Table of Specification – PhD Biological Sciences - Spring 2024
NUMS Entry Test

100 MCQs, 1 mark each	Time: 2 hours
a. General	**20**
i) Math	
ii) English	
iii) Analytical reasoning	
b. Biochemistry	**15**
iv) Macromolecules (structure and function)	
v) Cellular metabolism and Bioenergetics	
vi) Enzymology	
c. Cell and Molecular Biology	**15**
i) Cell organelles (structure and function)	
ii) DNA replication, transcription, translation, repair	
iii) Gene regulation	
iv) Cancer Biology	
d. Research methodology/ethics	**10**
i) Ethical issues in biological research	
ii) Scientific method in research (research question, hypothesis, literature review, study designs)	
e. Research techniques	**10**
i) Molecular methods (PCR, RT-PCR, ELISA, Sequencing)	
ii) Analytical methods (spectrophotometry, HPLC and GC)	
f. Biotechnology	**10**
i) Health biotechnology	
ii) Nano biotechnology	
iii) Plant biotechnology	
g. Microbiology and Immunology	**10**
i) Bacteriology	
ii) Virology	
iii) Vaccinology	
iv) Immunity	
h. Biostatistics	**5**
i) T-test	
ii) Chi-square	
iii) ANOVA	
iv) Regression	
i. Bioinformatics	**5**
i) Multiple sequence alignments	
ii) Data retrieval	
iii) Molecular Docking	