

MSc DEGREE EXAMINATION MAY 2026
(Third Semester)

Branch- **BIOCHEMISTRY**

ADVANCED CLINICAL BIOCHEMISTRY

Time: Three Hours

Maximum: 75 Marks

SECTION-A (10 Marks)

Answer **ALL** questions

ALL questions carry **EQUAL** marks

(10 × 1 = 10)

Module No.	Question No.	Question	K Level	CO
1	1	Why is β -HCG considered a reliable marker for early pregnancy detection? a) It is secreted only by the ovaries b) It rapidly decreases after fertilization c) It is produced shortly after implantation and increases steadily d) It is only found in the urine after 3 months	K1	CO1
	2	An elevated ESR value is most commonly associated with which of the following? a) Acute bleeding b) Inflammatory conditions c) Liver cirrhosis d) Hyperthyroidism	K1	CO1
2	3	What is the significance of testing sputum for culture and sensitivity? a) To determine oxygen saturation b) To identify the causative microorganism and appropriate antibiotic c) To measure lung volume d) To assess pH balance	K1	CO1
	4	Show the effect of Excessive production of free radicals in the body a) Improved metabolism b) Stronger bones c) Oxidative stress d) Dehydration	K2	CO1
3	5	Cushing's disease is caused by the excess secretion of which hormone? a) Prolactin b) Adrenocorticotrophic Hormone c) Growth Hormone d) Thyroid Stimulating Hormone	K1	CO2
	6	Interpret the autoimmune disease causing hyperthyroidism. a) Hashimoto's thyroiditis b) Graves' disease c) Addison's disease d) Diabetes insipidus	K2	CO2
4	7	How soon after the onset of myocardial infarction do troponin levels typically begin to rise? a) Immediately b) Within 3-6 hours c) After 24 hours d) After 48 hours	K1	CO3
	8	What is the main pathological feature of cirrhosis? a) Accumulation of fat in hepatocytes b) Replacement of normal liver tissue by fibrous scar tissue and regenerative nodules c) Acute inflammation only d) Excess bile secretion	K1	CO3
5	9	An HbA1c value above which percentage suggests poor glycemic control? a) 6.5% b) 4% c) 5.5% d) 8.5%	K1	CO4
	10	Which lipid accumulates in Niemann-Pick disease due to enzyme deficiency? a) Glucocerebroside b) Ganglioside GM2 c) Cholesterol d) Sphingomyelin	K2	CO4

Cont...

SECTION - B (35 Marks)

Answer ALL questions

ALL questions carry EQUAL Marks (5 × 7 = 35)

Module No.	Question No.	Question	K Level	CO
1	11.a.	Classify the different types of blood collection tubes based on their additives and uses.	K2	CO1
	(OR)			
	11.b.	Explain the role of viral markers in the diagnosis of infectious diseases.		
2	12.a.	Identify abnormal chemical components in stool, and relate them to potential clinical conditions.	K3	CO1
	(OR)			
	12.b.	Utilize the knowledge of the aetiology, diagnostic techniques, and treatment options for gallstones to outline a basic management plan.		
3	13.a.	Organize the laboratory tests used to assess pituitary function.	K3	CO2
	(OR)			
	13.b.	Apply the understanding of adrenocortical hormones and outline their clinical significance.		
4	14.a.	Examine how the AST/ALT ratio can help in identifying different liver pathologies.	K4	CO2
	(OR)			
	14.b.	Analyze the patterns of creatinine levels in kidney dysfunction.		
5	15.a.	Analyze the genetic, biochemical, and clinical features of glycogen storage diseases.	K4	CO2
	(OR)			
	15.b.	Inspect the defective metabolic pathway affected in Phenylketonuria (PKU) to explain its clinical consequences.		

SECTION -C (30 Marks)

Answer ANY THREE questions

ALL questions carry EQUAL Marks (3 × 10 = 30)

Module No.	Question No.	Question	K Level	CO
1	16	Make use of the components of amniotic fluid and Examine how amniotic fluid composition identifies developmental disorders.	K3	CO1
2	17	Summarize the normal and abnormal urine components and report possible metabolic disorder.	K2	CO1
3	18	Examine how changes in thyroid hormone levels affect different organ systems and contribute to clinical symptoms.	K4	CO2
4	19	Determine the types of jaundice by examining their underlying causes and clinical features.	K5	CO3
5	20	Analyze the types of diabetes mellitus and examine how their specific pathophysiological mechanisms contribute to acute and chronic complications.	K6	CO4

Z-Z-Z END