

Bago University
Department of Zoology
First Semester Examination, March 2019

Fourth Year BSc
(Zoology Specialization)
Answer ALL questions

Zool.4102
Microbiology I
Time Allowed: (3) Hours
(10 marks)

I. State TRUE or FALSE to the following statements.

1. The period from 1857 to 1914 has been appropriately named the Golden Age of Microbiology.
2. Eukaryotic cells are more complex than those of prokaryotic cells.
3. Spirochetes are a group of bacteria that have unique structure and motility.
4. The bacterial cell wall is composed of a macromolecular network called peptidoglycan.
5. The periplasm contains a low concentration of degradative enzymes and transport proteins.
6. All organisms need carbon, hydrogen, oxygen and a source of electrons.
7. Each capsid is composed of protein subunits called capsomeres.
8. Low agricultural production efficiency is closely related to a poor coordination of energy conversion.
9. Microorganisms are utilized in agriculture for various purposes.
10. In nature, microbes produce amino acids in excess of their own needs.

II. Complete the following statements with appropriate words.

(10 marks)

1. Genetically, most bacteria are -----.
2. Many prokaryotes secrete on their surface a substance called -----.
3. The polysaccharide capsule of *Klebsiella* also prevents -----.
4. Bacteria that lack flagella are referred to as -----.
5. The cell walls of gram-positive bacteria contain ----- acids.
6. Individual capsomeres are often visible in electron -----.
7. One of the common causes of spoilage of eggs stored at around 15° C is -----.
8. The use of mixed cultures of beneficial ----- as soil inoculants is based on the principle for natural ecosystems.
9. Bioreactors are sometimes very large, holding as much as 500,000 -----.
10. Glucose isomerase is an important -----.

III. Answer ALL questions

(10 marks)

1. Describe the size, shape and arrangement of bacterial cells.
2. Describe the process of obligate aerobes.
3. Give a brief account of generation time in bacterial cell.
4. Explain the factors influence contamination of the shell and the principle source of contamination.
5. Describe the new concepts of natural farming system.

IV. Answer ALL questions

(20 marks)

1. Give a fully labelled diagram of various shape of bacilli.
2. List the required of Culture media in growth of bacteria.
3. Write short notes on complex viruses.
4. Explain the injury caused by viral infection.

. Answer ANY THREE questions

(30 marks)

1. Explain about the composition and characteristics of cell wall in bacteria.
2. State how the requirement of various elements in microorganisms nutrients.
3. Classify about the different types of bacteria based on growth media.
4. Discuss as far as you can on nucleic acid of virus.
5. Briefly discuss on tropism.
6. Define the term "Biomass and Bioconversion and give an account on industrial microbiology and the future.
