

UNIVERSITY OF JAFFNA, SRI LANKA  
FACULTY OF ALLIED HEALTH SCIENCES



FIRST YEAR FIRST SEMESTER BASIC SCIENCES EXAMINATION-MARCH 2021

AHSBB 1146 – BASIC BIOCHEMISTRY

PAPER II

Date: 19.04.2021

Time: 2 Hours

ANSWER ALL SIX QUESTIONS ON SEPARATE ANSWER BOOK.

Marks allotted to each part are given within brackets.

1. 1.1 Explain the following conditions
    - 1.1.1 diabetes mellitus type II. (20 Marks)
    - 1.1.2 pre-diabetes (10 Marks)
  - 1.2 Give the fasting and postprandial blood glucose levels to confirm that a person is diabetic or pre-diabetic. (20 Marks)
  - 1.3 Name the test that is carried out to confirm gestational diabetes and explain how a pregnant woman can be prepared for the above mentioned test. (30 Marks)
  - 1.4 Explain how the haemoglobin involves in maintaining the blood pH. (20 Marks)
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2. 2.1 Diagrammatically show the formation and catabolism of VLDL. (35 Marks)
  - 2.2 Explain how cholesterol is catabolised. (25 Marks)
  - 2.3 Give the serum electrophoretic pattern of a nephrotic syndrome patient. Explain the causes for the variation in the electrophoretic pattern of the nephrotic syndrome patient from that of a normal pattern. (20 Marks)
  - 2.4 Explain how the oxidative phosphorylation is regulated at cellular level. (20 Marks)

3. 3.1 Explain the causes for the appearance of bilirubin in urine. (35 Marks)
- 3.2 Explain how thyroid hormone is produced in the thyroid gland. (35 Marks)
- 3.3 Explain how ammonia is detoxified in human body. (30 Marks)
4. 4.1 Diagrammatically show the alterations in plasma non-functional enzyme levels after myocardial infarction. (20 Marks)
- 4.2 Diagrammatically show the changes in serum enzyme levels after myocardial infarction. (20 Marks)
- 4.3 Write short notes on
- 4.3.1 Effect of snake bite on plasma membrane. (10 Marks)
- 4.3.2 Biochemical importance of cholesterol. (20 Marks)
- 4.4 Discuss the importance of "exclusive breast feeding" (30 Marks)
5. 5.1 Explain the alteration of  $V_{max}$  and  $K_m$  in the presence of a competitive inhibitor of an enzyme. (20 Marks)
- 5.2 Show how SGLT2 inhibitors are useful to treat diabetic patients. (10 Marks)
- 5.3 Explain the role of insulin in protein synthesis. (40 Marks)
- 5.4 Show the action of the following anticancer drugs
- 5.4.1 Methotrexate. (15 Marks)
- 5.4.2 5 Fluorouracil. (15 Marks)
6. 6.1 Show how the dietary vitamin  $B_{12}$  is absorbed in intestine. (20 Marks)
- 6.2 Give the biochemical functions of vitamin  $B_{12}$ . (30 Marks)
- 6.3 Liver cirrhosis causes impaired dark adaptation. Explain. (30 Marks)
- 6.4 Give the nutritional importance of green leafy vegetables. (10 Marks)
- 6.5 Give the nutritional benefits of pulses. (10 Marks)

