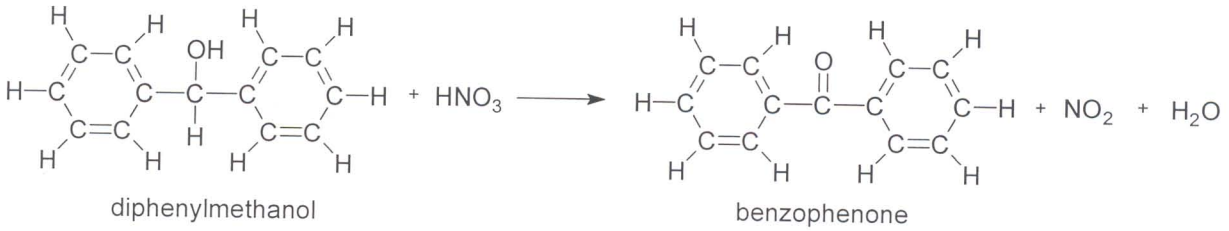
Quiz 1 Chem 231-05

Your name KEY

9/3/09

Student ID#_____

When the reaction below was carried out with 5.0 g diphenylmethanol and 12.3 g nitric acid, 4.4 g benzophenone were isolated. Atomic weights: C, 12.011; 51.996; H, 1.008; N, 14.007; O, 15.999.



diphenylmethanol benzophenone

1. Show a balanced reaction equation for this reaction. Use molecular formulas. (4 pts).

$C_{13}H_{12}O + 2HNO_3 \rightarrow C_{13}H_{10}O + 2NO_2 + 2H_2O$

184.24 126.20 182.22

2. What is the limiting reactant of this reaction? (2 pts)

$\frac{5.0}{184.2} \times 126.2 = 3.4\ g$ nitric acid needed

→ diphenylmethanol limiting

3. What is the percent yield of theory? Show your work! (3 pts)

Expected:

$\frac{5.0}{184.2} \times 182.2 = 4.9\ g$

Yield:

$\frac{4.4}{4.9} \times 100.0 = 90.0\%$

4. Which compounds give rise to which hazards? (6 pts)

Compound	flammable	corrosive
dichloromethane		
nitric acid		✓
acetone	✓	