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UNIVERSITY OF RUHUNA – FACULTY OF ALLIED HEALTH SCIENCES

DEPARTMENT OF PHARMACY

FOURTH BPHARM PART I EXAMINATION – DECEMBER 2017

PH 4141 CELL BIOLOGY AND IMMUNOLOGY (SEQ)

TIME: TWO HOURS

INSTRUCTIONS

- There are **four (04)** questions in the SEQ paper.
- Answer **all** questions in the books provided.
- No paper should be removed from the examination hall.
- Do not use any correction fluid.
- Use illustrations where necessary.

1. Answer **all** parts.
   - 1.1. State the main immunological cells involved in immune system. (***40 marks***)
   - 1.2. State the role of major organs involved in development of immune responses. (***30 marks***)
   - 1.3. Define an antibody, immunogen and adjuvant. (***15 marks***)
   - 1.4. Briefly describe
     - 1.4.1. Hypersensitivity reactions.
     - 1.4.2. Principles of auto immune reactions.
     - 1.4.3. Mechanism of graft rejection. (***15 marks***)

2. Answer **all** parts.
   - 2.1. List **five** major immunological barriers seen in the human innate immune system. Indicate one immune function of an each barrier. (***25 marks***)
   - 2.2. Write notes on mechanisms of adaptive immune response in a human body. (***25 marks***)
   - 2.3. Describe the principles of cell mediated immune reactions. (***25 marks***)
   - 2.4. Explain the theory of "Antigenic stimulation of clonal selection of B Cells". (***25 marks***)

3. Answer **all** parts.
   - 3.1. Illustrate the basic structure of an antibody. (***20 marks***)
   - 3.2. Distinguish monoclonal antibodies and polyclonal antibodies and mention **two** advantages of each. (***30 marks***)
   - 3.3. Write a short account on antibody production. (***30 marks***)
   - 3.4. What is immunohisto-chemistry? List the key steps of an immune-staining protocol of a tissue. (***20 marks***)

4. Answer **all** parts.

4.1. Briefly describe the structure and the functions of nucleus. ***(20 marks)***

4.2. Briefly describe **two** mechanisms involved in creating genetic diversity in meiosis. ***(30 marks)***

4.3. Define the term "gene". ***(10 marks)***

4.4. State the reason for terming DNA replication as "semi-conservative replication of DNA". ***(20 marks)***

4.5. New strain of bacteria has been identified. If the DNA content of this organism's cells is 17% of adenine, what could be the percentage of guanine in this organism's genome? Explain your answer. ***(20 marks)***

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