

B.Sc. CBCS Pattern Semester-I  
**BIO-02 - Biotechnology Paper-II (General Microbiology)**

P. Pages : 2

Time : Three Hours



**GUG/W/23/11563**

Max. Marks : 50

- 
- Notes : 1. All questions are compulsory and carry equal marks.  
2. Draw diagrams wherever necessary.

1. Discuss the contribution of scientists in the field of microbiology. **10**
- a) Louis Pasteur.  
b) Robert Koch.

**OR**

- a) What are mechanical parts of compound light microscope? **2½**
- b) Draw a well labelled ray diagram of dark field microscopy. **2½**
- c) Discuss comparison between optical and electron microscope. **2½**
- d) Write applications of fluorescent microscopy. **2½**
2. Describe general characteristics of Archaea and differentiate between bacterial and archaeal cell membrane. **10**

**OR**

- a) Explain role of flagella and Pili in bacteria. **2½**
- b) Add a note on different kinds of plasmids. **2½**
- c) Describe the structure of endospore with the help of diagram. **2½**
- d) Differentiate between Gram positive and Gram negative cell wall. **2½**

3. What is differential staining? Explain in detail gram staining and mechanism. **10**

**OR**

- a) Add a note on different symmetries of viruses. **2½**
- b) Give brief idea of lysogeny. **2½**
- c) Describe the industrial importance of moulds. **2½**
- d) Write classification of stains with suitable example. **2½**

4. Explain in detail chemostat and Turbidostat as continuous culture apparatus. **10**

**OR**

- a) Write any two methods for preservation of pure culture. **2½**
- b) Explain autotrophs and heterotrophs. **2½**
- c) Differentiate between logarithmic growth phase and logarithmic death phase. **2½**
- d) Classify bacteria on the basis of pH. **2½**

5. Solve **any ten**.

- a) Who is father of vaccination? **1**
- b) What is the source of illumination in electron microscope. **1**
- c) Write any two applications of SEM. **1**
- d) Give the unit for measurement of bacterial size. **1**
- e) What is chromatin material? **1**
- f) Give the significance of germination of endospore. **1**
- g) What is mode of reproduction in yeasts? **1**
- h) What are dyes? **1**
- i) Which stains are used in flagella staining? **1**
- j) How does radiation kill bacteria? **1**
- k) What are mesophiles? Give example. **1**
- l) What is synchronous culture. **1**

\*\*\*\*\*