UNIVERSITY OF RUHUNA – FACULTY OF MEDICINE
ALLIED HEALTH SCIENCES DEGREE PROGRAMME
FOURTH BPHARM PART I EXAMINATION – DECEMBER 2016
PH 4141 CELL BIOLOGY AND IMMUNOLOGY (SEQ)

TIME: TWO HOURS

INSTRUCTIONS

- Answer **all** questions.
- No paper should be removed from the examination hall.
- Do not use any correction fluid.
- Use illustrations where necessary.

1.

1.1 List the components of plasma protein subsystems and cellular systems contributing to non-adaptive immunity. (*25 marks*)

1.2 What is complement system? What are the **three** ways that the compliment system can be activated? (*25 marks*)

1.3 What is the function/s of dendritic cells? (*25 marks*)

1.4 Discuss the role of natural killer cells in the immune system. (*25 marks*)

2.

2.1 Briefly describe the contribution of antibodies to the body defense. (*30 marks*)

2.2 Write a brief description on major classes of immunoglobulins. (*40 marks*)

2.3 What are the functions of helper T Cells and cytotoxic T Cells? (*30 marks*)

3.

3.1 Briefly explain cellular and humoral immune response. (*40 marks*)

3.2 Briefly explain inflammation and how inflammatory response can be assessed in an animal model? (*40 marks*)

3.3. You are supposed to stain KI67 molecule in a liver tissue using suitable immunostaining method. Indicate the key steps of your method. (*20 marks*)

4.

4.1 List **five** differences between the prokaryotic and eukaryotic cells. (*15 marks*)

4.2 Describe the structure of a DNA nucleotide and explain how nucleotides join together to form double helical DNA molecule. (*30 marks*)

4.3 State the role of enzymes given below in the process of DNA replication. (*20 marks*)

    4.3.1 DNA helicase

    4.3.2 DNA gyrase

    4.3.3 DNA ligase

    4.3.4 DNA proof reading and repair enzyme

4.4 Describe the mechanism known as "alternative splicing" in the process of protein synthesis. (*10 marks*)

4.5 Name the starting and termination codons in the protein synthesis. (*10 marks*)

4.6 Define following mutations due to base-pair substitution. (*15 marks*)

    4.6.1 Silent

    4.6.2 Missense

    4.6.3 Nonsense

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