

Allied Health Sciences

**UNIVERSITY OF JAFFNA, SRI LANKA**  
**FACULTY OF ALLIED HEALTH SCIENCES**  
**FOURTH YEAR FIRST SEMESTER EXAMINATION IN BPharmHons - 2020**  
**PHABT 4144 PHARMACEUTICAL BIOTECHNOLOGY**  
**PART II**

Date: 28 JUN 2022

Time: 02 Hours

Answer all six questions.

Answer part A and part B in separate answer books.

**PART A**

1. 1.1 Name **two (02)** yeast species that are used in the ethanol production by fermentation. (10 Marks)
- 1.2 Write the chemical reaction which is taking place in glucose fermentation by yeast. (10 Marks)
- 1.3 1.3.1 Name **two (02)** by-products obtained during the ethanol production by yeast. (10 Marks)
- 1.3.2 State **one (01)** use of each by-products mentioned in 1.3.1. (10 Marks)
- 1.4 Briefly explain the process of ethanol production by glucose fermentation by yeast. (60 Marks)
  
2. 2.1 Name **four (04)** insulin analogues. (20 Marks)
- 2.2 List the advantages and disadvantages of insulin analogues. (20 Marks)
- 2.3 Write short note on the followings. (30 Marks)
- 2.3.1 Attenuated live vaccines. (30 Marks)
- 2.3.2 Sub unit vaccines. (30 Marks)
  
3. 3.1 List the applications of monoclonal antibodies. (10 Marks)
- 3.2 3.2.1 State the steps involved in the monoclonal antibody production. (10 Marks)
- 3.2.2 Briefly explain each of the steps mentioned in 3.2.1. (40 Marks)
- 3.3 Describe the direct immunofluorescence technique. (40 Marks)

**PART B**

4. 4.1 Explain the steps involved in the purification of DNA. (60 marks)
- 4.2 Briefly discuss the principle of gel electrophoresis. (40 marks)
  
5. 5.1 Define recombinant DNA technology. (20 marks)
- 5.2 Discuss the techniques and procedures involved in recombinant technology. (60 marks)
- 5.3 Write down the limitations of DNA recombinant technology. (20 marks)
  
6. 6.1 Give the functions and uses of the following enzymes in modifying DNA. (50 Marks)
- 6.1.1 Ligase (5 Marks)
- 6.1.2 Alkaline phosphatase (5 Marks)
- 6.1.3 Exonuclease (5 Marks)
- 6.1.4 DNA polymerase (5 Marks)
- 6.1.5 Topoisomerase (5 Marks)
- 6.2 Write short note on (50 Marks)
- 6.2.1 Cell suspension culture (50 Marks)
- 6.2.2 Protoplast fusion (25 Marks)