## Chem / Envsty L111: Spring 2007 Quiz 3

1. Which is correct?

Name

- a. Ozone forms by combining an oxygen atom with an oxygen molecule.
- b. There is a dynamic steady state of ozone in the stratosphere.
- c. UV radiation will dissociate ozone into an oxygen atom and an oxygen The Chapman cycle represents the steady molecule.
- d. All of the choices are correct. state destruction and formation of  $O_3$
- 2. The speed of light in air

## 15/25

24/25

- a. depends only on the frequency of the light. The speed of light in air
- b. depends only on the wavelength of light... is a defining physical constant
- c. is independent of the wavelength and frequency of light.
  - d. depends on both the wavelength and the frequency of light.
- 3. Which contributes to the destruction of stratospheric ozone? 13/25
  - a. automobile exhaust
  - b. chlorofluorocarbons (CFCs) you got it right, you got credit for it
    - c. loss of Northern forests
    - d. All of the choices are correct.

## 4. Ozone in our atmosphere is important because it

- b. helps trees grow.
- c. reacts with excess  $CO_2$ .
- d. reflects IR radiation.

25/25! a. absorbs some UV radiation. Ozone shields life at the surface from UV rays which produce sunburn and skin cancer

We haven't covered this yet – but if

- 5. Elements in the same column of the periodic table in the Groups labeled A tend to have similar chemical and physical properties because they have the same number of 21/25
- valence electrons.
  - b. protons.
  - c. protons plus electrons.
  - d. protons plus neutrons.
- 6. The "ozone layer" is found
  - a. only around the equator.
  - b. in the troposphere.
  - c. in the stratosphere.
    - d. in the mesosphere.

The others are not held constant moving down a Group.

## 21/25

The ozone layer is isolated vertically in the stratosphere, but it not limited by latitude or longitude

7. Frequency is 20/2	5
a. the number of waves passing a fixed point in one second.	
b. the height of the wave.	
c. the distance between successive peaks in a wave.	
d. the distance between a peak in a wave to the next trough.	
8. Free radicals are 20/2	5
a. highly reactive chemical species.	
b. species with unpaired electrons.	
c. species such as H• and •OH.	
d. All of the choices are correct	
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9. Chlorofluorocarbons rise to the stratosphere and 14/2:	)
a. react directly with stratospheric ozone to destroy it.	
b. after interacting with UV energy, become free radicals, which destroy	
c become free radicals that react with oxygen to create ozone	
d react with free radicals to remove carbon diavide	
U. Teact with free faultais to remove carbon dioxide. Another freeble –	
Fou got credit if you got it right	
10. One isotope for a particular element is distinguished from another by the	
number of 16/2	5

a neutrons.

b. protons.

Protons **define** the element, and thus cannot vary from one isotope to another

- c. protons, neutrons and electrons.d. protons plus electrons.