



International Islamic University Chittagong

Department of Pharmacy

B. Pharm (Hon's) Program

Final Examination

Spring Semester 2019

Course Code: Pharm-2309

Course Title: Pharmaceutical Microbiology & Immunology-I

Time: 2 hours 30 minutes

Full Marks: 50

(Answer of separate groups should be given in separate scripts. Figures on right margin indicate marks)

Group A *(Answer any two questions from the followings)* **Marks: 20**

1. a) Draw a typical bacterial cell and identify all parts. 2
- b) What are the chemical compositions and functions of flagella of bacteria? Illustrate with appropriate figure. 4
- c) Compare the structure and chemistry of the cell walls of Gram-positive versus those of Gram-negative. 3
- d) What is endospore? Give examples. 1
2. a) Define the term "Bacterial Media". Cite the composition of nutrient agar and nutrient broth media. 3
- b) What are the types of bacteria based on the temperature requirements? Explain with suitable examples. 3
- c) Which miscellaneous physical requirements are essential along with other nutritional and physical conditions for proper growth of bacteria? 2
- d) Distinguish between chemotropes and phototropes. 2
3. a) How can you differentiate between staphylococci bacteria from streptococci bacteria? 2
- b) Which microorganisms are responsible for causing malaria, anthrax, tetanus and diphtheria diseases? 2
- c) What do you know about different types of bacterial media based on their applications and physical form? 4
- d) What are NAG and NAM? Name the organisms, which can ingest vitamin B₁ (Thiamine) from media. 2

Group B *(Answer any three questions from the followings)* **Marks: 30**

4. a) Which methods are associated for measuring bacterial growth? 2
- b) Describe the colony count method for quantitative measurement of bacterial growth. 4
- c) Describe the differences among various modes of cell division in bacteria. 4
5. a) What is pure culture? Describe the pour plate and spread plate technique. 1+4
- b) Deduce the significance of quantitative measurement of bacterial growth. 3
- c) What methods are associated with measuring bacterial growth? 2
6. a) Define infection. Differentiate between clinical and subclinical infection. 3
- b) Describe the factors that can influence infection. 3
- c) Give a comprehensive idea on vaccine. 4
7. a) Define exotoxin and endotoxin. Make a list of exotoxin producing microorganisms with the corresponding diseases. 4
- b) Define: toxoid, virulence, and immunosera. 3
- c) Sketch a chart on types of acquired immunity. 3