

**M. Sc. (Biotechnology) Sem-I (2012 Course)(Choice Based Credit  
System) : SUMMER - 2019**  
**SUBJECT : MICROBIOLOGY BASIC AND APPLIED**

Day : Friday

Date : 05/04/2019

**S-2019-1408**

Time : 10.00 AM TO 01.00 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 the **SAME** answer books.
- 4) Draw neat and labeled diagram **WHEREVER** necessary.

**SECTION – I**

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

- a) Explain the structure of Gram negative cell wall.
- b) Write characteristic features of Archaea.
- c) What are microaerophilic bacteria? Write two examples.
- d) Explain the structure of cyanobacterial cell wall.
- e) What are autotrophic microorganisms? Give two examples.
- f) What are Growth factors? Explain its functions.

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

- a) Write short note of cyanobacteria and its application.
- b) With help of diagram explain various stages of bacterial growth curve.
- c) Explain different classes of microorganisms based on carbon, electron and energy sources.

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

- a) Explain the structure of plasmid with examples. Write its various applications.
- b) Explain the ray diagram of fluorescent microscope. Write its advantages.
- c) What are mutagenic agents? Explain the action of UV rays.

**SECTION – II**

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

- a) Explain ultra structure of TMV.
- b) Explain cultivation of animal virus using embryonated egg.
- c) Explain ICTV classification of virus.
- d) Explain various methods of penetration in animal virus.
- e) Define serotype. Give two examples.
- f) What is cytopathic effect?

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

- a) Explain the life cycle of retrovirus.
- b) Explain the structure of influenza virus.
- c) Explain lysogenic life cycle of bacteriophage.

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

- a) Explain the steps involved in production of bio-pesticides.
- b) Explain the importance of extremophiles in medical applications.
- c) Explain the structure submerged fermentors.

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