

**Bago University**  
**Department of Botany**  
**Second Semester Examination, September, 2019**

**Third Year (B.Sc.)**  
**Botany Specialization**  
**Answer All Questions**

**Bot.3107**  
**Cell Biology**  
**Time allowed: (3) Hours**

**(10 marks)**

**I. Determine whether each statement is TRUE or FALSE.**

1. The cytoplasm consists of a solution called cytosol.
2. Proteins are polymers of 20 different amino acids.
3. In prebiotic era, the atmosphere of earth was devoid of hydrogen.
4. Chloroplasts are large organelle primarily found in plant leaves.
5. Membranes are constructed by the fluid-mosaic model.
6. Three types of ER membrane are classified rough ER, smooth ER and nuclear membrane.
7. Ribosome synthesis occurs in nucleus.
8. DNA is replicated by hormones known as DNA polymerases.
9. Most microtubules consists of 13 protofilaments.
10. In prokaryotes, protein synthesis occurs only in the protoplasm.

**II. Write correct word to complete the following sentences.**

**(10 marks)**

1. The typical prokaryote *Escherichia coli* cell is ----- shaped.
2. The nucleus is the site of DNA replication and of RNA -----.
3. RNA has the ability of self-replication in some primitive -----.
4. Glycolysis is provided the energy by converting ----- molecules to ATP.
5. Plastids are an important group and large family of plant ----- organelles.
6. Peroxisomes were designated as -----.
7. Plants cells contain no fewer 16 different ----- systems.
8. Components of the extracellular matrix are carbohydrates and -----.
9. Cell can occur by expansion or by -----.
10. In plant cells, nuclear pore occupy from 8% to 20% of the ----- surface.

**III. Answer all questions.**

**(10 marks)**

1. Define the translation concerning with genetic.
2. What is Apicoplast?
3. Name the kind of DNA.
4. State the cell walls as food, feed and fibers.
5. Briefly explain polysomes.

**IV. Answer all questions.**

**(20 marks)**

1. Briefly explain proteins.
2. What are the functions of chloroplast?
3. Clarify the amphipathic nature of membrane lipids?
4. What are the subunits in DNA and RNA? Describe it.

**V. Answer any three questions.**

**(30 marks)**

1. How do you understand the carbohydrate?
2. Explain the endosymbiosis theory and how eukaryotic cells evolved with diagram.
3. Define plastids and explain the chloroplast, leucoplast and chromoplast briefly.
4. What are the chemical components of cell wall and describe the any two of them?
5. Explain the DNA replication occurs at replication forks.