



UNIVERSITY OF RUHUNA – FACULTY OF ALLIED HEALTH SCIENCES

DEPARTMENT OF PHARMACY

SECOND BPHARM PART I EXAMINATION – MAY/JUNE 2026

PH 2153 PHARMACEUTICAL MICROBIOLOGY – SEQ

TIME: TWO HOURS

INSTRUCTIONS

- There are **four** parts as **Part A, B, C and D** in this paper.
- Answer all questions.
- No paper should be removed from the examination hall.
- Do not use any correction fluid.
- Use illustrations where necessary.

PART A

1.

1.1.

1.1.1. State three morphological forms of fungi. (10 marks)

1.1.2. List five opportunistic fungal infections. (20 marks)

1.1.3. Define the term ‘selective toxicity’. (10 marks)

1.2.

1.2.1. State three host-virus interactions. (10 marks)

1.2.2. Briefly describe the pathogenesis of the influenza virus. (20 marks)

1.2.3. Describe the replication and transmission of dengue virus. (30 marks)

PART B

2.

2.1. List four factors considered for the classification of bacteria. (20 marks)

2.2. Briefly describe the characteristic features of Gram-positive bacterial cell wall. (25 marks)

2.3. Briefly explain the bacterial growth curve. (25 marks)

2.4. Discuss the general features of host-parasite relationship. (30 marks)

3.

3.1. List four factors determining the effectiveness of disinfectants. (10 marks)

3.2. Briefly describe the methods used for sterilization. (15 marks)

PART C

- 3.3. State four beta-lactam antibiotics and their mechanism of action. (15 marks)
- 3.4. State the action of β -lactamase inhibitors and give two examples commonly used in clinical practice. (10 marks)
- 3.5. List five factors affecting the results of Antibiotic Sensitivity Testing by disc diffusion. (15 marks)
- 3.6. List four advantages of Kirby Bauer (CLSI) method used for antibiotic sensitivity testing. (10 marks)

PART D

- 3.7. List five potential sources of microbial contamination during the manufacturing of pharmaceutical products and describe one of the sources you have listed in detail, explaining how it can lead to microbial spoilage of the final product. (25 marks)
- 4.
- 4.1. State the principle of pharmacopeial sterility testing. (20 marks)
- 4.2. Name two culture media used in pharmacopeial sterility testing and, for each, state its incubation temperature and the class of microorganisms which is designed to detect. (25 marks)
- 4.3. Describe the two components of the media suitability test and state the acceptance criteria for each. (25 marks)
- 4.4. A multidose ophthalmic solution passes all sterility tests but later it was found to support microbial growth during patient use. Discuss why a product that passes pharmacopeial sterility testing may fail to remain sterile in practice. (30 marks)

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