Register Number:

Date:13-12-2022 (9am)

**ST. JOSEPH’S COLLEGE (AUTONOMOUS), BENGALURU-27**

**B.Sc. (MICROBIOLOGY) - III SEMESTER**

**SEMESTER EXAMINATION: OCTOBER 2022**

**(Examination Conducted In December 2022)**

**MB 322: MICROBIAL DIVERSITY, GROWTH AND CONTROL OF MICROORGANISMS**

**Time: 2 hrs. Max Marks: 60**

 This question paper has **2** pages and **4** parts

**I. Answer any Five of the following 5 x 3 = 15**

1. On what characteristics is the five kingdom classification based? List the five kingdoms.
2. Define phylogenetic tree. List the types of phylogenetic tree.
3. With example differentiate between a microbial species and a strain.
4. Classify microorganisms based on oxygen requirement.
5. What is one step growth curve of bacteriophage?
6. How are cyanobacteria cultivated?
7. On what basis are antibiotics classified?

**II. Answer any Five of the following 5 x 6 = 30**

1. What is polyphasic approach of bacterial classification? Explain any one of the approach.
2. What are the possible mechanisms by which microorganisms develop resistance towards antibiotics?
3. How are microbial cells preserved by lyophillsation?
4. Write the mode of action of streptomycin and polymyxins.
5. Describe one method each to determine microbial cell number and cell mass.
6. What are the chemical and physical requirements to be provided for the growth of microorganisms?
7. How are viruses cultivated?

**III. Answer any One of the following 1 x 10 = 10**

1. a. Define continuous culture system. How does the turbidostat functions? 5

 b. Differentiate differential media with selective media with suitable examples. 5

1. Bring out a comparison of the possible microbial associations.

**IV. Answer the following 1 x 5 = 5**

1. Bacterial culture A was grown on nutrient broth and was refrigerated for 5 days. Bacterial culture B was freshly grown on nutrient broth in an incubator at 37°C. Refrigerated Culture A and fresh culture B from the incubator was then inoculated into fresh nutrient broth and was incubated at 37°C in a shaker incubator. Speculate the growth pattern to be observed in the respective flasks.