

Second Semester B. Sc. Examination

MICROBIOLOGY

Paper - II

(Microbial Techniques)

Time : Three Hours]

[Max. Marks : 50

N. B : (1) All questions are compulsory and carry equal marks.
(2) Draw diagrams and give suitable examples wherever necessary.

1. Describe principle, construction and applications of TEM and SEM.

OR

Draw the diagram of bright-field microscope. Give its various parts along with their functions. 10

2. Explain the principle and working of phase contrast microscope. Add a note on its applications.

OR

Write the principle and working of fluorescent microscope. Write its applications. 10

3. (a) Write the principle and procedure of Gram staining technique. 5
(b) Describe the principle and procedure of acid-fast staining. 5

**OR**

(c) Describe the principle and procedure of flagella staining. 5

(d) Write the principle and procedure of endospore staining. 5

4. (a) Describe pour plate method for measurement of growth. $2\frac{1}{2}$

(b) Explain synchronous culture technique. $2\frac{1}{2}$

(c) Describe Auxanographic techniques. $2\frac{1}{2}$

(d) What is Coulter counter technique ? Write its limitations. $2\frac{1}{2}$

OR

(e) Write a note on replica plating technique. $2\frac{1}{2}$

(f) Write a note on single cell isolation. $2\frac{1}{2}$

(g) How streak plate technique is performed for isolation of pure Culture. $2\frac{1}{2}$

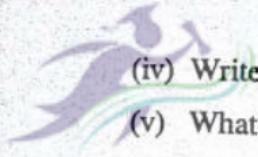
(h) What is Breed's method ? Write its limitations. $2\frac{1}{2}$

5. Solve any **Ten** :—

(i) What is numerical aperture ? 1

(ii) Write one application of dark filed microscopy. 1

(iii) Write the example of oil used in microscopy. 1



(iv) Write two examples of fluorescent dyes. 1

(v) What is cantilever ? 1

(vi) What is a chromophore ? 1

(vii) Give any two limitations of atomic force microscopy. 1

(viii) Give two examples of basic dyes. 1

(ix) What is simple staining ? 1

(x) What is minimal medium ? 1

(xi) Name two special medium for isolation of pure culture. 1

(xii) What is the use of Petroff-Housser's chamber ? 1