

AP-408

- (d) Auxanographic technique. 4
- (e) Nonsynthetic media with examples. 4
- (f) Autotrophs and heterotrophs. 4
7. Describe in detail various phases of bacterial growth curve. 12

OR

Describe various processes of reproduction in bacteria. 12

B.Sc. Part—I (Semester—I) Examination

1S : MICROBIOLOGY

(Fundamentals of Microbiology and Microbial Physiology)

Time : Three Hours]

[Maximum Marks : 80

Note :— (1) All questions are compulsory.

(2) Draw well labelled diagrams wherever necessary.

1. (a) Fill in the blanks : 2
- (i) _____ are the organs of motility in bacteria.
- (ii) Turbidostat is used for obtaining _____ culture.
- (iii) In bacterial growth curve, maximum growth is obtained in _____ growth phase.
- (iv) _____ is used as primary stain in Gram Staining.

(b) Choose correct alternative :

2

(i) E-coli reproduce asexually by :

- (a) Binary fission
- (b) Mitosis
- (c) Fragmentation
- (d) Meiosis.

(ii) Structure of viruses can be observed by :

- (a) Light microscope
- (b) Electron microscope
- (c) Dark field microscope
- (d) Simple microscope.

(iii) Fungi like spores are produced in :

- (a) E.coli
- (b) Mycoplasma
- (c) Actinomycetes
- (d) Rickettsia.

(f) Enlist four divisions of Kingdom Prokaryotae with the classes of each as per Bergey's manual of systematic bacteriology. 4

5. Differentiate between :

- (a) Cell wall of gram positive and gram negative bacteria. 4
- (b) Prokaryotic and Eukaryotic cells. 4
- (c) Prokaryotic and Eukaryotic ribosomes. 4

OR

- (d) Draw well labelled diagrams of typical bacterial cell. 4
- (e) Structure of Flagellum of Gram negative bacteria. 4
- (f) Fluid mosaic model of cytoplasmic membrane. 4

6. Explain briefly :

- (a) Replica plating. 4
- (b) Selective media with examples. 4
- (c) Phototrophs and chemotrophs. 4

OR

(iv) Nutrient agar is an example of :

- (a) Synthetic media
- (b) Non-synthetic media
- (c) Differential media
- (d) Selective media.

(c) Answer in **ONE** sentence :

4

- (i) What do you mean by Endospore ?
- (ii) What are autotrophs ?
- (iii) What is the function of ribosomes ?
- (iv) What is generation time ?

2. Describe the experiments of Louis Pasteur, John Tyndall and Schulze for solving the controversy over spontaneous generation.

12

OR

Describe industrial microbiology, medical microbiology and environmental microbiology.

12

3. (a) Describe the principle and method of acid fast staining.

4

(b) Enlist the parts of compound microscope and state the function of each part.

4

(c) What is resolving power ? How is it related to numerical apperture ?

4

OR

(d) Differentiate between simple staining and differential staining.

4

(e) Describe briefly endospore staining with its principle.

4

(f) Define the terms magnification, focal length, numerical aperture and microscope.

4

4. Write in brief about :—

(a) Numerical taxonomy.

4

(b) Mycoplasma.

4

(c) Gracilicutes.

4

OR

(d) Define the terms Taxonomy, Classification, Taxonomic ranks and Nomenclature.

4

(e) Briefly describe general characteristics of viruses.

4