

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

P. Pages : 2

Time : Three Hours



**GUG/W/18/11559**

Max. Marks : 50

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

1. Describe in detail Transmission Electron Microscope with well labelled ray diagram & give any two applications. **10**

**OR**

- a) Give any five differences between Bright field microscope & Dark field Microscope. **2½**
- b) Draw neat labelled diagram (Ray diagram) of phase contrast microscope. **2½**
- c) Describe in brief the working of scanning electron Microscope. **2½**
- d) Describe working mechanism of Bright field microscope. **2½**

2. Describe the procedure and mechanism of Gram staining. **10**

**OR**

- a) Give the method of Endospore Staining. **2½**
- b) Give the principle of Acid fast staining & give its application in medical microbiology. **2½**
- c) Describe in brief the physical & chemical theory behind the staining. **2½**
- d) Define the term. **2½**
  - 1) Acid dye.
  - 2) Acid fast bacteria.

3. What do you mean by PURE CULTURE? Describe in detail any three methods for isolation of pure cultures. **10**

**OR**

- a) Enlist different methods of preservation of pure culture & describe in brief any one. **2½**
- b) Define the terms . **2½**
  - i) Culture.
  - ii) Freeze drying.
  - iii) Selective media.

- c) How will you cultivate anaerobes in the microbiology Laboratory. 2½
- d) What are the different types of media & give the application of any two media. 2½
4. a) Describe in brief Filtration as a means of physical control of microbial growth. 5
- b) Define the terms. 5
- i) Sterilization.
- ii) Antiseptic.
- iii) Incineration.
- iv) Sanitization.
- v) Disinfection.

**OR**

- a) How will you check an efficacy of sterilization? 2½
- b) Role of heavy metals & their compound to control microbial growth. 2½
- c) Give the mode of action of any two halogen compounds to control microbial growth. 2½
- d) Describe in brief moist heat sterilization. 2½
5. Solve **any ten**.
- a) Give any two stains used in Negative staining. 1
- b) Write down any two names of bacterial filters. 1
- c) Define Microbicide. 1
- d) Which stains are used for Flagella staining. 1
- e) What do you mean by streak plate method. 1
- f) What are ionising radiations. 1
- g) How will you convert Bright field microscope in to Dark field Microscope? 1
- h) Give any two limitations of TEM. 1
- i) Write down the formula for calculating resolving Power of compound Microscope. 1
- j) Define synthetic medium. 1
- k) Write down any two stock culture. Collection centre situated in INDIA. 1
- l) Write the names of Indicator dyes. 1

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