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

Date:

Forexample: Nucleus control all activities.
So, the division of function inside the cell helps to work efficiently

(ii) Protection from Reactions

Some reactions inside the cell can be harmful. So, organelles keep this process inside safe Compartments to protect the rest of the cell.

(iii) Help in organization

Organelles help the cell stay well organized Hence; it can carry out complex activities like repair, production etc.

Mitochondria:

Mitochondria is one of the most important organelle of cell and its known as the "**power house of cell**" because it produces energy currency that help the cell to perform its function easily.

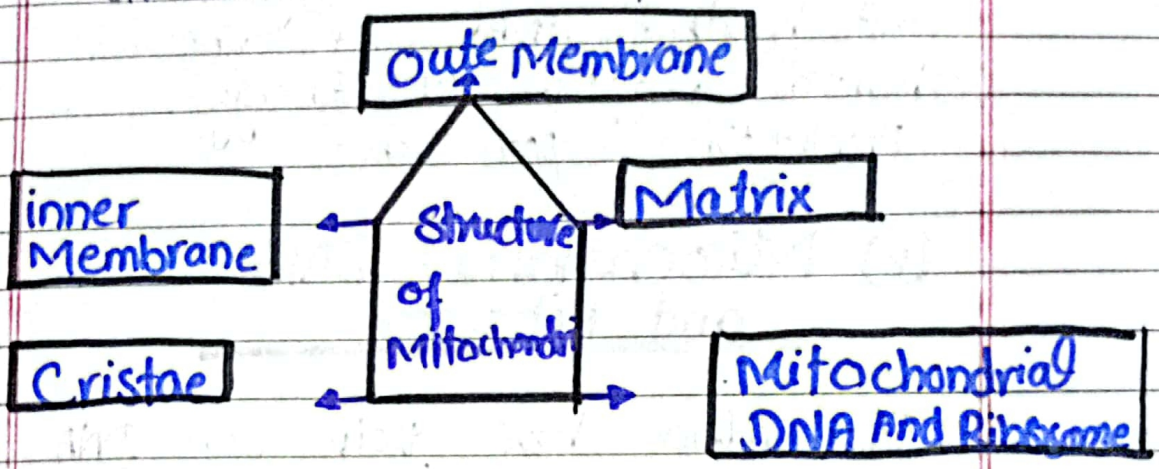
Location: Mitochondria found all most all of the cells

Date:

in human body.

Structure of Mitochondria:

Mitochondria is a double membrane structure it has 5 parts



(i) Outer layer

Its a smooth layer that surrounds the mitochondrion. It protect the inside of mitochondria and allows small particles to pass in and out.

(ii) inner layer

Its highly folded into Cristae, and these folds increases surface area for energy production.

(iii) Cristae

Its the folds of the inner membrane where ATP is made. As more

Date:

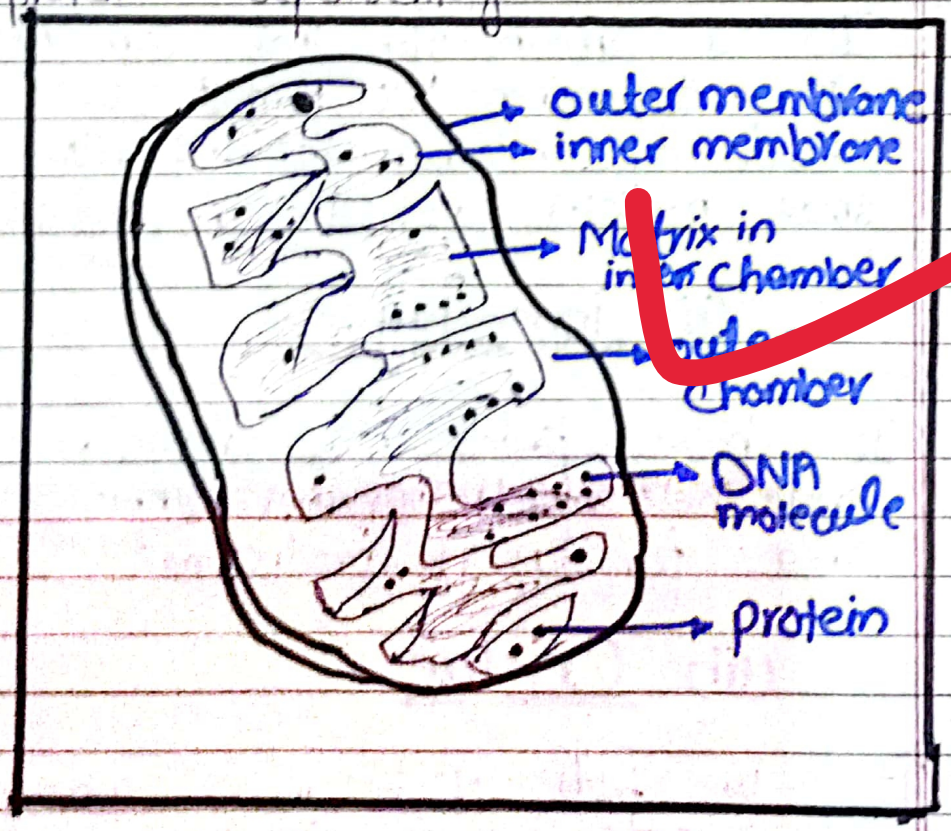
there then more ATP formation happen.

(iv) Matrix

Its a fluid inside the inner membrane containing enzymes mitochondrial DNA and ribosome chemical reaction of Energy production happen here.

(v) Mitochondrial DNA and Ribosome

Mitochondria have their own DNA and ribosome allowing them to make some of their own protein independently.



Date:_____

Function of Mitochondria:

Mitochondria perform following functions

(i) Support Cell growth and Repair

The energy that mitochondria produces help the the cell to grow divide and repair itself

(ii) Control cell death

Mitochondria release signals that help the cell die in a controlled way when its damage are no longer needed

(iii) Energy Production

The main function of the mitochondria is the production of Energy in the form of ATP. it produces ATP through a process called cellular respiration, Convert glucose and oxygen into energy and Co2

$$Glu + Energy \rightarrow ATp + Co_2 + H_{20}$$

Date:

(b)

Introduction to Doping

Doping is a process in which a small amount of impurity added to a pure Semiconductor to change its properties.

Reason of Doping:

Pure Semiconductor like Silicon have limited conductivity So, by doping, it can increase the number of free charge carrier and making a Semiconductor more useful in electronic devices.

Semiconductor:

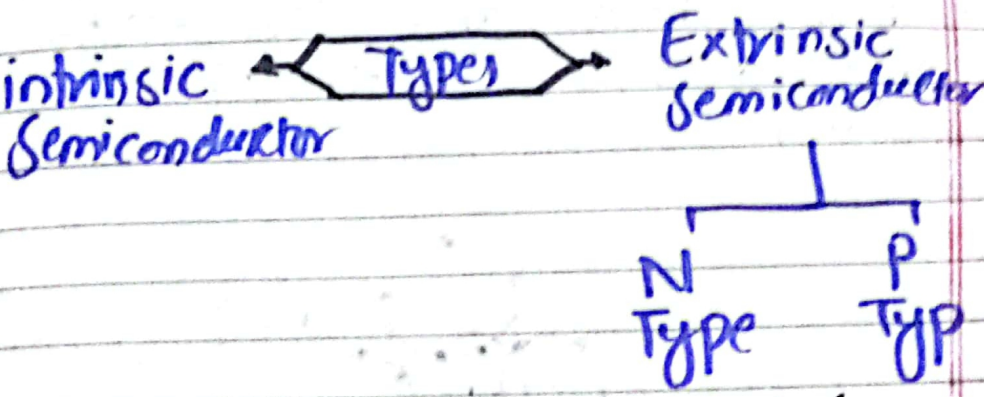
A Semiconductor is a material whose electrical conductivity is between that of a conductor and insulator and can be controlled by adding impurities in it

Types of Semiconductor

Semiconductor have following

Date:

types



(i) Intrinsic Semiconductor

It is in pure form of semiconductor having zero impurity like Silicon or germonium.
It comes naturaly when electron present in the material and they have low conductivity at room temperature.

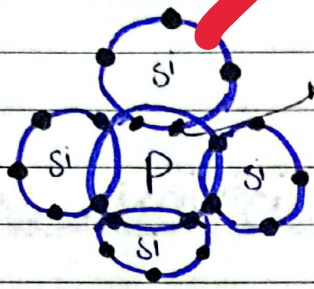
(ii) Extrinsic Semiconductor

Extrinsic Semconductors having doped with impurity to improve its conductivity.
There are two types based on dopping

N Type → It is doped with pentavelent atoms like phosporus it has majority of electron and minority of holes

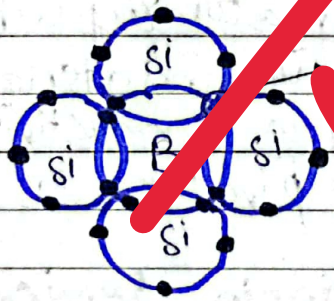
Date:

P type→ It is doped with trivalent atoms like Boron. So it has more holes and less electron and also its positive charge Carrier



donor impurity
Contributes
to free electr

N Type



Acepter impurity
Created a hole

P type

Date:

SECTION II

Q#7: (a)

Calculate the volume of a sphere with diameter 14cm. (use $\pi = 22/7$)?

Solve

Given Data:

Diameter = 14cm

$\pi = 22/7$

Find Data:

Volume of Sphere = ?

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

First we find radius

Radius = ?

Radius formula

$$R = \frac{D}{2}$$

put value in formula

$$R = \frac{14}{2}$$

$$R = \frac{14^{7}}{2_{1}} = R = 7$$

Radius = 7cm

Now we find volume:

Date:

Volume formula

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

put value in given formula

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

decoding $(7)^3$

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

$$V = \frac{4}{3} \times \frac{22}{\cancel{7}_1} \times \cancel{343}^{49}$$

$$V = \frac{4}{3} \times 22 \times$$ multiply 22×49

$$V = \frac{4}{3} \times 1078$$

By multiply 4×1078

$$V = \frac{4312}{3}$$

$$V = 1437.33$$

So, volume of a sphere is 1437.33

Date:

(b)

Five friends' total savings = 25000 Rs ratio 1:2:3:4:5 Find the smallest share?.

Solve

Given Data

Total saving = 25000 Rs
Ratio = 1:2:3:4:5

Find value:

Smallest Share = ?

First, need to find total parts of share

Ratio = 1:2:3:4:5

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

Total parts of share = 15

Now find the value of one part

= 2500/15
= 1666.6

value of one part is 1666.66
So, the smallest share value is

Ratio 1 : 2 : 3 : 4 : 5

Among all these smallest share ratio is 1 So.

1 × 166.66

166.66
166.67

Hence; the smallest share value is 166.67

(C)

Spot the error / Complete the series.

(i) 2, 6, 18, 54, 162, 486
which number doesnot fit?

Solve

2, 6, 18, 54, 162, 486

All the number is multiplied by 3 to go to next number like

Date:

$2 \times 3 = 6$

$6 \times 3 = 18$

$18 \times 3 = 54$

$54 \times 3 = 162$

$162 \times 3 = 486$

Hence; all the number is given in proper series and fit the pattern so, none of the number is misfit or wrong

(ii)

3, 5, 7, 11, 13 ____ ?

Solve

3, 5, 7, 11, 13 ____

The number given is follow the series of prime number starting from 3 to soon. now after 13 the next prime number is

3, 5, 7, 11, 13 17

Hence, the answer is 17

Date:

(d)

A triangle with sides 5cm, 12cm 13cm. Find all three angles?

Solve

Given Data

Triangle sides :
Side A = 5cm
Side B = 12 cm
Side C = 13cm

Find Value

All three angles = ?

Q#6:

(a)

A store has packets of candies in flavour apple, Berry, Cherry and Date in the ratio 3:6:2:5. If Apple candies exceed Date candies by 35, how many Berry candies are there?

Solve

Given Data

Date:

Flavor ratio: 3:6:2:5

Required Data:

Left Berry Candies = ?

Let the common factor x So,

Apple = $3(x) = 3x$
Berry = $6(x) = 6x$
Cheery = $2(x) = 2x$
Date = $5(x) = 5x$

The difference between Apple and Date is 35 Then difference in parts

$$3x - 5x$$
$$-2x$$

The difference of apple and date is $2x$

$$-2x = 35$$
$$x = \frac{35}{2}$$
$$x = 17.5$$

Now we find the Berry candies

Berry = $6x$ and 17.5
Ratio.

Date:

$= x = 17.5 \times 6$

$x = 105$

So the Berry candies are 105. in total

(d)

Unscramble these math terms

(i) STSTAICITS

it made the term STATISTICS

(ii) LGEBMAR

it made the term ALGEBRA

(c)

A bicycle covers 36km at 18km/hr starting at 1pm. what time does it reach?

Given Data

Distance = 36km

Date:

Speed = 18 Km/hr
Start time = 1pm

Required Data:

Time taken = ?

Solve

in order to find time taken we have to follow the speed formula

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

But we have speed given and finding value is time so replace the time in finding place

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

Put value in formula

$$\text{Time} \quad \frac{36\ \text{Km}}{18\ \text{Km/h}}$$

$$\text{Time} \quad \frac{\overset{2}{\cancel{36}}\ \cancel{\text{Km}}}{\cancel{18}\ \text{Km/h}}$$

Time = 2hours

Date:

Time Taken 2 hours

Add it time to starting time

1+2

3 hours

Hence ; Bicycle reaches 3 pm.