



UNIVERSITY OF RUHUNA – FACULTY OF ALLIED HEALTH SCIENCES

DEPARTMENT OF PHARMACY

THIRD BPHARM PART I EXAMINATION -DECEMBER 2023

PH 3125 PHARMACOGNOSY II – SEQ PAPER

TIME: THREE HOURS

INSTRUCTIONS

- Answer all questions under parts A, B, C, D, E and F.
- No paper should be removed from the examination hall.
- Do not use any correction fluid.
- Use illustrations where necessary.

PART A

01. Assume that you have isolated **2 mg** of a novel compound **X** from a **very rare plant** endemic to Sri Lanka, using **20 kg** of dried leaves. Now you are planning to develop a drug from this novel compound **X**.

- 1.1 Outline the major steps that you would follow to develop compound **X** to a drug. **(40 marks)**
- 1.2 State the major problem that you would face during this drug development process. **(10 marks)**
- 1.3 State two strategies that you would use to overcome this problem. **(10 marks)**
- 1.4 Briefly explain the toxicity studies that you plan to conduct for the compound **X**. **(25 marks)**
- 1.5 Name five characteristics that you expect from a new drug. **(15 marks)**

02.

- 2.1 Draw the chemical structures of cytarabine and vidarabine. **(20 marks)**
- 2.2 Give one clinical indication for each of the above drugs. **(10 marks)**
- 2.3 List five types of enzymes according to the enzyme commission (EC) giving an example for each. **(30 marks)**
- 2.4 Briefly explain the therapeutic uses of enzymes giving examples for each. **(40 marks)**

PART B

03.

- 3.1 Briefly describe the meaning of herbal formulation and uses of crude drugs or raw materials of medicinal plants. **(20 marks)**
- 3.2 Describe the processing methods of crude drugs/raw materials for the herbal product manufacturing. **(30 marks)**
- 3.3 Describe the standardizations methods of herbal product for the commercial market. **(30 marks)**
- 3.4 Write the importance of the individual monograph for medicinal plants and describe the contents of an individual herbal monograph. **(20 marks)**

PART C

04.

- 4.1 List three fundamental characteristics that differentiate biologics from conventional chemical drugs. **(15 marks)**

- 4.2 List the key steps involved in the production of monoclonal antibodies. (20 marks)
- 4.3 State the five reasons for selecting horses for antivenom production. (20 marks)
- 4.4 Briefly describe the process of antivenom production for therapeutic use. (30 marks)
- 4.5 Write three concepts of Ayurveda which show the relation to modern understanding of immunology. (15 marks)

PART D

05.

- 5.1 Briefly explain the importance of somaclonal variations in plant tissue culture. (25 marks)
- 5.2 Briefly explain how to minimize contamination in plant tissue culture. (25 marks)

PART E

- 5.3 Define the term "Ethnopharmacology". (10 marks)
- 5.4 What challenges are commonly encountered when exploring herbal drugs as potential sources for drug discovery? (10 marks)
- 5.5 Mention two key factors that need to be considered when assessing the safety of herbal drugs. (10 marks)
- 5.6 List five clinical applications of Neem (*Azadirachta indica* A. Juss). (20 marks)

PART F

06. Chemotaxonomy is a useful guide to explore new industrial and medicinal plants that utilize the diversity of plant metabolites.
- 6.1 What is meant by "Plant Chemotaxonomy"? (10 marks)
- 6.2
- 6.2.1 Differentiate between primary metabolites and secondary metabolites of plants. (10 marks)
- 6.2.2 Of the above-mentioned metabolites, which type of plant metabolites are mainly considered in chemotaxonomy? (05 marks)
- 6.2.3 Give one reason for your answer. (05 marks)
- 6.3 Name four categories of plants based on chemotaxonomy classification. (20 marks)
- 6.4 What is the main purpose of incorporating biotechnological tools in medicinal plants? (10 marks)
- 6.5 Name one biotechnological tool that can be used for the following situations.
- 6.5.1 Multiplication of critical genotypes of medicinal plants (10 marks)
- 6.5.2 Conserve endangered medicinal plants (10 marks)
- 6.5.3 Enhance the genetic background of medicinal plants (10 marks)
- 6.5.4 Enhance secondary metabolites production from medicinal plants (10 marks)

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