Topic 4. Enzyme properties. Effect of activators and inhibitors. Determination of enzyme activity.

Theoretical questions:

1. Enzymes as biological catalysts.
2. Specificity of enzymes. Types of substrate specificity.
3. Factors that affect the rate of enzymatic reactions:
   3.1. Temperature;
   3.2. pH medium;
   3.3. Amount of substrate; definition of Michaelis constant
4. Enzyme inhibition. What substances are called inhibitors? The main types of inhibition: reversible and irreversible, competitive and non-competitive inhibition. Examples of inhibitors that are used in clinics.
5. Determination of enzyme activity. Units of enzyme activity (international, specific, molecular, clinical units) and their significance.

Study Questions and Tasks

1. Enzymes as Biological Catalysts. Write down the main characteristics.

1)._____

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2)._____

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3)._____

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4)._____

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5)._____

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6)._____

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2. Types of substrate specificity of enzymes. Give the names and definitions.

1)._____

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2)._____

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3)._____

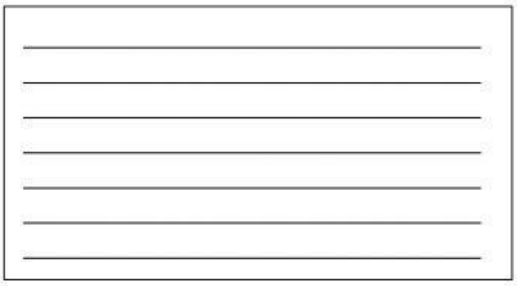
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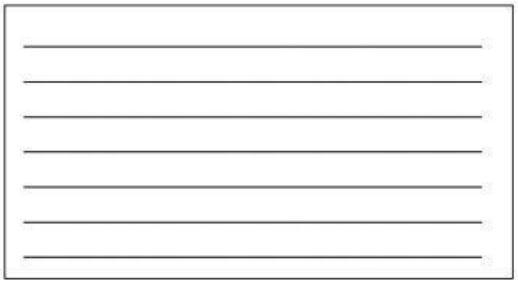
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3. Factors that affect the rate of enzymatic reactions. Draw **"rate of enzymatic reactions – factor"** curves

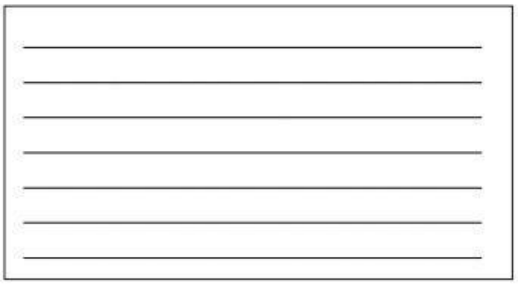
1) Temperature



2) pH medium

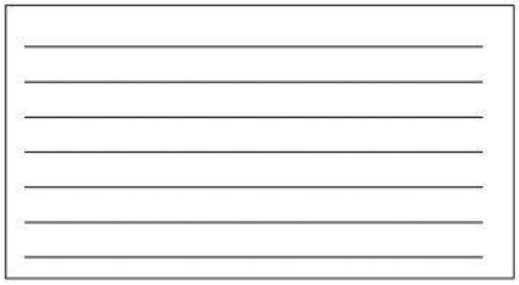


3) Concentration of substrate



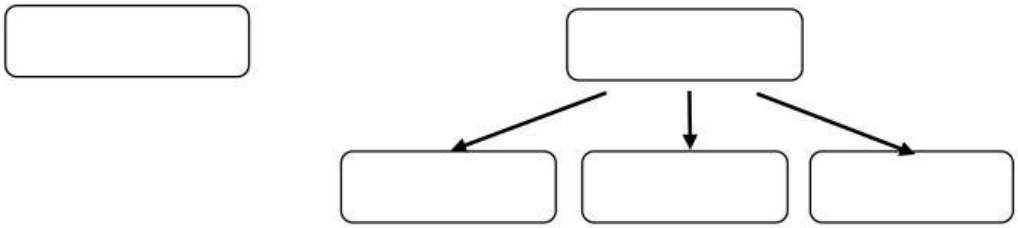
Definition of Michaelis constant

Draw "rate – substrate concentration" curve and show Michaelis constant



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4. Main types of enzyme inhibition.



5. Units of enzyme activity.

Enzyme Unit _____

International _____

Specific _____

Molecular _____

Clinical _____

Text-books:

1. Biochemistry 5th Edition Ch.5, pp.53-68.
2. Prasad textbook of biochemistry OCR. Topic 7. pp. 117-149.

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