(2) 1. Give the name for the straight chain alkanes having the following molecular formulas:
0.5 pts each
(a) $\text{C}_7\text{H}_{16}$ _______heptane________ (b) $\text{C}_5\text{H}_{12}$ ______pentane________
(c) $\text{C}_2\text{H}_6$ _______ethane________ (d) $\text{C}_4\text{H}_{10}$ ______butane________

(2) 2. Give the molecular formulas for the following straight chain alkanes:
0.5 pts each
(a) butane $\text{C}_4\text{H}_{10}$________ (b) propane $\text{C}_3\text{H}_8$________
(c) decane $\text{C}_{10}\text{H}_{22}$________ (d) hexane $\text{C}_6\text{H}_{14}$________

(2.5) 3. Draw the Lewis structure of formaldehyde (CH$_2$O) in the box at the right.
1 pt structure, 0.5 pts each blank
(a) How many total valence electrons are there? ___12____
(b) What is the O-C-H angle? __120°____
(d) What is the hybridization about the C atom? __sp$^2$____

(2.5) 4. Following is the structure of the artificial sweetener aspartame (trade name “Nutrisweet”).
Identify the functional groups indicated by the letters:
0.5 pts each
A. __amine________
B. carboxylic acid
C. __amide________
D. __ester________
E. __aromatic______

(1) 5 Friedrich Wohler is credited with disproving the “vital force” theory of organic compounds in 1828 when he successfully synthesized what organic compound from inorganic precursors?

          urea (or NH$_2$CONH$_2$)