

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. 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. :)

Add early critical, recovery symptoms

appear 04-10 days after the bite from an infected mosquito and can last for 02-07 days.

1. Sudden high fever
2. Severe headache
3. Pain behind the eyes
4. Nausea and vomiting
5. Skin rash
6. Mild bleeding symptoms.

(b)

Dark Matter:-

Dark matter is a form of matter that does not emit, absorb or reflect light making invisible to current instruments.

Composition:-

The composition of Dark matter consist of dissolved particles sometimes hypothesized to be weakly interacting massive particles or axions.

Evidence & Role:-

- ⇒ Its presence is inferred from its gravitational effects on galaxies and galaxy clusters.
- ⇒ Dark matter provides the "scaffolding" of the universe, helping galaxies and

other structures form and remain stable.

Dark Energy:-

The form of energy that is hypothesized to permeate all of space accelerating the expansion of the universe.

Composition:-

Dark energy has properties that counteract gravity, causing galaxies to move away from each other at increasing speeds.

Evidence & roles:-

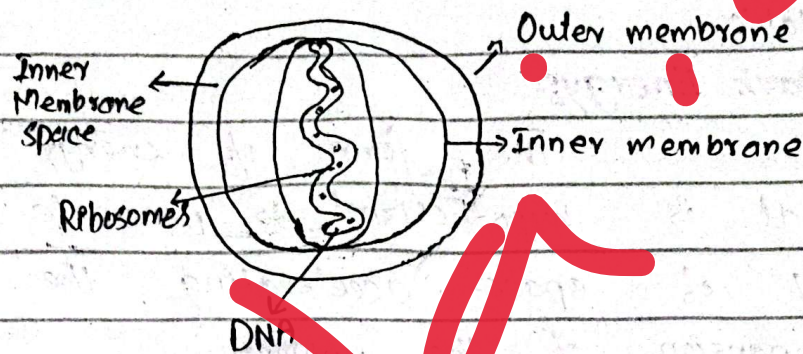
The cosmic microwave Background radiation also supports the idea of dark energy influencing the universe's expansion.

(c)

Mitochondria:-

Mitochondria often called the "powerhouse of the cell" are essential organelles found in most eukaryotic cells.

Structure:



- i. Mitochondria is double membraneous and self-replicating cell organelle.
- ii. The inner part of the mitochondrion contains enzymes, mitochondrial DNA and ribosomes.

Functions:

- i. The process of cellular respiration takes place.
- ii. The production of glycolysis and Citric acid cycle also takes place.

Power house:-

It is often called power house of cell because of ATP synthesis that provides power for cellular activities.

(d)

Covalent Bonds:-

Covalent bonds are chemical bonds formed when two atoms share one or more pairs of electrons.
⇒ This sharing is to stabilize "Octet rule"

Types of Covalent Bonds:-

1. Single Covalent Bonds:-

In single covalent bond, one pair of electrons is shared between two atoms.

Example:- Hydrogen molecule (H_2)

Each hydrogen atom shares one electron forming stable H_2 molecule.

Structure:-



2. Double Covalent Bonds:-

In double covalent bond involves two pairs of electrons is shared between two atoms.

Example:- Oxygen molecule (O_2).

Each oxygen atom shares two electrons.

Structure:- $O=O$

Triple Covalent Bonds:-

In a triple covalent bond, three pairs of electrons are shared between atoms.

Example:- Nitrogen molecule (N_2). Each nitrogen atom shares three electrons with other atom.

Structure:- $N \equiv N$.

Q. No. 04

(a)

Noise pollution:-

The presence of excessive, unwanted, or harmful sounds in the environment.

⇒ It is primarily caused by human activities such as transportation, industrial processes, construction and urban development.

Effects:-

① Human health effects like hearing loss, cardiovascular issues, sleep disturbances, mental impacts

② Environmental and wildlife effects like disruption of ecosystems, habitat fragmentation and marine life impact.

Ways to curb Noise pollution-

Following are the ways to curb noise pollution.

- ① By urban planning and zoning of industrial activities away from residential areas.
- ② By improving transportation management.
- ③ By use of soundproof technologies
- ④ By promoting green spaces and Buffer zones.

(b)

Fibers:-

Fibers are essential in maintaining digestive health and overall well-being.

Soluble fibers:-

Dissolves in water to

form a gel-like structure which helps lower blood cholesterol and glucose level.

⇒ Sources include oats, apples, carrots and legumes

Insoluble Fibers-

Does not dissolve in water and adds bulk to stool, promoting regular bowel movements and preventing constipation.

⇒ Sources include grains, nuts and vegetables.

Importance of fibers

Fibers regulates digestive health, blood sugar control, weight management and heart health.

Characteristics of a balanced platter:

A balance food platter provides the right proportions of all essential nutrients, including fats, proteins, carbohydrates, vitamins, minerals and water

⇒ It oftenly consist of half plate

with fruits and vegetables, one-quarter of the plate with Proteins and grains each and healthy fats.

(c)

Drinking water:-

The World Health Organization and the Environmental Protection Agency establish drinking water quality standards to ensure water safety for public consumption.

Drinking water Quality:-

① Following are the physical parameters for drinking water Quality like turbidity, color, taste and odor and temperature.

② Following are the chemical parameters for drinking water quality like pH level, hardness, nitrates and nitrites, heavy metals, chlorine and chloramines and fluoride.

③ Pathogens and total coliforms are biological parameters.

Drinking water standards:-

Following drinking water standard set by WHO and EPA

	WHO	EPA
Lead	0.01 mg/L	0.015 mg/L
Arsenic	0.01 mg/L	0.01 mg/L
Nitrate	50 mg/L	10 mg/L
Fluoride	1.5 mg/L	4.0 mg/L

(d)

Lithosphere:-

⇒ The outermost layer of the Earth consisting of the crust and uppermost part of the mantle.

⇒ The lithosphere is divided into tectonic plates that move and interact leading to geological phenomena like earthquakes, volcanic activity and mountain formation.

Rocks:-

Rocks are naturally occurring

solids made of one or more minerals.

Types:-

i. **Igneous rocks** → formed from the cooling and solidification of molten magma or lava. e.g. Granite.

ii. **Sedimentary rocks** → formed from the accumulation, compaction and cementation of minerals and organic particles e.g. Shale.

iii. **Metamorphic rocks** → Formed when existing rocks undergo changes in pressure, temperature leading to recrystallization e.g. marble.

Minerals:-

The inorganic substances with a specific chemical composition.

→ Each mineral has a unique arrangement of atoms, giving it distinctive physical properties such as color, hardness, luster, and cleavage.

Examples:- Quartz, Feldspar, and Calcite are examples of minerals.

Q. No. 08

(a)

Solution:-

$$\text{charge} = £20 + 4n$$

$$\text{Number of windows} = 7$$

Total cost of windows cleaner = ?

Sol:-

$$\text{charge} = £20 + 4n$$

$$= £20 + 4(7)$$

$$= £20 + 28$$

$$= £48 \text{ Answer.}$$

(b)

Solution:-

Ralciep → Replica

Tyhnium → Humanity

arsehce → Search

moniteah → emotional

Tareph → father.

(c)

Given Data:-

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

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

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

Sol:-

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

The union $A \cup B$ includes all elements that are in A or B .

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

It denotes all elements that are not in $A \cup B$.

$$A' = U - A = \{14, 16, 18\}$$

All elements in U that are not in A .

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

All elements in U that are not in B .

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

The intersection of A' and B' which includes all elements common to both A' and B' .

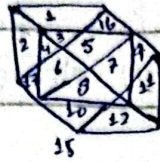
$$(A \cup B)' = \{16, 18\} \text{ and } A' \cap B' = \{16, 18\}$$

That's why,

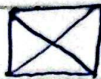
$$(A \cup B)' = A' \cap B' \text{ Answer.}$$

(d)

Solution:-



$$= 12$$



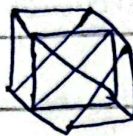
$$= 04$$



$$= 02$$



$$= 08$$



$$12$$

Total Triangle = 38 Answer.

Q.No. 06

(a)

Given Data:-

$$\rightarrow 9, 8, 10, K, 12$$

$$\rightarrow \text{Mean} = 15$$

Solution:-

$$\text{Arithmetic Mean} = \frac{9+8+10+K+12}{5} = 15 \rightarrow \text{①}$$

$$\text{Sum of Total No.} = 9+8+10+12 = 39$$

Substitute in eq $\rightarrow$ ①

$$\frac{39+K}{5} = 15$$

$$39+K = 15 \times 5$$

$$K = 75 - 39$$

$$K = 36 \text{ Answer.}$$

(b)

Given data:-

Ratio of sugar solution
and colored water = $4x:3x$

After adding water

$$3x + 10$$

New ratio of sugar solution

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

Solution:-

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

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

$$20x = 12x + 40$$

$$20x - 12x = 40$$

$$8x = 40$$

$$x = \frac{40}{8} = 5$$

Quantity of sugar solution

$$= 4x$$

$$= 4(5)$$

$$= 20 \text{ litres Answers.}$$

(c)

Given Data:-

Radius of football = 12cm

Solution:-

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

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

$$V = \frac{4}{3} \pi (1728)$$

$$V = \frac{4 \times 1728}{3} \pi$$

$$V = \underline{2304 \pi \text{ cm}^3} \text{ Answer.}$$

Given Data:- (d)

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

Solution:-

$$-8 - (-10) = -8 + 10 = 2$$

$$6 - (-8) = 6 + 8 = 14$$

$$40 - 6 = 34$$

$$102 - 40 = 62$$

The differences are increasing by 12 each time. So, the next

difference should be $62 + 12 = 74$

So, next number

$$= 102 + 74 = \underline{176} \text{ Answer.}$$