Department

2019

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. Give very short answers : 1×7=7

(a) What is biofilm?

(b) Define the term bioaerosol.

(c) What is apoptosis?

(d) Name the causal organism of Rocky Mountain spotted fever.

(e) Define a strain.

(f) What is a fore spore?

(g) What are transposons?

2. Write the difference between : 2×4=8

(a) Catabolic and Anabolic pathway

(b) Active and Passive immunity

(c) Virus and Virusoids

(d) Fungi and Actinomycetes

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

(a) Application of microbes in sewage treatment

(b) A typical bacterial growth curve and its different phases

(c) Tobacco Mosaic Virus

(d) Allergic disorders caused by air microflora

(e) Biological nitrogen fixation

4. Answer the following questions :

(a) How do biogeochemical cycles maintain soil fertility? Give a detailed account of cycling of elemental sulphur in nature and the role played by microbes. 2+8=10

Or

Write about the characteristic features of Mycoplasmas and the diseases caused by them. Why are they resistant to antibiotics? 7+2+1=10

(Continued)

(b) What are the nutrients required by bacteria? Write the characteristics of major nutritional categories of bacteria based on carbon, energy and electron sources. 1+9=10

Or

What is transduction? Elaborate the process of transduction with suitable diagram. Differentiate between generalized and specialized transduction. 1+7+2=10

(c) What is immunoglobin? Write about the structure of immunoglobin and their different classes. 1+6+3=10

Or

Name the T-cells involved in cellular immunity. Describe briefly their roles for combatting pathogens. How does cellular immunity differ from humoral immunity? 1+7+2=10

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