

PD-178

MSc Microbiology (1st Semester)

Examination, Dec 2020

Paper-I

General Microbiology and Bacteriology

Time: Three hours

Maximum Marks: 80

Minimum Pass Marks: 29

Note: Answer from both the sections as directed. The figures in the right-hand margin indicate marks.

Section-A

1. Answer the following: 1X10
 - a) Who introduced smallpox vaccine for the first time?
 - b) Whose experiments demonstrated that microbial life does not arise spontaneously?
 - c) What are Psychrophiles?
 - d) Give an example of Archaeobacteria
 - e) What is a mesosome?
 - f) What are cyanophycin granules?
 - g) What are chemotrophs?
 - h) Name any two physical requirements for optimal growth and cultivation of bacteria.
 - i) Give an example of anaerobic bacteria
 - j) Which polymer is predominantly present in the cell walls of eubacteria and absent in archaea?

2. Write short notes on the following: 2X5
 - a) Contribution of Antony von Leeuwenhoek to microbiology
 - b) Environmental factors affecting bacterial growth
 - c) Bergey's manual of systematic bacteriology
 - d) Bacterial fimbriae
 - e) Differential and selective media

Section-B

Answer the following questions (long answer type):

15X4

Unit-I

3. Discuss the contributions of Edward Jenner, Louis Pasteur, A. Fleming and Robert Koch towards microbiology

OR

Describe the general characteristics of microorganism and discuss the composition of microbial world and its evolution.

Unit-II

4. Describe the Haeckels, Whittaker's and Carl Woese's concepts of classification.

OR

Describe the modern trends in the classification of microbial world

Unit-III

5. Explain the ultrastructure of eubacteria with suitable illustration

OR

Write notes on the following

- A) Structure and function of bacterial capsule and flagella
- B) Structure, development and germination of endospore

Unit-IV

6. Describe in detail the bacterial growth curve with a suitable diagram

OR

Write notes on the following

- A) Batch and continuous cultures
- B) Synchronous culture
- C) Bacterial growth media