

### 4.6 EXERCISE 1 – AROMATIC CHEMISTRY

1.
  - a) Describe the shape of, and bonding in, a molecule of benzene
  - b) Explain why benzene does not readily undergo addition reactions
2. Deduce the main organic products of the following reactions:
  - a) benzene with nitric acid in the presence of sulphuric acid
  - b) benzene with chloromethane in the presence of aluminium chloride
  - c) benzene with propene in the presence of aluminium chloride and hydrogen chloride
  - d) benzene with propanoyl chloride in the presence of aluminium chloride
  - e) nitrobenzene with tin and concentrated hydrochloric acid
3. Give mechanisms for the reactions in (a), (b), (c) and (d)
4. Explain why phenylamine is a weaker base than ethylamine
5. Give a use for the following techniques in aromatic chemistry:
  - a) nitration of benzene
  - b) preparation of phenylamine
  - c) preparation of ethylbenzene