**Homework 1 – CHEM 244**

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|  | **Name** |
|  | **Student ID** |
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| 1. Write an equation for the reaction of sodium atoms (Na) with chlorine atoms (Cl). | |
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| 1. Write an equation for an electron-dot structure of a fluorine molecule from two fluorine atoms. | |
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| 1. Draw an electron-dot structures for dichloromethane (also called methylene chloride), CH2Cl2, and trichloromethane (chloroform), CHCl3. | |
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| 1. Draw an electron-dot structure for carbon monoxide, CO. | |
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| 1. What is the maximum capacity of elections in shells for the element Boron “B” then describe the following; 2. Draw the energy level 3. Draw the valance electrons in shells 4. Draw the Electron-dot structures | |
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| 1. Draw the carbon sp3, sp2 and sp hybrid orbitals, then describe the geometrical name and angle for all | |
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| 1. Which of the following has zero dipole moment? 2. NH3 b) HCl c) BF3 d) BeF2 e) SnCl2 f) SnCl4 | |
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| 1. What is the bonding type for the following and prove that? 2. CaCl2 b) Mg(OH)2 c) NH3 d) H2O | |
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| 1. For the compound shown below;     Answer the following questions;   1. What functional groups are present in compound A? 2. What is the molecular formula of A? | |
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| 1. What is the molecular formula of an alkane with seven carbon atoms? | |
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| 1. What is the molecular formula of a cycloalkane with 5 carbon atoms? | |
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| 1. Which of the following are alkanes and prove that? 2. C7H16 b) C7H12 c) C8H16 d) C29H60 | |
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| 1. Draw the chemical structure for the following groups; 2. *Iso*propyl b) *Iso*butyl c) n-propyl d) *tert*-butyl | |
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| 1. Draw the chemical structure for the following compound;   *trans*-1,2-dimethylcyclobutane | |
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| 1. Draw the chemical structure for the following compound;   4-cyclopropyl-2,3,4-trimethylnonane | |
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| 1. What is the IUPAC name for the following compound; | |
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| 1. Draw the chemical structure for the following compound;   3-chloro-4-ethyl-3,6-dimethylheptane | |
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| 1. Complete the following combustion equation;   C3H8 + …. O2 …. CO2 + ………. + ………. | |
| 1. Complete the following reactions; | |
| 1. What is the condition of the following reactions? | |