

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

P. Pages : 2

Time : Three Hours



**GUG/W/23/11563 (S)**

Max. Marks : 50

---

Notes : 1. All questions are compulsory and carry equal marks.

1. Explain the principle and applications of SEM with ray diagram. 10

**OR**

a) Write the contribution of Louis Pasteur. 2½

b) Write a note on Numerical aperture. 2½

c) Applications of dark field microscopy. 2½

d) Write significance and use of oil immersion objective. 2½

2. What are plasmids? Describe various kind and classes of plasmids. 10

**OR**

a) Describe the structure of bacterial flagella. 2½

b) Write general characteristics of Archaeobacteria. 2½

c) Draw the well labelled diagram of typical bacterial cell. 2½

d) Discuss various shapes & arrangement of bacterial cell. 2½

3. Explain various steps involved the lytic cycle of T<sub>4</sub>-phage. 10

**OR**

a) Describe the procedure of Endospore staining. 2½

b) Write general characteristics of protozoa. 2½

c) Explain with example-  
Icosahedral symmetry 2½

d) Explain with example –  
Acidic dyes & Basic dyes 2½

4. Describe physical and chemical methods of microbial control. 10

**OR**

a) Explain Growth rate. 2½

- b) Describe four way streaking method for isolation of pure culture. 2½
- c) Explain the role of peptone and Beef extract in nutrient medium. 2½
- d) Write about synchronous culture. 2½

**5. Attempt any ten.**

- a) Write the contribution of Edward Jenner. 1
- b) Define – Resolving power. 1
- c) Name the oil used during oil immersion objective. 1
- d) Name any two Gram Negative bacteria. 1
- e) What are methanogens. 1
- f) What is NAG and NAM? 1
- g) What is stain? 1
- h) Give two examples of animal viruses. 1
- i) Give the example of helical symmetry of virus. 1
- j) Define – Photoautotrophs. 1
- k) Name two selective media. 1
- l) Give any two examples of gaseous sterilization. 1

\*\*\*\*\*