates 14% and 11%
Total sum of S.I = Rs.2724
Concept used:
S.I = (P × R × T)/100
Calculation:
Let the sum be Rs.x
Then, S.I for 2 years @ 14% = 28x/100

Also, S.I for 2 years @ 11% = 22x/100

Total interest = 28x/100 + 22x/100 = 50x/100

As per the question,

50x/100 = 2724

⇒ x = 2724 × 100/50

⇒ x = 5448

∴ **The sum is Rs.5448**

Que. 30 In a certain code language,

25 ÷ 5 = 15

30 ÷ 6 = 20

35 ÷ 7 = ?

What will replace the '?' mark sign.

1. 20
2. 5
3. 10
4. 25

Solution Correct Option **- 4**

The pattern followed here is;

25 ÷ 5 = 5 × 3 = 15;

30 ÷ 6 = 5 × 4 = 20;

35 ÷ 7 = **5 × 5 = 25**

Hence, the correct answer is **25**

Que. 31 The headquarters of UNESCO is at

1. New york
2. Paris
3. Geneva
4. Rome

Solution Correct Option **- 2**

The correct answer is option **2** i.e **Paris**

Explanation:

UNESCO

- It stands for **United Nations Educational, Scientific and Cultural Organisation.**
- It was formed on **4th November 1945.**
- Its headquarters are in **Paris, France**.
- Currently, UNESCO has **193 members and 11 associates members.**
  - The **US, Israel, and Liechtenstein are members of the UN, but not members UNESCO**.
  - Three countries, namely, **Palestine, Niue, and the Cook Islands** are members of UNESCO, but not of the UN.
- **India** was the **founding member of UNESCO.**
- India has **38** world heritage sites.

Que. 32 If the sum of LCM and HCF of two numbers is 396 and the difference between the LCM and HCF is 324 and the 1st number is 72 then find the second number.

1. 125
2. 180
3. 126
4. 127

Solution Given: Correct Option **- 2**

LCM + HCF = 396, LCM - HCF = 324

First number = 72

Formula used:

LCM × HCF = First number × second number

Calculation:

LCM + HCF = 396--------(1)

LCM - HCF = 324--------(2)

By solving (1) and (2)

⇒ LCM = 360, HCF = 36

LCM × HCF = First number × second number

⇒ 360 × 36 = 72 × second number

⇒ second number = 180

∴ The second number is 180.

Que. 33 Select the option that can replace the question mark (?) and complete the given series.

8, 27, 64, 125, ?

1. 225
2. 144
3. 121
4. 216

Solution Correct Option **- 4**

The pattern followed here is;

$8 = 2^3$

$27 = 3^3$

$64 = 4^3$

$125 = 5^3$

$216 = 6^3$

Hence, the correct answer is **216.**

Que. 34 Which of the following country is not a member of SAARC?

1. Nepal
2. Maldives
3. China

4. Afghanistan

Solution Correct Option **- 3**
China is not a member of SAARC.

SAARC is South Asian Association for Regional Cooperation, which is a regional intergovernmental organisation.

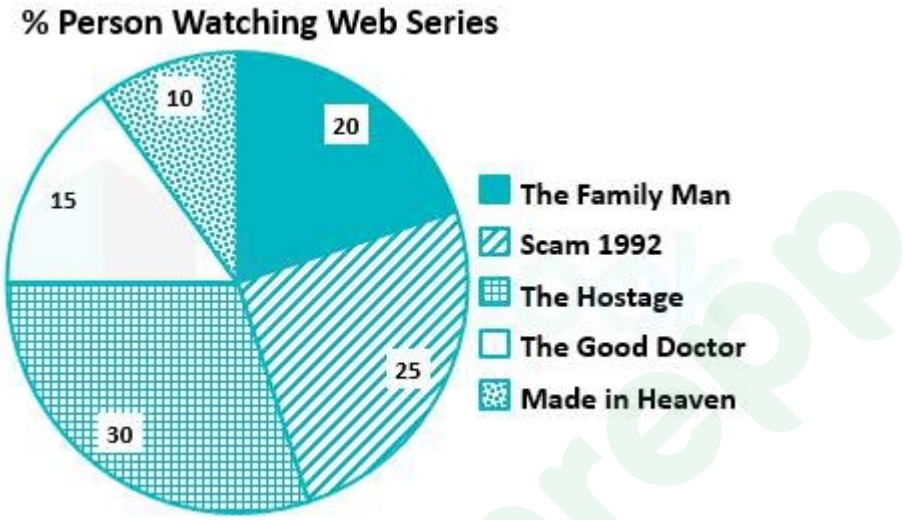
Its members are these nations- India, Afghanistan, Pakistan, Bhutan, Nepal, Maldives, Sri Lanka and Bangladesh.

Trick: MBBS PAIN

M - Maldives, B - Bhutan, B - Bangladesh, S - Sri Lanka, P - Pakistan, A - Afghanistan, I - India , N - Nepal

---

Que. 35 The following pie chart shows the distribution of the total number of people watching five different web series – The Family Man, Scam 1992, The Hostage, The Good Doctor, and Made in Heaven. Read the pie chart carefully and answer the questions that follow.



If the total number of persons watching the web series is 1000, find the difference between the number of persons watching The Hostage and The Good Doctor.

1. 200
2. 175
3. 225
4. 150

Solution Correct Option **- 4**
Total number of persons watching the web series = 1000

Difference in the percentages of the persons watching The Hostage and The Good Doctor = 30 – 15 = 15%

So, the required difference = (15/100) × 1000 = 150

∴ The difference between the number of persons watching The Hostage and The Good Doctor is 150

Que. 36 Select the related number from the given alternatives.

11 : 141 :: 17 : ?

1. 309
2. 301
3. 269
4. 285

Solution Correct Option **- 1**
The logic is -

$11 : 141 \rightarrow 11^2 + 20 = 121 + 20 = 141$

Similarly,

$17 : ? \rightarrow 17^2 + 20 = 289 + 20 = 309$

Hence, '309' is the correct answer.

Que. 37 Which one of the following is computer high-level programming language?

1. COBOL
2. PASCAL
3. BASIC
4. All of the above

Solution Correct Option **- 4**
The correct answer is **All of the above.**

- Language that can be used to create programs is known as **programming language.**
  - it is a **primary interface** of a programmer with a computer.
  - A programming language with strong abstraction from the details of the computer is called **high-level programming language.**
  - High-level programming language uses **English words and familiar mathematical symbols.**
  - Programs coded in a high-level programming language has to be converted into **machine language** before its execution.
- Examples of high-level programming language are:
  - **COBOL.**
  - **PASCAL.**
  - **BASIC.**
  - FORTRAN.
  - ALGOL.
  - PROLOG.
  - Java. Python.
  - Visual Basic.
  - C.
  - C++.

Que. 38 What is the ratio of the number of persons watching Scam 1992 and Made in Heaven?

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

Solution Correct Option **- 2**
The percentage of persons watching Scam 1992 = 25%

The percentage of persons watching Made in Heaven = 10%

So, the required ratio = 25/10 = 5 : 2

∴ The ratio of the number of persons watching Scam 1992 and Made in Heaven is 5 : 2

Que. 39 Select the related number from the given alternatives.

5 : 27 :: 9 : ?

1. 91
2. 86
3. 83
4. 78

Solution Correct Option **- 3**

The logic is -

$5 : 27 \rightarrow 5^2 + 2 = 25 + 2 = 27$

Similarly,

$9 : ? \rightarrow 9^2 + 2 = 81 + 2 = 83$

Hence, '83' is the correct answer.

Que. 40 The Jataka tales are associated with which of the following sects?

1. Lingayat
2. Shaivism
3. Jainism
4. Buddhism

Solution Correct Option **- 4**

The correct answer is **Buddhism**.

Key-Points

- Jataka tales are works of literature that are about **Gautam Buddha's previous births**.
- **Buddhism:** Buddhism is a faith that was founded by **Siddhartha Gautama** ("the Buddha") in **5th Century B.C.**
- The Buddhism religion is based upon the teachings, life experience of its founder Siddhartha Gautam, born in circa 563 BCE.

Born into the royal family of the **Sakya clan**	**Lumbini**
Attainment of Bodhi (enlightenment) under the **pipal tree**	**Bodhgaya(Bihar)**
First Sermon, known as **Dharma Chakra - Pravartana**	**Sarnath**
He **died in 483BCE** at **Kushinagar**	This event is known as **Mahaparinibbana**

Additional Information

- **Lingayat:** Lingayat also called Virashaiva, a member of a Hindu sect with a wide following in southern India that worships Shiva as the only deity.
- **Shaivism:** Shaivism is the branch of Hinduism that worships Shiva as the supreme deity. It is one of the major branches of Hinduism.

- **Jainism:** Jainism is a religion that emphasizes complete non - violence, and asceticism.
  - Followers of Jainism are called **Jains.**
  - Jainism came into prominence in the **6th century B.C**, when Lord Mahavira propagated the religion.
  - There were 24 great teachers, the **last of whom was Lord Mahavira**.
  - The first Tirthankara was **Rishabnatha**.

Que. 41 If 'A' is 6 times more efficient than 'B', 'B' takes 32 days to complete the task, then find the number of days required to finish the whole work by 'A' and 'B' working together.

1. 2 days
2. 4 days
3. 6 days
4. 8 days

Solution Given: Correct Option **- 2**

A is 6 times more efficient than B, & B takes 32 days to complete the task.

Formula used:

Total work = Efficiency × Time taken

Calculation:

A is 6 times more efficient than B

Efficiency of A ∶ Efficiency of B = 7 ∶ 1

Total work = Efficiency of B × Time taken

⇒ 1 × 32 = 32 units

Number of days required to finish the whole work by (A + B) = Total work/Efficiency of (A+ B)

⇒ 32/8

⇒ 4

∴ **The total number of days required to finish the whole work by (A + B) is 4 days.**

Mistake Point

There is a difference in "Efficient" and " More efficient"

A is 6 times efficient than B means if B is 1 then, A will be 6

A is 6 times more efficient than B means if B is 1 then, A will be (1 + 6) = 7

In the question, it is given that A is 6 times more efficient which means if B is 1, then A will (1 + 6) times = 7 times efficient

So, Total efficiency of A and B = (1 + 7) = 8 units/day

Time taken to complete the work together = 32/8 days

⇒ 4 days and this is the answer.

Que. 42 Select the related letter /number from the given alternatives.

ABE : 8 :: KLO : ?

1. 31
2. 38
3. 33

4. 32

Solution Correct Option **- 2**
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

ABE = 1 + 2 + 5 = 8

Similarly,

KLO = 11 + 12 + 15 = 38

Hence, '38' is the correct answer.

Que. 43 Central Drug Standard Controller Organisation (CDSCO) headquarter is located in_____.

1. New Delhi
2. Mumbai
3. Pune
4. Noida

Solution Correct Option **- 1**
The correct answer is **New Delhi**.

- The Central Drugs Standard Control Organisation(CDSCO) under Directorate General of Health Services, Ministry of Health & Family Welfare, Government of India is the National Regulatory Authority (NRA) of India.
- Its headquarter is located in **New Delhi**.
- Dr. Harsh Vardhan is the union minister of the Ministry of Health & Family Welfare.

Key-Points

- Drug Controller General of India: **Dr. V.G. Somani**.

Que. 44 Find the value of cos 20° × cos 40°× cos 80°

1. 1/4
2. 1/8
3. 1/16
4. 1/12

Solution Given: Correct Option **- 2**

cos 20° × cos 40°× cos 80°

Formula used:

cos (60 - x) cos x cos (60 + x) = (1/4) cos 3x

Calculations:

As we know, cos (60 - x) cos x cos (60 + x) = (1/4) cos 3x

Put x = 20°

cos (60 - 20) cos 20° cos (60 + 20) = (1/4) cos (3 × 20)

⇒ cos 40° × cos 20° × cos 80° = (1/4) × cos 60°

⇒ cos 20° × cos 40° × cos 80° = (1/4) × (1/2)

= 1/8

∴ **The value of cos 20° × cos 40°× cos 80° is 1/8.**

Que. 45 Select the related word from the given alternatives.

Cat : Feline :: Dog : ?

1. Canine
2. Cunning
3. Cunine
4. Bovine

Solution Correct Option **- 1**

The logic is -

Cat : Feline → Cat belongs to Feline family.

Similarly,

Dog : ? → Dog belongs to Canine family.

Hence, 'Canine' is the correct answer.

Que. 46 Who was the first President of India?

1. V V Giri
2. Dr Rajendra Prasad
3. Dr Zakir Hussian
4. Dr Radha Krishnan

Solution Correct Option **- 2**

The correct answer is **Dr. Rajendra Prasad**.

- **Dr. Rajendra Prasad was the first President of India**.
  - He was in office from 1952 to 1962.
  - He was elected by the Electoral College, following the first General Elections in 1951 and got re-elected in 1957.
- **Sarvepalli Radhakrishnan** and **Zakir Hussain** were the **2nd** and **3rd** Presidents of India respectively.

Additional Information

- The president is called " **The first citizen of India**".
  - **Article 52** comes under Part V of the Indian constitution.
    - It deals with the "President of India".
  - **Article 54** deals with the election of the president.
  - **Article 61** deals with the process of impeachment of the president.
  - **Article 72** deals with the power of the president to grant pardon.
- The parliament is composed of "Lok Sabha", "Rajya Sabha" and the "President".
- Lok Sabha is the lower house of the parliament.

- Rajya Sabha is the upper house of the parliament.

Important Point

- **Ram Nath Kovind** took office as the **14th president of India**.

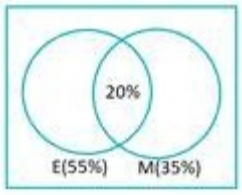
Que. 47 In an examination 55% students passed in English, 35% students passed in Mathematics and 20% students passed in both the subjects. If 1200 students are failed then how many students appeared in the examination?

1. 4800
2. 4000
3. 3600
4. 3200

Solution Given: Correct Option **- 2**

55% students passed in English, 35% students passed in Mathematics and 20% students passed in both the subjects.

Calculation:



55% students passed in English, 35% students passed in Mathematics and 20% students passed in both the subjects.

Students passed = (55 + 35 - 20)% = 70%

Students failed = (100 – 70)% = 30%

According to question,

30% = 1200

⇒ 100% = (1200/30) × 100 = 4000

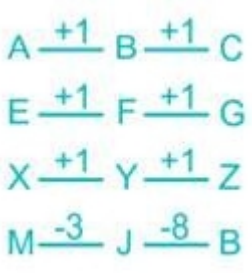
∴ 4000 students appeared in the examination.

Que. 48 Select the odd letters from the given alternatives

1. ABC
2. EFG
3. XYZ
4. MJB

Solution Correct Option **- 4**

The logic is -



Hence, 'MJB' is the correct answer.

Que. 49 World Environment Day is celebrated on_____.

1. 21st May
2. 27th May
3. 5th June
4. 14th November

Solution Correct Option **- 3**
World Environment Day:

- It was established by the United Nations General Assembly in 1972 on the first day of the Stockholm Conference on the Human Environment.
- World Environment Day is celebrated **on 5th June of every year.** United Nations started it to spread awareness and action for the protection of our environment.

Day	Celebrated as
5th June	**World Environment Day**
21st May	Anti-Terrorism day
14th November	Children's Day, celebrated as a tribute to Jawaharlal Nehru

---

Que. 50 In an election, Ram gets 40% of the total votes while Ranu gets 60% of the total votes, if the difference of their votes is 3500, then find the total number of votes?

1. 15000
2. 17500
3. 18500
4. 8750

Solution Given: Correct Option **- 2**

Ram gets 40% of the total votes.

Ranu gets 60% of the total votes.

Difference of their votes = 3500.

Calculation:

Let total number of votes be x.

Votes of Ram = 40% of x = 0.4x

Votes of Ranu = 60% of x = 0.6x

Difference = 0.6x – 0.4x

⇒ 3500 = 0.2x

⇒ x = 3500/0.2

⇒ x = 17500

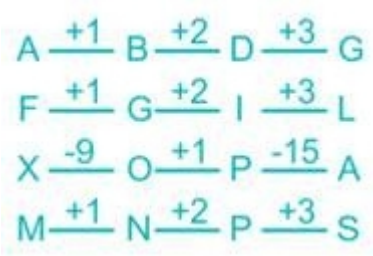
∴ **Total number of votes are 17500.**

Que. 51 Select the odd letters from the given alternatives

1. ABDG
2. FGIL
3. XOPA
4. MNPS

Solution Correct Option **- 3**

The logic is -



Hence, 'XOPA' is the correct answer.

Que. 52 Deficiency of which of the following causes Beri Beri in human beings?

1. Vitamin B1
2. Vitamin C
3. Vitamin D
4. Vitamin A

Solution Correct Option **- 1**

Option 1 is the correct answer.

- The deficiency of vitamin B1 causes **Beri Beri.**

Vitamin (common name)	**Source**	**Role in our body**	**Disease caused by its deficiency**
Vitamin B1 (Thiamine)	Rice bran, Whole Wheat, Oatmeal, Eggs, Liver, etc.	• Helps our body to get energy from Carbohydrates. • Conduction of nerve signals. • Muscle Contraction.	Beri Beri

Vitamin C (Ascorbic acid)	Citrus Fruits, Potatoes, Tomatoes, etc.	• formation of Collagen, Cartilage, Bones. • Wound healing. Repair • of body tissues	Scurvy
Vitamin D (Cholecalciferol)	Fish oil, Liver, Egg yolk and synthesized by our body in the presence of Sunlight.	• Helps in the absorption of calcium and phosphorus.	Rickets
Vitamin A (Retinol)	Eggs, Carotenoids containing fruits and vegetables, etc.	• Produces pigments in the retina. • Helps to maintain healthy teeth and skeletal tissue.	Xerophthalmia and Night-Blindness

Que. 53 Find the total numbers between 100 and 200 which are divisible by 12.

1. 6
2. 16
3. 8
4. 12

Solution Correct Option **- 3**

Calculation:

The total number between 1 and 100 divisible by 12 = 100/12 = 8.33

⇒ 8 (Taking proper number)

The total number between 1 and 200 divisible by 12 = 200/12 = 16.67

⇒ 16 (Taking proper number)

The total number between 100 and 200 which are divisible by 12 = 16 – 8 = 8

∴ The total number between 100 and 200 which are divisible by 12 is 8.

Alternate Solution

Numbers divisible by 12 in between 100 and 200 are 108, 120, ... , 192

We know.

Last number = First number + (Number of terms - 1) × Common difference

⇒ 192 = 108 + (n - 1) × 12

⇒ 84 = (n - 1) × 12

⇒ 7 = n - 1

⇒ n = 8

Que. 54 Select the odd word from the given alternatives

1. Mango
2. Pineapple
3. Apple
4. Lotus

Solution Correct Option **- 4**

The logic is -

All (Mango, Pineapple, Apple) except "Lotus" are fruits while Lotus is a flower.

Hence, 'Lotus' is the correct answer.

Que. 55 Gita Govinda is written by which of the following Indian Poet?

1. Jayadev
2. Rudrabhatta
3. Jinadattasuri
4. Raghavanka

Solution Correct Option **- 1**

Gita Govinda is a work composed by the 12th-century Indian poet, **Jayadeva**.

- It describes the relationship between **Krishna** and the **gopis** (female cow herders) of **Vrindavana**.
- In **Gita Govinda** also mentioned about **Radha** and **Indian classical dance**.
- It's written in the Sanskrit language.

Poet	Poem/Books
Jayadev	Gita Govinda
Rudrabhatta	Jagannatha Vijaya
Jinadattasuri	Upadesharasayana-rasa
Raghavanka	Harishchandra Kavya

Que. 56 If the side of a cube is $2\sqrt{3}$ cm, then find the total surface area of the cube.

1. 96 cm^2
2. 72 cm^2
3. 48 cm^2
4. 60 cm^2

Solution GIVEN: Correct Option **- 2**

Side of the cube = $2\sqrt{3}$ cm

FORMULA USED:

Total surface area of the cube = $6 \times side^2$

CALCULATION:

Side of the cube = $2\sqrt{3}$ cm

Total surface area of the cube = $6 \times (2\sqrt{3})^2$

$\Rightarrow 6 \times 12$

$\Rightarrow 72\ cm^2$

$\therefore$ **The total surface area of the cube is 72 cm^2.**

Que. 57 Select the odd word from the given alternatives

1. December
2. March
3. July
4. June

Solution Correct Option **- 4**

The logic is -

All months except "June" has 31 days while June has only 30 days in a month.

Month	Days
December	31
March	31
July	31
June	30

Hence, 'June' is the correct answer.

Que. 58 Who is the governor of Telangana

1. Tamilisai Soundararajan
2. Biswabhusan Harichandan
3. Vajubhai Vala
4. None of these

Solution Correct Option **- 1**

The correct answer is **Tamilisai Soundararajan**.

Key-Points

- Tamilisai Soundararajan is an Indian medical doctor serving as the **2nd and current Governor of Telangana**.
- She was the former President of the Tamil Nadu BJP.
- Dr. Tamilisai Soundararajan was born on 2nd June 1961, in Nagercoil, Kanya Kumari District, Tamilnadu.
- Dr. Tamilisai Soundararajan took charge as Governor of Telangana on **8th September 2019** and happens to be the **1st woman to hold this office**.
- She has a remarkable public & social service background spanning over 20 years.

Que. 59 If the investment of A, B and C are in the ratio of 1/2 : 1/3 : 1/4 .If the total profit is Rs.15600 for 1 year, then find the highest profit share?

1. Rs.3600
2. Rs.2400
3. Rs.7200
4. Rs.4800

Solution GIVEN: Correct Option **- 3**

The investment of A, B & C are in the ratio of 1/2 : 1/3 : 1/4.

Total profit = Rs.15600

CONCEPT USED:

Profit = Investment × Time

CALCULATION:

The investment of A, B & C are in the ratio of 1/2 : 1/3 : 1/4 & the total profit = Rs.15600

L.C.M of (2, 3, 4) = 12

The investment ratio of A, B & C = 12/2 : 12/3 : 12/4. = 6 : 4 : 3

1 unit = 15600/(6 + 4 + 3) = 15600/13

Highest profit share = (15600/13) × 6

= 1200 × 6

= Rs.7200

∴ **The highest Profit share is Rs. 7200.**

Que. 60 Select the option that will fill in the blank and complete the given series.

4, 8, 12, 16, ?

1. 20
2. 21
3. 24
4. 36

Solution Correct Option **- 1**

The logic is -

4 × 1 = 4

4 × 2 = 8

4 × 3 = 12

4 × 4 = 16

4 × 5 = 20

Hence, '20' is the correct answer.

Que. 61 Which is the first National Park of India?

1. Kanha National Park
2. Dudhwa National Park
3. Rajaji National Park
4. Corbett National Park

Solution Correct Option **- 4**
The correct answer is **Jim Corbett National Park.**

- India's first national park was established in 1936 as Hailey National Park, now known as **Jim Corbett National Park, Uttarakhand.**

Key-Points

National Park	**State**
Kanha National Park	Madhya Pradesh
Dudhwa National Park	Uttar Pradesh
Rajaji National Park	Uttrakhand

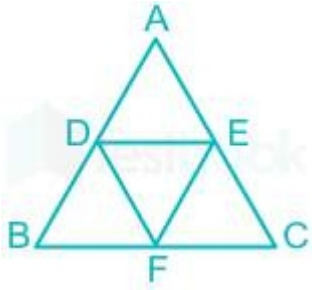
Que. 62 D,E,F are the mid points of sides AB, BC, CA of ΔABC. Area of ΔDEF is what percent of area of ΔABC ?

1. 20%
2. 25%
3. 50%
4. 40%

Solution Correct Option **- 2 Given-**

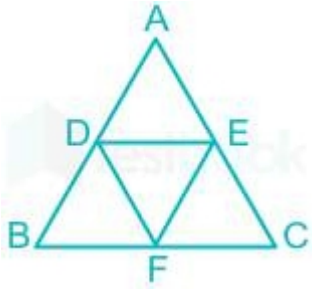
D,E,F are the mid points of sides AB, BC, CA

Concept Used-



If D,E,F are the mid points of sides AB, BC, CA of ΔABC then DE = 1/2 × BC, EF = 1/2 × AB and FE = 1/2 × AB

Calculation-



Here, DE = 1/2 × BC, EF = 1/2 × AB and FE = 1/2 × AB

(Area of DEF)/(Area of ABC) = DE^2/BC^2

⇒ 1/4

∴ Area of ΔDEF = (1/4 × 100)% of ΔABC

⇒ 25% of ΔABC.

Que. 63 A series is given with one term missing. Select the correct alternative from the given ones that will complete the series.

8, 24, 12, ?, 18, 54

1. 36
2. 20
3. 16
4. 14

Solution Correct Option **- 1**

The logic is -

Hence, '36' is the correct answer.

Que. 64 Sir Sean Connery passed away in October 2020. He was related to which of the following fields?

1. Acting
2. Cricket
3. Politics
4. Chess

Solution Correct Option **- 1**

The correct answer is **Acting.**

Key-Points

- **Sir Sean Connery**, best known for his **portrayal of the fictional James Bond**, has died. He was **90 years old.**
- It was his performance as an **Irish cop in Brian De Palma's The Untouchables** that brought him an **Oscar.**
- He also won **two Bafta awards and three Golden Globes** in his long and storied career.
- He was knighted by **Queen Elizabeth II in 2000**.

Que. 65 If $x^3 + y^3 = 35$ and $x + y = 5$ then find the value of $x^4 + y^4$.

1. 87
2. 89
3. 97
4. 93

Solution Given: Correct Option **- 3**

$x^3 + y^3 = 35$ and $x + y = 5$

Concept Used:

$a^3 + b^3 = (a + b)^3 - 3ab(a + b)$

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

Calculation:

$x + y = 5$--------- (1)

$x^3 + y^3 = 35$

$\Rightarrow (x + y)^3 - 3xy(x + y) = 35$

$\Rightarrow (5)^3 - 3xy(5) = 35$

$\Rightarrow 125 - 15xy = 35$

$\Rightarrow 15xy = 90$

$\Rightarrow xy = 6$--------- (2)

$x^4 + y^4$

$\Rightarrow (x^2)^2 + (y^2)^2$

$\Rightarrow (x^2 + y^2)^2 - 2x^2y^2$

$\Rightarrow \{(x + y)^2 - 2xy\}^2 - 2(xy)^2$

$\Rightarrow \{5^2 - 2 \times 6\}^2 - 2 \times 6^2$ [Using (1) and (2)]

$\Rightarrow (25 - 12)^2 - 72$

$\Rightarrow 13^2 - 72$

$\Rightarrow 169 - 72$

$\Rightarrow 97$

$\therefore$ The required value of $x^4 + y^4$ is 97.

Smart Solution

$x^3 + y^3 = 35$ and $x + y = 5$

We can easily assume, $x = 2$ and $y = 3$ whih satisfies both the given conditions.

Hence,

$x^4 + y^4 = 2^4 + 3^4 = 16 + 81 = 97$

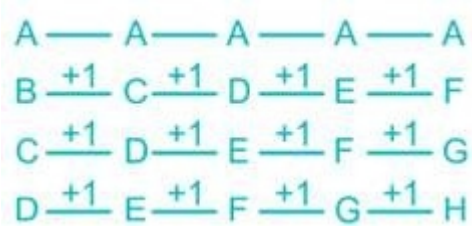
Que. 66 Which one set of letters, when sequentially placed in the gaps in the given letter series, shall complete it?

ABCD, ACDE, ?, AEFG, AFGH

1. ADEF
2. ACEF
3. AFCD
4. ABCF

Solution Correct Option **- 1**

The logic is -



Hence, the correct answer is ADEF

Que. 67 Which is the largest fresh water lake in the World?

1. Lake Victoria
2. Lake Erie
3. Lake Superior
4. Lake Ontario

Solution Correct Option **- 3**

- The Largest Fresh water Lake in the world was **Lake Superior** (**by surface area**).
- It was located on the **border** of **United States of America** & **Canada**.
- **Largest Fresh Water Lake by volume** in the world is **Lake Baikal** and it is located in **Russian Federation**.

Que. 68 In a college there are total 250 students. Average weight of boys is 50 and average weight of girls is 45. Also it is known that the overall average is 48. What is the number of boys in the college?

1. 150
2. 100
3. 125
4. 200

Solution Given: Correct Option **- 1**

Total students in the college = 250

The average weight of boys = 50

The average weight of girls = 45

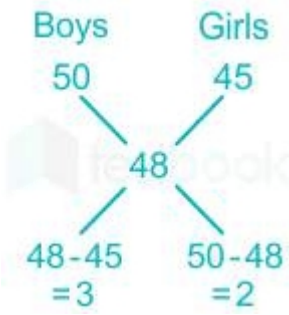
Average of total students = 48

Concept used:

Average = Total sum of observations/Total number of observations

Calculation:

We can use allegation method to solve this problem as -



The ratio of boys to girls = 3 : 2

So, the number of boys = (3/5) × 250 = 150

∴ **The number of boys in the college is 150.**

Que. 69 1@2@3@4@5. If @ is either "+" or "×" then, find the minimum value of the given expression.

1. 15
2. 120
3. 35
4. 7

Solution Correct Option **- 1**

Given data :

1@2@3@4@5

if @ = + then,

1 + 2 + 3 + 4 + 5 = 15

if @ = × then,

1 × 2 × 3 × 4 × 5 = 120

The minimum value is = 15

Hence, '15' is the correct answer.

Que. 70 What is GST?

1. A direct tax
2. An indirect tax
3. A corporate tax
4. A municipal tax

Solution Correct Option **- 2**

A type of tax that is imposed on goods and services rather than on income is known as indirect tax.

GST stands for Goods and Services Tax.

It is an indirect tax which has replaced all the other indirect taxes such as sales tax, entertainment tax, etc.

Que. 71 A bookseller gives 10% discount to his customers but he gets book on 30% discount on the marked price from the merchant. What is his actual profit percentage of the book seller?

1. $28\frac{4}{7}\%$
2. 20%
3. 25%

4. $14\frac{2}{7}\%$

Solution Correct Option **- 1 Given:**

The bookseller gives 10% discount to his customer and he gets 30% discount on the marked price.

Concept Used:

Profit = Selling price – Cost price

Calculation:

Let, the marked price of the book be Rs. 100.

The bookseller gets 30% discount on the marked price from the merchant

The bookseller pays Rs. (100 – 30) = Rs. 70

Customer get 10% discount on the marked price

Customer pays Rs. (100 – 10) = Rs. 90 to the bookseller.

Profit percentage = {(90 – 70)/70} × 100

⇒ (20/70) × 100

⇒ (200/7)%

⇒ $28\frac{4}{7}\%$

∴ **The actual profit percentage of the bookseller is $28\frac{4}{7}\%$**

Que. 72 P is brother of Q. P is the son of D. S is the daughter of P then how S is related to D ?

1. Grand mother
2. Grand daughter
3. Grand father
4. Daughter

Solution Correct Option **- 2**

The logic is -

S is the granddaughter of D.

Hence, 'Grand daughter' is the correct answer.

Que. 73 Which among the following was the theme of Earth Day 2020?

1. Saving Earth each day
2. Nature calling
3. Facing new challenges
4. Climate Action

Solution Correct Option **- 4**

The correct answer is **Climate Action.**

Key-Points

- Earth Day: 22 April
- **Theme 2020: Climate Action**
- This year marks the 50th Anniversary of Earth Day. It is observed to create awareness among people about pollution and to celebrate the environment of our planet.
- The United Nations General Assembly adopted a resolution formally recognizing the day as International Mother Earth Day in 2009.
- Also, on Earth Day 2016, the United Nations formally adopted the Paris Agreement.
- UNGA President– volkan Bozkir

Que. 74 Find the smallest perfect square number divisible by 12, 15 and 18.

1. 900
2. 1600
3. 400
4. 100

Solution Given: Correct Option **- 1**

The numbers are 12, 15 and 18.

Concept used:

To make N(LCM) = $x^a \times y^b \times z^c$ perfect square. (where x, y and z are prime numbers and a, b and c are integers)

Multiply the number by the same number whose power is odd.

Calculations:

$12 = 2^2 \times 3^1$

$15 = 3^1 \times 5^1$

$18 = 2^1 \times 3^2$

$N = 2^2 \times 3^2 \times 5^1$

Multiply N by 5 to get perfect square,

$5N = 2^2 \times 3^2 \times 5^2 = 900$

∴ The smallest perfect square number divisible by 12, 15 and 18 is 900.

Que. 75 In the following question, the symbols *, +, - and & are used with the following meaning as illustrated below:

P * Q = P is the father of Q

P + Q = P is son of Q

P - Q = P is the brother of Q

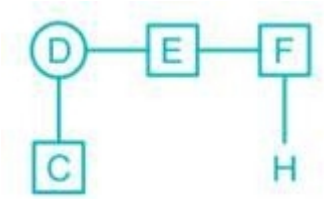
P & Q = P is the sister of Q

Which of the following represents C is the husband of H?

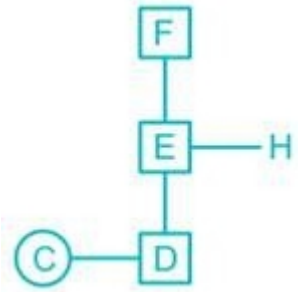
1. C + D & E - F * H
2. C & D + E - F * H

3. C - D & E + F * H
4. C * D & E - F + H

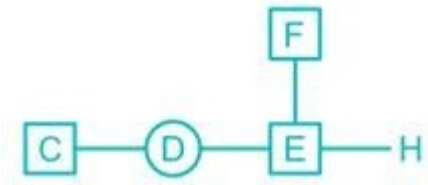
Solution Correct Option **- 4**
The logic is -
1) C + D & E - F * H



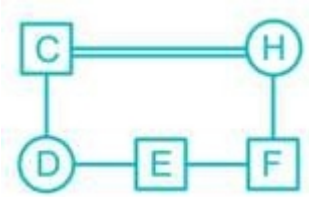
C is a Cousin of H.
2) C & D + E - F * H



C is a niece of H
3) C - D & E + F * H



C is the brother of H.
4) C * D & E - F + H



C is the husband of H
Hence, 'C * D & E - F + H' is the correct answer.

Que. 76 Which of the following article is related to the President of India?
1. Article 52
2. Article 51
3. Article 51A
4. Article 40

Solution Correct Option **- 1**
Option **1** is correct, i.e. **Article 52**.

- **Article 52** of the Constitution says that there shall be a President of India.

PART V THE UNION Chapter I - The Executive The President of India (Articles 52-62)	
Article	**What does it say**
Article 52	**States about The president of India in the constitution.**
Article 53	The executive power of the union.
Article 54	Election of the president.
Article 55	Manner of the election of the president.
Article 56	Term of office of president.
Article 57	Eligibility of re-election.
Article 58	Qualification for the election of the president.
Article 59	Conditions of the president's office.
Article 60	Oaths or affirmation by the president.
Article 61	States the procedure for the impeachment of the president.
Article 62	Time of holding an election to fill the vacancy of the office of president and the term of office of the person elected to fill a casual vacancy.

Extra information:

Que. 77 ΔABC and ΔPQR are similar to each other. If the ratio of area of ΔABC and ΔPQR is 1 ∶ 16, and the length of side AC is 28 cm, then find the length of PR.

1. 156 cm
2. 96 cm
3. 100 cm
4. 112 cm

Solution Given: Correct Option **- 4**

ΔABC and ΔPQR are similar to each other.

Ratio of area of ΔABC and ΔPQR = 1 : 16

Length of side AC = 28 cm

Concept:

Relation among areas, side of similar triangles ABC and PQR

(Area of ΔABC and ΔPQR) = $(AB/PQ)^2 = (BC/QR)^2 = (AC/PR)^2$

Calculation:

Let PR be x cm

(Area of ΔABC and ΔPQR) = $(AC/PR)^2$

⇒ $(1/16) = (28/x)^2$

Taking square root on both the sides

⇒ $\sqrt{(1/16)} = \sqrt{(28/x)^2}$

⇒ $(1/4) = (28/x)$

⇒ $x = 28 \times 4$

⇒ $x = 112$ cm

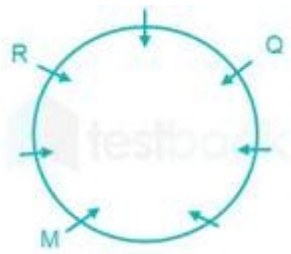
∴ The length of PR is 112 cm.

Que. 78 Seven friends M, N, O, P, Q, R and S are sitting around a circular table facing towards the centre (not necessarily in the same order). M is third to the left of Q and second to the right of R. N and O are to the immediate right and immediate left of Q respectively. S is not the neighbour of R.
Who is sitting third to the left of P?

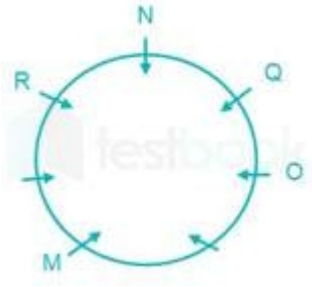
1. S
2. N
3. Q
4. O

Solution Correct Option **- 3**

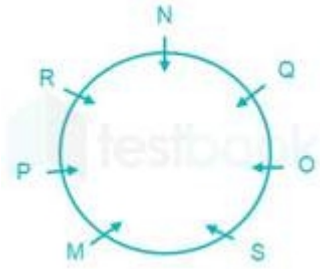
M is third to the left of Q and second to the right of R.



N and O are to the immediate right and immediate left of Q respectively.



S is not the neighbour of R.



Hence, Q is sitting third to the left of P.

Que. 79 In which country is the International Cricket Council (ICC) headquartered?

1. United Arab Emirates
2. UK
3. Australia
4. New Zealand

Solution Correct Option **- 1**

- The International Cricket Council (ICC) is **headquartered in Dubai, United Arab Emirates**.
- It is the international governing body of cricket. It was founded as the Imperial Cricket Conference in 1909 by representatives from England, Australia and South Africa, renamed the International Cricket Conference in 1965 and took up its current name in 1989.
- The ICC has 106 members: 10 Full Members that play Test matches, 38 Associate Members, and 57 Affiliate Members.

Que. 80 Find the value of $64 \div 8 + 3^3 - 2 \times 16$.

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

Solution Given: Correct Option **- 4**

$64 \div 8 + 3^3 - 2 \times 16$

Concept used:

B	Brackets in order (), {}, []	ब्रैकेट (), {}, [] क्रम में
O	of	का
D	Division (÷)	विभाजन (÷)
M	Multiplication (×)	गुणा (×)
A	Addition (+)	जोड़ (+)
S	Subtraction (–)	घटाव (–)

Calculation:

$64 \div 8 + 3^3 - 2 \times 16$

$\Rightarrow (64 \div 8) + 27 - (2 \times 16)$

$\Rightarrow 8 + 27 - 32$

$\Rightarrow 35 - 32$

$\Rightarrow 3$

$\therefore$ **The value is 3.**

Que. 81 Choose the correct mirror image of the given problem figure when the mirror is placed to the left of the figure.

1. 
2. 
3. 
4. 

Solution Correct Option **- 3**

The mirror image would be as follows:

Hence, **option 3** is the correct answer.

Que. 82 Anil Kumar Chaudhary was the chairman of_____.(2018-dec 2020)

1. BHEL
2. SAIL
3. NTPC
4. ONGC

Solution Correct Option **- 2**

Anil Kumar Chaudhary was the former chairman of the Steel Authority of India (SAIL).

Important Point

Soma Mondal has taken over as Chairman of Steel Authority of India Limited (SAIL) recently. She was the Director (Commercial) of SAIL prior to this.

Que. 83 The amount becomes 12100 after 2 years and 13310 after 3 years, then find the rate of simple interest.

1. 10%
2. 12.5%
3. 15%
4. 8.5%

Solution Given: Correct Option **- 2**

The amount for 2 years = 12100

The amount for 3 years = 13310

Formula used:

Simple Interest = (Principal × rate × time)/100

Calculation:

Interest for 3^{rd} year

⇒ 13310 – 12100 = 1210

Interest for 3 years = 1210 × 3 = 3630

Principal = 13310 – 3630 = 9680

Now,

1210 = (9680 × rate × 1)/100

⇒ rate = 12.5%

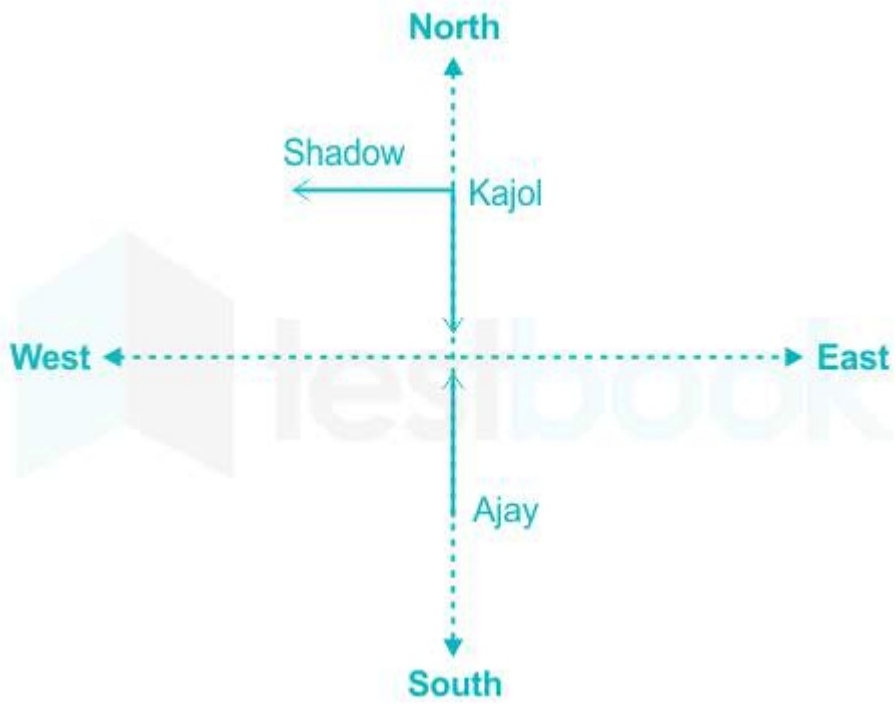
∴ **The rate of interest is 12.5%.**

Que. 84 Ajay and Kajol are doing yoga in the morning. Ajay and Kajol are facing each other. Kajol′s shadow falls left side of Ajay. Which direction Ajay is facing?

1. South
2. South-west
3. North
4. East

Solution Correct Option **- 3**

In morning Sun rises in the east and so any shadow falls towards the west. Now, Kajol′s shadow falls to the left of Ajay. Hence, Ajay is facing north.



Hence, the correct answer is "**North".**

Que. 85 What is the theme of the 'World Environment Day 2020'?

1. 'Time for Nature'
2. 'Beat Air Pollution'
3. 'Beat Plastic Pollution'
4. 'Connecting People to Nature - in the city and on the land, from the poles to the equator'

Solution Correct Option **- 1**
The correct answer is 'Time for Nature'

- The **World Environment Day** is celebrated on **5th June every year** and it is the United Nation's principal vehicle for encouraging awareness and action for the protection of the environment.
- It was held for the first time in 1974**.** Since then, it has been a flagship campaign for raising awareness on environmental issues emerging from **marine pollution, human overpopulation, and global warming to sustainable consumption and wildlife crime.**
- **The theme for 2020 is 'Time for Nature' - a concern that is both urgent and existential.**

Additional Information

The theme of World Environment Day	Year
'Beat Air Pollution'	2019
Beat Plastic Pollution'	2018
'Connecting People to Nature - in the city and on the land, from the poles to the equator'	2017

Que. 86 A rectangular shaped pipe is of dimension 2 m x 10 m, if water is running at 10 km/hr then find the volume of water collected in 15 minutes.

1. 25,000 m^3

2. 2,000 m^3
3. 5,000 m^3
4. 50,000 m^3

Solution Correct Option **- 4 Given:**

Length of pipe = 2 m

Breadth of pipe = 10 m

Speed of water = 10 km/hr

Time = 15 minutes

Calculation:

Speed = 10 km/hr = 10 × (5/18) m/sec = 25/9 m/s

Time = 15 minutes = (15 × 60) sec = 900 sec

Length (H) = (25/9) × 900 = 2500

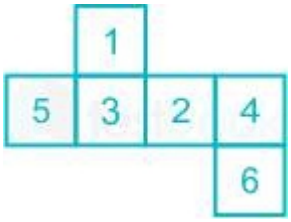
Volume = L × B × H

= 2 × 10 × 2500

= 50,000 m^3

∴ Volume of water collected in 15 minutes is 50,000 m^3.

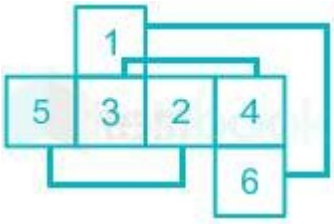
Que. 87 If the following figure is folded to form a cube, then which number will be on the face opposite to the face having number '1'?



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

Solution Correct Option **- 4**

Faces opposite to each other is shown below:



So, the face opposite to the face having number '1' is '6'.

Hence, '6' is the correct answer.

Que. 88 Which of the following movie won the Oscar Awards 2020 for Best Picture?

1. Once Upon a Time in Hollywood
2. Joker

3. Judy
4. Parasite

Solution Correct Option **- 4**
The correct answer is option 4 i.e., **Parasite.**

- **Parasite** won the Oscar Awards 2020 for Best Picture.
- It is the first time that a South Korean movie has won the International Feature Film Category in the history of the Oscars.
- The director of the movie is **Bong Joon Hoo**, who also won the Oscar Award for Best Direction.
- The Oscar Award is famously known as Academy Awards. This was 92nd Academy Awards which was held in **Dolby Theatre, Los Angeles**.

Academy Award	Movie	Actor
Best Actor in supporting role	Once Upon A Time In Hollywood	Brad Pitt
Best Actor in Leading Role	Joker	Joaquin Phoenix
Best Actress in Leading Role	Judy	Renee Zellweger

Que. 89 What will be the height of the building from a point 25 m away from the base of the building if the angle of elevation of the top of building from that point is 30°?

1. 25/√3 m
2. 25 m
3. √3 m
4. √3/25 m

Solution Given: Correct Option **- 1**

The angle of elevation = 30°

Distance between point and base of building = 25 m

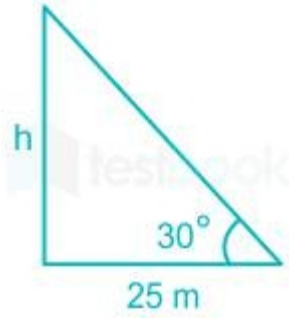
Concept used:

In a right-angled triangle

tanθ = perpendicular/base

Calculation:

Let the height of the building be 'h'.



tanθ = perpendicular/base

⇒ tan30° = h/25

$\Rightarrow 1/\sqrt{3} = h/25$

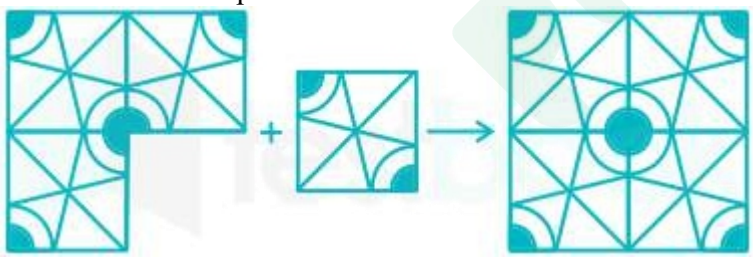
$\Rightarrow h = 25/\sqrt{3}$

$\therefore$ **The height of the building is $25/\sqrt{3}$.**

Que. 90 Which answer figure will complete the pattern in the following question figure?

1. 
2. 
3. 
4. 

Solution Correct Option **- 1**



Hence, the figure in option 1) will complete the pattern.

Que. 91 When was Sansad Adarsh Gram Yojna launched?

1. 2014
2. 2015
3. 2016
4. 2017

Solution Correct Option **- 1**
The correct answer is **2014.**

- **Hon'ble Prime Minister Shri Narendra Modi** launched the **Saansad Adarsh Gram Yojana (SAGY)** on **11 October 2014** on the **birth anniversary** of **Lok Nayak Jai Prakash Narayan at Vigyan Bhawan, New Delhi.**

- Under the **Saansad Adarsh Gram Yojana (SAGY)**, every **Member of Parliament (MP)** was obliged to develop **three Adarsh Grams by March 2019,** of which **one was to be achieved by 2016.** Thereafter, **five such Adarsh Grams** (one per year) will be selected and developed **by 2024.**
- In this way, a total of **8 villages will be developed by every MP by 2024.**
- The **main objective** of **SAGY** are:
  To trigger processes that lead to the **holistic development of the identified Gram Panchayats.**
  To generate models of **local level development and effective local government** which can motivate and inspire neighbouring Gram Panchayats to learn and adapt.
  To substantially **improve the standard of living and quality of life** of all sections of the population through - **Improved basic amenities, Higher productivity, Enhanced human development, Better livelihood opportunities**, etc.
  To nurture the identified **Adarsh Grams** as schools of local development to **train another gram panchayat.**
- **Criteria for selecting the Village** under the **Saansad Adarsh Gram Yojana (SAGY)**:
  The **MP** can select any **Gram Panchayat** that **does not** belong to **him/her or spouse.**
  There is a **population criterion** for MPs. If the MP is choosing a **village in plains**, its **population should be 3000-5000.** If **in hills, it can be 1000-3000.**
  Lok Sabha MP has to choose a **Gram Panchayat** from within **his/her constituency** and **Rajya Sabha MP** a Gram Panchayat from the **rural area of a district** of his/her choice **in the State from which he/she is elected.**
  A **member from urban areas** can identify a **village from a nearby constituency**.
  A **nominated member can choose from any district across the country.**
  The **Gram Panchayats once selected by members of Parliament** (whose tenures have ended on account of resignation or otherwise) would be **continued as such under SAGY** irrespective of whether activities have already been initiated in the GP under SAGY or not. The **newly elected MPs will have the option to select the village of their choice** and **two more subsequently by 2019.**
- **Funding** for the **Saansad Adarsh Gram Yojana (SAGY)** had to be arranged from **already existing funds only** as no separate funds were allocated for this scheme. Funds that could be used for this scheme are:
  Funds for existing schemes such as **Indira Awas Yojana, Pradhan Mantri Gram Sadak Yojana, MGNREGA, BRGF, etc.**
  Money from MPLADS also has to be used.
  Revenue from the Gram Panchayat itself.
  Central and State Finance Commission Grants.
  CSR funds.
- A basic **layout or action-plan** of the scheme:
  The first step is to create a **Village Development Plan,** followed by a list of activities to be carried out.
  These include **basic healthcare, livelihood development, farm development, skill development, providing pensions to eligible families, housing for all, social forestry**, etc.
  Implementation of the scheme has to be done by **Gram Panchayat.**
  The **District Collector** will be the **nodal officer** for implementing the **SAGY.** He will conduct a **monthly review meeting** with representatives of the participating Line Departments.
  The **MP** concerned will chair the review meetings.
- **Ministry of Rural Development** will be the **nodal Ministry** coordinating and monitoring the Scheme closely.
  Shri Narendra Singh Tomar is the current **Minister of Rural Development, Agriculture and Farmers Welfare & Panchayati Raj.**

Que. 92 Sukreswar Temple is located in which state in India?

1. Assam

2. Gujarat
3. Madhya Pradesh
4. Tamil Nadu

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

- **Sukreswar Temple is an important Shiva temple in the state of Assam in India**.
- The temple is located on the Sukreswar or Itakhuli hill on the south bank of river Brahmaputra in the Panbazar locality of Guwahati city.

Additional Information

- **Sukreswar temple** is one of the most sought after temples of India which is located in the state of Assam.
  The picturesque view of the river is really breathtaking which gives immense pleasure to the visitors.
  The temple dates back to eighteenth century and is visited by people from around the world to celebrate the existence of Lord Shiva.
  The Premise of the temple also has a Vishnu temple and many Puja halls and complexes.
  The temple is famous for having the most colossal Shiva lingams in India and the sixth Jyotir Lingam.

Que. 93 Who was awarded the Noble prize for the discovery of neutrons?

1. James Chadwick
2. J J Thomson
3. Rutherford
4. Niels Bohr

Solution Correct Option **- 1**
The Correct Answer is **Option 1** i.e **James Chadwick**.

- **James Chadwick**:
  He was a British physicist.
  He was associated with the discovery of Neutron and also awarded the Noble Prize for the discovery of neutrons.
- **JJ Thomson**:
  He was a British Physicist.
  He was credited with the discovery of the electron.
- **Niels Bohr**:
  He was a Danish physicist.
  He received Noble Prize for his services in the investigation of the structure of atoms and of the radiation emanating from them.
- **Rutherford**:
  Rutherford was awarded the 1908 Nobel Prize in Chemistry for his theory of atomic structure.
  He discovered the nucleus of the atom in 1911.
  He is known as the father of nuclear physics.

Que. 94 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. 95 What does a Light year indicate?

1. Time
2. Distance
3. Both
4. None

Solution Correct Option **- 2**
Light year is the distance travelled by light in one year. It is a unit of distance.

Que. 96 What would be the mass of a 70 kg man on the moon as well as on the earth? Take g = 9.8m/s^2 for earth, and g = 1.63 m/s^2 for the moon.

1. 105.0 kg on Moon and 70 kg on Earth
2. 140.0 kg on Moon and 70 kg on Earth
3. 70.0 kg on both Moon and Earth
4. 35.0 kg on Moon and 70 kg on Earth

Solution Correct Option **- 3**

- Mass of a body is constant everywhere in the universe, so the mass of this 70 kg man would be the same on the earth as well as on the moon.

Additional Information

- Weight is a measure of how much gravity pulls on a mass or object.
- On the moon, there is less gravity pulling on objects, so they weigh less.
- Mass remains the same on moon and earth while weight change with gravity.

Que. 97 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. 98 From which medium Sound wave cannot pass through?

1. Solid
2. Vacuum
3. Ideal gas
4. Liquid

Solution Correct Option **- 2**
CONCEPT:

- **Wave:** The disturbance that transfers energy from one place to another is called a wave.

There are mainly **two types of waves**:

- **Electromagnetic waves:** The wave which is generated due to vibration between **electric field and magnetic field** and it does not need any medium to travel is called an electromagnetic wave. It can travel through a vacuum.
  Light is a form of energy which is an example of electromagnetic waves.
  Electromagnetic waves are transverse in nature because they propagate by varying their electric and magnetic fields so that both the fields propagate perpendicular to each other.
- **Mechanical waves:** The oscillation of matter which is responsible for the transfer of energy through a medium is called a mechanical wave.
  It can't travel through a vacuum.
  Examples: **Sound wave**, wave in a string, water wave.

EXPLANATION:

- **The vacuum** is the medium from where the sound wave cannot pass. A vacuum is basically an area without any air.
- Since the **sound wave is a mechanical wave** that's why it cannot travel through a medium where there is no matter of vibrations to works in, i.e, it **can't travel through a vacuum**. So option 2 is correct.
- The sound wave can travel through solids, liquid and gas medium.

EXTRA POINTS:

There are **two types of mechanical waves**:

A. **Transverse waves:** The wave in which the movement of the particles is at right angles to the motion of the energy is called a transverse wave. **Light is an example** of a transverse wave.
B. **Longitudinal wave:** The wave in which the movement of the particles is parallel to the motion of the energy is called a longitudinal wave. The **sound wave** is an example of a longitudinal wave.

- **A water wave** is the combination of longitudinal waves and transverse waves. It can be seen when we throw a piece of stone in water and there is a vibration on the surface of the water.

- **Sound waves** travel quickly through solid followed by liquid and then by Gases.
- The speed of sound is maximum in dry air, it is like 343 meters per second.

Que. 99 The chemical formula of Urea is_____.

1. $(NH_4)_2CO_2$

2. $(NH_2)CO$
3. $(NH_4)_2CO$
4. NH_2CONH_2

Solution Correct Option **- 4**
Urea, also known as carbamide, is an organic compound with the chemical formula NH_2CONH_2 or CH_4N_2O.

Que. 100 Famous Moroccan traveler **Ibn-e-battuta** came to Delhi at the time of which of the following rulers?

1. Allauddin Khalji
2. Akbar
3. Mohammad Bin Tughlaq
4. Balban

Solution Correct Option **- 3**

- Famous Moroccan traveller Ibn-e-batuta came to Delhi at the time of **Mohammad bin Tughlaq.**
- Abu Abdullah Muhammad Ibn Battuta, better known simply as Ibn Battuta was a **Muslim scholar and traveller.**
- Hearing of the sultan of Delhi, **Muḥammad bin Tughluq** (1325–51), and his fabulous generosity to Muslim scholars, he decided to try his luck at his court.
- After crossing the Hindu Kush mountain range, he arrived at the frontiers of India on the Indus River in around **1333 AD.**
- He was was born in **Tangier, Morocco in 1304.**
- After travelling the whole world for 29 years, he recorded his experiences in a huge **travelogue** known as the ***Rihla***, Rihla means journey.