



All India Institute of Medical Sciences, Kalyani

First Professional MBBS Supplementary Examination (Batch-2021-22)

Time: 3 Hrs.

Biochemistry (Paper-I)

Marks: 100

INSTRUCTIONS:

- Answer all questions.
- Illustrate your answers with well labelled diagram wherever necessary.
- Answer each section in a separate answer book.

SECTION - A (50 MARKS)

1. A 35 yrs old man was brought to the emergency by his wife with the history of pain abdomen which was not localized. His wife said that he had become overtly anxious, agitated and was talking irrelevantly and becoming delirious. She said that he had been having such episodes as a young kid. She also said that he had been prescribed phenobarbitone by a psychiatrist for his agitated state which actually worsened his condition.

The Nursing staff on duty noted that the urine of the patient on standing was becoming dark brown in color. (1+3+1+2+1+2=10)

- a. What is the likely Diagnosis?
- b. What is the basis of neurological manifestations in this disorder?
- c. Which confirmatory test should be done to clinch the diagnosis?
- d. Why did phenobarbitone exacerbate his condition?
- e. State the biochemical basis of urine turning dark on long standing.
- f. What definitive treatment is given to such patients?

Short notes

(8X5=40)

2. Biochemical basis of Sickle cell disease. Add a note on the biochemical basis of sickling crisis.(2+3)
3. Which are the clotting factors activated by Vitamin K? Give the biochemical basis of activation of clotting factors by Vitamin K. (2+3)
4. Why is it important to administer vitamin B1 with IV glucose to a chronic alcoholic with hypoglycemia? (5)
5. Discuss the biochemical basis of phenylketonuria. What dietary advice should be given to the parents of a phenylketonuric child. (3+2)
6. What is the Rapoport Leubering shunt? What is the significance of this in high altitude? (3+2)

7. How are prostaglandins produced? Give examples of two therapeutic uses of Prostaglandins. (3+2)
8. Draw a neat labelled diagram of the electron transport chain indicating the inhibitors of each complex. (5)
9. What is Syndrome of Inappropriate Antidiuretic Hormone secretion? What is the electrolyte imbalance in this condition. (3+2)

SECTION – B (50 MARKS)

1. Discuss Beta oxidation of fatty acids. What is the fate of oxidation of odd chain fatty acids? Add a note on the biochemical basis of "Sudden Infant death syndrome". (6+2+2=10)
 2. Give the biochemical basis of the following. (2X2.5)
 - a. Menke's disease
 - b. Haemosiderosis
 3. Justify why Gluconeogenesis is not the exact opposite of Glycolysis. (5)
 4. Discuss the formation of two important products from Glycine. (2X2.5)
 5. Discuss five factors affecting enzyme action. (5)
 6. What are isoenzymes? Discuss the isoenzymes of Creatinine Kinase. (2+3)
 7. What is the biochemical basis of cystic fibrosis? (5)
 8. Discuss the importance of HMP shunt. (5)
 9. Compare and contrast between competitive & noncompetitive enzyme action. (5)
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