

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.

Renewable Energy resources:

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 questions 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. :)

renewable resources.

For Example:

Fossil fuels burning such as Oil, Coal and gas.

These are various methods to harvest energy from fossil fuels such burning in Conventional vehicles.

potential of Wind Energy:

Wind energy uses as a sustainable source of Energy and can be use in future as an alternative of non-renewable unsustainable energy sources.

Reasons of Sustainability:

- It is a pollution free source of energy.
- Easy to harvest once the Capital machinery of Wind turbine is installed.
- No emission of pollutants like NO_x , SO_x , a way forward to Counter the GHG (CO_2 , CH_4 , NO_2) emissions.
- Installed easily at everywhere, especially through Sea shore areas, where speed of wind is high.

(b)

Enzymes:

— “Enzymes are biological molecules that act as a Catalyst to Speed up the reactions in animals and plant.” —

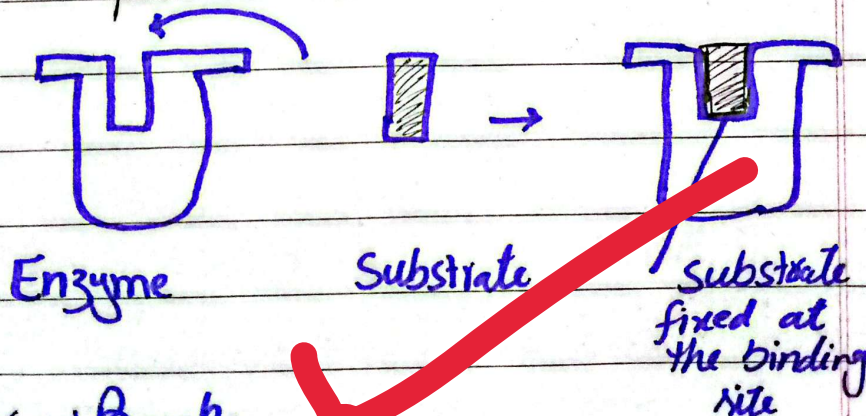
Lock and Key model:

There are two types of Enzymes model.

(i) Induce fit model (ii) Lock & Key model

Lock and Key model explain the process of reactions in animals as:

- Enzymes have their fixed shape and can never be altered.
- Substrate fixed it self on the binding site of enzyme and reactions are proceeds as a result.



Draw Back.

This model does not explain the remaining shapes of Substates

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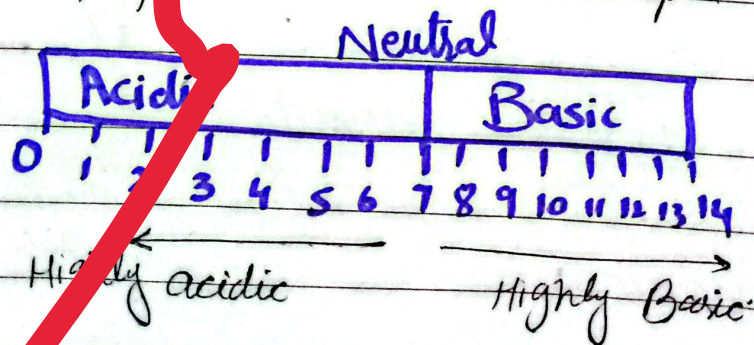
that can't fit in the enzyme. But in reality, every kind/shape of substrate attach with enzymes to speed up their reaction. Therefore, Induce fit model overcome this drawback.

2 Factors that affects enzymes activity:

i) Temperature (ii) pH

Enzymes are biological molecules that is made up of protein. Temperature beyond the Critical temperature (in human, 37°C), the shapes of enzymes should be denature and never remains active to perform their tasks.

On the same way, The binding sites of enzymes are changed site. High pH value may alter their functionality. Every enzyme has it's own Specific value tolerate to pH.



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(a)

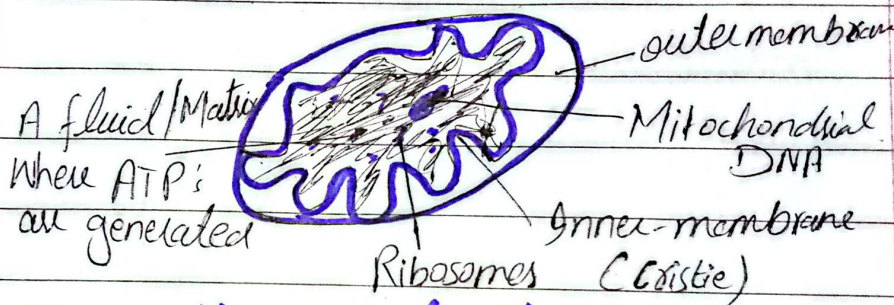
Structure & Functions of:

(i) Mitochondria

(ii) Ribosomes

Mitochondria:

"Mitochondrion" is an organelle present in animals and plants cell cytoplasm. It is double membrane bounded organelle having its own ATP generating system.



power House of the cell:

Since, Adenosine Triphosphate or ATP's are produced in the mitochondria, therefore, it is also known as the power house of the cell.

Functions of Mitochondria:

It produces energy by generating ATP and utilizes it to perform different tasks.

Bio-chemical reactions such as generating genetic materials

Such as: **tRNA, mRNA** through mitochondrial DNA. They are essential to provide components to run the machinery of ATP generations.

(ii) **Ribosomes:**

Ribosomes are granular like structure present in cells in two forms:

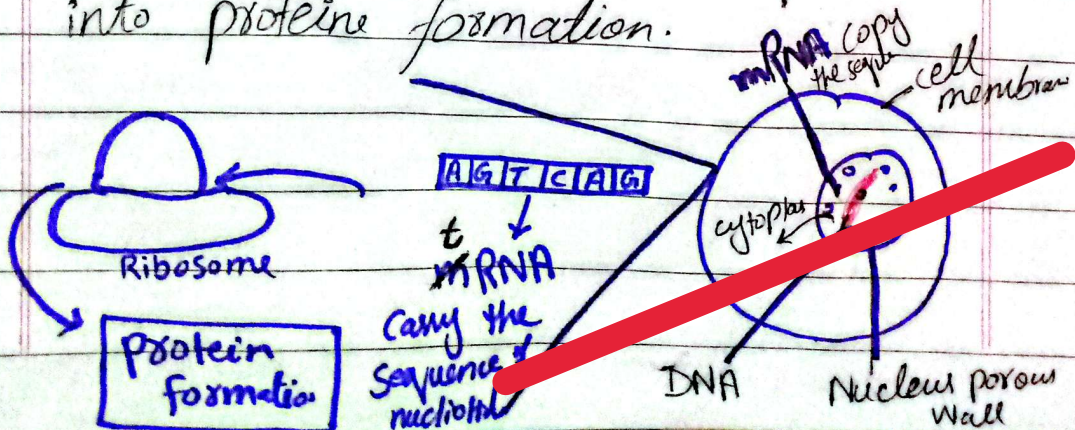
- Either move freely in cytoplasm
- Attach with the **Endoplasmic reticulum** and form Rough EPR.

Structure:

It has 2 main components. The larger soma (body) of ribosomes is **60S** and the smaller portion of it is **40S** but their combine effect produce **80S** in ribosomes.

Function:

It helps to convert discription of mRNA of nucleotide sequence into protein formation.



Phase wise symptoms (d)

Dengue Fever :

Dengue fever is caused by Aedes mosquito that is responsible to transmit its germs into the human body. This mosquito's habitat is marshy land.

Common Symptoms:

- High fever.
- Blood flow through nose.
- Fatigue
- Pain in bones.
- Vomiting

Key preventive measures:

- During rainy seasons, avoid to sit at those areas where water is standing.
- Change the standing water in ponds, plants pots, or in gardens.
- Use Nets while sleeping or spending leisure time at home.
- Apply mosquito repellent on body, available in the form of lotions.
- Use mosquito killing machines using special kind of oils.

→ In case of any above mentioned symptoms, immediately directed towards the ~~health~~ hospitals, and go in isolation because the patients of dengue fever carrying the vectors in their blood that can be easily transmitted to other (persons) persons.

Q#04

(d)

Solid Waste Management:

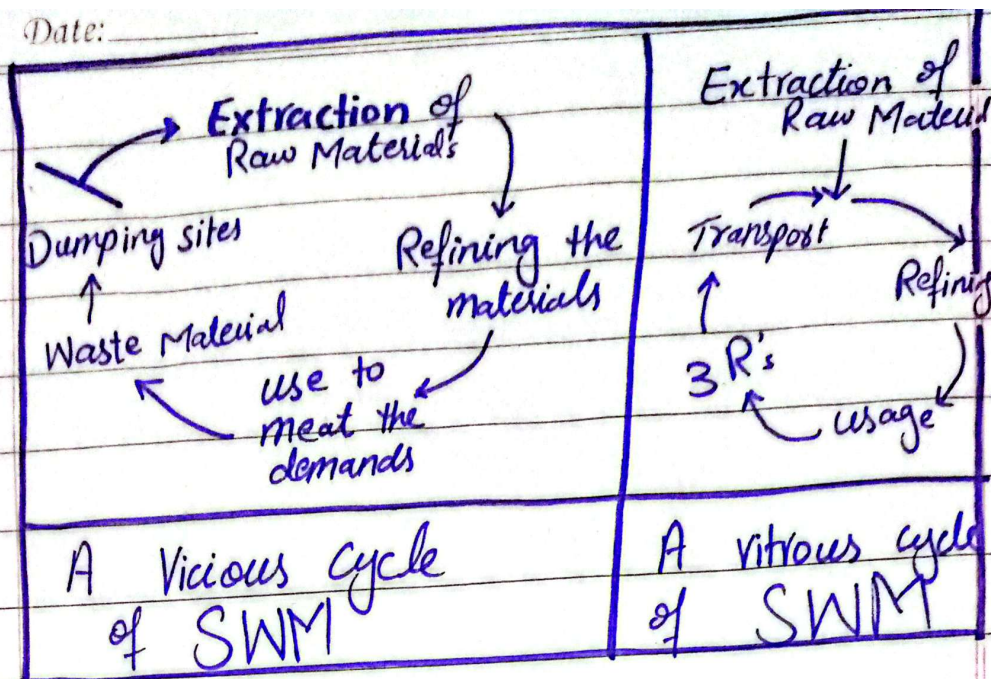
-ee Solid

Waste management is a technique use to handle solid wastes by different strategies."

Some techniques are here:

Recycling	Reuse	Reduce
• Segregate that waste that can be recycle. → Reduce burden on raw material → Manage the Solid Waste	• Reuse the materials that are in still usable condition instead of preferring to buy new ones. → Plastic Bottles	• Reduce the usage of extra waste materials that can be managed by reusing the available materials. → Shopping plastic bag

Date: _____



Environmental Hazards:-

When solid waste at urban site are handled with improper disposal, it may cause a number of environmental hazardous problems.

→ ① Health problems for Scavengers.

When people especially children try to collect saleable materials from waste, it may consist of broken glasses, syringes, steels or contaminated food.

→ ② Open Burning of Waste

It is a way to manage solid waste either by locals or by authorities to manage waste. It is added ashes, smoke, hazardous chemical components from waste into air.

③ leaching into the ground water:

When Solid Waste is dumped without proper treatment, the bacterial reactions started **anaerobically** under ground and release Contaminated Water from solid. This water leach down further in the ground and **Contaminates** the ground water.

④ Extreme Temperature & CFCs:

During summer seasons, when temperature is very high nearly **45-50°C** in various regions of Pakistan. Materials (SW) at open areas started to release **Carbon** and **CFCs** into environment because it is a suitable temperature for **bacteria** to **degrade material**.

(c)

Remote Sensing & GIS:

Remote Sensing technique use to analyze thing without being direct contact with it.

While Geographic information System (GIS) uses Satellites to monitor and capture data over

The large areas. Use of Remote Sensing & GIS in environmental monitoring:

- ① It can be used to monitor changing weather patterns due to climate change.
- ② Analyze the temperature variation characterized by on daily basis and also cover the spans of decades.
- ③ Predict the rainfalls, monsoon intensity, heat waves, glaciers melting, and the most prone areas to announce as early warning system.
- ④ Vegetation covered areas and the production rate produce by crop lands.

There is a number satellites functioning to monitor, collect, and predict results on the basis of facts and figures.

Use in Disaster management:

- ① GIS and RS helps to collect data of areas effected by floods

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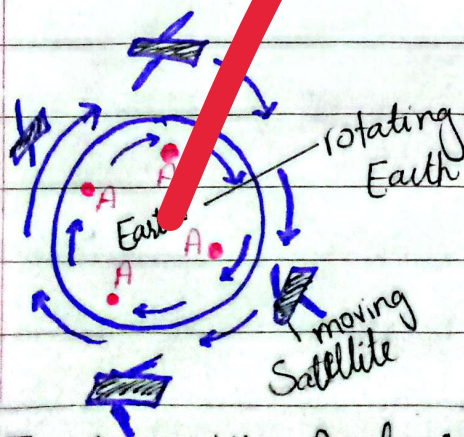
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or earthquakes, Tsunamis, Tornadoes,
Avalanches, volcanic eruption, cyclons
etc.

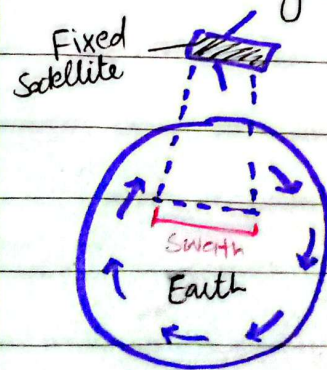
(2) It assist to provide information
Which areas are effected most
and where the need of immediate
relief supply is necessary.

(3) Design routes from where food,
medicines Can be tranfered to
the vulnerables and paths
for save evacuation for
people.

(4) There are many areas
Pakistan during the earthquake
in Azad Kashmir in 2005,
where no early accesible is
possible. To meet such demands,
GIS & RS play vital role in
environmental disaster managemt.



(a) Fixed position Analyzing



(b) Diff Positions Analyzing

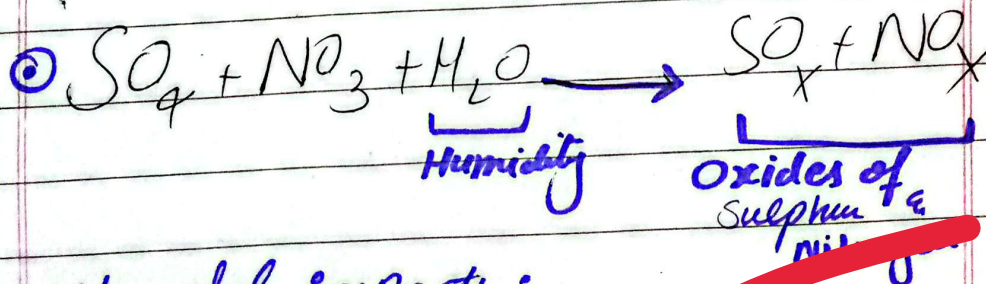
In fig (b) different positions are analyzing as only earth is revolving.

Acid Rain^{ee} When the pH of rain is reduce due to some chemical reactions in air & water, then the rain produce many harmful impacts and known as acid rain."

Reaction

⊙
$$\text{H}_2\text{O} + \text{CO}_2 + \text{SO}_2 \xrightarrow{\text{Rx}} \text{H}_2\text{SO}_4 + \text{CO}$$

water carbon dioxide Sulphur Oxide Sulphuric Acid Carbon mono Oxide



Harmful impacts:

Vegetative & Aquatic life :-

- ① Acid rain turn the green leaf of plants into yellow by reacting with the Mg present in it.

- ② React with the minerals present in soil and make them unavailable for plants to uptake and utilize it.
- ③ pH of soil changes that affects the overall efficiency of plants functioning.
- ④ productivity of crops such as Wheat, maize, Rice, Cotton are affected badly.

Aquatic Life

- ① In case of aquatic life, there oxides of Nitrogen & Sulphur, block the gills of fishes and unable to breath them.
- ② Aquatic Oxygen or Dissolve Oxygen (DO) reduce in water and the level of Biological Oxygen demands (BOD) rises.
- ③ Provide suitable environment for Weeds & fungus grow (that are acid resistant) at the surface of water and block the way of sunlight reaching at the depth of sea.

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(a)
ROAD — UQDG
LAKE — ??

Rule of Coding:

1	2	3	4	5	6	7	8	9	10
A	B	C	D	E	F	G	H	I	J
11	12	13	14	15	16	17	18	19	20
K	L	M	N	O	P	Q	R	S	T
21	22	23	24	25	26				
U	V	W	X	Y	Z				

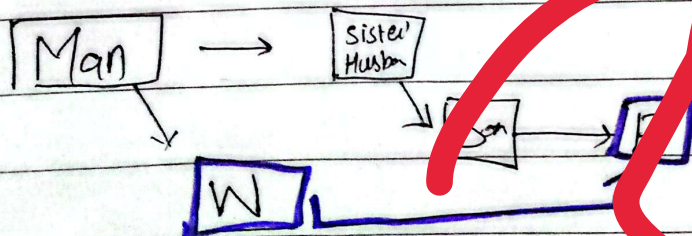
ROAD → UQDG
↓ ↓ ↓ ↓
18 15 1 4 21 17 4 7

LALK → OCON Answer

A man tells a woman -----

The Son of my sister's husband
is the Father of your Son.

Woman related to Man ??



She is her husband's maternal
Uncle

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(c)

$$4, 12, 6, 18, 9, 27, \underline{13}$$

$+2 \quad +3 \quad +4$

① $\frac{120}{\times 6}$
 $\underline{720}$

$$1, 2, 6, 24, 120, \underline{720}$$

$\times 3 \quad \times 4 \quad \times 5$

(d)
P, Q, R, S, T (Have different Heights)