

rgpvonline.com

Roll No .....

**MTEE-102****M.E/M.Tech., I Semester**

Examination, December 2015

**Microbiology****Time : Three Hours****Maximum Marks : 70**

- Note:** i) Answer any five questions.  
ii) All questions carry equal marks.

1. a) Draw a neat sketch of structure of bacterial cell. Briefly describe the various components of the cell.  
b) Give the different classifications of micro-organisms. Briefly discuss the significance of micro-organisms in the ecosystem.
2. Describe the process of reproduction of bacteria. Draw the typical bacterial growth curve and describe the different phases of growth. What are the different methods to measure the growth of bacteria?
3. a) Distinguish between Algae and Fungi. Give their significance to a sanitary engineer.  
b) What is a parasite? Describe any two human parasites with the methods of their control.
4. a) Describe the basic nutritional requirements of all micro organisms compare Autotrophic and heterotrophic bacteria in this respect.  
b) Differentiate between phototrophs and chemotrophs.

5. a) What do you understand by "Eutrophication" in surface water bodies?  
b) Briefly discuss the different methods of control of algae in raw water sources and treatment plant.
6. a) What are the MPN and MF techniques of enumerating bacteria. Describe the procedure of determining MPN of given sample.  
b) What is virus? Describe any two viral diseases prevalent in our country.
7. What is the significance of Bio-assay test used for determining the acute toxicity of wastes and other water pollutants.
8. Write short notes on any four of the following:
  - a) IMVIC test
  - b) Standards for drinking water
  - c) Biological indicators of pollution
  - d) Biological process involved in oxidation pond
  - e) Bacterial metabolism
  - f) Role of enzymes in the activity

\*\*\*\*\*