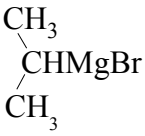
HALOGENOALKANES: GRIGNARD REAGENTS

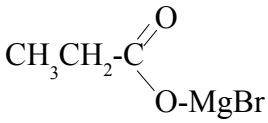
1. a) (i) $CH_3CH_2CH_2MgBr$

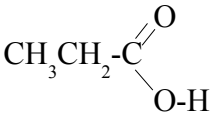
(ii) 

(You might have drawn this second one arranged differently in space. However you have drawn it, make sure that the MgBr is attached to the centre carbon atom, and that there is also a hydrogen atom attached to that carbon.)

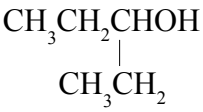
b) $CH_3CH_2CH_2MgBr + H_2O \longrightarrow CH_3CH_2CH_3 + Mg(OH)Br$

c) The reflux condenser is to stop volatile things escaping from the mixture, particularly the ethoxyethane. However, the boiling point of ethoxyethane is so low that a small amount of vapour *will* escape, and it is so flammable that any nearby naked flame will set it on fire.

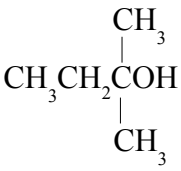
2. a) (i) 

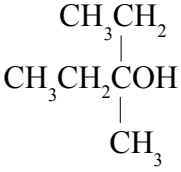
(ii) 

b) (i) $CH_3CH_2CH_2OH$

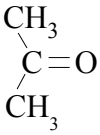
(ii) 

I have written the formula in this way so that it relates more clearly to the general case. You could equally well write this in a more conventional way by writing the longest carbon chain horizontally, as $CH_3CH_2CH(OH)CH_2CH_3$. But in an exam, there is no point in doing that, and you risk making a mistake in the process.

(iii) 

(iv) 

c) You would start with the Grignard reagent CH_3MgBr to give you the left-hand CH_3 group in the final molecule.

Then react it with propanone  to give the top and bottom ones.

Finally react the product of that reaction with dilute acid to give