precocious puberty.

5.4

FACULTY OF MEDICINE, UNIVERSITY OF RUHUNA, GALLE.

Second Examination for Medical Degrees -April / May 2004

BIOCHEMISTRY - PAPER II

Wednesday 21st April 2004

2.00 pm to 5.00 pm
(3 hours)

Answer **all six** questions.

Marks allotted to each part of a question is shown within parenthesis.

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1. 1.1 A normal term baby developed jaundice on the third day of life with a bilirubin concentration of 150 µmol/L. No other clinical abnormality was detected.

   1.1.1 Explain this observation. *(20 marks)*

   1.1.2 Giving the biochemical basis explain the measures that could be taken to reduce hyperbilirubinaemia in the baby. *(30 marks)*

   1.2 Explain the occurrence of goiter in iodine deficiency. *(50 marks)*

2. Explain the biochemical importance of the following.

   2.1 L-Glutamate dehydrogenase. *(25 marks)*

   2.2 Alanine transaminase. *(25 marks)*

   2.3 Carbamoyl phosphate synthase 1. *(25 marks)*

   2.4 Glucokinase. *(25 marks).*

3. 3.1 Name the tissues that supply chylomicrons (CM), very low density lipoproteins (VLDL) and free fatty acids (FFA) to the plasma. *(10 marks)*

   3.2 Describe the differences in the concentration of the above between the post absorptive plasma of a severe diabetic patient and a normal person.

   Explain how these differences occur. *(60 marks)*

   3.3 Explain the functions of the following enzymes in cholesterol metabolism

   3.3.1 Lecithin:Cholesterol Acyl Transferase (LCAT) *(15 marks)*

   3.3.2 Acyl COA:Cholesterol Acyl Transferase (ACAT) *(15 marks)*

Contd...2

4. 4.1 Describe the structure of the haemoglobin molecule and explain how it functions as an oxygen transport protein. *(60 marks)*

4.2 Explain how foetal haemoglobin differs in structure and function from adult haemoglobin. *(20 marks)*

4.3 Explain the physiological importance of the differences mentioned in 4.2. *(20 marks)*

5. Explain the biochemical basis of the following.

5.1 A chronic alcoholic develops lactic acidosis after the administration of a glucose infusion. *(25 marks)*

5.2 The primary transcripts of mRNA are processed before they become functional. *(25 marks)*

5.3 The action of cholera toxin is mediated by G-protein. *(25 marks)*

5.4 The pentose phosphate pathway plays an important role in the antioxidant defense of red blood cells. *(25 marks).*

6. Give biochemical explanations for the following.

6.1 Keretomalacia develops in vitamin A deficiency. *(25 marks)*

6.2 Vitamins E and C co-operate in antioxidant activity. *(25 marks)*

6.2 High energy high protein diets are given to a person convalescing from a severe infection. *(25 marks)*

6.4 Folate analogues are used as anti-tumour as well as antibacterial agents. *(25 marks).*

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