

**Table of Specification –PhD Pathology (Chemical Pathology) Spring 2024**  
**NUMS Entry Test**

Sr. No	Topic	MCQs
	Level of Difficulty	
1.	Clinical Chemistry Pathophysiology- I including following topics: <ul style="list-style-type: none"> <li>○ Electrolytes and Acid Base Disorders</li> <li>○ Liver Function Tests</li> <li>○ Renal Function Tests</li> </ul>	10
2.	Clinical Chemistry Pathophysiology- II including following topics: <ul style="list-style-type: none"> <li>○ Cardiac biomarkers</li> <li>○ Lipid Disorders</li> <li>○ Iron Disorders</li> <li>○ Disorders of Bones</li> <li>○ Others</li> </ul>	10
3.	Basic Laboratory Principles <ul style="list-style-type: none"> <li>○ Quality Management</li> <li>○ Laboratory Water</li> <li>○ Basic Instrument Handling               <ul style="list-style-type: none"> <li>● Centrifuge</li> <li>● Water Bath</li> <li>● Pipettes</li> <li>● Glass ware</li> <li>● Refrigerators</li> <li>● Osmometers</li> <li>● Analytical Balance</li> <li>● pH Meter</li> </ul> </li> </ul>	10
4.	Analytical Techniques /Lab instruments <ul style="list-style-type: none"> <li>○ Optical Techniques</li> <li>○ Electrochemistry</li> <li>○ Electrophoresis</li> <li>○ Lab Automation</li> <li>○ ELISA</li> <li>○ HPLC</li> <li>○ GC/MS</li> </ul>	10
5.	Special Clinical Chemistry Pathophysiology I including following topics <ul style="list-style-type: none"> <li>○ Diabetes Mellitus</li> <li>○ Thyroid Disorders</li> <li>○ Parathyroid Disorders</li> <li>○ Adrenal Disorders</li> <li>○ Pituitary Disorders</li> </ul>	10

6.	<p>Special Clinical Chemistry Pathophysiology II including following topics</p> <ul style="list-style-type: none"> <li>○ Tumour Markers</li> <li>○ Paediatric Metabolic Disorder</li> <li>○ Therapeutic Drug Monitoring</li> <li>○ Toxicology</li> </ul>	10
7.	<p>Laboratory Management</p> <ul style="list-style-type: none"> <li>○ Clinical evaluation of methods</li> <li>○ Establishment and use of reference values</li> <li>○ Preanalytical variables and biological variation</li> <li>○ Laboratory Information System</li> </ul>	10
8.	<p>Molecular Biology</p> <ul style="list-style-type: none"> <li>○ DNA: Structure and Function</li> <li>○ RNA: Structure and Function &amp; Types</li> <li>○ Protein: Structure and Function</li> <li>○ DNA regulatory sequences and regulatory protein</li> <li>○ DNA Replication, Damage and Repair</li> <li>○ Transcription/ Translation in Prokaryotes&amp; Eukaryotes</li> </ul>	10
9.	<p>Techniques</p> <ul style="list-style-type: none"> <li>○ PCR types and procedure</li> <li>○ DNA/RNA Extractions</li> <li>○ Restriction Endonucleases</li> <li>○ Recombinant DNA technology</li> <li>○ Gel Electrophoresis</li> </ul>	05
10.	<ul style="list-style-type: none"> <li>○ Research Methodology</li> <li>○ Biostatistics/Analytical</li> <li>○ Medical writing/Bioethics</li> </ul>	15
<b>Total</b>		<b>100</b>