4.5 Exercise 1 – aldehydes and ketones

1. Name and draw the structures of the organic products obtained by the following reactions. If there is no reaction, state "no reaction".

    a) propanal with acidified potassium dichromate
    b) propanal with $NaBH_4$
    c) propanone with acidified potassium dichromate
    d) propanone with $NaBH_4$
    e) propanone with HCN
    f) butanal with Fehling's solution
    g) methylpropanal with Tollen's reagent
    h) butanone with Fehling's solution
    i) butanone with HCN

2. Write equations and give the mechanism for the reaction of butanone with

    a) $NaBH_4$
    b) HCN

3. Suggest starting materials for the production of the following hydroxynitriles:

    a) 2-hydroxybutanenitrile
    b) 2-methyl, 2-hydroxybutanenitrile
    c) 3-methyl, 2-hydroxybutanenitrile