**Mid-Term Assignment (Spring-2020) (BS-MLT 2ndSec-A & Sec-B)**

**Course Title: Basic MicrobiologyInstructor: Mr. Fazli Zahir Mian**

**Time: 48 Hours NAME QAZI SADEQ U RHMAN ID**

**Q1: Fill in the Blanks.**

1. Microoraganisam are living things which individually are too small to be seen with naked eye.
2. The scientific study of algae is called phycology.
3. Diseases causing living organisms are known as pathogens.
4. Ribosome cell organelle is present both in prokaryotic and eukaryotic cell.
5. The power house of cell is known as mitochondria
6. Binary fission is the most common method of asexual reproduction in microbes.
7. Log period of bacterial growth is also known as exponentional
8. \_lag phase of microbial growth is metabolically active and is for industrial purposes.
9. Shrinkage of cell’s plasma membrane caused by osmotic loss of water is called plasmolysis.
10. For synthesis of cellular material nitrogen and sulfur is needed for \_co enzyme A\_ synthesis.

**Q2: Write short notes on the following**

1. **Mitochondria**

Answer No (1) Mitochondria, or membrane-bounded organelle found in the cytoplasm of all eukaryotic cell; it is also called power house of the cell. It’s present in both plant and animal.

Function: its make ATP from cellular respiration. It’s make energy from sugar + O2

Structure: it is double membrane organelle outer and inner membrane:

1. **Nucleus**

Answer No (2) The Nucleus is a membrane bounded organelle that contains genetic materials (DNA) of eukaryotic organism.

Function: There are two major function its store the cell genetic material or DNA and coordinates the cell’s activities control center of cell.

Structure of nucleus it consist of nuclear membrane, nucleolus, chromosomes.

Nucleolus (produce ribosome’s) chromosome (DNA)

1. **Budding**

Answer No (3) Budding is the types of asexual reproduction in which a new organism develops from an outgrowth or bud due to cell division in a particular area.

Example; saccharomyces cerevisiae, the yeast species used in baking and brewing. In this yeast use budding cell division.

1. Culture media

Answer No (4) Culture media is a special media use in microbiological laboratories to grow different types of microorganism. Media is the required nutrient for the growth of microorganism. There are two types of media solid and liquid.

(1)Liquid; they are jelly type in composition.

(2)Solid; add ager with liquid media. Ager is a solidifying agent.

1. Growth factor:

Answer: No (5)A growth is a naturally occurring substance able to stimulate cellular growth. Proliferation, healing, and cellular differentiation. Almost it is a protein or a steroid hormone. Growth factors are important for cellular processes.

**Q3: What is bacterial growth? Discus different phases of bacterial growth**

Answer NO (3) the bacterial growth represents the number of live cells in a bacterial population over a period of time there are four phases cell growth

**1. Lag phase:**

Lag phase represents a period of active growth during which bacteria prepare for reproduction, synthesizing DNA, and other metabolites required for needed for cell division.

**2. Lag phase:**

The lag phase or exponential growth phase during which the cells divided at a maximal rate and their generation time reaches a minimum and remains constant.

**3. Stationary phase:**

Stationary phase, in which the size of a population of bacteria remains constant, even though some cells continue to divide in others begin to die .

**4. Death or decline phase:**

The death phase is characterized by an exponential decrease in the number of living cells.

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Good luck.