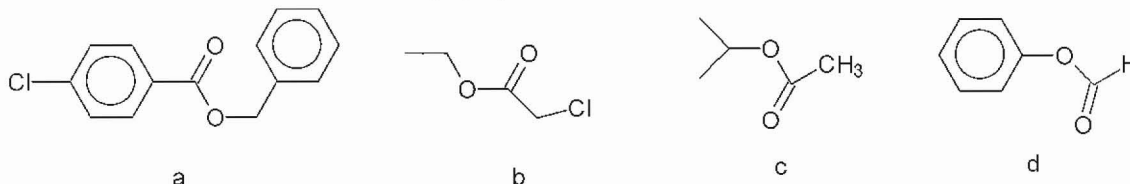


1. Show a balanced reaction equation for the synthesis of methyl 3-nitrobenzoate. (4 pts)



2. Name the esters shown below! (4 pts)



a benzyl 4-chloro-benzoate

b ethyl chloroacetate

c isopropyl acetate

d phenyl formate

3. Assuming you use 2.0 ml of 91% nitric acid (density 1.52), how many moles would that correspond to? (Atom weights: H, 1.00; O, 16.00; N, 14.00) (1 pts)

$$MW_{HNO_3} = 63.01 \quad \frac{2.0 \times 1.52 \times 0.91}{63.01} = 0.044 \text{ moles}$$

4. Show valid, complete Lewis dot structures for a) the nitronium cation, b) the nitrite anion (4 pts)



5. Propose a structural formula for diphenyl carbonate! (2 pts)

