MOCK TEST 1

Q. 1 What is the sum of all prime numbers between 60 and 80?

Option 1:
272

Option 2:
284

Option 3:
351

Option 4:
414

Correct Answer:
351

Solution:
Prime numbers between 60 and 80 are: 61, 67, 71, 73, 79
Sum = 61 + 67 + 71 + 73 + 79 = 351
Hence, the correct answer is 351.

Q. 2 What is the LCM of 120 and 450?

Option 1:
2400

Option 2:
1800

Option 3:
3600

Option 4:
4800

Correct Answer:
1800

Solution:
120 = 2 × 2 × 2 × 3 × 5
450 = 2 × 3 × 3 × 5 × 5
LCM of 120 and 450 is (2 × 2 × 2 × 3 × 3 × 5 × 5) = 1800
i.e. 1800 is the least common multiple of 120 and 450.
Hence, the correct answer is 1800.

Q. 3 The product of two two-digit numbers is 2160, and their HCF is 12. The numbers are:

Option 1:
(12 and 60)

Option 2:
(72 and 30)

Option 3:
(36 and 60)

Option 4:
(60 and 72)

Correct Answer:
(36 and 60)

Solution:
Let the 1st number be $12x$ and the other be $12y$
Given: $HCF = 12$ and product of two numbers = 2160
So, product of two numbers = $12x \times 12y$
$2160 = 144xy$
$\Rightarrow xy = \frac{2160}{144}$
$\Rightarrow xy = 15$
The possible co-prime pairs of 15 are (1,15) and (3,5)
Therefore, the numbers are (12 $\times$ 1 and 12 $\times$ 15) or (12 $\times$ 3 and 12 $\times$ 5)
Hence, the numbers are (12 and 180) or (36 and 60)
Hence, the correct answer is (36 and 60).

Q. 4 The sum of three numbers is 252. If the first number is thrice the second and third number is $\frac{2}{3}$ rd of the first, then the second number is:

Option 1:
41

Option 2:

Option 2:
21

Option 3:
42

Option 4:
84

Correct Answer:
42

Solution:
Given:
The sum of three numbers $= 252$
Let the second number be x.
Since the first number is thrice the second and the third number is $\frac{2}{3}$rd of the first.
Thus, the first number is $3x$.
The third number is $\frac{2}{3} \times 3x = 2x$
$x + 3x + 2x = 252$
$\Rightarrow 6x = 252$
$\Rightarrow x = \frac{252}{6} = 42$
Hence, the correct answer is 42.

Q. 5 (91 + 92 + 93 + ... + 110) is equal to:

Option 1:
4020

Option 2:
2010

Option 3:
6030

Option 4:
8040

Correct Answer:
2010

Solution:
First term, a = 91
Last term, l = 110
Number of terms, n = 20

The sum of n terms of series = $\frac{n}{2}(a+l)$
The sum of 20 terms of series = $\frac{20}{2}(91+110) = 10(91+110) = 2010$
Hence, the correct answer is 2010.

Q. 6 Given that $\sqrt{3} = 1.732$, the value of $\frac{3+\sqrt{6}}{5\sqrt{3}-2\sqrt{12}-\sqrt{32}+\sqrt{50}}$ is:

Option 1:
4.899

Option 2:
2.551

Option 3:
1.414

Option 4:
1.732

Correct Answer:
1.732

Solution:
Given:
$\sqrt{3} = 1.732$
$\frac{3+\sqrt{6}}{5\sqrt{3}-2\sqrt{12}-\sqrt{32}+\sqrt{50}}$
Now evaluate:
$= \frac{3+\sqrt{6}}{5\sqrt{3}-2\sqrt{4\times3}-\sqrt{16\times2}+\sqrt{25\times2}}$
$= \frac{3+\sqrt{6}}{5\sqrt{3}-4\sqrt{3}-4\sqrt{2}+5\sqrt{2}}$
$= \frac{3+\sqrt{6}}{5(\sqrt{3}+\sqrt{2})-4(\sqrt{3}+\sqrt{2})}$
$= \frac{3+\sqrt{6}}{\sqrt{3}+\sqrt{2}}$
Now multiply and divide with $\sqrt{3}-\sqrt{2}$.
$= \frac{3+\sqrt{6}}{\sqrt{3}+\sqrt{2}} \times \frac{\sqrt{3}-\sqrt{2}}{\sqrt{3}-\sqrt{2}}$
$= \frac{3\sqrt{3}-3\sqrt{2}+\sqrt{18}-\sqrt{12}}{3-2}$
$= \frac{3\sqrt{3}-3\sqrt{2}+\sqrt{9\times2}-\sqrt{4\times3}}{1}$
$= 3\sqrt{3} - 3\sqrt{2} + 3\sqrt{2} - 2\sqrt{3}$
$= 3\sqrt{3} - 2\sqrt{3}$
$= \sqrt{3}(3-2)$
$= \sqrt{3}$
$= 1.732$
Hence, the correct answer is 1.732.

Q. 7 The average of two numbers is 8, and the average of the other three numbers is 3. The average of the five numbers is:

Option 1:
2

Option 2:
3

Option 3:
5

Option 4:
6

Correct Answer:
5

Solution:
Given:
The average of two numbers = 8
The average of three numbers = 3
According to the question,
Sum of two numbers = 2 × 8 = 16
Sum of three numbers = 3 × 3 = 9
Sum of five numbers = 16 + 9 = 25
Average value = $\frac{\text{Sum of values}}{\text{Number of values}}$
∴ Average of five numbers = $\frac{25}{5}$
Hence, the correct answer is 5.

Q. 8 The average of 15 numbers is 7. If the average of the first 8 numbers is 6.5 and the average of the last 8 numbers is 8.5, then the middle number is:

Option 1:
10

Option 2:
23

Option 3:
13

Option 4:
15

Correct Answer:
15

Solution:
Given:
Average of 15 results = 7
Average of first seven = 6.5
Average of last seven = 7.5
According to the question,
Sum of all results = 15 × 7 = 105
Sum of first seven results = 8 × 6.5 = 52
Sum of last eight results = 8 × 8.5 = 68
Eighth result = Sum of first eight results + Sum of last eight results – Sum of all results
⇒ Eighth result = 52 + 68 – 105 = 15
Hence, the correct answer is 15.

Q. 9 The average of 20 numbers is calculated as 35. It is discovered later on that while calculating the average, one number, 85, was misread as 45. The correct average is:

Option 1:
36

Option 2:
36.5

Option 3:
37

Option 4:
37.5

Correct Answer:
37

Solution:
The average of 20 numbers = 35
The sum of 20 numbers = 20 × 35 = 700
Now add 85 and subtract 45,
Correct sum = 700 – 45 + 85 = 740
∴ Correct average = $\frac{740}{20}$ = 37
Hence, the correct answer is 37.

Q. 10 By selling a bag for Rs. 230, a profit of 15% is made. The selling price of the bag, when sold at 20% profit, would be:

Option 1:
Rs. 250

Option 2:
Rs. 205

Option 3:
Rs. 240

Option 4:
Rs. 200

Correct Answer:
Rs. 240

Solution:
Let the Cost price (CP) be Rs. x.
Selling price (SP) of the bag = Rs. 230 and profit = 15%
SP = $\frac{100+\text{Profit }\%}{100}$ × CP = 230
$\Rightarrow \frac{115x}{100}$ = 230
$\Rightarrow x = \frac{230}{115} \times 100$
$\Rightarrow x$ = 200
For a profit of 20%,
The new selling price of the bag = $\frac{100+20}{100}$ × 200 = $\frac{120}{100}$ × 200 = Rs. 240
Hence, the correct answer is Rs. 240.

Q. 11 The ratio of the present ages of the two boys is $3:4$. After 3 years, the ratio of their ages will be $4:5$. The ratio of their ages after 21 years will be:

Option 1:
$14:17$

Option 2:
$17:19$

Option 3:
$11:12$

Option 4:
$10 : 11$

Correct Answer:
$10 : 11$

Solution:
Let the present age of boys be $3x$ years and $4x$ years respectively.
According to the given condition:
After 3 years,
$\Rightarrow \frac{3x+3}{4x+3} = \frac{4}{5}$
$\Rightarrow 15x + 15 = 16x + 12$
$\therefore x = 3$
So, the present age of boys is 9 years and 12 years respectively.
Therefore, the ratio of their age after 21 years is $= \frac{9+21}{12+21}$
$= \frac{30}{33}$
$= \frac{10}{11}$
Thus, the ratio of the age after 21 years is $10 : 11$.
Hence, the correct answer is $10 : 11$.

Q. 12 The ratio of A's age to B's age is $4 : 3$. A will be 26 years old after 6 years. The age of B now is:

Option 1:
$19\frac{1}{2}$ years

Option 2:
12 years

Option 3:
21 years

Option 4:
15 years

Correct Answer:
15 years

Solution:
Let the present ages of A and B be $4x$ and $3x$ respectively.
According to the question,
$4x + 6 = 26$
$\Rightarrow 4x = 20$
$\therefore x = 5$
So, the present age of B = 3 × 5 = 15 years
Hence, the correct answer is 15 years.

Q. 13 There are 1400 students in a school, 25% of them wear spectacles and $\frac{2}{7}$th of those wearing spectacles are boys. How many girls in the school wear spectacles?

Option 1:
250

Option 2:
100

Option 3:
200

Option 4:
300

Correct Answer:
250

Solution:
Total number of students = 1400
Number of students wearing spectacles $= 1400 \times \frac{25}{100} = 350$
Number of boys wearing spectacles $= 350 \times \frac{2}{7} = 100$
Therefore, the number of girls wearing spectacles $= 350 - 100 = 250$
Hence, the correct answer is 250.

Q. 14 If 60% of the students in a school are boys and the number of girls is 812, how many boys are there in the school?

Option 1:
1128

Option 2:
1218

Option 3:
1821

Option 4:
1281

Correct Answer:
1218

Solution:
Let the total number of students be x.
Boys = 60%
Girls = 40%
According to the question,
$\frac{40x}{100} = 812$
$\therefore x = 2030$
The total number of students = 2030
Now, number of boys = (total number of students – number of girls) = 2030 – 812 = 1218
Hence, the correct answer is 1218.

Q. 15 A boat moves downstream at a rate of 8 km/hr and upstream at 4 km/hr. The speed of the boat in still water is:

Option 1:
4.5 km/hr

Option 2:
5 km/hr

Option 3:
6 km/hr

Option 4:
6.4 km/hr

Correct Answer:
6 km/hr

Solution:
Given: A boat moves downstream at a rate of 8 km/hr and upstream at 4 km/hr.
We know, the speed of the boat in still water
$= \frac{(\text{Downstream speed} + \text{Upstream speed})}{2} = \frac{(8+4)}{2} = \frac{12}{2}$ = 6 km/hr
Hence, the correct answer is 6 km/hr.

Q. 16 A boat goes 4 km upstream and 4 km downstream in an hour. The same boat goes 5 km downstream and 3 km upstream in 55 minutes. What is the speed (in km/hr) of the boat in still water?

Option 1:
6.5

Option 2:
7.75

Option 3:
9

Option 4:
10.5

Correct Answer:
9

Solution:
Let the speed of the boat in still water be a km/hr and the speed of water be b km/hr.
Speed in downstream = $a+b$
Speed in upstream = $a-b$
As per the first given condition:
$\Rightarrow \frac{4}{(a-b)}+\frac{4}{(a+b)}=1$
Let $\frac{1}{(a-b)}=x$ and $\frac{1}{(a+b)}=y$
$\Rightarrow 4x+4y=1$
$\Rightarrow x+y=\frac{1}{4}$ ----------(1)
As per the second given condition:
$\Rightarrow \frac{3}{(a-b)}+\frac{5}{(a+b)}=\frac{55}{60}$
$\Rightarrow 3x+5y=\frac{11}{12}$
By putting the value of y from equation (1) we get:
$\Rightarrow 3x+5(\frac{1}{4}-x)=\frac{11}{12}$
$\Rightarrow 2x=\frac{5}{4}-\frac{11}{12}$
$\Rightarrow x=\frac{1}{6} \Rightarrow (a-b)=6$ ----------(2)
By putting the value of x in equation (1)
$\Rightarrow y=\frac{1}{4}-\frac{1}{6}$
$\Rightarrow y=\frac{1}{12} \Rightarrow (a+b)=12$ ----------(3)
From equation (2) and (3),
$\Rightarrow 2a=18 \Rightarrow a=9$
The speed of the boat in still water is 9 km/hr.
Hence, the correct answer is 9.

Q. 17 Alipta got some money from her father. In how many years will the ratio of the money and the interest obtained from it be 10 : 3 at the rate of 6% simple interest per annum?

Option 1:
7 years

Option 2:
3 years

Option 3:
5 years

Option 4:
4 years

Correct Answer:
5 years

Solution:
Given:
Rate = 6%
$\frac{\text{Principal}}{\text{Interest}} = \frac{10}{3}$
Let Principal be $10k$ and Interest be $3k$.
Simple interest = $\frac{\text{Principal} \times \text{Rate} \times \text{Time}}{100}$
$\Rightarrow 3k = \frac{10\text{k} \times 6 \times \text{Time}}{100}$
$\Rightarrow$ Time = $\frac{3k \times 100}{10k \times 6}$
$\therefore$ Time = 5 years
Hence, the correct answer is 5 years.

Q. 18 If θ is positive acute angle and $7\cos^2\theta + 3\sin^2\theta = 4$, then the value of θ is:

Option 1:
60°

Option 2:
30°

Option 3:
45°

Option 4:
90°

Correct Answer:
60°

Solution:

$7\cos^2\theta + 3\sin^2\theta = 4$
$\Rightarrow 7\cos^2\theta + 3(1 - \cos^2\theta) = 4$ .....[we know that $\sin^2\theta + \cos^2\theta = 1$]
$\Rightarrow 4\cos^2\theta + 3 = 4$
$\Rightarrow \cos^2\theta = \frac{1}{4}$
$\Rightarrow \cos^2\theta - \frac{1}{4}$ = 0
$\Rightarrow (\cos\theta + \frac{1}{2})(\cos\theta - \frac{1}{2})$ = 0
$\Rightarrow \cos\theta = \frac{1}{2}$ or, $-\frac{1}{2}$
$\Rightarrow \cos\theta = \cos 60^\circ$ or, $\cos 120^\circ$
Since θ is a positive acute angle,
So, $\theta = 60^\circ$
Hence, the correct answer is 60°.

Q. 19 A and B can do a job in 12 days, B and C in 15 days, and C and A in 20 days. If A, B, and C work together, they will complete the work in:

Option 1:
5 days

Option 2:
$7\frac{5}{6}$ days

Option 3:
10 days

Option 4:
$15\frac{2}{3}$ days

Correct Answer:
10 days

Q. 20 The radius and the height of the cone are each increased by 20%. Then the volume of the cone increases by:

Option 1:
20%

Option 2:
20.5%

Option 3:
62%

Option 4:
72.8%

Correct Answer:
72.8%

Solution:
Given: The radius and the height of the cone are each increased by 20%.
Let the radius and height of the cone be 10 m.
When radius and height is increased by 20%, then new height and radius = $\frac{120}{100} \times 10$ = 12 m
Volume of cone before increment $= \frac{1}{3}\pi r^2 h$
$= \frac{1}{3}\pi \times 10^2 \times 10 = \frac{1000}{3}\pi$
Volume of cone after increment $= \frac{1}{3}\pi r^2 h$
$= \frac{1}{3}\pi \times 12^2 \times 12 = \frac{1728}{3}\pi$
Change in percentage = $\frac{\text{Volume after increment} - \text{Volume before increment}}{\text{Volume before increment}} \times 100$
= $\frac{\frac{1728}{3}\pi - \frac{1000}{3}\pi}{\frac{1000}{3}\pi} \times 100$
= $\frac{\frac{(1728-1000)}{3}\pi}{\frac{1000}{3}\pi} \times 100$
= $\frac{728}{1000} \times 100$
= 72.8%
Hence, the correct answer is 72.8%.

General Awareness

Q. 21 The foreign traveller who visited India during the reign of Shah Jahan was

Option 1:
Thomas Roe

Option 2:
William Hawkins

Option 3:
Ibn Battuta

Option 4:
Manucci

Correct Answer:
Manucci

Solution:
The correct answer is **Niccolao Manucci.**

Niccolao Manucci was a self-taught physician and traveller from Venice and the first person to write accounts of the Mughal Empire. His writings are regarded as one of the most valuable sources of information about India during the Mughal era. During Shah Jahan's rule in India in 1653, he arrived there. He lived in India for a while, working as a doctor and a soldier in the Mughal army.

Q. 22 Abul Fazl was the son of which Sufi saint?

Option 1:
Sheikh Mubarak

Option 2:
Hazrat Khwaja

Option 3:
Nasiruddin Chiragh Dehlavi

Option 4:
Baba Qutbuddin Bakhtiyar Kaki

Correct Answer:
Sheikh Mubarak

Solution:
The answer is **Sheikh Mubarak**

Abul Fazl was the younger brother of Faizi, a well-known poet in the court of Akbar, and the son of Sheikh Mubarak, a renowned Sufi from Persia. Abu'l Fazl, also known as Shaikh Abu al-Fazl ibn Mubarak, served as the vizier of the great Mughal emperor Akbar and wrote the Akbarnama. He also held a prominent position as a minister and political advisor in Akbar's court.

Q. 23 Which dynasty was ruling in the Vijaynagar Empire at the time of the Battle of Talikota?

Option 1:
Sangam

Option 2:
Aravidu

Option 3:
Tuluva

Option 4:
Saluva

Correct Answer:
Tuluva

Solution:
The correct answer is **Tuluva.**

The Vijayanagara Empire and the Deccan sultanates engaged in a pivotal battle at Talikota (23 January 1565) that changed the course of history. At this time, the Tuluva dynasty's Sadashiv Raya was in charge of Vijaynagar.

Q. 24 Sher Shah Suri defeated which Mughal emperor?

Option 1:
Humayun

Option 2:
Timur Lang

Option 3:
Nadir Shah

Option 4:
Ahmad Shah Abdali

Correct Answer:
Humayun

Solution:
The correct option is **Humayun**

Sher Shah Suri, a formidable military strategist, engaged in a series of battles with Humayun during the mid-16th century. The pivotal conflicts occurred between 1537 and 1540, marking a turbulent period in their reigns. Sher Shah's relentless pursuit and tactical brilliance ultimately led to his victory in the Battle of Chausa in 1539 and, subsequently, in the Battle of Kannauj in 1540. The Mughal and Suri empires were engaged in a bitter struggle during this time. These victories helped Sher Shah Suri secure his dominance over northern India while temporarily deposing Humayun.

Q. 25 Which of the following writers had called Akbar's Din-i Ilahi, a monument of his folly, not of wisdom?

Option 1:
Badayuni

Option 2:
Vincent Smith

Option 3:
Barni

Option 4:
W. Haig

Correct Answer:
Vincent Smith

Solution:
The correct answer is **Vincent Smith**.

Akbar founded the Din-i Ilahi religion in 1582. Birbal was reportedly the only Hindu supporter of that initiative, but it failed because the people were not interested in this. Author Vincent Smith referred to the Din-i Ilahi as a monument to his foolishness rather than wisdom in his book '*The Early History of India*'.

Q. 26 Production function explains the relationship between:

Option 1:
initial inputs and ultimate output

Option 2:
input and ultimate consumption

Option 3:
output and consumption

Option 4:
output and exports

Correct Answer:
initial inputs and ultimate output

Solution:
The correct answer is **initial inputs and ultimate output**.

The link between inputs (such as labour, capital and raw materials) and the creation of goods and services is described by a production function. The production function illustrates the various ways that inputs can be combined to produce commodities and services.

Q. 27 Who was the architect of the Taj Mahal?

Option 1:
Ustad Ahmad Lahori

Option 2:
Norman Foster

Option 3:
Henry Irwin

Option 4:
Ustad Ghani Qutbuddin

Correct Answer:
Ustad Ahmad Lahori

Solution:
The correct option is **Ustad Ahmad Lahori**

Taj Mahal is regarded as the highest achievement in all of Indo-Islamic architecture. Shah Jahan of the Mughal Empire ordered the construction of Taj Mahal on the banks of the Yamuna, with Ustad Ahmad Lahori serving as its principal architect. To give Taj Mahal its opulent appearance, the architect tried to combine elements of Persian, Islamic and Mughal architecture. Construction of Taj Mahal took place between 1632 and 1648.

Q. 28 Japanese folk tradition and ritual, with no founder or single sacred scripture, is popularly known as

Option 1:
Taoism

Option 2:
Zoroastrianism

Option 3:
Shintoism

Option 4:
Paganism

Correct Answer:
Shintoism

Solution:
The correct answer is **Shintoism**.

Shintoism is an ethnic Japanese religion. It emphasises ceremonial practices that must be followed religiously to build a link between modern Japan and its ancient past. It is a polytheistic religion that worships kami, spirits found in living and inanimate objects. Shintoism is likewise concerned with keeping nature and the spirits who dwell in it in harmony. Its beliefs and practices are carried down through oral tradition as well as rites and ceremonies.

Q. 29 Amir Khusrau was a

Option 1:
poet

Option 2:
play writer

Option 3:
painter

Option 4:
architect

Correct Answer:
poet

Solution:
The correct answer is a **poet.**

Amir Khusrau was a famous poet, scholar, and musician in the Indian subcontinent during the 13th and 14th centuries. He was originally from Central Asia but spent most of his life in the Delhi Sultanate. Khusrau wrote extensively in Persian and is widely recognised for his contributions to the cultural, and literary heritage of the region.

Q. 30 The Queen who had the nickname "Bloody Mary"?

Option 1:
Elizabeth

Option 2:
Victoria

Option 3:
Mary I

Option 4:
Ruth

Correct Answer:
Mary I

Solution:
The answer is **Mary I.**

Queen Mary I was the Queen of England who ruled by her rights but was known by the name "Bloody Mary" because she pursued Protestant heretics, leading to their execution by burning at the stake in large numbers.

Q. 31 The ideas of Liberty, Equality, and Fraternity, which influenced the Indian National Movement, were taken from ____.

Option 1:
American Revolution

Option 2:
Russian Revolution

Option 3:
Chinese revolution

Option 4:
French Revolution

Correct Answer:
French Revolution

Solution:
The answer is the **French Revolution**.

The Declaration of the Rights of Man and the Citizen was adopted by the French National Assembly in 1789 and contained the principles of Liberty, Equality, and Fraternity. The right to liberty, property, security, and resistance to persecution are among the rights that are guaranteed to all at their birth under the Declaration of Independence.

Q. 32 The speaker of the Lok Sabha has to address his/her letter of resignation to

Option 1:
Prime Minister of India

Option 2:
President of India

Option 3:
Deputy Speaker of Lok Sabha

Option 4:
Minister of Parliamentary Affairs

Correct Answer:
Deputy Speaker of Lok Sabha

Solution:
The correct answer is **Deputy Speaker of Lok Sabha**

Articles 93-96 of the Indian Constitution deal with the powers and functions of the Speaker and Deputy Speaker of the Lok Sabha. As per the convention, the **Speaker of Lok Sabha** is from the ruling party and the Deputy Speaker is from the opposition. The Speaker of Lok Sabha is responsible for the orderly functioning of the Lower House, conducting regular proceedings and maintaining law and order. As per the Constitution, the Speaker of Lok Sabha can resign by addressing his resignation to the Deputy Speaker of Lok Sabha.

Q. 33 In the Indian constitution, the method of election of the President has been taken from which country?

Option 1:
Britain

Option 2:
USA

Option 3:
Ireland

Option 4:
Australia

Correct Answer:
Ireland

Solution:
The correct option is **Ireland.**

The Indian Constitution incorporates several clauses and elements from other constitutions. The **Irish Constitution** inspired two Indian laws: the directive principles and the presidential election. In addition, the Irish Constitution governs the selection of Rajya Sabha members. **Article 55** of the Constitution specifies the process for electing the president.

Q. 34 _____scheme launched by the Central Government aims to improve rural livelihoods, promote rural development, and strengthen the Panchayati Raj across the country.

Option 1:
Pradhan Mantri Fasal Bima Yojana

Option 2:
Gram Uday se Bharat Uday Abhiyan

Option 3:
Stand up India scheme

Option 4:
National RU URBAN Mission

Correct Answer:
Gram Uday se Bharat Uday Abhiyan

Solution:
The correct answer is **Gram Uday se Bharat Uday Abhiyan.**

The comprehensive scheme aims to promote social harmony and empower people in villages by upgrading Panchayati Raj Institutions with basic amenities such as drinking water, sanitation, etc. This nationwide program involves all stakeholders, including the Central Government, State Governments, Panchayats, and the general public.

Q. 35 _____ was launched by Prime Minister Narendra Modi as a part of the Beti Bachao Beti Padhao campaign.

Option 1:
Sukanya Samriddhi Account

Option 2:
Bal Swachhta Mission

Option 3:
Pradhan Mantri Jan Dhan Yojana

Option 4:
Beti Bachao Beti Padhao Yojana

Correct Answer:
Sukanya Samriddhi Account

Solution:
The correct answer is the **Sukanya Samridhi Account.**

Sukanya Samriddhi Account is a government-backed savings scheme designed to encourage parents to save for their girl child's future education and marriage. The Beti Bachao Beti Padhao initiative was spearheaded by Prime Minister Narendra Modi beginning in 2015. It provides a high interest rate and tax benefits, and the account matures after 21 years.

Q. 36 Where is the headquarters of the National Film Archives of India (NFAI) located?

Option 1:
Pune

Option 2:
Chennai

Option 3:
Bangalore

Option 4:
Mumbai

Correct Answer:
Pune

Solution:
The correct option is **Pune**.

As a media division of the Ministry of Information and Broadcasting, the National Film Archive of India (NFAI) was founded in February 1964. It merged with the National Film Development Corporation in March 2022. The NFAI has three regional offices, located in Bengaluru, Calcutta and Thiruvananthapuram, with its headquarters in Pune, Maharashtra.

Q. 37 Which cell organelles are the site of photosynthesis and also contain chlorophyll?

Option 1:
Chloroplast

Option 2:
Vacuole

Option 3:
Cytoplasm

Option 4:
Nucleolus

Correct Answer:
Chloroplast

Solution:
The correct option is **Chloroplast.**

A **chloroplast** is a specialised organelle found in plant and algal cells. It is a **photosynthesis site** where light energy is collected and turned into chemical energy via intricate molecular events. Chloroplasts contain chlorophyll, the green pigment found in plants that allows them to absorb sunlight and perform photosynthesis.

Q. 38 Which among the following will be a negative ion?

Option 1:
If it has more electron than protons

Option 2:
If it has more electrons than neutrons

Option 3:
If it has more protons than electrons

Option 4:
If it has more protons than neutrons

Correct Answer:
If it has more electrons than neutrons

Solution:
The correct answer is **If it has more electrons than neutrons**

Negative ions, or anions, arise when an atom or molecule gains one or more electrons. We call it electron gain. Certain elements are more likely to attract electrons than others due to their electron configuration and position in the periodic table. Elements having nearly whole or half-filled valence electron shells may have a high electron affinity. When these atoms come into contact with electrons, they can easily attract them, resulting in a more stable electron configuration.

Q. 39 Which of the following is a volatile memory of a computer?

Option 1:
Secondary memory

Option 2:
Cache memory

Option 3:
RAM

Option 4:
ROM

Correct Answer:
RAM

Solution:
The correct answer is **RAM.**

RAM is a type of volatile memory. Volatile memory is computer memory that loses data when the computer is switched off. RAM is classified as volatile memory. RAM is an acronym for random access memory.

Q. 40 The Andaman and Nicobar group of Islands are separated from each other by which of the following?

Option 1:
Ten Degree Channel

Option 2:
Great Channel

Option 3:
Bay of Bengal

Option 4:
Andaman Sea

Correct Answer:
Ten Degree Channel

Solution:
The correct option is the **Ten Degree Channel**.

The Ten Degree Channel is a narrow strip of water in the Indian Ocean separating the Andaman and Nicobar Islands. It is a vital maritime channel that connects the two island groups and is a chief shipping route for boats travelling between the Bay of Bengal and the Andaman Sea.

Q. 41 **Directions:** In the following question you have to identify the correct response from the given premises stated according to following symbols:

If '$-$' stands for division '$+$' stands for multiplication, '$\div$' stands for subtraction and '$\times$' stands for addition, which one of the following equations is correct?

Option 1:
$6 \div 20 \times 12 + 7 - 1 = 70$

Option 2:
$6 + 20 - 12 \div 7 \times 1 = 62$

Option 3:
$6 - 20 \div 12 \times 7 + 1 = 57$

Option 4:
$6 + 20 - 12 \div 7 - 1 = 38$

Correct Answer:
$6 \div 20 \times 12 + 7 - 1 = 70$

Q. 42 **Directions:** Which of the following interchange of signs would make the given equation correct?
5 + 3 × 8 – 12 ÷ 4 = 3

Option 1:
– and ÷

Option 2:
+ and ×

Option 3:
+ and ÷

Option 4:
+ and –

Correct Answer:
– and ÷

Solution:
Given:
5 + 3 × 8 – 12 ÷ 4 = 3

Replace the given signs in the options one by one with those in the given equation.
First option: – and ÷
= 5 + 3 × 8 ÷ 12 – 4
= 5 + 2 – 4
= 7 – 4
= 3
Second option: + and ×
= 5 × 3 + 8 – 12 ÷ 4
= 5 × 3 + 8 – 3
= 15 + 8 – 3
= 23 – 3
= 20 ≠ 3
Third option: + and ÷
= 5 ÷ 3 × 8 – 12 + 4
= 1.67 × 8 – 12 + 4
= 13.36 – 12 + 4
= 5.36 ≠ 3
Fourth option: + and –
= 5 – 3 × 8 + 12 ÷ 4
= 5 – 3 × 8 + 3
= 5 – 24 + 3
= –16 ≠ 3

Here, only the first option satisfies the R.H.S. of the given equation. Hence, the **first option** is correct.

Q. 43 **Directions:** In the following question, correct the equation by interchanging two signs.
6 + 8 ÷ 4 – 4 = 8

Option 1:
÷ and =

Option 2:
÷ and +

Option 3:
÷ and –

Option 4:
+ and –

Correct Answer:
+ and –

Solution:
Given:
6 + 8 ÷ 4 – 4 = 8

Let's check the options –
First option: ÷ and =
6 + 8 = 4 – 4 ÷ 8
LHS⟶6 + 8 = 14
RHS⟶4 – 4 ÷ 8
= 4 – 0.5
= 3.5
LHS ≠ RHS
Second option: ÷ and +
6 ÷ 8 + 4 – 4 = 8
LHS⟶6 ÷ 8 + 4 – 4
= 0.75 + 4 – 4
= 0.75
RHS⟶8
LHS ≠ RHS
Third option: ÷ and –
6 + 8 – 4 ÷ 4 = 8
LHS⟶6 + 8 – 4 ÷ 4
= 6 + 8 – 1
= 14 – 1
= 13
RHS⟶8
LHS ≠ RHS
Fourth option: + and –
6 – 8 ÷ 4 + 4 = 8
LHS⟶6 – 8 ÷ 4 + 4
= 6 – 2 + 4
= 10 – 2
= 8
RHS⟶8
LHS = RHS

Only the fourth option satisfies the equation. Hence, the **fourth option** is correct.

Q. 44 **Directions:** In the following question, select the related word from the given alternatives.
Cytology : Cells :: ? : Birds

Option 1:
Odontology

Option 2:
Mycology

Option 3:
Etymology

Option 4:
Ornithology

Correct Answer:
Ornithology

Solution:
Given:
Cytology : Cells :: ? : Birds

Cytology is the study of cells.
Similarly, Ornithology is the study of birds.

Hence, the **fourth option** is correct.

Q. 45 **Directions:** In the following question, select the related word from the given alternatives.
Bird : Aeroplane :: Fish : ?

Option 1:
Fishermen

Option 2:
Sofa

Option 3:
Boats

Option 4:
Glasses

Correct Answer:
Boats

Solution:
Given:
Bird : Airplane :: Fish : ?

Both birds and airplanes use air as a means of movement.
Similarly, both fish and boats use water as a means of movement.

Hence, the **third option** is correct.

Q. 46 **Directions:** In the following question, select the related word from the given alternatives.
Magazine : Editor :: Drama : ?

Option 1:
Director

Option 2:
Hero

Option 3:
Heroine

Option 4:
Painter

Correct Answer:
Director

Solution:
Given:
Magazine : Editor :: Drama : ?

A magazine is published by an editor.
Similarly, a drama is directed by a director.

Hence, the **first option** is correct.

Q. 47 **Directions:** In the following question, find the odd letter cluster from the given alternatives.

Option 1:
DAEH

Option 2:
KIMP

Option 3:
HEIL

Option 4:
FCGJ

Correct Answer:
KIMP

Solution:
Let's check the options –
First option: DAEH; D – 3 = A; A + 4 = E; E + 3 = H
Second option: KIMP; K – 2 = I; I + 4 = M; M + 3 = P
Third option: HEIL; H – 3 = E; E + 4 = I; I + 3 = L
Fourth option: FCGJ; F – 3 = C; C + 4 = G; G + 3 = J

So, the difference between the place values of the letters in the second option differs from the other options.
Hence, the **second option** is correct.

Q. 48 **Directions:** In the following question, find the odd letter cluster from the given alternatives.

Option 1:
OMQ

Option 2:
TPR

Option 3:
TRV

Option 4:
VTX

Correct Answer:
TPR

Solution:

Let's check the options
First option: OMQ; O – 2 = M; M + 4 = Q
Second option: TPR; T – 4 = P; P + 2 = R
Third option: TRV; T – 2 = R; R + 4 = V
Fourth option: VTX; V – 2 = T; T + 4 = X

So, the difference between the place values of the letters in the second option differs from the other options.
Hence, the **second option** is correct.

Q. 49 **Directions:** In the following question, find the odd letter cluster from the given alternatives.

Option 1:
CA

Option 2:
FD

Option 3:
KI

Option 4:
TQ

Correct Answer:
TQ

Solution:
Let's check the options –
First option: CA; C – 2 = A
Second option: FD; F – 2 = D
Third option: KI; K – 2 = I
Fourth option: TQ; T – 3 = Q

So, the difference between the place values of the letters in the fourth option differs from the other options.
Hence, the **fourth option** is correct.

Q. 50 **Directions:** Johnson left for his office in his car. He drove 15 km towards the North and then 10 km towards the West. He then turned to the South and covered 5 km. Further, he turned to East and moved 8 km. Finally, he turned right and moved 10 km. How far and in which direction is he from his starting point?

Option 1:
2 km, West

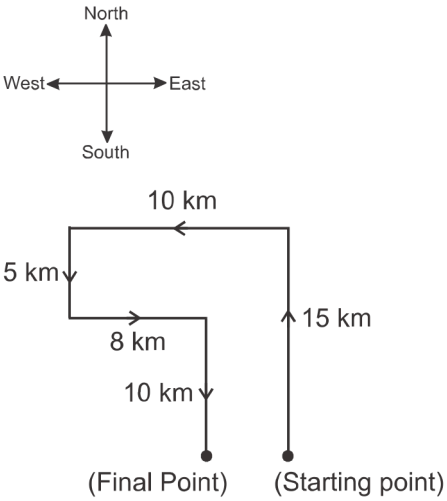
Option 2:
5 km, East

Option 3:
3 km, North

Option 4:
3 km, South

Correct Answer:
2 km, West

Solution:
Firstly, we will draw the diagram as per the given instructions –



From the above diagram, the distance between the starting and the end point is 10 km – 8 km = 2 km
The final point is in the West direction from the starting point.

So, Johnson is in the West direction and is at a distance of 2 km from the starting point. Hence, the **first option** is correct.

Q. 51 **Directions:** To attend an exam, Sudhir reached the school by travelling 5 km towards the south, and after a sharp left turn, he travelled for about 10 km. He again made a sharp left turn and reached the school by travelling 5 km more. Which direction is Sudhir's starting point from the school?

Option 1:
East

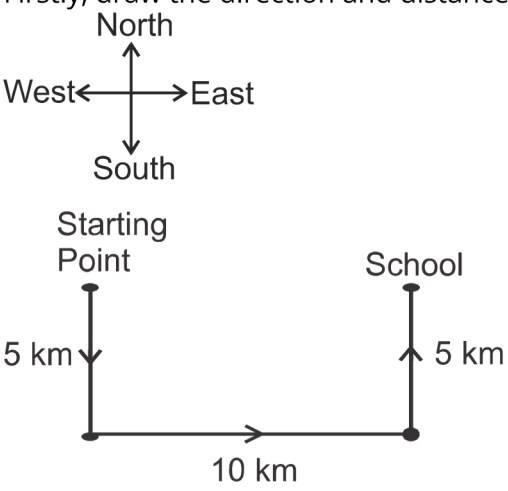
Option 2:
West

Option 3:
North

Option 4:
South

Correct Answer:
West

Solution:
Firstly, draw the direction and distance diagram according to the instructions –



From the above diagram, it is clear that Sudhir's starting point is in the West direction from the school.

Therefore, West is the correct answer. Hence, the **second option** is correct.

Q. 52 **Directions:** P, Q, R and S are playing a game of carrom. P, R and S, Q are partners. S is to the right of R. If R is facing west, then Q is facing which direction?

Option 1:
North

Option 2:
South

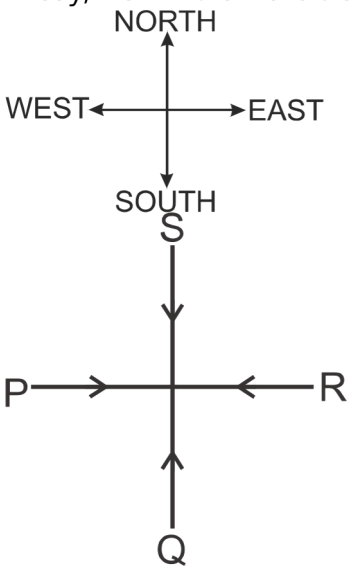
Option 3:
East

Option 4:
West

Correct Answer:
North

Solution:

Firstly, we will draw the diagram as per the given instructions –



So, Q is facing in the North direction. Hence, the **first option** is correct.

Q. 53 **Directions:** A and B are standing at the same point. They start moving in opposite directions at speeds of 5 kmph and 4 kmph respectively. What will be the distance between them after 3 hours?

Option 1:
3 km

Option 2:
21 km

Option 3:
18 km

Option 4:
27 km

Correct Answer:
27 km

Solution:
Given:
Speed of A = 5 kmph; Speed of B = 4 kmph
Time = 3 hours

According to the instructions given, both A and B are standing at the same point, and from there they start moving in opposite directions at different speeds.
Distance = Speed × Time

So, the distance travelled by A in 3 hours = 5 × 3 = 15 km
Distance traveled by B in 3 hours = 4 × 3 = 12 km
Therefore, the distance between A and B after 3 hours = 15 + 12 = 27 km

So, 27 km will be the distance between A and B after three hours. Hence, the **fourth option** is correct.

Q. 54 **Directions**: Ram leaves his house at 20 minutes to seven in the morning, and reaches Kunal's house in 25 minutes. They finish their breakfast in another 15 minutes and leave for their office which takes another 35 minutes. At what time do they leave Kunal's house to reach their office?

Option 1:
7:40 a.m.

Option 2:
7:20 a.m.

Option 3:
7:45 a.m.

Option 4:
8:15 a.m.

Correct Answer:
7:20 a.m.

Solution:
Here, calculate the time step by step by following the steps –

1. Ram leaves his house at 20 minutes to seven in the morning, which means at 6:40 a.m.
2. Ram reaches Kunal's house in 25 minutes means at 6:40 a.m. + 25 minutes = 7:05 a.m.
3. They finish their breakfast in another 15 minutes means at 7:05 a.m. + 15 minutes = 7:20 a.m.
4. After that takes another 35 minutes, which means at 7:20 a.m. + 35 minutes = 7:55 a.m.

So, they leave Kunal's house to reach their office at 7:20 a.m. Hence, the **second option** is correct.

Q. 55 **Directions:** The present age of A is two times the present age of B. After 8 years, B's age will be four times C's present age. If 9 years ago, C celebrated his fifth birthday, then what is the present age (in years) of A?

Option 1:
88

Option 2:
96

Option 3:
92

Option 4:
84

Correct Answer:
96

Solution:
Let the present age of C be x years.
Since 9 years ago, C celebrated his 5th birthday
⇒ x – 9 = 5
⇒ x = 5 + 9
⇒ x = 14 years
So, C's present age is 14 years.
Also, after 8 years, the B's age will be 4 times that of C's present age.
So, B's present age is –
⇒ (14 × 4) – 8 = 56 – 8 = 48
Since A's present age is twice B's present age, A's present age is 48 × 2 = 96 years.

Hence, the **second option** is correct.

Q. 56 **Directions:** In the following question, find the wrong number in the series.
28, 33, 31, 36, 34, 29

Option 1:
29

Option 2:
36

Option 3:
30

Option 4:
34

Correct Answer:
29

Solution:

Given:
28, 33, 31, 36, 34, 29

Add 5 and subtract 3 alternatively from each number to get the next number of the series.
28 + 5 = 33; 33 – 2 = 31; 31 + 5 = 36; 36 – 2 = 34; 34 + 5 = 39
All the terms differ by 5 and 3 alternately, except for 29.

So, 29 is the wrong number in the given series. Hence, the **first option** is correct.

Q. 57 **Directions:** In the following question, which one is the wrong number in the given series?
7, 56, 447, 3584, 28672

Option 1:
3584

Option 2:
56

Option 3:
7

Option 4:
447

Correct Answer:
447

Solution:
Given:
7, 56, 447, 3584, 28672

In the above-given series, multiply the previous number by 8 to get the next number.
7 × 8 = 56; 56 × 8 = 448 ≠ 447; 448 × 8 = 3584; 3584 × 8 = 28672

So, 447 is the wrong number as it doesn't follow the pattern. Hence, the **fourth option** is correct.

Q. 58 **Directions:** Which one set of letters when sequentially placed at the gaps in the given letter series shall complete it.

Z X _ T R _ N L J _ F D_

Option 1:
V P H B

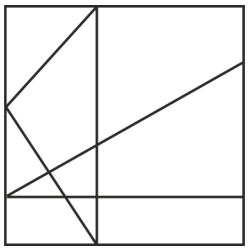
Option 2:
V R H B

Option 3:
U P J B

Option 4:
U P J D

Correct Answer:
V P H B

Q. 59 **Directions:** How many triangles are there in the given figure?



Option 1:
11

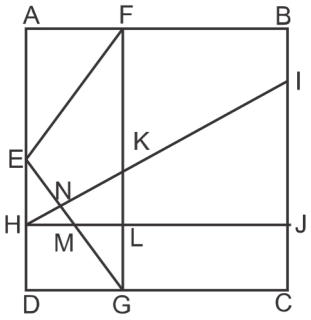
Option 2:
9

Option 3:
10

Option 4:
12

Correct Answer:
10

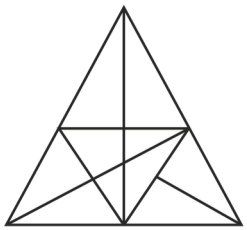
Solution:
The given figure can be labeled as shown below –



There are a total of 10 triangles in the above figure. They are AFE, EDG, EFG, EHN, HNM, EHM, HIJ, GML, GNK, HKL.

Hence, the **third option** is correct.

Q. 60 **Directions:** How many triangles are there in the given figure?



Option 1:
24

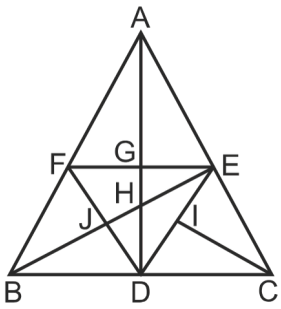
Option 2:
30

Option 3:
28

Option 4:
29

Correct Answer:
28

Solution:
The figure can be labeled as shown below –



There are 28 triangles in the above figure. They are AFG, AEG, AFE, BFJ, BDJ, BFD, CEI, CDI, CED, ABD, ACD, ABC, AHB, AHE, DEF, DEG, DFG, GHE, DEH, JHD, BEC, BHD, AEB, AFD, AED, DJE, FEJ, BDE.

Hence, the **third option** is correct.

MOCK TEST 2

Q. 1 The sum of three consecutive integers is 51. The middle one is:

Option 1:
14

Option 2:
15

Option 3:
16

Option 4:
17

Correct Answer:
17

Solution:
Let the three consecutive integers be $x-1, x, x+1$ whose sum equals 51.
According to the question,
$x-1+x+x+1=51$
$3x=51$
$\Rightarrow x=\frac{51}{3}=17$
So, the middle number $=x=17$
Hence, the correct answer is 17.

Q. 2 The least number that must be subtracted from 1294 such that the obtained number when divided by 9, 11, and 13, leaves in each case the same remainder of 6, is:

Option 1:
2

Option 2:
3

Option 3:
1

Option 4:
4

Correct Answer:
1

Solution:
The LCM of 9, 11, and 13 is 1287.
When 1294 is divided by 1287, the quotient is 1 and the remainder is 7.
Here, we need the remainder in each case to be 6 and so, subtract (7 – 6) = 1 from 1294.
Hence, the correct answer is 1.

Q. 3 By which number should 0.022 be multiplied so that the product becomes 66?

Option 1:
3000

Option 2:
3200

Option 3:
4000

Option 4:
3600

Correct Answer:
3000

Solution:
Let the number be x.
According to the question,
$x \times 0.022 = 66$
$x \times \frac{22}{1000} = 66$
$x = \frac{1000}{22} \times 66$
$\Rightarrow x = 3000$
Hence, the correct answer is 3000.

Q. 4 The sum of a fraction and 4 times its reciprocal is $\frac{13}{3}$. What is the fraction?

Option 1:
$\frac{4}{3}$

Option 2:
$\frac{3}{4}$

Option 3:
$\frac{5}{4}$

Option 4:
$\frac{4}{5}$

Correct Answer:
$\frac{4}{3}$

Solution:
Let the fraction be a.
Given:
$a+\frac{4}{a}=\frac{13}{3}$
After solving this, we get
$(a^2+4)\times 3=13a$
$3a^2-13a+12=0$
$3a^2-9a-4a+12=0$
$3a(a-3)-4(a-3)=0$
$(a-3)(3a-4)=0$
$(a-3)=0$ or $(3a-4)=0$
$\Rightarrow a=3,\frac{4}{3}$
So, the fraction = $\frac{4}{3}$
Hence, the correct answer is $\frac{4}{3}$.

Q. 5 The sum of 10 terms of the arithmetic series is 390. If the third term of the series is 19, find the first term:

Option 1:
3

Option 2:
5

Option 3:
7

Option 4:
8

Correct Answer:
3

Solution:

Given: The sum of 10 terms of the arithmetic series is 390.

So, $n = 10$

The third term of the series is 19.

Let the first term of the series be a.

We know, sum of arithmetic progression (A.P.) = $\frac{n}{2}[2a + (n-1)d]$

n^{th} term = $a + (n-1)d$

So, 3^{rd} term $\Rightarrow a + (3-1)d = 19$

$\Rightarrow a + 2d = 19$ ----------(1)

Sum of 10 terms = $\frac{10}{2}[2a + (10-1)d] = 390$

$\Rightarrow 2a + 9d = 78$ ---------(2)

Multiplying 9 with equation (1) and 2 with equation (2), we get,

$\Rightarrow 9a + 18d = 171$ ----------(3)

$\Rightarrow 4a + 18d = 156$ ----------(4)

Subtracting (4) from (3), we get,

$5a = 15$

$\therefore a = 3$

Hence, the correct answer is 3.

Q. 6 If $\sqrt{3} = 1.732$, then the value of $\frac{9+2\sqrt{3}}{\sqrt{3}}$ is:

Option 1:

7.169

Option 2:

7.196

Option 3:

5.198

Option 4:

7.296

Correct Answer:

7.196

Solution:

Given: $\sqrt{3} = 1.732$

$\frac{9+2\sqrt{3}}{\sqrt{3}}$

To eliminate the root from the denominator, multiply and divide by $\sqrt{3}$

= $\frac{9+2\sqrt{3}}{\sqrt{3}} \times \frac{\sqrt{3}}{\sqrt{3}}$

= $\sqrt{3}\times 9 + \sqrt{3}\times 2\sqrt{3}$

= $\frac{\sqrt{3}\times 9+6}{3}$

= $\frac{3(3\sqrt{3}+2)}{3}$
= $3\sqrt{3}+2$
= $3\times1.732+2$
= 7.196
Hence the correct answer is 7.196.

Q. 7 The average of two numbers is 8, and the average of the other three numbers is 3. The average of the five numbers is:

Option 1:
2

Option 2:
3

Option 3:
5

Option 4:
6

Correct Answer:
5

Solution:
Given:
The average of two numbers = 8
Average of three numbers = 3
According to the question,
Sum of two numbers = 2 × 8 = 16
Sum of three numbers = 3 × 3 = 9
Sum of five numbers = 16 + 9 = 25
Average value = $\frac{\text{Sum of values}}{\text{number of values}}$
Average of five number = $\frac{25}{5}$
Hence, the answer is 5.

Q. 8 Calculate the mean from the following table.

Scores	Frequencies
0-10	2
10-20	4
20-30	12
30-40	21
40-50	6
50-60	3
60-70	2

Option 1:
34.2

Option 2:
33.4

Option 3:
32.6

Option 4:
35.8

Correct Answer:
33.4

Solution:

Scores	Frequencies	Mid Point	Mid Point × Frequencies
0-10	2	5	10
10-20	4	15	60
20-30	12	25	300
30-40	21	35	735
40-50	6	45	270
50-60	3	55	165
60-70	2	65	130

Mean = $\frac{\sum (\text{Mid Point} \times \text{Frequencies})}{\sum \text{Frequencies}}$

= $\frac{10+60+300+735+270+165+130}{2+4+12+21+6+3+2}$

= $\frac{1670}{50}$

= 33.4

Hence, the correct answer is 33.4.

Q. 9 A man gains 20% by selling an article for a certain price. If he sells it at double the price, the percentage of profit will be:

Option 1:
40%

Option 2:
100%

Option 3:
120%

Option 4:
140%

Correct Answer:
140%

Solution:
Let the cost price (CP) be Rs. 100.
Profit = 20%
Selling price (SP) = 100 + 20 = Rs. 120
When the selling price is doubled, SP × 2 = (120 × 2) = Rs. 240
New profit = (New SP – CP) = (240 – 100) = Rs. 140
Thus, Profit % = $\frac{140}{100}$ × 100 = 140%
Hence, the correct answer is 140%.

Q. 10 A trader sold a cycle at a loss of 10%. If the selling price had been increased by Rs. 200, there would have been a gain of 6%. The cost price of the cycle is:

Option 1:
Rs. 1200

Option 2:
Rs. 1205

Option 3:
Rs. 1250

Option 4:
Rs. 1275

Correct Answer:
Rs. 1250

Solution:
Let the cost price of the cycle be Rs. x.
Selling price when loss is $10\% = \frac{100-\text{Loss percentage}}{100}$ × Cost price = $\frac{90x}{100}$
Selling Price when profit is $6\% = \frac{100+\text{Profit percentage}}{100}$ × Cost price = $\frac{106x}{100}$
Difference between the two selling prices $= \frac{106x}{100} - \frac{90x}{100} = \frac{16x}{100}$
So, $\frac{16x}{100} = 200$
$\Rightarrow x = \frac{20000}{16}$
$\therefore x$ = Rs. 1250
Hence, the correct answer is Rs. 1250.

Q. 11 The ratio of the present ages of R and S is 11 : 17. 11 years ago, the ratio of their ages was 11 : 20. What is R's present age (in years)?

Option 1:
51

Option 2:
33

Option 3:
22

Option 4:
40

Correct Answer:
33

Solution:
Let the present age of R be $11x$, and S be $17x$.
According to the given condition,
$\frac{11x-11}{17x-11} = \frac{11}{20}$
$\Rightarrow 220x - 220 = 187x - 121$
$\Rightarrow 33x = 99$

$\therefore x = 3$
Thus, the present age of R = 11 × 3 = 33 years
Hence, the correct answer is 33 years.

Q. 12 In an examination, 35% of total students failed in Hindi, 45% failed in English and 20% failed in both. Find the percentage of those students who passed in both subjects.

Option 1:
45%

Option 2:
35%

Option 3:
20%

Option 4:
40%

Correct Answer:
40%

Solution:
Failed in Hindi = 35%
Failed in English = 45%
Failed in both = 20%
∴ Percentage of students who failed in a minimum of one subject = (35 + 45) – 20 = 60%
Percentage of students who passed in both subjects = (100 – 60) = 40%
Hence, the correct answer is 40%.

Q. 13 Two buses travel to a place at 45 km/hr and 60 km/hr, respectively. If the second bus takes $5\frac{1}{2}$ hours less than the first for the journey, then the length of the journey is:

Option 1:
900 km

Option 2:
945 km

Option 3:
990 km

Option 4:
1350 km

Correct Answer:
990 km

Solution:
Given: The speeds of the two buses are 45 km/hr and 60 km/hr, respectively.
The second bus takes $5\frac{1}{2}$ hours less than the first bus.
Let the length of the journey be x km.
According to the given condition,
$\Rightarrow \frac{x}{45} - \frac{x}{60} = \frac{11}{2}$
$\Rightarrow \frac{4x-3x}{180} = \frac{11}{2}$
$\Rightarrow \frac{x}{180} = \frac{11}{2}$
$\therefore x = 90 \times 11 = 990$ km
Hence, the correct answer is 990 km.

Q. 14 The area of triangle with vertices A(0, 8), O(0, 0), and B(5, 0) is:

Option 1:
8 sq. units

Option 2:
13 sq. units

Option 3:
20 sq. units

Option 4:
40 sq. units

Correct Answer:
20 sq. units

Solution:
Let $(x_1, y_1) = (0, 8)$
$(x_2, y_2) = (0, 0)$
$(x_3, y_3) = (5, 0)$
Area of a triangle with vertices (x_1, y_1), (x_2, y_2), and (x_3, y_3)
$= \frac{1}{2}[x_1(y_2 - y_3) + x_2(y_3 - y_1) + x_3(y_1 - y_2)]$
$= \frac{1}{2}[0(0 - 0) + 0(0 - 8) + 5(8 - 0)]$
$= \frac{1}{2}[40]$
= 20 sq. units
Hence, the correct answer is 20 sq. units.

Q. 15 At what point does the line $3x + y = -6$ intercept the x-axis?

Option 1:
(2, 0)

Option 2:
(–2, 0)

Option 3:
(0, –6)

Option 4:
(0, 6)

Correct Answer:
(–2, 0)

Solution:
At an x-intercept, y = 0.
So, 3x + 0 = – 6
Solving for x,
⇒ 3x = – 6
⇒ x = – 2
So, the required intercept point = (–2, 0)
Hence, the correct answer is (–2, 0).

Q. 16 The radius and the height of the cone are each increased by 20%. Then the volume of the cone increases by:

Option 1:
20%

Option 2:
20.5%

Option 3:
62%

Option 4:
72.8%

Correct Answer:
72.8%

Solution:
Given: The radius and the height of the cone are each increased by 20%.
Let the radius and height of the cone be 10 m.
When radius and height is increased by 20%, then new height and radius = $\frac{120}{100} \times 10$ = 12 m
Volume of cone before increment $= \frac{1}{3}\pi r^2 h$
$= \frac{1}{3}\pi \times 10^2 \times 10 = \frac{1000}{3}\pi$
Volume of cone after increment $= \frac{1}{3}\pi r^2 h$
$= \frac{1}{3}\pi \times 12^2 \times 12 = \frac{1728}{3}\pi$
Change in percentage = $\frac{\text{Volume after increment} - \text{Volume before increment}}{\text{Volume before increment}} \times 100$
= $\frac{\frac{1728}{3}\pi - \frac{1000}{3}\pi}{\frac{1000}{3}\pi} \times 100$
= $\frac{\frac{(1728-1000)}{3}\pi}{\frac{1000}{3}\pi} \times 100$
= $\frac{728}{1000} \times 100$
= 72.8%
Hence, the correct answer is 72.8%.

Q. 17 An inverted conical–shaped vessel is filled with water to its brim. The height of the vessel is 8 cm and the radius of the open end is 5 cm. When a few solid spherical metallic balls each of radius $\frac{1}{2}$ cm are dropped in the vessel, 25% water is overflowed. The number of balls is:

Option 1:
100

Option 2:
400

Option 3:
200

Option 4:
150

Correct Answer:
100

Solution:
Given: Height of the vessel = 8 cm
Radius = 5 cm.
Volume of the conical vessel = $\frac{1}{3}\pi r^2 h$
= $\frac{1}{3} \times \pi \times 5^2 \times 8$
= $\frac{200}{3}\pi$ cm^3

The volume of 25% of water = $\frac{1}{4} \times \frac{200}{3}\pi = \frac{50}{3}\pi$ cm^3
The volume of the spherical metallic ball of the radius $R = \frac{4}{3}\pi R^3$
$= \frac{4}{3} \times \pi \times (\frac{1}{2})^3 = \frac{\pi}{6}$ cm^3
The number of balls required = $\frac{\frac{50}{3}\pi}{\frac{\pi}{6}}$ = 100
Hence, the correct answer is 100.

Q. 18 If the radius of a cylinder is increased by 25%, by how much percentage the height must be reduced, so that the volume of the cylinder remains the same.

Option 1:
36

Option 2:
56

Option 3:
64

Option 4:
46

Correct Answer:
36

Solution:
Given: The radius of a cylinder is increased by 25%.
Volume of the cylinder = $\pi r^2 h$
Let h be the initial height, r be the initial radius, H be the final height and the new radius will be $\frac{125}{100}r$ = $\frac{5}{4}r$.
According to the question,
$\pi \times r^2 \times h = \pi \times (\frac{5}{4}r)^2 \times H$
$\Rightarrow h = \frac{25}{16} \times H$
$\Rightarrow \frac{h}{H} = \frac{25}{16}$
The decrease in percentage in the height is $\frac{(h-H)}{h} \times 100$
= $\frac{(25-16)}{25} \times 100$
= 9 × 4 = 36%
Hence, the correct answer is 36.

Q. 19 A solid cone of height 36 cm and radius of base 9 cm is melted to form a solid cylinder of radius 9 cm and height 9 cm. What percentage of the material is wasted in this process?

Option 1:
25

Option 2:
0

Option 3:
5

Option 4:
10

Correct Answer:
25

Solution:
Given: Height of the cone = 36 cm
Radius of base = 9 cm
Radius of cylinder = 9 cm
Height = 9 cm
The volume of cone = $\frac{1}{3}\pi r^2 h$
$= \frac{1}{3} \times \pi \times 9^2 \times 36 = 972\pi$ cm^3
Volume of cylinder = $\pi r^2 h$
$= \pi \times 9^2 \times 9 = 729\pi$ cm^3
The volume of waste = volume of cone – volume of cylinder
$= 972\pi - 729\pi = 243\pi$
The material wasted = $\frac{\text{volume of cone} - \text{volume of cylinder}}{\text{volume of cone}} \times 100$
= $\frac{243\pi}{972\pi} \times 100 = 25\%$
Hence, the correct answer is 25.

Q. 20 A and B can do a job in 12 days, B and C in 15 days, and C and A in 20 days. If A, B, and C work together, they will complete the work in:

Option 1:
5 days

Option 2:
$7\frac{5}{6}$ days

Option 3:
10 days

Option 4:
$15\frac{2}{3}$ days

Correct Answer:
10 days

Q. 21 The _____ were the successors of Timur, the ruler of Iran, Iraq and modern-day Turkey.

Option 1:
Rajputs

Option 2:
Khaljis

Option 3:
Mughals

Option 4:
Tughlaqs

Correct Answer:
Mughals

Solution:
The correct answer is the **Mughals**.

The Mughals' ancestors came from two distinguished royal families. Genghis Khan, who united the Mongol tribes in China and Central Asia to form the Mongol Empire, was a relative on the maternal side. On the paternal side, they were related to Timur, whose empire spanned modern Turkey, Iraq and Iran.

Q. 22 Swarnjayanti Gram Swarozgar Yojana (SGSY) has been restructured as:

Option 1:
Prime Minister Rozgar Yojana

Option 2:
National Rural Livelihood Mission

Option 3:
Jawahar Gram Samridhi Yojana

Option 4:
Sampoorna Grameen Rozgar Yojana

Correct Answer:
National Rural Livelihood Mission

Solution:
The correct answer is the **National Rural Livelihoods Mission**.

The National Rural Livelihood Mission (NRLM) was initiated by the Ministry of Rural Development to empower economically disadvantaged families residing below the poverty line in rural areas by facilitating self-employment opportunities. The program is financially supported by the central government. The guidelines encompass the establishment of haats, address credit-related concerns and provide comprehensive information about the scheme, including its objectives, funding mechanisms, target beneficiaries and more. The scheme has been rebranded as the **National Rural Livelihoods Mission** (NRLM).

Q. 23 Which country became the first to recognise "orphanage trafficking" as a form of modern slavery?

Option 1:
Canada

Option 2:
Spain

Option 3:
Australia

Option 4:
Japan

Correct Answer:
Australia

Solution:
The correct answer is **Australia.**

Australia has recently approved the modern slavery bill in both houses of its Parliament. This paves the way for a significant legal change, making Australia the first country globally to officially acknowledge orphanage trafficking as a form of modern-day slavery.

Q. 24 The Chairman of the National Disaster Management Authority (NDMA) is

Option 1:
National Security Advisor

Option 2:
Prime Minister of India

Option 3:
Chief of DRDO

Option 4:
Home Minister of India

Correct Answer:
Prime Minister of India

Solution:
The correct answer is **Prime Minister of India**.

With the help of a comprehensive, proactive, technology-driven, and sustainable development strategy, it hopes to make India safer and more disaster-resistant. The Disaster Management Act was passed by the Indian government on December 23, 2005. It called for the establishment of the Prime Minister-led National Disaster Management Authority (NDMA), and Chief Minister-led State Disaster Management Authorities (SDMAs).

Q. 25 In India, which of the following taxes is levied by the state government?

Option 1:
Excise duty on liquor

Option 2:
Capital gains tax

Option 3:
Customs tax

Option 4:
Corporation tax

Correct Answer:
Excise duty on liquor

Solution:
The correct answer is **Excise duty on liquor**.

State excise duty is a tax charged by Indian state governments on the production and sale of alcoholic drinks, tobacco products and other designated items. The precise commodities subject to state excise duty differ from one state to the next. The state excise tax is a significant source of revenue for state governments.

Q. 26 The GST (goods and service tax) passed by the government will be levied on which of the following products?

Option 1:
Petroleum and crude oil

Option 2:
Tobacco

Option 3:
Natural gas

Option 4:
Aviation turbine fuel

Correct Answer:
Tobacco

Solution:
The correct answer is **Tobacco**.

The GST rate for all tobacco goods is 28%. The GSTC will suggest a date for the implementation of GST on five petroleum products (crude oil, petrol, diesel, ATF and natural gas). The Goods and Services Tax (GST) is a unified tax system that replaced several indirect taxes collected by the Central and State Governments. The Central and State Governments share the jurisdiction to impose and collect taxes on goods and services under GST.

Q. 27 Which monument is known as the 'Dreams in Stones'?

Option 1:
Charminar

Option 2:
Ajanta Caves

Option 3:
Sanchi Stupa

Option 4:
Panch Mahal

Correct Answer:
Panch Mahal

Solution:
The correct answer is **Panch Mahal**.

One of Fatehpur Sikri's most well-known structures is the Panch Mahal, also known as the Dream in Stone. It was constructed by Akbar. Akbar ordered the construction of the Panch Mahal, also known as the "Five Level Palace".The fact that this building, made of Sikri sandstone, is close to the Zenana quarters lends support to the idea that it was used for recreation and relaxation.

Q. 28 What is Gol Gumbaz?

Option 1:
Mausoleum of Hyder Ali

Option 2:
Mausoleum of Aurangzeb

Option 3:
Mausoleum of Chand Bibi

Option 4:
Mausoleum of Mohammed Adil Shah

Correct Answer:
Mausoleum of Mohammed Adil Shah

Solution:
The correct answer is the **Mausoleum of Mohammed Adil Shah.**

Gol Gumbaz is the most well-known landmark. It is Mohammed Adil Shah's tomb which is the second-largest dome ever constructed. The central chamber of this monument, where each sound is amplified seven times, is particularly captivating. This wonder of architecture was constructed in 1656.

Q. 29 French Revolution broke out in the year?

Option 1:
1917

Option 2:
1911

Option 3:
1789

Option 4:
1790

Correct Answer:
1789

Solution:
The correct answer is **1789.**

The **French Revolution** was a time of profound social and political transformation in France that affected not just that country, but also the entire Europe. The Revolution also brought about the establishment of many modern democratic principles, such as citizenship and division of powers.

Q. 30 The first country to make the constitution is _____.

Option 1:
India

Option 2:
England

Option 3:
USA

Option 4:
Sri Lanka

Correct Answer:
USA

Solution:
The correct option is the **USA.**

A legally sanctified document called the constitution contains the fundamental tenets that guide the government. The United States of America created the first constitution ratified on June **21, 1788**. The text established a standard for republicanism and codified subsequent constitutions.

Q. 31 The Constitution

Option 1:
is silent on the president's re-election to the office.

Option 2:
allows the re-election of a person to the president's post.

Option 3:
restricts a person from remaining president for only two terms.

Option 4:
has been amended to allow a person only one term as president.

Correct Answer:
allows the re-election of a person to the president's post.

Solution:
The correct answer is **allows the re-election of a person to the president's post.**

The Constitution establishes a federal, unitary, parliamentary form of government with particular elements. A person who currently holds or has previously held the office of president is eligible for re-election to that position, subject to the other provisions of this constitution.

Q. 32 Which type of democracy do we follow in India?

Option 1:
Direct

Option 2:
Presidential

Option 3:
Representative

Option 4:
Dictatorship

Correct Answer:
Representative

Solution:
The correct answer is **Representative**.

Democracy can take one of two forms. The first type of democracy is direct democracy, and the second and more popular type is representative democracy. A representative democracy exists in India. India practices indirect democracy. In an indirect democracy, citizens are represented by elected representatives. The term

representative democracy is also used.

Q. 33 The Jammu and Kashmir state legislative Assembly has a tenure of

Option 1:
six years

Option 2:
five years

Option 3:
four years

Option 4:
seven years

Correct Answer:
five years

Solution:
The answer is **five years**.

After the passage of the Jammu and Kashmir Reorganisation Act, 2019, the state of Jammu and Kashmir was bifurcated into the Union Territory of Jammu & Kashmir and Ladakh, and Article 370 of the Indian constitution stands abrogated.

Earlier, the legislative assembly of the state had a tenure of six years but is now reduced to five years. Now, in Jammu & Kashmir, the total number of assembly seats is 90, of which 43 are marked for Jammu and 47 are for Kashmir.

Q. 34 _____ is separated from India by a narrow channel of Sea formed by Palk Strait and the Gulf of Mannar.

Option 1:
Sri Lanka

Option 2:
Myanmar

Option 3:
Bangladesh

Option 4:
Pakistan

Correct Answer:
Sri Lanka

Solution:
The correct answer is **Sri Lanka**.

Sri Lanka and India are separated by a small body of water called the Palk Strait and the Gulf of Mannar. The Gulf of Mannar and the Palk Strait cut off Sri Lanka from India. The Palk Strait separates the Jaffna peninsula in Sri Lanka from the Indian state of Tamil Nadu. It is named after Madras Governor Robert Palk and has a length of 137 km with a minimum depth of 9.1 metres. The southern and western boundaries of the Palk Strait are formed by Pamban Island, Adam's Bridge, and the Gulf of Mannar, respectively.

Q. 35 The land mass of India has an area of _____ million square km.

Option 1:
1.28

Option 2:
2.28

Option 3:
3.28

Option 4:
4.28

Correct Answer:
3.28

Solution:
The correct answer is **3.28**.

India's land area is 3.28 million square kilometres. India is the seventh-largest country on earth in terms of area and the largest one in terms of population. India has a total land boundary of about 15,200 km, of which India shares its land boundary with Bangladesh.

Q. 36 According to the Malthusian theory of population-

Option 1:
Population increases in geometric ratio and food supply increases in arithmetic ratio.

Option 2:
Population increases in arithmetic ratio and food supply increases in geometric ratio.

Option 3:
Population increases in a harmonic mean and food supply increases in a geometric ratio.

Option 4:
Population increases in a harmonic ratio and food supply increases in an arithmetic ratio.

Correct Answer:
Population increases in geometric ratio and food supply increases in arithmetic ratio.

Solution:
The correct option is **Population increases in geometric ratio and food supply increases in an arithmetic ratio**.

The Malthusian theory of population, proposed by Thomas Malthus in the late 18th century, argued that population tends to increase at a geometric rate (exponentially), meaning it doubles, triples or multiplies at a faster pace, while the production of food and resources tends to increase at an arithmetic rate (linearly), meaning it grows at a more constant, slower pace.

Q. 37 Postage Meter was invented by

Option 1:
Fyodor Pirotsky

Option 2:
Arthur Pitney

Option 3:
Fritz Pfleumer

Option 4:
Stephen Perry

Correct Answer:
Arthur Pitney

Solution:
The correct option is **Arthur Pitney**.

The Postage Meter, a significant invention, was pioneered by American entrepreneur and inventor Arthur Pitney. On December 9, 1901, Pitney formally filed a patent application in Stamford, Connecticut, marking the inception of the world's inaugural Postage Meter.

Q. 38 Who amongst the following wrestlers has been the recipient of the Rajiv Gandhi Khel Ratna Award?

Option 1:
Vijender Singh

Option 2:
Sushil Kumar

Option 3:
Anand Kumar Singh

Option 4:
Zorawar Singh Faujdar

Correct Answer:
Sushil Kumar

Solution:
The answer is **Sushil Kumar.**

Sushil Kumar became the first Indian to win two Olympic medals for an independent India. He got the Rajiv Gandhi Khel Ratna Award in 2009. Now, the name of the Rajiv Gandhi Khel Ratna Award has been changed to the Major Dhyan Chand Khel Ratna Award.

Q. 39 The term "Rollin" is used in

Option 1:
Cricket

Option 2:
Tennis

Option 3:
Hockey

Option 4:
Golf

Correct Answer:
Hockey

Solution:

The answer is **Hockey.**

Rollin is a term associated with hockey, and it refers to the return of the ball to play after it has crossed the touchline. Major Dhyan Chand was one of the greatest hockey players, not only in India but in the world. The highest sports award in India is also named after Major Dhyan Chand.

Q. 40 Prince of Wales Cup is associated with _____.

Option 1:
Rugby

Option 2:
Golf

Option 3:
Polo

Option 4:
Chess

Correct Answer:
Golf

Solution:
The answer is **Golf.**

There are other famous cups related to the game, such as the Bombay Gold Cup, the Beighton Cup, the Walker Cup, and the Masters, among others. Trophies related to other games include the Ezra Cup and Prithi Singh Cup in Polo, the Lord Derby Cup in rugby, and the Sinquefield Cup in chess.

Q. 41 **Directions:** In the following question, correct the given equation by interchanging two numbers.
$8 \times 3 \div 4 + 9 - 5 = 16$

Option 1:
3 and 4

Option 2:
4 and 8

Option 3:
5 and 3

Option 4:
5 and 9

Correct Answer:
5 and 3

Solution:
Given:
$8 \times 3 \div 4 + 9 - 5 = 16$

Let's check the options –
First option: 3 and 4
$\Rightarrow 8 \times 4 \div 3 + 9 - 5 = 16$
Solving the L.H.S. of the equation –
$= 8 \times 4 \div 3 + 9 - 5$
$= 8 \times 1.33 + 9 - 5$
$= 10.64 + 9 - 5$
$= 14.64 \neq 16$
Second option: 4 and 8
$\Rightarrow 4 \times 3 \div 8 + 9 - 5 = 16$
Solving the L.H.S. of the equation –
$= 4 \times 3 \div 8 + 9 - 5$
$= 4 \times 0.375 + 9 - 5$
$= 1.5 + 9 - 5$
$= 10.5 - 5$
$= 5.5 \neq 16$
Third option: 5 and 3
$\Rightarrow 8 \times 5 \div 4 + 9 - 3 = 16$
Solving the L.H.S. of the equation –
$= 8 \times 5 \div 4 + 9 - 3$
$= 8 \times 1.25 + 9 - 3$
$= 10 + 9 - 3$
$= 19 - 3$
$= 16$
Fourth option: 5 and 9
$\Rightarrow 8 \times 3 \div 4 + 5 - 9 = 16$
Solving the L.H.S. of the equation –
$= 8 \times 3 \div 4 + 5 - 9$
$= 8 \times 0.75 + 5 - 9$
$= 6 + 5 - 9$
$= 11 - 9$
$= 2 \neq 16$

Only the third option satisfies the given equation. Hence, the **third option** is correct.

Q. 42 **Directions:** In the following question, correct the equation by interchanging the two signs.
6 ÷ 17 × 51 + 6 – 12 = –4

Option 1:
× and ÷

Option 2:
+ and ÷

Option 3:
+ and –

Option 4:
– and ÷

Correct Answer:
× and ÷

Solution:
Given:
6 ÷ 17 × 51 + 6 – 12 = –4

Let's check the options –
First option: × and ÷
⇒ 6 × 17 ÷ 51 + 6 – 12 = –4
Solving the L.H.S. of the equation –
= 6 × 17 ÷ 51 + 6 – 12
= 2 + 6 – 12
= 8 – 12
= –4
Second option: + and ÷
⇒ 6 + 17 × 51 ÷ 6 – 12 = –4
Solving the L.H.S. of the equation –
= 6 + 17 × 51 ÷ 6 – 12
= 6 + 17 × 8.5 – 12
= 6 + 144.5 – 12
= 150.5 – 12
= 138.5 ≠ –4
Third option: + and –
⇒ 6 ÷ 17 × 51 – 6 + 12 = –4
Solving the L.H.S. of the equation –
= 6 ÷ 17 × 51 – 6 + 12
= 18 – 6 + 12
= 30 – 6

= 24 ≠ –4

Fourth option: – and ÷

⇒ 6 – 17 × 51 + 6 ÷ 12 = –4

Solving the L.H.S. of the equation –

= 6 – 17 × 51 + 6 ÷ 12

= 6 – 17 × 51 + 0.5

= 6 – 867 + 0.5

= 6.5 – 867

= –860.5 ≠ –4

Only the first option satisfies the equation. Hence, the **first option** is correct.

Q. 43 **Direction:** In the following questions, correct the equation by interchanging the two signs.

6 ÷ 17 × 51 + 6 – 12 = –4

Option 1:
× and ÷

Option 2:
+ and ÷

Option 3:
+ and –

Option 4:
– and ÷

Correct Answer:
× and ÷

Solution:
Given:

6 ÷ 17 × 51 + 6 – 12 = –4

Let's check the options —

First option: × and ÷;

After interchanging the signs, the equation becomes 6 × 17 ÷ 51 + 6 – 12 = –4. So, this option is correct.

Second option: + and ÷;

After interchanging the signs, the equation becomes 6 + 17 × 51 ÷ 6 – 12 = 138.5. This is not equal to –4. So, this option is not correct.

Third option: + and –;

After interchanging the signs, the equation becomes 6 ÷ 17 × 51 – 6 + 12 = 24. This is not equal to –4. So, this option is not correct.

Fourth option: – and ÷;

After interchanging the signs, the equation becomes 6 – 17 × 51 + 6 ÷ 12 = –860.5. This is not equal to –4. So, this option is not correct.

Hence, the **first option** is correct.

Q. 44 **Directions:** In the following question, select the related word from the given alternatives.
College : Student :: Hospital : ?

Option 1:
Doctor

Option 2:
Treatment

Option 3:
Nurse

Option 4:
Patient

Correct Answer:
Patient

Solution:
Given:
College : Student :: Hospital : ?

Education is provided to students by the college.
Similarly, treatment is provided to patients by hospitals.

Hence, the **fourth option** is correct.

Q. 45 **Directions:** In the following question, select the related word from the given alternatives.
Donkey : Brays :: Monkey : ?

Option 1:
Trumpets

Option 2:
Bellows

Option 3:
Chatters

Option 4:
Grunts

Correct Answer:
Chatters

Solution:
Given:
Donkey : Brays :: Monkey : ?

The sound that a donkey makes is called bray.
Similarly, the sound that a monkey makes is called chatter.

Hence, the **third option** is correct.

Q. 46 **Directions:** In the following question, select the related word from the given alternatives.
Head : Human Body :: ? : ?

Option 1:
Arc : Circle

Option 2:
Cube : Circle

Option 3:
Square : Circle

Option 4:
Triangle : Circle

Correct Answer:
Arc : Circle

Solution:
Given:
Head : Human Body :: ? : ?

Head is a part of the human body.
Similarly, an arc is a part of a circle.

Hence, the **first option** is correct.

Q. 47 **Directions:** In the following question, find the odd letter cluster from the given alternatives.

Option 1:
AG

Option 2:
WA

Option 3:
ET

Option 4:
IQ

Correct Answer:
ET

Solution:
Let's check the options –
First option: AG; A (1) + G (7) = 7 + 1 = 8 (This is an even number.)
Second option: WA; W (23) + A (1) = 23 + 1 = 24 (This is an even number.)
Third option: ET; E (5) + T (20) = 20 + 5 = 25 (This is an odd number.)
Fourth option: IQ; I (9) + Q (17) = 9 + 17 = 26 (This is an even number.)

So, the third option is different from the other options as the resultant is an odd number. Hence, the **third option** is correct.

Q. 48 **Directions:** In the following question, find the odd letter cluster from the given alternatives.

Option 1:
CTES

Option 2:
VDZC

Option 3:
MKOJ

Option 4:
RGTF

Correct Answer:
VDZC

Solution:
Let's check the options –
First option: CTES; C + 2 = E; T – 1 = S
Second option: VDZC; V + 4 = Z; D – 1 = C
Third option: MKOJ; M + 2 = O; K – 1 = J
Fourth option: RGTF; R + 2 = T; G – 1 = F

So, only in the second option, the difference between the place value of the first and third letters is 4 instead of 2. Hence, the **second option** is correct.

Q. 49 **Directions:** In the following question, find the odd letter cluster from the given alternatives.

Option 1:
AEIM

Option 2:
BFJN

Option 3:
CGKO

Option 4:
FDKN

Correct Answer:
FDKN

Solution:
Let's check the options –
First option: AEIM; A + 4 = E; E + 4 = I; I + 4 = M
Second option: BFJN; B + 4 = F; F + 4 = J; J + 4 = N
Third option: CGKO; C + 4 = G; G + 4 = K; K + 4 = O
Fourth option: FDKN; F – 2 = D; D + 7 = K; K + 3 = N

So, only in the fourth option, the difference between the place values of the letters is 2, 7, and 3 instead of 4. Hence, the **fourth option** is correct.

Q. 50 **Directions:** Shama, during the time of sunset, started walking towards the opposite side of the sun and then she turned right and right again. What direction is she facing?

Option 1:
South

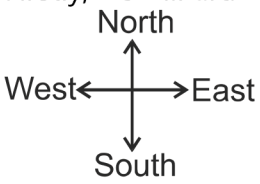
Option 2:
West

Option 3:
East

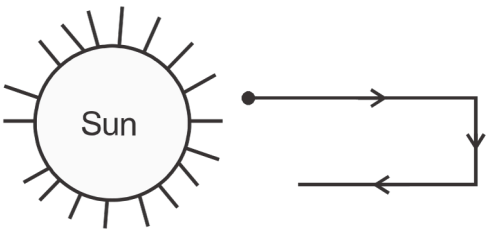
Option 4:
North

Correct Answer:
West

Solution:
Firstly, we will draw the direction and distance diagram according to the instructions given in the question –



Shama started walking towards the opposite direction of the sun during sunset, i.e., she was walking in the East direction (because during sunset, the sun is in the west direction).



So, Shama is facing the west direction. Hence, the **second option** is correct.

Q. 51 **Directions:** P started walking from north to south. She turned right at a right angle and then again right at a right angle. In which direction was she ultimately walking?

Option 1:
North

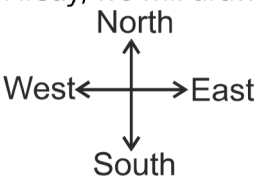
Option 2:
East

Option 3:
South

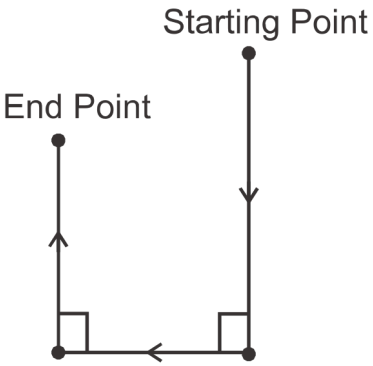
Option 4:
West

Correct Answer:
North

Solution:
Firstly, we will draw the direction and distance diagram according to the instructions –



Now, we have to find the direction in which P is moving.



So, P was facing toward the north direction. Hence, the **first option** is correct.

Q. 52 **Directions:** There are five girls R, S, T, P, and Q sitting in a row facing north. T is sitting exactly in the middle of the row. Q is sitting to the immediate right and immediate left of P and T, respectively. S is not sitting at the extreme end. Who is sitting third to the left of R?

Option 1:
P

Option 2:
Q

Option 3:
S

Option 4:
T

Correct Answer:
Q

Solution:
Given:

(i) T is sitting exactly in the middle of the row.

(ii) Q is sitting to the immediate right and immediate left of P and T, respectively. S is not sitting at the extreme end.

From the final seating arrangement, Q is sitting third to the left of R. Hence, the **second option** is correct.

Q. 53 **Directions:** The weight of the four boxes is 20, 40, 80, and 90 kilograms. Which of the following cannot be the total weight, in kilograms, of any combination of these boxes, and in a combination, a box can be used only once?

Option 1:
220

Option 2:
230

Option 3:
150

Option 4:
210

Correct Answer:
220

Solution:

Given:
The weight of the four boxes is 20, 40, 80, and 90 kilograms.

The total weight of all possible combinations of boxes is as follows –
20 + 40 = 60; 20 + 80 = 100; 20 + 90 = 110; 40 + 80 = 120;
40 + 90 = 130; 80 + 90 = 170; 20 + 40 + 80 = 140;
20 + 40 + 90 = 150; 20 + 80 + 90 = 190; 40 + 80 + 90 = 210;
20 + 40 + 80 + 90 = 230

Therefore, there is no total weight of 220 kilograms in any combination. Hence, the **first option** is correct.

Q. 54 **Directions:** The average temperature of the town in the first six days of a month was 41° C and the sum of the temperatures of the first five days of the same month was 201° C. What was the temperature on the sixth day of the month?

Option 1:
40° C

Option 2:
45° C

Option 3:
46° C

Option 4:
50° C

Correct Answer:
45° C

Solution:
Average temperature of the first six days of the month = 41° C
The sum of the temperatures of 6 days = Average temperature × Number of days = 41 × 6 = 246° C
But, the sum of the temperatures of the first five days = 201° C
So, 201 + (temperature of the sixth day) = 246° C
The temperature of the sixth day = 246 – 201 = 45° C

Hence, the **second option** is correct.

Q. 55 **Directions:** In the following question, find the wrong number in the series.
28, 33, 31, 36, 34, 29

Option 1:
29

Option 2:
36

Option 3:
30

Option 4:
34

Correct Answer:
29

Solution:
Given:
28, 33, 31, 36, 34, 29

Add 5 and subtract 3 alternatively from each number to get the next number of the series.
28 + 5 = 33; 33 – 2 = 31; 31 + 5 = 36; 36 – 2 = 34; 34 + 5 = 39
All the terms differ by 5 and 3 alternately, except for 29.

So, 29 is the wrong number in the given series. Hence, the **first option** is correct.

Q. 56 **Directions:** In the following question, which one is the wrong number in the given series?
7, 56, 447, 3584, 28672

Option 1:
3584

Option 2:
56

Option 3:
7

Option 4:
447

Correct Answer:
447

Solution:

Given:
7, 56, 447, 3584, 28672

In the above-given series, multiply the previous number by 8 to get the next number.
7 × 8 = 56; 56 × 8 = 448 ≠ 447; 448 × 8 = 3584; 3584 × 8 = 28672

So, 447 is the wrong number as it doesn't follow the pattern. Hence, the **fourth option** is correct.

Q. 57 **Directions:** Which one set of letters when sequentially placed at the gaps in the given letter series shall complete it.

Z X _ T R _ N L J _ F D_

Option 1:
V P H B

Option 2:
V R H B

Option 3:
U P J B

Option 4:
U P J D

Correct Answer:
V P H B

Q. 58 **Directions**: Which one set of letters, when sequentially placed at the gaps in the given letter series, shall complete it?

BE_K_QBB_EHH_KNNQQ

Option 1:
DLEK

Option 2:
HNEK

Option 3:
DLCJ

Option 4:
HNCJ

Correct Answer:
HNEK

Q. 59 **Directions:** A and B are a married couple. X and Y are brothers. X is the brother of A. How is Y related to B?

Option 1:
Brother-in-law

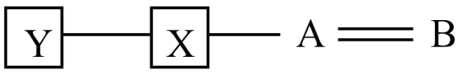
Option 2:
Brother

Option 3:
Son-in-law

Option 4:
Cousin

Correct Answer:
Brother-in-law

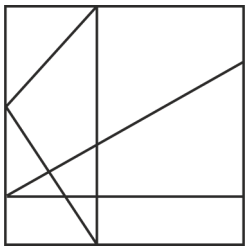
Solution:
As per the given information, the family tree will be as follows –



Here, the quadrilateral represents the male, and the circular figure represents the female in the figure.

So, from the above family tree, Y is the brother-in-law of B. Hence, the **first option** is correct.

Q. 60 **Directions:** How many triangles are there in the given figure?



Option 1:
11

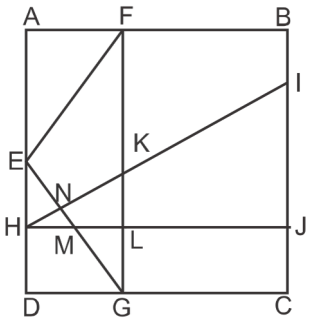
Option 2:
9

Option 3:
10

Option 4:
12

Correct Answer:
10

Solution:
The given figure can be labeled as shown below –



There are a total of 10 triangles in the above figure. They are AFE, EDG, EFG, EHN, HNM, EHM, HIJ, GML, GNK, HKL.

Hence, the **third option** is correct.

MOCK TEST 3

Q. 1 The least number to be added to 13851 to get a number that is divisible by 87 is:

Option 1:
18

Option 2:
43

Option 3:
54

Option 4:
69

Correct Answer:
69

Solution:
If 13851 is divided by 87,
Quotient = 159
Remainder = 18
So, the required number is Divisor – Remainder = (87 – 18) = 69
Hence, the correct answer is 69.

Q. 2 What is the least value that must be assigned to * so that the number 451*603 is exactly divisible by 9?

Option 1:
7

Option 2:
8

Option 3:
5

Option 4:
9

Correct Answer:
8

Solution:
If the sum of the digits of the number is divisible by 9, then the number is divisible by 9.
Given: The number 451*603 is divisible by 9.
Let the unknown value be x.
Therefore, Sum of the digits = $\frac{(4+5+1+x+6+0+3)}{9} = \frac{(19+x)}{9}$
If $x = 8$, Then,
$\Rightarrow \frac{(19+8)}{9} = \frac{(27)}{9}$
Here, 27 is divisible by 9.
Hence, the correct answer is 8.

Q. 3 A man has some hens and some cows. If the total number of heads of both is 50 and the number of feet of both is 142, then the number of cows is:

Option 1:
21

Option 2:
25

Option 3:
27

Option 4:
29

Correct Answer:
21

Solution:
Let's assume:
h = number of hens
c = number of cows
From the problem, we can make two equations:
1) Each hen and each cow has one head:
h + c = 50 ––(i)
2) Each hen has 2 feet and each cow has 4 feet:
2h + 4c = 142 ––(ii)
From equation (i), we can express h in terms of c:
h = 50 – c ––(iii)
Now, substituting the value of h from equation (iii) into equation (ii), we get:
2(50 – c) + 4c = 142
⇒ 2c = 142 – 100

$\Rightarrow c = \frac{42}{2}$
$\Rightarrow c = 21$
Hence, the number of cows is 21.

Option 1 is correct.

Q. 4 If 7 times the 7th term of an arithmetic progression (A.P.) is equal to 11 times its 11th term, then the 18th term of the A.P. will be:

Option 1:
1

Option 2:
0

Option 3:
2

Option 4:
–1

Correct Answer:
0

Solution:
Given: 7 times the 7th term of AP = 11 times its 11th term
Formula for nth term $\Rightarrow a + (n-1)d$
where a = 1st term, d = common difference and n = number of terms
$\Rightarrow 7 \times a_7 = 11 \times a_{11}$
$\Rightarrow 7[a + (7-1)d] = 11[a + (11-1)d]$
$\Rightarrow 7a + 42d = 11a + 110d$
$\Rightarrow 11a - 7a + 110d - 42d = 0$
$\Rightarrow 4a + 68d = 0$
$\Rightarrow 4(a + 17d) = 0$
$\Rightarrow a + 17d = 0$ ----------(1)
Similarly, $a_{18} = [a + (18-1)d] = a + 17d$
By using equation (1) we get,
$\Rightarrow a_{18} = 0$
So, the 18th term is 0.
Hence, the correct answer is 0.

Q. 5 Among three numbers, the second is twice the first and also thrice the third. If the average of the three numbers is 33, then the largest number is:

Option 1:
36

Option 2:
54

Option 3:
62

Option 4:
72

Correct Answer:
54

Solution:
Let the first number be x, the second number be $2x$ and the third number be $\frac{2x}{3}$.
The average of the three numbers is 33.
According to the question,
$x + 2x + \frac{2x}{3} = 3 \times 33$
$\Rightarrow 11x = 99 \times 3$
$\therefore x = 27$
Largest number = $2 \times 27 = 54$
Hence, the correct answer is 54.

Q. 6 If the selling price of 40 articles is equal to the cost price of 50 articles, the loss or gain percent is:

Option 1:
25% gain

Option 2:
20% gain

Option 3:
25% loss

Option 4:
20% loss

Correct Answer:
25% gain

Solution:

Let the cost price of each article be Re. 1.
Selling price (SP) of 40 articles = cost price (CP) of 50 articles = Rs. 50
CP of 40 articles = Rs. 40
Profit on 40 articles = SP of 40 articles – CP of 40 articles = 50 – 40 = 10
Profit % = $\frac{\text{Profit}}{\text{Cost price}} \times 100 = \frac{10}{40} \times 100 = 25\%$
Hence, the correct answer is 25% gain.

Q. 7 Three bottles of equal capacity contain mixtures of milk and water in ratios 2 : 5, 3 : 4, and 4 : 5. These three bottles are emptied into a large bottle. What will be the ratio of milk and water respectively in the large bottle?

Option 1:
73 : 106

Option 2:
73 : 116

Option 3:
73 : 113

Option 4:
73 : 189

Correct Answer:
73 : 116

Solution:
Let the capacity of each bottle be x units.
Bottle 1 has milk : water = 2 : 5
Bottle 2 has milk : water = 3 : 4
Bottle 3 has milk : water = 4 : 5
Bottle 1 contains milk = $\frac{2x}{7}$, water = $\frac{5x}{7}$
Bottle 2 contains milk = $\frac{3x}{7}$, water = $\frac{4x}{7}$
Bottle 3 contains milk = $\frac{4x}{9}$, water = $\frac{5x}{9}$
When mixed, the ratio of milk and water is:
$= (\frac{2x}{7} + \frac{3x}{7} + \frac{4x}{9}) : (\frac{5x}{7} + \frac{4x}{7} + \frac{5x}{9})$
$= (\frac{18x+27x+28x}{63}) : (\frac{45x+36x+35x}{63})$
$= 73 : 116$
Hence, the correct answer is 73 : 116.

Q. 8 The average mark obtained in a class of 50 students is 70%. The average of the first 25 is 60% and that of 24 is 80%. What were the marks obtained by the last student?

Option 1:
90%

Option 2:
60%

Option 3:
80%

Option 4:
70%

Correct Answer:
80%

Solution:
Average marks of 50 students = 70%
Total percentage of marks of 50 students = 50 × 70% = 3500%
Average of first 25 students = 60%
Total percentage of marks of 25 students = 25 × 60% = 1500%
Average marks of the next 24 students = 80%
Total percentage of marks of 24 students = 24 × 80% = 1920%
∴ Percentage of marks obtained by the last student = 3500% – (1500 + 1920)% = 80%
Hence, the correct answer is 80%.

Q. 9 A boat goes a certain distance at 30 km/hr and comes back the same distance at 60 km/hr. What is the average speed (in km/hr) for the total journey?

Option 1:
45 km/hr

Option 2:
50 km/hr

Option 3:
40 km/hr

Option 4:
35 km/hr

Correct Answer:
40 km/hr

Solution:

Given: The speed of the boat is 30 km/hr and 60 km/hr for the same distance.
So, average speed = $\frac{2xy}{x+y}$, where x and y are two given speeds of the boat (for the same distance).
Putting the values x = 30 and y = 60, we get,
$\therefore$ Average speed = $\frac{2\times30\times60}{30+60}$ = $\frac{3600}{90}$ = 40 km/hr
Hence, the correct answer is 40 km/hr.

Q. 10 What is the equation of the line perpendicular to the line $2x + 3y = -6$ and having y-intercept 3?

Option 1:
$3x - 2y = 6$

Option 2:
$3x - 2y = -6$

Option 3:
$2x - 3y = -6$

Option 4:
$2x - 3y = 6$

Correct Answer:
$3x - 2y = -6$

Solution:
The equation of the given line is $2x + 3y = -6$
The y-intercept is 3.
According to the question,
A line with slope m is represented as $y = mx + c$
Given line, $2x + 3y = -6$
$\Rightarrow y = -\frac{2}{3}x - 2$
Slope of the line $= -\frac{2}{3}$
The product of the slope of two perpendicular lines is -1.
So, the slope of the required line is $= (-\frac{1}{-\frac{2}{3}}) = \frac{3}{2}$
The equation of the line is
$y = \frac{3}{2}x + c$
Given y-intercept $(c) = 3$,
Now, $y = \frac{3}{2}x + 3$
$\Rightarrow 2y = 3x + 6$
Therefore, the equation of the required line is $3x - 2y = -6$
Hence, the correct answer is $3x - 2y = -6$.

Q. 11 The sum of money that will yield Rs. 60 as simple interest at a rate of 6% per annum in 5 years is:

Option 1:
Rs. 200

Option 2:
Rs. 225

Option 3:
Rs. 175

Option 4:
Rs. 300

Correct Answer:
Rs. 200

Solution:
Given:
Simple interest = Rs. 60
Rate = 6%
Time = 5 years
Simple interest = $\frac{\text{Principal}\times\text{Rate}\times\text{Time}}{100}$
$\Rightarrow 60 = \frac{\text{Principal}\times 6\times 5}{100}$
⇒ Principal = Rs. 200
Hence, the correct answer is Rs. 200.

Q. 12 The diameter of a wheel on a bicycle is 21 cm. The cyclist takes 45 minutes to reach a destination at a speed of 16.5 km/hr. How many revolutions will the wheel make during the journey?

Option 1:
12325

Option 2:
18750

Option 3:
21000

Option 4:
24350

Correct Answer:
18750

Solution:
Here, 16.5 km/hr = $\frac{16500}{60}$ m/min = 275 m/min
So, the total distance of the journey is = (275 × 45) = 12375 metres = 1237500 cm
Here, the diameter of a wheel on a bicycle is 21 cm.
⇒ the radius is = $\frac{21}{2}$ cm
⇒ the circumference of the wheel = $\left(2\times\frac{22}{7}\times\frac{21}{2}\right)$ cm = 66 cm
∴ During the journey, the wheel will make ($\frac{1237500}{66}$) = 18750 revolutions
Hence, the correct answer is 18750.

Q. 13 A and B can do a job in 12 days, B and C in 15 days, and C and A in 20 days. If A, B, and C work together, they will complete the work in:

Option 1:
5 days

Option 2:
$7\frac{5}{6}$ days

Option 3:
10 days

Option 4:
$15\frac{2}{3}$ days

Correct Answer:
10 days

Q. 14 **Directions:** Study the table and answer the question. The number of five types of cycles manufactured by a company over the years is given below:

Years	Types of cycles (in 1000)				
	A	B	C	D	E
1997	200	150	78	90	65
1998	150	180	100	105	70
1999	180	175	92	110	85
2000	195	160	120	125	75
2001	220	185	130	135	80

What was the approximate percentage increase in production of the D type of the cycle from 1998 to 2000?

Option 1:
10

Option 2:
19

Option 3:
15

Option 4:
17

Correct Answer:
19

Solution:
Production of the D type of the cycle in 1998 = 105
Production of the D type of the cycle in 2000 = 125
Increase in production of the D type of the cycle from 1998 to 2000 = 125 – 105 = 20
Percentage increase = $\frac{20\times100}{105}$ = 19.05%
The approximate percentage increase in production of the D type of the cycle from 1998 to 2000 is 19%.
Hence, the correct answer is 19.

Q. 15 **Directions:** Study the table and answer the question. The number of five types of cycles manufactured by a company over the years is given below:

Years	Types of cycles (in 1000)				
	A	B	C	D	E
1997	200	150	78	90	65
1998	150	180	100	105	70
1999	180	175	92	110	85
2000	195	160	120	125	75
2001	220	185	130	135	80

In which type of cycle was the total production of the given 5 years the maximum?

Option 1:
A

Option 2:
B

Option 3:
C

Option 4:
D

Correct Answer:
A

Solution:
Total production of A = 200 + 150 + 180 + 195 + 220 = 945
Total production of B = 150 + 180 + 175 + 160 + 185 = 850
Total production of C = 78 + 100 + 92 + 120 + 130 = 520
Total production of D = 90 + 105 + 110 + 125 + 135 = 565
Total production of E = 65 + 70 + 85 + 75 + 80 = 375
The total production of the given 5 years is maximum in A type of cycle.
Hence, the correct answer is A.

Q. 16 The longest rod that can be placed in a room is 12 metres long, 9 metres broad, and 8 metres high is:

Option 1:
27 m

Option 2:
19 m

Option 3:
17 m

Option 4:
13 m

Correct Answer:
17 m

Solution:
Length of room, l = 12 m
Breadth, b = 9 m
Height, h = 8 m
The longest rod to be kept in the room
= diagonal of the cuboid
= $\sqrt{l^2+b^2+h^2}$
= $\sqrt{12^2+9^2+8^2}$
= $\sqrt{144+81+64}$
= $\sqrt{289}$
= 17 m
Hence, the correct answer is 17 m.

Q. 17 The radius of the base of a hollow cone is 8 cm, and its height is 15 cm. A sphere of the largest radius is put inside the cone. What is the ratio of the radius of the base of a cone to the radius of a sphere?

Option 1:
5 : 3

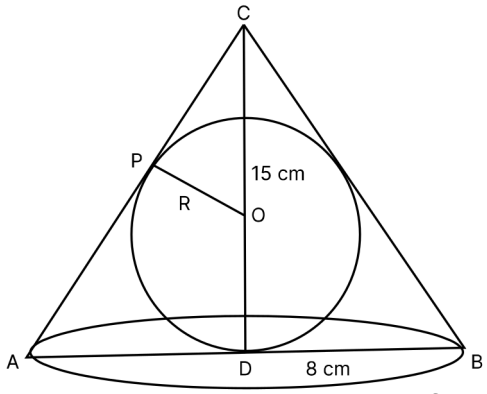
Option 2:
4 : 1

Option 3:
2 : 1

Option 4:
7 : 3

Correct Answer:
5 : 3

Solution:
Given: The radius of the base of a hollow cone = 8 cm
Height = 15 cm
Now consider the problem in two dimensions.
Area of the triangle = $\frac{1}{2} \times$ base $\times$ height.
The inradius of the circle = $\frac{A}{s}$, where A is the area of the triangle and s is the semi–perimeter of the triangle.



Using Pythagoras theorem, $(CB)^2 = (BD)^2 + (CD)^2$
$\Rightarrow (CB)^2 = (8)^2 + (15)^2$
$\Rightarrow (CB)^2 = 64 + 225$
$\Rightarrow (CB)^2 = 289$
$\Rightarrow (CB) = 17$ cm
Now, inradius = $\frac{A}{s}$
$A = \frac{1}{2} \times 15 \times 16$
$= 120$ cm^2
$\Rightarrow s = \frac{17+16+17}{2}$
$\Rightarrow s = 25$ cm
Inradius = $\frac{120}{25} = \frac{24}{5}$
The ratio of the radius of the base of a cone to the radius of a sphere is $8 : \frac{24}{5} = 5 : 3$
Hence, the correct answer is 5 : 3.

Q. 18 A thousand solid metallic spheres of 6 cm diameter each are melted and recast into a new solid sphere. The diameter of the new sphere (in cm) is:

Option 1:
30

Option 2:
90

Option 3:
45

Option 4:
60

Correct Answer:
60

Solution:
Given: Diameter = 6 cm
Radius = 3 cm
The volume of the sphere = $\frac{4}{3}\pi R^3$ (R is the radius of a new sphere formed)
According to the question,
$1000 \times \frac{4}{3} \times \pi \times (\frac{6}{2})^3 = \frac{4}{3} \times \pi \times R^3$
$\Rightarrow 1000 \times 3^3 = R^3$
$\Rightarrow R = 30$ cm
So, the diameter of the new sphere is 2 × 30 = 60 cm.
Hence, the correct answer is 60.

Q. 19 In an examination, 65% of students pass in History and 55% pass in Hindi. If 5% of students fail in both subjects, what is the percentage of students who have passed in both subjects?

Option 1:
15

Option 2:
20

Option 3:
25

Option 4:
30

Correct Answer:
25

Solution:
Passed in History = 65%
Failed in History = (100 – 65) = 35%
Passed in Hindi = 55%

Failed in Hindi = (100 – 55) = 45%
Failed in Both = 5%
The percentage of students who failed in a minimum of one subject = (35 + 45) – 5 = 75%
Therefore, the percentage of those students who have passed both subjects = (100 – 75) = 25%
Hence, the correct answer is 25%.

Q. 20 A train is running at a speed of 116 km/hr. The distance covered by the train (in metres) in 18 seconds is:

Option 1:
900 metres

Option 2:
1160 metres

Option 3:
508 metres

Option 4:
580 metres

Correct Answer:
580 metres

Solution:
Given: The speed of the train is 116 km/hr.
For converting it into m/sec, multiply with $\frac{5}{18}$.
So, 116 km/hr = 116 × $\frac{5}{18}$ m/s = $\frac{580}{18}$ m/s
∴ The distance covered in 18 seconds = Speed × Time = $\frac{580}{18} \times 18 = 580$ metres
Hence, the correct answer is 580 metres.

Q. 21 Gol Gumbaz was built in which century?

Option 1:
15th

Option 2:
16th

Option 3:
17th

Option 4:
18th

Correct Answer:
17th

Solution:
The correct answer is the **17th century.**

The Gol Gumbaz, a significant historical structure in Bijapur, was built in the 17th century by Mohammed Adil Shah, the seventh sultan of the Shahi dynasty. It is built using Indo-Islamic design. The round dome is the second-largest dome in the world. This structure is occasionally referred to as the Taj Mahal of South India.

Q. 22 Which of the following Sultans of the Tughlaq Dynasty issued copper coins instead of silver ones?

Option 1:
Ghiyasuddin Tughlaq

Option 2:
Muhammad bin Tughluq

Option 3:
Firuz Shah Tughlaq

Option 4:
Abu Bakr Shah

Correct Answer:
Muhammad bin Tughluq

Solution:
The correct answer is **Muhammad bin Tughluq**.

The Tughlaq Sultan who issued copper coins instead of silver ones was Muhammad bin Tughluq. During his reign, he introduced copper coins known as "tankas" to replace the silver coins. This decision, among other factors, contributed to economic challenges and is often cited as one of the reasons for the financial difficulties faced by his administration.

Q. 23 In which of the following states Vidhan Sabha elections was not held in 2022?

Option 1:
Haryana

Option 2:
Goa

Option 3:
Punjab

Option 4:
Uttar Pradesh

Correct Answer:
Haryana

Solution:
The correct answer is **Haryana**

The states that held elections for state assemblies in 2022 are Goa, Punjab, Uttarakhand, Uttar Pradesh, Manipur, Himachal Pradesh, and Gujarat. The elections in Haryana will take place in 2024.

Q. 24 Which of the following taxes is levied by the state government only?

Option 1:
Wealth tax

Option 2:
Entertainment tax

Option 3:
Income tax

Option 4:
Gift tax

Correct Answer:
Entertainment tax

Solution:
The correct option is **Entertainment tax**.

The State List of the Seventh Schedule of the Indian Constitution grants states the authority to levy and collect taxes on entertainment. This indicates that the state governments have the power to impose and regulate taxes on entertainment activities like movies, theatres, visiting an amusement park, etc.

Q. 25 The garden inside the Taj Mahal is known as ____.

Option 1:
Mughal Garden

Option 2:
Taj Bageecha

Option 3:
Taj Mahal Garden

Option 4:
Mahal Bageecha

Correct Answer:
Mughal Garden

Solution:
The correct answer is the **Mughal Garden.**

The Mughal Garden is located inside the Taj Mahal. It's a Persian-style garden with paths or water channels dividing it into four equal sections. The Charbagh, a formal garden featuring terraced flowerbeds, water channels, and pathways, is a key component of the Taj Mahal's overall architectural design.

Q. 26 Wall Street collapse led to _____.

Option 1:
World War II

Option 2:
Recession

Option 3:
U.S. Attack on Iraq

Option 4:
Great Depression

Correct Answer:
Great Depression

Solution:
The correct answer is the **Great Depression.**

The Great Depression began in 1929 after the Wall Street crashed and the 20th century's worst economic downturn occurred. It began in the US in 1929 and quickly spread to other countries. A protracted period of extreme poverty, despair and significant unemployment characterised the Great Depression. The Wall Street

is eight blocks long and lies in the financial district of Lower Manhattan. It's situated in New York City.

Q. 27 Which of the following countries do not have a written constitution?

Option 1:
United Kingdom

Option 2:
Australia

Option 3:
United States of America

Option 4:
Bangladesh

Correct Answer:
United Kingdom

Solution:
The correct answer is the **United Kingdom.**

A written constitution is a carefully planned document that outlines all the fundamental laws, institutions and rules. An **'unwritten' constitution** is what the **UK** is said to have. The various texts that comprise the laws of the land are not all codified in writing. Many countries, including **Saudi Arabia, the United Kingdom, China, Israel, Canada, and New Zealand**, have unwritten constitutions.

Q. 28 Who appoints the members of the State Public Service Commission (PSC)?

Option 1:
The Chief Minister

Option 2:
The Governor

Option 3:
The Chief Justice

Option 4:
The Vice President

Correct Answer:
The Governor

Solution:
The correct answer is **The Governor.**

The Governor of the State appoints the Chairman and members of the State Public Service Commission. The Chairman and members of the Joint Public Service Commission are chosen by the Indian President.

Q. 29 The Comptroller and Auditor General is closely connected with which of the following Committees of Parliament?

Option 1:
The Estimates Committee

Option 2:
The Committee on Public Undertakings

Option 3:
The Public Accounts Committee

Option 4:
All of these

Correct Answer:
The Public Accounts Committee

Solution:
The answer is **The Public Accounts Committee**.

Article 148 of the Indian Constitution establishes the office of the Comptroller and Auditor General of India. This institution is tasked with auditing both the Government of India and entities that receive government funding. It holds the highest authority in auditing matters within India. The CAG presents an annual report to the President of India, which is then deliberated upon by the Public Accounts Committee (PAC).

Q. 30 The Comptroller and Auditor General of India submits his report relating to the accounts of the union to the:

Option 1:
Finance minister

Option 2:
Prime minister

Option 3:
President

Option 4:
Chief Justice of the Supreme Court

Correct Answer:
President

Solution:
The correct answer is **The President**.

The Comptroller and Auditor General (CAG) of India annually submits its report to the President of India. Established under Article 148 of the Indian Constitution, it is the topmost audit institution in India. CAG audits the accounts of the Government of India and other institutions that receive government funding. The Public Accounts Committee (PAC) is responsible for discussing the CAG report in the parliament.

Q. 31 The northern part of the West Coast is known as

Option 1:
Coromandel coast

Option 2:
Malabar coast

Option 3:
Konkan coast

Option 4:
Northern circars

Correct Answer:
Konkan coast

Solution:
The correct option is **Konkan Coast**.

The Konkan Coast refers to the northernmost region of India's west coast. The Konkan Coast spans sections of the Indian states of Maharashtra, Goa, and Karnataka along the country's western coastline. The Coromandel Coast, Malabar Coast, and Northern Circars are regions located along the southeastern and eastern coasts of India.

Q. 32 The largest irrigation canal in India is called the

Option 1:
Yamuna Canal

Option 2:
Sirhind Canal

Option 3:
Indira Gandhi Canal

Option 4:
Upper Bari Doab Canal

Correct Answer:
Indira Gandhi Canal

Solution:
The correct answer is the **Indira Gandhi Canal.**

The Indira Gandhi Canal is the longest canal system in India. It starts at Harike Barrage and flows parallel to the India-Pakistan border. The primary aim of the project was to provide irrigation facilities in Rajasthan. Harike Barrage is formed at the confluence of the rivers Sutlej and Beas in the state of Punjab, and the Indira Gandhi Canal passes through the states of Punjab, Rajasthan and Haryana.

Q. 33 Which of the following is the name of the US Parliament?

Option 1:
Diet

Option 2:
Senate

Option 3:
Congress

Option 4:
House of Commons

Correct Answer:
Congress

Solution:
The correct answer is **Congress**

Congress, the United States' parliament, was established in 1789. The House of Representatives and the Senate make the two Houses of this bicameral legislature. There are 435 members of the House of Representatives and 100 senators among the 535 total members of Congress.

Q. 34 The suicidal bags of the cell are

Option 1:
Lysosomes

Option 2:
Ribosomes

Option 3:
Dictyosomes

Option 4:
Phagosomes

Correct Answer:
Lysosomes

Solution:
The correct option is **Lysosomes**.

The Lysosomes is the organelle known as the suicidal bag in cells. Lysosomes are membrane-bound organelles within cells that contain enzymes that degrade cellular waste items such as worn-out organelles, cellular debris and foreign substances. They are critical components of cellular maintenance, recycling and defence systems.

Q. 35 Postage Meter was invented by

Option 1:
Fyodor Pirotsky

Option 2:
Arthur Pitney

Option 3:
Fritz Pfleumer

Option 4:
Stephen Perry

Correct Answer:
Arthur Pitney

Solution:

The correct option is **Arthur Pitney**.

The Postage Meter, a significant invention, was pioneered by American entrepreneur and inventor Arthur Pitney. On December 9, 1901, Pitney formally filed a patent application in Stamford, Connecticut, marking the inception of the world's inaugural Postage Meter.

Q. 36 The daily weather map of India is prepared and printed at

Option 1:
Kolkata

Option 2:
Mumbai

Option 3:
New Delhi

Option 4:
Pune

Correct Answer:
Pune

Solution:
The correct answer is **Pune**.

The National Data Centre of India Meteorological Department (IMD) in Pune prepares and prints the daily weather map of India. The India Meteorological Department (IMD) is an agency of the Government of India's Ministry of Earth Sciences. It is the primary agency of meteorological monitoring, forecasts and seismology.

Q. 37 Atoms having the same number of protons but different numbers of neutrons are called

Option 1:
Isotopes

Option 2:
Cations

Option 3:
Higgs Boson

Option 4:
Anions

Correct Answer:
Isotopes

Solution:
The correct answer is **Isotopes.**

Isotopes are those atoms which have the same number of protons but different numbers of neutrons.

For example- There are three isotopes of Hydrogen. They are Protium, Deuterium, and Tritium. Where Protium only has one electron and one proton, Deuterium has one electron, one proton, and one neutron, while Tritium has one electron, one proton, and two neutrons.

Q. 38 Electrons in the highest energy level of an atom are called _____.

Option 1:
Valence protons

Option 2:
Orbital protons

Option 3:
Valence electrons

Option 4:
Orbital electrons

Correct Answer:
Valence electrons

Solution:
The correct option is **valence electrons**

Valence electrons are electrons in an atom's outermost energy level or shell. These electrons are involved in the formation of chemical bonds as well as the interactions of the atom with other atoms. An atom's valence electrons control its reactivity, chemical properties and capacity to form bonds with other atoms. The electrons in the outermost electron shell are known as valence electrons.

Q. 39 What is the other name of Sahyadri Range?

Option 1:
Lesser Himalayas

Option 2:
Shivaliks

Option 3:
Western Ghats

Option 4:
Eastern Ghats

Correct Answer:
Western Ghats

Solution:
The correct option is the **Western Ghats**

Known by most as the **Western Ghats**, the Sahyadri group is a group of mountains that runs parallel to India's western coast. It extends roughly **1,600km** from the Tamil Nadu and Kerala borders in the south to Gujarat and Maharashtra in the north. The range is known for its verdant woods, variety of wildlife and profusion of rivers and waterfalls. The ecological balance of the Indian subcontinent depends on the Sahyadri Range.

Q. 40 Who among the following Indians has been honoured by a special Oscar?

Option 1:
Mahesh Bhatt

Option 2:
Satyajit Ray

Option 3:
Mira Nair

Option 4:
G.P. Sippy

Correct Answer:
Satyajit Ray

Solution:
The correct answer is **Satyajit Ray.**

Satyajit Ray, the great Bengali director, received an Honorary Academy Award, commonly known as a Special Oscar, in 1992, being the only Indian to do so. He received the Oscar in 1992 at the 64th Academy Awards. Satyajit Ray was a Bengali film director, writer, and animator who popularized Indian cinema with works such as Pather Panchali, and its two sequels, known as the Apu Trilogy, and others.

Q. 41 **Directions:** Which of the following interchange of signs would make the given equation correct?
5 + 3 × 8 – 12 ÷ 4 = 3

Option 1:
– and ÷

Option 2:
+ and ×

Option 3:
+ and ÷

Option 4:
+ and –

Correct Answer:
– and ÷

Solution:
Given:
5 + 3 × 8 – 12 ÷ 4 = 3

Replace the given signs in the options one by one with those in the given equation.
First option: – and ÷
= 5 + 3 × 8 ÷ 12 – 4
= 5 + 2 – 4
= 7 – 4
= 3
Second option: + and ×
= 5 × 3 + 8 – 12 ÷ 4
= 5 × 3 + 8 – 3
= 15 + 8 – 3
= 23 – 3
= 20 ≠ 3
Third option: + and ÷
= 5 ÷ 3 × 8 – 12 + 4
= 1.67 × 8 – 12 + 4
= 13.36 – 12 + 4
= 5.36 ≠ 3
Fourth option: + and –
= 5 – 3 × 8 + 12 ÷ 4
= 5 – 3 × 8 + 3
= 5 – 24 + 3
= –16 ≠ 3

Here, only the first option satisfies the R.H.S. of the given equation. Hence, the **first option** is correct.

Q. 42 **Directions:** In the following question, correct the equation by interchanging two signs.
6 + 8 ÷ 4 – 4 = 8

Option 1:
÷ and =

Option 2:
÷ and +

Option 3:
÷ and –

Option 4:
+ and –

Correct Answer:
+ and –

Solution:
Given:
6 + 8 ÷ 4 – 4 = 8

Let's check the options –
First option: ÷ and =
6 + 8 = 4 – 4 ÷ 8
LHS→6 + 8 = 14
RHS→4 – 4 ÷ 8
= 4 – 0.5
= 3.5
LHS ≠ RHS
Second option: ÷ and +
6 ÷ 8 + 4 – 4 = 8
LHS→6 ÷ 8 + 4 – 4
= 0.75 + 4 – 4
= 0.75
RHS→8
LHS ≠ RHS
Third option: ÷ and –
6 + 8 – 4 ÷ 4 = 8
LHS→6 + 8 – 4 ÷ 4
= 6 + 8 – 1
= 14 – 1
= 13

RHS→8
LHS ≠ RHS
Fourth option: + and –
6 – 8 ÷ 4 + 4 = 8
LHS→6 – 8 ÷ 4 + 4
= 6 – 2 + 4
= 10 – 2
= 8
RHS→8
LHS = RHS

Only the fourth option satisfies the equation. Hence, the **fourth option** is correct.

Q. 43 **Directions:** In the following question, select the related word from the given alternatives.
Fungi : Mycology :: Tissue : ?

Option 1:
Haematology

Option 2:
Cytology

Option 3:
Histology

Option 4:
Bacteriology

Correct Answer:
Histology

Solution:
Given:
Fungi : Mycology :: Tissue : ?

The study of fungi is known as Mycology.
Similarly, the study of tissue is known as Histology.

Hence, the **third option** is correct.

Q. 44 **Directions:** In the following question, select the related word from the given alternatives.
Flow : River :: Stagnant : ?

Option 1:
Pond

Option 2:
Rain

Option 3:
Stream

Option 4:
Canal

Correct Answer:
Pond

Solution:
Given:
Flow : River :: Stagnant : ?

The river is characterised by its continuous flow of water.
Similarly, the pond is stagnant since the water in it remains still and motionless.

Hence, the **first option** is correct.

Q. 45 **Directions:** In the following question, find the odd letter cluster from the given alternatives.

Option 1:
ACEG

Option 2:
BDFG

Option 3:
JLNP

Option 4:
SUWY

Correct Answer:
BDFG

Solution:
Let's check the options –
First option: ACEG; A + 2 = C; C + 2 = E; E + 2 = G
Second option: BDFG; B + 2 = D; D + 2 = F; F + 1 = G

Third option: JLNP; J + 2 = L; L + 2 = N; N + 2 = P
Fourth option: SUWY; S + 2 = U; U + 2 = W; W + 2 = Y

So, only in the second option, the difference between the place value of the third and fourth letters is 1 instead of 2. Hence, the **second option** is correct.

Q. 46 **Directions:** In the following question, find the odd letter cluster from the given alternatives.

Option 1:
NSWX

Option 2:
KPSU

Option 3:
HMQR

Option 4:
EJNO

Correct Answer:
KPSU

Solution:
Let's check the options –
First option: NSWX; N + 5 = S; S + 4 = W; W + 1 = X
Second option: KPSU; K + 5 = P; P + 3 = S; S + 2 = U
Third option: HMQR; H + 5 = M; M + 4 = Q; Q + 1 = R
Fourth option: EJNO; E + 5 = J; J + 4 = N; N + 1 = O

So, the second option is different from the other three options because the difference in the position value of the letters is different. Hence, the **second option** is correct.

Q. 47 **Directions:** A man walks 7 km towards the south and turns to the left. After walking 5 km, he turns to the right and walks 7 km. In which direction is he now from the starting point?

Option 1:
West

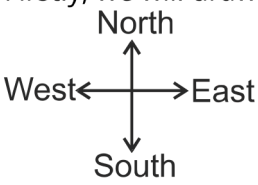
Option 2:
South

Option 3:
South-East

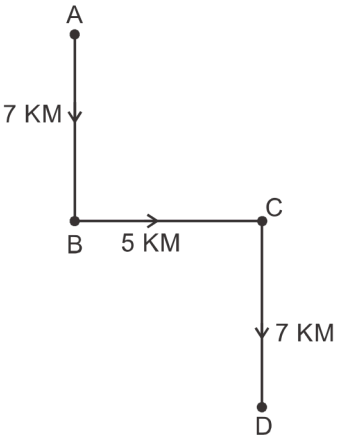
Option 4:
North-East

Correct Answer:
South-East

Solution:
Firstly, we will draw the diagram according to the instructions given in the question –



Now, we have to find the direction of the end point from the starting point.



So, he is in the south-east direction from the starting point. Hence, the **third option** is correct.

Q. 48 **Directions:** Ramesh starts his journey by walking 2 kilometres towards the north. Then he takes a right turn and walks 1 kilometre. Again, takes a right turn and walks 2 kilometres. Now, which direction is he facing?

Option 1:
East

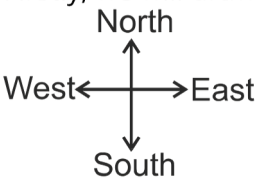
Option 2:
West

Option 3:
South

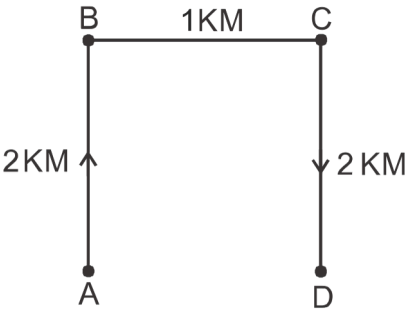
Option 4:
North

Correct Answer:
South

Solution:
Firstly, we will draw the direction and distance diagram according to the instructions –



Now, we have to find in which direction Ramesh is facing now.



Here, A is the starting point and D is the endpoint.

So, Ramesh is facing the south direction. Hence, the **third option** is correct.

Q. 49 **Directions:** The weights of 4 boxes are 30, 20, 60 and 70 kilograms. Which of the following cannot be the total weight, in kilograms, of any combination a box can be used only once?

Option 1:
180

Option 2:
170

Option 3:
120

Option 4:
150

Correct Answer:
170

Solution:
Given:
The weights of 4 boxes are 30, 20, 60 and 70 kilograms.

The total weight of all possible combinations of boxes is as follows –
30 + 20 = 50; 30 + 60 = 90; 30 + 70 = 100; 20 + 60 = 80;
20 + 70 = 90; 60 + 70 = 130; 30 + 20 + 60 = 110;
30 + 60 + 70 = 160; 30 + 20 + 70 = 120; 20 + 60 + 70 = 150;
20 + 60 + 70 + 30 = 180

Therefore, there is no total weight of 170 kilograms in any combination. Hence, the **second option** is correct.

Q. 50 **Directions:** The age of Dr. Pandey is four times the age of his son. After 10 years, the age of Dr. Pandey will be twice the age of his son. What is the present age of Dr. Pandey's son?

Option 1:
4 years

Option 2:
5 years

Option 3:
6 years

Option 4:
8 years

Correct Answer:
5 years

Solution:
Let Dr. Pandey's present age be A, and Dr. Pandey's son's present age be B.

As per the given information,
Dr. Pandey's age is four times the age of his son ⇒ A = 4 × B = 4B

After 10 years, Dr. Pandey's age = (A + 10), and Dr. Pandey's son's age = (B + 10)
Also, after 10 years, Dr. Pandey's age will be twice his son's age, i.e., (A + 10) = 2 × (B + 10)

As, A = 4B; therefore, (A + 10) = 2 × (B + 10) can be written as –
⇒ (4B + 10) = 2 × (B + 10)
⇒ 4B + 10 = 2B + 20
⇒ 4B – 2B = 20 – 10
⇒ 2B = 10 ⇒ B = 10 ÷ 2
⇒ B = 5

So, Dr. Pandey's son's present age is 5 years. Hence, the **second option** is correct.

Q. 51 **Directions**: If it is Saturday, the 27th of September, what day will it be on the 27th of October of the same year?

Option 1:
Thursday

Option 2:
Sunday

Option 3:
Friday

Option 4:
Monday

Correct Answer:
Monday

Solution:
Given:
The 27th of September is Saturday.

Remaining days in September = 3 days
Number of days in October = 27 days
Total number of days = 27 + 3 = 30 days
Now, divide the total number of days, i.e., 30 days by 7, the remainder is 2.
Saturday + 2 days→Monday

So, the 27th of October of the same year is Monday. Hence, the **fourth option** is correct.

Q. 52 **Directions:** Which one set of letters when sequentially placed at the gaps in the given letter series shall complete it?
M_OMMN_M_NOMMN_M

Option 1:
ONMO

Option 2:
NOMO

Option 3:
MONM

Option 4:
NNMO

Correct Answer:
NOMO

Solution:
Given:
M_OMMN_M_NOMMN_M

To fill the series we have to divide the series – M_OM / MN_M / _NOM / MN_M
Let's check each option –
First option: ONMO; MOOM / MNNM / MNOM / MNOM (No repeated pattern has been found.)
Second option: NOMO; MNOM / MNOM / MNOM / MNOM (MNOM is repeated in the series.)
Third option: MONM; MMOM / MNOM / NNOM / MNMM (No repeated pattern has been found.)
Fourth option: NNMO; MNOM / MNNM / MNOM / MNOM (No repeated pattern has been found.)

So, the series becomes→MNOMMNOMMNOMMNOM. Hence, the **second option** is correct.

Q. 53 **Directions:** Which one set of letters/numbers when sequentially placed at the gaps in the given letter series shall complete it?
a _ ca _ c _ dc _ d _ ad _

Option 1:
ddacdc

Option 2:
daadca

Option 3:
dadaac

Option 4:
ddaacc

Correct Answer:
ddaacc

Solution:
Given:
a _ ca _ c _ dc _ d _ ad _

To fill the series we have to divide the series – a _ c / a _ c / _ dc / _ d _ / ad _
Let's check each option –
First option: ddacdc; adc / adc / adc / cdd / adc (No repeated pattern has been found.)

Second option: daadca; adc / aac / adc / ddc / ada (No repeated pattern has been found.)
Third option: dadaac; adc / aac / ddc / ada / adc (No repeated pattern has been found.)
Fourth option: ddaacc; adc / adc / adc / adc / adc (adc is repeated in the series.)

So, the series becomes→adcadcadcadcadc. Hence, the **fourth option** is correct.

Q. 54 **Directions:** Which one set of letters/numbers when sequentially placed at the gaps in the given letter series shall complete it?
_sr_tr_srs_r_srst_

Option 1:
ttssrr

Option 2:
tsrtsr

Option 3:
strtrs

Option 4:
tstttr

Correct Answer:
tstttr

Solution:
Given:
_sr_tr_srs_r_srst_

To fill the series we have to divide the series – _sr_tr /_srs_r /_srst_
Let's check each option –
First option: ttssrr; tsrttr **/** ssrssr **/** rsrstr (No repeated pattern has been found.)
Second option: tsrtsr; tsrstr **/** rsrstr **/** ssrstr (No repeated pattern has been found.)
Third option: strtrs; ssrttr **/** rsrstr **/** rsrsts (No repeated pattern has been found.)
Fourth option: tstttr; tsrstr **/** tsrstr **/** tsrstr (tsrstr is repeated in the series.)

So, the series becomes→tsrstrtsrstrtsrstr. Hence, the **fourth option** is correct.

Q. 55 **Directions:** Select the related letter cluster from the given alternatives.
PZQW : NXOU :: FISK : ?

Option 1:
EFPJ

Option 2:
FERI

Option 3:
DGQI

Option 4:
HKVM

Correct Answer:
DGQI

Solution:
Given:
PZQW : NXOU :: FISK : ?

Subtract 2 from the place value of PZQW to obtain the required code –
P – 2 = N; Z – 2 = X; Q – 2 = O; W – 2 = U
Thus, PZQW is coded as NXOU.
Similarly, follow the same pattern for FISK –
F – 2 = D; I – 2 = G; S – 2 = Q; K – 2 = I

Thus, FISK is coded as DGQI. Hence, the **third option** is correct.

Q. 56 **Directions:** Select the related letter cluster from the given alternatives.
ACEG : ZXVT :: IKMO : ?

Option 1:
MNOP

Option 2:
PQRS

Option 3:
RPNL

Option 4:
LNPR

Correct Answer:
RPNL

Solution:
Given:
ACEG : ZXVT :: IKMO : ?

The pattern followed here is each letter is coded as its opposite letter –
Like, ACEG = A→Z; C→X; E→V; G→T
Thus, ACEG is coded as ZXVT.
Similarly, follow the same pattern for IKMO –
I→R; K→P; M→N; O→L

Thus, IKMO is coded as RPNL. Hence, the **third option** is correct.

Q. 57 **Directions:** A is D's brother. D is B's father. B and C are sisters. How is C related to A?

Option 1:
Cousin

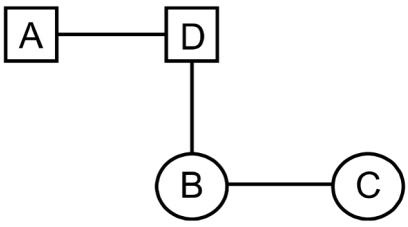
Option 2:
Niece

Option 3:
Aunt

Option 4:
Nephew

Correct Answer:
Niece

Solution:
As per the given information, the family tree will be as follows –



Here, the quadrilateral represents the male, and the circular figure represents the female in the figure.

So, from the above family tree, C is the niece of A. Hence, the **second option** is correct.

Q. 58 **Directions:** X and Y are brothers. R is the father of Y. T is the sister of S who is the maternal uncle of X. How is T related to R?

Option 1:
Mother

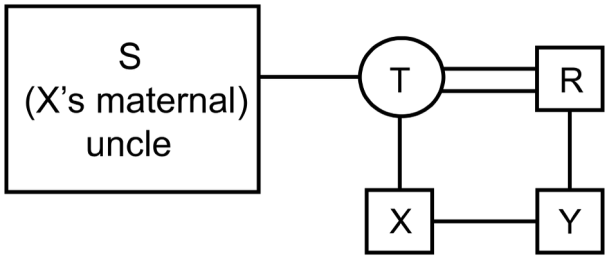
Option 2:
Wife

Option 3:
Sister

Option 4:
Brother

Correct Answer:
Wife

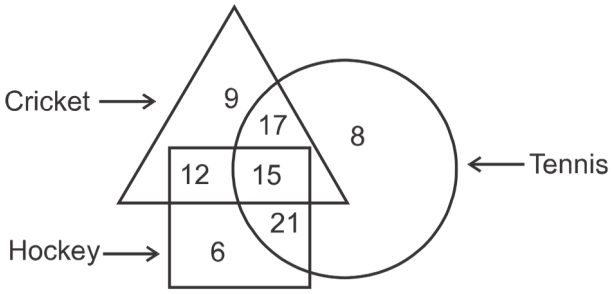
Solution:
As per the given information, the family tree will be as follows –



Here, the quadrilateral represents the male, and the circular figure represents the female in the figure.

So, from the above family tree, T is the wife of R. Hence, the **second option** is correct.

Q. 59 **Directions:** In the given figure, how many people like cricket and tennis both?



Option 1:
17

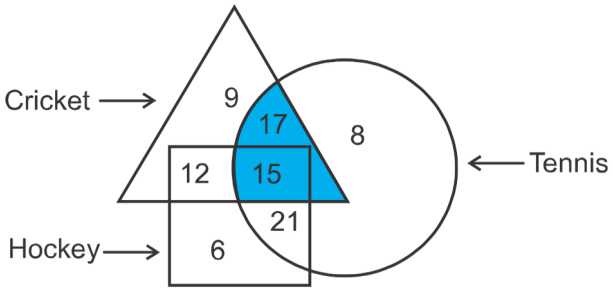
Option 2:
32

Option 3:
15

Option 4:
27

Correct Answer:
32

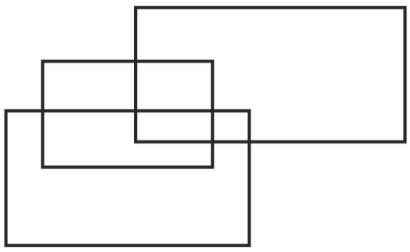
Solution:
In the below diagram, the shaded part represents the region common to both cricket and tennis as well as hockey. The numbers of the asked fields that fall in the hockey region will also be counted as there is no direction given that the region belonging to hockey can not be included.



The total number of people who like cricket and tennis both = 17 + 15 = 32

Therefore, 32 people like both cricket and tennis. Hence, the **second option** is correct.

Q. 60 **Directions:** How many rectangles are there in the given figure?



Option 1:
9

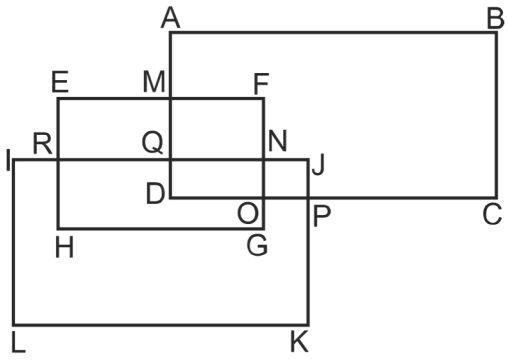
Option 2:
10

Option 3:
11

Option 4:
12

Correct Answer:
11

Solution:
The given figure can be labeled as shown below –



There are a total of 11 rectangles in the above figure. They are ABCD, EFGH, IJKL, MFNQ, EMQR, EFNR, QNOD, NJPO, QJPD, RNGH, MFOD.

Hence, the **third option** is correct.

MOCK TEST 4

Q. 1 The largest four-digit number that is exactly divisible by 88 is:

Option 1:
9988

Option 2:
9944

Option 3:
8888

Option 4:
9768

Correct Answer:
9944

Solution:
We know that the largest four-digit number is 9999.
So, when we divide 9999 by 88, we get 55 as the remainder.
⇒ The largest 4-digit number exactly divisible by 88 = 9999 – 55 = 9944
Hence, the correct answer is 9944.

Q. 2 Find the greatest number that will divide 390, 495, and 300 without leaving a remainder.

Option 1:
5

Option 2:
15

Option 3:
25

Option 4:
35

Correct Answer:
15

Solution:
HCF of the given numbers:
390 = (2 × 3 × 5 × 13)
495 = (3× 3 × 5 × 11)
300 = (2 × 2 × 3 × 5 × 5)
Now HCF = (3 × 5) = 15
So, 15 is the number that can divide 390, 495, and 300 without leaving a remainder.
Hence, the correct answer is 15.

Q. 3 The greater of the two numbers whose product is 900 and whose sum exceeds their difference by 30 is:

Option 1:
60

Option 2:
75

Option 3:
90

Option 4:
100

Correct Answer:
60

Solution:
Let the numbers be x and y where $x > y$.
According to the question,
$\Rightarrow (x + y) - (x - y) = 30$
$\Rightarrow x + y - x + y = 30$
$\Rightarrow y = \frac{30}{2} = 15$
Also, $xy = 900$
$\Rightarrow 15x = 900$
$\therefore x = \frac{900}{15} = 60$
Hence, the correct answer is 60.

Q. 4 What is the sum of the first 9 terms of an arithmetic progression, if the first term is 7 and the last term is 55?

Option 1:
219

Option 2:
137

Option 3:
231

Option 4:
279

Correct Answer:
279

Solution:
Given: The first term is 7 and the last term is 55.
Using the formula, $S_9 = \frac{n}{2}(a + l)$
Where a is the first term, l is the last term of the A.P., and n is the number of terms.
By putting the value of 1st and last term,
$\Rightarrow S_9 = \frac{9}{2}(7 + 55)$
$\Rightarrow S_9 = \frac{9}{2} \times 62$
$\therefore S_9 = 9 \times 31 = 279$
Hence, the correct answer is 279.

Q. 5 If $x = \frac{4\sqrt{ab}}{\sqrt{a}+\sqrt{b}}$, then what is the value of $\frac{x+2\sqrt{a}}{x-2\sqrt{a}} + \frac{x+2\sqrt{b}}{x-2\sqrt{b}}$(when $a \neq b$)?

Option 1:
0

Option 2:
2

Option 3:
4

Option 4:
$\frac{(\sqrt{a}+\sqrt{b})}{(\sqrt{a}-\sqrt{b})}$

Correct Answer:
2

Solution:

Given:

$x = \frac{4\sqrt{ab}}{\sqrt{a}+\sqrt{b}}$

Equation $= \frac{x+2\sqrt{a}}{x-2\sqrt{a}} + \frac{x+2\sqrt{b}}{x-2\sqrt{b}}$

Put the value of x in equation:

$= \frac{\frac{4\sqrt{ab}}{\sqrt{a}+\sqrt{b}}+2\sqrt{a}}{\frac{4\sqrt{ab}}{\sqrt{a}+\sqrt{b}}-2\sqrt{a}} + \frac{\frac{4\sqrt{ab}}{\sqrt{a}+\sqrt{b}}+2\sqrt{b}}{\frac{4\sqrt{ab}}{\sqrt{a}+\sqrt{b}}-2\sqrt{b}}$

$= \frac{\frac{4\sqrt{ab}+2a+2\sqrt{ab}}{\sqrt{a}+\sqrt{b}}}{\frac{4\sqrt{ab}-2a-2\sqrt{ab}}{\sqrt{a}+\sqrt{b}}} + \frac{\frac{4\sqrt{ab}+2\sqrt{ab}+2b}{\sqrt{a}+\sqrt{b}}}{\frac{4\sqrt{ab}-2\sqrt{ab}-2b}{\sqrt{a}+\sqrt{b}}}$

$= \frac{\frac{4\sqrt{ab}+2a+2\sqrt{ab}}{\sqrt{a}+\sqrt{b}}}{\frac{4\sqrt{ab}-2a-2\sqrt{ab}}{\sqrt{a}+\sqrt{b}}} + \frac{\frac{4\sqrt{ab}+2\sqrt{ab}+2b}{\sqrt{a}+\sqrt{b}}}{\frac{4\sqrt{ab}-2\sqrt{ab}-2b}{\sqrt{a}+\sqrt{b}}}$

$= \frac{4\sqrt{ab}+2a+2\sqrt{ab}}{4\sqrt{ab}-2a-2\sqrt{ab}} + \frac{4\sqrt{ab}+2\sqrt{ab}+2b}{4\sqrt{ab}-2\sqrt{ab}-2b}$

$= \frac{2}{2}\left[\frac{2\sqrt{ab}+a+\sqrt{ab}}{2\sqrt{ab}-a-\sqrt{ab}}\right] + \frac{2}{2}\left[\frac{2\sqrt{ab}+\sqrt{ab}+b}{2\sqrt{ab}-\sqrt{ab}-b}\right]$

$= \frac{3\sqrt{ab}+a}{\sqrt{ab}-a} + \frac{3\sqrt{ab}+b}{\sqrt{ab}-b}$

$= \frac{\frac{3\sqrt{ab}+a}{\sqrt{a}}}{\frac{\sqrt{ab}-a}{\sqrt{a}}} + \frac{\frac{3\sqrt{ab}+b}{\sqrt{b}}}{\frac{\sqrt{ab}-a}{\sqrt{b}}}$

$= \frac{3\sqrt{b}+\sqrt{a}}{\sqrt{b}-\sqrt{a}} + \frac{3\sqrt{a}+\sqrt{b}}{\sqrt{a}-\sqrt{b}}$

$= \frac{3\sqrt{b}+\sqrt{a}}{\sqrt{b}-\sqrt{a}} - \frac{3\sqrt{a}+\sqrt{b}}{\sqrt{b}-\sqrt{a}}$

$= \frac{3\sqrt{b}+\sqrt{a}-3\sqrt{a}-\sqrt{b}}{\sqrt{b}-\sqrt{a}}$

$= \frac{2\sqrt{b}-2\sqrt{a}}{\sqrt{b}-\sqrt{a}}$

$= \frac{2(\sqrt{b}-\sqrt{a})}{\sqrt{b}-\sqrt{a}}$

$= 2$

Hence, the correct answer is 2.

Q. 6 Nine students in a class contribute a certain sum of money. Seven of them gave Rs. 50 each, and the other two gave, respectively, Rs. 50 and Rs. 90 more than the average contribution. The average contribution of the class of nine students is:

Option 1:
Rs. 70

Option 2:
Rs. 50

Option 3:
Rs. 100

Option 4:
Rs. 120

Correct Answer:
Rs. 70

Solution:
Let the average contribution of the class of nine students be x.
$x = \frac{7\times50+x+50+x+90}{9}$
$\Rightarrow 9x = 2x + 490$
$\Rightarrow 7x = 490$
$\therefore x = 70$
Hence, the correct answer is 70.

Q. 7 By selling a tape recorder for Rs. 1040, a man gains 4%. If he sells it for Rs. 950, his loss will be:

Option 1:
5%

Option 2:
4%

Option 3:
4.5%

Option 4:
9%

Correct Answer:
5%

Solution:
Let the cost price (CP) be Rs. x.
The selling price of the tape recorder is Rs. 1040.
The selling price is equal to 104% of x.
Selling price = $\frac{104x}{100}$ = Rs. 1040
Cost price (x) = $\frac{1040\times100}{104} = 1000$
If it is sold for Rs. 950, there is a loss of Rs. 50.
So, loss % $= \frac{\text{Loss}}{\text{CP}}\times100 = \frac{50}{1000}\times100 = 5\%$
Hence, the correct answer is 5%.

Q. 8 In a mixture of 25 litres, the ratio of milk to water is 4 : 1. Another 3 litres of water is added to the mixture. The ratio of milk to water in the new mixture is:

Option 1:
5 : 1

Option 2:
5 : 2

Option 3:
5 : 3

Option 4:
5 : 4

Correct Answer:
5 : 2

Solution:
The total quantity of the mixture is 25 litres.
Milk : Water = 4 : 1
Milk = $\frac{4}{5}$ × 25 = 20 litres, Water = $\frac{1}{5}$ × 25 = 5 litres
If 3 litres of water are added then the ratio becomes = 20 : (5 + 3) = 20 : 8 = 5 : 2
Hence, the correct answer is 5 : 2.

Q. 9 A student has to score 40% to pass. He gets 67 and fails by 13 marks. What are the maximum marks?

Option 1:
300

Option 2:
200

Option 3:
150

Option 4:
240

Correct Answer:
200

Solution:
Let the maximum marks be 100%.
According to the question,
40% marks are equivalent to (67 + 13) = 80 marks

Now, 100% marks are equivalent to $\frac{80\times100}{40}$ = 200 marks
So, the maximum marks = 200
Hence, the correct answer is 200.

Q. 10 A man travels $\frac{3}{4}$th of the distance of his journey by bus, $\frac{1}{6}$th by rickshaw and the remaining 2 km on foot. The total distance travelled by the man is:

Option 1:
12 km

Option 2:
18 km

Option 3:
20 km

Option 4:
24 km

Correct Answer:
24 km

Solution:
Given: A man travelled by bus $\frac{3}{4}$th of the total distance.
The man travelled by rickshaw $\frac{1}{6}$th of the total distance.
The man travelled on foot = 2 km
Let the total distance to be x km.
So, the remaining distance $= x - \frac{3x}{4} - \frac{x}{6}$
According to the question,
$x - \frac{3x}{4} - \frac{x}{6} = 2$
$\Rightarrow \frac{12x-9x-2x}{12} = 2$
$\Rightarrow \frac{x}{12} = 2$
$\therefore x = 24$
Hence, the correct answer is 24 km.

Q. 11 Reflection of the point (4, –6) in the origin is:

Option 1:
(4, 6)

Option 2:
(–4, –6)

Option 3:
(–4, 6)

Option 4:
(4, –6)

Correct Answer:
(–4, 6)

Solution:
The reflection of the point (a, b) in the origin is (–a, –b).
So, the reflection of (4, –6) in the origin = (–4, 6)
Hence, the correct answer is (–4, 6).

Q. 12 A sum of Rs. 2800 is divided into two parts in such a way that the interest on both parts is equal. If the first part is lent at 9% p.a. for 5 years and the second part is for 6 years at 10% p.a., find the two sums.

Option 1:
Rs.1800, Rs.1000

Option 2:
Rs.1600, Rs.1200

Option 3:
Rs.1400, Rs.1400

Option 4:
Rs.1300, Rs.1500

Correct Answer:
Rs.1600, Rs.1200

Solution:
Let the first part be y.
∴ Second part = Rs.$(2800–y)$
According to the question,
Simple interest = $\frac{\text{Principal}\times\text{Rate}\times\text{Time}}{100}$
$\therefore \frac{y\times5\times9}{100} = \frac{(2800–y)\times6\times10}{100}$
$\Rightarrow 3y = 4\times2800–4y$
$\Rightarrow 7y = 4\times2800$
$\Rightarrow y = \frac{4\times2800}{7}$
$\Rightarrow y = 1600$
∴ Second part = Rs. (2800 – 1600) = Rs.1200
Hence, the correct answer is 'Rs.1600 and Rs.1200'.

Q. 13 The top of a broken tree touches the ground at a distance of 15 metres from its base. If the tree is broken at a height of 8 metres from the ground, then the actual height of the tree is:

Option 1:
17 metres

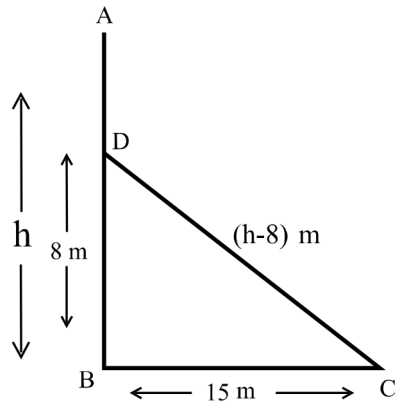
Option 2:
20 metres

Option 3:
25 metres

Option 4:
30 metres

Correct Answer:
25 metres

Solution:
Given: The top of a broken tree touches the ground at a distance of 15 metres from its base and the tree is broken at a height of 8 metres from the ground.



Let h be the actual height of the tree.
From the figure we get,
BD = 8 metres, BC = 15 metres and AD = CD = (h – 8) metres.
By using the Pythagoras theorem,
$CD^2 = BD^2 + BC^2$
$\Rightarrow (h - 8)^2 = 8^2 + 15^2$
$\Rightarrow (h - 8)^2 = 289$
$\Rightarrow (h - 8) = 17$
$\Rightarrow h = 17 + 8$
$\Rightarrow h = 25$
Hence, the correct answer is 25 metres.

Q. 14 If $\tan\theta = \frac{4}{3}$, then the value of $\frac{3\sin\theta+2\cos\theta}{3\sin\theta-2\cos\theta}$ is:

Option 1:
$\frac{1}{2}$

Option 2:
$1\frac{1}{2}$

Option 3:
3

Option 4:
-3

Correct Answer:
3

Solution:
$\frac{3\sin\theta+2\cos\theta}{3\sin\theta-2\cos\theta}$
Divide both sides by $\cos\theta$,
$= \frac{\frac{3\sin\theta}{\cos\theta}+2}{\frac{3\sin\theta}{\cos\theta}-2}$
$= \frac{3\tan\theta+2}{3\tan\theta-2}$
$= \frac{3\times\frac{4}{3}+2}{3\times\frac{4}{3}-2}$
$= \frac{6}{2}$
= 3
Hence, the correct answer is 3.

Q. 15 A and B can do a job in 12 days, B and C in 15 days, and C and A in 20 days. If A, B, and C work together, they will complete the work in:

Option 1:
5 days

Option 2:
$7\frac{5}{6}$ days

Option 3:
10 days

Option 4:
$15\frac{2}{3}$ days

Correct Answer:
10 days

Q. 16 **Directions:** Study the table and answer the question. The number of five types of cycles manufactured by a company over the years is given below:

Years	Types of cycles (in 1000)				
	A	B	C	D	E
1997	200	150	78	90	65
1998	150	180	100	105	70
1999	180	175	92	110	85
2000	195	160	120	125	75
2001	220	185	130	135	80

What was the percentage drop in production of the A-type cycle from 1997 to 1999?

Option 1:
10

Option 2:
25

Option 3:
20

Option 4:
15

Correct Answer:
10

Solution:
Production of the A type of the cycle in 1997 = 200
Production of the A type of the cycle in 1999 = 180
Drop in production of the A type of the cycle from 1997 to 1999 = 200 – 180 = 20

Percentage drop = $\frac{20\times100}{200}$ = 10%
The percentage drop in production of the D type of the cycle from 1998 to 2000 is 10%.
Hence, the correct answer is 10.

Q. 17 A sphere has the same curved surface area as a cone, with a vertical height of 40 cm and a radius of 30 cm. The radius of the sphere is:

Option 1:
$5\sqrt{5}$ cm

Option 2:
$5\sqrt{3}$ cm

Option 3:
$5\sqrt{15}$ cm

Option 4:
$5\sqrt{10}$ cm

Correct Answer:
$5\sqrt{15}$ cm

Solution:
Given: Curved surface area of sphere = curved surface area of cone
Height of cone = 40 cm
Radius of cone = 30 cm
The slant height l of the cone = $\sqrt{h^2+r^2}$
So, $l=\sqrt{(40)^2+(30)^2}=\sqrt{1600+900}=\sqrt{2500}=50$ cm
The curved surface area of the cone = πrl
$=\pi\times30\times50=1500\pi$ cm^2
According to the question,
Curved surface area of sphere = curved surface area of cone
$4\pi r^2=1500\pi$
$\Rightarrow r=\sqrt{375}$
$\Rightarrow r=5\sqrt{15}$ cm
Hence, the correct answer is $5\sqrt{15}$ cm.

Q. 18 The diagonal of a cuboid of length 5 cm, width 4 cm, and height 3 cm is:

Option 1:
$5\sqrt{2}$ cm

Option 2:
$2\sqrt{5}$ cm

Option 3:
12 cm

Option 4:
10 cm

Correct Answer:
$5\sqrt{2}$ cm

Solution:
Given: Length (l) = 5 cm
Width (b) = 4 cm
Height (h) = 3 cm
Diagonal of a cuboid = $\sqrt{l^2+b^2+h^2}$
$=\sqrt{5^2+4^2+3^2}$
$=\sqrt{25+16+9}$
$=\sqrt{50}$
$=5\sqrt{2}$ cm
Hence, the correct answer is $5\sqrt{2}$ cm.

Q. 19 A well of 3 m in diameter is dug 14 m deep. The earth taken out of it has been spread evenly all around it in the shape of a circular ring of width 4 m to form an embankment. Find the height of the embankment.

Option 1:
4.25 m

Option 2:
2.25 m

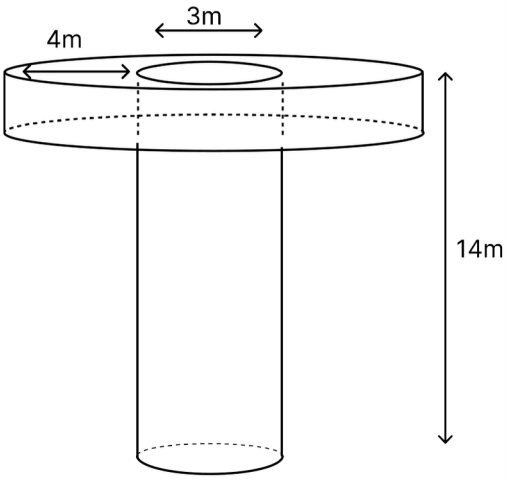
Option 3:
1.125 m

Option 4:
1.75 m

Correct Answer:
1.125 m

Solution:

Given: A well of 3 m in diameter is dug 14 m deep.
Here, $h_1 = 14\ m$, $r_1 = \frac{3}{2}\ m$, and $r_2 = 4 + \frac{3}{2} = \frac{11}{2}\ m$
We know that the volume of the cylinder = $\pi r^2 h$



Let the height of the embankment be $h_2\ m$.
According to the question,
$\pi \times (r_1)^2 \times h = \pi \times (r_2^2 - r_1^2) \times h$
$\Rightarrow \pi \times (\frac{3}{2})^2 \times 14 = \pi \times [(\frac{11}{2}^2) - (\frac{3}{2})^2] \times h$
$\Rightarrow \frac{9}{4} \times 14 = (\frac{121-9}{4}) \times h$
$\Rightarrow \frac{9}{4} \times 14 = \frac{112}{4} \times h$
$\Rightarrow h = \frac{9}{8}$
$\Rightarrow h = 1.125$ m
Hence, the correct answer is 1.125 m.

Q. 20 To cover a certain distance at a speed of 60 km/hr, a train takes 15 hours. If it covers the same distance in 12 hours, what will its speed be?

Option 1:
65 km/hr

Option 2:
70 km/hr

Option 3:
75 km/hr

Option 4:
80 km/hr

Correct Answer:
75 km/hr

Solution:

Given: A train takes 15 hours to cover a certain distance at a speed of 60 km/hr.
Distance = Speed × Time = 15 × 60 = 900 km
∴ Required speed to cover this distance in 12 hours = $\frac{900}{12}$ = 75 km/hr
Hence, the correct answer is 75 km/hr.

Q. 21 Fixed Foreign Exchange Rate can be changed by _____.

Option 1:
RBI

Option 2:
SEBI

Option 3:
Ministry of Finance

Option 4:
FIPB

Correct Answer:
RBI

Solution:
The correct option is **RBI**.

The Reserve Bank of India (RBI), was established on April 1, 1935 and is headquartered in Mumbai. A fixed foreign exchange rate can be changed by the government or central bank that has established the rate. Some ways in which a fixed exchange rate can be changed are:

- Open market operations
- Changing the peg
- Changing interest rates
- Capital controls

Q. 22 Akbar's tomb is located at which of the following places?

Option 1:
Sikandra

Option 2:
Agra

Option 3:
Fatehpur Sikri

Option 4:
Allahabad

Correct Answer:
Sikandra

Solution:
The correct answer is **Sikandra.**

A significant Mughal architectural achievement, the Tomb of Akbar, was constructed in Sikandra between 1605 A.D. and 1613 A.D. The mortal remains of Akbar, the greatest Mughal Emperor, are kept there. Emperor Akbar personally began building this monument in 1600. Jahangir, Akbar's son, finished the mausoleum in 1613 A.D., following the latter's death in 1605.

Q. 23 Which state government launched 'Kaushalya Matritva Yojana' in March 2022?

Option 1:
Madhya Pradesh

Option 2:
Chhattisgarh

Option 3:
Haryana

Option 4:
Uttar Pradesh

Correct Answer:
Chhattisgarh

Solution:
The correct option is **Chhattisgarh**.

In March 2022, the Chhattisgarh government announced the Kaushalya Matritva Yojana. Women who have a second female child are eligible for an INR 5,000 lump sum of cash under the plan. The scheme's goal is to assist mothers in raising and educating their daughters, as well as to reduce female foeticide.

Q. 24 What situation would result if government expenditure exceeds the government revenue in the current account?

Option 1:
Deficit budgeting

Option 2:
Zero-based budgeting

Option 3:
Performance-based budgeting

Option 4:
Surplus budgeting

Correct Answer:
Deficit budgeting

Solution:
The correct option is **Deficit budgeting**.

When a government spends more money than it takes in during a given fiscal year, this is referred to as deficit budgeting. In other words, the government spends more than it brings in through taxes and other sources of income.

Q. 25 Maithili is primarily spoken in which state?

Option 1:
Bihar

Option 2:
Assam

Option 3:
West Bengal

Option 4:
Meghalaya

Correct Answer:
Bihar

Solution:
The correct option is **Bihar.**

Maithili is an Indo-Aryan language spoken primarily in the Indian states of Bihar and Jharkhand, as well as in the Terai region of Nepal. It holds the distinction of being one of the 22 scheduled languages of India. Maithili has a rich literary tradition and cultural heritage, with a history dating back many centuries.

Q. 26 Which one of the following countries was the first to establish a modern democracy?

Option 1:
France

Option 2:
England

Option 3:
America

Option 4:
India

Correct Answer:
America

Solution:
The correct option is **America.**

The United States of America was the first country to establish a modern democracy. It gained independence from British rule through the American Revolutionary War. The United States Constitution was drafted in 1787 and is considered one of the first examples of a modern democratic constitution.

Q. 27 Who was the founder of Banaras Hindu University?

Option 1:
Sukumar Dutt

Option 2:
Madan Mohan Malaviya

Option 3:
Dr. Rajendra Prasad

Option 4:
Motilal Nehru

Correct Answer:
Madan Mohan Malaviya

Solution:
The correct option is **Madan Mohan Malaviya**.

One of the most esteemed Central Universities in the nation, Banaras Hindu University was established by Pandit Madan Mohan Malaviya in 1916. An influential figure in the Indian independence struggle, Madan Mohan Malaviya was a politician, academic and educational reformer of India.

Q. 28 A _____ writ is issued by the higher court (High Court or Supreme Court) when the lower court has considered the case to go beyond its jurisdiction.

Option 1:
Habeas corpus

Option 2:
Mandamus

Option 3:
Prohibition

Option 4:
quo warranto

Correct Answer:
Prohibition

Solution:
The correct answer is **Prohibition.**

In cases where a lower court oversteps its jurisdiction, a higher court may issue a **writ of prohibition**. Alongside this, there are other notable writs like certiorari, habeas corpus, mandamus, and quo warranto. A "writ of prohibition" refers to a **judicial directive** that bars the lower court or quasi-judicial body from further pursuing proceedings.

Q. 29 The plateau that has both West and East-flowing drainage systems is

Option 1:
Malwa

Option 2:
Chota Nagpur

Option 3:
Ranchi

Option 4:
Hazaribagh

Correct Answer:
Malwa

Solution:
The correct answer is **Malwa.**

The Malwa Plateau geologically refers to the volcanic highland north of the Vindhya Range. It is connected to both the west and east drainage systems.

Q. 30 The 'Narmada Water Dispute Tribunal' was constituted to resolve the water sharing between

Option 1:
Gujarat and Rajasthan

Option 2:
Gujarat and Maharashtra

Option 3:
Gujarat, Maharashtra, Rajasthan and Madhya Pradesh

Option 4:
Gujarat, Daman and Diu

Correct Answer:
Gujarat, Maharashtra, Rajasthan and Madhya Pradesh

Solution:
The correct answer is **Gujarat, Maharashtra, Rajasthan and Madhya Pradesh**.

To settle disagreements over water sharing amongst the Indian states that make up the Narmada River basin, the Narmada Water Dispute Tribunal was established. The Narmada River is one of the major rivers in central India, and it flows through several states. The tribunal was established to adjudicate the allocation of Narmada River waters among the riparian states, which include Gujarat, Maharashtra, Rajasthan, and Madhya Pradesh.

Q. 31 What is the main purpose of white blood Corpuscles?

Option 1:
To carry nutrients

Option 2:
To combat infection

Option 3:
To carry oxygen

Option 4:
To give strength

Correct Answer:
To combat infection

Solution:
The correct option is **to combat infection**.

White blood corpuscles, commonly known as white blood cells (WBCs) or leukocytes, are a kind of blood cell that helps the immune system fight illnesses and foreign substances. They are engaged in a variety of immunological responses, including pathogen detection and defence, antibody production and immune reaction coordination.

Q. 32 Humidity is measured by Which of the following?

Option 1:
Lactometer

Option 2:
Polarimeter

Option 3:
Thermometer

Option 4:
Hygrometer

Correct Answer:
Hygrometer

Solution:
The correct option is the **Hygrometer.**

A **Hygrometer** is used to measure humidity. Hygrometers measure the amount of moisture in the air, which is crucial for weather, comfort, and natural processes. Relative humidity (RH), a measurement that compares the amount of water vapour in the air to the maximum amount the air can hold at a given temperature, is occasionally used to express humidity as a percentage.

Q. 33 In which city is the Forest Research Institute of India located?

Option 1:
New Delhi

Option 2:
Bhopal

Option 3:
Dehradun

Option 4:
Pune

Correct Answer:
Dehradun

Solution:
The correct option is **Dehradun**.

The Forest Research Institute of India (FRI) in Dehradun, Uttarakhand, was founded in 1906. It is one of India's oldest, and most prestigious organisations in forestry, and environmental sciences. FRI undertakes research, training, and instruction in forest management, conservation, biodiversity, and other related fields. It also acts as a hub for forestry and natural resource management research, and collaboration.

Q. 34 The molecular mass of a gas is:

Option 1:
twice its vapour pressure

Option 2:
equal to its vapour pressure

Option 3:
half its vapour pressure

Option 4:
not related to its vapour pressure

Correct Answer:
twice its vapour pressure

Solution:
The correct option is **twice its vapour pressure**.

The vapour pressure of a substance is the pressure exerted by its vapour when the substance is in equilibrium with its liquid (or solid) phase. Since any gas has a molecular mass that is twice as dense as hydrogen, which has two atoms per molecule, it has a vapour pressure that is twice as high.

Q. 35 The instrument used for measuring air pressure is called

Option 1:
Anemometer

Option 2:
Barometer

Option 3:
Hygrometer

Option 4:
Thermometer

Correct Answer:
Barometer

Solution:
The answer is the **Barometer**.

A barometer is an instrument used to measure pressure. Mercury and aneroid are the two most common forms of barometers. A Hygrometer is used to measure humidity, and a thermometer is used to measure temperature.

Q. 36 Beyond the _____, the Himalayas bend sharply to the south and spread along the eastern boundary of India.

Option 1:
Zoji La Pass

Option 2:
Dihang gorge

Option 3:
Bhutan border

Option 4:
Nepal border

Correct Answer:
Dihang gorge

Solution:

The correct answer is **Dihang Gorge**.

The Himalayas' easternmost border is marked by the Namcha Barwa mountain and Brahmaputra River. The Himalayas begin to spread along India's eastern border beyond the Dihang Gorge before bending sharply to the south. Beyond the Dihang Gorge, the Himalayas curve sharply to the south and extend outward to form the eastern border of the nation. The Eastern Hills, or Purvanchal Hills, are their official name.

Q. 37 How many KB is equal to 1 GB?

Option 1:
1024

Option 2:
256 x 1024

Option 3:
1024 x 1024

Option 4:
1024 x 1024 x 128

Correct Answer:
1024 x 1024

Solution:
The correct answer is **1024 x 1024**.

1 gigabyte (GB) contains 1024 megabytes (MB).

The formula used to compute is - 1 GB = 1024 MB; 1 MB = 1024 KB
As a result, 1 GB is 1024 * 1024 KB = 1048576 KB.

Q. 38 Due to increased weapon launching missions by North Korea, which country has launched a spy satellite to monitor it?

Option 1:
South Korea

Option 2:
U.S.A

Option 3:
China

Option 4:
Japan

Correct Answer:
Japan

Solution:
The correct answer is **Japan.**

North Korea is officially known as the Democratic People's Republic of Korea (DPRK). It is located in East Asia on the Korean Peninsula. 38th parallel is the official demilitarized zone and the border between North Korea, and South Korea. Japan launched a spy satellite to check on the military activities of North Korea.

Q. 39 Which of the following is the world's top environmental conservation award?

Option 1:
The Golden Bear Award

Option 2:
The Golden Panda Award

Option 3:
The Golden Globe Award

Option 4:
The Golden Palms Award

Correct Answer:
The Golden Panda Award

Solution:
The correct answer is **The Golden Panda Award.**

The Gold Panda Award is the highest conservation honour bestowed by the World-Wide Fund for Nature (WWF), the world's foremost environmental organization. The World-Wide Fund for Nature is a non-profit international organization dedicated towards the preservation and conservation of nature and its various species. It was founded on April 29, 1961, and is headquartered in Gland, Switzerland.

Q. 40 The term 'Gambit' is associated with which of the following sports?

Option 1:
Basketball

Option 2:
Chess

Option 3:
Boxing

Option 4:
Golf

Correct Answer:
Chess

Solution:
The answer is **Chess.**

The term gambit is related to the game of chess. The gambit is a chess opening in which a player, usually white, makes material sacrifices in the hope of gaining an advantageous position. Chess terminology includes "Gambit," "Bishop," and "Checkmate."

Q. 41 **Directions:** A * B means multiply A by B, A @ B means divide A by B, A ? B means add B to A, and A = B means subtract B from A. Then, find the value of –
10 * 10 = 5 * 10 ? 50 @ 10

Option 1:
100

Option 2:
45

Option 3:
1000

Option 4:
55

Correct Answer:
55

Solution:
Given:
10 * 10 = 5 * 10 ? 50 @ 10

After replacing the symbols with the mathematical signs as per the direction, the equation becomes –
10 × 10 – 5 × 10 + 50 ÷ 10
= 10 × 10 – 5 × 10 + 5

= 100 – 50 + 5
= 55

Hence, the **fourth option** is correct.

Q. 42 **Directions:** In the following question, select the related word from the given alternatives.
Cure : Disease :: Heal : ?

Option 1:
Illness

Option 2:
Injury

Option 3:
Recover

Option 4:
Sick

Correct Answer:
Injury

Solution:
Given:
Cure : Disease :: Heal : ?

The cure is used for the recovered state of any disease.
Similarly, heal is the term used when one recovers from an injury.

Hence, the **second option** is correct.

Q. 43 **Directions:** In the following question, find the odd letter cluster from the given alternatives.

Option 1:
AOU

Option 2:
EOI

Option 3:
UIE

Option 4:
ALO

Correct Answer:
ALO

Solution:
Let's check the options –
First option: AOU; A, O, and U are all vowels.
Second option: EOI; E, O, and I are all vowels.
Third option: UIE; U, I, and E are all vowels.
Fourth option: ALO; A and O are vowels but L is not a vowel.

So, only in the fourth option two vowels and one consonant are present instead of three vowels. Hence, the **fourth option** is correct.

Q. 44 **Directions:** One morning, Raju walked towards the sun. After some time, he turned left and again to his left. Which direction is he facing?

Option 1:
North

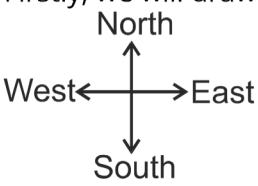
Option 2:
South

Option 3:
East

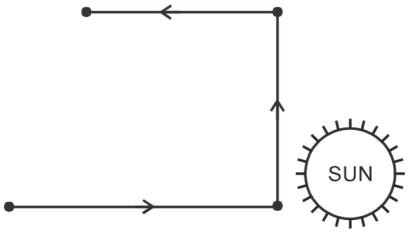
Option 4:
West

Correct Answer:
West

Solution:
Given:
One morning, Raju walked towards the sun, i.e., he walked towards the east direction. (Because in the morning, the Sun is in the east direction.)
Firstly, we will draw the diagram as per the given instructions –



Now, we have to find which direction Raju is facing.



So, Raju is facing towards the west direction. Hence, the **fourth option** is correct.

Q. 45 **Directions:** The weights of the 4 boxes are 90, 40, 80, and 50 kilograms. Which of the following cannot be the total weight, in kilograms, of any combination of these boxes, and in a combination a box can be used only once?

Option 1:
200

Option 2:
260

Option 3:
180

Option 4:
170

Correct Answer:
200

Solution:
Given:
The weights of 4 boxes are 90, 40, 80, and 50 kilograms.

The total weight of all possible combinations of boxes is as follows –
90 + 40 = 130; 90 + 80 = 170; 90 + 50 = 140; 40 + 80 = 120;
40 + 50 = 90; 80 + 50 = 130; 90 + 40 + 80 = 210;
90 + 40 + 50 = 180; 90 + 80 + 50 = 220; 40 + 80 + 50 = 170;
40 + 80 + 50 + 90 = 260

Therefore, there is no total weight of 200 kilograms in any combination. Hence, the **first option** is correct.

Q. 46 **Directions:** The age of Dr. Pandey is four times the age of his son. After 10 years, the age of Dr. Pandey will be twice the age of his son. What is the present age of Dr. Pandey's son?

Option 1:
4 years

Option 2:
5 years

Option 3:
6 years

Option 4:
8 years

Correct Answer:
5 years

Solution:
Let Dr. Pandey's present age be A, and Dr. Pandey's son's present age be B.

As per the given information,
Dr. Pandey's age is four times the age of his son ⇒ A = 4 × B = 4B

After 10 years, Dr. Pandey's age = (A + 10), and Dr. Pandey's son's age = (B + 10)
Also, after 10 years, Dr. Pandey's age will be twice his son's age, i.e., (A + 10) = 2 × (B + 10)

As, A = 4B; therefore, (A + 10) = 2 × (B + 10) can be written as –
⇒ (4B + 10) = 2 × (B + 10)
⇒ 4B + 10 = 2B + 20
⇒ 4B – 2B = 20 – 10
⇒ 2B = 10 ⇒ B = 10 ÷ 2
⇒ B = 5

So, Dr. Pandey's son's present age is 5 years. Hence, the **second option** is correct.

Q. 47 **Directions**: If the third day of the month is Tuesday, which of the following would be the 25th day of that month?

Option 1:
Tuesday

Option 2:
Monday

Option 3:
Wednesday

Option 4:
Sunday

Correct Answer:
Wednesday

Solution:
Given:
The third day of the month is Tuesday.

Total number of days of that month = 25 – 3 = 22
On dividing 22 by 7, we get 1 as the remainder.
Tuesday + 1 day = Wednesday

So, the 25th day of that month is Wednesday. Hence, the **third option** is correct.

Q. 48 **Directions:** Which one set of letters/numbers when sequentially placed at the gaps in the given letter series shall complete it?
H_JH_IJHHI_HH_JH

Option 1:
IHJI

Option 2:
HIHI

Option 3:
IHIJ

Option 4:
HJHJ

Correct Answer:
IHJI

Solution:
Given:
H_JH_IJHHI_HH_JH

To fill the series we have to divide the series – H_JH / _IJH / HI_H / H_JH
Let's check each option –
First option: IHJI; HIJH / HIJH / HIJH / HIJH (HIJH is repeated in the series.)
Second option: HIHI; HHJH **/** IIJH **/** HIHH **/** HIJH (No repeated pattern has been found.)
Third option: IHIJ; HIJH **/** HIJH **/** HIIH **/** HJJH (No repeated pattern has been found.)
Fourth option: HJHJ; HHJH **/** JIJH **/** HIHH **/** HJJH (No repeated pattern has been found.)

So, the series becomes→HIJHHIJHHIJHHIJH. Hence, the **first option** is correct.

Q. 49 **Directions:** In a certain code, **GO HOME** is written as **TA NA**, and **NICE LITTLE HOME** is written as **NA JA PA**. How is **GO** written in that code?

Option 1:
TA

Option 2:
NA

Option 3:
JA

Option 4:
NA or TA

Correct Answer:
TA

Solution:
Given:
1. GO HOME→TA NA
2. NICE LITTLE HOME→NA JA PA

By comparing both the coded sentences, we find that –
In sentences 1 and 2, **HOME** and **NA** are common.
The remaining word and code in sentence 1 are **GO** and **TA**; in sentence 2 are **NICE/LITTLE** and **JA/PA**.
Finally, HOME→NA; GO→TA; NICE/LITTLE→JA/PA

So, **GO** will be coded as **TA**. Hence, the **first option** is correct.

Q. 50 **Directions:** A is D's brother. D is B's father. B and C are sisters. How is C related to A?

Option 1:
Cousin

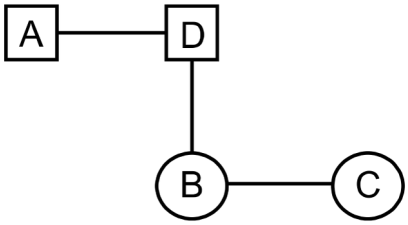
Option 2:
Niece

Option 3:
Aunt

Option 4:
Nephew

Correct Answer:
Niece

Solution:
As per the given information, the family tree will be as follows –



Here, the quadrilateral represents the male, and the circular figure represents the female in the figure.

So, from the above family tree, C is the niece of A. Hence, the **second option** is correct.

Q. 51 **Directions:** In the following questions a word is followed by four other words, one of which cannot be formed by using the letters of the given word. Find this word.
PHOTOSYNTHETIC

Option 1:
THOSE

Option 2:
SCENT

Option 3:
PRONE

Option 4:
COTTON

Correct Answer:
PRONE

Q. 52 In the following question, a statement is followed by four inferences. Select the one that is most appropriate.

All the books written by Prabhakar are textbooks. Some of his books are published by Pitamber Publishing Company.

Option 1:
All the books published by Pitamber Publishing Company have been written by Prabhakar

Option 2:
Pitamber Publishing Company publishes some critical essays written by Prabhakar

Option 3:
Some textbooks written by Prabhakar are published by Pitamber Publishing Company

Option 4:
Pitamber Publishing Company only publishes textbooks

Correct Answer:
Some textbooks written by Prabhakar are published by Pitamber Publishing Company

Q. 53 **Directions:** Consider the statements to be true and decide which of the given conclusions/assumptions can be drawn from the given statements.

Statements :
All states having dams face no water problem.
One of the states has no dam.

Conclusions :
I. It may be facing a water problem.
II. Dams solve the water problem.

Option 1:
Only conclusion I follows

Option 2:
Only conclusion II follows

Option 3:
Both conclusion I and conclusion II follow

Option 4:
Neither conclusion I nor conclusion II follows

Correct Answer:
Both conclusion I and conclusion II follow

Solution:
Conclusion I: It may be facing a water problem.
The statement says that those states that have dams do not face water problems. As such, it can be said that previously they were facing water problems, that is why, dams have been constructed. Hence, this conclusion follows from the above statements.
Conclusion II: Dams solve the water problem.
From the above statements, it can be said that after dams have been built, the states are no longer facing water problems. Hence, this conclusion follows from the above statement.

Therefore, both conclusion I and conclusion II follow. Hence, the **third option** is correct.

Q. 54 **Directions:** Consider the statements to be true and decide which of the given conclusions/assumptions can be drawn from the given statements.
Statements:
When water is cooled, it turns into ice.
When water is heated, it turns into steam.
Conclusions:
I. Water is a solid.
II. Water is a gas.

Option 1:
Only conclusion I follows

Option 2:
Only conclusion II follows

Option 3:
Both conclusions I and II follow

Option 4:
Neither conclusion I nor II follows

Correct Answer:
Neither conclusion I nor II follows

Solution:
Conclusion I: Water is a solid.
The given statements do not state that water is a solid. It states that when water is cooled, turns into ice. The statement mentions the formation and not what it is.

Conclusion II: Water is a gas.
The given statements do not state that the water is a gas. It states that water when heated, turns into steam. The statement mentions the formation and not what it is.

So, neither conclusion I nor II follows. Hence, the **fourth option** is correct.

Q. 55 **Directions:** Consider the given statements to be true and decide which of the given conclusions or assumptions can be drawn from the given statements.
Statements:
All stenographers are lazy.
Some men are stenographers.
Conclusions:
I. All lazy are men.
II. Some men are lazy.

Option 1:
Only Conclusion I follows

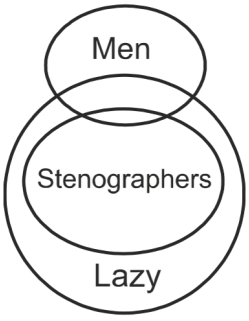
Option 2:
Only Conclusion II follows

Option 3:
Both Conclusion I and Conclusion II follow

Option 4:
Neither Conclusion I nor Conclusion II follows

Correct Answer:
Only Conclusion II follows

Solution:
The possible Venn diagram according to the given statements is as follows –



Let's analyse the conclusions –
Conclusion I: All lazy are men – From the Venn diagram, it is evident that the circles representing men and lazy overlap each other and have a part of their area in common. So, from this, it can be concluded that some lazy are men. Therefore, this conclusion does not follow.

Conclusion II: Some men are lazy – From the Venn diagram, it is evident that the circles representing men and lazy overlap each other and have a part of their area in common. So, from this, it can be concluded that some lazy are men. Therefore, this conclusion follows.

So, only Conclusion II follows. Hence, the **second option** is correct.

Q. 56 **Directions:** A is shorter than B but taller than C. D is shorter than A but taller than C. E is shorter than B but taller than A. Who is the shortest person?

Option 1:
B

Option 2:
C

Option 3:
A

Option 4:
D

Correct Answer:
C

Solution:
Given:
A is shorter than B but taller C.
C < A < B
D is shorter than A but taller than C.
C < D < A
E is shorter than B but taller than A.
A < E < B

By concluding all the given information, we have –
C < D < A < E < B

So, C is the shortest person. Hence, the **second option** is correct.

Q. 57 **Directions:** A is taller than B, C is taller than A. D is taller than E but shorter than B. Who is the tallest?

Option 1:
C

Option 2:
A

Option 3:
D

Option 4:
B

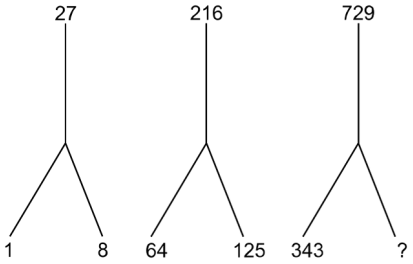
Correct Answer:
C

Solution:
Given:
A is taller than B; A > B
C is taller than A; C > A
D is taller than E but shorter than B; B > D > E

By concluding all the given information, we have –
E < D < B < A < C

So, C is the tallest. Hence, the **first option** is correct.

Q. 58 **Directions:** In the following question, select the missing number from the given responses.



Option 1:
432

Option 2:
501

Option 3:
512

Option 4:
332

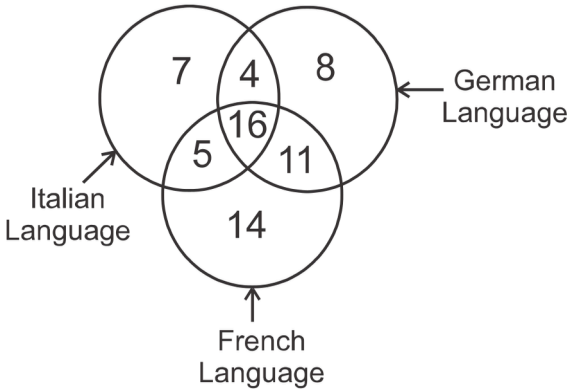
Correct Answer:
512

Solution:
The numbers given in each figure are the cubes of the consecutive natural numbers.

In the first figure→$(1)^3 = 1$; $(2)^3 = 8$; $(3)^3 = 27$
In the second figure→$(4)^3 = 64$; $(5)^3 = 125$; $(6)^3 = 216$
In the third figure→$(7)^3 = 343$; $(8)^3 = 512$; $(9)^3 = 729$

So, 512 is the missing number. Hence, the **third option** is correct.

Q. 59 **Directions:** In the given figure, how many people speak only Italian and only French language?



Option 1:
21

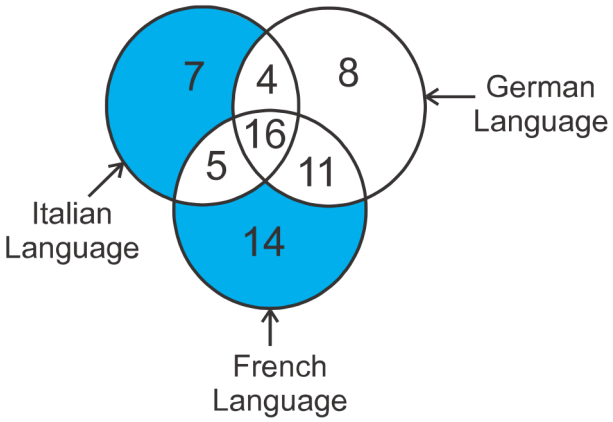
Option 2:
16

Option 3:
27

Option 4:
20

Correct Answer:
21

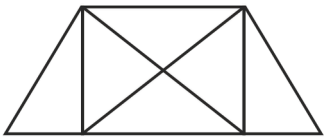
Solution:
In the diagram, the shaded parts represent the regions that represent only the Italian and French languages separately.



The number of people that speak only Italian is the region that does not overlap with any other region. So, the number of people who speak only Italian is 7.
Similarly, the number of people who speak only French is 14.

The number of people who speak only Italian and only French is 14 + 7 = 21. Hence, the **first option** is correct.

Q. 40 **Directions:** How many triangles are there in the given figure?



Option 1:
8

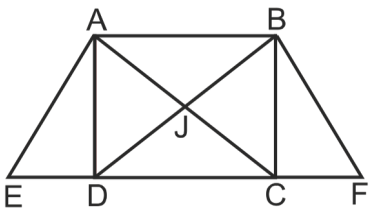
Option 2:
10

Option 3:
12

Option 4:
14

Correct Answer:
12

Solution:
The given figure can be labeled as shown below –



There are a total of 12 triangles in the above figure. They are ADE, BCF, AJD, DJC, CJB, BJA, ADC, DCB, CBA, BAD, EAC, DBF.

Hence, the **third option** is correct.