

UNIVERSITY OF JAFFNA, SRI LANKA

First Year Second Semester Examination in BPharmHons - 2020

PHABP 1222 – BIOCHEMISTRY FOR PHARMACY II

(15<sup>th</sup> Batch)

PAPER- II

05.09.2022

Time: 2 hours

Answer All Questions.

Answer Each Question on separate answer Books.

1. 1.1 A labourer aged 45 years had collapsed while working and was admitted to the hospital. Analysis of his blood revealed 82 mmol/L alcohol (legal Limit for motor car drivers is 17.4mmol/L), 2.8 mmol/ L glucose (normal blood glucose is 3.3-8.4 mmol/L) and 2.8 mmol/L lactate (normal blood lactate 3.3-8.4 mmol/L). Explain the occurrence of hypoglycaemia in this patient. (55 Marks)
- 1.2 Give the biochemical basic of the following conditions and explain the complication arising from the biochemical defect/s.
  - 1.2.1. Galactosemia (25 Marks)
  - 1.2.2. Lactose intolerance (20 Marks)
2. 2.1 List the principal hormones, which influence the breakdown of triacylglycerol in adipocytes. (20 Marks)
- 2.2 Show schematically how the above said hormones increase lipolysis in adipocytes. (60 Marks)
- 2.3 Indicate in your scheme given for 4.2
  - 2.3.1. activation of an enzyme by covalent modification
  - 2.3.2. allosteric activation of an enzyme (20 Marks)

3. 3.1 Name three different sources of blood ammonia? (15 Marks)
- 3.2 Show diagrammatically how the ammonia from alanine can get into citrulline. (45 Marks)
- 3.3 Schematically show the amino acids which predominate in the blood and explain why they are altered
- 3.3.1 during the first two hours after a meal.
- 3.3.2 about 12 hours after the last meal. (40 Marks)
4. 4.1 Skin of a 13 year old boy was very sensitive on exposure to sunlight. His skin fibroblast cell culture was UV irradiated and the extracted DNA had abnormally high percentage of thymine dimers.
- 4.1.1 What is the probable defect in this boy? (10 Marks)
- 4.1.2 Diagrammatically show how intra-chain thymine dimers in DNA are repaired in a normal individual? (30 Marks)
- 4.1.3 Summarise the mechanisms involved in the causation of the disease? (15 Marks)
- 4.2 A male child had mental retardation and extremely aggressive behaviour that lead to self-mutilation. The serum uric acid level was elevated with increased PRPP amidotranferase activity.
- 4.2.1 Give the probable defect in this child. (10 Marks)
- 4.2.2 Explain the biochemical basis and the complications which can arise due to the above mentioned condition. (35 Marks)
5. 5.1 5.1.1 A 48 year old male admitted to the hospital was diagnosed to have angina pectoris (A coronary artery disease, with a large atherosclerotic plaque obstructing the left anterior descending coronary artery). The obstruction was relieved. Following discharge he was advised to take a single aspirin a day. Explain the basis of this aspirin therapy. (40 Marks)
- 5.1.2 Give the dietary advice to the patient to which he should follow after the surgery. (30 Marks)
- 5.2 Explain supplementary action of proteins with examples for a vegetarian and non-vegetarian. (30 Marks)

6. Estimated energy requirement of a sedentary male of 40 years with 75kg body weight and 160cm height was 2000kcal/day.
- 6.1 Comment on his current BMI. (10 Marks)
- 6.2 Suggest life style modification to correct his BMI. (30 Marks)
- 6.3 Explain the basis of formulating a healthy diet plate for the above man and the importance of the ingredients suggested in the plate. (60 Marks)