The West Bengal University of Health Sciences
2nd BMLT March - April, 2026 Examination

Time: 3 hrs | **Subject: Advanced Biochemistry** | **Full Marks: 100**

Attempt all questions 20 x 1

1. Tick the correct answer :

a) An amphibolic pathway among the following is :
i) HMP shunt. ii) Glycolysis. iii) Citric acid cycle. iv) Gluconeogenesis.

b) Glycogenin is :
i) Uncoupler of oxidative phosphorylation. ii) Polymer of glycogen molecules.
iii) Protein primer for glycogen synthesis. iv) Intermediate in glycogen breakdown.

c) The reaction succinyl COA to succinate requires :
i) CDP. ii) GDP. iii) ADP. iv) NADP+.

d) Conversion of Alanine to carbohydrate is termed :
i) Glycogenesis. ii) Glycogenolysis. iii) Gluconeogenesis. iv) Photosynthesis.

e) Renin converts casein to paracasein in presence of :
i) Ca++. ii) Mg++. iii) Na+. iv) K+.

f) In urea synthesis, the amino acid functioning solely as an enzyme activator :
i) N-acetyl glutamate. ii) Ornithine. iii) Citrulline. iv) Arginine.

g) Renal glycosuria occurs due to :
i) Increased filtration of glucose in glomeruli.
ii) Increased secretion of glucose by renal tubular cells.
iii) Decreased reabsorption of glucose by renal tubular cells.
iv) Increased conversion of glycogen into glucose in tubular cells.

h) Normal range of serum urea is :
i) 0.6–1.5 mg/dl. ii) 9–11 mg/dl. iii) 20–45 mg/dl. iv) 60–100 mg/dl.

i) Which among the following is a basic amino acid?
i) Aspargine. ii) Proline. iii) Arginine. iv) Alanine.

j) The integrator between the TCA cycle and urea cycle is :
i) Fumarate. ii) Pyruvate. iii) Malate. iv) Citrate.

k) SGOT level in an adult is :
i) 5–40 units/dl. ii) 1–4 units/dl. iii) 5–15 units/dl. iv) 50–100 units/dl.

l) The value of which of the following typically changes first in case of Hypothyroidism :
i) T_3. ii) T_4. iii) Free T_4. iv) TSH.

m) Histidine is converted to histamine through the process of :
i) Transamination. ii) Decarboxylation. iii) Oxidative deamination. iv) Urea cycle

n) Atherosclerosis and coronary heart diseases are associated with the diet :
i) High in total fat and saturated fat. ii) Low in protein.
iii) High in protein. iv) High in carbohydrate.

o) Cholesterol is transported from liver to extrahepatic tissues by :
i) Chylomicrons. ii) HDL. iii) VLDL. iv) LDL.

p) Fatty liver may be caused by :
i) Deficiency of methionine. ii) Puromycin. iii) Chronic alcoholism. iv) All of these.

q) Pancreatic lipase requires for its activity :
i) Co-lipase. ii) Phospholipids. iii) Bile salts. iv) All of these.

r) A fatty acid not synthesized in man is :
i) Oleic. ii) Linoleic. iii) Palmitic. iv) Stearic.

s) Uremia occurs in :
i) Cirrohsis of liver. ii) Nephritis. iii) Diabetes mellitus. iv) Coronary thrombosis.

t) In the normal resting state of human most of the blood glucose burnt as fuel is consumed by :
i) Liver. ii) Brain. iii) Adipose tissue. iv) Muscles.

2. Answer the following questions : 5 x 2
a) Mention two important liver function test.
b) What is glycosuria?
c) Name two prostaglandin and state their functions.
d) What is hyponatremia?
e) What are isoenzymes? Give example.

3. Write short notes on ***any six*** of the following : 6 x 5
a) Clinical importance of alkaline phosphatase enzyme.
b) Oral glucose tolerance test.
c) Transamination and its biochemical importance.
d) Diagonistic importance of thyroid hormone.
e) Different lipoproteins and their biological importance.
f) Renal function test.
g) Disorders of abnormal amino acid metabolism.
h) Biological function of adrenaline and nor adrenaline.

4. Answer ***any one*** of the following :
a) What are SGOT and SGPT? State their clinical importance. State the diseases associated with Acid phosphatase. 1 x 10
b) Name three important hormones and discuss their biological importances. 2+5+3

5. Answer ***any two*** of the following : 1+3+3+3
a) What are different types of lipoprotein? Briefly describe lipid profile test. State the clinical significance of cholesterol and triglyceride in the blood. 2 x 15
b) Describe the pathway of glycogenesis and glycogenolysis. Briefly describe the hormonal regulation of glycogenesis and glycogenolysis. What is glycated hemoglobin? State its clinical importance. 4+7+4
c) Briefly describe urea cycle. Write a short note on atherosclerosis. State some important function of electrolyte in our body. 8+3+4