2018

BOTANY

(Major)

Paper : 5.1

(Microbiology and Immunology)

Full Marks : 60

Time : 3 hours

The figures in the margin indicate full marks for the questions

1. Fill in the blanks : 1×7=7

(a) The word 'bacteria' was coined by _____.

(b) The plant growth promoting Rhizobacteria have been discovered by _____.

(c) The immunoglobulin responsible for allergic symptoms is _____.

(d) Genetical change of bacteria by taking cell-free naked DNA is called _____.

(e) 'Kuru' disease of human being is caused by _____.

(f) Ribosomal RNA extensively used for microbial taxonomy is _____.

(g) The infectious circular single-stranded RNA dependent on other virus is _____.

2. Write in brief on any *four* of the following : 2×4=8

(a) Interferon

(b) Acquired immunity

(c) Bacterial binary fission

(d) Viroids and disease caused by them

(e) Mycoplasma

(f) Germ theory of disease

3. Answer any *three* of the following : 5×3=15

(a) Describe the major nutritional groups of microorganisms citing suitable examples.

(b) Describe the molecular trends of bacterial taxonomy.

(c) Describe the methods of isolation of soil microorganisms.

(d) Write in brief about the lytic multiplication cycle of bacteriophage.

(e) Write in brief about the application of microbiology in soil.

(f) Write a note on cell-mediated immunity.

(g) Write the mechanisms of transmission of plant viruses.

4. Answer the following questions : 10×3=30

(a) What is biogeochemical cycle? Give a detailed account of cycling of elemental nitrogen in nature and role played by microorganisms. 1+9=10

Or

What is water microbiology? How potability of water can be determined? 2+8=10

(b) What are the chemical compositions of bacterial cell wall? Give a detailed structure of Gram-positive and Gram-negative bacterial cell wall. 3+7=10

Or

Write the general characteristics of Rickettsiae and Chlamydiae. Also mention diseases caused by them. 10

(c) What are antibodies? Describe the structure of a typical antibody molecule. Mention the important classes of antibodies. 2+6+2=10

Or

What is meant by non-specific resistance? Describe the role of skin and mucous membrane in defending pathogenic microorganisms. 1+9=10

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