

- I. Define the auxotrophs and prototrophs (5%). Describe the use of replica plating method in isolating a lysine auxotroph (5%).
- II. Explain the specialized or restricted transduction and how does it come about? Also describe low-frequency transduction lysate, high-frequency transduction lysate, and helper phage. (10%)
- III. Describe direct and indirect methods to determine the quantity of viruses in a sample. (10%)
- IV. How are plant viruses reproduced and transmitted between hosts? (10%)
- V. Define the following terms: (10%)
(a) major histocompatibility complex, (b) secretory IgA, (c) clonal selection, (d) complement system, (e) adjuvant
- VI. Define the followings (2 % each)
(a) Koch's postulate, (b) chemotaxis, (c) temperate phage, (d) Ames test, (e) Numerical taxonomy
- VII. What is an amphibolic pathway? Give an example to explain. (10%)
- VIII. What five major groups of microorganisms classified according to the relation ship of growth to oxygen? Discuss the effect of oxygen on the growth of these microorganisms. (10%)
- IX. List five characteristics that are used to classify bacteria. (10%)
- X. Differentiate between flagella and pili. How do their structure differ? How do their function differ? (10%)