Environmental Chemistry B Sample Test

The Browns want to raise some vegetables to help with the budget problems and not have to run to the store all the time and waste gas. They have brought you a sample of their soil. Please test the soil and give your findings

1) _____ pH 3) _____ Nitrogen

2) _____ Potash 4) _____ Phosphorous

The Smiths have brought you the results they measured with a soil test kit of their soil. They found a pH of 5.45, the Phosphorous was very low, the Potash was optimum, and the Nitrogen was high, What fertilizer would you recommend if they are planting tomatoes?

5) _____

Explain your reasoning

6) _____

_____

What fertilizer would you recommend if they want to grow lettuce?

7) _____

Explain your reasoning.

8) _____

_____

What do you recommend the Smiths do about the pH if they want to grow tomatoes?

9) _____

Explain your reasoning.

10) _____

_____

What do you recommend the Smiths do about the pH if they want to grow lettuce?

11) _____

Explain your reasoning.

12) _____

_____

The Jones are afraid that their soil has been contaminated by heavy metals from a nearby sewage treatment plant. A sample of the dirt from their garden was digested and you have it available to test. Whatever reagents that need to be added to cause the metals to have a color have been added so they are ready for use in the colorimeter. Please test if for Chromium.

Metal	Color to eye	Color where ion absorbs most
Nickel	Green	Purple 430 nm
Iron	Red	Blue 470 nm
Copper	Blue	Red 635 nm
Chromium	Yellow	Greed 565 nm

Based on the calibration chart you were given, what is the concentration of the Chromium ion?

13) _____

Does it seem likely that Chromium leached in from the sewage plant?

14) _____

Explain your reasoning.

15) _____

Take the initial temperature of both samples of soil you have before you.

16) Ti dry _____ Ti wet _____

Put both soil samples in the ice bath. At the end of five minutes, record the final temperatures.

17) Tf dry _____ Tf wet _____

Which type of soil, (wet or dry) would protect plants better from freezing their roots?

18) _____

Based on your knowledge of the chemistry involved, which type of soil (wet or dry) would protect plants from a hot spell better?

19) _____

Explain your reasoning.

20) _____

_____