

**M.Sc. (Micro) Semester - 4 (CBCS) Examination**  
**April/May-2022 (OLD COURSE)**  
**EXTREMOPHILES(CORE)**

**Time: 2:30 Hours****Marks: 70****Instructions:**

1. All questions are compulsory.
2. Figures to the right indicate marks.

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- Q.1. Answer **ANY SEVEN** (2 Marks each) 14
- a. What are extremophiles? Enlist different groups of the extremophiles.
  - b. What are various habitats of extremophilic nature?
  - c. Why should we study extremophiles?
  - d. Comment on the polyextremophilic microorganisms.
  - e. What are the different levels of the adaptation strategies in extremophilic microorganisms.
  - f. What are the basic characteristics of the archaea?
  - g. Write a brief note on the methanogens.
  - h. Write comments on the eukaryotic extremophiles.
  - i. Correlate the extremophiles and possibilities of life on other planets.
  - j. What is the ultraextremity and its impact on the microbial diversity?
- Q.2. Answer **ANY TWO** of the following: 14
- a. Describe thermophiles with respect to their habitats and adaptation strategies.
  - b. Describe different eukaryotic extremophilic microorganisms and their significance.
  - c. Describe extremophilic microorganism having abilities to survive and live under multitude of the extremity.
- Q.3. Write comments on:
- a. Habitats and ecological significance of the archaea 5
  - b. Adaptation strategies in hyperthermophiles 5
  - c. Physiology and adaptations in Archaea 4
- OR**
- Q.3. Answer the followings: (7 marks each) 14
- a. Metabolic diversity in archaea.
  - b. Biotechnological significance of the Archaea
- Q.4. Write detailed comments on **ANY TWO** the following (7 marks each) 14
- a. Psychrophiles: Habitats and Adaptation
  - b. Biocatalytic potential of the hypertherophilic bacteria and archaea
  - c. Protein stability in hyper extremophilic microorganism
- Q.5. Write comments on **ANY TWO**: (7 marks each) 14
- a. Habitats and Adaptations in Barophiles
  - b. Physiology and Applications of Alkaliphiles
  - c. Methanogens and their ecological significance
  - d. Microbial Adaptations to extreme salinity

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