

B.Sc.-I (CBCS Pattern) Semester - I  
**MIC-02 - Microbiology Paper-II (Microbial Techniques)**

P. Pages : 2

Time : Three Hours



**GUG/S/23/11559**

Max. Marks : 50

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

1. Describe the working mechanism and construction of SEM. 10

**OR**

a) Describe the use of oil immersion objective. 2½

b) Describe the working mechanism of Dark field microscopy. 2½

c) Explain the term - focal length and focal point. 2½

d) Describe the principle of phase contrast microscopy. 2½

2. Describe the principle and procedure of Gram Staining. 10

**OR**

a) Describe the procedure of flagella staining. 2½

b) Explain the principle of Acid-Fast staining. 2½

c) Explain the term- chromophore and auxochrome. 2½

d) Explain the steps of capsule staining technique. 2½

3. Describe in detail about the pour plate technique (Serial Dilution method) of pure culture isolation. 10

**OR**

a) Describe the lyophilization method for the preservation of pure culture. 2½

b) Describe the role of differential media with example. 2½

c) Explain the steps involved in four way streaking method. 2½

d) Write the composition of Nutrient Agar Media. 2½

4. Explain the role of Ionizing and Non-ionizing radiations in sterilization techniques. 10

**OR**

a) Explain with example- Moist Heat Sterilization. 2½

- b) Explain the term Microbiostasis with example. 2½
- c) Describe the role of Heavy metals and their compounds as a disinfectant. 2½
- d) Explain the term- Phenol coefficient. 2½

**5. Attempt any ten-**

- a) Define- Magnification. 1
- b) Define - Resolving Power. 1
- c) What is TEM? 1
- d) Give two examples of Basic dyes. 1
- e) Give two examples of endospore producing bacteria. 1
- f) Name the protein present in flagella. 1
- g) What are Heterotrophic bacteria. 1
- h) Name any two stock culture collection centre in India. 1
- i) What is pure culture? 1
- j) What is Antiseptic? 1
- k) Name any two Gaseous agents used in sterilization technique. 1
- l) What is microbicidal? 1

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