

I. Answer the following questions: ( 50% )

1. Describe the major characteristics of bacteria and methods used in identification and classification of bacteria. (18%)
  2. If the generation time is 15 minutes, and the initial population contains  $1 \times 10^3$  cells, how many bacteria will there be after 24 hrs of growth. (4%)
  3. Suppose that 0.1 ml of a  $10^{-5}$  dilution of the virus preparation yields 65 plaques. What was the original concentration ( PFUs/ml ) of the virus? (4%)
  4. Describe the mechanisms of the uptake of nutrients ( carbon sources ) by bacteria.(8%)
  5. Describe the mechanisms of antibacterial drugs on the bacteria.(8%)
  6. Describe the " PCR technique " and its applications in microbiology. (8%)
11. Describe briefly the characteristics of the following pathogens and the cause of diseases: (20% )
1. Chlamydia trachomatis
  2. Herpes simplex virus
  3. Staphylococcus aureus
  4. Agrobacterium tumefaciens
  5. Vibrio parahaemolyticus
111. Describe briefly the following terms in Microbiology: (30% )
1. Acid - fast stain
  2. Bacteriocins
  3. Cytotoxic hypersensitivity
  4.  $\alpha$  - hemolysis
  5. Histocompatibility antigens
  6. Interferon
  7. Growth factors
  8. Pasteurization
  9. Type strain
  10. Virion