

Do's and Don'ts for General Science & Ability Paper

Hi there, you've done well. Know that acquiring knowledge is one thing and reproducing it in paper according to what's asked is another.

There are a few things I would like to highlight.

1. A 5 marks part requires at least 2 and at max 3 sides of a paper. Know that there can be two or three parts of a question and their marks are divided accordingly. So, address all of them in a just manner.

2. Focus on time management. You get 35 minutes to solve one question and about 8 minutes per 5 mark part. Manage your time accordingly.

3. You need to understand that your paper is supposed to look more scientific than theoretical. So, add flowcharts and diagrams where required.

4. Your handwriting and neatness can be really impactful. Avoid cutting and overwriting.

5. Focus on your spellings and your grammar. Here, in GSA there's no deduction in marks but your expression will definitely create an impact.

6. In ability portion, give explanation for analytical ability question in words. You need to understand that a 5 mark part requires all steps written and explained.

Good luck for CSS 2025. You're gonna rock in sha Allah. :)

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

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

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

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

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

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

(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:

- $\Rightarrow$ Small triangles in the corner = 4
 - $\Rightarrow$ Main triangles = 4
 - $\Rightarrow$ Diagonal cutting the square in half = 4
 - $\Rightarrow$ On the corners of the square, inside the hexagon = 4
 - $\Rightarrow$ Outer corners of hexagon = 4 (smaller ones)
 - $\Rightarrow$ Corners of hexagon = 4 (bigger ones)
 - $\Rightarrow$ Diagonal cutting the hexagon = 2
- $\Rightarrow (4 + 4 + 4) + (4 + 4 + 2 + 4)$
- $\Rightarrow$ 26 triangles

(C)

SOLUTION:

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

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

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

Now;

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

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

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

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

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

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

$$R.H.S = A' \cap B'$$

$$A' = U - A$$

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

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

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

$$B' = U - B$$

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

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

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

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

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

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~~ ^{larvae} in stagnant or uncovered water. Symptoms of dengue include; constant high fever, pain in bones, headache, ^{weakness} and difficulty in breathing.

(B)

ANSWER:

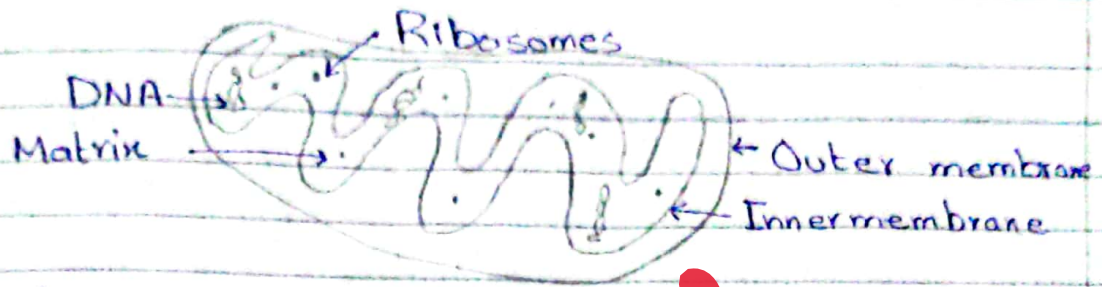
DARK MATTER

The universe has ~~made~~ ^{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)

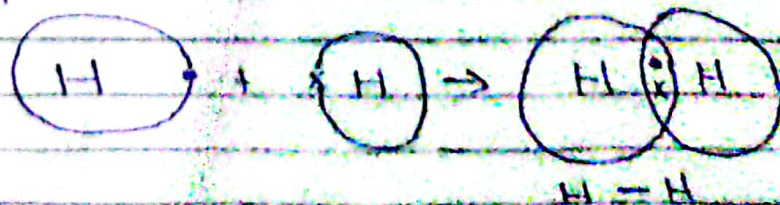
ANSWER:

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.

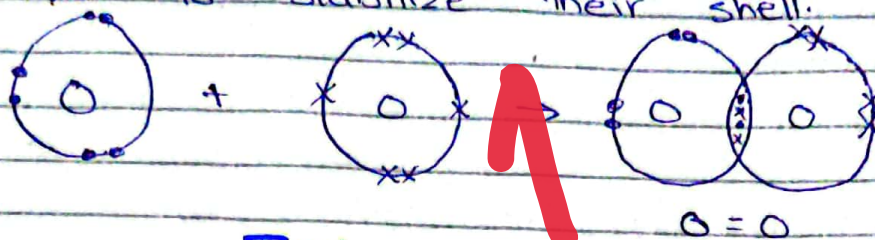
SINGLE

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



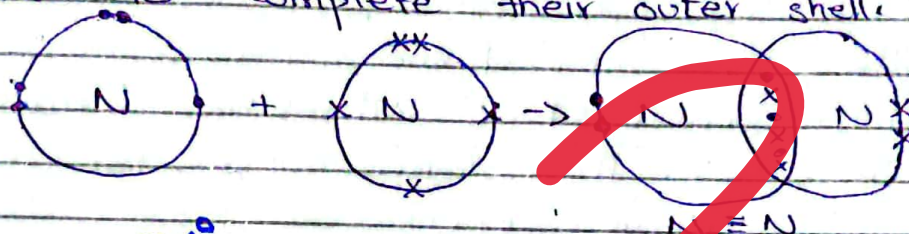
DOUBLE

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



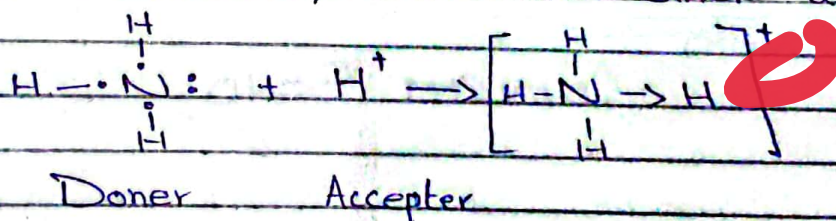
Triple

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



COORDINATE COVALENT

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



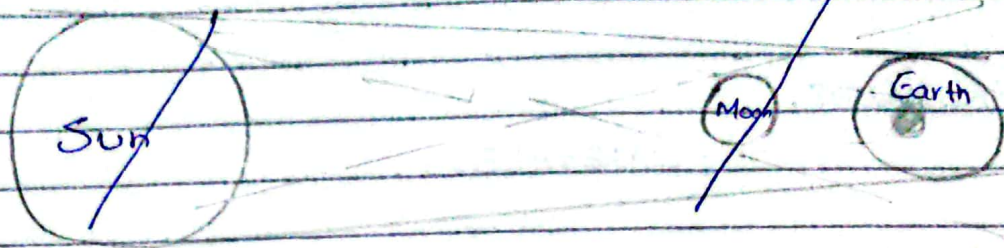
QUESTION 3

(A)

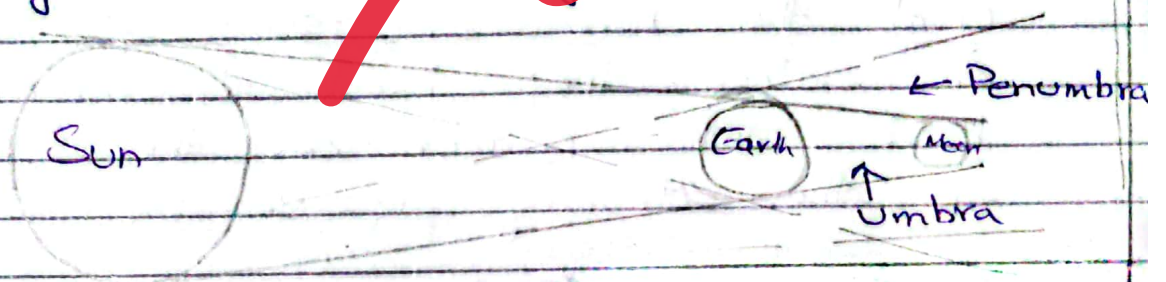
ANSWER:

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)

Explain in detail

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.