

**M.Sc. DEGREE I SEMESTER EXAMINATION IN ENVIRONMENTAL
TECHNOLOGY NOVEMBER 2010**

ENV/ENB 2104 ENVIRONMENTAL MICROBIOLOGY

Time : 3 Hours

Maximum Marks : 50

PART - A

(Answer **ANY TEN** questions)
(All questions carry **EQUAL** marks)

I. Describe the following in *one* or *two* sentences : (10 x 1 = 10)

- (a) Central Dogma
- (b) Tyndalization
- (c) D - value
- (d) Quaternary ammonium compounds
- (e) Chargaff's rule
- (f) Mutations
- (g) Antibiotics
- (h) Transduction
- (i) Chemolithotroph
- (j) Cytochromes
- (k) Peptidoglycan
- (l) Phycobilins
- (m) Lichens
- (n) Water activity
- (o) Prions

PART - B

(Answer **ANY FIVE** questions)
(All questions carry **EQUAL** marks)

II. Write short notes : (5 x 2 = 10)

- (a) Mutualism
- (b) Nitrification
- (c) Reproduction of yeasts
- (d) Sporozoa
- (e) Cultivation of animal viruses
- (f) Bacterial endospores
- (g) Radiation sterilization
- (h) Action of penicillin on bacteria

PART - C

(Answer **ANY FIVE** questions)
(All questions carry **EQUAL** marks)

III. (a) What are disinfectants? Discuss their action on microbes. (5 x 3 = 15)
(b) What is numerical aperture? What is its role in the resolving power of a microscope?

- (c) Briefly discuss the effect of environment on the growth of bacteria
- (d) What is differential staining? Explain two such staining processes.
- (e) What is the chemical nature of DNA? Explain in brief.
- (f) What are ribozomes? Discuss their structure briefly.
- (g) What are the major components of microbiological media? Discuss their role in bacterial growth.
- (h) What is SDS – PAGE? Discuss its application in protein separation.

PART – D

(Answer **ANY THREE** questions)
(All questions carry **EQUAL** marks)

(3 x 5 = 15)

- IV.
- (a) Discuss Nitrogen cycle in nature, bringing out the role of microorganisms in each stage of the cycle, with specific examples of the reactions involved.
 - (b) Discuss the ultra structure of bacterial cell wall of Gram negative bacteria. Discuss the role of specific components in antigenic reactions.
 - (c) What is sterilization? Describe the different methods of sterilization in detail giving suitable examples of different processes and applications.
 - (d) What is gene expression? Briefly discuss the sequences in gene expression in a bacterial cell.
 - (e) What are bacteriophages? Discuss the morphology and structure a typical bacteriophage.