

# Dos and Don'ts for General Science & Ability Paper

Date: \_\_\_\_\_

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

(a) Available sources of renewable energy in India. Answer: 1. A 5 marks part requires 2 sides (not more than that) 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. :)

Question # 3 (Part II)

Available sources of renewable energy in India. Answer:

There are two categories of renewable energy sources:

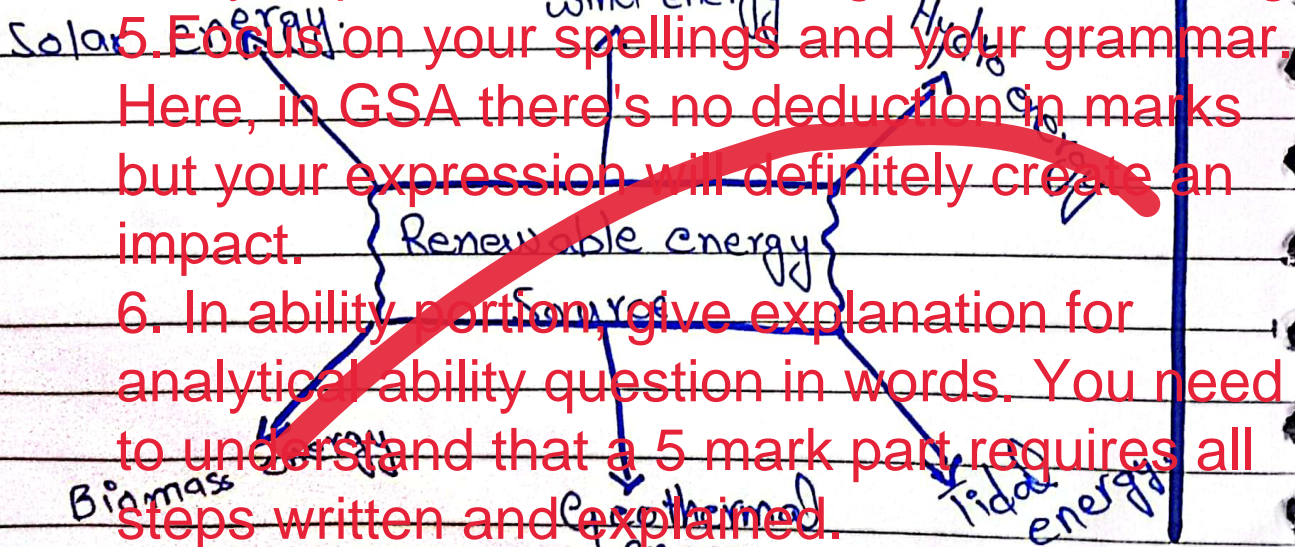
- 1- Non-renewable sources
- 2- Renewable energy sources

"Renewable energy sources"

Definition:

These are natural resources that can be replenished over time.

Renewable energy sources include:



Date: \_\_\_\_\_

### Solar energy:

- Solar energy generated by sun's rays.
- Pakistan has high immense potential of solar energy, particularly in regions like Punjab, Sindh.
- Projects like ~~Qaid-e-Azam~~ Bahawalpur Solar park in Bahawalpur highlights the focus on harnessing solar power.

### Hydro power:

- Energy generated from the movement of water in rivers, oceans, and tidal currents.
- Notable projects are:
  - Tarbela Dam.
  - Mangla Dam.
  - Neelum-Jhelum projects.

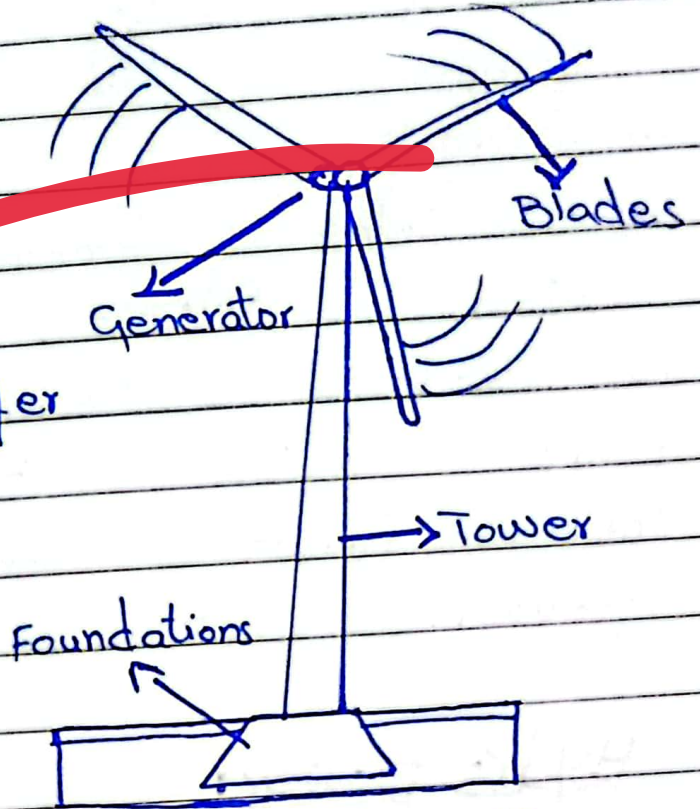
### Biomass energy:

- Agri. wastes, animal wastes, and other organic materials provide resources for biomass energy.
- Rural area can be benefited

significantly.

• Wind energy:

→ Coastal regions, particularly in Sindh and Balochistan, offer strong wind speeds suitable for wind energy generation.



• Geothermal energy:

→ Geothermal energy the heat of earth's core generates from activities like Sindh and Balochistan.

• Tidal energy:

→ Energy generated from the fall & rise of ocean waves. Tidal energy projects exist in the area of Sindh like Karachi.

## "Policy Options"

Policy options to utilize these sources and overcome present energy crises in Pakistan.

- Solar energy:

- Develop large scale solar parks.
- Introduce incentives of roof-top solar installation.

- wind energy:

- Develop wind farms.
- Offer feed-in tariffs for wind energy generation.

- Hydro energy:

- Install new hydro-power plants.
- Renovate the existing power plants.

- Geothermal energy:

- Conduct surveys to explore potential geo-thermal areas.
- Install geo-thermal plants.

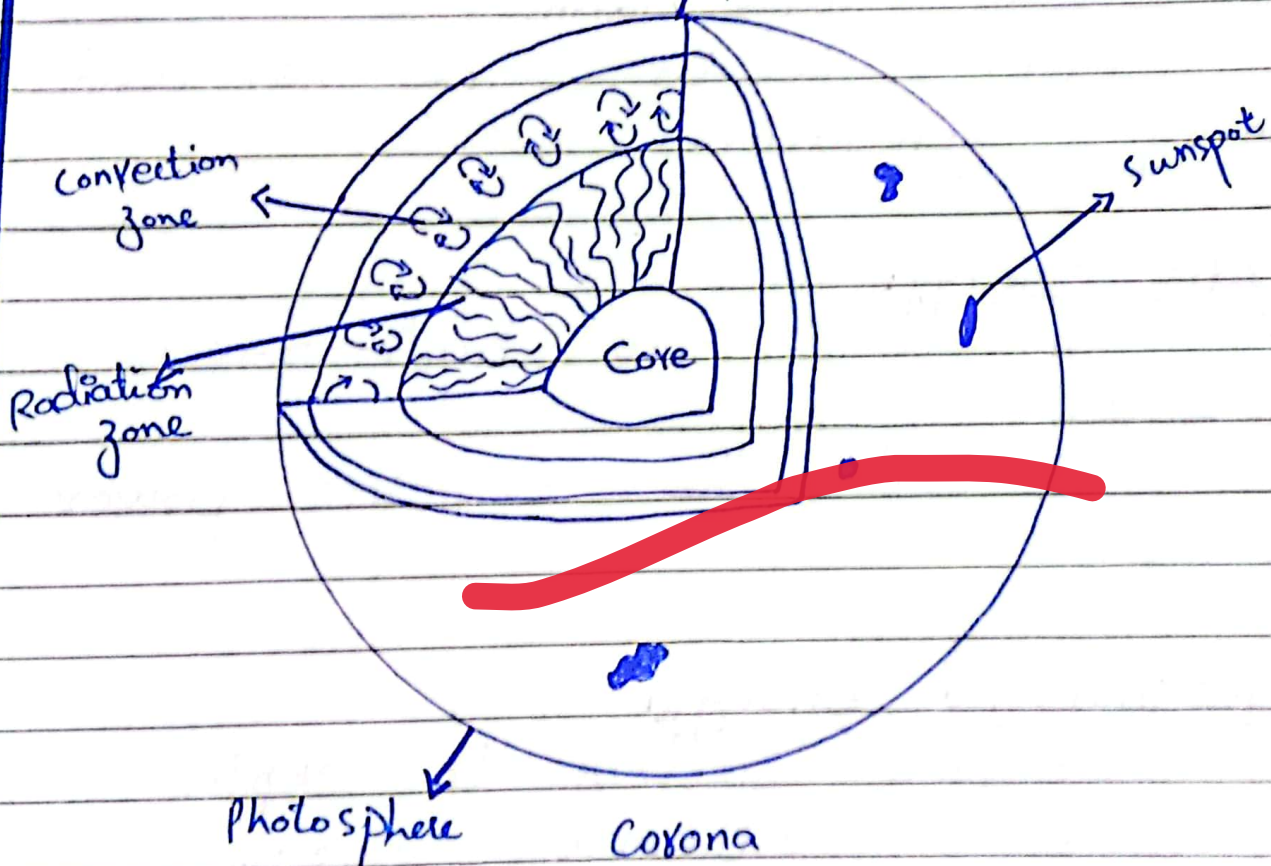
### Tidal energy:

- Conduct <sup>feasibility</sup> studies for Tidal energy generation.
- Develop tidal power plants.

### b- Explain structure of sun.

Sun is a massive ball of hot, glowing gas, composed of hydrogen & Helium.

### "structure" Chromosphere.



## 1. Core:

The central region of Sun, making approximately 25% of Sun's radius, where nuclear reactions take place. Temperatures reach over 27 million degree Fahrenheit.

## 2. Radiative zone:

The layer just outside the core, where the energy generated by nuclear reaction is transferred through radiation.

## 3. Convection zone:

The outer layer making about 70% of Sun's radius, where energy is transferred through convection current.

## 4. Photosphere:

The visible surface of the Sun (the layer we can see), with the temperature of around 5,500 degree Celsius.

### 5. Chromosphere:

A layer above the photosphere, visible during solar eclipses, with temperature ranging from a few thousand to millions of degrees celsius.

### 6. Sunspots:

Cooler region on the photosphere, caused by intense magnetic activities.

### 7- Corona:-

The outer atmosphere of the sun, visible during solar eclipses.

#### Conclusion:

The sun structure is dynamic, with constant movements and changes in its layers.

(c) What is ceramic material? Is it possible to recycle it?

#### Definition:

"Ceramics are inorganic, non-metallic materials that are

created by heating clay to high temperatures".

### General properties:

- Ceramics are hard, extremely strong.
- Ceramics are durable, therefore are used in industries.
- Ceramics are non-magnetic but can have magnetic properties because they are containing iron oxides.
- Ceramics are having little elasticity.
- Ceramics are oxidation-resistant.

⇒ Is it possible to recycle Ceramics?

Yes, it is possible to recycle ceramics. Some ways to recycle ceramics are

### Professional recyclings

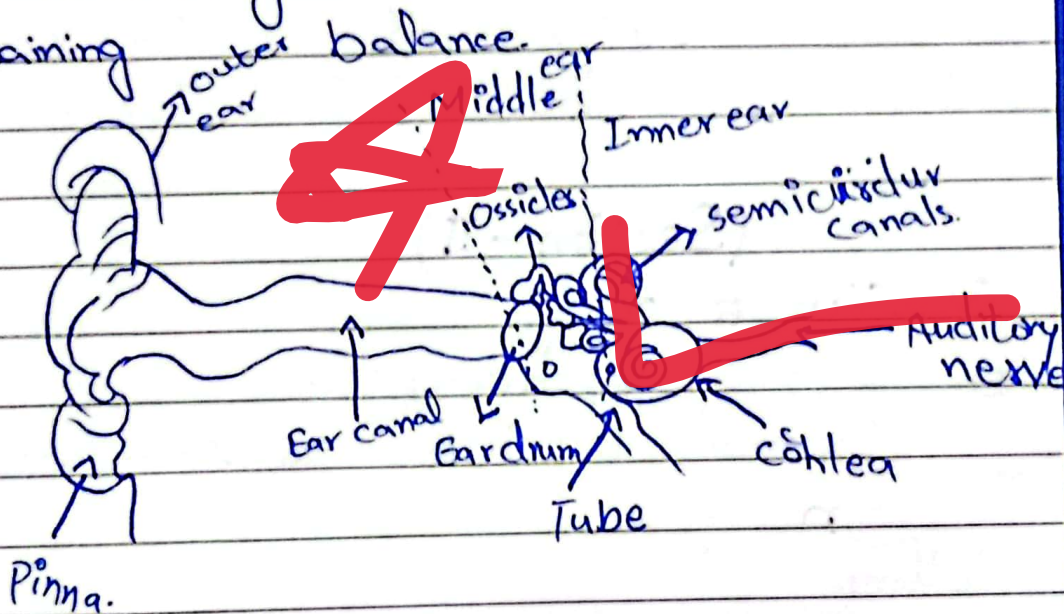
In commercial recycling center, they grind ceramics down and turn them into material that can be used in paving & drainage.



## Upcycles

Get creative to use old  
Ceramics. Old Ceramics can  
be used to fill a  
planter. We can also crush  
them and use them as a  
filler in post holes.

(d) Draw & explain structure of  
ear & also label its parts.  
Human ear is a complex  
and sensitive part responsible  
for detecting sound and  
maintaining balance.



### Outer ear:-

- Consisting of Pinna.
- Collect sound waves & directs them into the ear

canal.

### Middle ear:

→ Contains three small bones that transmit sound vibrations to the inner ear.

→ An auditory tube connects ear to throat.

### Inner Ear:

→ Converts sound vibrations into electrical signals sent to the brain.

→ Inner ear consist of a complex system of inter-communicating chamber & tubes.

### (Section - II)

#### Question # 06:

(a) Original population = 18,000

Increased population = ~~22500~~ 22500 - 18000 = 4500

n = ?

Solutions:-

$$\text{Total percentage increase} = \frac{22500 - 18000}{18000} \times 100$$

$$= 2.5 \times 100$$

$$= 25\%$$

Date: \_\_\_\_\_

Since the increase occurs in decades so we divide the total percentage increase by 10.

$$\text{Annual percentage increase} = \frac{25\%}{10}$$

So population of village increases by 2.5% every year.

(b)

Data:

No. of units = 600 unit

No. of Days = 9 days, 12 Days

No. of machines = 20 machines,  
18 machines.

Solution:-

No. of units made per day =  
 $600 / 9 = 66.67$  units per day.

No. of units made per day by  
per machine.

$$66.67 / 20 = 3.33 \text{ units per machine.}$$

If factory has 18 machines,  
~~units~~ Days 12 days

$$3.33 \times 18 \times 12 = 719.28$$

$$\boxed{\text{Unit} = 720}$$

(c).

$$\text{Distance} = 450 \text{ m} \Rightarrow 0.45 \text{ km.}$$

$$1 \text{ minute} = \frac{1}{60} = 0.16667.$$

$$\text{Speed} = \frac{\text{Distance}}{\text{Time}}$$

$$= \frac{0.45}{0.16667} =$$

$$26.995 \rightarrow 27 \text{ km/h.}$$

$$\text{Now, Distance} = 69 \text{ km}$$

$$\text{min} = 45 \Rightarrow \frac{45}{60} = \frac{3}{4} \text{ h}$$

$$\text{Speed} = \frac{\text{Distance}}{\text{Time}}$$

$$= \frac{69}{(\frac{3}{4}) \text{ h}} = 92 \text{ km/h.}$$

Ratios:

$$= \frac{\text{Sp. of car}}{\text{Sp. of train}}$$

$$= \frac{27}{92} = \boxed{0.29} \rightarrow 0.3. \#$$

0.3 : 1

(d) = All sides of pentagon = 15 cm

$$\text{No. of side} = 5$$

$$= 5 \times 15 = 75 \text{ cm.}$$

$$\text{Perimeter} = 75 \text{ cm.}$$

te: \_\_\_\_\_

### Question # 08.

(b)

Missing term = ?

$$1 \times 2 + 1 = 2$$

$$2 \times 2 + 1 = 6$$

$$3 \times 2 + 1 = 21$$

$$21 \times 2 + 1 = 43$$

Missing term is 43.

(c) → Walked from A to B = 10 feet to east  
→ Turned right ⇒ 3 feet to south  
→ Turned right again ⇒ 14 feet west.

Now, 10 feet East, then 14 feet South.

$$(10 - 14) = -4 \Rightarrow -4$$

→ 3 feet South

4 feet west.

Applying Pythagorean theorem.

$$\sqrt{a^2 + b^2} = \sqrt{(3)^2 + (4)^2} = \sqrt{9 + 16} = \sqrt{25} = 5 \text{ feet}$$

So, Naseer is 5 feet away from A.

(d): Average temperature =  $33^\circ\text{C}$

3 days =  $30^\circ\text{C}$

4 days =  $25^\circ\text{C}$

te: \_\_\_\_\_

First three days Average Temp:

$$\Rightarrow 30^{\circ}\text{C} \times 3 = 90^{\circ}\text{C}$$

And Last ~~four~~ <sup>three</sup> days:

$$\Rightarrow 35^{\circ}\text{C} \times 3 = 105^{\circ}\text{C}$$

Average temperature of week:

$$= 33^{\circ}\text{C} \times 7 = 231^{\circ}\text{C}$$

$$\text{Now } = 231^{\circ}\text{C} - (90^{\circ}\text{C} + 105^{\circ}\text{C})$$

$$= 231^{\circ}\text{C} - 195^{\circ}\text{C}$$

$$= 36^{\circ}\text{C}$$

temperature of 4<sup>th</sup> day is  
36<sup>o</sup>C.