SRI DEVARAJ URS ACADEMY OF HIGHER EDUCATION AND RESEARCH

M B B S Phase I Supplementary Examinations, Jan 2024

Time: 180 Minutes **Max Marks: 80 Marks**

Biochemistry Paper I
QP CODE: C1031

Your answer should be specific to the question asked
Draw neat labeled diagrams wherever necessary

Long Essay 10 × 2 = 20 Marks

1. Describe the sources, three reactions involved in formation & fate of Ammonia. Explain the disorders of ammonia metabolism. (1+4.5+3+ 1.5)

2. Write the steps of HMP shunt pathway. Explain the significance of this pathway? (7+3)

Short Essay 5 × 12 = 60 Marks

3. Define Aldoses. List four examples and write their biomedical importance (1+2+2)

4. Write the dietary sources, daily requirement and coenzyme form of biotin.Name the antagonist of Biotin and write its biomedical importance.(1+1+1+1+1)

5. Describe the cellular effects of reactive oxygen species.

6. A 20-year old female was brought to the Emergency Department with nausea, vomiting and abdominal pain. She had been under a lot of stress with final examinations. In her hostel room, her friends noticed an empty bottle of Acetaminophen near the bed. Laboratory tests revealed hypokalemia and elevated liver enzymes. Her WBC count was normal. Her acetaminophen blood level was above 200 femtogram/mL. She was given a gastric lavage and prescribed oral N-acetylcysteine.a) Name the conjugating agent used in detoxification of Acetaminophen. (1) b) Explain the pathophysiology of liver toxicity in this patient. (4)

7. With aneat labelled diagram explain the structure, function and clinical significance of Endoplasmic reticulum. (2+1+1+1)

8. Mention the role of carbohydrates present in plasma membrane.

9. With a neat labelled diagram, explain the structure and its functions of Ig A

10. How is the nutritive value of Proteins assessed? Briefly describe two methods of assessement What are limiting Amino Acids? (1+2+2)

11. How do you classify amino acids based on the metabolic fate? Give suitable examples for each. (3+2)

12. A 7 month old child fell over while crawling and presented with a swollen leg. History revealed that at the age of one month the baby had multiple fractures in various states of healing in the right clavicle, right humerus. A X-ray taken from the affected leg revealed a fracture of a bowed femur. The bones were thin, with thin cortices. History of child abuse was ruled out by careful questioning from the parents A diagnosis of osteogenesis imperfect made was, which is a condition due to defect in gene encoding Type 1 Collagen. a) What is collagen? (1) b) Describe the Structure of collagen? (2) c) Write the biological functions of collagen. (2)

13. Give the indications for conducting a GTT.Give the reasons for increased glucose tolerance (3+2)

14. A 35-year-old male patient requested examination by an family physician and was tested positive for HIV. The patient sought medical attention on two separate occasions. A medical assistant in the family physician's office was acquainted with the patient. The medical assistant revealed information about the patient's complaint and testing to some of his friends, all of whom knew the patient. The patient found out that his medical information had been disclosed. a) Define confidentiality. b) What is the ethical violation in this and who is responsible for the same? c) What is non-maleficence? (1+2+2)

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Time: 180 Minutes **Max Marks: 80 Marks**

Biochemistry Paper II
QP CODE: C1032
Your answer should be specific to the question asked
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Long Essay 10 × 2 = 20 Marks

1. What are the various types of fatty acid oxidation? Explain the Beta oxidation of Palmitic acid and its energetics. (1+7+2)

2. Define translation. Describe in detail the steps involved in translation. Name and locate the inhibitors of translation. (1+7+2)

Short Essay 5 × 12 = 60 Marks

3. Describe the biochemical investigations for evaluating Hypo & Hyperthyroidism .. (2.5+2.5)

4. Define Oxidative Phosphorylation. Explain the role of cytochromes in Electron Transport Chain. (1+4)

5. What is Sickle cell anemia? Mention the defect. Mention 2 tests used for its diagnosis. (1+2+2)

6. Write purine ring. Label sources of its various elements. Add a note on the salvage pathway of purines.

7. At the age of 3 years a boy showed signs of delayed motor development and was brought for consultation. History revealed that the child had a compulsive urge to bite his lips and fingers. Upon questioning the mother revealed that she had a brother with similar symptoms and intellectual disability. Lesch Nyhan syndrome was suspected, urinary and serum uric acid levels were estimated. Both were abnormally high for the boy's age. a. Mention the enzyme defect in Lesch Nyhan syndrome. b. Write the reason for the neurological manifestations in Lesch Nyhan syndrome c. Describe the salvage pathway of purine biosynthesis. (0.5+1.5+3)

8. What are Omega 3 fatty acids? Give 2 examples.Explain their biological functions

9. What are the different types of DNAs? Describe the structure of B-DNA with a neat labelled diagram. (1+4)

10. Explain the role of Vasopressin in water balance.

11. What are buffers? List the buffer systems in plasma. Elaborate the role of hemoglobin as blood buffer. (1+1.5+2.5)

12. Define anion gap. Mention the normal anion gap and give three causes of high anion gap metabolic acidosis. (1+1+3)

13. What are tumor suppressor genes? Give two examples and write its biomedical importance. (1+2+2)

14. Write the biological reference range of phosphorus in blood and describe the functions of posphorus. (1+4)