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.

Good luck for CSS 2026 — you're going to ace it, in sha Allah! ⭐

Handwritten annotations:

→ Sidra Ramz...
→ HMSHP? what
(NEW)

mark parts aim un-balanced
diet > how it affected
Healthy Living?
:)
Answer

An unbalanced diet is one that lacks the correct proportion of needed nutrients (proteins, vitamins,) and calories needed for the body to function properly.

⇒ An unbalanced diet affects healthy living by:

i) Causing nutrient deficiencies or excesses. This can lead to various health problems like anemia

ii) weakening the immune system,

48

A lack of proper nutrition can make the body more susceptiable to illnesses and infections.

iii).

Impacting growth and development especially in childern, an unbalanced diet can hind physical and cognitive development.

iv)

Increasing risk of chronic diseases long-term poor diet is a major risk factor for conditions such as type 2 diabetes, heart disease, stroke, and certain cancers.

v)

Reducing energy levels and overall well being. it can lead to fatigue, poor concentration, and a general feeling of being unwell.
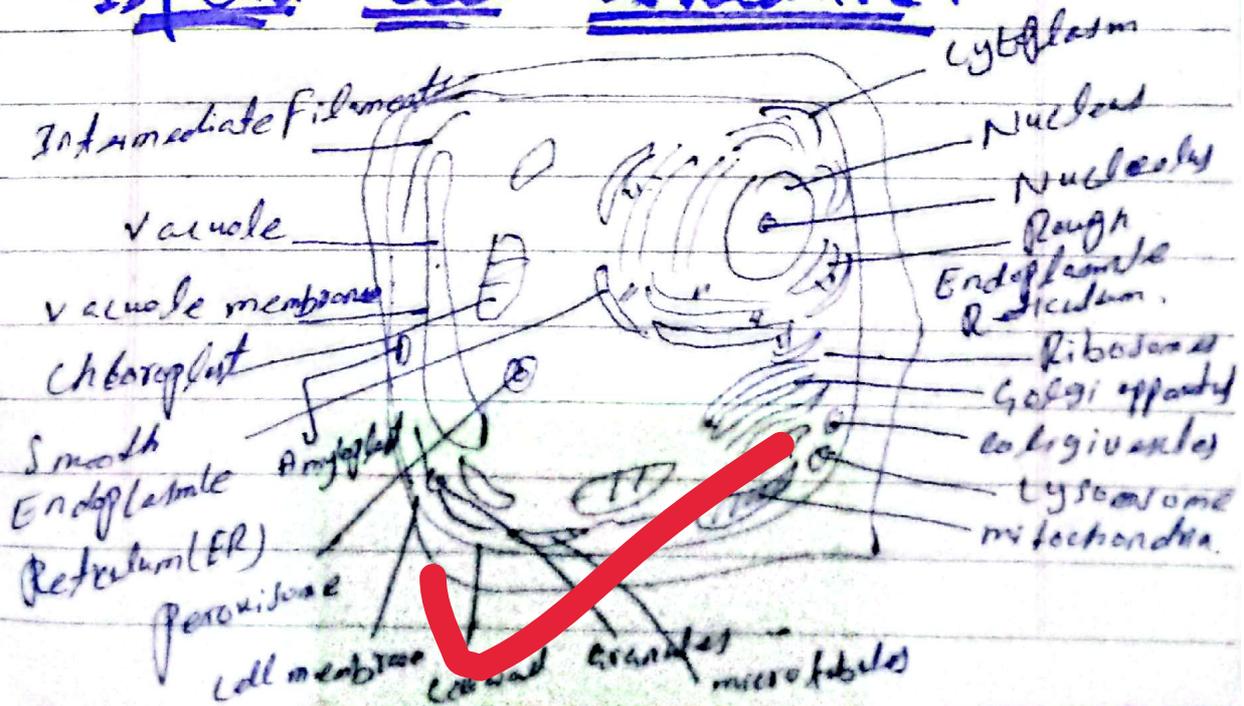
D)
Describe the structure and functions of cell wall cell membrane . cytoplasm

and mitochondria?

Answer

The cell wall (plants/fungi) provides rigid support and protection made of cellulose/chitin. The cell membrane (all cells) controls entry/exit via a lipid bilayer, cytoplasm is the jelly-like substance filling the cell where reactions occur, and mitochondria (eukaryotes) are the powerhouses generating ATP energy through cellular respiration, featuring inner folds (cristae) for increased surface area.

⇒ Plant cell structure.

Intermediate filaments
Vacuole
Vacuole membrane
Chloroplast
Smooth Endoplasmic Reticulum (ER)
Peroxisome
Amyloplast
Cell membrane
Cortical granules
microtubules
Cytoplasm
Nucleus
Nucleolus
Rough Endoplasmic Reticulum
Ribosome
Golgi apparatus
Contractile vacuoles
Lysosome
mitochondria

Diagrams show the cell wall outside the membrane, with cytoplasm filling the interior, mitochondria.

1) Cell wall (Plants, Fungi), Bacteria.

Structure : A rigid outer layer, primarily cellulose in plants (with pectin, hemicellulose) and chitin in fungi, outside the cell membrane.

Function : Provides structural support, maintains cell shape. protects against osmotic lysis bursting), and regulates molecule passage.

Cell membrane (Plasma, Membrane)

Structure : A flexible, selectively permeable bilayer of phospholipids with embedded proteins (lipid bilayer).

Function
Regulates what enters and leaves the cell (transport).

receives signals, facilitates cell adhesion, and maintains cell integrity.

Cytoplasm.

Structure
The jelly-like substance (cytosol) filling the cell surrounding organelles, composed of water, salts and organic molecules.

Functions
Site for many metabolic reactions (like glycolysis) supports organelles, and facilitates movement within the cell.

Mitochondria (e.g. mitochondria.

Structure
Oval - shaped organelles with a double membrane; the inner membrane is folded into cristae, increasing surface area,

Function.
The "Powerhouses" generating

most of cell's ATP (energy currency) through cellular respiration.

Q.NO.3

a) **How global warming can be reversed?**

Answer

Global warming cannot be fully reversed, but its effects can be mitigated and future warming limited.

Global warming is the long term heating of Earth's climate system observed since the pre-industrial period due to human activities, primarily fossil fuel burning, which increases heat-trapping greenhouse gas levels in Earth's atmosphere. The accumulated greenhouse gasses remain in the atmosphere for decades to centuries meaning that even if emissions stopped completely today, some warming would continue for a

period.

mitigation efforts focus on reducing net greenhouse gas emissions to zero (net zero) and enhancing natural carbon sinks. These strategies include.

i) **Transitioning to renewable energy Sources** like solar, wind, and hydro power to replace fossil fuels.

ii) **Improving energy efficiency** in transportation, industry, and buildings.

iv) **Implementing carbon capture and storage (CCS) technologies** to remove CO_2 from the atmosphere or from industrial sources.

→ **Protecting and restoring natural ecosystems** such as forests and wetlands, which absorb CO_2.

The goal of international agreements like the Paris Agreement is to limit the temperature increase to 1.5°C to 2°C above pre-industrial levels which requires rapid and far-reaching transitions in all aspects of society.

=> b) Define ceramics. Given properties and applications of ceramics.

=> Answer

Ceramics are inorganic, non-metallic solids made by heating raw materials to high temperatures.

=> Properties of ceramics.
   i) Typically hard, strong in compression and brittle in tension.
   ii) Possess high melting points and are good thermal insulators. Exhibit excellent electrical

resistance and often used as insulators.

A

highly resistant to chemical corrosion and degrading.

APPLicatons of ceramics:

i) Construction, bricks, tiles, and cement for building

ii) Electronics.

Indul insulators, capacitors, and substrates for circuits.

iv) Biomedical Dental implants, bone replacements, and surgical tools.

!v Aerospace, Heat, Shields and components in high-temperature environments.

~ **Q.No. 4**

A)   Explain the role of heart and blood vessels in circulation:

Answer

The heart and blood vessels work together to circulate blood throughout the body.

see how:

= Heart

The heart is a pump that pushes blood through the circulatory system. It has four chambers.

i) Right atrium; receives oxygen-depleted blood.

ii) Right ventricle, pumps blood to lungs.

iii) Left atrium; receives oxygen-rich blood from lungs.

IV) Left ventricle; pumps oxygen-rich blood to body.

=> Blood vessels.

i) Arteries; carry oxygen-rich blood away from the heart to the body

ii) Veins; carry oxygen-depleted blood back to the heart.

capillaries : tiny vesseles where oxygen and nutrients are exchanged with tissues.

diagram

Heart

Arteries   veins

Capillaries.
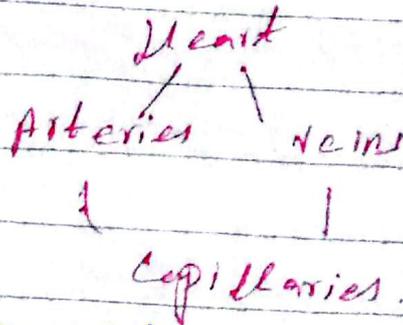
The circulation process:

1) oxygen - depleted blood returns to the heart (right atrium) via veins.

ii) Blood flows to right ventricle, then to lungs to pick up oxygen.

3) oxygen - rich blood returns to heart (left atrium), then to left ventricle.

4) Left ventricle pumps blood to the body via arteries.

5) oxygen and nutrients are exchanged in capillaries.

6) oxygen - depleted blood returns to heart.

1) what is the cyclone?
Describe the formation of
=> cyclone?
= Answer

Cyclone: Powerfull storm that
can bring heavy rains and strong
winds.

A cyclone is a large-
scale air mass that
rotates around a low pressure
center.

Here's how they form,

Formation of a cyclone:

i) Warm ocean waters)
Cyclone form over warm ocean
waters (at least 26.5°c or 80.F)
with high humidity.

ii) Moisture and heat)
As the sea surface evaporates,
moist air rises, creating an
area of low Pressure.

iii) Rotation:
Air form surrounding
areas moves, is rotating due to

Coriolis force (deflected to right in the northern).

Eye formation: The rotating air creates a central eye with clam weather and low pressure.

5) **Intensification:** The cyclone strengthens as it absorbs more moisture and heat, increasing wind speeds.

Moist air rises $\Rightarrow$ Clouds and thunderstorm

low pressure (eye)

Cyclone Structure

i) Eye : calm center with low pressure.

ii) Eye wall, surrounding ring of intense thunderstorms.

iii) Rainable Rainbands; outer bands of rain and thunderstorms.

NQ3 what is DRM: ? Give the importance of Risk

assesment in DRM:

Answer

DRM:

Disaster Risk management is a process to identify, assess and reduce risk to minimize the impact of disasters (natural or mun-made). It involves Strategies to prevent, prepare. for respond to, and recover from disaster.

= **importance**

Risk assesment is a curcial step in DRM. It helps:

i) identify Potential hazards and vulnerabilities.

ii) Analyze likehood and impact of disasters.

iii. Prioritize risks and allocated resources.

iv) Develop effective mitigation and

preparedness plans.

Risk Assessment steps:
1) Identify hazards (floods, earthquakes, etc).
2) Analyze vulnerability and exposure.
3) Evaluate risk (Likelihood & Impact)
4) Prioritize risk.

By assessment risks, communities and organizations can take possible measures to reduce disaster Impacts, save lives, and protect assets.

b).-
Define biofules? Explain the production of biofuel and bio gas.

Answer

Biofules: A renewable energy source.

Biofuels are fules produced from organic matter (biomass) like

Plants, algae, or waste, common type include ethanol. biodiesel. and biogas.

Production of Biofuels:

=> ## Ethanol Production:

- Ferment sugars from crops (sugarcane, corn) using yeast. Distill and purify ethanol for use in vehicles.

=> ## Biodiesel Production.

Extract oils from plants (Soybean, Palm). or waste oils.

- Process oils into biodiesel through transesterification.

=> ## Biogas Production

- Anaerobic digestion of organic waste (food waste, manure).

- produces methane-rich biogas for energy.

Gas Production (Biogas).

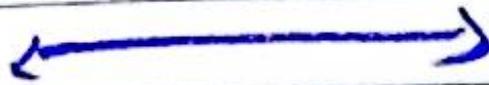Biogas is produced through

anaerobic digestion of biomass.
organic waste microorganisms,
break down waste methane (CH_4) &
CO_2.

• Biogas can be used for cooking
heating n electricity.

= **Benefits.**

  v) Renewable and sustainable.
  iv) Can reduce greenhouse gas emissions
  iu) utilize waste material.

a.) The woman's granddaughter is the daughter of Ahsan's brother. ∴ Ahsan's niece; Thus the woman is Ahsan's **Mother.**

B). 1) length = $3u$

breadth = $2u$

perimeter = $2(3u + 2u) = 10u$

speed $= 12$ km/hr $= \dfrac{12 \times 1000}{60} = m.h$ 200

Distance in 8 min =

$200 \times 8 = 1600 \cdot m$

$10u = 1600 \Rightarrow u = 160$

Area = length × breadth =

$\Rightarrow 3u \cdot 2u = 6u^2$

Area $= 6 \times 160^2 = 153600 \, m^2$.

$\longleftrightarrow$

c) let the number be $10a + b$

1. $b = a + b$

2.) $(10a + b)(a+b) = 144$

$\Rightarrow b = a + 2$ into the second equation.

$(10a + a + 2)(a + a + 2) = 144$

$(11a + 2)(2a + 2) = 144$

$22a^2 + 22a + 4a + 4 = 144$

$22a^2 + 26a - 140 = 0$

$= a$

Then = $b = a + 2 = 4$

Number = $\log a + b = 24$ ____ **Ans**

D) let the number be = $2k$ and $3k$,

$Lcm(2k, 3k) = 6k$

$=$ Given lcm = 48.

$6k = 48 = k = 8$

Number are 16 and 24.

Sum = $16 + 24 = 40$ Ans.

$\Rightarrow$ **Question n7**

a) let be, x

let be, y

40% of $x = \frac{2}{3}y$

$0.4x = \frac{2}{3}y$

solve $\frac{x}{y}$ $\Rightarrow x = \frac{2}{3} \cdot \frac{1}{0.4}y$

$= \frac{2}{3} \cdot \frac{10}{4}y$

$\Rightarrow \frac{5}{3}y$

Thus, $\frac{x}{y} = \frac{5}{3}$ Ans.

a) Time to type 116 pages,

Rashid type 32 pg in 6 hours,

rate =

$$\frac{32}{6} = \text{...} \text{ pages/hour}$$

Cameron: type = 40 page, in 5 hours.

$$\frac{40}{5} = 8 \text{ page/hour}$$

$\Rightarrow$ Together on two computers. Their combined rate is:

$$\frac{16}{3} + 8 = \frac{16}{3} + \frac{24}{3} = \frac{40}{3}$$

$$= \frac{116}{\frac{10}{3}} = 116 \times \frac{3}{40} = \frac{330}{40} = 8.25 \text{ hrs} \quad \text{Ans}$$

a) Present age of son:

Let : Son age = x

man = 24 years

man age = $x + 24$

In 2 years = $\Rightarrow x + 24 + 2 = 2(x + 2)$

$$x + 26 + 2x + 4$$

$x, \Rightarrow 26 - 4 = 2x - x$

$$x = 22 \quad \text{Ans.}$$

b) Selling price of 17 balls:

cost price = 1 ball.

$$720 = 17C - 5C$$

$$720 = \text{...}$$