

# 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 2026. You're gonna rock in sha Allah. :)

General Science and Ability

Part II

Section-1:

Question no 2

R.

a.

Star

- It makes its own light and heat.

- It is very hot and

- It is larger and heavier.

- It is extremely hot.

- For example:

The sun.

- It is much cooler compared to stars.

- For Example:

The Earth.

- It is much cooler compared to stars.

- For Example:

The Earth.

- It is much cooler compared to stars.

- For Example:

The Earth.

- It is much cooler compared to stars.

- For Example:

The Earth.

- It is much cooler compared to stars.

- For Example:

The Earth.

- It is much cooler compared to stars.

- For Example:

The Earth.

- It is much cooler compared to stars.

- For Example:

The Earth.

- It is much cooler compared to stars.

- For Example:

The Earth.

Planet

- It makes its own light.

- It is cooler, and reflects

- It is smaller than

- It is much cooler compared to stars.

- For Example:

The Earth.

- It is much cooler compared to stars.

- For Example:

The Earth.

- It is much cooler compared to stars.

- For Example:

The Earth.

- It is much cooler compared to stars.

- For Example:

The Earth.

- It is much cooler compared to stars.

- For Example:

The Earth.

- It is much cooler compared to stars.

- For Example:

The Earth.

- It is much cooler compared to stars.

- For Example:

The Earth.

- It is much cooler compared to stars.

- For Example:

The Earth.

- It is much cooler compared to stars.

- For Example:

The Earth.

Life cycle of a star from a Nebula to a Black Hole:

Nebula → Protostar → Main sequence star

↓

Red Super giant

↓

Supernova

↓

Black hole

1) Nebula:

A large cloud of gas and dust.  
Gravity pulls the material together.

2) Protostar:

The gas compresses and heats up,  
forming a young star.

3) Main Sequence star:

Nuclear fusion starts (hydrogen  
turns into helium). The star shines  
steadily.

4) Red Supergiant:

When hydrogen runs out, a  
massive star expands and becomes  
huge.

5) Supernova

The star explodes because it cannot  
support its own weight.

6) Black Hole:

If the remaining core is very  
massive, it collapses completely  
under its own gravity and becomes  
a black hole.

## b. Semiconductors:

- A material having electrical properties in between conductors and insulators is called a semiconductor.

- For example:

- Silicon

- Germanium

- Its conductivity can be controlled by adding impurities (doping).

→ n-type and p-type semi-conductors are extrinsic semi conductors.

Extrinsic semiconductor is when impurity is added to a pure semiconductor.

- N-type semiconductor:

- When impurity is added to a pure semi-conductor from 5th group of the periodic table, n-type semi conductor is formed.

- Doped with an element that has extra electrons.

- Electrons are the majority charge carriers.

- P-type semiconductor:

- When impurity is added to a pure semi-conductor from third group of the periodic table, p-type semi conductor is formed.

- Doped with an element that has fewer electrons, creating holes.

- Holes are the majority charge carriers.

Hole: It is when there is deficiency of electron.

- It brings positive charge.

- Hole behaves like a proton and as proton is positive, hole is also positive.

→ Modern Appliances:

- Diodes and transistors in computers and smart phones.
- solar cells for converting sunlight into electricity.

c. Global Warming:

Def:- According to IPCC, Global warming is an average and gradual increase in the temperature of Earth.

- As per IPCC, about  $1.2^{\circ}\text{C}$  increased temperature from 1850 to 2024. This temperature of Earth is predicted to further increase from  $1.4^{\circ}\text{C}$  to  $5.8^{\circ}\text{C}$  till 2100.

→ Global Warming is the long-term increase in the Earth's average temperature due to the build up of greenhouse gases in the atmosphere.

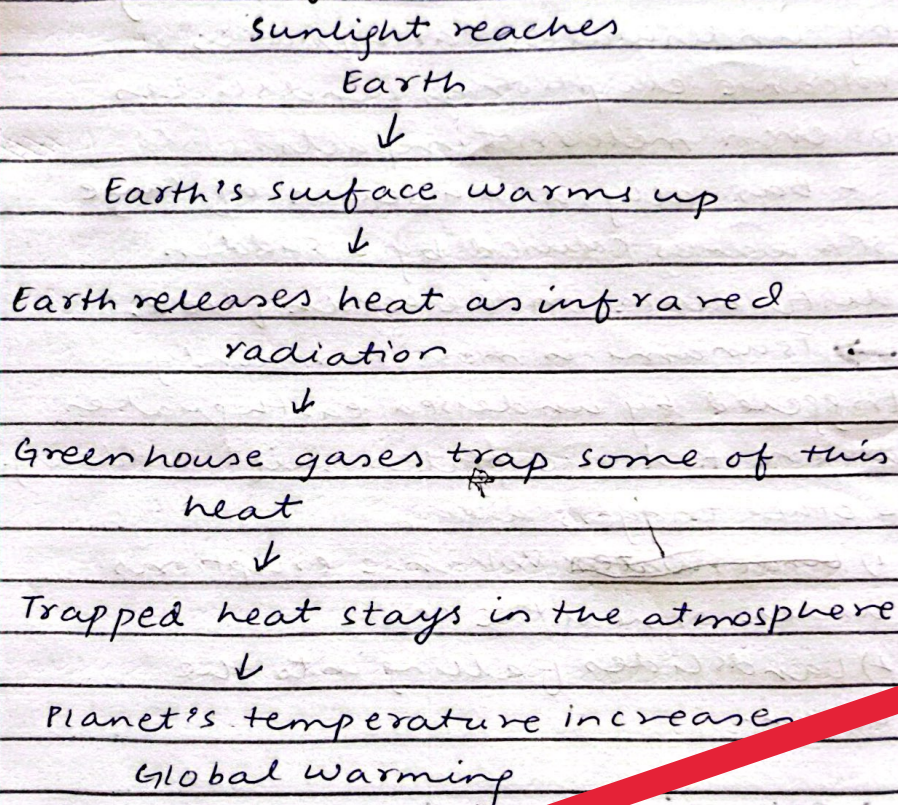
Greenhouse Effect Mechanism:

- 1) Sunlight reaches Earth and warms the surface.
- 2) Earth releases heat back into the atmosphere as infrared radiation.

- 3) Greenhouse gases trap part of this heat, preventing it from escaping into space.

This trapped heat increases the planet's temperature.

#### Mechanism of Greenhouse Effect:-



#### Three Major Greenhouse Gases:

Greenhouse Gases have the ability to absorb, trap and scatter heat.

- 1) Carbon dioxide ( $\text{CO}_2$ )

As per IPCC, 61% of Global warming is caused by carbon dioxide ( $\text{CO}_2$ ).

- 2) Methane ( $\text{CH}_4$ )

As per IPCC, 15% of Global warming is caused by Methane.

### 3) ChloroFloro Carbons (CFCs)

As per IPCC, 11% of Global warming is caused by CFCs.

#### d. Tsunami:

It is a series of large ocean waves caused primarily by underwater earthquakes, volcanic eruptions, landslides or even meteorite impacts.

- Basically, it is a series of large sea waves caused by a sudden disturbance on the ocean floor.

→ Tsunami is most commonly triggered by undersea earthquakes where tectonic plates shift suddenly.

- other triggers are:

1) Volcanic eruptions under or near the sea.

2) Landslides falling into the ocean.

→ Potential Impact on coastal areas:

Following are the potential impact of Tsunami on coastal areas:

- massive flooding and destruction of buildings.
- Loss of life and displacement of communities.
- Damage to infrastructure (roads etc)
- long-term environmental changes like soil salinization.

Question no 3:

a) Mitochondria:

Structure:

- Mitochondria is a bean-shaped organelle.
- It has a double membrane: outer smooth membrane and inner folded membrane.
- It contains its own DNA.

Function:

- It produces energy in the form of ATP (Adenosine Triphosphate) through respiration.

Why is it called Powerhouse of cell?

It is called the powerhouse of the cell because mitochondria make most of the cell's energy, which is needed for all cell activities.

Ribosomes:

Structure:

- It is a very small round organelles.
- It is made of RNA and proteins.
- It can be free in the cytoplasm or attached to the rough endoplasmic reticulum.

Function:

- It makes proteins for the cell.

## b) Enzymes:

Enzymes are the biological catalysts that speed up chemical reactions in living organisms.

### Lock and Key Model:

- The enzyme is the lock and the substrate is the key.
- Only the correct substrate fits into the enzyme's active site, just like a key fits into a lock.
- After forming an enzyme-substrate complex, the reaction happens and products are released.

### Factors affecting enzyme activity:

- 1) - Temperature.
- 2) - pH

## c)

### Renewable energy Resources:

Energy that comes from natural sources that can be replaced quickly.  
e.g: wind, solar, water.

### Non-Renewable energy Resources:

Energy that comes from sources that will run out and cannot be replaced in a short time.  
e.g: coal, oil, natural gas.

## Potential of wind energy.

- wind energy is clean and does not pollute the environment.
- It is renewable and available in many coastal and open areas.
- It reduces reliance on fossil fuels and helps control global warming.

d)

### Dengue Fever:

- It is a viral disease caused by the dengue virus.
- It is spread by the bite of Aedes mosquitoes, especially Aedes aegypti.

Phase wise symptoms are required

### Symptoms:

- High fever.
- Severe headache
- Pain behind the eyes
- Joint and muscle pain
- Skin rash

### Preventive measures:

- Remove standing water where mosquitoes breed.
- Use mosquito repellents
- Wear long sleeves and full clothing.
- Use mosquito nets and screens.

Q.8:

a)

ROAD  $\rightarrow$  UODG

LAKE  $\rightarrow$  PCNH

A 1  
B 2  
C 3  
D 4  
E 5  
F 6

b)

The woman is his  
neice in law.

G 7  
H 8  
I 9  
J 10

(b)

c)

1) 4, 12, 6, 18, 9, 27, —

~~2~~ ~~3~~ ~~4~~ ~~5~~  
2x2      3x2

K 11  
L 12  
M 13  
N 14

O 15  
P 16  
Q 17  
R 18  
S 19

Explain in words

2) 1, 2, 6, 24, 120, 720

$1 \times 1 = 1$   
 $1 \times 2 = 2$   
 $2 \times 3 = 6$   
 $6 \times 4 = 24$   
 $24 \times 5 = 120$   
 $120 \times 6 = 720$

T 20  
U 21  
V 22  
W 23  
X 24  
Y 25  
Z 26

d.

Given,

$$P < Q \text{ but } P > R \rightarrow R < P < Q,$$

$$S < T \text{ but } S > Q \rightarrow Q < S < T.$$

$$\text{Shortest} = 150 \text{ cm}$$

$$\text{Tallest} = 180 \text{ cm}.$$

$$P < P < Q < S < T$$

Third tallest  $\rightarrow Q$ .

$$\begin{aligned} \text{Range} &= \text{tallest} - \text{shortest} \\ &= 180 - 150 = 30, \\ &= 30 \text{ cm}. \end{aligned}$$