Part II: Short Answer Questions. Write a brief, but complete answer to each question, confining your answer to the space provided.

(9) 1. Why is there less oxygen and more carbon dioxide in the air that we exhale compared to the air that we inhale?

Some oxygen from the inhaled air is transferred to our blood and transported to our body's cells.
The metabolism of food in our cells consumes this oxygen and produces energy along with CO_2 and water as waste products.
The CO_2 is transported by our blood stream back to our lung and is in the air that we exhale.
As a consequence the exhaled air has less oxygen and more CO_2 than the air that we inhale.

(8) 2. List four different changes on our planet that are thought to be a consequence of the increase in atmospheric CO_2 levels.

decrease in polar icecaps
higher average global temperatures
changes in weather patterns
increase in ocean water levels
habitat changes in polar regions

(8) 3. How does the process that leads to formation of ozone in the upper atmosphere differ from the formation of ozone at the earth's surface?

Ozone formation is the upper atmosphere occurs when high energy radiation from the sun splits oxygen molecules (O_2) into oxygen atoms (O). These oxygen atoms will then combine with oxygen molecules to form ozone (O_3).

This same process cannot take place at the earth's surface because this high energy radiation gets absorbed by the atmosphere. Instead nitrogen dioxide (NO_2) that is released as a pollutant is split by sunlight to release oxygen atoms (O). Similarly, these oxygen atoms will then combine with oxygen molecules to form ozone (O_3).