

Shahjalal University of Science and Technology
Department of Biochemistry and Molecular Biology
2nd year 1st semester examination 2013, Course No: 226, Course Title: Microbiology
Credit: 3.0, Time: 3 hours, Marks: 70

Answer any two questions from each part

Part A

1. a. Diagrammatically show the disciplines within the field of microbiology. 2
b. Write down Koch's postulates with its limitations. 4
c. Discuss the preparation of specimen for light microscope examination. 4
d. Explain membrane proliferation hypothesis for the origins of organelles in eukaryotic cell. 3
2. a. What is chemical evolution? Provide experimental evidence for chemical evolution. 4
b. Discuss the structure and function of bacterial plasma membrane. 4
c. Briefly describe nutritional requirement of microorganism. 6.5
d. Write down the effect of osmotic pressure for bacterial cultivation. 4
3. a. Describe one method of measuring microbial population. 2
b. Discuss the different stages of bacterial growth curve with diagram. 4
c. Write down the factors that affect microbial growth---discuss briefly. 4
d. Differentiate following terms. 2+2=4
i) Antiseptic and disinfectant
ii) Sanitization and sterilization

Part B

4. a. Discuss the hyphal tip elongation process of fungi. 3
b. Depict and describe the life cycle of a typical zygomycetes. 6
c. Describe the lytic and lysogenic cycle of a bacteriophage. 5.5
d. Explain how TMV infect plants? 3
5. a. Show different stages of microbial metabolism of foods. 3
b. Discuss Embden-Meyerhof pathways of glucose catabolism. 5
c. Define the following terms (any two) 2+2=4
i) Pathogenicity ii) Virulence iii) Toxins
d. Describe the symptoms, cause, and prevention of tuberculosis. 4.5
6. a. Briefly describe the importance of recombinant DNA technology. 3
b. What are the major classes of industrially important microbial products? Discuss briefly. 2
c. Discuss the involvement of microorganism in nitrogen cycle. 5
d. Define following terms (any three) 2+2+2= 6
i) BOD ii) Coliforms iii) Effluent iv) Microbial green house gases