



PS-003-1194002

Seat No. _____

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

(W.E.F. 2016) Examination

August - 2020

MICRO-420 : Extremophile (Core-II)

Faculty Code : 003

Subject Code : 1194002

Time : $2\frac{1}{2}$ Hours]

[Total Marks : 70

- Instructions :** (1) All questions are compulsory.
(2) Support your answers with suitable illustrations where required.

1 Answer any seven : (2 Marks each) 14

- (a) What is the concept of extremity?
- (b) Enlist different adaptation strategies in Extremophiles.
- (c) What are compatible solutes in the context of microbial adaptations?
- (d) Comment of polyextremophiles.
- (e) Enlist various habitats of the halophilic microorganisms.
- (f) Is there any resemblance of archaea with the eukaryotes? Comment.
- (g) What are psychrophiles ?
- (h) Correlate ultraextremity of a habitat and with its microbial dynamics.
- (i) What are the objectives of studying extremophiles ?
- (j) What are various aspects of the extremophiles being investigated?

2 Write detailed comments on any two : 7×2=14

- (a) Hyper-halophiles Adaptations and applications.
- (b) Extremozymes and their significance.
- (c) Thermodynamic and kinetic considerations of the enzymes of Psychrophiles.

- 3** Write comments on :
- (a) Applications of thermophiles **7**
 - (b) Salient features and ecological significance of Archaea **7**

OR

- 3** Write comments on :
- (a) Adaptations in extremophiles under multitudes of the extremity. **7**
 - (b) Alkaliphilic Adaptation and biotechnological significance. **7**

- 4** Write comments on :
- (a) Stability of the proteins of the hyperthermophiles **7**
 - (b) Regulation of gene expression in halophiles. **7**

- 5** Comment on any **two** : (7 Marks each) **14**
- (a) Adaptations and biotechnological significance of the barophiles
 - (b) Bacteriorhodopsin and its salient features
 - (c) Archeal physiological groups
 - (d) Membrane transport and microbial adaptations.
