

**FACULTY OF SCIENCE**  
**M.Sc. (CBCS) II Semester Examination, December 2021**

**Subject: Microbiology**  
**Paper – II : Environmental & Agriculture Microbiology**

**Time: 2 Hours**

**Max. Marks: 80**

**PART – A**

**Note: Answer any five questions.**

**(5 x 7 = 35 Marks)**

- 1 Sanitation quality of water
- 2 Water-borne pathogenic micro-organisms
- 3 Biodegradable plastics
- 4 Bioaugmentation
- 5 Humus formation
- 6 Carbonaceous Materials in soil
- 7 Rhizosphere
- 8 Mycorrhizae

**PART – B**

**Note: Answer any three questions.**

**(3 x 15 = 45 Marks)**

- 9 Write an essay on Anaerobic sewage treatment methods.
- 10 Explain the Aerobic sewage treatment methods.
- 11 Discuss the role of microorganisms in the degradation of organic pollutants.
- 12 Give a detailed account on enumeration and activity of microbes in soil.
- 13 Write an essay on microbial mechanism of Denitrification.
- 14 Explain the factors governing the decomposition of organic matter.
- 15 Write an essay on different types of Biofertilizers.
- 16 Give a detailed account on symbiotic and Asymbiotic nitrogen fixation.

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**Subject: Microbiology**  
**Paper – III : Immunology**

**Time: 2 Hours**

**Max. Marks: 80**

**PART – A**

**Note: Answer any five questions.**

**(5 x 7 = 35 Marks)**

- 1 Write about Clonal selection theory.
- 2 What are the types of antigens?
- 3 What is the role of Toll like receptors in immune response?
- 4 What are the symptoms and features of SLE?
- 5 Describe the reactions occurring during anaphylaxis.
- 6 What is RIA?
- 7 Classify and describe Tumour antigens.
- 8 What are Chimeric Antibodies and their applications?

**PART – B**

**Note: Answer any three questions.**

**(3 x 15 = 45 Marks)**

- 9 Explain Antibody structure, functions and classification.
- 10 What are Primary lymphoid organs? Summarize their functions in immune system.
- 11 Write notes on Major Histocompatibility complex and Human leucocyte antigen (HLA).
- 12 Comment on cell-mediated and humoral immune responses.
- 13 Define and classify Antigen-Antibody reactions. Discuss ELISA tests with clinical examples.
- 14 Explain about Classical and alternate Complement pathways.
- 15 Write about the types of recombinant vaccines.
- 16 Discuss the production of monoclonal antibodies and add a note on their applications.

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**Subject: Microbiology**  
**Paper – IV Pharmaceutical Microbiology**

**Time: 2 Hours**

**Max. Marks: 80**

**PART – A**

**Note: Answer any five questions.**

**(5 x 7 = 35 Marks)**

- 1 Sterilization in pharmaceutical industry
- 2 GMP in pharmaceutical industry
- 3 Sulphonamides
- 4 Non-medical uses of antibiotics
- 5 Membrane inhibitors
- 6 Lab diagnosis
- 7 Pharmacokinetics
- 8 Rideal walker coefficient

**PART – B**

**Note: Answer any three questions.**

**(3 x 15 = 45 Marks)**

- 9 Write about the various organisms affecting the pharmaceutical industry and methods to prevent contamination.
- 10 Write about the preservation of pharmaceutical products and how its microbial stability is evaluated.
- 11 Define Selective toxicity and write about the various target sites in microbes.
- 12 How is the antimicrobial preservation efficiency tested?
- 13 Describe the mode of action of polymyxins and give examples.
- 14 Write about the principles of chemotherapy and how we can control the indiscriminate usage of antibiotics.
- 15 Write about the Biochemistry and genetics involved in the drug resistance of bacteria.
- 16 Write about the various methods used to test the drug sensitivity of an organism.

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