



UNIVERSITY OF RUHUNA – FACULTY OF ALLIED HEALTH SCIENCES

DEPARTMENT OF PHARMACY

SECOND BPHARM PART I EXAMINATION – JANUARY/FEBRUARY 2022

PH 2153 PHARMACEUTICAL MICROBIOLOGY – SEQ PAPER

TIME: TWO HOURS

INSTRUCTIONS

- There are **five** parts as **Part A, B, C, D and E** 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

01.

- 1.1. List four factors considered for the classification of bacteria. (20 marks)
- 1.2. Briefly explain the mode of transmission of pathogens giving examples. (30 marks)
- 1.3. Briefly explain the bacterial growth curve. (25 marks)
- 1.4. Write short notes on the following. (25 marks)
 - 1.4.1. Pasteurization
 - 1.4.2. Standard precautions
 - 1.4.3. *Staphylococcus aureus*
 - 1.4.4. *Mycobacterium tuberculosis*

PART B

02.

- 2.1. State two parasites which live inside blood cells. (10 marks)
- 2.2. State the infective stages of these parasites. (10 marks)
- 2.3. Among the parasites you mentioned in 2.1., which parasite is most prevalent in Sri Lanka? (05 marks)
- 2.4. Briefly discuss the life cycle of that parasite mentioned in 2.3. (25 marks)

PART C

- 2.5. What is 'selective toxicity'? (10 marks)
- 2.6. State four beta-lactam antibiotics and their mechanism of action. (10 marks)
- 2.7. What is the action of beta lactamase inhibitors and give two examples for beta lactamase inhibitors? (10 marks)
- 2.8. List five factors affecting results of the disc diffusion method of Antibiotic Sensitivity Testing. (10 marks)
- 2.9. Briefly describe the disadvantages of Jone Stokes method. (10 marks)

PART D

03.

- 3.1. List two microbiological methods for standardization of antibiotics, except disc diffusion. (10 marks)
- 3.2. Mention two major diseases caused by prions. (10 marks)
- 3.3. State the definition and two examples of live attenuated vaccines. (15 marks)
- 3.4. Briefly describe the viral disease, rabies. (25 marks)
- 3.5. Write a short note on "opportunistic mycoses". (15 marks)
- 3.6. Briefly explain the symptoms, preventive measures, diagnosis methods and treatment choices of ring worm infection, a common fungal disease. (25 marks)

PART E

04.

- 4.1. In the submerged fermentation process, the substrate used for fermentation is always in liquid state which contains the nutrients needed for growth.
- 4.1.1 What are the three main types of submerged fermentation process? (15 marks)
- 4.1.2 Briefly explain one type you mentioned in 4.1.1. (15 marks)
- 4.2 List five desirable properties of an industrial microbe used in the fermentation process. (15 marks)
- 4.3. Preservatives are the chemicals included in pharmaceutical preparations to prevent microbial spoilage of the products.
- 4.3.1 Give five examples of preservatives commonly used in pharmaceuticals. (10 marks)
- 4.3.2 Mention five characteristics of an ideal preservative. (15 marks)
- 4.4 Discuss the different measures that can be taken to control the microbial contamination of parenteral products during manufacturing. (30 marks)