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. 5
   c. Discuss the preparation of specimen for light microscope examination. 5
   d. Explain membrane proliferation hypothesis for the origins of organelles in eukaryotic cell. 5.5

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. 3

3. a. Describe one method of measuring microbial population. 3
   b. Discuss the different stages of bacterial growth curve with diagram. 5
   c. Write down the factors that affect microbial growth---discuss briefly. 5.5
   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. 4
   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. 3.5
   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