Biology 12 Name: _____
Ms. Kuiper Blk: _____

Enzyme Review Worksheet

Part A: Define the following terms in your own word. Be clear and concise!

metabolism	**ALL THE CHEMICAL REACTIONS OCCURRING IN THE CELLS**
substrate	**THE REACTANTS IN AN ENZYMATIC REACTION**
enzyme	**PROTEIN THAT SPEEDS UP A REACTION WITH BEING USED UP**
active site	**THE SPOT ON THE ENZYME WHERE THE SUBSTRATES BIND TO IT**
coenzyme	**THE NON-PROTEIN PART OF THE ENZYME THAT ACCEPTS OR DONATES ATOMS**
metabolic pathway	**THE SERIES OF REACTIONS GOING FROM INITIAL REACTANTS TO FINAL PRODUCTS**
activation energy	**THE AMOUNT OF ENERGY NEEDED TO GET A REACTION STARTED**

Part B: Short Answers

1. The equation ADP + P_i → ATP is energy (*requiring or releasing*) **_REQUIRING**_____.

2. In the pathway below, the letters stand for ___**REACTANTS**_____and the numbers stand for ___ENZYMES_____. Each and every reaction in a cell requires a specific __**ENZYME**_____.

   1 2 3 4
   A ⇨ B ⇨ C ⇨ D ⇨ E

3. If an enzymatic reaction is heated *gently*, it will ____**OCCUR MORE QUICKLY**_____.

4. Enzymes **_DECREASE**_____the amount of activation energy necessary for a reaction to take place by putting its substrates on a precise "collision course."

5. In the equation S + E → SE → P + E, what do the letters stand for?
   S: **SUBSTRATE** P: **PRODUCT**

   SE: **SUBSTRATE – ENZYME COMPLEX** E: **ENZYME**

6. Name two environmental factors that can change the shape of an enzyme.
   i. **pH** ii. **TEMPERATURE**

7. Name two factors that can speed up enzymatic reactions
   i. **INCREASED CONCENTRATION** ii. **INCREASED TEMPERATURE (TO A POINT)**

8. Enzymes have helpers called **__COENZYME__**. A common example of the latter is NAD. What is the function of NAD in cells?**_PARTICIPATES IN OXIDATION-REDUCTION REACTIONS_**.