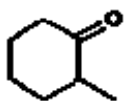


ALDEHYDES AND KETONES STUDY GUIDE

1. Name the following aldehydes and ketones according to systematic nomenclature:

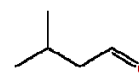
a)



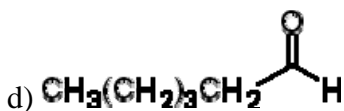
b)



c)



Cl



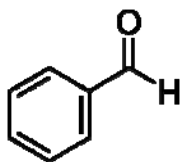
e)



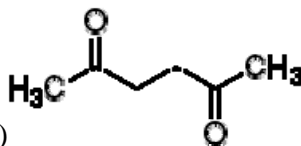
f)



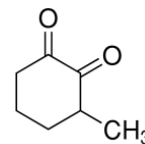
g)



h)

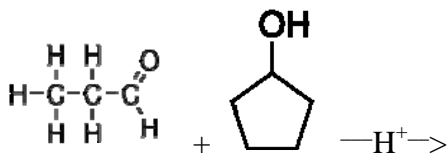


i)

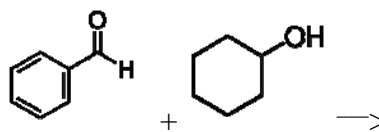


2. Show the structure of the product formed from the following molecules

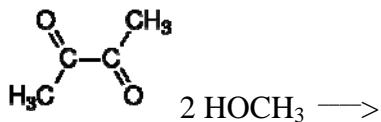
a)



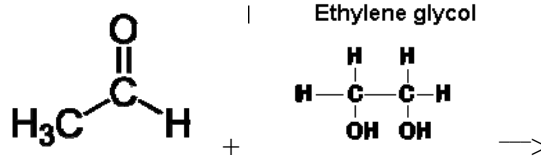
b)



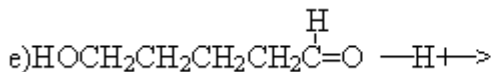
c)



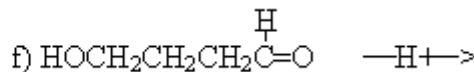
d) 2



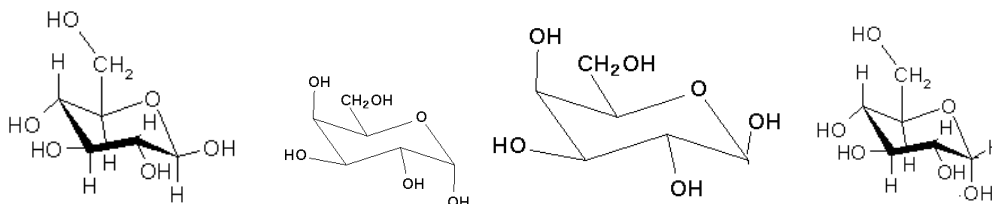
e)



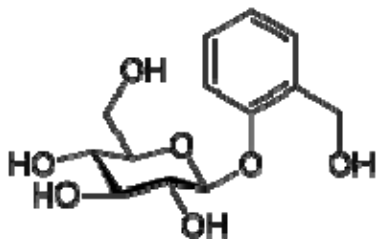
f)



3. Show the product of the formation of the hydrate of acetaldehyde.
 4. Given the aldehyde form of the structure of glucose, show how glucose forms a hemiacetal ring. Show the difference between α and β glucose.
 5. Given the aldehyde form of galactose, show how galactose forms a hemiacetal ring. Show the difference between α and β galactose.
6. Identify whether the following structures are glucose or galactose and whether they are in the alpha or beta form.



6. Salicin is the analgesic compound isolated from willow bark that gets metabolized into salicylic acid. Identify the sugar in salicin and determine whether it is in α or β form.



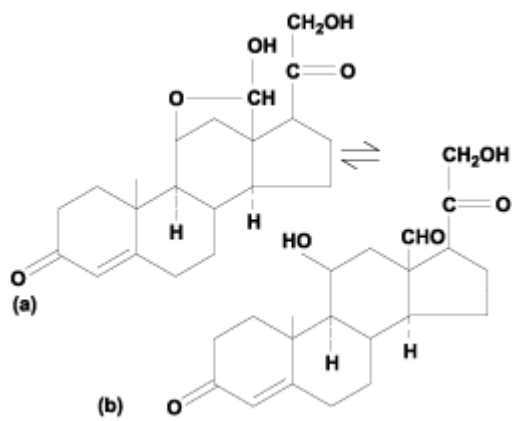
Salicin

(Salicin was first isolated from willow bark by Johann Buchner, inventor of the Buchner funnel!)

Digging deeper. Do an internet search on the controversy about the use of formaldehyde in vaccines and the various claims. Evaluate those concerns to the best of your ability and summarize what data is available to support or contradict those concerns.

Aldosterone is an important steroid hormone that helps retain sodium (and hence water). Water retention helps maintain blood pressure. It contains both an aldehyde and an alcohol group and these two functional groups can react reversibly to form a hemiacetal ring as shown below. In fact most (~99%) of the aldosterone exists in the hemiacetal form

Hemiacetal form



aldehyde/alcohol form of aldosterone