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UNIVERSITY OF JAFFNA, SRI LANKA.

FACULTY OF MEDICINE

FIRST EXAMINATION FOR MEDICAL DEGREES –AUGUST 2014

BIOCHEMISTRY PAPER II

Date: 12.08.2014

Time: 3 Hours

Answer all TEN questions.

Answer Part A and Part B in separate Answer Books

Marks allotted to each part are given in brackets.

PART A

1. A 50 year old overweight male complained of loss of weight and passing more urine than usual. His urine gave a reddish yellow color for Benedict's test.
  - 1.1 Describe the oral glucose tolerance test and the principle involved in the estimation of glucose by the enzymatic method. (30 Marks)
  - 1.2 Graphically show how the oral glucose tolerance curve of this patient will differ from that of a normal curve. Explain (25 Marks)
  - 1.3 Indicate below the time axis the results of the Benedict's test with the urine obtained at various times of this test. Explain. (15 Marks)
  - 1.4 Explain the loss of weight and passing more urine than normal. (30 Marks)
  
2.
  - 2.1 Plasma free fatty acids are increased in starvation. Explain. (35 Marks)
  - 2.2 How does liver differ from other tissues in dealing with free fatty acids in blood, formed during starvation? (35 Marks)
  - 2.3 What are the roles of apoproteins in the metabolism of lipoproteins? (30 Marks)

3. 3.1 Discuss the factors which affect the oxygen dissociation curve.  
(30 Marks)
- 3.2 3.2.1 Explain qualitative haemoglobinopathy taking sickle cell anemia as an example.  
(30 Marks)
- 3.2.2 Explain the changes in conjugated and unconjugated bilirubin levels in this patient and how these parameters would be measured.  
(40 Marks)
4. 4.1 4.1.1 How would you differentiate hyperthyroidism and hypothyroidism in patients with goiter? Give the biochemical basis for your explanation.  
(40 Marks)
- 4.1.2 Explain the basis of occurrence of thyrotoxicosis and its complication.  
(30 Marks)
- 4.2 Give the biochemical basis of treating asthmatic patients with steroids.  
(30 Marks)
5. 5.1 A patient with cirrhosis was admitted to a hospital. With relevant medical investigations he was intravenously administered with  $\alpha$ -ketoglutarate and pyruvate.
- 5.1.1 Explain with reasons for the administration of  $\alpha$ -ketoglutarate and pyruvate.  
(30 Marks)
- 5.1.2 For the advanced cases glucose administration is preferred than  $\alpha$ -ketoglutarate and pyruvate, give reasons with explanation.  
(35 Marks)
- 5.2 A 60 year male had severe chest pain and was admitted to the hospital immediately after the pain. His ECG was abnormal and he was diagnosed to have had myocardial infraction.
- 5.2.1 Diagrammatically show the serum enzymes pattern of this patient.  
(20 Marks)
- 5.2.2 Which fraction of the creatine kinase is elevated in this patient?  
(15 Marks)

