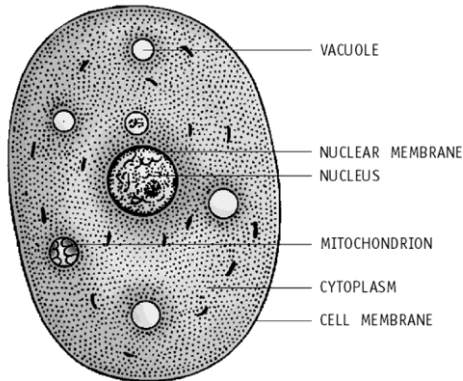


**Cell and its structure**  
**Question Bank**

D 1. The lower levels of organization in a multicellular organism are as follows:

Cells → Tissues → Organs → Organ Systems → Organism  
 These levels are not present in unicellular organisms.

2.



A typical cell

3. Plant Cell

- (i) Large in size.
- (ii) Cell wall is present around plasma membrane.
- (iii) Plastids are present.
- (iv) Plant cell usually has one or two large vacuoles.
- (v) Centrosome is absent.

Animal Cell

- (i) Generally, small in size.
- (ii) Cell wall is absent.
- (iii) Plastids are absent.
- (iv) Vacuoles are either absent or are very small.
- (v) Centrosome is present.

4. The process by which new cells are formed from the old, existing cells are known as cell division. The new cells formed in this way are known as daughter cells.

Cell division is necessary:

- (i) for replacement of dead cells. Millions of cells die and are replaced every second in our body by new cells.
- (ii) for the growth of an organism.

C. 1. The main points of the cell theory of life given by M. Schleiden and T. Schwann are:

- (i) All living things are made up of cells, much as a wall is made up of bricks. Hence, cells are the basic structural units of living organisms.
- (ii) All cells are similar in their basic structure and function but are not identical. They differ in size and structure.
- (iii) New cells are formed due to division in old cells.
- (iv) The organization of cells in the body of a living organism determines its structure.
- (v) The way an organism functions depends on the way the cells work.



2. The functions of the following in a cell are:

- (a) Cell membrane:
    - (i) It protects the cell and gives it a shape.
    - (ii) It allows water, minerals and some other necessary substances to pass through it.
  - (b) Cytoplasm:
    - (i) It acts as a store of vital chemical molecules such as amino acids, glucose, vitamins, ions, etc.
    - (ii) All life functions take place in the cytoplasm.
  - (c) Nucleus:
    - (i) It controls all metabolic activities of cell.
    - (ii) It regulates cell cycle and directs growth.
    - (iii) It also transmits the hereditary characters (in the form of genes) from parents to offspring.
  - (d) Chromosomes:

Chromosomes carry genes which contain all the information needed by the cell to function and to reproduce further cells of the next generation. Thus, genes transfer characteristics from the parent to the offspring.
  - (e) Mitochondria:

They oxidize food to provide energy. Thus, they are called powerhouse of the cell.
  - (f) Vacuoles:
    - (i) They store food, water and wastes.
    - (ii) They help to maintain the osmotic pressure in a cell.
    - (iii) They provide turgidity and rigidity to the plant cells.
3. Cells have different jobs to do, and therefore have different shapes and sizes. For example, nerve cells have fibres that may be more than one meter long. Messages pass from one nerve cell to another along these fibres. Muscle cells are long and thin. This helps the muscle cells in expansion and contraction. White blood cells can change their shape, and this helps them to destroy germs. Plant cells located on the outer part of the stem have thick walls for support. Some cells in plants are used to store food, and these cells are larger than other cells.