

Remote Sensing Cypress Falls Invitational 2009

Multiple Choice -Identify the letter of the choice that best completes the statement or answers the question.

1. What is the key instrument aboard the Terra and Aqua satellites?
 - a. RADAR
 - b. LIDAR
 - c. MODIS
 - d. EOS
2. In Figure 1, what do the red boxes indicate?
 - a. Clouds
 - b. Fires
 - c. Dust Storms
 - d. Cities
3. What type of image is used to detect the strength of the occurrence in Figure 1?
 - a. Visible Light Image
 - b. X-ray Image
 - c. Ultra-violet Image
 - d. Infra-red Image
4. What accounts for the difference of water color in the 1989 and 2003 images in Figure 2?
 - a. Depth of the water.
 - b. Pollutants in the water.
 - c. Wavelength of the image.
 - d. Human development in the area.
5. What substance may account for the white texture in the 2003 Image in Figure 2?
 - a. Ice
 - b. Salt
 - c. Sand
 - d. Clouds
6. What natural phenomena occur in Figure 3?
 - a. Monsoon
 - b. Clouds
 - c. Dust storm
 - d. Wind
7. What satellites make up the group of satellites called the Afternoon Constellation, also known as the A-Train
 - a. Aqua and Terra
 - b. Aqua, Aura, PARASOL, Cloudsat, and CALIPSO
 - c. Aura, LANDSAT, and Cloudsat
 - d. Aqua, Terra, Aura, PARASOL, Cloudsat, and CALIPSO
8. In Figure 4, what is the blue blob on the left side of the image?
 - a. A River
 - b. The Gulf of California
 - c. A Lake
 - d. A City
9. What is the red line indicated with the white arrow (#15)?
 - a. A River
 - b. A Canal
 - c. A Highway
 - d. A Valley
10. What is the red area marked with (#16)?
 - a. Forested area
 - b. Aquatic vegetation
 - c. Irrigated cropland
 - d. Beach
11. Which of the following electromagnetic waves are in order from largest to smallest frequency?
 - a. radio waves, infrared, visible light, gamma rays
 - b. x-rays, infrared, ultraviolet, radio waves
 - c. gamma rays, x-ray, ultraviolet, microwaves
 - d. microwaves, x-rays, gamma rays, infrared
12. Which of the following is **correctly** paired with the description of its climate?
 - a. savanna - cool temperature, precipitation uniform during the year
 - b. temperate deciduous forest - relatively short growing season, mild winters
 - c. tundra - long summers, mild winters
 - d. temperate grasslands - relatively warm winters, most rainfall in summer
 - e. tropical forests - nearly constant photoperiod and temperature
13. Which of the following **does not** describe the greenhouse effect?
 - a. It speeds up the escape of heat from Earth.
 - b. It is beneficial to life on earth.
 - c. Without it, the temperature at the surface of the Earth would be much colder.
 - d. Carbon dioxide in the atmosphere absorbs infrared radiation.

14. Which of the following is **not** true about global warming and greenhouse gases?

P.2

- a. Fossil fuel consumption is increasing the quantity of greenhouse gases in the atmosphere.
- b. Logging and clearing of forests contributes to global warming.
- c. Global warming is an international problem.
- d. Photosynthesis increases greenhouse gases by releasing CO₂ into the atmosphere.
- e. Some greenhouse gases are carbon dioxide, methane, and nitrous oxide.

Matching - Choices may be used more than once.

- a. Rayleigh Scattering
- b. Mie Scattering
- c. Nonselective Scattering

- ___ 15. Scatters small wavelength light rays
- ___ 16. Scatters high energy light rays
- ___ 17. Has no preference for which rays it scatters
- ___ 18. The reason why the sky is blue
- ___ 19. The reason why fog is detested

Short Answer & Essay

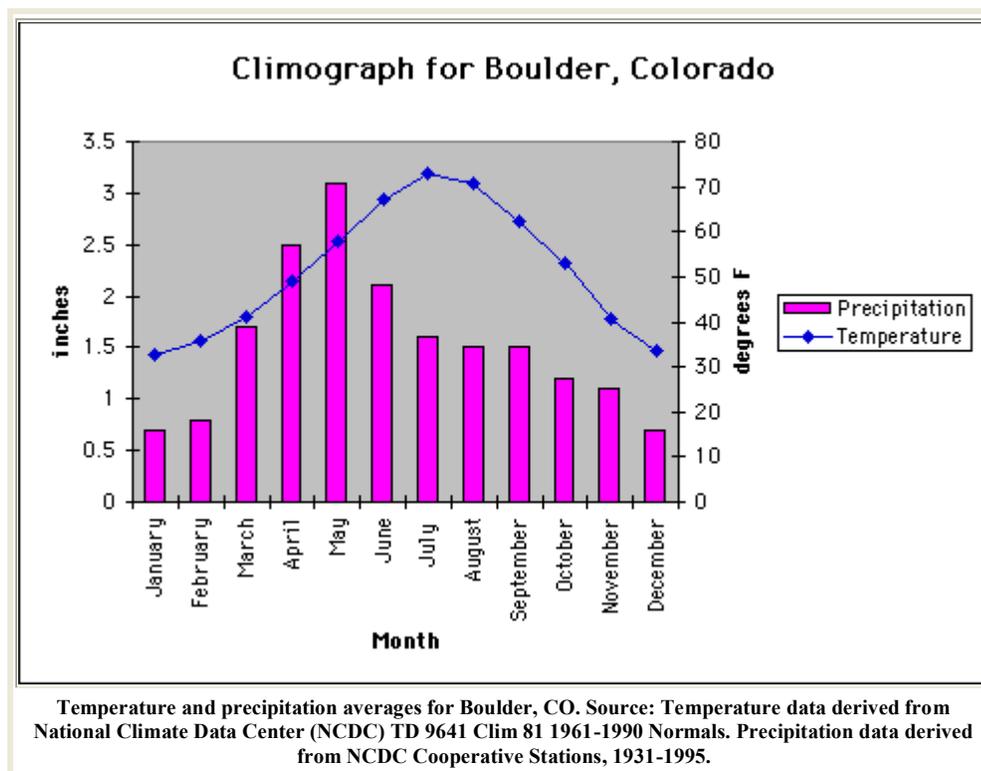
20. What does RADAR stand for?

21. Do forest fires have only negative effects? Explain.

22. Why are forest fires becoming a larger problem in most areas of the world?

23. Use the table below to determine the average change in temperature in degrees Celsius / year of Alaska, North America, and Africa.

	Alaska	North America	Africa
Temperature Change (°C / yr)	+ 4	- 1	+ 2
Number of Years	120	55	110



24. According to the climograph for Boulder, Colorado, what two consecutive months had the greatest percent increase in temperature? What was the percent increase?
25. According to the climograph for Boulder, Colorado, what was the average temperature for the year? shown in the graph?
26. List the steps in the Carbon Cycle. What steps directly relate to forest biomes?

Remote Sensing Cypress Falls Invitational 2009 - Answer Section

MULTIPLE CHOICE

1. C
2. B
3. D
4. A
5. B
6. C
7. B
8. C
9. A
10. B
11. C
12. E
13. A
14. D

MATCHING

15. A
16. A
17. C
18. A
19. C

ESSAY

20. Radio Detection & Ranging
21. No, fires are sometimes essential for forest regeneration, and in some biomes they are a necessary feature. Suppressing fires in some areas can cause more intense fires later.
22.
 1. Most fires are now either directly or indirectly caused by humans.
 2. Often used as a quick, cheap, and simple way to clear land.
 3. Can alter the structure and composition of forests, and open up areas to colonization by invasive species.
 4. Can destroy buildings, crops, and lives. Loss of an important resource base.
 5. Increased pollutants in the atmosphere can cause respiratory problems and irritate skin and eyes.
23. 2.28 degrees Celsius
24. February & March about 120 %
25. 51.8 degrees

26. Combustion
Respiration
Photosynthesis
Combustion
Deposition
Assimilation

Photosynthesis