

2014

**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. Answer the following as directed : 1×7=7
- (a) Which ribosomal RNA is extensively used for microbial taxonomy?
  - (b) Bacterial growth is synonymous to ——. (Fill in the blank)
  - (c) Name the microbiologist who crystalized tobacco mosaic virus for the first time.
  - (d) — plasmid is used for biological gene transfer in genetic engineering. (Fill in the blank)
  - (e) Give an example of magnetotactic bacteria.

- (f) Which type of antibody is present in mother's milk?
- (g) Which of the following organisms is termed as 'energy parasite'?
- Mycoplasma
  - Rickettsiae
  - Chlamydiae
  - Z-form bacteria

2. Define the following giving suitable examples :  $2 \times 4 = 8$

- Archaeobacteria
- Prions
- Actinomycetes
- Interferons

3. Answer any *three* of the following questions :  $5 \times 3 = 15$

- What are plasmids? Describe the role of different types of plasmid.
- Define germ theory of disease. In what way did Koch's postulates influence the development of microbiology?
- Describe the molecular trends for bacterial taxonomy.
- Write a note on aerobiology.

4. Answer the following questions :  $10 \times 3 = 30$

- (a) Discuss the role played by micro-organisms in maintaining the carbon cycle in nature.

Or

What is generation time? Draw a typical bacterial growth curve and describe the events take place in each phase.

- (b) Discuss the various views with regard to the nature of viruses. Describe the recent outlines of viral classification.

Or

"Transduction is a vector mediate parasexuality." Explain the statement. Describe the process of generalized and specialized transduction in bacteria.

- (c) Define specific resistance. Describe in detail the clonal selection theory for mechanism of antibody formation.

Or

What is potable water? How is potability of water determined?

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