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

Hi there — you've prepared well! Remember, knowing the content is one thing, but presenting it in the paper exactly as required is another. Here are a few key points to keep in mind:

1. For a 5-mark part, aim to write at least 2 and at most 3 sides of the answer sheet. Often, a question has two or three parts, and the marks are divided accordingly — so address each part fairly.
2. Manage your time wisely — you have about 35 minutes per full question, which comes down to around 8 minutes for each 5-mark part. Stick to this to avoid rushing later.
3. Make your answers look scientific, not just theoretical. Use flowcharts and diagrams wherever they add clarity.
4. Neatness matters — keep your handwriting clean, avoid cutting or overwriting.
5. Mind your spelling and grammar — while GSA doesn't deduct marks for these, your expression leaves an impression.
6. In the ability portion, explain analytical ability questions in words. For a 5-mark part, show all steps and provide clear explanations.

Here's a brief key/sample of your Ability questions:

Q.6

a) Candy ratio problem

Given: Packets in flavors Apple : Berry : Cherry : Date = 3 : 6 : 2 : 5.

Asked: If Apple candies exceed Date candies by 35, how many Berry candies are there?

Note (consistency check): The ratio shows Apple = 3 parts

- **photosynthesis:**

chlorophyll acts as a photoreceptor absorbing light energy to convert carbon dioxide and water into glucose and oxygen.

$$6H_2O + 6CO_2 \longrightarrow C_6H_{12}O_6 + 6O_2$$

- **Color:** it gives plants green colour as it absorbs blue and red colour.
- **Energy transfer:** The absorbed light energy is used to synthesize organic compounds.

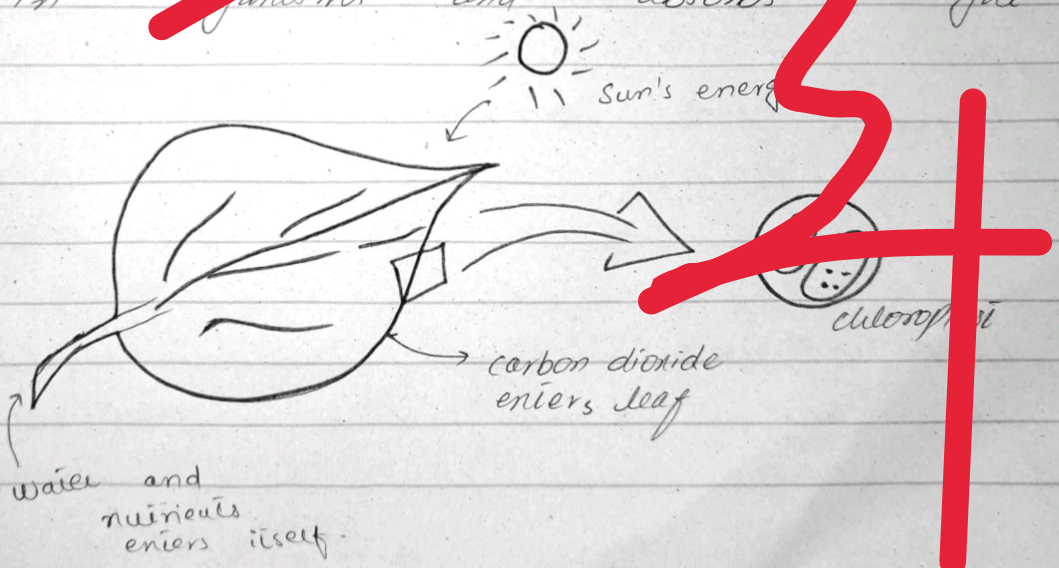
⇒ Types of chrolophyll

- **Chlorophyll "a":**

it is found in higher plants and algae and it is also

a primary pigment involved in photosynthesis.

- **Chlorophyll "b":**
  gi is present in green algae and plants and absorbs energy to transfer to chlorophyll "a"
- **Other types:**
  chloroph[illegible] c, d and [illegible] are found in [illegible]anisms and absorbs light.



(b)

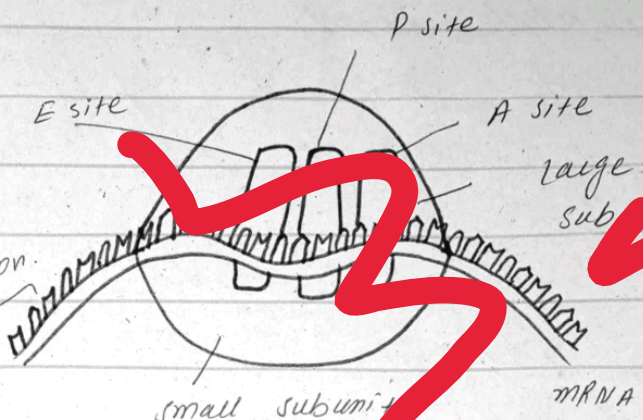
⇒ **Ribosomes:**

"The translating genetic instructions from messenger RNA into a chain of amino acids known as ribosomes."

⇒ **Working of ribosomes for protein synthesis:**

- **attachement with mRNA:** Ribosomes are attached to mRNA to begin the process of translation.
- **Genetic code reading:** They read the mRNA sequence by identifying three letter codons which are code for the specific amino acid.
- **tRNA adjustment:** Each ribosome attach with the correct tRNA which brings the amino acids.

- **Formation of peptide bond:**
  Than the peptide bond is formed between the amino acids linking them together in a correct order.
- **Translocation:**
  The ribosomes continue to move along the mRNA until it reached to stop codon.
- **protein release:**
  once the process of translation completed, the polypeptide chain is released from the ribosomes to fold into a functional protein



c- Discuss different methods of solid wasie management.

=> Solid wasie management: it involves collecting, dealing and disposing of a wasie to minimize environmental impact.

=> Methods of solid wasie management:

1- Land filling:

It is the cheap and easy process. But it causes pollution, consuming more space, and emission of methane gas-

e.g

Karachi's Dumba Kachra Kundi-

2. **Recyling:**

In this process the materials like plastic, paper and metal are reused. but the challenge it's facing is lack of segregation in pakistan.

3. **Composting:** The organic wasie look like food and leaves are used as fertilizer. It reduces the land[illegible] burden, enriches soil.

[illegible]

4. **Incineration:** In this proces the wasie is burned. But it causes air pollution and produces toxic ash.

5. **Wasie - to - Energy:** It converts wasie to electricity which is more easily and required technology.

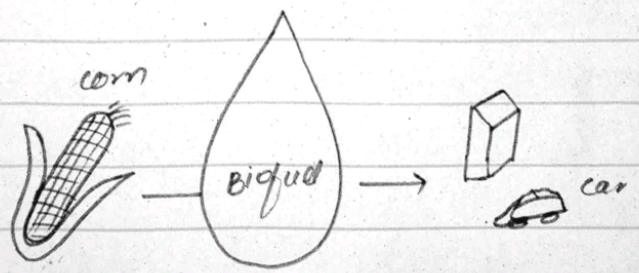
6. **Community involvement:**
   - Awarness and education to people.
   - Segregation to source.
   - Local cleanups
   - Recyling cooperatives
   - composting projects
   - Wasie collection systems
   - c

(d)

(i)

=> Biofuel :

A renewable fuel derived from biomass which includes plant, algae and animal wasie offering an alternative to fossil fuels.



=> Working principal :

Biofuels are produced from organic material like crops, wasie and algae.

The energy stored in biomass is converted into usable fuel through processes like fermentation, digestion and thermal energy. The resulting fuels can be used in vehicles, heating oil or to generate electricity.

=> Types of Biofuels:

- Liquid Biofuels: These include biodiesel and bioethanol.
- Biogases: Methane and carbondioxide are produced from the anerobic digestion of biomass.
- Solid fuels: It includes fuelwood, wood pellets and charcoal.

=> Benefits of Biofuels:

- Renewable

- Environmental impact
- Energy security.

(ii)

⇒ **Adulteration:**

The act of contaminating or degrading a product, most commonly food by adding inferior, cheaper or harmful substances to increase its quantity or alter its appearance.

(iii)

⇒ **Hydrosphere:**

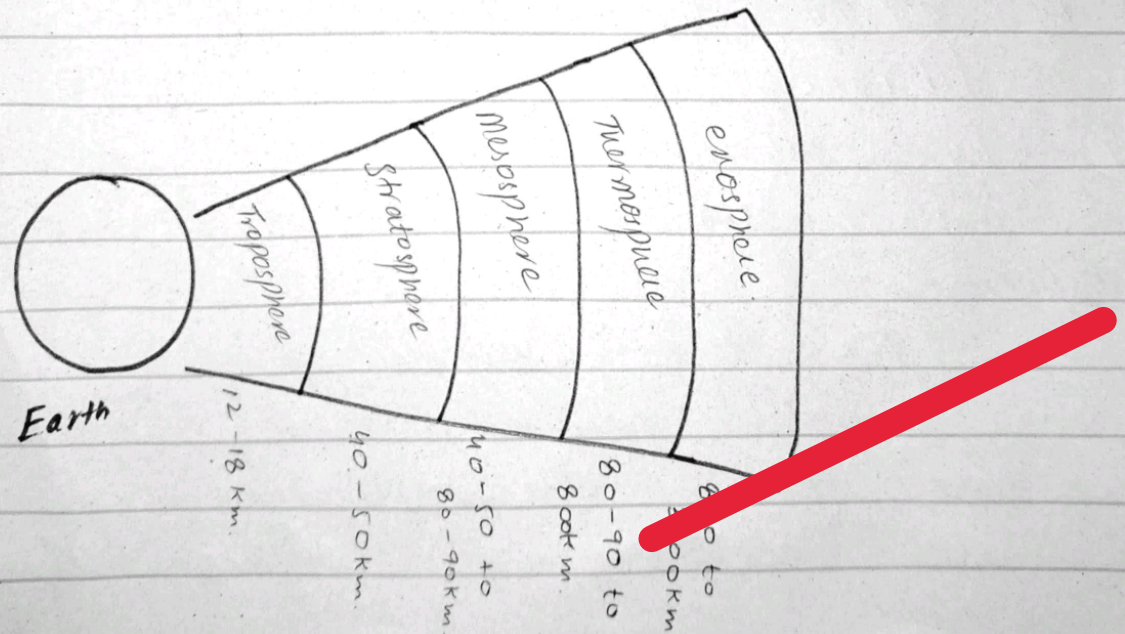
The total amount of water on a planet including liquid solid, and gaseous water found on under and above the surface is

called hydrosphere.

(iv)

=> **Troposphere :**

The lowest layer of earth's atmosphere extending from the surface upto an average of 13km is known as troposphere.

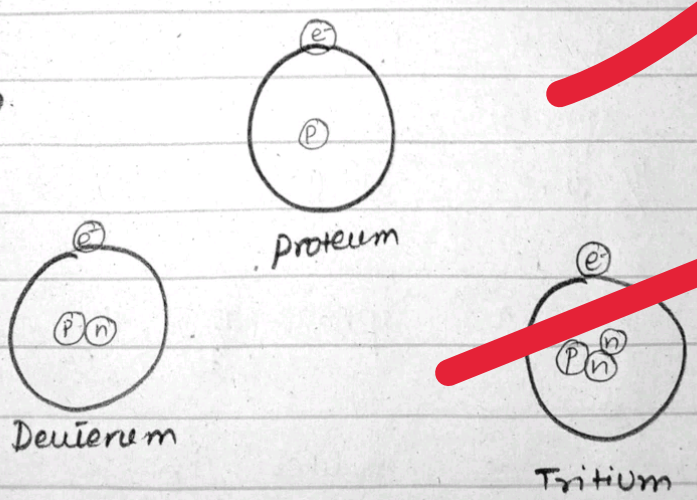


(v)

⇒ **Isotopes :**

Atoms of the same chemical element having same number of protons different number of neutrons known as isotopes.

Isotopes of Hydrogen

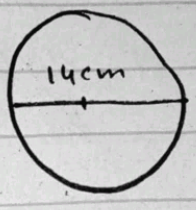


PART II

Q # 07

(a)

Diameter of a sphere = 14cm



The value of π = $22/7$

volume = ?

Formula to find the volume of a sphere :

$$V = \frac{4}{3} \pi r^3 \quad \text{— (1)}$$

The radius of a sphere = $d/2$ = $14/2$ = 7c

By putting the value ... eq (1)

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

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

$$V = \frac{4}{3} \times \frac{22}{7} \times 343$$

$$V = \frac{88}{21} \times 343$$

$$V = \frac{30}{1}$$

$$V = 1437.3\ cm^3$$

Total volume of sphere is $1437.3 cm^3$

(b)

By Adding all the numbers to find total number of parts:

$1 + 2 + 3 + 4 + 5 = 15$

Value of one part

Total savings = 25000 RS

value of one pari = $\frac{25000}{15}$ — ①

multiplying the smallest ratio with eqn ①.

$= \frac{25000}{15} \times 1$

$= 1666.67$

The smallest share is 1666.67.

(c)

(i)

2, 6, 18, 54, 162, 486

$2 \times 3 = 6$

$6 \times 3 = 18$

$18 \times 3 = 54$

$54 \times 3 = 162$

$162 \times 3 = 486$

all the number are correctly fit.

4

2

(ii)

3, 5, 7, 11, 13, —

gi is the series of prime number which multiplies with number "1" and gave the same original value. They actually multiply on their own.

3, 5, 7, 11, 13, 17

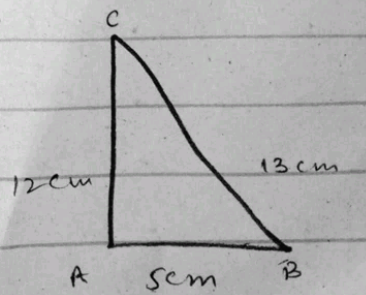
The answer is 17.

(d)

By using pythagorean theorem.

$(Hyp)^2 = (Base)^2 + (per)^2$

$(13)^2 = (5)^2 + (12)^2$



$169 = 25 + 144$

$169 = 169$

$5^2 + 12^2 = 13^2$, the triangle is right triangle and one of its angle is 90°. The side with length of 13cm is the hypotenuse.

Q #6

(a)

(i) STATICTICS

- STAT
- ITS
- SIT
- SAT
- TIT
- CAT
- TIT
- CAST
- SITE

(ii) GRAMBLE

- GEAR
- RAGE
- BALM
- LAMB
- BLARE
- GLARE
- GLAM
- BEAM