

### 37010, Inorganic Chemistry

how many molecules are contained in each compound?

- A. 1.35 mol of carbon disulfide (CS<sub>2</sub>)
- B. 0.254 mol of diarsenic trioxide (As<sub>2</sub>O<sub>3</sub>)
- C. 1.25 mol of water
- D. 150.0 mol of HCL

#### Solution:

One mole of the some compound contains  $6.02 \cdot 10^{23}$  molecules (Avogadro's number).

So, in case of:

A)  $n(\text{CS}_2) = 1.35 \cdot 6.02 \cdot 10^{23} = 8.13 \cdot 10^{23}$  molecules;

B)  $n(\text{As}_2\text{O}_3) = 0.254 \cdot 6.02 \cdot 10^{23} = 1.53 \cdot 10^{23}$  molecules;

C)  $n(\text{H}_2\text{O}) = 1.25 \cdot 6.02 \cdot 10^{23} = 7.53 \cdot 10^{23}$  molecules;

D)  $n(\text{HCl}) = 150.0 \cdot 6.02 \cdot 10^{23} = 903.0 \cdot 10^{23} = 9.03 \cdot 10^{25}$  molecules.