



UNIVERSITY OF JAFFNA, SRI LANKA

FIRST EXAMINATION (I) FOR MEDICAL DEGREES –FEBRUARY 2010

BIOCHEMISTRY PAPER II

Date: 02.02.2010

Time: 3 Hours

9.00am – 12.00 noon

ANSWER ALL TEN QUESTIONS.

1. 1.1 Explain how the NADH produced in the cytosol is reoxidized.
(40 Marks)
- 1.2 'Lactating mammary gland has active pentose phosphate pathway'. Explain with reasons.
(60 Marks)
2. 2.1 Discuss the basis of using HMGCoA reductase inhibitors and their uses.
(40 Marks)
- 2.2 A 35 year old non-vegetarian bank officer, weighing 90kg, living in Jaffna has elevated VLDL and LDL levels. For him to reduce his VLDL and LDL levels what dietary guideline would you give?
(60 Marks)
3. 3.1 3.1.1 Give the mechanisms through which body proteins are catabolised.
(50 Marks)
- 3.1.2 How the amino acid metabolism is altered under starvation?
(50 Marks)
4. 4.1 Explain the basis of the effect of lead on the haem biosynthesis and its consequences.
(60 Marks)
- 4.2 Discuss the conditions under which serum alkaline phosphatase activity is elevated: give reasons.
(40 Marks)

5. 5.1 Discuss the prenatal diagnosis using karyotyping for Down's syndrome as an example. (50 Marks)
- 5.2 List the benefits of 'Human Genome Project' in molecular medicine. (20 Marks)
- 5.3 Write short notes on
- 5.3.1 Silent mutation (10 Marks)
- 5.3.2 Nonsense mutation (10 Marks)
- 5.3.3 Missense mutation (10 Marks)
6. 6.1 Two old ladies are claiming for a 2 year old female child living in an orphanage as their grand daughter. Give the molecular basis to establish the specific biological lineage in this case to identify the grandmother: Explain. (30 Marks)
- 6.2 Give two enzyme inhibitors, which are used to inhibit DNA synthesis in the leukaemic cells and explain the biochemical basis of their action. (70 Marks)
7. 7.1 7.1.1 Explain how vitamin A deficiency causes xerophthalmia. (25 Marks)
- 7.1.2 Explain the biochemical basis of delayed dark adaptation in patients with liver cirrhosis? (45 Marks)
- 7.2 Discuss how the alteration in the composition of bile induces gall stone formation. Explain. (30 Marks)
8. 8.1 Explain the calcium homeostasis in a normal individual. (50 Marks)
- 8.2 Give the biochemical basis of aspirin on preventing platelet aggregation. (50 Marks)

9. 9.1 Show diagrammatically
- 9.1.1 B cell activation by T cell. (25 Marks)
 - 9.1.2 activated B cells producing monoclonal antibodies. (35 Marks)
- 9.2. Explain how HIV infection affects the above process (40 Marks)
10. 10.1 Give reasons for the decrease in glucose tolerance during pregnancy. (35 Marks)
- 10.2 Give a confirmatory test for gestational diabetes. (40 Marks)
 - 10.3 Provide the dietary guidelines to the above mother. (25 Marks)