

001/24

The West Bengal University of Health Sciences
MBBS 1st Professional Examination (New Regulation),
November - December 2024

Subject: Biochemistry
Paper: I

Full Marks: 100
Time: 3 hours

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

1. a) A 3 year old boy comes to your primary health centre with difficulty in speech. Poor mother complains about delayed developed milestones and dark urine on standing. 3+4+4+4
 - i. What would be your provisional diagnosis?
 - ii. What tests would you perform in your attached laboratory to confirm your diagnosis?
 - iii. What would your advice to poor mother regarding child's diet and why early diagnosis of the child is vital?
 - iv. What is the metabolic defect and mention the alternate products formed due to this defect.
- b) Describe the effects of insulin on carbohydrate and lipid metabolism. Explain how uncontrolled Diabetes mellitus may result in Diabetic Ketoacidosis. 7+8
2. a) A child presenting with following features: self mutilation, mental retardation, behaving aggressively towards others. On investigation hyperuricemia was detected. 1+2+4+3
 - i) Mention the probable diagnosis.
 - ii) How the disease is inherited mention the expected enzyme deficiency.
 - iii) Discuss the biochemical basis of the disorder.
 - iv) Briefly state the line of management of the condition.
- b) Enumerate the various sources of acetyl Co-A. Discuss in details with diagram about the various fates of Acetyl Co-A. 5+5
- c) Classify with examples supersecondary structures of protein. Name the enzymes and chemical bonds involved in protein folding and briefly their role in it. Name one disease that occurs due to protein misfolding. 3+6+1
3. Write short notes on the following: 2x5
 - a) Roles of Indian Medical Graduate.
 - b) Role of clearance test in assessment of kidney function.
4. Explain the following statements: 5x4
 - a) G6PD deficiency causes hemolytic anemia.
 - b) Sucrose is termed as invert sugar.
 - c) Hepatic failure may lead to coma.
 - d) Ethanol is used in methanol poisoning.
 - e) Lecithin is amphipathic as well as amphoteric in nature.

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

10x1

- i) Which one is the marker enzyme of cytoplasm:
a) Galactosyl transferase. b) Lactate dehydrogenase.
c) Glycogen synthase. d) Pyruvate carboxylase.
- ii) The protein clathrin is associated with one of the following receptors.
a) Hepatic lipase. b) Scavenger receptor.
c) LDL receptor. d) Remnant receptor.
- iii) Which enzyme does NOT have copper as coenzyme?
a) Cytochrome oxidase. b) Xanthine oxidase.
c) Superoxide dismutase. d) Tyrosinase.
- iv) Erythrocyte glucose transporter is an example of:
a) Ion driven active transport. b) Facilitated diffusion.
c) Active transport. d) Simple diffusion.
- v) Which of the following is zinc dependent?
a) Carbonic anhydrase. b) Hexokinase.
c) Pyruvate kinase. d) Aldolase.
- vi) Allopurinol inhibits:
a) Xanthine oxidase. b) Super oxide dismutase.
c) Amylase. d) Lipase.
- vii) Which of the following amino acids has the highest buffering potentiality?
a) Alanine. b) Histidine.
c) Arginine. d) Methionine.
- viii) Allosteric activator of PFK-1 is:
a) Fructose 2-6 biphosphate. b) Citrate.
c) N-Acetyl glutamate. d) Malonyl CoA.
- ix) Which parameter rises in bone tumor?
a) ALT b) Alkaline phosphatase.
c) AST d) Gamma glutamyl transferase.
- x) Formiminoglutamate (FIGLU) is formed in the metabolism of:
a) Tryptophan b) Arginine c) Glutamate d) Histidine