The West Bengal University of Health Sciences
MBBS 1st Professional Examination (New Regulation), June 2022

Subject: Biochemistry
Paper : I

Full Marks : 100
Time : 3 hours

Attempt all questions. The figures in the margin indicate full marks.

1. a) A 60 year old man was brought to the hospital with complaints of severe chest pain, breathlessness and vomiting. He could reach the near by referral hospital in town 5 hours after the onset of chest pain. His blood was immediately drawn in casualty and result are as follows :

Investigation in serum
Creatine kinase (CK) – 400 U/L
CK-MB – 100 U/L
AST (Aspartate transaminase) – 70 U/L
LDH(Lactate dehydrogenase) – 380 U/L
What is your provisional diagnosis ?
Explain the points supporting your diagnosis
Write down the clinical significance of different isoenzymes. 2+8+5

b) Describe the Singer and Nicolson model of biomembrane. Explain the role of phospholipids and cholesterol in maintenance of membrane fluidity. Explain how cystic fibrosis is caused due to defective ion transport through biomembranes. 5+5+5

2. a) Describe the hexose monophosphate shunt and add a note on its significance. 6+4

b) Define active site of an enzyme. What are different factors that affect enzyme activities ? Compare between Competitive and non-competitive inhibition. Define marker enzymes with examples. 1+4+3+2

c) Describe the sources of ammonia in the body and its need to be transported to liver from various organs and explained the mechanise of its toxicity . 2+4+4

3. Write a short notes on the following: 2x5
   a) Role of a physician in health care system.
   b) Lesch nyhan syndrome.

4. Explain the following statements: 5x4
   a) Benedict's test in urine can give positive results inspite of normal blood glucose concetration.
   b) Prostacyclins & Thromboxanes exert opposing actions.
   c) Alkaptonuria is associated with generalized pigmentation of connective tissues.
   d) Oral rehydration solution contains glucose.
   e) Coenzymes are called Co-substrates.

P.T.O.

10x1

5. Choose the correct option for each of the following:

i) Which of the following statements regarding the role of HCO^-_3/H_2CO_3 buffer system is NOT TRUE:
a) It is an open buffer system in human
b) It is the most abundant extracellular buffer
c) It is regulated by the kidney only
d) Carbonic anhydrase plays an important role in maintaining it.

ii) Which one of the following statements is true for the enzyme glucokinase ?
a) It is an important enzyme related to the glycogen synthesis pathway.
b) It is an important enzyme glycolytic pathway in the liver.
c) It is an important enzyme glycolytic pathway in the skeletal muscles.
d) It is an important enzyme related to the glycogen breakdown pathway.

iii) All the following enzymes are ligases except
a) Glycogen Synthase.
b) Glutamine synthetase. c) Acetyl CoA Carboxlase. d) PRPP synthetase.

iv) The following substance acts as satiety signal for lipids
a) Apo A.
b) Enterostatin. c) HCL. d) Gastrin.

v) Which of the following amino acids function as a chain breaking amino acid in protein folding ?
a) Glycine
b) Proline. c) Glutamate. d) Valine.

vi) Which of the following disorder is caused by deficiency of muscle glycogen phosphorylase :
a) Von-Gierke's disease.
b) Pompe's disease. c) Her's disease. d) McArdle's disease.

vii) Role of cyanide in ETC is
a) Allosteric inhibtion.
b) Competitive inhibtion. c) End product inhition. d) Non competitive inhibition.

viii) Which of the following base is not found in RNA ?
a) Thymine.
b) Guanosine. c) Adenine. d) Cytosine.

ix) The wonder molecule nitric oxide is synthesized from
a) Histidine.
b) Lysine. c) Arginine. d) Methionine.

x) Flipped pattern of LDH iso enzyme is seen in
a) Myocardial infarction.
b) Liver disease.
c) Peptic ulcer .
d) Infectious disease.