

### QUESTION



Strychnine is often the poison of choice in murder mysteries. It has a formula of  $C_{21}H_{22}N_2O_2$ . How many moles of carbon atoms and oxygen atoms are there in one mole of strychnine?

A. 21 mol of carbon atoms and 1 mol of oxygen atoms
B. 21 mol of carbon atoms and 2 mol of oxygen atoms
C. 22 mol of carbon atoms and 21 mol of oxygen atoms
D. 2 mol of carbon atoms and 2 mol of oxygen atoms

QUESTION

How many atoms of silicon are there in 0.367 moles of silicon?

A) 6.10 x 10<sup>-25</sup> atoms Si B) 2.21 x 10 <sup>23</sup> atoms Si C) 2.21 atoms Si D) 1.64 x 10 <sup>24</sup> atoms Si

# QUESTION

Potassium phosphate and sodium phosphate is a combination medicine used to make urine more acidic to help prevent kidney stones.

What is the molar mass of potassium phosphate?

a) 134 g/mol b) 86.07 g/mol c) 134.07 g/mol d) 212.27 g/mol

### **QUESTION**

Sulfur is derived from the Latin word sulpur. The Greek word for sulfur,  $\theta \hat{\epsilon} \hat{o} v$ , which is the source of the international chemical prefix thio-. Sulfur is prominent in volcanic areas like Lassen National Park, which by the way stinks!

What is the mass in grams of 4.00 moles of sulfur?

A) 128 g B) 128.3 g C) 12.5 g D) 0.125 g



## QUESTION

About 4-5% of beer is ethanol. What is the molar mass of ethanol ( $C_2H_5OH$ )?

A) 45.07 g/mol B) 38.90 g/mol C) 46.07 g/mol D) 34.17 g/mol E) 62.07 g/mol







## QUESTION

Which of the following compounds has the same percent composition by mass as styrene,  $C_8H_8$ , the monomer used to make polystyrene, which is difficult to recycle and is found in most garbage dumps... and oceans.

A) Acetylene,  $C_2H_2$ B) Benzene,  $C_6H_6$ 

C) Cyclobutadiene,  $C_4H_4$ D)  $\alpha$ -ethyl naphthalene,  $C_{12}H_{12}$ 

E) All of these



# QUESTION



Morphine, derived from opium plants, relieves pain and is addictive. It's formula is  $C_{17}H_{19}NO_3$ . What percent, by mass, is the carbon in this compound?

A. 42.5% B. 27.9% C. 71.6% D. This cannot be solved until the mass of the sample is given.

#### QUESTION



Nearly 35 million smokers want to quit each year. Unfortunately, more than 85 percent of those who try to quit relapse, most within a week. Nicotine use is more difficult to withdraw from than heroin. What is the percent composition for nicotine,  $C_{10}H_{14}N_2$ ?

Nicotiana tobacum

A) 64.14% C, 14.04% H, 21.82% N B) 74.017 % C, 8.714 % H, 17.27 % N C) 74.02 % C, 8.71 % H, 17.27 % N D) 44.43 % C, 3.74 % H, 51.83 % N