

**Max. Marks : 60**

### SECTION-B

2. Explain in detail about the spread plate, streak plate and pour plate techniques used for the enumeration of bacteria.
3. How does conjugation differ from transformation? Write about conjugation in bacteria.
4. Explain about the various phases of the growth curve and describe their relation to generation time.
5. Explain about the role of microorganisms in the treatment of the industrial effluents.
6. Describe briefly about the various strain improvement techniques.

### SECTION-C

7. Draw a typical structure of bacteria and label the various parts. Differentiate between gram positive and gram negative bacteria.
8. What are the various physical requirements for the growth of microorganisms? Classify microorganisms on the basis of the requirements of temperature and pH and explain why these have to be controlled.
9. Compare batch, fed batch and continuous fermentations. Write about their advantages, disadvantages and applications.