Total number of printed pages–4

53 (FPT 301) BSMB

2018

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 out of **seven**.*

1. *(a)* Briefly elaborate on classification of the domain "arch aea". 10

   (b) Briefly describe peptidoglycan structure. What are the major differences between Gram positive and Gram negative cell wall ? 5+3

   (c) Who discovered polymerase chain reaction ? And what is its major application ? 2

Contd.

2. *(a)* Explain, with simple schematic diagram, the working principle of a phase-contrast microscopy. Explain why moist heat is more efficient heat sterilization medium compared to dry-heat. 5+1

(b) Write short notes on structures of *any two* of the following cell components : 2×7

(i) Flagella

(ii) Endospore

(iii) Ribosome.

3. *(a)* Describe the lytic cycle of bacteriophage replication. Explain how prion proteins become infective. 8+2

(b) Briefly elaborate on primary and secondary active transport systems of nutrition uptake by microorganisms. 5+5

4. *(a)* Describe the double-helix structure of DNA with a simple schematic diagram. 5

(b) Give an elaborate description of classification of helminthic parasites. Using a simple schematic diagram to explain life cycle of malarial parasite. 5+10

5. (a) List Koch's postulates. How did Louis Pasteur established 'germ theory' ? 4+5

(b) List the future scopes of microbiology. Elaborate on the importance of microbiology in the areas of environment, food, medicine and biotechnology. 5+6

6. (a) Write the basic principle of work for electron microscope. What is the major difference between transmission and scanning electron microscopes ? 3+2

(b) Briefly explain the working principles of the following — 2×3

(i) Filter sterilization

(ii) Radappertization

(iii) Autoclaving.

(c) Based on mode of actions, elaborate on *three* major groups of antibiotics. 9

7. (a) Briefly describe the *four* major phases of microbial growth with a simple graphical representation. 12

(b) Describe in details, contribution of microorganisms in the carbon-cycle using a schematic diagram. 8
