0305N224

Candidate's Seat No : _____

MSc Sem.-2 Examination

409

Biomedical Technology

May-2025

Time : 2-30 Hours] **[Max. Marks : 70**

Q-I	**1**	How do iron levels change during pregnancy and lactation? Why is iron supplementation important during these stages?	**(14)**
	2	What is the clinical importance of serum ferritin and D-dimer levels? Explain their normal ranges, diagnostic value, and interpretation in disease conditions.	
		OR	
	1	Describe the physiological role and significance of iron in the human body. What are the consequences of its deficiency and overload?	
	2	What is the significance of chloride, calcium, and phosphorus in the human body? Include their normal values, clinical ranges, and interpretation in pathological conditions.	
Q-II	**1**	What is the primary role of VLDL in lipid metabolism? Explain the role of VLDL in lipid transport.	**(14)**
	2	Explain the role of the enzyme sphingomyelinase in Niemann-Pick disease. Explain the process of sphingomyelin accumulation in lysosomes.	
		OR	
	1	Write a note on Tay-Sachs disease.	
	2	Explain any one method for the detection of phenylketonuria.	
Q-III	**1**	Explain the clinical symptoms and molecular diagnosis of Huntington's disease.	**(14)**
	2	Discuss the principle and method of creatinine estimation in clinical biochemistry.	
		OR	
	1	Describe the pathophysiology of Spinal Muscular Atrophy (SMA).	
	2	What is a molecular test? Explain its importance in early disease detection with one example.	
Q-IV	**1**	What is serological testing? Write down precipitation method in detail including different types, applications, advantages and disadvantages.	**(14)**
	2	Write a note: Diagnosis methods of bacterial diseases and fungal diseases.	
		OR	
	1	What is latex agglutination test? Write down its principle, applications, advantages and limitations in detail.	
	2	Explain in detail: Macroscopic examination of urine.	

Q-V		**Answer any SEVEN out of TWELVE.**	**(14)**
	1	Name two proteins involved in iron transport and their functions.	**02**
	2	Which vertebral level is typically used for CSF collection via lumbar puncture?	**02**
	3	What method is commonly used to measure serum sodium and potassium levels?	**02**
	4	What is the use of determining the albumin-globulin ratio in blood?	**02**
	5	Write any four symptoms of Gaucher's disease.	**02**
	6	Explain the relationship between 5-hydroxyindoleacetic acid and serotonin metabolism.	**02**
	7	Define sensitivity in diagnostic testing.	**02**
	8	Why is calibration important in biochemical testing?	**02**
	9	What is a screening test?	**02**
	10	Write down the principle of fluorescent antibody technique for serology.	**02**
	11	Write down the principle of different types of Coombs' test.	**02**
	12	What are the sample used for serology testing?	**02**