



UNIVERSITY OF RUHUNA – FACULTY OF ALLIED HEALTH SCIENCES

DEPARTMENT OF PHARMACY

SECOND BPHARM PART I EXAMINATION – MAY/JUNE 2026

PH 2123 PHARMACEUTICS IIB – SEQ

TIME: TWO HOURS

INSTRUCTIONS

- There are **four** questions in **Part A, B** and **C** of this SEQ 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. Define oro-mucosal preparations. (10 marks)
- 1.2. Differentiate between mouthwashes and gargles as dosage forms. (20 marks)
- 1.3. List four factors that influence the choice of a manufacturing method for tablets. (20 marks)
- 1.4. Outline the process of wet granulation. (20 marks)
- 1.5. Briefly describe three main types of tablet defects occur during tablet manufacturing process. (30 marks)

PART B

2. Capsules are solid dosage forms in which the drug substance is enclosed within either a hard or soft soluble shell, usually composed of gelatin.
- 2.1. List five fundamental properties of gelatin that make it suitable as a primary material of capsule shell. (20 marks)
- 2.2. List four advantages of hard gelatin capsules compared to soft gelatin capsules. (20 marks)
- 2.3. Briefly explain the following principles of capsule filling.
 - 2.3.1. Auger Fill Principle (15 marks)
 - 2.3.2. Vibratory Fill Principle (15 marks)
- 2.4. Describe the Rotary Die Process used in the manufacturing of soft gelatin capsules. (30 marks)

3.

3.1 An aerosol system is a pressurized dosage form in which the therapeutically active ingredient is dissolved or suspended in a compressed or liquefied gas.

3.1.1. State the components of an aerosol package. (10 marks)

3.1.2. List five components of a valve assembly and state one function of each component. (20 marks)

3.1.3. Briefly explain the pressure filling method used in the filling of aerosol containers with propellant gases. (20 marks)

PART C

3.2

3.2.1. A liquid formulation contains aspirin ($pK_a = 3.5$) and is prepared in a buffered solution at pH 6.5. During compounding, the addition of an acidic syrup reduces the pH to 2.5. Calculate the ionized-to-unionized drug ratio before and after the pH change using the Handerson-Hasselbach equation and comment on the physicochemical compatibility of the formulation. (25 marks)

3.2.2. Define the concept of Decimal Reduction Time (D-value) in microbial sterilization. Explain its mathematical expression and graphical determination. (25 marks)

4.

4.1. Answer the following questions regarding parenteral products.

4.1.1. Define parenteral products. (10 marks)

4.1.2. State five formulation requirements of parenteral products. (10 marks)

4.1.3. State five advantages and five disadvantages of parenteral products. (20 marks)

4.2. Briefly describe three types of physical incompatibilities giving one suitable example for each. (40 marks)

4.3. Write short notes on the following.

4.3.1. Toxoids (10 marks)

4.3.2. Immunoglobulins (10 marks)

@@@@@@@@@@@@@@@@