

Total number of printed pages-5

53 (FPT 301) BMCB

2013

(December)

## BASIC MICROBIOLOGY

Full Marks : 100

Pass Marks : 30

Time : Three hours

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

**Answer any five questions out of seven.**

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

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

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

Contd.

- (d) Describe the function of each of the following in the microscope. 4
- (i) Diaphragm
  - (ii) Condenser
  - (iii) Ocular
  - (iv) Objective
2. (a) Explain the following terms :  $2 \times 5 = 10$
- (i) Sarcinae
  - (ii) Agar
  - (iii) Mordant
  - (iv) Flagella
  - (v) Parfocal
- (b) What is wet mount ? How it is prepared ? 3
- (c) What are the functions of Decolorizer and Counterstain in Gram staining ? 4
- (d) What are the *three* main types (in terms of their physical forms) of microbiological culture media ? 3

3. (a) Differentiate between :  $2 \times 3 = 6$
- (i) Bright field and Dark field microscope
  - (ii) Synthetic and non-synthetic medium.
- (b) Explain the formation of endospore in bacteria giving suitable diagram. 5
- (c) Give a brief explanation on the staining technique which is used to distinguish two kinds of organisms. 4
- (d) What are the various organelles that is common both in Prokaryotes and Eukaryotes ? 5
4. (a) What is Endotoxin ? What are the important types of macromolecules found in bacterial cell wall ? 5
- (b) What are Antimicrobial drugs ? Draw a diagram showing the sites of action of different antimicrobial agents. 6
- (c) Give *two* examples *each* of yeast and fungi. 3

- (d) What are the different physical and chemical conditions required for the growth of microorganisms ? 5
- (e) Write two characteristics of Eukaryotic cell. 1
5. (a) What is Bacteriophage ? Explain in brief the lytic cycle of bacteriophage. 8
- (b) Explain giving reasons why cyanobacteria is known as blue green algae ? 5
- (c) What is selective media ? Give examples. 3
- (d) What is the basic method used for identifying bacteria ? 2
- (e) What is Taxonomy ? 2
6. (a) Draw the structure of Bacillus and spirillum. 4
- (b) What causes antibiotic resistance in bacteria ? 4
- (c) Define Enrichment culture technique. 4

- (d) Explain in brief the uptake of nutrients by bacteria. 5
- (e) What is Lysogenic cycle? 3
7. (a) Write short notes on : 4×4=16
- (i) Archaeobacteria
  - (ii) Streak plate method
  - (iii) DNA virus
  - (iv) Rickettsias.
- (b) Explain the various steps involved in media preparation. 4