

**Bachelor of Science (B.Sc.) Semester—I Examination****BIO-TECHNOLOGY (Microbiology)****Optional Paper—1**

Time : Three Hours]

[Maximum Marks : 50

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

(2) Draw well labelled diagrams wherever necessary.

1. Describe the contributions of Louis Pasteur in the field of Microbiology. 10

**OR**

Write notes on :

- (a) Significance of oil immersion objectives. 2½  
 (b) Principle and procedure of endospore staining. 2½  
 (c) Numerical aperture and its importance. 2½  
 (d) Comparison between optical and electron microscope. 2½
2. Describe the structure of gram negative bacterial cell wall in detail. 10

**OR**

Describe the process of endospore formation in bacteria. 10

3. Describe different shapes and symmetries of viruses with example. 10

**OR**

- (a) Give the brief idea of lysogeny in viruses. 5  
 (b) Describe the morphology and cell membrane of archaea. 5
4. Describe the basic nutritional requirements of bacteria. 10

**OR**

Write notes on :

- (a) Selective and differential media. 5  
 (b) Enriched and Enrichment media. 5
5. Solve any **TEN** :
- (i) What is resolving power ? 1  
 (ii) Name two gram positive bacteria. 1  
 (iii) Give one application of fluorescent microscopy. 1  
 (iv) What is a plasmid ? 1  
 (v) What are peritrichous flagella ? 1  
 (vi) What is the function of capsule in bacteria ? 1  
 (vii) Give one difference between bacteria and virus. 1  
 (viii) What is a bacteriophage ? 1  
 (ix) Name one animal cell virus. 1  
 (x) What are photoautotrophs ? 1  
 (xi) What is the source of agar-agar ? 1  
 (xii) What are synthetic media ? 1