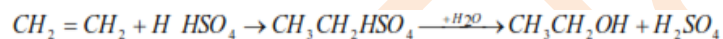


**Class: 12**  
**Subject: chemistry**  
**Topic: Organic Chemistry of O compounds**  
**No. of Questions: 20**  
**Duration: 60 Min**  
**Maximum Marks: 60**

1. Ethylene is passed through conc.  $H_2SO_4$  and the product obtained is diluted with water and distilled. The final product formed is
- Ethanol
  - Ethyne
  - Ether
  - Ethyl hydrogen sulphate

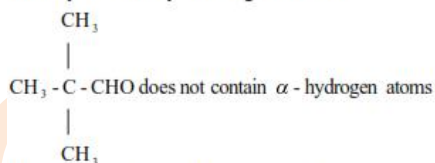
Sol: A



2. The Cannizzaro's reaction is not given by
- Trimethylacetaldehyde
  - Benzaldehyde
  - Acetaldehyde
  - Formaldehyde

Sol: C

Trimethyl acetaldehyde having the formula



Hence trimethyl acetaldehyde, formaldehyde and benzaldehyde answer Cannizzaro's reaction. Acetaldehyde containing  $\alpha$  - hydrogen atom does not answer Cannizzaro's reaction.

3. Which one of the following does not give acetyl chloride when treated with acetic acid?
- $SOCl_2$
  - $PCl_2$
  - $Cl_2$
  - $PCl_5$

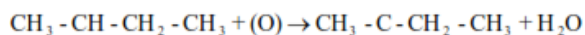
Sol: C

$Cl_2$  cannot give acetyl chloride since it does not replace the -OH part of the -COOH group. All the rest replace the -OH group of R-COOH giving R-COCl

4. Which of the following compounds is oxidized to prepare methyl ethyl ketone?
- 2-Propanol
  - 1-Butanol
  - 2-Butanol
  - Tert-Butyl alcohol

Sol: C

Ketones are the oxidation products of secondary alcohols. Secondary alcohol, with 4 carbon atoms is 2-butanol.



OH

5. The end product in the reaction Phenol  $\xrightarrow{\text{NaOH}} X \xrightarrow{\text{CO}_2} Y \xrightarrow{\text{HCl}} x$  is
- Benzoic acid
  - chlorobenzene
  - salicylic acid
  - salicylaldehyde

Sol: C

The outline mentioned in the question represents the preparation of salicylic acid by Kolbe's reaction

6. Heating sodium benzoate with soda lime yields
- benzene
  - benzoic acid
  - calcium benzoate
  - phenol

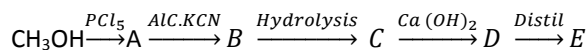
Sol: A fact

7. Which is the wrong statement about alcohols?
- they are covalent compound
  - they are non ionized
  - they give molecular reactions
  - they are acidic

Sol: D

OH group of alcohols cannot be ionized. Hence alcohols are neutral

8. In the series of reaction E is



- Acetaldehyde
- Acetone
- Methyl acetate
- Calcium acetate

Sol: B



9. The acid which reduces Fehling's solution is

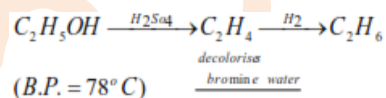
- Propanoic acid
- Butanoic acid
- Ethanoic acid
- Methanoic acid

Sol: D fact

10. An organic liquid A containing C, H and O has a pleasant odour with a B.P. of 78°C. On boiling A with conc.  $\text{H}_2\text{SO}_4$  a colourless gas is produced which decolourises bromine water and alkaline  $\text{KMnO}_4$ . One mole of this gas also one mole of  $\text{H}_2$ . The organic liquid A is

- $\text{C}_2\text{H}_5\text{Cl}$
- $\text{C}_2\text{H}_2\text{CHO}$
- $\text{C}_2\text{H}_6$
- $\text{C}_2\text{H}_5\text{OH}$

Sol: D

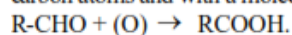


11. A compound containing only carbon, hydrogen and oxygen has a molecular mass of 44. On oxidation, it is converted into an acid with molecular mass 60. The original compound is an

- Aldehyde
- Alcohol
- Ether
- Acid

Sol: A

As given in the question, rise in the molecular mass is 16 units. Only an aldehyde is oxidised to an acid containing same number of carbon atoms and with a molecular mass of 16 units higher.



Hence the original compound is an aldehyde

12. A compound that undergoes bromination easily is

- Benzoic acid
- Toluene
- Benzene
- Phenol

Sol: D

Groups which are electron donors activate benzene ring for electrophilic substitution reactions. Hence phenol most easily undergoes electrophilic substitution reaction with bromine giving a white precipitate of 2, 4, 6 – Tribromophenol

13. Rectified spirit is

- Ethyl alcohol mixed with methyl alcohol
- 50% ethanol + 50% water
- 95.6 % ethanol + 4.4 % water
- 75% alcohol + 25% water

Sol: C fact

14. Alcohol cannot be prepared by

- reduction of aldehydes
- hydrolysis of alkyl halides
- Grignard synthesis
- oxidation of aldehydes

Sol: D fact

15. The best reagent to convert ethanol to chloroethane is

- $PCl_5$
- $PCl_3$
- $SOCl_2$
- $HCl + ZnCl_2$

Sol: C fact

16. Which of the following compounds can be obtained from pyroligneous acid?

- a. Propyl alcohol
- b. Methanol
- c. Benzyl alcohol
- d. Phenol

Sol: B

Pyroligneous acid contains methanol, acetone and acetic acid. Hence option 2 is correct

17. Molecular formula of a dihalide is  $C_2H_4Br_2$ . This dihalide on hydrolysis gives acetaldehyde. Hence the dihalide is

- a. 1,1-dibromoethane
- b. 1,1-dibromoethene
- c. 1,2-dibromoethane
- d. 1,2-dibromoethene

Sol: A



Molecule with two (-OH) groups on the same carbon atom is unstable and it loses a molecule of water giving an aldehyde group. Thus, if two (-OH) groups are to be on the same carbon atom, then the original dihalide must have two the halogen atoms on the same carbon atom. Hence the original compound must be 1,1 - dibromoethane

18. With respect to which reaction, ethyl alcohol and phenol differ from one another?

- a. reaction with sodium metal
- b. reaction with  $PCl_5$
- c. reaction with nitric acid
- d. reaction with acetyl chloride

Sol: C

Phenol undergoes nitration while ethanol does not. Remaining reactions are answered by both

19. Which of the following statements is not true about phenol?

- a. it reacts with sodium hydroxide
- b.  $CO_2$  cannot displace phenol from sodium phenate
- c. it gives a violet colour with natural  $FeCl_3$
- d. it decolourises bromine water

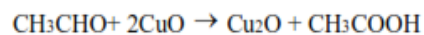
Sol: B

$\text{Na}_2\text{CO}_3$  or  $\text{NaHCO}_3$  do not react with phenol since phenol is weaker than  $\text{CO}_2$ . Hence if  $\text{CO}_2$  is passed through sodium phenate solution, phenol is displaced from sodium phenate

20. When ethanal is heated with Fehling's solution, it gives a precipitate of

- a. Cu
- b.  $\text{Cu}_2\text{O}$
- c. CuO
- d.  $\text{Cu}_2\text{O} + \text{CuO}$

Sol: B



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