Biology and Life Sciences

Name

Institution

**Life**

**What is life?**

Life is typically referred to as the quality that casts a fine distinction between living organisms and dead beings. Life is an umbrella term encapsulating varying characteristics such as growth, metabolism, reproduction, response to environmental stimuli, complex physical mechanisms and adaptations in relation to the environmental changes (Rice, 1969). However, there is no universal agreement of biologists upon exactly what makes the life up. There is not just a single fine distinction between living and dead rather various qualities define the phenomenon of life. For example, if we talk about *movement* as a hallmark of life; car and vehicles moves as well that are not living. A tree *grows* to its fullest so does a cloud. Living things has a definite *structure* so as the atoms of elements. Hence, combination of these trivial characteristics defines life.

**What is living or not?**

Anything that is living responds to the environmental stimulus, grows and develops alterations, undergoes reproduction, maintains homeostasis, builds complex mechanisms and new cells (Rice, 1969).

**Adaptation**: Living things are completely aware of their surroundings and the changes that are taking place around them; adaptation is the leading characteristic of living organisms referring to the acquisition of changes in response to the environmental stimuli.

**Growth** and change is another prominent hallmark of living organisms; they pass through various irreversible transitions of life involving structural and functional changes such as seeds initially seem dormant in appearance but contain full fledge genetic potential to start a life. Seeds are transformed into super colossal tree with various branches; a depiction of change.

**Reproduction** is referred to as the ability of living organisms to produce exact or slightly different copies of them. Reproduction might originate from single parent (asexual) or two parents (sexual). This characteristic is the crux of life.

Having a **complex chemistry** is another central characteristic of living organisms. For example, human being is a system of various organs that split into various tissues and ultimately cells. Cells are made up of cell organelles. Such trends can only be seen in living organisms, non- living organism only contain atoms and molecules.

Living organisms maintain **homeostasis** in terms of body temperature, acid- base balance, salt balance, electrolyte and water balance and so on. For example, when body faces shortage of water, our kidneys starts saving it and stimulate the hypothalamus to release hormones for inducing the thirst sensation.

**When does life begin?**

Life begins soon after the mating of female and male gametes i.e., eggs and sperms within the reproductive track of female called fallopian tube. This process is called fertilization (Cobb, 2012). The resulting entity is referred to as zygote that contains approximately 100 cells. After undergoing rapid series of development; a new organism is developed and life begins. However, in some organisms, life begins soon after a little mass of organisms is separated from the parent and grows as an independent organism (Cobb, 2012).

**When does it end?**

Life ends when cell stops working properly, organs fail to carry their functions and whole body systems are collapsed (Nikolas, 2006). For example, breathing is the process through which oxygen rushes inside the body and gets absorbed into the blood where heart pumps this blood to the organs; when blood reaches to the cells, oxygen is utilized for carrying cellular respiration that produces enough energy to continue survival of the organism. When there is no breathing, there would be no oxygen and no cellular respiration for producing energy and organs will die so the organisms. Hence, in biological terms, death is referred to as the phenomenon in which working of human body organs is stopped and cells die.

**References**

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