

Life is a unique, complex organization of molecules that expresses itself through chemical reactions which lead to growth, development, responsiveness, adaptation and reproduction.

The objects exhibiting growth, development, reproduction, respiration, responsiveness and other characteristics of life are designated as living beings.

Unique features of living organism:-

- (a) **Growth-** Living organisms grow in mass and number. A multicellular organism increases its mass by cell division. In plants growth continuous throughout life in their meristematic area but in animals, growth occurs to a certain age. Unicellular organisms also grow by cell division. Living organisms show internal growth due to addition of materials and formation of cells inside the body. Non living organism like mountains, boulders, crystals also grow but due to addition of similar materials to their outer surface.
- (b) **Reproduction-** It is the formation of new individuals of the similar kind. Reproduction is not essential for survival of the individuals. It is required for perpetuation of the population. In sexual reproduction two parents are involved to produce more or less similar kinds of individuals. In asexual reproduction single parent is involved and individual is copy of the parent. Asexual reproduction may occur by fission, fermentation, regeneration, vegetative propagation etc. In unicellular organism, growth and reproduction are synonyms. Many organisms like mules, sterile worker bees, infertile human couples. Therefore, reproduction is not an all-inclusive characteristic of living organism. However, no nonliving object has the power to reproduce or replicate.
- (c) **Metabolism-** The sum total of all types of chemical reactions occurring in an individual due to specific interactions amongst different types of molecules in the interior of cells is called metabolism. All activities of an organism including growth, movements, development, reproduction etc. are due to metabolism. There are two types of metabolism- Catabolism and Anabolism. Anabolism includes all the building up reactions to increase the mass of the organism like photosynthesis. In catabolism breakdown reactions are involved, such as respiration, digestion etc. no nonliving object show metabolism.
- (d) **Consciousness-** It is the awareness of the surroundings and responding to external stimuli. External stimuli may be physical, chemical or biological. Plants also respond to stimuli like light, water, gravitation, pollution etc. All living organisms prokaryotic to eukaryotic respond to different kinds of stimuli. Human being is only organism who is aware of himself. Consciousness therefore, becomes the defining property of living organisms.
- (e) **Life span-** every living organism has a definite life span of birth, growth, maturity, senescence and death.