

THE TAMIL NADU DR.M.G.R. MEDICAL UNIVERSTIY

[MD 0723]

JULY 2023

Sub. Code: 2045

(MAY 2023 EXAM SESSION)

**M.D. DEGREE EXAMINATION
BRANCH XIII – BIOCHEMISTRY**

**PAPER III – INTERMEDIARY METABOLISM, MACRO AND MICRO
NUTRIENTS AND INBORN ERRORS OF METABOLISM**

Q.P. Code: 202045

Time: Three Hours

Maximum: 100 Marks

I. Essay Questions:

(2 x 15 = 30)

1. A 6-year old boy is brought to his pediatrician with profound mental retardation. Upon questioning the mother, several members of both the mother's and father's family have had mental retardation. On examination, the boy appears restless and his speech is significantly delayed and incomprehensible. The boy has coarse facial features but otherwise normal. Laboratory tests reveal an elevated level of Heparin Sulfate.
 - a) What is the most likely diagnosis? Justify.
 - b) What is the inheritance pattern of this disorder?
 - c) Discuss in detail about Mucopolysaccharidoses.
2. Describe the Antineuritic vitamins, biological reactions in the metabolism and their deficiency disorders.

II. Short notes:

(10 x 5 = 50)

1. Disorders associated with abnormalities in the metabolism of Bilirubin.
2. Dyslipoproteinemias.
3. Disorders of Iron metabolism.
4. Metabolic consequences that occur due to ingestion of large quantities of Fructose.
5. Metabolism in the Lens of Eye.
6. Deficiency manifestations of Folic acid with a note on Folate antagonists.
7. Metabolic adaptations in Obesity.
8. Various types of Inhibition of enzymes.
9. Nucleotide analogues in Chemotherapy.
10. Cytochromes in Electron Transport Chain.

III. Reasoning Out:

(4 x 5 = 20)

1. Allosteric enzymes are not only catalysts, but also information sensors.
2. Hemolytic anemia is a feature of Glucose-6-Phosphate Dehydrogenase deficiency and Pyuvate kinase deficiency.
3. Urea cycle enzyme defects can be treated by using Benzoic Acid and Arginine.
4. Very Low Carbohydrate Diets Promote Weight Loss.
