



**UNIVERSITY OF RUHUNA – FACULTY OF ALLIED HEALTH SCIENCES**

**DEPARTMENT OF PHARMACY**

**THIRD BPHARM PART II EXAMINATION – AUGUST/SEPTEMBER 2020**

**PH 3233 PHARMACEUTICAL BIOTECHNOLOGY (SEQ)**

**TIME: TWO HOURS**

**INSTRUCTIONS**

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

**PART A**

**01.**

1.1 Bluescript is a cloning vector designed to simplify commonly used cloning and sequencing procedures.

1.1.1 State different types of vectors and their maximum insert size.

*(15 marks)*

1.1.2 Briefly describe the properties of the bluescript vector?

*(20 marks)*

1.1.3 What do you understand by multiple cloning sites?

*(10 marks)*

1.1.4 Describe the basis of the visual test?

*(20 marks)*

1.2 Transgenic animals are far useful as models of human diseases.

1.2.1 What are transgenic animals?

*(10 marks)*

1.2.2 What are the advantages of transgenic animals?

*(10 marks)*

1.2.3 Briefly state the simplified procedure of creating a transgenic animal?

*(15 marks)*

**02.** Downstream processing refers to the recovery and the purification of biosynthetic products from natural sources such as animal or plant tissue in a sterile culture medium.

2.1 Briefly describe the steps of generation of water for injection?

*(20 marks)*

2.2 State five methods used in cell disruption?

*(10 marks)*

2.3 Briefly describe the method of diafiltration?

*(20 marks)*

2.4 Briefly describe the procedure of dye affinity chromatography and discuss its advantages and disadvantages?

*(30 marks)*

2.5 Write short note on “the stabilizing excipients”?

*(20 marks)*

## PART B

03.

- 3.1 State the difference between monoclonal antibodies and polyclonal antibodies. (10 marks)
- 3.2 Briefly explain the steps in the production of monoclonal antibodies. (30 marks)
- 3.3 List **five** immunological techniques used in diagnostic immunology. (15 marks)
- 3.4 Briefly explain **one** of the above techniques you mentioned. (20 marks)
- 3.5 Enzyme Immobilization is a very important step in the production of enzymes.
- 3.5.1 What do you mean by Enzyme Immobilization? (10 marks)
- 3.5.2 Briefly explain three methods used in Enzyme Immobilization. (15 marks)

04.

- 4.1 Briefly explain "cryopreservation" used in cell culture. (15 marks)
- 4.2 Briefly explain three different types of artificial cloning. (15 marks)
- 4.3 Discuss the contamination preventive measures that you can adapt to prevent contamination of a cell culture. (25 marks)
- 4.4 State four types of plant tissue cultures. (10 marks)
- 4.5 List three advantages of plant tissue culture. (15 marks)
- 4.6 Briefly explain the three main steps in plant tissue culture process. (20 marks)

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