

**Unique Paper Code : 32161102**  
**Name of the Paper : Biomolecules and Cell Biology**  
**Name of the Course : B.Sc. (H) Botany Part I**  
**Semester : I**

**Duration: 3 Hrs.**

**Maximum marks: 75**

**Attempt any four questions. All questions carry equal marks (18.75).**

- Q1. Comment on the different types and significance of non-covalent bonds that maintain structure and function of biomolecules. Discuss the role of buffers in maintaining pH.
- Q2. Define activation energy. Discuss the theories proposed to explain the mechanism of enzyme action. Differentiate between Competitive and Non-competitive Inhibition.
- Q3. Explain the structure of DNA proposed by Watson and Crick. Differentiate between A and B forms of DNA. Briefly explain the different types and function of RNA.
- Q4. Describe the structure and functions of nuclear envelope (NPC) and nucleolus. Briefly explain the molecular organization of chromatin including the constitutive and facultative heterochromatin with examples.
- Q5. "Mitochondria and Chloroplast were once free-living prokaryotes" Comment. Correlate their structure with their functions.
- Q6. Explain detailed structure and chemical composition of plant cell wall and plasma membrane.



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