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FACULTY OF ALLIED HEALTH SCIENCES, UNIVERSITY OF RUHUNA
Department of Medical Laboratory Science
Year End Examination, Year 1- 2016/2017 (11th Batch)
MLS 1102 - Cell Biology and Biochemistry - SEQ

24th August 2020

Time: 9.00 a.m. - 11.00 a.m.

Duration: 2 hours

Answer any **four** questions out of the five questions given. **Index Number:**

113

1. Explain the biochemical basis of the following.
 - 1.1 Administration of frequent small meals in glucose 6-phosphatase deficiency. (25 marks)
 - 1.2 Occurrence of hemolytic anemia in Pyruvate Kinase deficiency. (25 marks)
 - 1.3 Restriction of protein intake in carbamoyl phosphate synthase I deficiency. (25 marks)
 - 1.4 Recommendation of zinc supplementation for a patient after a major surgery. (25 marks)

2. Write short notes on the following.
 - 2.1 Pentose phosphate pathway (25 marks)
 - 2.2 Gluconeogenesis (25 marks)
 - 2.3 Post transcriptional modifications of RNA (25 marks)
 - 2.4 Role of insulin in the regulation of post prandial blood glucose concentration (25 marks)

3.
 - 3.1 State the significance of iodine as a mineral element in the body. (10 marks)
 - 3.2 Name three rich dietary sources of iodine. (15 marks)
 - 3.3 Name three causes for hypothyroidism. (15 marks)
 - 3.4 What is the significance of estimating serum TSH concentration? (20 marks)
 - 3.5 By using clearly labeled diagram explain the molecular mechanisms involved in the action of thyroid hormones. (40 marks)

4.
 - 4.1 Discuss the biochemical significance of the following enzymes.
 - 4.1.1 Glucokinase (25 marks)
 - 4.1.2 Alanine Amino Transferase (ALT) (25 marks)

 - 4.2 The Lesch-Nyhan syndrome is a genetic disease caused by the deficiency of an enzyme.
 - 4.2.1 Name the enzyme associated with this disease. (10 marks)

- 4.2.2 State three biochemical changes that would occur in a patient with the deficiency of the enzyme stated in 4.2.1. (15 marks)
- 4.3 Explain the use of Allopurinol in the treatment of gout. (25 marks)
- 5.
- 5.1 List three functions of apolipoproteins (15 marks)
- 5.2 Explain the following.
- 5.2.1 High density lipoprotein cholesterol (HDL) is referred to as 'good cholesterol'. (30 marks)
- 5.2.2 The role of dietary fiber in lowering serum cholesterol concentration. (30 marks)
- 5.3 Explain the occurrence of fatty liver in a chronic alcohol user. (25 marks)