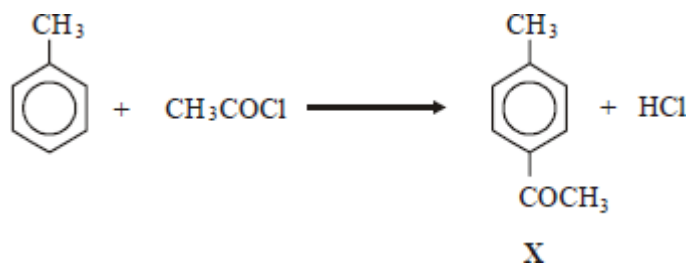


Q1. Ethanoyl chloride reacts with methylbenzene forming compound **X** according to the equation below.



If the experimental yield is 40.0%, the mass in grams of **X** ($M_r = 134.0$) formed from 18.4 g of methylbenzene ($M_r = 92.0$) is

- A 26.8
- B 16.1
- C 10.7
- D 7.4

(Total 1 mark)

Q2. In a reaction which gave a 27.0% yield, 5.00 g of methylbenzene were converted into the explosive 2,4,6-trinitromethylbenzene (TNT) ($M_r = 227.0$). The mass of TNT formed was

- A 1.35 g
- B 3.33 g
- C 3.65 g
- D 12.34 g

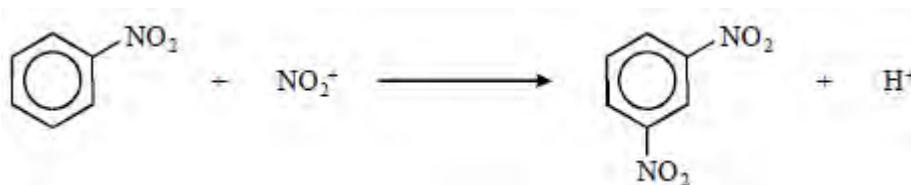
(Total 1 mark)

Q5. The relative molecular mass (M_r) of benzene-1,4-dicarboxylic acid is

- A 164
- B 166
- C 168
- C 170

(Total 1 mark)

Q6. 1,3-dinitrobenzene can be prepared by heating nitrobenzene with a mixture of fuming nitric acid and concentrated sulphuric acid. The reaction can be represented by the following equation.

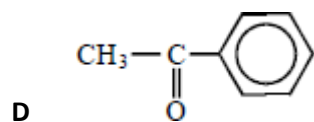
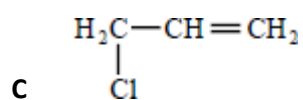
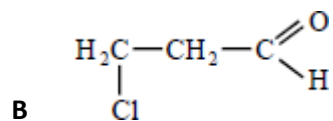
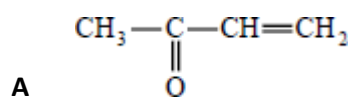


If the yield of the reaction is 55%, the mass of 1,3-dinitrobenzene produced from 12.30 g of nitrobenzene is

- A 16.90 g
- B 16.80 g
- C 9.30 g
- D 9.24 g

(Total 1 mark)

Q7. Which one of the following can react both by nucleophilic addition and by nucleophilic substitution?



(Total 1 mark)

Q8. Which one of the following does **not** contain any delocalised electrons?

A poly(propene)

B benzene

C graphite

D sodium

(Total 1 mark)