Date: 20-11-2023

RUHS

First Year MBBS Examination

I MBBS BIOCHEMISTRY PAPER I

Time: 3 hours Max Marks: 100

Instructions: INSTRUCTIONS: Attempt all questions in both sections: (Use separate answer book for each section)

Section 1

1. Fill in the blanks: (6)

a. Monosaccharide which causes sequestering of phosphate in the cell _____
b. Phenylpyruvic acid in urine is detected by _____
c. Ferrochelatase is deficient in _____ condition.
d. Lysine is a limiting amino acid in _____ food.
e. Vitamin E acts synergistically with _____ jon.

2. Choose the correct option in the following multiple choice questions: 5 x 1 = 05 (4)

a. Phospholipid deficient in newborn suffering from respiratory distress syndrome.
   - a) Phosphatidylethanolamine
   - b) Phosphatidylcholine
   - c) Phosphatidylserine
   - d) Cardiolipin

b. Folate reductase in inhibited by drug.
   - a) Erythromycin
   - b) Chloramphenicol
   - c) Methotrexate
   - d) 5-Fluorouracil

c. Effect of thromboxane is.
   - a) Increase in platelet aggregation
   - b) Relaxation of smooth muscle
   - c) Decrease in blood pressure
   - d) Produces vasodilation

d. Following congenital disease is associated with conjugated hyperbilirubinemia.
   - a) Crigler - Najjar syndrome
   - b) Gilbert's disease
   - c) Dubin-Johnson's syndrome
   - d) Congenital spherocytosis

e. All of the following amino acids contribute to purine synthesis EXCEPT.
   - a) Glycine
   - b) Cysteine
   - c) Glutamine
   - d) Aspartate

3. Clinical Case study: A six months old infant began to vomit occasionally and ceased to gain weight. At 9 months of age, he was admitted to the hospital, he was drowsy, with fever, hepatomegaly and failure to feed. Urine analysis mealed high amount of glutamine and uracil. Blood investigations shouted absence of urea. EEG was grossly abnormal.

a. What is the most probable diagnosis?
b. Why are glutamine & uracil elevated?
c. What is the cause of brain involvement in this patient?
d. What can be the treatment modality? (15)

4. Differentiate between (Any five): (10)

a. Proteoglycans & Glycoproteins
b. G-6-PD & G-6-Phosphatase
c. Pre hepatic and post hepatic Jaundice
d. Haemoglobin & Myoglobin
e. Carnitine & Creatine
f. Uncompetitive & Non-competitive inhibition

5. Explain briefly (Any three): (15)

a. Dehydration
b. Lipotropic factors
c. Isoenzymes

d. Orotic aciduria

Section 2

6. Describe the role of respiratory and renal regulation of pH. Add note on pH derangement due to diabetes. (20)

7. Explain Why (Any five): (10)

a. Vitamin B12 deficiency leads to folate trap.
b. Patients of pancreatic insufficiency are advised to take medium and small chain fatty acids.
c. Glucose uptake in intestine & kidney is called secondary active transport.
d. Uronic acid pathway is important for detoxification of drugs.
e. Carnitine deficiency leads to hypoglycaemia.
f. Arginine becomes semi-essential.

8. Explain briefly (Any four): (20)

a. Biologically active nucleotides & peptides
b. Uncouplers
c. Methionine metabolism
d. Niemann - Pick disease
e. Mercury poisoning

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