TCC NAS2 Assessment #2 Brilakis NAME:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Where is the energy stored in the food that you eat?

What type of reaction is this process? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Is energy released or consumed during this reaction? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_This process by which food is broken down in the presence of oxygen is called\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
What is the formula for this reaction?

Why must an organism intake oxygen during this reaction?

What is the waste gas that is produced during this reaction? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Where does this waste gas come from during this reaction?

2. What is the purpose of photosynthesis?

3. Monomers used to build the DNA polymer are called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and exhibit four 'versions'. They are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_,\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_,
\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. Explain how these monomers exhibit specificity.

Are the bonds that hold these monomers together at the “backbones” of the DNA “ladder” the same as the bonds that hold them together at the “rungs”?\_\_\_\_\_\_\_\_\_ Explain.

4. The function of a protein is ultimately determined by the gene that "codes" for the protein. Explain.

5. The two parts of protein synthesis are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. Describe the purpose of each part including the functions of the DNA, mRNA and tRNA.

**Please show ALL work for the two problems below to receive credit.**6. A gene controls coat length in dogs. Short coats are dominant to long coats. A heterozygous dog mates with a homozygous recessive dog. What is the chance their puppies will exhibit a long coat?

7. What is meant when a gene is said to be X-linked?

Why do males exhibit recessive phenotypes that are due to X-linked genes more than females?

In fruit flies, the gene that determines eye color is X-linked. Red eyes are dominant over white eyes. A carrier female mates with a red eyed male. What is the chance they will produce a red eyed, female offspring?