**Time: 48 Hours**

**Q1: Fill in the Blanks.**

1. \_\_\_**MICROORGANISM**\_\_\_\_\_\_\_\_\_\_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 \_\_\_\_\_\_\_\_**\_MICROBES**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
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 \_\_\_\_**\_LOGARITHMIC INCREASE**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
8. \_**LOG\_\_\_\_\_\_\_\_\_\_**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 \_\_**PROTEIN\_\_\_\_\_\_\_\_\_\_** synthesis.

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

1. Mitochondria
2. Nucleus
3. Budding
4. Culture media
5. Growth factors

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

QUESTION NO 1

ANSWERS

MITOCHONDRIA :

* An organelle in the cytoplasm of cells that functions in energy production
* Mitochondria is also known as power house of a cell
* They are organellies that act like a digestive system
* They are made of two membrane
* The fluid contained in the mitochondria is called matrix

QUESTION NO : 2

ANSWER :  **NUCLEUS** :

**The nucleus is a membrane bound organelle that contain genetic material (DNA) of eukaryotic organisms**

**STRUCTURE :**

* The nucleus is a spherical shaped organelle that is present in eukaryotic cell .

QUESTION NO : 3

ANSWER

**BUDDING :**

Another form of bacterial division .Also asexual reproduction in which a new organism develops from an outgrowth or bud due to cell division at one particular site

QUESTION NO : 4

ANSWER

**CULTURE MEDIA :**

 **A culture media is a special medium which we used in different microbiological laboratories . In media we growth different kind of bacterias and microoragnisms**

QUESTION NO: 5

ANSWER :

GROWTH FACTORS :

They are essential organic compounds which microorganisms cannot make and they take that organic compounds from environment

Some bacteria lack the enzymes needed for synthesis for certain vitamins , so they must obtain them directly

Examples : amino acids , purines, pyrimidines .

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

**ANSWER :**

* **Increase in the number of bacteria**
* **Does not refer to an increase in size of the individual cells**

**PHASE OF BACTERIAL GROWTH :**

1. **LAG PHASE :**
2. **Period of little or no cell division**
3. **Cells are not dormant**
4. **Can last for 1 hour or several days**
5. **LOG PHASE :**
6. **Period of growth also know as logarithmic increase**
7. **Sometime called as expotentail growth phase**
8. **Sensitive to adverse conditions**

**3-STATIONARY PHASE :**

1. **Period of equilibrium**
2. **Metabolic activity of surviving cells slow down**
3. **Continuous culture used in industrial fermentation**

**4-DEATH PHASE :**

1. **Also known as Logarithmic Decline Phase**
2. **Some population dies out completely**
3. **Others retain surviving cells indefinitely while others only**