

M.Sc. DEGREE I SEMESTER EXAMINATION IN ENVIRONMENTAL TECHNOLOGY,
NOVEMBER 2008

ENV/ENB 2104 ENVIRONMENTAL MICROBIOLOGY

Time: 3 Hours

Maximum marks: 50

PART - A

(Answer **ANY TEN** questions)
(Each question carries **ONE** mark)

(10 x 1 = 10)

- I. Describe the following:
- 1 Plaque forming Units
 - 2 Cold sterilization
 - 3 Bacterial sex pili
 - 4 Specialised Transduction
 - 5 Free energy of a reaction
 - 6 Selfish DNA
 - 7 Genome annotation
 - 8 Viroids
 - 9 Quorum sensing in bacteria
 - 10 Amensalism
 - 11 Scintillation cocktail
 - 12 IS elements
 - 13 Fungal ascospore
 - 14 Nitrogenase
 - 15 Phenol coefficient

PART - B

(Answer **ANY FIVE** questions)
(Each question carries **TWO** marks)

(5 x 2 = 10)

- II. 1 Sedimentation coefficient
2 Viable but nonculturable organisms
3 Method to determine minimal inhibitory concentration of antibiotic
4 Structure of bacterial spores
5 Temperate phages
6 Rhizosphere
7 Difference between sterilization and disinfection
8 Zeroth law of thermodynamics

PART - C

(Answer **ANY FIVE** questions)
(Each question carries **THREE** marks)

(5 x 3 = 15)

- III. 1 Explain the methodology and utility of autoradiographic technique
2 Discuss different phases of bacterial growth curve
3 Discuss the affinity chromatographic separation of biomolecules
4 Explain the techniques used for obtaining pure cultures of bacteria
5 Comment on designing of primers for performing PCR
6 Discuss factors that influence antimicrobial activity
7 Mention about various DNA repair mechanisms that takes place in a cell.
8 Elaborate the control of cell cycle.

ART - D

(Answer **ANY THREE** questions)
(Each question carries **FIVE MARKS**)

(3 x 5 = 15)

- 1 Elaborate the various method used for the enumeration and quantification of viruses.
- 2 Write about the ideal characteristics of cloning vector and expression vectors.
- 3 Explain the role of microbes in mineralization and recycling of waste materials.
- 4 Write about the various stages in the life cycle of malarial parasite that takes place in mosquitos and human body.
- 5 Explain the principle, methodology and applications of Flow-Cytometric analysis.