April 16th

1. Fill out the table below.

Substance	Molecular mass (amu)	Molar mass M	Number of moles in 100g of the substance
H_2O	18 amu	18 g/mole	5.6 moles
CaO			
C			
Cu			
Cl			
Cl_2			
Cl^-			
$KMnO_4$			
H_2SO_4			
CuO			
K_2O			
CH_4			

2. Write down chemical reaction of methane burning (CH_4 reaction with O_2) with formation of carbon dioxide and water. Balance it and answer the following questions:
    a. How many moles of carbon dioxide form from 1 mole methane?
    b. How many grams of carbon dioxide form from 100g of methane?
    c. How many moles of oxygen are needed to burn 1 mole of methane?
    d. How many grams of oxygen is needed to burn 100 g of methane?
    e. How many liters of carbon dioxide form from 100g of methane under normal conditions?
    f. How many moles of water will form from 60 moles of methane?
    g. How many grams of water will form from burning 60 g of methane?
    h. How many grams of water will form from burning 22.4 liters of methane?