

**Table of Specifications**  
**PhD Entrance Test-Molecular Medicine**

S.No	TOPIC	MCQs
1	<b>Nucleotide &amp; Protein Chemistry</b> <ul style="list-style-type: none"> <li>○ Structure of Nucleotides</li> <li>○ Structure, types and functions of nucleic acids</li> <li>○ Protein structure (Primary, secondary, tertiary and quaternary)</li> <li>○ Protein folding and misfolding</li> <li>○ Transmembrane proteins</li> </ul>	10
2	<b>Enzymology</b> <ul style="list-style-type: none"> <li>○ Isoenzymes</li> <li>○ Enzyme Inhibition</li> <li>○ Enzyme Regulation</li> <li>○ Role of enzymes in diagnosis and therapeutics</li> <li>○ Cytochrome P-450 Monooxygenase System</li> </ul>	10
3	<b>Basic Molecular Biology</b> <ul style="list-style-type: none"> <li>○ DNA replication</li> <li>○ Transcription and posttranscriptional modifications</li> <li>○ Translation and posttranslational modifications</li> <li>○ DNA Repair Mechanisms</li> <li>○ Mutations</li> </ul>	25
4.	<b>Xenobiotics and cancer metabolism</b> <ul style="list-style-type: none"> <li>● Role of genetics in cancer</li> <li>● Cell apoptosis</li> <li>● Oxidants and antioxidants</li> </ul>	10
5	<b>Genetic basis of diseases/clinical conditions</b> <ul style="list-style-type: none"> <li>○ Diabetes mellitus</li> <li>○ Glycogen storage diseases</li> <li>○ Disorders of lipid metabolism</li> <li>○ Obesity</li> <li>○ Vitamin D &amp; K metabolism</li> <li>○ Hemoglobin structure, Hemoglobinopathies (genetic basis)</li> <li>○ Glucose-6-phosphate dehydrogenase Deficiency</li> <li>○ Inborn errors of protein metabolism</li> <li>○ Cystic Fibrosis</li> <li>○ Severe Combined Immunodeficiency</li> </ul>	15
6	<b>Molecular Biology Techniques</b> <ul style="list-style-type: none"> <li>○ Polymerase chain reaction (PCR)</li> <li>○ DNA /RNA extraction</li> <li>○ Restriction endonucleases</li> <li>○ Probes</li> <li>○ Gel electrophoresis</li> <li>○ Recombinant DNA Cloning</li> <li>○ Restriction Fragment length polymorphism</li> <li>○ ELISA</li> <li>○ DNA sequencing</li> </ul>	15
7	<b>Research methodologies</b>	15
Total		100