Medical Biochemistry Exam 4

MEDICAL BIOCHEMISTRY I
Instructions: Answer all questions. Time: 3 hours.
Section A (Multiple Choice Questions – 40 marks)
1. Which one of the following is a key enzyme in the regulation of TCA cycle?
A.Glucose – 6 – phosphate dehydrogenase
B.Citrate synthase
C.Pyruvate carboxylase
D.Maleic enzyme

2. Which one of the following is true about transamination?
A.It is an irreversible reaction
B.It leads to ammonia formation
C.It occurs only at the x-NH2 group
D.It involves an intermolecular transfer ofNH2 group

3. The following are true about oxidoreductases except?
A.They can catalyze removal of oxygen
B.They include dehydrogenases
C.They include oxygenases
D.They can catalyze removal of electrons

4. Which one of the following best describes glycogen?
A.It is stored in the liver
B. It is used for energy provision
C.It is used for maintaining blood glucose
D.It is the major form of carbohydrate present in the body

5.Which one of the following is the major storage form of energy in the human body?
A. Glycogen
B. Triacylglycerol
C. Adipocytes
D. Sphingomyelins

6.The following are homopolymers of glucose except?
A. Starch
B. Cellulose
C. Glycogen
D. Inulin

7.The following are true about Kreb's cycle except?
A. It occurs in mammalian liver
B. It uses one mole of NH2 and one mole of CO2 to form one mole of urea
C. It contributes to the synthesis of arginine
D. It is a cyclic process using entirely mitochondrial enzymes

8.Which one of the following is an essential amino acid?
A. Histidine
B. Glutamine
C. Leucine
D. Arginine

9.The following are true about ammonia level in the blood except?
A. The level increases in alcoholism
B. Higher concentration may lead to coma and even death
C. Results from shunting of portal blood into systemic circulation
D. Increased levels enhance the TCA cycle

10.Which one of the following is true under conditions of diabetes mellitus?
A. There will be accumulation of a-glycerol-P
B.The rate of re-esterification will increase
C. There will be an increase in plasma FFA level
D. The rate of lipolysis will decrease

11.Which one of the following is true about transamination?
A. It is an irreversible reaction
B. It leads to ammonia formation
C. It occurs only at the a- NH_2 group
D. It involves an intermolecular transfer of NH_2 group

12.What is the net yield of energy in glycolysis of one molecule of glucose?
A. 10 ATP
B. 6 ATP
C. 8 ATP
D. 2 ATP

13. The following are true about oxidoreductases except?
A.They can catalyze removal of oxygen
B.They include dehydrogenases
C.They include oxygenases
D.They can catalyze removal of electrons

14.The following statements are true about corticosteroids except?
A. They are synthesized from cholesterol
B. They are synthesized in the adrenal cortex
C. They are synthesized by a common pathway
D. They are excreted excessively in renal insufficiency

15.Which one of the following is stored in the liver?
A. Vitamin D
B. Vitamin A
C. Amino acid
D. A & C

16.The following are true about vitamins except?

A. They do not enter tissue structures
B. They are mostly provided in the diet
C.They provide energy
D. They may serve as coenzymes

17.The following are true about Fabry's disease except?
A. It is X-linked
B. It presents mostly in males
C. It may produce vascular thrombosis
D. It is a recessive trait

18.The liver serves the following functions except?
A.Storage of glycogen
B.Storage of lipids
C.Secretion of bile
D.Detoxification of drugs

19.Steroid hormones can be characterized by the following except?
A.They bind to cytosolic receptors
B.They are metabolized in the kidney
C.They are synthesized in the adrenal cortex
D.They are synthesized in the gonads

20.The following are true about cholesterol except?
A.It is a precursor of androgens and estrogens
B.It is found in egg and milk.
C.It cannot be synthesized in the body
D.It is a major component of the plasma membrane

Section B (Short Answer Questions – 40 marks)

1.Explain the functional significance of polyunsaturated fatty acids.(5 marks)

2.Define and explain the significance of asymmetric carbon.(5 marks)

3.Outline the salient features of fat- soluble vitamins. (5 marks)

4.Explain the mechanisms of ammonia toxicity.(5 marks)

5.Highlight the biomedical functions of calcium. (5 marks)

6.Why is the TCA cycle said to be amphibolic in nature?(5 marks)

7. Outline the biological functions of sodium.(5 marks)

8. Explain the mechanism of enzyme action. (5 marks)

Section C (Essay Questions –40 marks)
1.Describe the major properties of proteins.(20 mks)

2.Describe the classification of carbohydrates.(20 mks)