

**TEST ALCOHOLS PHENOLS AND ETHERS**

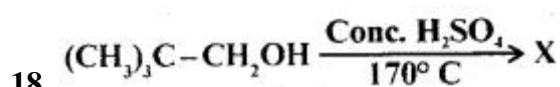
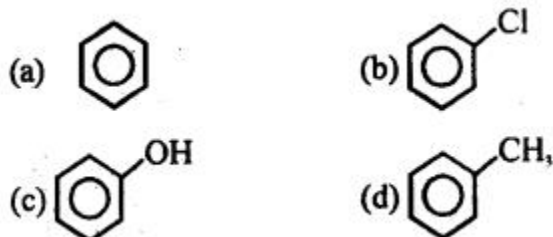
1. Benzenediazonium chloride on reaction with phenol in weakly basic medium gives
  - a. diphenyl ether
  - b. p-hydroxyazobenzene
  - c. chlorobenzene
  - d. Benzene
2. Phenol reacts with bromine in  $\text{CS}_2$  at low temperature to give
  - a. m-bromophenol
  - b. o-and p-bromophenol
  - c. p-bromophenol
  - d. 2,4,6-tribromophenol
3. When phenol is treated with excess bromine water it gives
  - a. m-bromophenol
  - b. o- and p-bromophenol
  - c. 2,4-dibromophenol
  - d. 2,4,6-tribromophenol
4. Phenol on reduction with  $\text{H}_2$  in the presence of Ni catalyst gives
  - a. benzene
  - b. toluene
  - c. cyclohexane
  - d. Cyclohexanol
5. Dehydration of alcohol is an example of
  - a. addition reaction
  - b. elimination reaction
  - c. substitution reaction
  - d. redox reaction
6. The compound obtained by the reaction of ethene with diborane followed by hydrolysis with alkaline  $\text{H}_2\text{O}_2$  is
  - a. ethanol
  - b. propanol
  - c. ethanol
  - d. triethyl bromide
7. Which of the following is formed when phenol is exposed to air?
  - a. o-Benzoquinone
  - b. p-Benzoquinone
  - c. Phenoquinone
  - d. o-and p-Benzoquinone

8. Which of the following is formed when glycerol is heated with oxalic acid at 503K?
- Glyceric acid
  - Acrolein
  - Allyl alcohol
  - Methanoic acid
9. Phenol is less acidic than
- acetic acid
  - p-methoxyphenol
  - p-nitrophenol
  - Ethanol
10. Which of the following alcohols gives 2-butene on dehydration by conc.  $\text{H}_2\text{SO}_4$ ?
- 2-methyl propene-2-ol
  - 2-methyl 1-propanol
  - Butane-2-ol
  - Butane 1-ol
11. One mole of ethyl acetate on treatment with an excess of  $\text{LiAlH}_4$  in dry ether and subsequent acidification produces
- 1 mole acetic acid + 1 mole ethyl alcohol
  - 1 mole ethyl alcohol + 1 mole methyl alcohol
  - 2 moles of ethyl alcohol
  - 1 mole of 2-butanol
12. Which of the following reagents can not, be used to oxidise primary alcohols to aldehydes?
- $\text{CrO}_3$  in anhydrous medium
  - $\text{KMnO}_4$  in acidic medium
  - Pyridinium chlorochromate
  - Heat in the presence of Cu at 573 K
13. 1-Phenylethanol can be prepared by the reaction of benzaldehyde with
- methyl bromide
  - ethyl iodide and magnesium
  - methyl iodide and magnesium (Grignard reagent's)
  - methyl bromide and aluminium bromide
14. A compound X with the molecular formula  $\text{C}_2\text{H}_8\text{O}$  can be oxidised to another compound Y whose molecular formulae is  $\text{C}_3\text{H}_6\text{O}_2$ . The compound X may be
- $\text{CH}_3\text{CH}_2\text{OCH}_3$
  - $\text{CH}_3\text{CH}_2\text{CHO}$
  - $\text{CH}_3\text{CH}_2\text{CH}_2\text{OH}$
  - $\text{CH}_3\text{CHOHCH}_3$
15. Order of esterification of alcohols are
- $3^\circ > 1^\circ > 2^\circ$
  - $2^\circ > 3^\circ > 1^\circ$
  - $1^\circ > 2^\circ > 3^\circ$
  - None of these

16. What happens when tertiary butyl alcohol is passed over heated copper at 300°C?

- (a) Secondary butyl alcohol is formed
- (b) 2-methylpropene is formed
- (c) 1-butene is formed
- (d) Butanol is formed

17. Which of the following compounds will be most easily attacked by an electrophile?



In the reaction, X is

- (a)  $(\text{CH}_3)_2\text{C}=\text{CHCH}_3$
- (b)  $\text{CH}_3\text{C}=\text{CH}$
- (c)  $(\text{CH}_3)_2\text{CHCH}_2\text{CH}_3$
- (d)  $\text{CH}_3-\text{CH}_2-\underset{\text{CH}_3}{\text{C}}=\text{CH}_2$

19. What would be the reactant and reagent used to obtain 2, 4-dimethyl pentan-3-ol?

- (a) Propanal and propyl magnesium bromide
- (b) 3-methylbutanal and 2-methyl magnesium iodide
- (c) 2-dimethylpropanone and methyl magnesium iodide
- (d) 2-methylpropanal and isopropyl magnesium iodide

20. The decreasing order of boiling point of the following alcohols is

- (a) 3-methylbutan-2-ol > 2-methylbutan-2-ol > pentan-1-ol
- (b) Pentan-1-ol > 3-methylbutan-2-ol > 2-methylbutan-2-ol
- (c) 2-methylbutan-2-ol > 3-methylbutan-2-ol > pentan-1-ol
- (d) 2-methylbutan-2-ol > pentan-1-ol > 3-methylbutan-2-ol

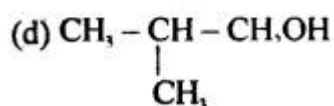
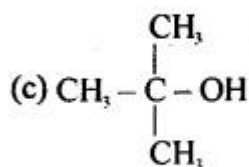
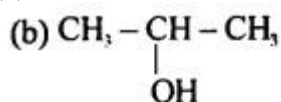
21. An unknown alcohol is treated with "Lucas reagent" to determine whether the alcohol is primary, secondary or tertiary. Which alcohol reacts fastest and by what mechanism?

- (a) Tertiary alcohol by  $\text{S}_\text{N}^2$
- (b) Secondary alcohol by  $\text{S}_\text{N}^1$
- (c) Tertiary alcohol by  $\text{S}_\text{N}^1$
- (d) Secondary alcohol by  $\text{S}_\text{N}^2$

22. An alcohol X when treated with hot conc.  $\text{H}_2\text{SO}_4$  gave an alkene Y with formula  $\text{C}_4\text{H}_8$ . This alkene on ozonolysis gives single product with molecular formula  $\text{C}_2\text{H}_4\text{O}$ . The alcohol is

- (a) butan-1-ol,
- (b) butan-2-ol
- (c) 2-methylpropan-1-ol
- (d) 2,2-dimethylbutanal-1-ol

23. Which of the following alcohols reacts most readily with Lucas reagent?



24. Propanone on reaction with alkyl magnesium bromide followed by hydrolysis will produce

- (a) primary alcohol
- (b) secondary alcohol
- (c) tertiary alcohol
- (d) carboxylic acid

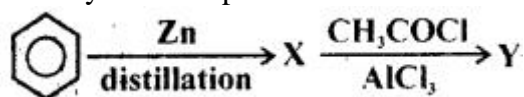
25. Vapours of an alcohol X when passed over hot reduced copper, produce an alkene, the alcohol is

- (a) primary alcohol
- (b) secondary alcohol
- (c) tertiary alcohol
- (d) dihydric alcohol

26. Ortho-nitrophenol is less soluble in water than, p- and m- nitrophenols because

- (a) o-nitrophenol shows intramolecular H-bonding
- (b) o-nitrophenol shows intermolecular H-bonding
- (c) melting point of o-nitrophenol is lower than those of m- and p-isomers
- (d) o-nitrophenol is more volatile in steam than those of m- and p-isomers

27. Identify the final product of the reaction sequence.



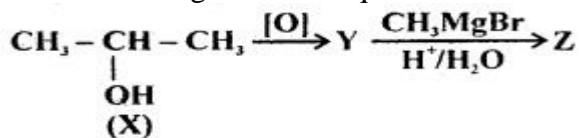
- (a) Benzophenone
- (b) Acetophenone
- (c) Diphenyl
- (d) Methyl salicylate

28. Arrange the following alcohols in order of increasing reactivity towards sodium metal.

- (i)  $(\text{CH}_3)_3\text{C-OH}$
- (ii)  $(\text{CH}_3)_2\text{CH-OH}$
- (iii)  $\text{CH}_3\text{CH}_2\text{OH}$
- (a) (iii) < (ii) < (i)
- (b) (ii) > (i) < (iii)
- (c) (i) < (ii) < (iii)
- (d) (iii) < (i) < (ii)

29. The reaction between phenol and chloroform in the presence of aqueous NaOH is  
 (a) nucleophilic substitution reaction  
 (b) electrophilic addition reaction  
 (c) electrophilic substitution reaction  
 (d) nucleophilic addition reaction

30. In the following reaction sequence Z is



- (a) butan-1-ol  
 (b) butan-2-ol  
 (c) 2-methylpropan-2-ol  
 (d) 1, 1-dimethylethanol
31. The major product of acid catalysed dehydration of 2-methylcyclohexanol and butan-1-ol are respectively  
 (a) 1-methylcyclohexene and but-1-ene  
 (b) 2-methylcyclohexene and but-2-ene  
 (c) 2-methylcyclohexene and butane  
 (d) 1-methylcyclohexene and but-2-ene
32. Which of the following alcohol is dehydrated most easily with cone.  $\text{H}_2\text{SO}_4$ ?  
 (a)  $\text{p-O}_2\text{NC}_6\text{H}_4\text{CH}(\text{OH})\text{CH}_3$   
 (b)  $\text{p-ClC}_6\text{H}_4\text{CH}(\text{OH})\text{CH}_3$   
 (c)  $\text{p-CH}_3\text{OC}_6\text{H}_4\text{CH}(\text{OH})\text{CH}_3$   
 (d)  $\text{C}_6\text{H}_5\text{CH}(\text{OH})\text{CH}_3$
33. Conversion of phenol to salicylic acid and to salicylaldehyde are known as (respectively)  
 (a) Reimer-Tiemann reaction and Kolbe's reaction  
 (b) Williamson's synthesis and Hydroboration-oxidation  
 (c) Kolbe's reaction and Williamson's synthesis  
 (d) Kolbe's reaction and Reimer-Tiemann reaction
34. Benzoquinone is prepared by reaction of phenol with  
 (a)  $\text{Na}_2\text{Cr}_2\text{O}_7, \text{H}_2\text{SO}_4$   
 (b)  $\text{KMnO}_4, \text{H}_2\text{SO}_4$   
 (c)  $\text{Na}_2\text{CrO}_4, \text{HCl}$   
 (d)  $\text{K}_2\text{MnO}_4, \text{H}_2\text{SO}_4$
35. Which of the following compounds will give tribromo derivative on treatment with bromine water?

