# UNIVERSITY OF RUHUNA, FACULTY OF MEDICINE,
## Second Examination for Medical Degrees Nov/Dec 2005
## BIOCHEMISTRY PAPER II

**Friday, 02nd December 2005** **2.00 p.m. - 5.00 p.m.**

**Answer All Six Questions.** **( 3 hours)**

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

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1 1.1 List the principle components of a VLDL particle. ***(10 marks)***

1.2 Describe how a VLDL particle is formed. ***(30 marks)***

1.3 Discuss the effects on the metabolism of VLDL in the following conditions.

1.3.1 Excessive alcohol intake. ***(20 marks)***

1.3.2 Poorly controlled diabetes mellitus. ***(20 marks)***

1.3.3 Glycogen storage disease (type I) ***(20 marks)***

2. 2.1 Describe the importance of α-ketoglutarate in amino acid metabolism. ***(50 marks)***

2.2 Explain the biochemical basis of administering the following in severe liver disease.

2.2.1 A low protein diet. ***(25 marks)***

2.2.2 Neomycin. ***(25 marks)***

3. 3.1 Giving <u>one</u> example explain the importance of estimating the following.

3.1.1 C-reactive protein (CRP) ***(25 marks)***

3.1.2 Bence-Jones protein (BJP) ***(25 marks)***

3.2 Explain how the following mediate their actions through cAMP.

3.2.1 Several hormones acting on the same tissue ***(25 marks)***

3.2.2 Cholera toxin ***(25 marks)***

4. Give biochemical explanations for the following.

4.1 Cataract, neuropathy, nephropathy and atherosclerosis are common complications of uncontrolled diabetes mellitus ***(50 marks)***

4.2 Examination of blood and urine are important in the differential diagnosis of haemolytic and obstructive jaundice. ***(50 marks)***

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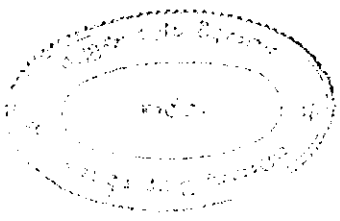

5 Explain the biochemical basis of the following.

5.1 Uniqueness of breast milk in offering protection to a newborn baby against infection. ***(25 marks)***

5.2 *In vitro* amplification of genes is used in the diagnosis of AIDS. ***(25 marks)***

5.3 Child fed on a low protein, low energy diet for a prolonged period developed extreme wasting without oedema. ***(25 marks)***

5.4 Severely epileptic children are at a great risk of developing rickets. ***(25 marks)***

6 An adult female complained of lethargy and breathlessness on physical exertion. Her blood report is as follows.

| **Analyte** | **Patient's value** | **Normal** |
|---|---|---|
| Serum iron µg/dL | 40 | 50 -175 |
| Serum ferritin µg/L | 15 | 20 -120 |

6.1 Comment on the results of plasma analytes and discuss the iron status of the patient ***(30 marks)***

6.2 Discuss the additional tests that can be done to confirm your deductions. ***(30 marks)***

6.3 Giving reasons, state the dietary advice you would offer this patient. ***(40 marks)***

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