

Test Code:DUAT05

Programs: MSc Data Analytics and BioAI

Question type	Marks	Syllabus
General Aptitude	20	<p><b>Unit I</b></p> <p><b>Verbal Aptitude:</b> Basic English grammar: Tenses, articles, adjectives, prepositions, conjunctions, verb-noun agreement, and other parts of speech. Basic vocabulary: Words, idioms, and phrases in context. Narrative sequencing.</p> <p><b>Quantitative Aptitude:</b> Data interpretation: Data graphs (bar graphs, pie charts, and other graphs representing data), 2- and 3- dimensional plots, maps, and tables. Numerical computation and estimation: Ratios, percentages, powers, exponents and logarithms, permutations and combinations, summations and series. Mensuration and geometry</p> <p><b>Analytical Aptitude:</b> Logic: Deduction and induction, analogy, numerical relations, and reasoning</p> <p><b>Spatial Aptitude:</b> Transformation of shapes: Translation, rotation, scaling, mirroring, assembling, and grouping, paper folding, cutting, and patterns in 2 and 3 dimensions.</p>
Basic Mathematics	10	<p><b>Unit II</b></p> <p><b>Set Theory:</b> Concept of sets – Union, Intersection, Cardinality, Elementary counting; permutations and combinations.</p> <p><b>Probability and Statistics:</b> Basic concepts of probability theory, Averages, Dependent and independent events, frequency distributions, measures of central tendencies and dispersions.</p>

BSc level questions	20	<p><b>Unit III</b></p> <p><b>Biochemistry:</b> Structure and functions of proteins, DNA, RNA, carbohydrates, lipids &amp; vitamins. Bioenergetics, Electron Transport System and ATP synthesis, membrane structure and function.</p> <p><b>Biotechnology:</b> Recombinant DNA technology, principles of gene cloning, applications of biotechnology in medicine, industry and agriculture, animal &amp; plant cell culture, environmental biotechnology.</p> <p><b>Molecular Genetics:</b> Principles of inheritance, linkage &amp; crossing over, chromosomal aberrations, extrachromosomal inheritance, replication, transcription, translation, DNA repair and population genetics, mutation.</p> <p><b>Chemistry:</b> Atomic Structure, Periodic Properties, Chemical bonding, Distribution of electrons in organic compounds. Stereo Chemistry, Configurational Isomerism, medicinal chemistry.</p>
BSc level questions	10	<p><b>Unit IV</b></p> <p><b>Computer Basics:</b> Organization of a computer, Central Processing Unit (CPU), structure of instructions in CPU, input/output devices, computer memory, and back-up devices.</p> <p><b>Data Representation:</b> Representation of characters, integers and fractions, binary and hexadecimal representations, binary arithmetic: addition, subtraction, multiplication, division, simple arithmetic and two's complement arithmetic, floating-point representation of numbers, Boolean algebra, truth tables, Venn diagrams.</p>