Ch 3 Test Review

Name:

1. Who developed the first atomic theory?
2. Who proved the existence of an electron?
3. What rule says that electrons fill orbitals of a sublevel evenly?
4. Who was responsible for the idea of indivisible particles (atomos)?
5. What principle says we cannot determine the exact location of electrons?
6. Who performed the gold foil experiment?
7. Sketch the gold foil experiment:

8. What 2 ideas were based upon the gold foil experiment?
9. When scientists cannot see what they are talking about, what type of evidence do they use?
10. So that people understand what scientists are trying to explain, the scientists create _____.
11. Draw the models of the atom that we discussed in class, do them in chronological order (write the name of the person responsible for the model below the model):

12. Who came up with the idea of 7 energy levels?
13. What rule says that electrons fill the atom from lowest to highest energy?
14. Draw the diagonal rule:

15. What are three names given to the current model of the atom:

16. What principle states that if 2 electrons occupy the same orbital they will move in opposing direction?
17. What is the atomic number for Na?

18. What is the mass number for I-126?

19. How many electrons are in a neutral atom of Zn?

20. How many protons are in Cu?

21. How many neutrons are in Pb-208?

22. What can you conclude about As-74 and As-76?
    What word is used to relate these?

23. Are Kr -83 and Kr-85 isotopes? Explain why or why not:

24. How many orbitals are in a 3d sublevel?
25. How many electron will fit in a 4f orbital?
26. How many sublevels are in the 3^{rd} energy level?
27. How many electrons can the 2^{nd} energy level hold?
28. How many electrons will fit in a in a 2p orbital?
29. How many electrons will fit in the 4^{th} energy level?
30. How many sublevels could be in the 5^{th} energy level?
31. How many electrons can be put in a 5f sublevel?

Write the electron configuration notation for the following:

32. Calcium

33. Bismuth

34. Argon

Draw the orbital notation for the following:

35. Arsenic

36. Oxygen

37. Nickel
38. What is the element: $1s^2 2s^2 2p^6 3s^2 3p^2$?

39. What is the element: $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^6$?
40. What is the element: $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^{10} 4p^5$?
41. What is the element: $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^{10} 6p^5$?
42. Explain the difference between what is represented in 40 and 41.

43. What is the frequency of light that has a wavelength of 3.22×10^5m?

44. What is the energy of the light in question 43?

45. What type of light has a greater wavelength….radio waves or UV?
46. What type of light has greater energy…microwaves or gamma waves?
47. If the wavelength of light gets longer, what happens to the frequency? What happens to the energy?
48. Explain how light is produced.

49. What do you call the bands of light produced by electrons?
50. Give the mass and charge of the particles in an atom. Make sure to label everything.