KNT/KW/16/5067

Bachelor of Science (B.Sc.) Semester—I (C.B.S.) Examination

BIO-TECHNOLOGY

(Microbiology)

Compulsory Paper—1

Time : Three Hours] [Maximum Marks : 50

Note :— (1) **ALL** questions are compulsory and carry equal marks.

(2) Draw diagrams and give examples wherever necessary.

1. (a) Describe the contribution of Louis Pasteur. 2½

(b) Draw a well labelled ray diagram of fluorescent microscope. 2½

(c) Give the procedure of gram staining. 2½

(d) Explain the numerical aperture and its importance in compound microscope. 2½

OR

(e) Give the contributions of Robert Koch. 2½

(f) Give the principle and applications of dark-field microscopy. 2½

(g) Describe the principle and procedure of endospore staining. 2½

(h) Explain the working of oil-immersion objective with the help of suitable ray-diagram and give its significance. 2½

2. Explain the structure of cell wall of gram negative bacteria. 10

OR

Describe the detailed structure of endospore. Explain the basis of its resistance to physical and chemical agents. 10

3. Explain the lytic cycle of viral multiplication. 10

OR

Describe the general characteristics of viruses. Explain the helical symmetry of virus. 10

4. (a) Describe the basic nutritional requirements of microorganisms. 5

(b) Classify the organisms on the basis of carbon and energy sources. 5

OR

(c) Define and explain the importance of selective and differential media giving suitable examples. 5

(d) Explain the ingredients used for the preparation of nutrient agar. 5

5. Solve any **TEN** of the following :

(i) Who is called the father of immunology ? 1

(ii) Give any two limitations of electron microscopy. 1

(iii) What are neutral stains ? 1

(iv) Name the different arrangements in Cocci. 1

(v) Give two differences of capsule and slime layer. 1

(vi) What are conjugative plasmids ? 1

(vii) Give any two differences between bacterial and archaeal cell membrane. 1

(viii) Classify the viruses on the basis of nucleic acids. 1

(ix) Name any two symmetries of viruses with one example of each. 1

(x) Give the use of Agar in microbiological media. 1

(xi) Give the significance of synthetic media. 1

(xii) Give two examples of enriched media. 1