Name: _____ Date: _____

The Carbon Cycle

1. When carbon emission exceeds carbon assimilation, the system is a carbon _____.
   a. sink
   b. spot
   c. source
   d. sign

2. A positive net primary productivity indicates that the system is a carbon _____.
   a. sink
   b. spot
   c. source
   d. sign

3. The carbon cycle designates that carbon may be stored in the atmosphere, land, and ocean. In which of the following would you NOT expect to find stored carbon?
   a. carbon dioxide
   b. plant biomass
   c. organic matter
   d. all of the above are carbon sources

4. A cap and trade system of exchangeable carbon credits will provide incentive for which UN block to receive needed assistance?
   a. AOSIS (Island States)
   b. China
   c. Developing World
   d. EU (European Union)
   e. United States

5. The difference between carbon assimilation and carbon emission is known as what?
   a. Carbon Analysis
   b. Carbon Source
   c. DBH
   d. Net Primary Productivity

6. Which of the following greenhouse gases is produced from fossil fuel combustion and deforestation?
   a. Methane
   b. Carbon Dioxide
   c. Nitrous Oxide
   d. CFCs

7. What is carbon assimilation?
   a. rate at which plants convert carbon dioxide to oxygen
   b. frequency with which plants perform photosynthesis
   c. amount of carbon dioxide that plants convert to glucose
   d. rate at which plants convert carbon dioxide to glucose

8. We know that temperature controls the rate of respiration and changes the amount of organic matter stored in soil. Based on your knowledge of respiration, would you expect to find more carbon stored in soil in a cool or warm climate? Why?
   a. cool, because there is less sunlight available, which reduces the rate of photosynthesis
   b. cool, because microbes in the soil are less active as evidenced through lower rates of respiration
   c. warm, because microbes in the soil have higher rates of respiration, which releases more carbon into the soil
   d. warm, because sunlight is readily available, which means plants increase their rate of photosynthesis, leading to more carbon produced

9. Name a natural process that removes carbon dioxide from the air.

10. If a specified area has a carbon assimilation rate of 7.2×10^4 g/day and a carbon emission rate of 9.3×10^9 g/day, state how to calculate the net primary productivity of the area. Is the area a carbon source or a carbon sink? How do you know?