

## MCAT Molecular Biology Quiz PDF

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**Which of the following processes occurs in the mitochondria?**

- Glycolysis
- Transcription
- Krebs cycle
- DNA replication

**What type of bond links amino acids together in a protein?**

- Hydrogen bond
- Ionic bond
- Peptide bond
- Disulfide bond

**Which enzyme is responsible for unwinding the DNA double helix during replication?**

- DNA polymerase
- Helicase
- Ligase
- Primase

**Which phase of the cell cycle is characterized by DNA replication?**

- G1 phase
- S phase
- G2 phase
- M phase

**Which hormone is primarily involved in regulating blood glucose levels?**

- Thyroxine
- Insulin

- Adrenaline
- Estrogen

**What is the main purpose of the Hardy-Weinberg equilibrium in population genetics?**

- To describe the energy flow in ecosystems
- To calculate mutation rates
- To predict allele frequencies in a non-evolving population
- To determine genetic drift effects

**Which of the following are types of RNA involved in protein synthesis?**

- mRNA
- tRNA
- rRNA
- siRNA

**Which of the following is a purine base found in DNA?**

- Thymine
- Cytosine
- Adenine
- Uracil

**Which of the following are products of glycolysis?**

- ATP
- NADH
- Pyruvate
- CO<sub>2</sub>

**Which of the following are components of the cell membrane?**

- Phospholipids
- Cholesterol
- Nucleic acids
- Proteins

**Which of the following processes are involved in cellular respiration?**

- Glycolysis
- Electron transport chain
- Photosynthesis
- Krebs cycle

**Discuss the role of the immune system in distinguishing self from non-self.**

**Describe the process of transcription and the role of RNA polymerase.**

**Which factors can affect enzyme activity?**

- Temperature
- pH
- Substrate concentration
- Light intensity

**Explain the central dogma of molecular biology and its significance.**

**Which of the following are mechanisms of genetic variation?**

- Crossing over
- Independent assortment
- Binary fission
- Mutation

**How do competitive and non-competitive inhibitors affect enzyme activity?**

**What are the key differences between mitosis and meiosis in terms of their outcomes?**

**Explain how epigenetic modifications can influence gene expression without altering the DNA sequence.**

**What is the primary function of ribosomes in the cell?**

- DNA replication
- Protein synthesis
- Lipid metabolism
- Carbohydrate storage