

KNT/KW/16/5056

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

BIO-CHEMISTRY

Compulsory Paper—2

(Microbiology and Virology)

Time : Three Hours]

[Maximum Marks : 50

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

(2) Draw well labelled diagrams wherever necessary.

1. What is the theory of Spontaneous Generation ? Discuss in detail the controversy over spontaneous generation. 10

OR

- (a) Describe briefly each component of an ordinary compound microscope. 5
(b) Describe the principle and applications of fluorescent microscopy. 5
2. (a) Describe the principle and technique of endospore staining. 5
(b) Describe the general characteristics of viruses. 5

OR

Give a detailed account of lytic cycle of a bacteriophage. 10

3. (a) Differentiate between cell wall structure of gram positive and gram negative bacteria. 5
(b) Draw a well labelled diagram of typical bacterial cell and an endospore. 5

OR

Write short notes on :

- (a) Bacterial plasmids 2½
(b) Bacterial ribosomes 2½
(c) Shape and size of bacteria 2½
(d) Slime layer and capsule. 2½
4. Describe the phases of bacterial growth curve in detail. 10

OR

Write notes on :

- (a) Turbidostat 2½
(b) Classification of bacteria on the basis of temperature requirements 2½
(c) Measurement of growth by Viable Cell Count Method. 2½
(d) Synchronous culture. 2½

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

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| (i) Name one factor that affects the resolving power of a microscope. | 1 |
| (ii) Give one application of dark field microscopy. | 1 |
| (iii) What is meant by Immunization ? | 1 |
| (iv) Name the mordant used in gram staining. | 1 |
| (v) Name any one acid fast bacterium. | 1 |
| (vi) Name any one endospore forming bacteria. | 1 |
| (vii) What are fimbriae ? | 1 |
| (viii) Give one difference between a prokaryotic and eukaryotic cell. | 1 |
| (ix) Name any one gram positive bacteria. | 1 |
| (x) Define generation time. | 1 |
| (xi) What are micro aerophilic organisms ? | 1 |
| (xii) What is meant by a continuous culture ? | 1 |