KNT/KW/16/5091

Bachelor of Science (B.Sc.) Semester—II (C.B.S.) Examination
MICROBIOLOGY (Microbial Techniques)
Compulsory Paper—2

Time : Three Hours] [Maximum Marks : 50

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

1. Describe the Bright-field microscope. Draw its well labelled diagram and give functions of each part. 10

OR

Describe the principle and applications of TEM and SEM. Give their differences. 10

2. Draw well labelled diagram of fluorescent microscope. Give its principle and applications. 10

OR

Draw ray diagram of phase contrast microscope. Write its principle and applications. 10

3. (a) Classify the types of stains. 2½

(b) Describe mechanism of grams staining. 2½

(c) Describe the negative staining giving suitable example. 2½

(d) Describe the procedure for flagella staining. 2½

OR

(e) Give the theories of staining. 2½

(f) Describe acid-fast staining. 2½

(g) Describe endospore staining. 2½

(h) Differentiate between dye and stain giving suitable examples. 2½

4. (a) What is pure culture ? Explain any two methods for isolation of pure culture. 5

(b) Describe the determination of carbon source requirement by auxanographic technique. 5

OR

(c) Define synchronous culture. Describe any two methods to obtain synchronous culture. 5

(d) Describe any two methods for measurement of growth by cell count methods. 5

5. Solve any **TEN** from the following :—

(i) What is confocal microscopy ?

(ii) Give the function of oil when used with oil-immersion objective.

(iii) Give applications of dark-field microscopy.

(iv) Write one application of atomic force microscopy.

(v) Give any two limitations of atomic force microscopy.

(vi) What is the role of "AFM probe" in Atomic Force Microscopy ?

(vii) Define Chromogen.

(viii) Define chromophore.

(ix) Define auxochrome.

(x) Define axenic culture.

(xi) What do you mean by "Master plate" in replica plating technique ?

(xii) What do you mean by "total count" and "viable count" in measurement of growth ?

1×10=10