

SS/MBBS/BIO-I/7-16**First Professional MBBS Examination****2016****(July)****BIOCHEMISTRY****Paper-I****Full Marks: 50****Time: 2 hours****The figures in the margin indicate****full marks for the questions****Write the answers to the two Halves in separate books****Answer all questions****FIRST HALF**

1. Discuss the organization of protein structure. Give an account of the determination of primary structure of proteins. (6+2=8)

2. Write short notes on any three of the following : (4 x 3 = 12)

(a) Fluid mosaic model of membrane structure

(b) Structure of tRNA

(c) Applications of radioisotopes in biochemistry

(d) Nucleosome

3. An African boy (12 years) studying in an Indian school was admitted in a hospital with complaints of fever and severe pain in arms and legs. On examination, he was found to have hepatosplenomegaly. Lab findings are Hb—

7 g/dl (Ref. 14-16 g/dl) and haematocrit—20% (Ref. 40%-50%). Haemoglobin electrophoresis shows a distinct HbS band with slower movement than adult haemoglobin (HbA) and microscopic examination of blood smear shows a crescent (sickle)-shaped erythrocytes.

- (a) Give a probable diagnosis. 1
- (b) What is the molecular basis of the disease? 2
- (c) What are the abnormalities associated with HbS? 2

SECOND HALF

4. What are coenzymes? Write an account of the importance of serum enzymes in the diagnosis of disease. 2+6=8

5. Write short notes on any three of the following: 4×3=12

- (a) Free radicals
- (b) Biological value of proteins
- (c) Haemoglobinopathies with special reference to sickle cell anaemia
- (d) Major histocompatibility complex (MHC)

6. A school boy, aged 12 years, complained of abdominal pain and was admitted in a hospital with a history of behavioural disturbance and epileptic form of seizures. Clinical examination revealed that the boy had an enlarged liver. His cornea showed the presence of Kayser-Fleischer ring. The laboratory findings were as follows:

Serum copper—40 µg/dl

(Ref. 100-200 µg/dl)

Serum ceruloplasmin—5 mg/dl

(Ref. 25-50 mg/dl)

Urinary copper—200 µg/dl (Ref. <25 µg/dl)

- (a) Give the probable diagnosis. 1
- (b) What are the probable causes of the disease? 2
- (c) What is the drug of choice and what is its mechanism of action? 2

SM16—1000/35

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