AU–146

B.Sc. Part—III Semester—V Examination

5S—MICROBIOLOGY

(Environmental Microbiology and Bioinstrumentation)

Time : Three Hours] [Maximum Marks : 80

Note :– (1) All questions are compulsory.

(2) Draw well labelled diagram wherever necessary.

1. (A) Fill in the blanks : – 2

(i) Laminar air flow system uses a filter known as _____ .

(ii) Micro-organisms that occur in water are called as _____ :

(iii) The long form of BOD is _____ .

(iv) In _____ paper chromatography solvent is allowed to travel from top to bottom.

(B) Choose the correct alternative :— 2

(i) _____ device is used for the enumeration of bacteria in air.

(a) Lemon sampler

(b) Anderson air sampler

(c) Capillary impinge

(d) All of above.

(ii) In gel electrophoresis _____ is used for staining of DNA.

(a) Crystal violet

(b) Ethidium bromide

(c) Potassium bromide

(d) Safranine.

(iii) The long form of MPN is ___ ___ of coliform per 100 ml.

(a) Moist pressure number

(b) Most probable number

(c) Mean probable number

(d) Most pressure number.

(iv) Ammonification is ___ ___ ___.

(a) Release of ammonia

(b) Release of H_2S

(c) Release of CO_2

(d) None.

(C) Answer in **ONE** sentence :— 4

(1) Name any two air borne diseases

(2) Define Humus

(3) What is the purpose of water purification ?

(4) Define Electrophoresis.

2. (a) Define and explain synergism with example. 4

(b) What are liquid impingement devices ? Describe any one. 4

(c) Describe the control of air micro-organisms by filteration. 4

OR

(d) What are harmful associations ? Explain any one with suitable example. 4

(e) Define air. Mention the composition of air. 4

(f) Describe the control of micro-organisms by U.V. light and fumigation. 4

3. (a) Describe in brief different groups of microbes in soil. 4

(b) Give an account on phosphorus cycle. 4

(c) Discuss in brief Biofertilizer. 4

OR

(d) What is humus ? Describe its nature. 4

(e) Describe the role of microbes associated with carbon cycle. 4

(f) How the microbes cause sulphur transformation in nature ? 4

4. Discuss different factors affecting growth of Planktons. Describe one method for controlling the Plankton problem. 12

OR

What are Planktons ? Describe in detail the harmful effects of Planktons on aquatic life. 12

5. (a) Explain membrane fitter technique for Coliform detection. 4

(b) Describe in brief Indicators of excretal pollution. 4

(c) Describe MPN in brief. 4

OR

(d) Describe WHO standards of drinking water. 4

(e) What are the coliforms ? Give IMVIC classification of coliforms. 4

(f) Describe the significance of bacteriological analysis of water. 4

6. Explain the following :—

(a) Slow Sand filter. 4

(b) Oxidation pond. 4

(c) BOD. 4

OR

(d) Explain trickling filter in brief. 4

(e) Describe in brief break point chlorination with diagrammatic representation. 4

(f) Give the outline of Biogas production. 4

7. Describe principle, working and applications of paper Electrophoresis in detail. 12

OR

Discuss Isotopic tracer technique in detail. 12