This is BCE#8.

I recommend you print out this page and bring it to class. Click here to show a set of five BCE8 student responses randomly selected from all of the student responses thus far in a new window.

john , here are your responses to the BCE and the Expert's response.

1. What is the mass of 1 mol of methane, CH_4? 16 g

16.0 grams 76%

2. How many moles of methane are in 32.0 grams methane? 2.00 mol

2.00 mol 73%

Since 1 mol of methane has a mass of 16.0 g a 32.0 g sample of methane contains:
32.0 g CH_4 (1 mol CH_4/16.0 g CH_4) = 2.00 mol CH_4

3. How many moles in 48.0 grams of HCN? 1.78 mol

1.78 mol HCN : 67%

48.0 g HCN (1 mol HCN/27 g HCN) = 1.78 mol HCN

4. How many moles of oxygen atoms in 0.0500 mol of Fe_3O_4? 0.200 mol

0.200 mol of O atoms in 0.0500 mol of Fe_3O_4 :

0.500 mol Fe_3O_4 : (4 mol O atoms/1 mol Fe_3O_4) = 0.200 mol O atoms

5. We need to understand a little more about formulas, so consider the formula for glucose, $C_6H_{12}O_6$.

a) Is this the formula of a covalent compound or an ionic compound?
covalent 82%
covalent compound (the formula conains elemetns that are all nonmetals.)

b) How many carbon atoms in one molecule of glucose?
6 carbon atoms 89%
6 carbon atoms

c) How many oxygen molecules, O_2, in a glucose molecule?
0 O_2 molecules 19%

0 oxygen molecules, O_2, but there are 6 oxygen atoms.

NOTE: a formula tells us the ratio of ATOMS in the compound.

d) Complete the following table?

Element	Number of atoms in glucose, $C_6H_{12}O_6$	Atomic Mass	Mass of element contributed to mass of glucose
C	6	12.011	72.066
H	12 12 H atoms	1.0078 1.0078	12.09 12.094 89%
O	6 6 O atoms	16 16.00	96 96.00 88%

6. What % of the total mass of glucose is contributed by carbon?
40.%
This percentage can be calculated by dividing the mass of carbon in the compound by the total mass of the compound,
(72.066 g/180.16 g) * 100 = 40.000% 75%

7. What % of the total mass of glucose is contributed by hydrogen?
6.7%
(12.094 g/180.16 g) * 100 = 6.7129%

8. What % of the total mass of glucose is contributed by oxygen?
53.3%
(96.00 g/180.16 g) * 100 = 53.29% 78%

9. How many grams of carbon atoms are contained in 100. grams of glucose?
40 grams
100 g glucose (40.000 g C/100 g glucose) = 40.000 g C
or 100 g glucose (72.066 g C/180.16 g glucose) = 40.00 g C

10. How many grams of hydrogen atoms are contained in 100. grams of glucose?
6.7 grams
100 g glucose (6.7129 g H/100 g glucose) = 6.7129 g H
or 100 g glucose (12.094 g H/180.16 g glucose) = 6.7129 g H

11. How many grams of oxygen atoms are contained in 100. grams of glucose?
53.3 grams
100 g glucose (53.29 g O/100 g glucose) = 53.29 g O
or 100 g glucose (96.00 g O/180.16 g glucose) = 53.29 g O

12. Which of the following compounds has the highest percentage of oxygen?

PbO, MgO, CO, Cl_2O or SO_2

Write the formula of the compound... CO CO 64%

13. Briefly explain how you arrived at your answer in Q12.

it has 57 % which is the largest
Calculate the percentage of oxygen in each of the compounds;
PbO: (16.00 g O/223.2 g PbO) * 100 = 7.168% O
MgO: (16.00 g O/40.31 g MgO) * 100 = 39.69% O
CO: (16.00 g O/28.00 g CO) * 100 = 57.14% O
Cl_2O: (16.00 g O/86.90 g Cl_2O) * 100 = 18.41% O
SO_2: (32.00 g O/64.06 g SO_2) * 100 = 49.95% O

14. Is there anything about the questions that you feel you do not understand? List your concerns/questions.

nothing

15. If there is one question you would like to have answered in lecture, what would that question be?

nothing