



UNIVERSITY OF RUHUNA – FACULTY OF ALLIED HEALTH SCIENCES

DEPARTMENT OF PHARMACY

FIRST BPHARM PART I EXAMINATION – JULY 2018

PH 1123 BIOCHEMISTRY I (SEQ)

TIME: TWO HOURS

INSTRUCTIONS

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

PART A

1.

1.1.

1.1.1. State the factors that affect the rate of an enzyme–substrate reaction. (10 marks)

1.1.2. Define the term “ K_m value”. (10 marks)

1.1.3. State the effects of K_m on enzyme-substrate reaction. (10 marks)

1.2. Explain briefly the biochemical basis for the development of respiratory failure in organophosphate poisoning. (30 marks)

1.3. State **two** mechanisms by which enzyme activity is regulated in a cell. (10 marks)

1.4. Describe the mechanism of feedback regulation. (30 marks)

2.

2.1. State the types of lipoproteins present in a non-fasting sample of blood and state their primary function. (05 marks)

2.2. Explain briefly the endogenous fatty acid biosynthesis. (15 marks)

2.3. State **two** essential fatty acids for humans. (05 marks)

PART B

2.4. Uniport and co-transport systems can co-exist in some instances and transport the same molecule.

2.4.1. State the functions of uniporters and symporters in the transport mechanism. (10 marks)

2.4.2. Briefly explain the importance of the transport systems mentioned in 2.4.1 in the management of severe diarrhoea using oral rehydration solution (ORS) which contains both glucose and NaCl. (20 marks)

2.5. Explain briefly the role of uncouplers in oxidative phosphorylation. (20 marks)

PART C

2.6. Explain briefly.

Vitamin K supplementation is recommended for all newborn babies shortly after birth.

(25 marks)

3.

3.1. State **two** by-products of the hexose monophosphate pathway and their biochemical significance.

(20 marks)

By-product	Biochemical significance

3.2. Explain briefly the biochemical basis for the development of hemolytic anaemia in glucose 6-phosphate dehydrogenase deficiency.

(50 marks)

3.3. List **two** mechanisms involved in the regulation of blood glucose concentration in the post-absorptive state.

(10marks)

3.4. State the significance of glucose 6-phosphatase enzyme in carbohydrate metabolism.

(20 marks)

PART D

4.

4.1. Describe briefly the arrangement of DNA in a eukaryotic cell.

(25 marks)

4.2. State **four** differences between meiosis and mitosis.

(12 marks)

4.3. Write a short note on mitosis.

(18 marks)

4.4. Define the term "metastasis".

(15 marks)

4.5. Describe briefly the process of angiogenesis of metastatic tumours.

(30 marks)

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