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53 (FPT 301) BMCB

2017

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. (i) Write the correct answer : 1×5
- (a) *Agar/Peptone* acts as the solidifying agent.
 - (b) *Eukaryotic/prokaryotic* cell contain ribosomes with subunits 50S and 30S.
 - (c) *Lysosome/Vacuole* is known as suicidal bag.

Contd.

- (d) Yeast is an *eukaryotic unicellular/prokaryotic unicellular* fungi.
- (e) Gram-negative bacteria cannot retain the color of *crystal violet dye/safranin*.
- (ii) Draw a prokaryotic cell and explain the various components. 10
- (iii) Write the function of *any five* components of eukaryotic cell. 5
2. (i) Define : 1×5
- (a) Pasteurization
- (b) Sterilization
- (c) Taxonomy
- (d) Staining
- (e) Culture.
- (ii) Explain the physical method of sterilization. 5
- (iii) What do you mean by binomial nomenclature ? What are the rules of binomial nomenclature ? 1+5
- (iv) What is a culture and a culture media ? What are selective and differential media ? 2+2

3. (i) Write *any two* differences between gram negative and gram positive bacteria. 2
- (ii) Describe the microbial growth curve in a batch culture. 8
- (iii) Write the procedure for gram staining of bacteria. 8
- (iv) Why 10% alcohol is used as disinfectant instead of absolute alcohol ? 2
4. (i) Write the composition of nutrient agar. State the importance of each component. 3
- (ii) Write short notes on : 3×3
- (a) Lysogenic cycle of Bacteriophage
- (b) Lytic cycle of Bacteriophage
- (c) Structure of DNA.
- (iii) Write about the effects of *pH* temperature and radiation on microbial growth. 4
- (iv) Differentiate : 2×2
- (a) Pasteurization and sterilization
- (b) Autotrophs and Heterotrophs.

5. (i) What are the different size and shape of bacteria ? 5
- (ii) Define nutrients. Classify the microorganism based on their requirements for energy and electron source. 1+4
- (iii) What are viruses ? Write their salient features. 1+5
- (iv) Distinguish between batch culture and continuous cultures of microbes. 4
6. (i) Describe the spore formation in bacteria. 10
- (ii) Write about the process of DNA replication. 10
7. (i) Explain how image is formed in microscope. 5
- (ii) Write a note on history and scope of Microbiology. 10
- (iii) Write how the general features of archaebacteria. 5
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