

GSA

NAME: Urooj Fatima
BATCH: 58

SECTION - II

QUESTION 6

(A)

SOLUTION:

$$k = ?$$

$$\text{Mean} = 15$$

$$\therefore \text{Mean} = \frac{\text{Sum of objects}}{\text{No. of objects}}$$

$$\Rightarrow 15 = \frac{9 + 8 + 10 + k + 12}{5}$$

$$\Rightarrow 15 \times 5 = k + 39$$

$$\Rightarrow 75 - 39 = k$$

$$\Rightarrow \boxed{36} = k$$

(C)

SOLUTION:

$$\text{Radius of football} = r = 12\text{cm}$$

$$\text{Volume of football} = V = ?$$

$$\therefore V = \frac{4}{3} \pi r^3$$

$$\Rightarrow V = \frac{4}{3} \pi (12)^3$$

$$\Rightarrow V = \frac{4}{3} \cdot (12)^2 \cdot 12 \cdot \pi$$

$$\Rightarrow V = 4 \times 144 \times 4 \times \pi$$

$$\Rightarrow V = 576 \times 4 \times \pi$$

$$\Rightarrow \boxed{V = 2304 \pi \text{ cm}^3}$$

(B)

SOLUTION:

Initial ratio = 4:3

Let;

Sugar solution be = $4x$

Colored water be = $3x$

Now;

Colored water added = 10 liter

Colored water = $3x + 10$

New ratio = 4:5

According to the given statement:

$$\Rightarrow \frac{4x}{3x + 10} = \frac{4}{5}$$

Cross multiplying;

$$\Rightarrow 4x \times 5 = 4x(3x + 10)$$

$$\Rightarrow 20x = 12x + 40$$

$$\Rightarrow 20x - 12x = 40$$

$$\Rightarrow 8x = 40$$

$$\Rightarrow x = \frac{40}{8}$$

$$\Rightarrow \boxed{x = 5 \text{ liter}}$$

QUESTION 8

(A)

SOLUTION:

$$\therefore \text{Charge} = £ 20 + 4n$$

n = number of windows

If Brian cleaned '7' windows, then:

$$\Rightarrow n = 7$$

$$\Rightarrow \text{Charge} = £ 20 + 4(7)$$

$$\Rightarrow \text{Charge} = £ 20 + 28$$

$$\Rightarrow \boxed{\text{Charge} = £ 48}$$

(D)

SOLUTION:

Starting from inner cube:

⇒ Small triangles in the corner = 4

⇒ Main triangles = 4

⇒ Diagonal cutting the square in half = 4

⇒ On the corners of the square, inside the hexagon = 4

⇒ Outer corners of hexagon = 4 (smaller ones)

⇒ Corners of hexagon = 4 (bigger ones)

⇒ Diagonal cutting the hexagon = 2

⇒ $(4 + 4 + 4) + (4 + 4 + 2 + 4)$

⇒ **26 triangles**

(C)

SOLUTION:

$$A = \{10, 11, 12, 13, 15\}$$

$$B = \{10, 12, 14\}$$

$$U = \{10, 11, 12, 13, 14, 15, 16, 18\}$$

Now;

$$L.H.S = (A \cup B)'$$

$$\Rightarrow A \cup B = \{10, 11, 12, 13, 15\} \cup \{10, 12, 14\}$$

$$\Rightarrow A \cup B = \{10, 11, 12, 13, 14, 15\}$$

$$\Rightarrow (A \cup B)' = U - (A \cup B)$$

$$\Rightarrow (A \cup B)' = \{10, 11, 12, 13, 14, 15, 16, 18\} - \{10, 11, 12, 13, 14, 15\}$$

$$(A \cup B)' = \{16, 18\}$$

$$\text{R.H.S} = A' \cap B'$$

$$A' = U - A$$

$$\Rightarrow A' = \{10, 11, 12, 13, 14, 15, 16, 18\} -$$

$$\{10, 11, 12, 13, 15\}$$

$$\Rightarrow A' = \{14, 16, 18\}$$

$$B' = U - B$$

$$\Rightarrow B' = \{10, 11, 12, 13, 14, 15, 16, 18\} -$$

$$\{10, 12, 14\}$$

$$\Rightarrow B' = \{11, 13, 15, 16, 18\}$$

$$\Rightarrow A' \cap B' = \{14, 16, 18\} \cap \{11, 13, 15, 16, 18\}$$

$$\Rightarrow A' \cap B' = \{16, 18\}$$

Hence proved, L.H.S = R.H.S

(B)

i) ralciep

ii) tyhniaum

iii) arsehcc

iv) moniteab

v) tareph

SECTION - I

QUESTION 2

(A)

ANSWER:

DENGUE

Dengue is a virus spread by *Aedes* mosquito. They are usually present in tropical areas and mostly during the monsoon season. Its causative agent is the *Aedes* mosquito. They leave their ~~larva~~ in stagnant or uncovered water. Symptoms of dengue include; constant high fever, pain in bones, headache, ^{weakness} and difficulty in breathing.

(B)

ANSWER:

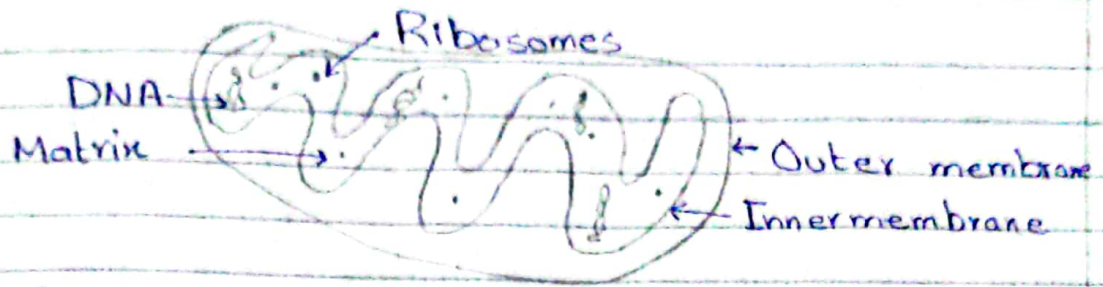
DARK MATTER

The universe is made of dark matter as its center. It has its own energy, which keeps everything in the universe in their positions, called dark energy. The center of our galaxy is the black hole (dark).

(C)

ANSWER:

MITOCHONDRIA



Mitochondria is called the powerhouse of a cell because it provides energy to the cell. It is present in a cell and is like a bean or rod. Mitochondria has two membranes; outer and inner. The inner membrane forms many foldings. Mitochondria has ribosomes and DNA as well. The function of mitochondria is to provide energy.

(D)

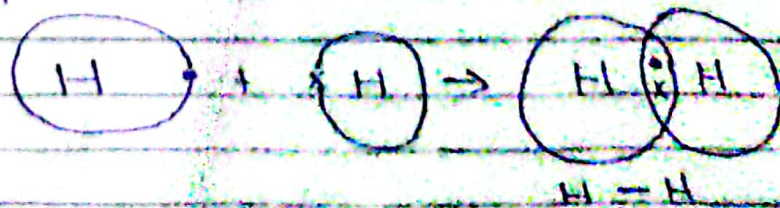
ANSWER:

COVALENT BOND

A covalent bond is a chemical bond formed when a pair of electron is shared between two atoms. It has four types; single covalent bond, double, triple, and coordinating covalent bond.

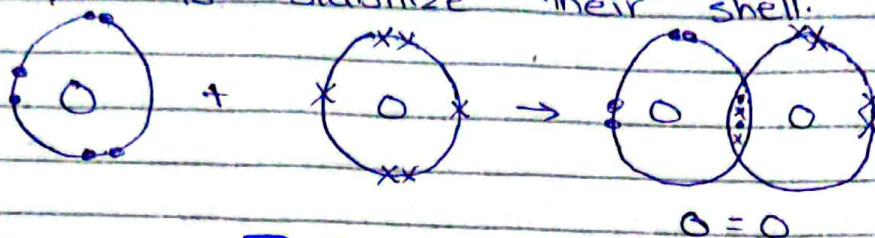
SINGLE

When each atom share ^{pair of} one electron to complete their outer most shell.



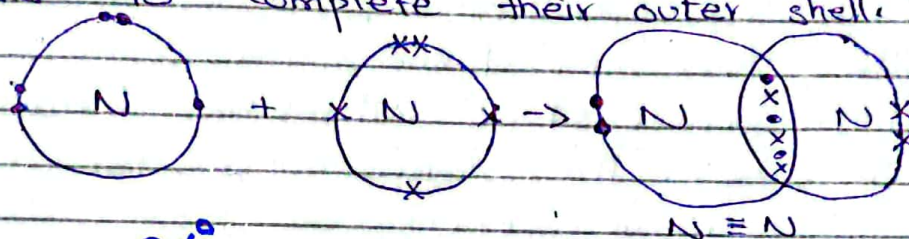
DOUBLE

When atoms share two pairs of electrons to stabilize their shell:



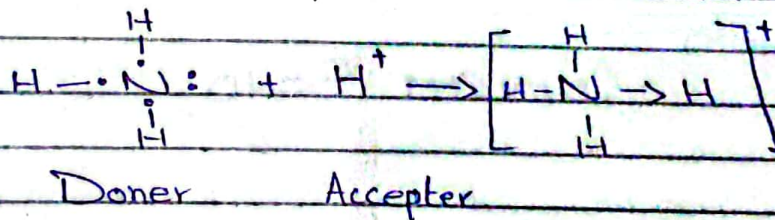
Triple

When atoms share three pair of electrons to complete their outer shell:



COORDINATE COVALENT

It is formed when only one atom donates electrons to the other atom.



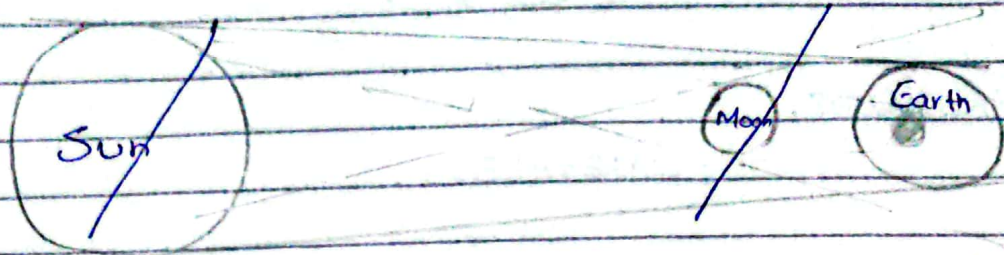
QUESTION 3

(A)

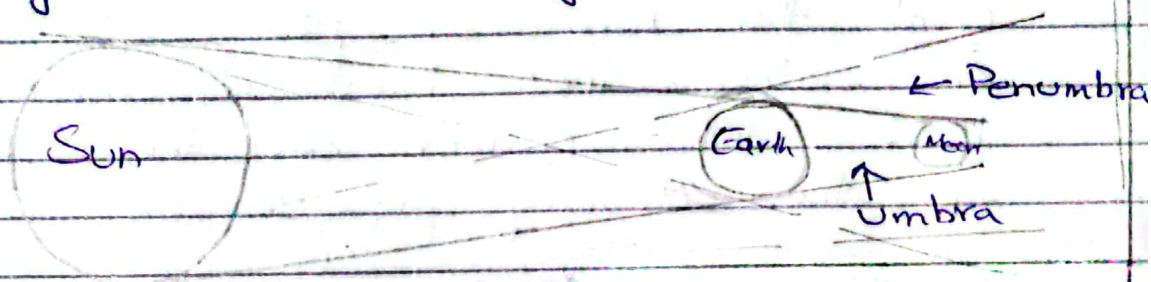
ANSWER:

LUNAR ECLIPSE

Lunar eclipse occur when the moon come between the sun and earth, blocking the sun rays which casts a shadow on a specific area.



Lunar eclipse occurs when the Earth comes in the path of sunlight reaching moon, casting its shadow.



(B)

ANSWER:

ENZYMES

Enzymes are used in a chemical reaction to speed up the process.

Some examples of enzymes are; yeast, washing powders. Washing powders break the bonds of greasy substances on clothes. They break the larger bonds into smaller ones, thus speeding up the cleaning process.

(D)

ANSWER:

EARTHQUAKE AND VOLCANOES

Earthquakes and volcanic eruptions are interconnected because both occur due to the tectonic plates movement. Severe earthquakes can also cause volcanoes to erupt.