



**BA-003-2011016**

Seat No. \_\_\_\_\_

**First Year B. Sc. (Sem. I) (CBCS) (W.E.F. 2019)**

**Examination**

**March - 2021**

**MB.P - 101 : Fundamentals of Microbiology**

*(Microbiology)*

**Faculty Code : 003**

**Subject Code : 2011016**

Time :  $2\frac{1}{2}$  Hours]

[Total Marks : 70

- Instructions :** (1) Attempt any five out of ten.  
(2) All questions has equal marks weightage.  
(3) Draw a diagram where necessary.  
(4) Write answers of all questions in main answer sheet.  
(5) Figures in the right indicate total marks.

- 1 (A) Answer the following : 4  
(1) Explain Loius Pasteur's contribution in field of Fermentation.  
(2) Who proposed the term Protista ? What are Protista ?  
(3) Write the application of microbiology in the field of Food Microbiology.  
(4) Define Protozoa.
- (B) Answer in brief : 2  
What are higher and lower protists ?
- (C) Answer in detail. 3  
Describe Five Kingdom Classification System.
- (D) Write a note on : 5  
Describe in detail various field of Microbiology.
- 2 (A) Answer the following : 4  
(1) Who propose three kingdom classification systems ?  
(2) Define viruses.  
(3) Explain kingdom - Monera.  
(4) Write contribution of Robert Hook.

- (B) Answer in brief : 2  
 What are Koch's postulates ?
- (C) Answer in detail : 3  
 Write in brief about Francisco Reddi's experiment.
- (D) Write a note on : 5  
 Discuss : Theory of Spontaneous Generation
- 3** (A) Answer the following : 4
- (1) List the parts of light microscope and their functions.
  - (2) What is function of immersion oil lens ?
  - (3) What is function of decolourizer ? Give one example.
  - (4) Define chromophore. Give one example.
- (B) Answer in brief : 2  
 Define stains. How does it differ from dyes ?
- (C) Answer in detail : 3  
 Describe in brief dark field microscopy
- (D) Write a note on : 5  
 Discuss working and principle of fluorescence microscopy.
- 4** (A) Answer the following : 4
- (1) Name the types of electron microscope.
  - (2) What is the magnification of Oil Immersion Objective Lens ?
  - (3) Name any two dyes used in fluorescence microscopy techniques.
  - (4) List any two limitations of electron microscopy techniques.
- (B) Answer in brief : 2  
 Discuss general properties of light.
- (C) Answer in detail : 3  
 What is autoradiography ?
- (D) Write a note on : 5  
 Write on classification of biological stains.

- 5 (A) Answer the following : 4  
 (1) Define Magnetotaxis.  
 (2) List four function of bacterial capsules.  
 (3) Name the different arrangement of bacterial flagella.  
 (4) Write the chemical composition of peptidoglycan layer.
- (B) Answer in brief : 2  
 Draw a neat labelled diagram of Typical Bacterial Cells.
- (C) Answer in detail : 3  
 Compare and contrast cell wall of gram positive and gram negative bacteria.
- (D) Write a note on : 5  
 Explain Bacterial Sporogenesis.
- 6 (A) Answer the following : 4  
 (1) Name the four different arrangements of bacterial flagella.  
 (2) Name the three parts of flagellum.  
 (3) Give one function of pili.  
 (4) Explain the phenomenon of phototaxis.
- (B) Answer in brief : 2  
 What are Bacterial Cysts ?
- (C) Answer in detail : 3  
 Explain Spheroplasts and Protoplast.
- (D) Write a note on : 5  
 Discuss in detail bacterial external structure cell membrane.
- 7 (A) Answer the following : 4  
 (1) Define : Pure Cultures.  
 (2) What are obligate parasites ?  
 (3) Enlist various types of growth factors.  
 (4) Name the four phases of growth.
- (B) Answer in brief : 2  
 Define Psychrophiles and Thermophiles.
- (C) Answer in detail : 3  
 Explain Phototrophs, chemotrophs and Autotrophs.
- (D) Write a note on : 5  
 Explain in detail Bacteriological media.

- 8 (A) Answer the following : 4  
 (1) Give the full form of EMB agar media used in microbiology laboratory along with use.  
 (2) Define Chemotrophs.  
 (3) List the physical conditions required for growth.  
 (4) Define Anaerobes.
- (B) Answer in brief : 2  
 Write one colony morphology as one of the cultural characteristics.
- (C) Answer in detail : 3  
 Explain various nutritional requirements of bacteria.
- (D) Write a note on : 5  
 Write on nutritional requirements and nutritional types of bacteria.
- 9 (A) Answer the following : 4  
 (1) Define Growth rate.  
 (2) Name the growth phases where each cell in the population doubles within a unit time ?  
 (3) What is steady state growth ?  
 (4) Define growth.
- (B) Answer in brief : 2  
 Explain Budding as a mode of reproduction in bacteria.
- (C) Answer in detail : 3  
 Write on : Septum Formation.
- (D) Write a note on : 5  
 Explain in detail bacterial growth curve.
- 10 (A) Answer the following : 4  
 (1) List major modes of reproduction in bacteria.  
 (2) Define Budding,  
 (3) Is logarithmic phase ?  
 (4) Write five steps through which sample can be filtered through membrane fiber technique ?
- (B) Answer in brief : 2  
 Discuss continuous culture techniques.
- (C) Answer in detail : 3  
 Explain synchronous culture techniques.
- (D) Write a note on : 5  
 Explain any two techniques to measure bacterial growth.