

ALDEHYDES KETONES AND CARBOXYLIC ACIDS

1. A boy argues with his sister not to use nail polish and nail polish remover as frequently as it is poisonous. His sister rubbishes his arguments stating that all women polishing their nails to beautify.

Answer the following questions:

- (i) Is the brother of the girl justified in his arguments?
- (ii) As a student of chemistry what do you think could be reason for such a suggestion?
- (iii) Suggest two activities to promote these values.

Answer:

- (i) The brother of the girl is justified in his arguments because Nail polish contains two most common chemicals i.e., formaldehyde and toluene. Both are toxic substances and are carcinogenic compounds (cancer producing compounds).
- (ii) (a) The frequent use may expose to cancer risk.
(b) Breathing in toluene irritate eyes, throat and lungs.
- (iii) Spreading awareness about the risk of cancer.

2. When oils and even the oily eatables are not used over a time period these are known to change its odor and its taste i.e., unpleasant and noxious odors and flavours are given by such samples.

Answer the following questions:

- (i) Why the oils and oily eatables develop unpleasant and noxious odors and flavors?
- (ii) As a student of chemistry what do you think could be reason and the term you would use to explain it?
- (iii) What you shall do to such eatables i.e., you will dispose it off or give it to your maid?
- (iv) Which values are promoted through your actions?

Answer:

- (i) The unpleasant odour and flavor results because of the decomposition of fatty acids.
- (ii) Formed due to decomposition of fats, oil on hydrolysis or oxidation then undergo further auto oxidation to generate highly reactive molecules in rancid oils and hence produce unpleasant odour and flavor.
- (iii) Such eatables should be disposed off because due to rancidity nutrients as well as the vitamins in the food are destroyed due to highly reactive molecules in rancid oil.
- (iv) **Value:** Nutritional significance, concern, knowledge of chemistry.

3. Organic acids characterized by the presence of at least one carboxyl group. The general formula of a carboxylic acid is $R-COOH$. The carboxylic acids find a use in the manufacture of many useful drugs. One such important drug is aspirin.

Answer the following questions:

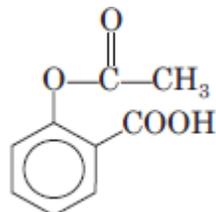
- (i) What is the IUPAC name of the drug? Name the functional groups present in the drug.
- (ii) Can the drug be prepared in the lab?

(iii) A person goes to the shopkeeper to get aspirin pills without doctor's prescription. The chemist is reluctant to give him pills without doctor's prescription.

(iv) Which values are reflected in chemist's approach?

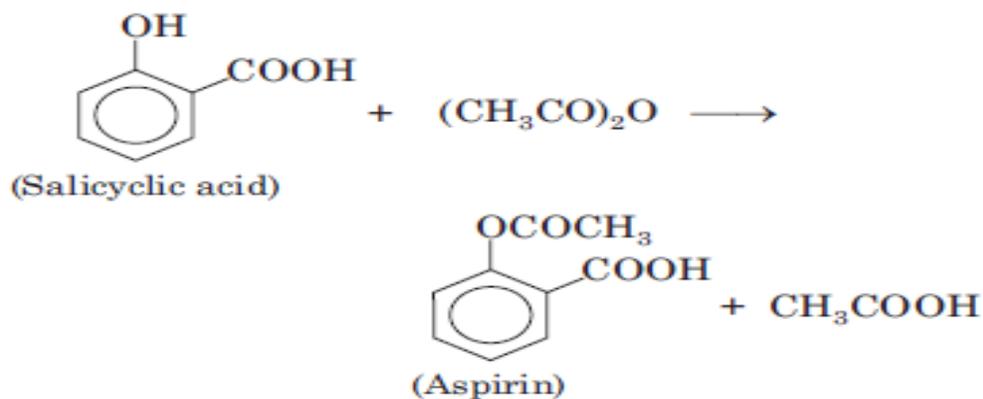
Answer:

(i) Aspirin is acetyl salicylic acid,



IUPAC Name- 2-Acetoxy benzoic acid or 2-Acetoxy benzene carboxylic acid.

(ii) It can be prepared in lab, by the reaction of salicylic acid with acetic anhydride.



(iii) No medicines should be given without prescription as an overdose of these pills may result in death of a person.

(iv) **Value:** Professional commitment a person, sincerity and health concern.

4. A stain of rust is there on your cloth. You are worried how to remove this stain. Shyam tells you to remove this stain using ripened guava.

a. Why?

b. What are the values you are having when doing this?

Answer:

a. The rust is iron oxide. The oxalic acid in guava fruit dissolves iron oxide.

b. **Help your friends and neighbours** when you know some simple home techniques instead of chemicals.