



UNIVERSITY OF RUHUNA – FACULTY OF ALLIED HEALTH SCIENCES
DEPARTMENT OF PHARMACY
THIRD BPHARM PART II EXAMINATION – DECEMBER 2018/JANUARY 2019
PH 3233 PHARMACEUTICAL BIOTECHNOLOGY (SEQ)

TIME: TWO HOURS

INSTRUCTIONS

- There are four (04) questions in Part A, B and C of SEQ paper.
- Answer **each part in separate booklet provided.**
- No paper should be removed from the examination hall.
- Do not use any correction fluid.
- Use illustrations where necessary.

Part A

01.

- 1.1. Briefly explain the restriction endonucleases, giving **three** examples. **(30 marks)**
- 1.2. Write the sequence of recognition site and the type of cut ends of restriction endonucleases mentioned in 1.1. **(20 marks)**
- 1.3. Giving an example describe the nomenclature of restriction endonucleases. **(20 marks)**
- 1.4. Describe the function of restriction endonucleases in a bacterial cell. **(30 marks)**

02.

- 2.1. What is meant by “DNA sequencing”? **(10 marks)**
- 2.2. List different methods used in DNA sequencing. **(10 marks)**
- 2.3. Describe the sequencing method used in Human Genome Project. **(40 marks)**
- 2.4. Briefly describe the benefits of Human Genome Project. **(25 marks)**
- 2.5. What is 1000 Genome project? **(15 marks)**

Part B

03. Answer the following questions.

- 3.1. Briefly discuss the advantages of fermentation in food and pharmaceutical industries. **(25 marks)**
- 3.2. Briefly discuss Single Cell Proteins (SCP) and secondary metabolites. **(25 marks)**
- 3.3. What conditions should be optimized in laboratory scale for development of a fermentation process of a new strain? **(25 marks)**
- 3.4. What are the main considerations in selecting a fermentation media? **(25 marks)**

04.

4.1. Answer the following questions.

4.1.1. Giving **one** example of enzymes each, briefly explain the applications given below.

4.1.1.1. Analytical uses. (10 marks)

4.1.1.2. Therapeutic uses. (10 marks)

4.1.1.3. Industrial uses. (10 marks)

4.1.2. Briefly explain the benefits of plant based pharmaceuticals. (20 marks)

Part C

4.2.

4.2.1. Write a **brief note** on molecular pharming. (15 marks)

4.2.2. Write a **brief note** on applications of stem cell therapy. (10 marks)

4.2.3. Control of microbial contamination is important in cell culture. List the measurements which should be controlled for microbial contamination in cell culture? (10 marks)

4.2.4. Write a short note on **animal cell culture technique** and applications. (15 marks)

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