

Class 8 Science Chapter 8 Important Questions

Class 8 Science Chapter 8 Important Questions Set – 1

When and how were the cells discovered? Explain.

Discovery of the Cell Robert Hooke in 1665 observed slices of cork under a simple magnifying device. Cork is a part of the bark of a tree. He took thin slices of cork and observed them under a microscope. He noticed partitioned boxes or compartments in the cork slice. These boxes appeared like a honey- comb.

He also noticed that one box was separated from the other by a wall or partition. Hooke coined the term 'cell' for each box. What Hooke observed as boxes or cells in the cork were actually dead cells. Cells of living organisms could be observed only after the discovery of improved microscopes. Very little was known about the cell for the next 150 years after Robert Hooke's observations.

What do you mean by "cell"?

Cells, in the living organisms, are called basic structural units. The buildings, though built of similar bricks, have different designs, shapes and sizes. Similarly, in the living world, organisms differ from one another but all are made up of cells. Cells in the living organisms are complex living structures unlike non-living bricks. The egg of a hen represents a single cell and is big enough to be seen by the unaided eye.

Write something about "single-cell" and "multi-cell" of organisms.

Organisms made of more than one cell are called multicellular (multi: many; cellular: cell) organisms. The number of cells being less in smaller organisms does not, in any way, affect the functioning of the organisms. An organism with billions of cells begins life as a single cell which is the fertilized egg. The fertilized egg cell multiplies and the number of cells increase as development proceeds. Both organisms are made up of a single cell. The single-celled organisms are called organisms. A single-celled organism performs all the necessary functions that multicellular organisms perform.

What do you know about the shapes of the cells?

Generally, cells are round, spherical or elongated. Some cells are long and pointed at both ends. They exhibit spindle shape. Cells sometimes are quite long. Some are branched like the nerve cell or a neuron. The nerve cell receives and transfers messages, thereby helping to control and coordinate the working of different parts of the body.

Explain the size of the cell and tell whether the size of the cell can be seen with unaided eye?

The size of cells in living organisms may be as small as a millionth of a meter (micrometer or micron) or may be as large as a few centimeters. However, most of the cells are microscopic in size and are not visible to the unaided eye. They need to be enlarged or magnified by a microscope. The smallest cell is 0.1 to 0.5 micrometer in bacteria. The largest cell measuring 170 mm × 130 mm, is the egg of an ostrich. It can be seen with unaided eye.

Class 8 Science Chapter 8 Important Questions Set – 2

How does an organism begin its life?

An organism with billions of cells begin life as a single cell which is the fertilized egg. This fertilized egg cell multiplies and the number of cells increases as development proceeds.

Neha wants to know, how does each organ in the performs different functions? Explain with an example of plants and human organs.

We know that each living organism has many organs. The digestive organs which together constitute the digestive system. Each organ in the system performs different functions such as digestion, assimilation and absorption. Similarly, different organs of a plant perform specific or specialized functions.

For example, roots help in the absorption of water and minerals. Leaves are responsible for synthesis of food. Each organ is further made up of smaller parts called tissues. A tissue is a group of similar cells performing a specific function.

Neha realized that an organ is made up of tissues which in turn, are made up of cells. The cell in a living organism is the basic structural unit.

What do you mean by “cytoplasm”?

It is the jelly-like substance present between the cell membrane and the nucleus. Various other components, or organelles, of cells are present in the cytoplasm. These are mitochondria, golgi bodies, ribosomes, etc.

What do you know about “cell membrane” and “cell wall”?

The basic components of a cell are cell membrane, cytoplasm and nucleus. The cytoplasm and nucleus are enclosed within the cell membrane, also called the plasma membrane. The membrane separates cells from one another and also the cell from the surrounding medium. The plasma membrane is porous and allows the movement of substances or materials both inward and outward. The boundary of the onion cell is the cell membrane covered by another thick covering called the cell wall. The central dense round body in the

center is called the nucleus. The jelly-like substance between the nucleus and the cell membrane is called cytoplasm.

The cell membrane gives shape to the cell. In addition to the cell membrane, there is an outer thick layer in cells of plants called cell wall. This additional layer surrounding the cell membrane is required by the plants for protection. Plant cells need protection against variations in temperature, high wind speed, atmospheric moisture, etc. They are exposed to these variations because they cannot move. Cells can be observed in the leaf peel of Tradescantia, Elodea or Rhoeo.

What is “Nucleus”?

It is an important component of the living cell. It is generally spherical and located in the center of the cell. It can be stained and seen easily with the help of a microscope. Nucleus is separated from the cytoplasm by a membrane called the nuclear membrane. This membrane is also porous and allows the movement of materials between the cytoplasm and the inside of the nucleus. With a microscope of higher magnification, we can see a smaller spherical body in the nucleus. It is called the nucleolus.

In addition, nucleus contains thread-like structures called chromosomes. These carry genes and help in inheritance or transfer of characters from the parents to the offspring. The chromosomes can be seen only when the cell divides. Nucleus, in addition to its role in inheritance, acts as control center of the activities of the cell.

Class 8 Science Chapter 8 Important Questions Set – 3

We do not sense any pain when we clip our nails or cut our hair. Why?

Nails and hair are made up of dead cells. They do not have protoplasm and nerve cells, hence one does not feel pain, when they are clipped or cut.

Why does plant cell need cell wall?

There is an outer thick layer in cells of plants called cell wall. It is required by plants for protection. Plants cell need protection against variations in temperature, high wind speed, atmospheric moisture etc.

If nucleus is removed from a cell. What is most likely to happen?

It is said that the nucleus controls all the metabolic activities as well as formation of various cells organelles. Thus, if the nucleus is removed, it will adversely affect the organism. In organism such as Amoeba, removal of nucleus may even lead to death.

Explain the position and functions of nucleus in a cell.

Nucleus is the most important component for the living cell. It is generally spherical and located in the center of the cell. It can be stained and seen easily with the help of a microscope. Nucleus is separated from the cytoplasm by a membrane called the nuclear membrane. This membrane is also porous and allows the movement of materials between the cytoplasm and the inside of the nucleus. With a microscope of higher magnification, we can see a smaller spherical body in the nucleus. It is called the nucleolus.

In addition, nucleus contains thread-like structures called chromosomes. These carry genes and help in inheritance or transfer of characters from the parents to the offspring. The chromosomes can be seen only when the cell divides. Nucleus, in addition to its role in inheritance, acts as control center of the activities of the cell. The entire content of a living cell is known as protoplasm. It includes the cytoplasm and the nucleus. Protoplasm is called the living substance of the cell.

In multicellular organism, all cells have the ability to perform all life functions. State whether it is true or not. Give reason for your answer.

In a multicellular organism, all cells do not have the capability to perform all life functions. Thus, the given statement is wrong. Although each cell can carry out the most important functions of life, it is not capable of existence on its own. e.g., a muscle cell cannot obtain its own food or oxygen. Other specialized cells in the body collect food or oxygen.

All the cells do not perform all the jobs, different tasks or functions are divided among different groups of cells.

8th Science Chapter 8 MCQ**Class 8 Science Chapter 8 Important Questions Set – 4**

Are you familiar with the word “Gene”? Write something about it.

Gene is a unit of inheritance in living organisms. It controls the transfer of a hereditary characteristic from parents to offspring. This means that your parents pass some of their characteristics on to you. If your father has brown eyes, you may also have brown eyes. If your mother has curly hair, you might also end up having curly hair. However, the different combination of genes from parents results in different characteristics.

Where are chromosomes found in a cell? State their functions.

Chromosomes are found in the nucleus of the cell. These carry genes and help in inheritance or transfer of characters from the parents to the offspring.

Explain why chloroplasts are found only in plants cell?

Chloroplasts are found in plant cells only because chloroplasts contain chlorophyll which is essential for photosynthesis. Chlorophyll cell traps solar energy and use it to prepare food for plants.

“As bricks assemble to make a building, cell assemble to make the body of every organisms”. Comment on this statement.

Both, bricks in a building and cells in the living organisms, are basic structural units. All basic functions for the organisms survival take place inside cells. As bricks assemble to make a building, cells assembled to make the body of every organism. A group of cells form a tissue which performs specific function. A group of tissue forms an organ and in the same way a group of organs form an organism. That is why cells are considered as the basic structural unit of living organisms.

What do you mean by “prokaryotic cells and eukaryotic cells”?

The nucleus of the bacterial cell is not well organized like the cells of multicellular organisms. There is no nuclear membrane. The cells having nuclear material without nuclear membrane are termed prokaryotic cells. The organisms with these kinds of cells are called prokaryotes (pro: primitive; karyon: nucleus). Examples are bacteria and blue green algae. The cells, like onion cells and cheek cells having well organized nucleus with a nuclear membrane are designated as eukaryotic cells. All organisms other than bacteria and blue green algae are called eukaryotes. (eu: true; karyon: nucleus).

Class 8 Science Chapter 8 Important Questions Set – 5

“Unicellular organisms do not respire; only multicellular organisms respire”. Comment on this statement.

The above-mentioned statement is wrong. The unicellular organisms also respire, reproduce and carry all metabolic functions like multicellular organisms.

The difference is that all the functions are performed by the single cell in a unicellular organism. Similar functions in multicellular organisms are performed by various organs or organ system which are made up of many different types of cells.

Write two lines about “dead cells” of human body?

The cells in the outermost layer of our skin are dead. An average adult carries around about 2 kg of dead skin. Billions of tiny fragments of the skin are lost every day. Every time we run our finger on a dusty table, we shed a lot of old skin.

Why do plant cells have an additional layer surrounding the cell membrane?

The additional layer surrounding the cell membrane of plant cells is called cell wall. Since, the plants cannot show physical movement and escape themselves from extreme climatic conditions, therefore a cell wall is needed for protection.

The cell wall protects the plant cells from temperature variation, high wind speed, atmospheric moisture, etc. It also gives shape and support to plants cell.

Cell consists of many organelles, yet we do not call any of these organelles as structural and functional unit of living organisms. Discuss.

The cell organelles like mitochondria, Golgi complex, ribosomes, nucleus etc., have specific functions and carry out specific functions in a cell but they cannot be called as the structural and functional unit of living organisms.

This is because they can function only when present inside a living cell. They cannot act as independent units. The cell, on the contrary has independent existence. It is the smallest, structural and functional unit of life.

The size of the cells of an organism has no relation with the size of its body. Do you agree?

The size of the cells of an organism is not related with the size of its body. This can be understood with the example of an elephant and a rat.

The cells in elephant are not bigger as compared to the cells of small animal like rat.

Hence, providing that cells are not related to the size of organism.

However, the size of a cell is related to the function it performs. The nerve cells in both rat and elephant are long and branched and perform the same function of transferring and receiving messages. Thus, helps in co-ordination of different functions of body parts.