

Table of Specification –PhD Molecular Medicine Spring 2024
NUMS Entry Test

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