

UNIVERSITY OF JAFFNA, SRI LANKA  
FIRST YEAR FIRST SEMESTER EXAMINATION - 2021

AHSBB1146 – BASIC BIOCHEMISTRY

PAPER II



19.12.2022

Time: 2 Hours

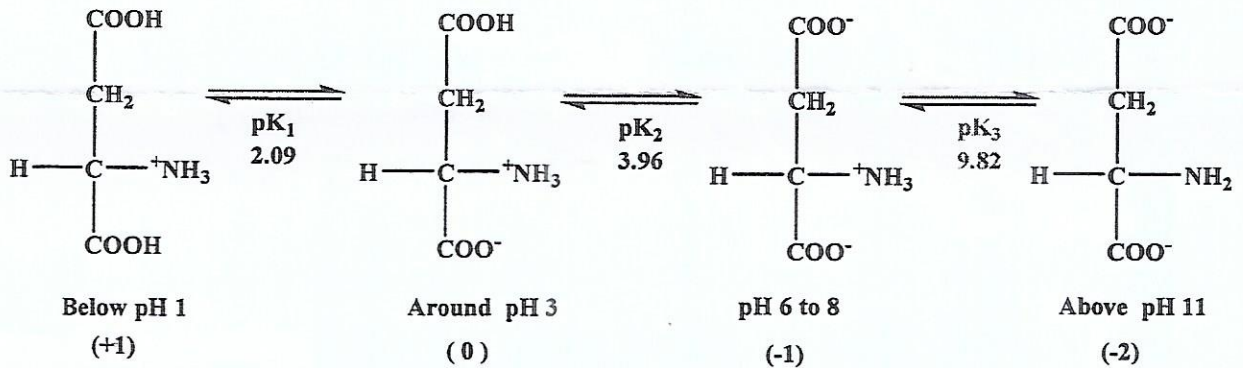
Answer All Six Questions.

Answer Each Question in Separate Answer Books.

1. 1.1 1.1.1 List five hormones which help to maintain the blood glucose level. (15 Marks)
- 1.1.2 Explain how the above said hormones maintain the blood glucose level. (40 Marks)
- 1.1.3 Give the expected fasting and postprandial blood glucose and glycosylated haemoglobin levels of a normal person. (20 Marks)
- 1.2 Explain the biochemical basis of treating myasthenia gravis patients with neostigmine. (25 Marks)
  
2. 2.1 2.1.1 List the apoproteins and their functions. (25 Marks)
- 2.1.2 Diagrammatically show the metabolism of chylomicron. (25 Marks)
- 2.2 Explain why pancreatic insufficiency causes steatorrhoea. (25 Marks)
- 2.3 How do the constituents of Oral Rehydration Salt (ORS) benefit diarrhoeal patients? (25 Marks)

3. 3.1 Give the biochemical basis of physiological jaundice in a new born. (20 Marks)
- 3.2 Give the expected changes in the above new born on
- 3.2.1 different fractions of bilirubin in blood. (15 Marks)
- 3.2.2 bilirubin and urobilinogen in urine. (15 Marks)
- 3.2.3 bile salt in urine. (10 Marks)
- 3.3 A 30-year old woman from Nuwara Eliya district had the plasma  $T_4$  level of 40nmol/L (normal 65-130nmol/L). She was a strict vegetarian and consumed only upcountry vegetables. Intake of iodized salt has improved plasma  $T_4$  level. A survey carried out in that particular area revealed that many of the residents had lower plasma  $T_4$  level.
- 3.3.1 What could be the probable condition in the female mentioned above? (10 Marks)
- 3.3.2 Explain with the help of a labelled diagram, how the intake of iodized salt improved her condition. (30 Marks)
4. 4.1 Explain the biochemical basis of treating leukaemia patients with folic acid antagonists. (30 Marks)
- 4.2 Give the structure of an immunoglobulin and explain how the structure suits for its function. (25 Marks)
- 4.3 Explain how ammonia is detoxified in the brain? (25 Marks)
- 4.4 Even though the NADH is not transported through the inner mitochondrial membrane, the NADH formed in the cytoplasm is oxidized in the mitochondria. Explain. (20 Marks)
5. 5.1 List the adverse effects of feeding unmodified cow milk to infants who are less than three months old. (50 Marks)
- 5.2 Estimated energy requirement of a sedentary male of 40 years with 75kg body weight and 160cm height was 2000kcal/day.
- 5.2.1 Calculate his BMI. (15 Marks)
- 5.2.2 Comment on his current BMI. (15 Marks)
- 5.2.3 Suggest life style modification to correct his BMI. (20 Marks)

6. 6.1 What is meant by Isoelectric point (pI) of an amino acid. (10 Marks)
- 6.2 The pKa values of the dissociable groups of aspartic acid are given below. Explain how the Isoelectric pH of aspartic acid can be calculated. (20 Marks)



- 6.3 Give the basic principle of electrophoresis. (25 Marks)
- 6.4 Explain how the pI values are useful in the separation of proteins by electrophoresis. (15 Marks)
- 6.5 6.5.1 What is meant by TIBC? (10 Marks)
- 6.5.2 Explain the changes in the levels of TIBC in pregnant mothers, iron deficiency anaemic patient and in hemochromatosis. (20 Marks)

