647510 MSC4extC0210 Seat No: _____

M.Sc.(Micro) Semester - 4 (CBCS) Examination
March/April- 2019
EXTREMOPHILES
(CORE)

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

Instructions:

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

Q. 1 Answer the following (any seven out of ten, each of two marks) **14**

1. Enlist the phylum of Archaea.
2. State the ideal characteristics of Archaebacteria.
3. Molecular application *Thermus aquaticus*.
4. What is osmolytes? Explain its mechanism.
5. Describe defence mechanisms of Psychrophiles.
6. Explain the cell wall defence mechanism of Halophiles.
7. Describe importance of Chaperons.
8. Explain Biotechnological application of Thermophiles.
9. Enlist the Extremophiles enzyme and its industrial importance.
10. Define membrane stability at high temperature.

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

1. Explain the distribution of extremophiles.
2. Write a note on extremophilic archaea.
3. Discuss the extremophilic bacteria and its habitat.

Q.3 (A) Answer the following **14**

1. Discuss the osmoadaptation of Halophiles **5**
2. Explain biosynthesis pathway of methane from acetate. **5**
3. Write a note on Barophiles. **4**

OR

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

1. Explain CO_2 mediated Methanogenesis process.
2. Industrial application of Alkaliphiles.

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

1. Explain the life at acidic environment.
2. Write a note on Psychrophiles.
3. Describe protein stability at high temperature.

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

1. Describe the bacteriorhodopsin.
2. Explain adaptation mechanism of hyperthermophiles.

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

1. Discuss the ecology and habitat of archaea.
2. Discuss molecular adaptation of archaea.
3. Describe the biotechnological application of archaea.
4. Explain distinguish feature of archaea in detail.

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