



DGG-003-013401

Seat No. _____

M. Sc. Biotechnology (Sem. - IV) (CBCS) Examination

May / June - 2015

BT - 419 : Molecular Phylogeny & Extremophiles

Faculty Code : 003

Subject Code : 013401

Time : 3 Hours]

[Total Marks : 70

- Q1. Answer any 7 (2 marks each) 14**
- What is the role of diaminoacids in bacterial systematic?
 - What is Polyphasic Taxonomy?
 - What are Molecular Chronometers?
 - Enlist various methods used to study non-cultivable microbes.
 - What are Osmolytes?
 - Enlist the differences between archaeal and eubacterial cell wall.
 - Enlist typical properties of archaeal cell membrane.
 - What is phylogenetic tree?
 - What is a Black Smoker?
 - What is the difference between halotolerant and halophilic organisms?
- Q2. Answer any 2 of the following (7 marks each) 14**
- Discuss polyphasic taxonomy and discuss some of its advantages.
 - List the two modes of genetic exchanges in prokaryotes that are taxonomically useful? Discuss the importance of plasmid in such approaches.
 - Explain Macro restriction analysis of genomic DNA by PFGE- as a tool for bacterial systematic.
- Q3. Answer the following (7 marks each) 14**
- Discuss the culture dependent vs culture-independent methods to study microbial diversity.
 - Discuss different steps of building phylogeny with rRNA.
- OR
- Q3. Answer the following (7 marks each) 14**
- Comment on the metabolic potential of non-cultivable microbes.
 - Discuss molecular methods used to study non-cultivable microbes.
- Q4. Answer any 2 of the following (7 marks each) 14**
- Comment on the archaeal habitats.
 - Describe biotechnological potential of Thermophiles.
 - Discuss the salient features of methanogenic bacteria.
- Q5. Write note on any 2 of the following (7 marks each) 14**
- Alkaliphiles
 - Adaptation strategies of halophiles
 - Physiology of Psychrophiles
 - Applications of hyper-thermophiles