

**Multidisciplinary Centre for Advanced Research & Studies**  
**Jamia Milia Islamia, Jamia Nagar, New Delhi**

**PG Diploma molecular Diagnostics Entrance Examination Syllabus**

**Biology**

1. Structure and function of Nucleic Acids, DNA, RNA, Proteins, Carbohydrates, Lipids
2. Ultra-structure of cell and its organelles
3. Recombinant DNA Technology and its applications
4. Antibodies functions and structures
5. Human Genetics, Mutation & Disorder/Diseases
6. Structure and function of T- and B-Cells, cytokine and Chemokines
7. Principle and application of DNA and protein gel Electrophoresis
8. Function and characterization of Microbes, Viruses, Parasites, Fungi and algae

**Chemistry**

1. Avagadro's number, Mole, Mole fraction, Molarity, Normality, Molality, Equivalent weight, Molecular weight, Normality, Molality, Acid base indicators. isoelectric pH, pKa value.
2. Concept of acids and bases. Ionic product of water. pH, Buffers, buffer capacity, preparation of buffer solutions.
3. Characteristics and units of radioactive elements, disintegration constant, Half-life,  $\alpha$ ,  $\beta$  and  $\gamma$  radiation.
4. Osmotic pressure, Hypo, hyper and isotonic solutions.
5. Ionic bond, covalent bond, co-ordinate bond, Van der Waal's forces, ion- dipole, dipole -dipole interactions, Hydrophobic interaction, Hydrogen bonding
6. Definition and Classification of Primary, Secondary and Tertiary alcohols.
7. Chirality, Nomenclature of enantiomers, diastereomers. Racemisation and resolution, Geometrical isomerism

**Entrance Exam question paper format**

**Multiple Choice Questions:**

**Total questions=100**

**Duration:**

1 1/2 hrs  
2

**Total marks: 100**