

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?

NAME : MOOMAL ALI

BATCH = ISB - 08 81

SUBJECT : GENERAL SCIENCE AND ABILITY

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SECTION - I

ANSWER #1

PART A

WHY CELLS FORM ORGANELLES?

Cells form organelles to get the daily biological functions done for the life of a cell. Different organelles in the cell collectively perform functions such as protein synthesis, respiration, food production so that the cell can survive in the environment.

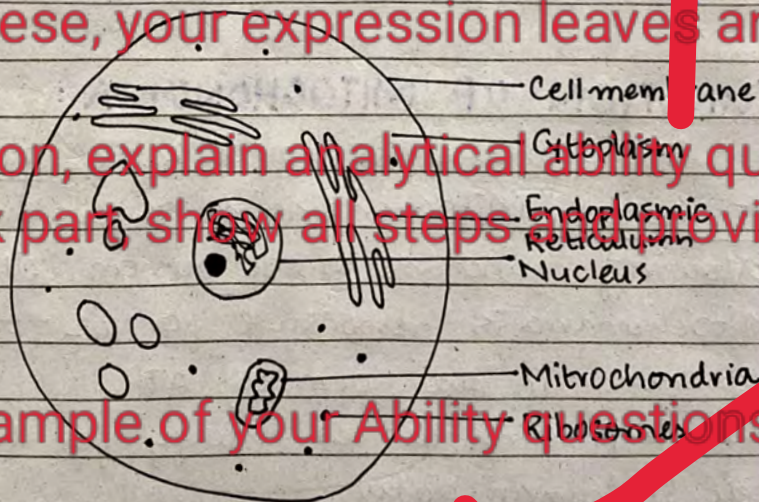


Fig. : An animal cell showing organelles of a cell.

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

MITOCHONDRIA IN A HUMAN CELL :

Mitochondria is a membrane bounded organelle present in all the eukaryotic cell including the human cell.

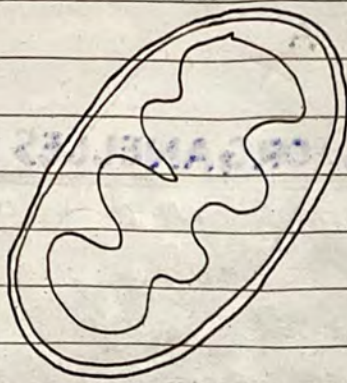


Fig : Basic structure of mitochondria of a human cell.

FUNCTION OF MITOCHONDRIA :

Mitochondria is called as the "power house of the cell". Mitochondria is responsible for the following functions in the human cell.

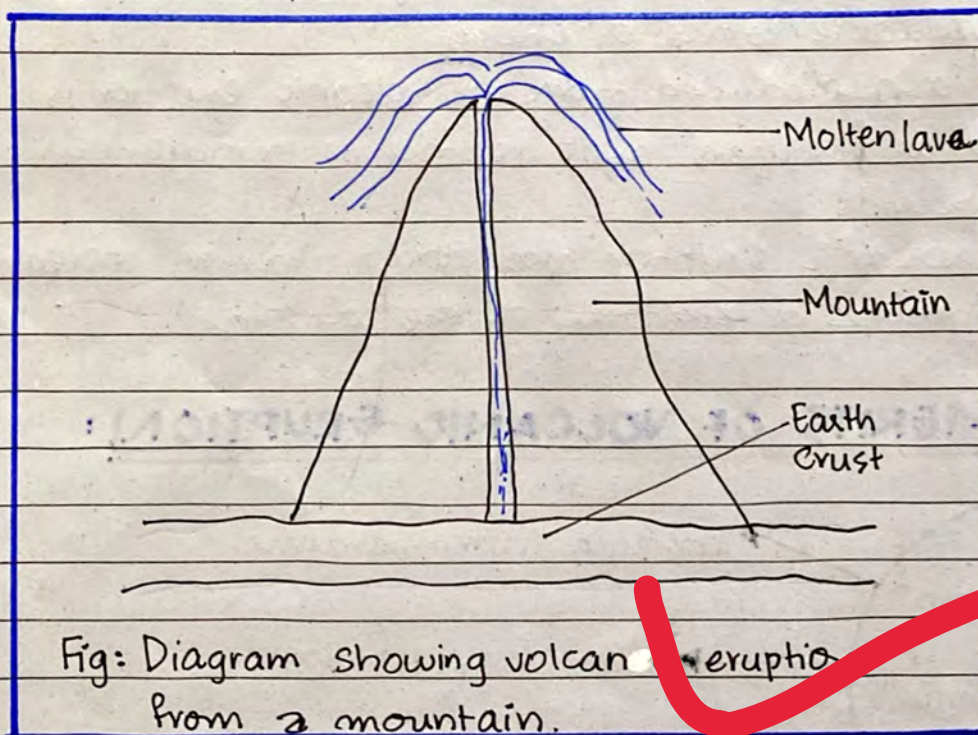
1. Mitochondria is responsible for the production of energy in the form of ATP.
2. This ATP serves as the energy for the life of a cell in human body.
3. Mitochondria is responsible for the protein synthesis in the cell.
4. Due to these functions mitochondria is called as the power house of the cell.

ANSWER # 3

PART C

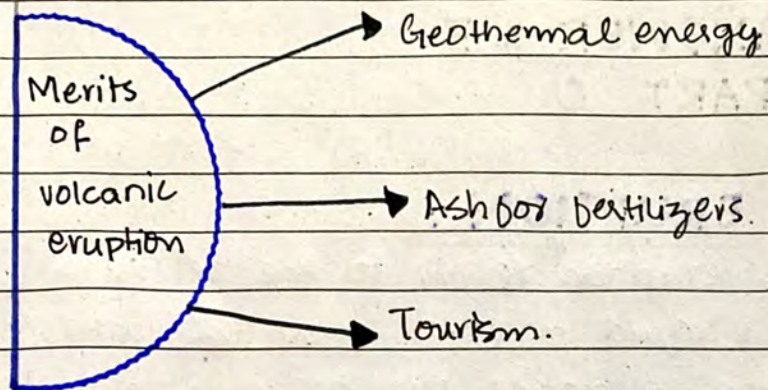
VOLCANIC ERUPTION:

Volcanic eruption refers to the release of hot gaseous and liquid material from the earth's crust. The volcano is made due to heat produced in the earth crust due to the movement of the tectonic plates. The molten liquid is released from the mountain in the form of lava. This release of volcano from the earth is called as the volcanic eruption.



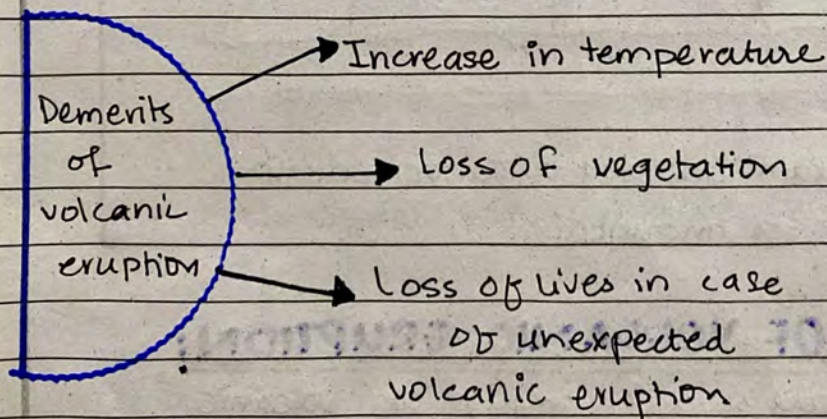
MERITS OF VOLCANIC ERUPTION:

There are several merits of volcanic eruption for earth.



1. The geothermal energy released due to the volcanic eruption is used in several areas where the energy is required. The geothermal energy releases from the volcano for several years after the eruption which is a valuable source of energy.
2. The ash produced from the volcanic eruption is used as fertilizers as it is rich in nitrogenous compounds.
3. The volcanic eruption also attracts tourism, increasing the sources of economy of the country.

DEMERITS OF VOLCANIC ERUPTION:



1. The place where the volcanic eruption occur has the increase in temperature, which makes the living in the nearby areas difficult.
2. There is also the loss of vegetation in the nearby areas.
3. The unexpected volcanic eruption causes the loss of lives and livestock also.

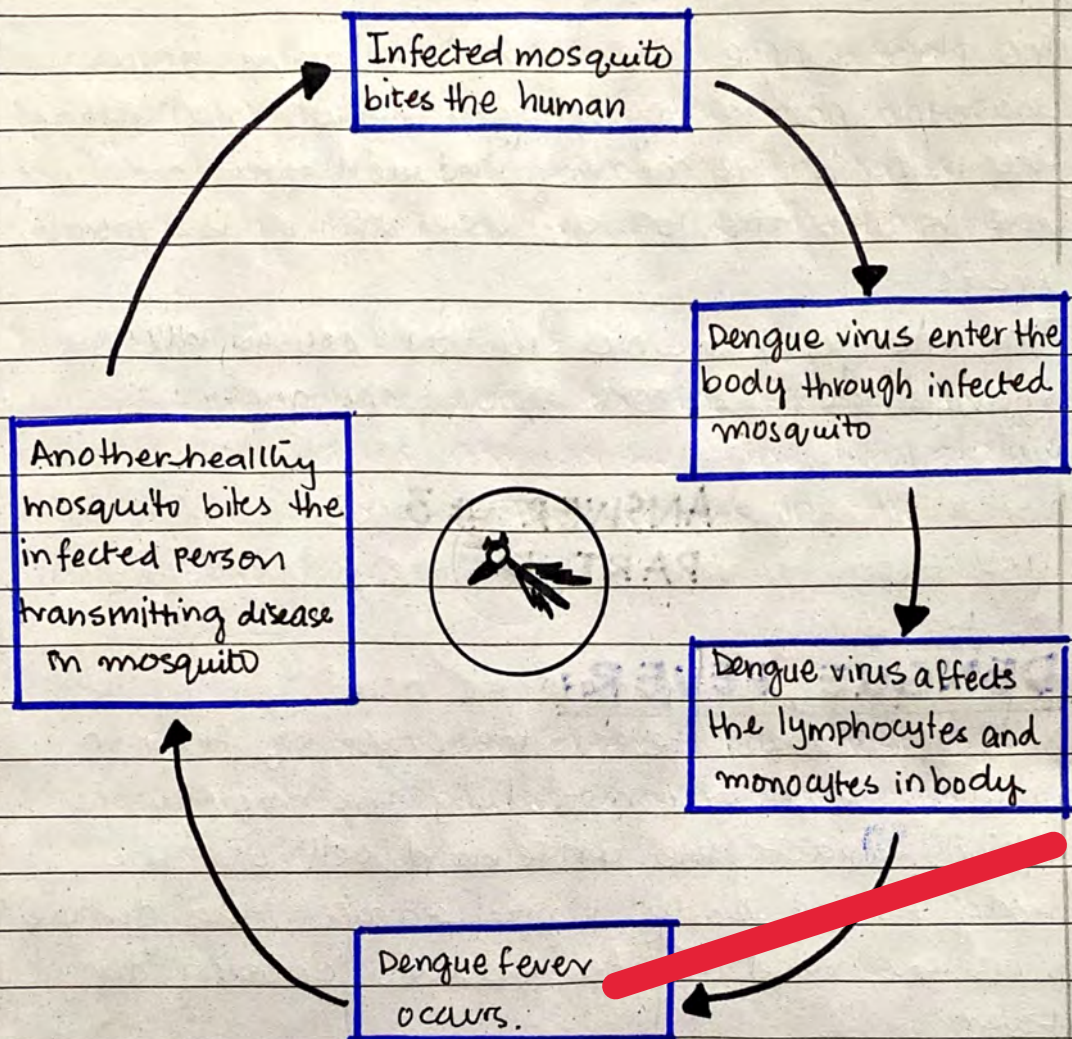
ANSWER #3 PART D

DENGUE FEVER:

Dengue fever is the onset of fever in human body transmitted by the mosquitoes which impacts the white blood cells of the body. As the body fights against the dengue virus the onset of fever occurs causing dengue fever.

HOW DENGUE FEVER OCCURS?

1. Dengue fever occurs due to the bite of the infected mosquito to the human body.
2. The dengue virus reaches the human body and starts multiplying in the body.
3. The virus attacks the white blood cells, lymphocytes and monocytes in the body.
4. This causes the onset of the fever in the body.
5. Another healthy mosquito bites the patient causing the mosquito to get infected which starts biting other humans.



Life cycle of transmission of Dengue virus.

SYMPTOMS OF DENGUE.

1. The most important symptom of the dengue is the onset of fever. other symptoms include
2. chills
3. Body pain
4. Loss of white blood cells

CAUSATIVE AGENTS:

The causative agent for the dengue is the dengue virus which is found and transmitted by the mosquitoes.

REMEDIES:

The humans can only be protected by dengue through the protection against the mosquitoes by the following ways.

1. Do not store water in shady places.
2. Use mosquito repellants on the exposed surfaces of the body.
3. Keep yourself away from the municipal waste and damp areas.

ANSWER # 4
PART D.

DEFINITIONS :**(i) BIOFUEL :**

Biofuel is the fuel obtained through the burning of the wastes of the living organisms such as plants and microorganisms. The biofuel is a source of renewable energy on earth.

(ii) ADULTERATION:

Adulteration is the addition of the adulterant components i.e. the agents or particles that do not cause the decay of the substance but impact its quality.

For instance, the food adulterants are added to the food which does not cause the decay of the food but increases the weight of the foods causing the foods such as grains to last more.

(iii) Hydrosphere:

Hydrosphere refers to the second last layer of the earth's atmosphere. The temperature is ~~to~~ lower than the other layers of the hydrosphere layer.

(iv) TROPOSPHERE:

The troposphere layer is the first layer of the earth's atmosphere which is seen from the earth's surface.

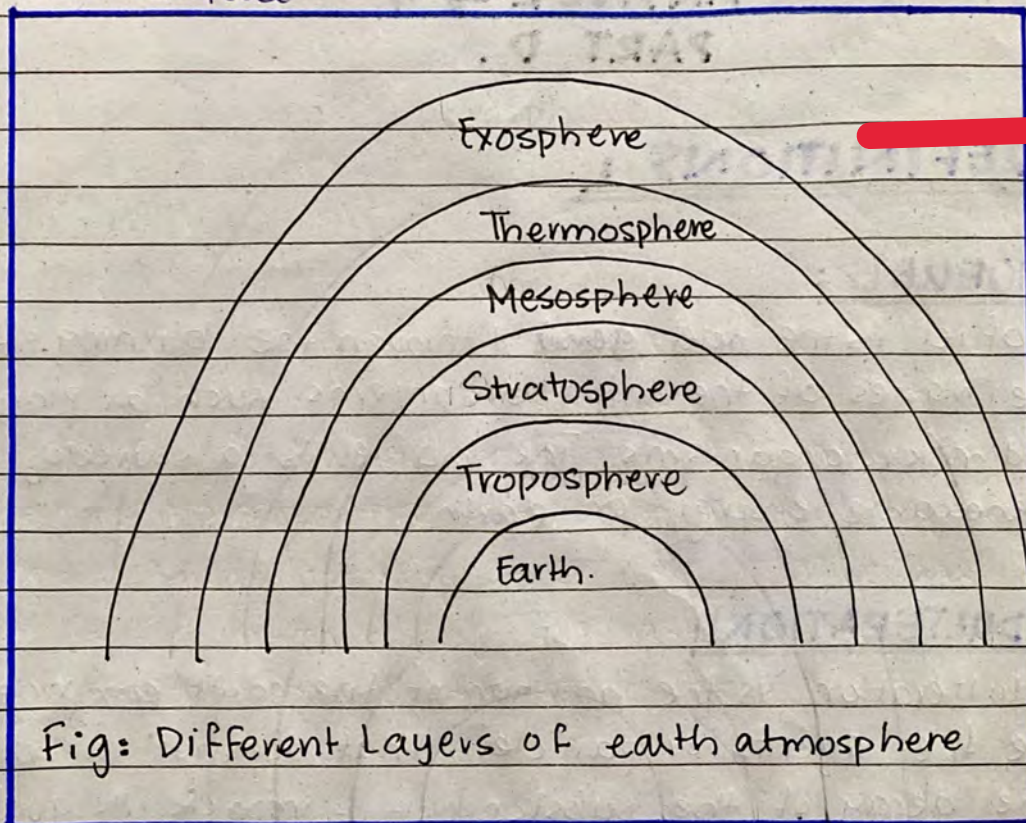


Fig: Different Layers of earth atmosphere

ISOTOPES:

Isotopes refers to the atoms of the that has the same number of protons and electrons but different number of neutrons.

ANSWER #4 PART A

PLANT KINGDOM:

The plant kingdom refers to the kingdom of the living organism that can make their own food through different sources. The most important types of plants in the plant kingdom are the ones that can produce their food through chlorophyll.

CHLOROPHYLL:

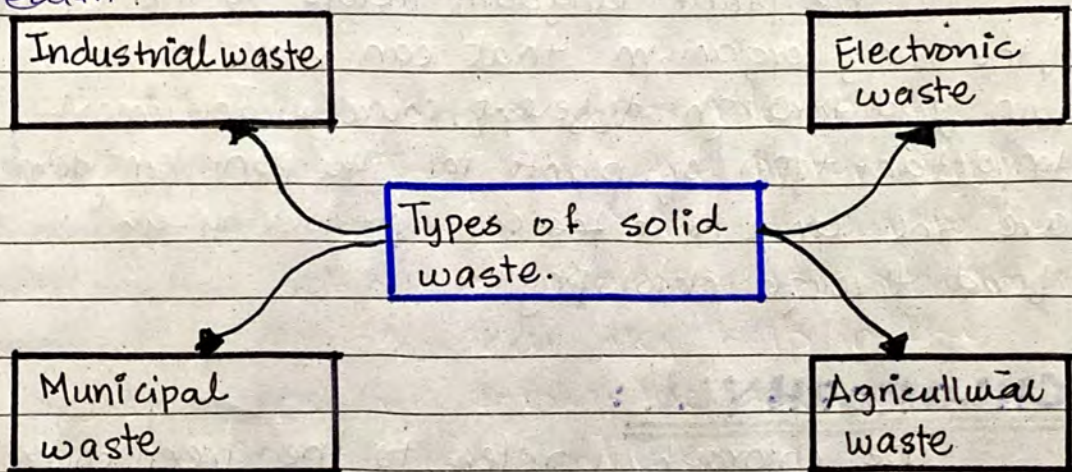
The chlorophyll refers to the green color of the substance present in plants leaves and stem. The chlorophyll is responsible for the production of food in the plant cells. The plants attract sunlight through the chlorophyll which inturns is converted into the energy through different processes in the presence of water.

The chlorophyll is a very important part of the plant as the photosynthesis occurs only in the presence of the chlorophyll.

ANSWER # 4 PART C.

SOLID WASTE :

The solid waste refers to the type of waste that cannot be discarded in sea or other areas without processing as it will cause the negative effects on the environment. There are different types of the solid waste present on the earth.



DIFFERENT METHODS OF SOLID WASTE MANAGEMENT:

Solid waste management is necessary in order to save the earth from the pollution and accumulation of solid waste. There are different methods of solid waste management for the different types of the solid waste.

SOLID WASTE MANAGEMENT FOR INDUSTRIAL WASTE:

The industrial waste can be managed by the control of toxic pollutants by industries directly into the water and land. The pollutants and chemicals need to be processed before their dumping and should be converted into lesser toxic compounds. The dumping should be done ~~thru~~ far from the land in the middle of the sea in order to keep the land clean and pollutant free.

SOLID WASTE MANAGEMENT FOR MUNICIPAL WASTE:

The municipal waste needs to be processed through different ~~nitrogenous~~ bacteria before its dumping into sea. Moreover, plants ~~are~~ can be grown near the municipal areas which also clean the municipal waste.

SOLID WASTE MANAGEMENT FOR AGRICULTURAL WASTE:

The agricultural waste must be processed before dumping. Moreover, natural fertilizers must be used in place of the artificial fertilizers as they ~~are~~ the solid waste produced by the agriculture.

SOLID WASTE MANAGEMENT OF ELECTRONIC WASTE:

The electronic waste can be managed by the recycling of the parts of electronic items into different purposes.

ANSWER #4 PART B

ROLE OF RIBOSOMES IN PROTEIN SYNTHESIS:

Ribosomes play a major role in the protein synthesis. They carry the protein synthesis message onto them from the nucleus to the endoplasmic reticulum. Moreover, the ribosomes present in the nucleus also help in the protein synthesis through the generation of codes for the protein synthesis.

SECTION II ANSWER #6 PART D

SCRAMBLED TERMS:

- (i) STATISTICS
- (ii) GAMBLER

ANSWER # 6 PART B

Data:

Price of camera = 200\$

off $\rightarrow$ 25%

Tax $\rightarrow$ 6%

Solution

200\$ gets 25% off

$$200 \times \frac{25}{100} = 50$$$

$$200 - 50 = 150$$$

Tax 6%

$$200 \times 6\% = 12$$

$$200 + 12 = 212$$

so

$$200 + 12 - 50 = 162$$

$$\underline{\underline{\text{Total amount paid} = 162}}$$

ANSWER # 6 PART C

Data:

Speed = 18km

Distance = 36km

Time = ?

Solution:

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

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

$$= \frac{36}{18} \times 2$$

$$\text{Time} = 2 \text{ hr}$$

So if bicycle starts at 1 pm the
time it reaches will be 3 pm

ANSWER # 7 PART A

Data:

Diameter = 14 cm so Radius = 7 cm

$$\pi = 22/7$$

Solution:

$$\text{Volume of sphere} = \frac{4}{3} \pi r^3$$

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

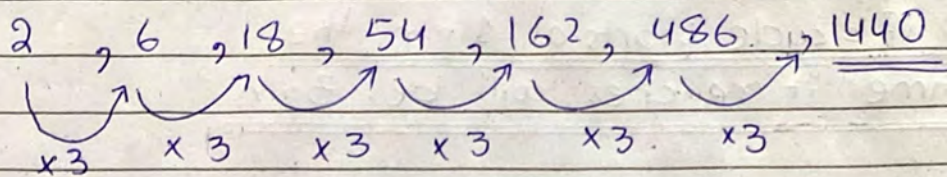
$$= \frac{4}{3} \times 22 \times 49$$

$$= \frac{4232}{3}$$

$$\underline{\underline{\text{Volume of sphere} = 141.66 \text{ cm}^3}}$$

ANSWER # 7 PART C.

(i) 2, 6, 18, 54, 162, 486.



All the multiplied by 3 to get the next number. So the next number in the series is 1440.

(ii) 3, 5, 7, 11, 13

The series is of the odd numbers

3, 5, 7, 9, 11, 13, 15

→ The series had [9] as odd number missing.

ANSWER # 7 PART 5

Ratio of shares = 1:2:3:4:5
Total saving, 25000

Share of each, $25000 \times \frac{2}{15}$

$$\begin{aligned}\text{Share of 1st} &= 25000 \times \frac{1}{15} \\ &= 1666.66\end{aligned}$$

$$\begin{aligned}\text{Share of 2nd} &= 1666.66 \times 2 \\ &= 1666.66 \times 2\end{aligned}$$

So the smallest share will be of the first friend with the 1666.66 R.