ATAL BIHARI VAJPAYEE MEDICAL UNIVERSITY, LUCKNOW

MBBS DEGREE EXAMINATION - 1st PROF PROFESSIONAL REGULAR EXAM - AUGUST 2024

BIOCHEMISTRY -PAPER- I

Time: 3 Hrs **Max. Marks: 100 Marks (80 Theory + 20 MCQs)**

NOTE:

Attempt all questions.

This question paper consists of two sections: Section A - Multiple Choice Questions and Section B - Theory Questions.

Both sections have different paper codes. Write the correct paper code on the respective sheet.

Write the correct MCQ paper set on the OMR sheet.

Answer MCQs on the provided OMR sheet and theory questions on the provided answer booklet.

SECTION B - THEORY QUESTIONS

PAPER CODE: 2411230003

Q.1 Long Answer Question **15 MARKS**

i) Mention the reactions of Glycogenesis and Glycogenolysis in a flow diagram. (5 marks)

ii) Discuss the hormonal regulation of Glycogen metabolism. (5 marks)

iii) Discuss Glycogen storage diseases and their salient features. (5 marks)

Q.2 Clinical Case Scenario based Structured Question **15 MARKS**

A 5-year-old boy presents to the OPD with complaints of episodes of muscle weakness, fatigue, and hypoglycaemia after prolonged fasting or physical activity. Physical examination reveals hepatomegaly. Lab results show low

blood levels of free carnitine, elevated liver enzymes, and low glucose. The diagnosis of primary carnitine deficiency is established based on genetic testing.

i) Discuss beta-oxidation of a fatty acid containing 16-C and its energetics. (6 marks)

ii) Discuss the fate of oxidation of odd-chain fatty acids. (2 marks)

iii) What is Carnitine? Discuss the role of carnitine in the metabolism of fatty acids. (4 marks)

iv) What dietary modifications might be recommended for the above patient? (3 marks)

Q.3 Short Note Question (Within 500 Words) 5 x 6 = 30 MARKS

i) Discuss various iso-enzymes which are raised in a case of acute myocardial infarction.

ii) Give a schematic diagram of the shuttle system used for the transfer of reducing equivalents from the cytosol into the mitochondrial matrix.

iii) Discuss Water-soluble Vitamins and their deficiency disorders.

iv) Salient features of Cytochrome P-450 and their role in xenobiotic metabolism.

v) Discuss the role of kidneys in acid-base balance.

Q.4 Short Answer Questions (Within 100 Words) 5 x 4 = 20 MARKS

i) Significance of the HMP shunt pathway.

ii) Allosteric regulation of Enzyme activity.

iii) Describe ion-gated & voltage-gated ion channels.

iv) Reverse cholesterol transport.

v) Structure and function of complex V of the Electron Transport Chain.

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