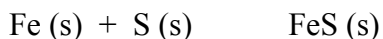


**AP MULTIPLE CHOICE QUESTIONS**  
**CH. 3, SET 1**

**AP Chem, Test III**

14. Consider the balanced equation



Approximately what amount of sulfur in grams must be available for 28 grams of iron to react to form the compound?

- (A) 1 (D) 32  
(B) 8 (E) 64  
(C) 16

21. 96 grams of oxygen are produced by chemical reaction from ozone. The number of moles of ozone required to produce this amount of oxygen is:

- (A) 1 (D) 5  
(B) 2 (E) 10  
(C) 3

41. Consider the following unbalanced equation. Coefficients are missing:



To balance the equation, the four consecutive coefficients from left to right are:

- (A) 4, 5, 4, 6 (D) 5, 5, 4, 6  
(B) 4, 4, 5, 6 (E) 6, 5, 4, 4  
(C) 5, 4, 5, 6

44. What number of moles of O<sub>2</sub> is needed to produce 14.2 grams of P<sub>4</sub>O<sub>10</sub> from P? (Molecular weight P<sub>4</sub>O<sub>10</sub> = 284)

- (A) 0.0500 mole (D) 0.250 mole  
(B) 0.0625 mole (E) 0.500 mole  
(C) 0.125 mole

52.  $3\text{Ag (s)} + 4\text{HNO}_3 \text{ (aq)} \rightarrow 3\text{AgNO}_3 \text{ (aq)} + \text{NO (g)} + 2\text{H}_2\text{O (l)}$

The reaction of silver metal and dilute nitric acid proceeds according to the equation above. If 0.10 mole of powdered silver is added to 10. milliliters of 6.0-molar nitric acid, the number of moles of NO gas that can be formed is

- (A) 0.015 moles (D) 0.045 moles  
(B) 0.020 moles (E) 0.090 moles  
(C) 0.030 moles

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47. When Hafnium metal is heated in an atmosphere of chlorine gas, the product of the reaction is found to contain 62.2 percent Hf by mass and 37.4 percent Cl by mass. What is the empirical formula for this compound?

- (A) HfCl (D) HfCl<sub>4</sub>  
(B) HfCl<sub>2</sub> (E) Hf<sub>2</sub>Cl<sub>3</sub>  
(C) HfCl<sub>3</sub>