

Dos and Don'ts for General Science & Ability Paper

GSA Mock ~ CSS 2025

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.

Q#

a. WHY ATOMS FORM CHEMICAL BONDS

Atoms form chemical bonds to achieve a more stable electronic configuration, which means full outer energy level. 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.

COVALENT BOND IN WATER MOLECULE

Water is formed by when atoms of hydrogen (H) and oxygen (O) link together by covalent bonding (sharing electrons). **OXYGEN** (O) has six valence electrons and **HYDROGEN** has one valence electron. In order to attain the stable electronic configuration, two electrons of hydrogen share their electrons via covalent bonding with oxygen outer most shell containing 6 electrons. The shared electrons are attracted to the nuclei of both atoms, holding them together and forming a stable molecule. (H₂O)

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.

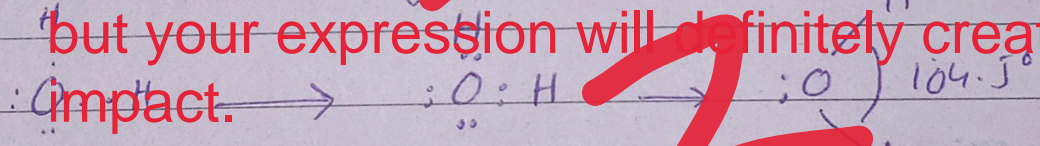
3. You need to understand that your paper is supposed to look more scientific than theoretical. So, add flowcharts and diagrams where required.

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 question in words. You need to understand that a 5 mark part requires all steps written and explained.

Good luck for CSS 2025. You're gonna rock in sha Allah. :)



The covalent bond between hydrogen and oxygen is polar, giving oxygen partial negative charge and hydrogen partial positive charge.

This polarity give water many of its unique polarities and biological importance

b- INTRODUCTION

"Doping is intentional Introduction of impurities into a material, such as semiconductor or ceramics, to modify its electrical, optical or structural properties."

In ceramics doping can enhance their strength, toughness, conductivity and optical properties.

DIFFERENT TYPES OF CERAMICS

Ceramics are inorganic, non-metallic materials, that are typically hard, brittle and resistant to heat, corrosion and wear. There are several types of ceramics.

1. OXIDE CERAMICS (e.g., alumina, zirconia)
2. CARBIDE CERAMICS (e.g., silicon carbide)
3. NITRID CERAMICS (e.g., silicon nitride)
4. GLASS CERAMICS (e.g., pyrex)
5. FERROELECTRIC (e.g., Barium titanate)
6. CERAMICS
6. ADVANCED CERAMICS (e.g., nano ceramic & meta-materials)

c- INTRODUCTION

GLOBAL WARMING refers to the long term rise in the average surface temperature of Earth due to increasing

levels of greenhouse gases such as CO_2 & CH_4 in the atmosphere. These gases trap heat from the sun and prevent it from being released back into space. It has both positive & negative impacts, although the negative impacts are more significant & far-reaching. Some of the main merits & demerits of global warming are as follow:-

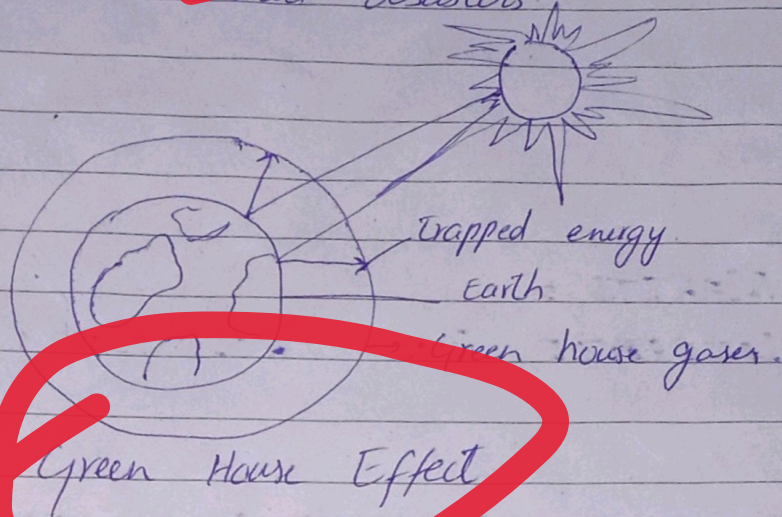
MERITS :-

- 1- **INCREASED FOOD PRODUCTION:** In some areas, global warming lead to increased crop yield & agricultural productivity.
- 2- **IMPROVED ENERGY EFFICIENCY:** Warmer winters can reduce energy consumption & costs associated with heating in some areas.
- 3- **INCREASED ACCESS TO NATURAL RESOURCES**
Melting sea ice and glaciers can provide new opportunities for resource extraction & shipping routes.

DEMERITS:-

- 1- Global warming cause rising sea levels and coastal flooding.
- 2- It caused more frequent & severe heatwaves, droughts & storms.
- 3- Loss of biodiversity & ecosystem has been disrupted.
- 4- Global warming caused negative impacts on human health, including increased mortality.

- 5- Economic costs and damage to infrastructure and property seen by global warming.
- 6- Displacement and migration of populations due to climate and disasters.



d. INTRODUCTION:

Polio (also known as poliomyelitis) is highly infectious disease that caused by virus that attack the central nervous system. It has no cure but can be prevented by safe and effective vaccination. Polio is primarily spread through the fecal-oral route, where the virus is ingested through contaminated food or water.

CHALLENGES IN ERADICATION OF POLIO IN PAKISTAN:

In Pakistan, despite significant progress in reducing polio cases, challenges persist in eradicating the disease. One major obstacle is inaccessibility to certain areas due to conflict & insecurity, making

difficult for health workers to reach & vaccinate children. Additionally misinformation & misconceptions about the vaccine have led to resistance & refusal by communities, hindering efforts to achieve full coverage. Furthermore, the country's vast & mobile population, as well as inadequate health infrastructure in some areas pose significant logistical challenges.

Addressing these challenges is crucial to complete eradication of ~~polio~~ in Pakistan & achieving global ~~polio~~ eradication.

Q#4

2. **BILE**, Also known as liver juice, is a vital digestive fluid produced by the liver and stored in gallbladder. It plays a crucial role in the breakdown & absorption of fats & fat-soluble vitamins in the small intestine.

COMPOSITION:

Bile is composed of Bile salts (bile acids and bile alcohols), cholesterol, Bilirubin, phospholipids, electrolytes (such as sodium, potassium & chloride) and water.

Bile plays a crucial role in the breakdown of fats & fat soluble vitamins in small intestine. It aids in absorption of Vitamin A, D, E & K. Bile also helps maintain the optimal pH for enzyme activity & eliminates waste products like bilirubin from the liver. Overall, bile is essential for proper nutrient absorption & a healthy digestive system.

b- INTRODUCTION

The kidneys are two bean-shaped organs located in the lower back of human body. They are responsible for filtering waste & excess substances from the blood.

ROLE OF KIDNEY IN EXCRETION

As vital part of urinary system, the kidney plays a crucial role in excretion, removing harmful substances from the body to maintain homeostasis & overall health.

The kidney filters approximately 200 quarts of blood daily, regulating electrolyte levels, and eliminating waste products like urea, creatinine & other toxins.

They also reabsorb essential nutrients like glucose, amino acids & water, back into bloodstream. Kidney also help maintain acid-base balance, regulate blood pressure & produce hormones that aid the RBC.

production & bone health

How KIDNEY ACHIEVE THESE PROCESS

Kidney achieve these process via:

1- Glomerular filtration:

Blood is filtered through tiny capillaries in glomeruli.

2- Tubular Reabsorption:

Essential substances are reabsorbed back into blood stream.

Add diagram of nephron

3- Tubular Secretion:

Waste substances are secreted into urine.

4- Urine Formation:

The filtered waste & excess substances form urine, which is excreted from the body.

C. INTRODUCTION:-

Solid waste management is the process of collecting, treating and disposing of solid waste in a manner that minimizes the impact on the environment, public health & aesthetics. Solid waste include household trash, commercial, industrial & institutional wastes.

METHODS OF SWM :

Different methods of SWM include:

Add diagrams

- 1- Landfilling: Burial of waste in a controlled environment, often with liner system to prevent leakage.

2. **Incineration** : Burning of waste to produce energy, such as electricity or heat.
3. **Recycling** : processing of waste materials into new products, reducing the need for new material.
4. **Compositing** : Biological decomposition of organic waste into nutrient such fertilizer.
5. **Waste to Energy (WTE)** : Converting waste to energy using various technologies like gasification, pyrolysis or plasma arc treatment.

D ANEMIA :

A medical condition where the body has lower the normal number of RBCs or RBCs have lower hemoglobin, leading to inadequate oxygen delivery to the body tissues.

APPENDICITIS :

Inflammation of the appendix, a small organ attached to the large intestine, which can cause severe abdominal pain, nausea & fever. It often require surgical treatment to remove appendix.

SPLEEN:

An organ located in the upper left side of the abdomen, responsible for filtering the blood, storing RBCs & helping to fight infections.

MYOPIA:

A vision condition also known as nearsightedness, where close objects appear clear but distant objects are blurry due to shape of eye or lens of eye.

ISOTONE:

Isotones refers to atoms nuclei, they have same number but different number of protons. Chemistry & physics, Isotones are used to describe properties of elements.

Add proper diagrams and properly explain each term