

M.Sc. Semester - 4 (CBCS) Examination
Oct/Nov -2020 [OLD COURSE]
EXTREMOPHILES (CORE)

Time: 2:00 Hours

Marks: 56

Instructions:

1. Figures to the right indicate marks.
 2. There are five questions in the question paper.
 3. Answer any four of the following questions.
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Q. 1 Answer the following (any seven out of ten, each of **two** marks) 14

1. Give two examples of eukaryotic extremophiles.
2. State the characteristics of Crenarchaeota.
3. Define chaperons.
4. What is osmoadaptation?
5. What are molecular applications of Extremophiles in biotechnology?
6. Define the cell wall mechanism of Acidophiles.
7. Enlist the industrial application of Bacteriorhodopsin.
8. Explain adaptation mechanisms of Barophiles.
9. Comment on *Thermus aquaticus* and its application.
10. Explain the survival mechanism of Methanogens against extreme environment.

Q. 2 Answer the following (any two out of three, each of **seven** marks) 14

1. Discuss the survival mechanisms of archaea under extreme conditions.
2. Explain extremophilic bacteria and its habitat with adaptation mechanisms.
3. Discuss the distribution extremophiles and explain its importance of in the nature.

Q.3 (A) Answer the following 14

1. Describe industrial application of halophiles [5]
2. Explain physiology and habitat of methanogens. [5]
3. Explain in brief taxonomy and ecology of halophiles. [4]

OR

Q.3 (B) Answer the following (each of **seven** marks) 14

1. Discuss the physiology and molecular adaptation of alklophiles.
2. Write a note on methanogenesis.

Q.4 (A) Answer the following (any two out of three, each of **five** marks) 10

1. Describe protein stability of hyperthermophiles.
2. Define survival strategies of archaea at hyper environment.
3. Discuss life at low pH.

Q.4 (B) Answer the following (any one out of two) 04

1. Describe the adaptation of psychrophiles.
2. Write a note on thermozyms and its biotechnological application.

Q.5 Answer the following (any two out of four, each of **seven** marks) 14

1. Explain distinguish feature of archaea in detail
2. Discuss ecology and habitat of archaeabacteria.
3. Discuss adaptive strategies of archaeabacteria in extreme conditions.
4. Describe the molecular and biotechnological application of archaea.
