

**M. SC. (BIOTECHNOLOGY) SEM-I (2012 COURSE)(CHOICE  
BASED CREDIT SYSTEM) : WINTER - 2017**

**SUBJECT: MICROBIOLOGY BASIC AND APPLIED**

Day : **Saturday**  
Date : **11/11/2017**

**W-2017-0967**

Time : **02.00 PM TO 05.00 PM**  
Max. Marks : **60**

**N. B. :**

- 1) All questions are **COMPULSORY**.
- 2) Figures to the right indicate **FULL** marks.
- 3) Answers to both the sections should be written in **SEPARATE** answer books.
- 4) Draw neat and labelled diagram **WHEREVER** necessary.

**SECTION - I**

**Q. 1** Attempt **ANY FIVE** of the following: **(10)**

- a) List two enzymes used for inactivation of oxygen free radicals in bacteria and write their function.
- b) What is active transport? Give an example.
- c) What are cyanobacteria? Write two applications of it.
- d) What is chemolithotrophic autotrophy?
- e) What is transformation in bacteria?
- f) Explain the structure of transposons.

**Q. 2** Attempt **ANY TWO** of the following: **(10)**

- a) What is bacterial growth curve? With the help of a diagram, explain various stages of growth curve.
- b) What is meant by sterilization in microbiology? Write function and design of an autoclave with the help of a diagram.
- c) Write a short note on actinomycetes and discuss their role in pharmaceutical sector.

**Q. 3** Attempt **ANY TWO** of the following: **(10)**

- a) Write in detail the function of confocal microscope with the help of a diagram.
- b) Explain the structure of plasmid with the help of a diagram and write their applications.
- c) Write various steps involved in bacterial cell division.

**SECTION - II**

**Q. 4** Attempt **ANY FIVE** of the following: **(10)**

- a) What is ICTV?
- b) Define serotypes.
- c) What is a prophage?
- d) List advantages of SSF.
- e) What is antigenic drift?
- f) Write industrial applications of secondary metabolites.

**Q. 5** Attempt **ANY TWO** of the following: **(10)**

- a) Explain in detail the structure and life cycle of TMV.
- b) Explain two methods of animal viral cultivation.
- c) With the help of a diagram explain the structure of a retro virus.

**Q. 6** Attempt **ANY TWO** of the following: **(10)**

- a) What is a fermenter? Explain various types of fermenters.
- b) Explain various steps involved in alcohol production.
- c) What are bio-pesticides? Explain the steps involved in production of bio-pesticides.

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