149-NR

M.D. DEGREE EXAMINATION – APRIL, 2013
BIOCHEMISTRY
Paper-II : Chemistry and Metabolism.

Time: 3 Hours Max. Marks: 100

Note: Answer all questions
All questions carry equal marks

WRITE SHORT ESSAYS ON THE FOLLOWING:

1. Describe the formation and breakdown of Glycogen. Discuss glycogen storage disorders.
2. Discuss the pathway of heme biosynthesis and its regulation.
3. Write briefly on:
   a. Sickle cell hemoglobin
   b. Cellular RNAs
4. Discuss the following:
   a. Inhibitors and uncouplers of oxidative Phosphorylation.
   b. High energy compounds.
5. A 40 year old male was admitted to the hospital with acute chest pain. Clinical evaluation showed it to be myocardial infarction. His fasting lipid profile levels were:
   Total cholesterol 300 mg/dl, HDL – 25mg/dl, triglycerides – 150 mg/dl
   a. Calculate his LDL and VLDL levels and mention the normal levels of lipid profile
   b. Discuss the biochemical basis of the various cholesterol lowering treatments that can be offered to the patient.
6. A new born infant developed hyperammonemia 32 hours after birth. The infant was treated with dietary supplement of benzoate and arginine. Following is the blood report of the infant:
   Citrulline – Low; Arginine-Low; Ammonia-High, Glutamine-High
   a. What is the provisional diagnosis and possible enzyme defect in this patient?
   b. Explain the biochemical basis for altered levels of glutamine and ammonia
   c. What is the basis of treatment with benzoate and why does the defect become apparent only about 3 days after birth?
7. Describe the synthesis of biologically important products from tyrosine. Add a note on associated disorders and discuss the biochemical investigations for the detection of these disorders.
8. Briefly describe:
   a) Thromboxanes
   b) Importance of PRPP
9. Describe the process of eukaryotic transcription. Write the details of post – transcriptional modifications.
10. Discuss the formation and fate of acetyl CoA in the body.