53 (FPT 301) BMCR

2021

BASIC MICROBIOLOGY

Paper : FPT 301

Full Marks : 100

Time : Three hours

The figures in the margin indicate full marks for the questions.

Answer ***any five*** *questions.*

1. *(a)* Write *two* characteristics of Eukaryotic cell. 1

   (b) Give *two* examples each of yeast and fungi. 3

   (c) What are the different physical and chemical conditions required for the growth of microorganisms ? 5

   (d) What is Endotoxin ? What are the important types macromolecules found in bacterial cell wall ? 5

Contd.

(e) What are Antimicrobial drugs ? Draw a diagram showing the sites of action of different antimicrobial agents. 6

2. (a) What is Lysogenic cycle ? 3

(b) Define Enrichment culture technique. 4

(c) Draw the structure of Bacillus and Spirillum. 4

(d) Explain in brief the uptake of nutrients by bacteria. 5

(e) What causes of antibiotic resistance in bacteria ? 4

3. (a) What are the *three* main types (in terms of their physical forms) of microbiological culture media ? 3

(b) What is wet mount ? How is it prepared ? 3

(c) What are the functions of decolorizer and counterstain in gram staining ? 4

(d) Explain the following terms: 2×5=10

(i) Mordant

(ii) Parfocal

(iii) Sarcina

(iv) Flagella

(v) Agar.

4. (a) What is taxonomy? 2

(b) What is selective media? Give examples. 3

(c) What is the basic method used for identifying bacteria? 2

(d) Explain giving reasons why cyanobacteria is known as blue-green algae. 5

(d) What is bacteriophage? Explain in brief the lytic cycle of bacteriophage. 8

5. (a) What is Acid-fast stain? Explain gram +ve bacteria with suitable diagram. 2+3=5

(b) Define Media. What is the importance of culturing microbes? 5

(c) Describe the functions of each of the following in the microscope: 4

(i) Diaphragm

(ii) Objective

(iii) Ocular

(iv) Condenser.

(d) What do you mean by spontaneous generation? Explain the contribution made by Robert Koch and Leeuwenhoek in the field of microbiology. 2+4=6

6. (a) Give a brief explanation on the staining technique which is used to distinguish *two* kinds of organisms. 4

(b) What are the various organelles that are common both in Prokaryotes and Eukaryotes? 5

(c) Differentiate between: 2×3=6

(i) Synthetic and non-synthetic medium

(ii) Bright field and Dark field microscope.

(d) Explain the formation of endospore in bacteria giving suitable diagram. 5

7. (a) Explain the various steps involved in media preparation. 4

(b) Write short notes on : 4×4=16

(i) DNA virus

(ii) Archaebacteria

(iii) Rickettsia

(iv) Streak plate method.