

Name \_\_\_\_\_ Pd \_\_\_\_\_ Date \_\_\_\_\_

## Unit 4.2 Exam Review (Elements & the Periodic Table) Worksheet

- How many electrons can each of the following main energy levels hold?
  - 1<sup>st</sup> -
  - 2<sup>nd</sup> -
  - 3<sup>rd</sup> -
  - 4<sup>th</sup> -
  - 5<sup>th</sup> -
- List 3 elements from each of the following:
  - Lanthanide series -
  - Actinide series -
  - Noble gases -
  - Halogens -
  - Transition metals -
  - Alkali metals -
  - Alkaline earth metals -
  - Metalloids -
  - Non-metal other than a noble gas and halogen -
- Circle the elements from each set that have the most similar properties:
  - Be Ti B Sr
  - C Ne N Te
  - K Cr Ra Mn
- Rank the groups of metals (alkali metals, alkaline earth metals and transition metals) from most reactive to least reactive.
- Which group of non-metals, halogens or noble gases, are the most reactive?
- In your own words, define ...
  - Atomic radius
  - Ionization energy

c. Electron affinity

d. Electronegativity

7. Write the chemical symbol for ...

a. An atom with 8 protons, 8 neutrons and 10 electrons.

b. An atom with 16 protons, 16 neutrons and 16 electrons.

c. An atom with 11 protons, 11 neutrons and 10 electrons.

8. Write the atomic symbol for ...

a. An atom with 6 protons, 8 neutrons and 6 electrons.

b. An atom with 20 protons, 21 neutrons and 20 electrons.

9. Write the hyphen notation for ...

a. An atom with 26 protons, 30 neutrons and 26 electrons.

b. An atom with 92 protons, 143 neutrons and 92 electrons.

10. Which isotope of chlorine is the most abundant, the one with 18 neutrons or the one with 20 neutrons?

11. What are the only two orbitals that contain valence electrons?

12. Pick the element with the largest atomic radius and explain the reason for your choice.

a. phosphorous

b. arsenic

c. bismuth

13. Pick the element with the highest electronegativity and explain the reason for your choice.

a. Antimony

b. Iodine

c. Zirconium

14. Pick the element with the lowest ionization energy and explain your choice.

a. Beryllium

b. Calcium

c. Strontium

15. Pick the element with the smallest atomic radius and explain your choice.

a. Chlorine

b. Magnesium

c. Silicon

16. Which element has the noble gas configuration  $[\text{Ar}] 4s^2 3d^7$ ?

17. Which element has the noble gas configuration  $[\text{Rn}] 7s^2 5f^{14} 6d^2$ ?

18. Write the noble gas configuration for palladium (pd).

19. Write the noble gas configuration for lead (Pb).

20. Calculate the average atomic mass for the mythical element dutchmenium, which has the following isotopes: dutchmenium-44 (44.321 amu and 25.5% abundant), dutchmenium-46 (46.374 amu and 15.5% abundant), and dutchmenium-48 (48.444 amu and 59.0% abundant).