



DHH-003-019402

Seat No. _____

M. Sc. Microbiology (Sem. IV) (CBCS) Examination

May / June – 2015

Micro - 420 : Extremophile

(Core-II)

Faculty Code : 003

Subject Code : 019402

Time : 3 Hours]

[Total Marks : 70

Instructions: All questions are compulsory. Support your answers with suitable illustrations where required.

Q.1. Answer **any seven** (2 Marks each) 14

- a. Why extremophiles are called so?
- b. What is the significance of the compatible solutes in halophiles?
- c. Categorize thermophiles in various groups based on the temperature they need.
- d. What is the multitude of the extremity?
- e. Compare archaea and eukaryotes?
- f. What are the barophiles? Give some examples of their habitats.
- g. What are methanogenic archaea?
- h. What are the polyextremophiles?
- i. What are the archaeal habitats.
- j. Comment on the psychrophiles and their habitats.

Q.2. Answer **ANY TWO** of the following: 7x2 = 14

- a. Discuss halophiles with respect to their habitat and biotechnological significance.
- b. Why Extremophiles have focused so much attention during the recent time? Discuss.
- c. Discuss alkaliphiles with respect to their adaptation and biotechnological importance.

Q.3. a. Discuss stability and structural attributes of the proteins in hyper- thermophilic bacteria and archaea. 7

b. Write comments on archaeal and bacterial cell wall. 7

OR

Q.3. a. Discuss stability of the macromolecules in hyper-halophilic bacteria and archaea 7

b. Discuss macromolecular stability and biotechnology of psychrophiles. 7

Q.4. Write comments on: (7 Marks each) 14

- a. Limits of the extremity
- b. Extremozymes and their biotechnological significance

Q.5. Write comments on **ANY TWO:** (7 marks each)

14

- a. Barophiles Habitats
 - b. Archaeal Cell membrane
 - c. Regulation of the gene expression in halophiles
 - d. Sulfolobus
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