

**PARUL UNIVERSITY**  
**FACULTY OF APPLIED SCIENCE**  
**M.Sc., Winter 2017-18 Examination**

**Semester: 1****Subject Code: 11201103****Subject Name: Microbial Diversity and Systematics****Date: 22/12/2017****Time: 2:00 pm to 4:30 pm****Total Marks: 60****Instructions:**

1. All questions are compulsory.
2. Figures to the right indicate full marks.
3. Make suitable assumptions wherever necessary.
4. Start new question on new page.

- Q.1. A) Answer the following: (08)**
- (a) Describe the world of Extremophiles.
  - (b) Explain in detail 'Eukaryotic Diversity'.
- Q.1. B) Answer the following questions (Any two) (04)**
- (a) Answer the following. (04)
    1. Explain in one sentence each, any two types of Culture Collection Centers.
    2. Define 'Virus' and 'Phage'.
  - (b) Write a brief note on Archaeal metabolism. (04)
  - (c) Describe 'Metagenomics' in short. (04)
- Q.2. A) Answer the following questions. (04)**
- (a) Answer the following. (04)
    1. Mention the use of Indicator helminth eggs.
    2. Draw a flow diagram of a Metagenome Project.
  - (b) Write a short note on Fourier Transform Infrared Spectrometer. (04)
- Q.2. B) Answer the following questions (Any two) (03)**
- (a) Answer the following. (03)
    1. Give full form of CLPP?
    2. What is a Cryophile?
    3. Explain 'Radioresistant' organisms.
  - (b) Represent Archaeal cell membranes with labeled structures. (03)
  - (c) Represent Fungal Cell with labeled structures. (03)
- Q.3. A) Answer the following (Each of 04 marks) (08)**
- (a) Describe in detail what is 'Biodiversity of Microbes'.
  - (b) Write an essay on 'Archaea'.
- Q.3. B) Answer the following questions (Any two) (04)**
- (a) Answer the following. (04)
    1. Explain the term 'Halophile'.
    2. Explain the 'LUCA'.
  - (b). Mention the Nutritional Types of Archaeal Metabolism. (04)
  - (c) What is Genetic Diversity? Explain briefly. (04)
- Q.4. A) Answer the following questions. (04)**
- (a) Answer the following. (04)
    1. Name any two methods used to study microbial diversity? Explain in one sentence each.
    2. Explain the term 'Species Diversity'.
  - (b) Compare Archaea to other domains of life. (04)
- Q.4. B) Answer the following questions (Any two) (03)**
- (a) Answer the following (Each of 01 marks) (03)
    1. Define 'Anaerobe'.
    2. Define 'Lithoautotroph'.
    3. Define 'Metallotolerant'.
  - (b) Write a brief note on Microscopy. (03)
  - (c) Describe what is 'Nucleic Acid Analysis'. (03)