

Day: _____
Date: _____
Dos 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. :)

Date: _____

Day: _____

(b)

Find out words from given jumbled spellings.

- i) ralciap = replica
- ii) tyhniaum = humanity
- iii) arsehc = ~~ear~~ creachs, search
- iv) moniteah = annihate
- v) tareph = tephra

(c)

Verify $(A \cup B)' = A' \cap B'$

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

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

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

Solution.

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

$$A \cup B = \{$$

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

putting values, we get

$$L.H.S = \{10, 11, 12, 13, 14, 15, 16, 18\} -$$

$$(\{10, 11, 12, 13, 15\} \cup \{10, 12, 14\})$$

Date: _____

Day: _____

$$L.H.S = \{10, 11, 12, 13, 14, 15, 16, 18\} - \{10, 11, 12, 13, 14, 15\}$$

$$L.H.S = \{16, 18\} \longrightarrow \textcircled{1}$$

Now

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

$$R.H.S = (U - A) \cap (U - B)$$

putting values we get

$$R.H.S = (\{10, 11, 12, 13, 14, 15, 16, 18\} - \{10, 11, 12, 13, 15\}) \\ \cap (\{10, 11, 12, 13, 14, 15, 16, 18\} - \{10, 12, 14\})$$

+

$$R.H.S = \{14, 16, 18\} \cap \{11, 13, 15, 16, 18\}$$

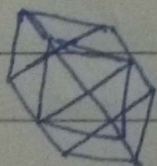
$$R.H.S = \{16, 18\} \longrightarrow \textcircled{2}$$

Hence from $\textcircled{1}$ & $\textcircled{2}$

$$L.H.S = R.H.S \text{ verified}$$

(d.)

Find number of triangles
in the given figure.



Solution.

$$\text{Total number of triangle} = 8 + 10 + 6 \\ = 24 \text{ Ans.}$$

Date: _____

Day: _____

Q_{No 6}

Determine the value of 'k' if the arithmetic mean of 9, 8, ~~10~~k, 12 is 15.

Solution.

To find:

$$k = ?$$

Calculation:

We know that

$$\text{Arithmetic mean} = \frac{\text{Sum of all observation}}{\text{no of observation}}$$

Putting values, we get;

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

Multiplying '5' on both sides;

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

$$75 = 9+8+10+k+12$$

$$75 = 39+k$$

$$\Rightarrow k = 75 - 39$$

$$\begin{array}{r} 75 \\ - 39 \\ \hline 36 \end{array}$$

$$\boxed{k = 36}$$

Date: _____

Day: _____

Hence value of k is 36.

(b)

A mixture contains sugar solution and colored water in ratio of 4:3. If 10 litres of colored water is added to mixture, the ratio becomes 4:5. Find initial quantity of sugar solution in the given mixture.

Solution.

Let

initial quantity of sugar = $4x$

initial quantity of colored water = $3x$

After adding ~~water~~ 10 litres of colored water

Final quantity of colored water = $3x + 10$

~~Given ratio~~

The ratio become

$$4x : 3x + 10 = 4 : 5$$

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

By cross multiplication, we get

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

$$20x = 12x + 40$$

$$20x - 12x = 40$$

$$8x = 40$$

÷ by '8' on both sides;

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

$$x = 5$$

#

initial quantity of sugar solution = $4x$

putting value of $x = 5$

initial quantity of sugar solution = 4×5

$$= 20$$

Hence the initial quantity of sugar solution is 20 litres.

(C)

What will be volume of football with a radius of 12cm?

Solution

To find:

$$V = ?$$

Calculation:

We know that

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

putting value of 'r' in above equation

$$V = \frac{4}{3} \times \left(\frac{22}{7} \right) \times (12)^3$$

$$V = 4 \times 22 \times 64 \text{ cm}^3$$

$$V = 88 \times 64 \text{ cm}^3$$

$$V = \frac{5632}{7} \text{ cm}^3$$

$$V = 804.57 \text{ cm}^3$$

Hence, the volume of football is 804.57 cm^3

$$\begin{array}{r} 804.57 \\ 88 \times 64 \\ \hline 5632 \end{array}$$

$$\begin{array}{r} 804.57 \\ 56 \\ \hline 28 \\ 40 \\ 35 \\ 50 \end{array}$$

(d)

Given a series, -

-10, -8, 6, 40, 102?

Find what number would come in place of question mark(?).

Solution.

~~$-10 + (-2) = -12$~~

$-10 + 2 = -8$

$-8 + 14 = 6$

$6 + 34 = 40$

$40 + 62 = 102$

$102 + 118 = 220$

Hence, the number that would come at the place of question mark is 200.

Section: I

Q_{no} 2

(d)

What is covalent bond? Explain

types along with elaborating structure?

Ans.

Covalent Bond:

The bond that is formed by mutual sharing of electrons between two non-metal atoms it is called covalent bond.

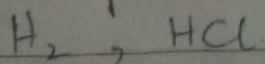
There are five types of covalent bond which are single covalent bond, double covalent bond, triple covalent bond, polar covalent bond and non-polar covalent bond. This type of bond exists in solid, liquid and gaseous state.

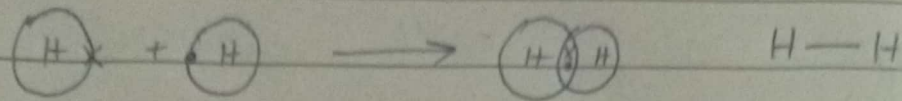
Types of Covalent Bond:

1- Single-covalent Bond:

This type of bond is formed by sharing single electron and is denoted by a single line between two atoms.

Example:

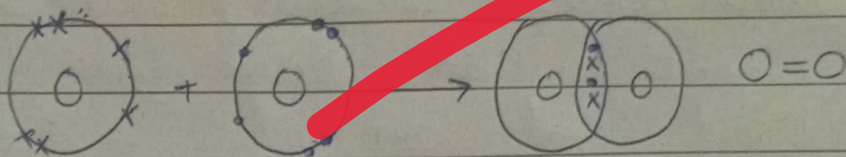
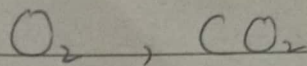




2- Double Covalent Bond:

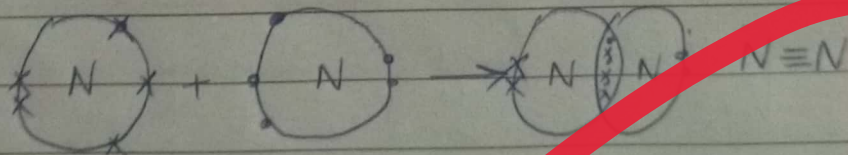
This type of covalent bond is formed by sharing two electrons between atoms. It is denoted by double line between two atoms.

Example:



3- Triple Covalent Bond:

This type of bond is formed by sharing three electrons between atoms. It is represented by three lines between atoms.



4- Polar Covalent Bond:

This bond is formed by unequal sharing of electrons due to difference in

Date: _____

Day: _____

electronegativity of combining atoms.

Example:

Hydrogen Bonding

S- Non-Polar Covalent Bond:

This type of bond is formed by equal sharing of electrons

Example:

Hydrogen gas, nitrogen gas etc.

(C)

Discuss structure and function of mitochondria. How is it the powerhouse?

Ans.

Function of Mitochondria:

Mitochondria primary function is to produce energy. Besides this, it also regulates metabolic activity of the cell. It also promotes cell multiplication and cell growth. It also

Date: _____
Add diagram

Day: _____

Date: _____

detox ammonia in the cell.
Moreover it plays an important
role in programmed cell
death.

Mitochondria is a Powerhouse:

The proteins synthesis from
the proteins of mitochondria
generate ATP (Adenosine tri-
phosphate). This ATP acts as
a energy currency of
the cell, because of which
whole cell and body gets
energy. Thus, mitochondria is
called powerhouse of cell.

(b)

Explain Dark matter and Dark
energy.

Ans:

Dark Matter:

Invisible matter that exerts
gravity, holding galaxies and
other cosmic structures together.
Dark matter is responsible
for the organisation of
galaxies on large scale.

Date: _____

Day: _____

Dark energy:

Both dark matter and dark energy

Dark energy is the name we give the mysterious influence driving the accelerated expansion of the universe. example CMB-211 galaxy.

Together dark matter and dark energy make up almost 95% of universe.

Q No 3

(a)

What is Lunar Eclipse?
Explain in detail with structure.

Ans:

Lunar Eclipse:

When the earth moves between sun and the moon, and earth blocks the sunlight of sun at that time lunar eclipse occur. A lunar eclipse can be seen from earth. It occurs when the moon is full.

Date: _____

Day: _____

Types of Lunar Eclipse:

1- Penumbra Lunar Eclipse:

In this type, the moon only passes through penumbra of Earth shadow. It is rarely visible.

2- Partial Lunar Eclipse:

It happens when part of Moon passes through umbra of Earth. In this the shadow is not obscured completely.

3- Total Lunar Eclipse:

It happens when rest of Moon passes through umbral region of Earth and it is obscured the shadow totally.

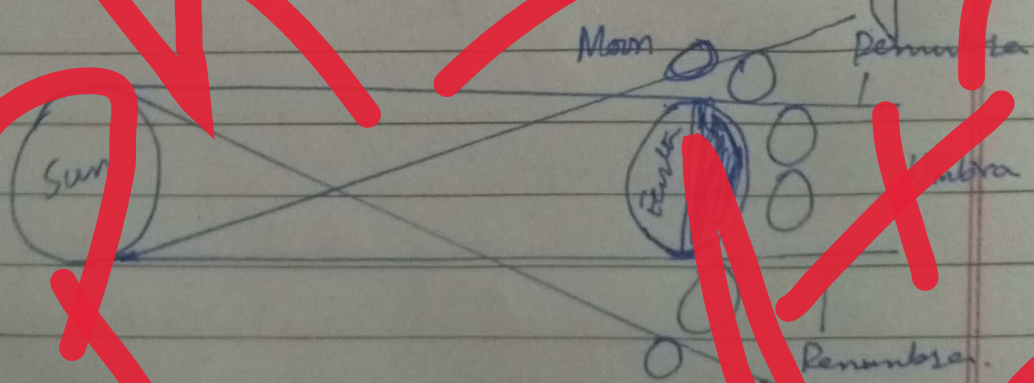


Fig: Lunar Eclipse