

The Cell : Notes/W.S.-20

Parts of the Cell

All cells have three main parts; the cell membrane, the cytoplasm, and the nucleus.

The Cell Membrane

The membrane surrounds the cell and holds it together. It also allows the passage of certain molecules through small holes in it. The membrane is said to be **semi-permeable**.

One of the processes by which this happens is called **diffusion**. Molecules will move from an area of high concentration to one of low concentration. An example of diffusion can be seen after opening a bottle of perfume. The molecules of the perfume will eventually move throughout the room. These molecules can be detected by your nose.

Small molecules such as water, oxygen or carbon dioxide, will diffuse readily across a semi-permeable membrane. The diffusion of water across such a membrane is called **osmosis**.

The Cytoplasm

The cytoplasm is the fluid inside the cell. It is mostly water. Many organelles (cell organs) and the nucleus are found within the cytoplasm. Many chemical reactions occur in the cytoplasm.

The Nucleus

The nucleus is the brain of the cell. It tells the cell what to do. Inside the nucleus is a substance called DNA (deoxyribonucleic acid). The DNA is like a computer program. It is a long molecule that contains the genes (parts of the DNA) which are used to reproduce the cell and to produce proteins. The DNA contains all of the information necessary to run the cell.

Problems:

1)a) Name the three parts of the cell.

b) Give the two functions of the cell membrane.

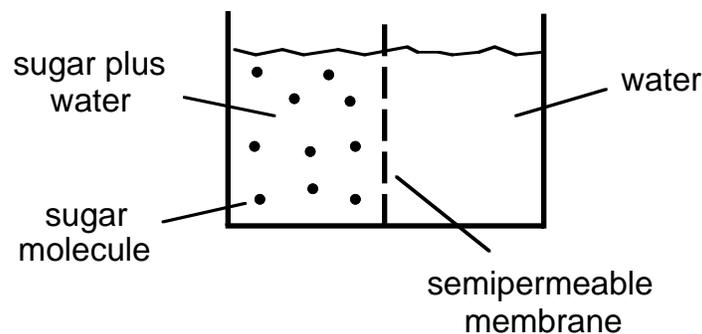
c) Give the function of the nucleus.

2)a) What is DNA? b) What is a gene?

3) What is diffusion?

4)a) What is osmosis?

b) In which direction will water flow, left or right? Explain.



c) Explain why a grape will split, when it is immersed in water.

Answers: 1)a) cell membrane, cytoplasm, nucleus, b) The membrane holds the cell together and allows the passage of certain molecules., c) It tells the cell what to do., 2)a) It is a long molecule that contains all of the information necessary to run the cell., b) The gene contains part of the information in the DNA code., 3) It is the movement of molecules from a region of high concentration to one of low concentration., 4)a) It is the diffusion of water across a membrane., b) The water moves left., The concentration of water is higher on the right, so it moves by diffusion across the membrane to the left., c) The skin of the grape is like a membrane. Water will move into the grape because the water concentration is higher outside.