

Mass crucible (g)	11.12
Mass of titanium (g)	8.82
Mass of crucible and product (g)	22.998

What is the empirical formula of titanium sulfide? (Mr Ti = 47.867 g mol<sup>-1</sup>)

- A. TiS                      C. Ti<sub>2</sub>S<sub>2</sub>  
 B. Ti<sub>2</sub>S                    D. TiS<sub>2</sub>

10. What volume of water in cm<sup>3</sup> should be added to 10.0 cm<sup>3</sup> of NaOH 6 M to produce a solution of NaOH 0.3 M?

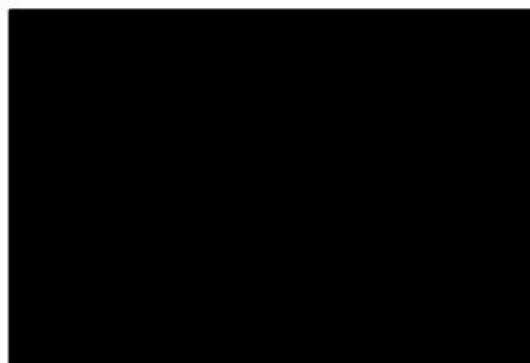
- A. 10                      C. 200  
 B. 190                    D. 500

11. Which of the following statements is NOT true about 2 L of 0.1 M Ca<sub>3</sub>(PO<sub>4</sub>)<sub>2</sub> solution?

- A. This solution contains 0.3 mol of Ca<sub>3</sub>(PO<sub>4</sub>)<sub>2</sub>  
 B. This solution contains 0.8 mol of oxygen atoms  
 C. 2 L of this solution produces 0.6 mole of calcium ions  
 D. 500 mL of this solution contains 6.02 × 10<sup>22</sup> phosphorus atoms

12. The density of 95% by mass of sulphuric acid, H<sub>2</sub>SO<sub>4</sub>, is 1.84 g mL<sup>-1</sup>. Calculate the molarity of H<sub>2</sub>SO<sub>4</sub> solution.

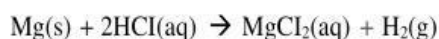
- A. 15.50 M              C. 1.80 M  
 B. 10.23 M              D. 17.82 M



16. A 72.0 g vanadium pentoxide, V<sub>2</sub>O<sub>5</sub> reacts with excess aluminium, Al at high temperature to produce vanadium metal, and aluminium oxide, Al<sub>2</sub>O<sub>3</sub>. Calculate the mass of vanadium produced. [Ar V: 51]

- A. 4.04 g                  C. 44.0 g  
 B. 40.4 g                  D. 4.40 g

17. In an experiment, 1.46 g of magnesium is added into 160.00 mL of 0.50 mol L<sup>-1</sup> hydrochloric acid. The reaction involved is:



Determine the limiting reactant.

- A. Mg(s)                  C. MgCl<sub>2</sub> (aq)  
 B. HCl (aq)              D. H<sub>2</sub>(g)

