(GSC101) Assignment # 2

Solution

Question No. 1 (Marks = 3x4=12)

Explain the reason of given statements with suitable examples or possible chemical reactions.

a) Why chlorine is known as "oxidizing agent"?

Answer:

Chlorine is an oxidizing agent because it takes an electron one electron to fill the one empty space in its valence shell.

$$Ca(OCl)_2+H_2O \longrightarrow Ca(OH)_2+Cl_2$$

In this reaction chlorine acts as an bleaching agent

b) Is it true to say that rusting will occur faster in sea water then tap water?

Answer:

Yes it is true to say that rusting will occur faster in sea water then tap water. An example of the salting-out effect the iron will rust faster in fresh water. Rust requires a supply of oxygen to allow it to be oxidized to hydrated ferric oxide.

c) Under what condition we consider the best aqueous solution for conduction of electricity?

Answer:

The aqueous solution of Hydrochloric acid, HCl is the best conductor of electric current as it is a strong electrolyte and is completely dissociated into ions. On the other hand, ammonia and acetic acid are weak electrolytes which undergo partial dissociation and fructose is a non-electrolyte. Hence, they are poor conductors of electricity

d) How "Antacids" give relief from stomach acidity?

Answer:

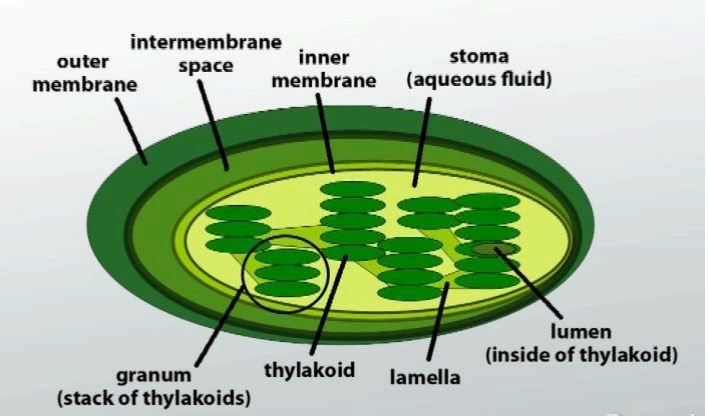
Antacids work by counteracting (neutralizing) the acid in your stomach. They do this because the chemicals in antacids are bases (alkalis) which are the opposite of acids. A reaction between an acid and base is called neutralization. This neutralization makes the stomach

contents less corrosive. This neutralization makes the stomach contents less corrosive.

Example: Antacids reduce acidity by neutralizing (counteracting) acid reducing the acidity in the stomach, and reducing the amount of acid that is refluxed into the esophagus or emptied into the duodenum.

Question No. 2 (Marks =4+4=8)

a) Discuss the structure of plastids with labelled diagram.



External/Outer Membrane:

A highly dynamic interface between plastid and cytoplasm. Plastids are the defining organelles of all photosynthetic eukaryotes. Two layers of biological membranes that are called the inner (IE) and the outer (OE) plastid envelope membranes bound the plastids of Archaeplastida.

Intermembrane Space:

The intermembrane space (IMS) is the space occurring between or involving two or more membranes.

Internal

Membrane

Plastoglobule:

Plastoglobuli are plastid lipoprotein particles surrounded by a membrane lpid monolayer. They are present in different plastid types (eg. chloroplasts, chromoplasts, and elaioplasts) and are dynamic in size and shape in response to abiotic stress or developmental transitions.

Ribosome:

Plastid ribosomes are responsible for a large part of the protein synthesis in plant leaves, green algal cells, and the vast majority in the thalli of red algae.

Thylakoid:

Thylakoids are membrane-bound compartments inside chloroplasts and cyan bacteria. Chloroplast thylakoids frequently form stacks of disks referred to as grana (singular: granum).

Lumen:

The thylakoid lumen is a continuous aqueous phase enclosed by the thylakoid membrane. It plays an important role for photophosphorylation during photosynthesis.

b) How arethey helpful in photosynthesis process in plants?

Answer:

The plastids are double-membrane organelles that contain the pigments used in photosynthesis and manufacture and store the important chemical compounds used by the cells. These pigments give the color of the cell.