**Gsc101 Assignment no. 2 spring 2021**

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**Question 01:**

**Either yes or no, explain the reasons of following statements,**

1. **Corrosion is rusting of iron**
2. **pH indicators should be used to test for rusting**
3. **Rusting take place in the presence of oxygen only**
4. **Rusting will not take place in water(100 Co)and oil mixture**
5. **Rusting will occur faster in sea water than tap water**
6. **Corrosion is rusting of iron**

Yes, Because corrosion is defined as eating away of iron metal by surrounding medium in the presence of moist and air.

1. **Ph indicators should be used be testing of rusting**

Yes, ph indicators can be used to test of rusting. As ferric oxide is formed which(is basic in nature) can convert

1. Red litmus paper into blue litmus paper
2. Colorless into pink colorless appear after ph of 9.0
3. **Rusting take place in the presence of oxygen only.**

No, rusting will take place when electrons from iron surface with oxygen (reduce it) in the presence of +ion. Here moisture is also required. So saying only O2 is an incomplete statement.

1. **Rusting will not take place in water(1000C) and oil mixture**

Yes, rusting will not take place in water at 100oC and oil mixture because at this point water is boiling water can never react electrons of iron. So reaction would not proceed. Similarly iron is insulated by oil mixture surrounding. So reaction can’t proceed.

1. **Rusting will occur faster in the sea water than tap water**

Yes, Rustig will occur faster in the sea water because in salty water and water and salts act as an electrolyte wich conduct ion and speeds up the rusting. It also allows iron to loose electrons more easily and rapidly as compare to tap water.

**Question No.2**

1. **Give real life examples of the following;**

**Prokaryotic organisms,Eukaryotic organisms,unicellular organism,Multicellular organism**

1. **Write down the functional and structural similarities and differences between mitochondria and chloroplast?**
2. **Prokaryotic organism**

Which lack a nucleus such as bacteria ,blue algae, green algae, archaea etc.

**Eukaryotic organism**

Are those who have clearly defines nucleus such as animal, plants, fungi, potatoes mushrooms etc.

**Unicellular organism**

Are all single called organisms such as bacteria amoebas, protists and yeast etc.

**Multicellular organisms**

Are those which have more than one cell like human, animals, plants, insects, brids etc.

**Similarities of mitochondria and chloroplasts**

* Convert energy
* Have its own DNA
* Enclosed by two membranes
* Oxygen (O2) and carbon dioxide (CO2) are involved in its process
* Both have fluids inside of them

**Differences of Mitochondria and chloroplasts**

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| **Mitochondria** | **Chloroplasts** |
| **Mitochondria** are often called the powerhouses or energy factories of the cell. | **Chloroplasts** are found only in plants and photosynthetic algae |
| Their job is to make a steady supply of adenosine triphosphate (ATP),the cell main energy carrying molecule. | Their job is to carry out a process called photosynthesis. |
| It has to membranes an outer one surrounding the whole organelle, and inner one with many inward protrusions called **cristae** that increase surface area. | They have outer and inner membranes with in inter membranes space between them. |
| They are oval shaped and are suspended in the jelly like cytosol of the cell. | Chloroplasts are disc-shaped organelles found in the cytosol of a cell |
| Process is cellular respiration | Process is photosynthesis |