

M. SC. (BIOCHEMISTRY)

(MSCBCH)

Term-End Examination

June, 2026

MBC-009 : CLINICAL BIOCHEMISTRY

Time : 3 Hours

Maximum Marks : 100

Note : (i) Answer any *five* questions.

(ii) All questions carry equal marks.

1. (a) What type of wastes are generated in a clinical laboratory ? Why is it important to dispose them ? Discuss the guidelines for proper waste disposal. 10

- (b) Briefly explain the following terms :

2×2.5=5

(i) Clotting time

(ii) Internal quality control

- (c) Write the normal composition and the procedure for the collection of urine and amniotic fluid. 5
2. (a) What are diagnostic and therapeutic enzymes ? Give an example of each and their use. 5
- (b) State the principle of alkaline phosphatase estimation and its significance. 5
- (c) Explain the clinical significance and measurement method of Erythrocyte Sedimentation Rate (ESR). 10
3. (a) Name two body fluids. Write description of three major compartments in which these body fluids are distributed. 5
- (b) How are sodium and potassium levels regulated in humans ? 5
- (c) What are glycogen storage diseases ? List various types of glycogen storage diseases, stating the cause and clinical symptoms of each. 10

4. (a) Describe the structure and functions of lipoproteins. 10
- (b) Discuss the underlying cause and symptoms of following diseases (any *two*) : $2 \times 5 = 10$
- (i) β -thalassemia
- (ii) Albinism
- (iii) Gout
5. (a) State the clinical implications of hepatocellular carcinoma and cholelithiasis. $2 \times 2\frac{1}{2} = 5$
- (b) State the cause and diagnostic criteria for obstructive jaundice and hemolytic jaundice. $2 \times 2\frac{1}{2} = 5$
- (c) List five kidney function tests and discuss their clinical significance. 10
6. (a) Write notes on the following clinical conditions : $2 \times 5 = 10$
- (i) Acute myocardial infarction
- (ii) Congestive heart failure
- (b) What is obesity and explain how is it assessed based on BMI (Body-Mass Index) ? 5
- (c) Discuss alcoholism and its clinical correlations. 5

7. (a) Explain the roles of alpha fetoprotein and carcinoembryonic antigen as tumor markers. 5
- (b) Write physiological functions of thyroid gland. Which clinical parameters are used to assess its functioning? 5
- (c) Write short notes on the following (any two): $2 \times 5 = 10$
- (i) Ames test
 - (ii) Carcinogens
 - (iii) Human chorionic gonadotropin

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