

1. The reaction between an ester and excess of Grignard reagent shall finally result in a:
  - a. Primary alcohol
  - b. Secondary alcohol
  - c. Tertiary alcohol
  - d. Ketone

Answer: c

2. The structural formula of alcohol that on dehydration would give 2-methylpropene as the major product is
  - a.  $\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2\text{OH}$
  - b.  $(\text{CH}_3)_2\text{CH}-\text{CH}_2\text{OH}$
  - c.  $\text{CH}_3-\text{CHOH}-\text{CH}_2\text{CH}_3$
  - d.  $\text{CH}_3\text{CHOHCH}_3$

Answer: b

3. 2-methyl propene upon hydroboration-oxidation gives
  - a. 2-methyl-1-propanol
  - b. 2-methyl-1-propanal
  - c. 2-propanol
  - d. 1-propanol

Answer: a

4. In Lucas test of alcohols, the appearance of turbidity is due to formation of :
  - a. Aldehydes
  - b. Ketones
  - c. Acid chlorides
  - d. Alkyl chlorides

Answer: d

5. Which of the following :
  - I.  $\text{R}-\text{CO}-\text{CO}-\text{R}$
  - II.  $\text{R}-\text{CO}-\text{CHOH}-\text{R}$
  - III.  $\text{R}-\text{CHOH}-\text{CH}_2-\text{CHOH}-\text{R}$
  - IV.  $\text{R}-\text{CHOH}-\text{CHOH}-\text{R}$

Will be oxidized by  $\text{HIO}_4$ ?

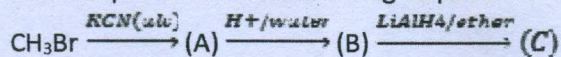
- a. I, II and III
- b. I, III and IV



- c. I, II and IV
- d. II, III and IV

Answer: c

6. The end product of the following sequence is:



- a.  $\text{CH}_3\text{CHO}$
- b.  $\text{CH}_3\text{CH}_2\text{OH}$
- c.  $\text{CH}_3\text{COCH}_3$
- d.  $\text{CH}_4$

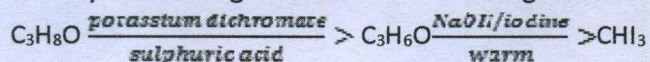
Answer: b

7. When isopropyl alcohol vapours are passed over heated copper it gives:

- a. Acetone
- b. Ethyl alcohol
- c. Methyl alcohol
- d. Acetaldehyde

Answer: a

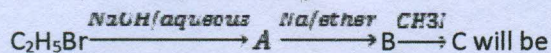
8. Identify the starting material in the following reaction:



- a. 1-propanol
- b. 2-propanol
- c. Methoxy ethane
- d. Propanal

Answer: b

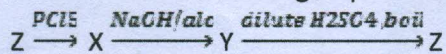
9. Product C in the reaction,



- a.  $\text{CH}_3\text{CH}_2\text{CH}_3$
- b.  $\text{CH}_3\text{CH}_2\text{I}$
- c.  $\text{CH}_3\text{CH}_3$
- d.  $\text{CH}_3\text{OCH}_2\text{CH}_3$

Answer: d

10. What is Z in the following sequence of reactions?



- a.  $\text{CH}_3\text{CH}_2\text{CH}_2\text{OH}$



- b.  $\text{CH}_3\text{CHOH CH}_3$
- c.  $(\text{CH}_3\text{CH}_2)_2\text{CHOH}$
- d.  $\text{CH}_3\text{CH}=\text{CH}_2$

Answer: b

11. Phenol and benzoic acid is distinguished by:

- a.  $\text{NaOH}$
- b.  $\text{NaHCO}_3$
- c.  $\text{Na}_2\text{CO}_3$
- d.  $\text{H}_2\text{SO}_4$

Answer: b

12. The order of melting point of *ortho*, *para*, *meta*-nitrophenol is:

- a.  $o > m > p$
- b.  $p > m > o$
- c.  $m > p > o$
- d.  $p > o > m$

Answer: b

13. Which is obtained on treating phenol with dilute nitric acid

- a. *m*-nitrophenol
- b. *o*-nitrophenol
- c. 2,4,6-trinitrophenol
- d. None of these

Answer: c

14. Reaction of phenol with chloroform and sodium hydroxide to give *o*-hydroxy benzaldehyde involves the formation of :

- a. Dichloro carbene
- b. Trichloro carbene
- c. Chlorine atoms
- d. Chlorine molecules

Answer: a

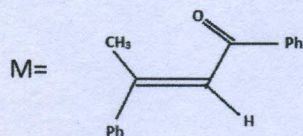
15. Phenol can be prepared by the reaction between:

- a. Aniline and  $\text{HNO}_3$  at 373 K
- b.  $\text{C}_6\text{H}_5\text{MgBr}$  and  $\text{CO}_2$  followed by hydrolysis
- c.  $\text{C}_6\text{H}_5\text{Cl}$  and  $\text{NaOH}$  at 373K
- d.  $\text{C}_6\text{H}_5\text{SO}_3\text{Na}$  and  $\text{NaOH}$  at 573-623 K followed by acidification



Answer: d

16. A tertiary alcohol **H** upon acid catalysed dehydration gives a product **I**. Ozonolysis of **I** leads to compounds **J** and **K**. Compound **J** upon reaction with KOH gives benzyl alcohol and a compound **L**, whereas **K** on reaction with KOH gives only **M**.



The structures of compounds **J**, **K** and **L** respectively, are

- PhCOCH<sub>3</sub>, PhCH<sub>2</sub>COCH<sub>3</sub> and PhCH<sub>2</sub>COO<sup>-</sup>K<sup>+</sup>
- PhCHO, PhCH<sub>2</sub>CHO and PhCOO<sup>-</sup>K<sup>+</sup>
- PhCOCH<sub>3</sub>, PhCH<sub>2</sub>CHO and CH<sub>3</sub>COO<sup>-</sup>K<sup>+</sup>
- PhCHO, PhCOCH<sub>3</sub> and PhCOO<sup>-</sup>K<sup>+</sup>

Answer: d

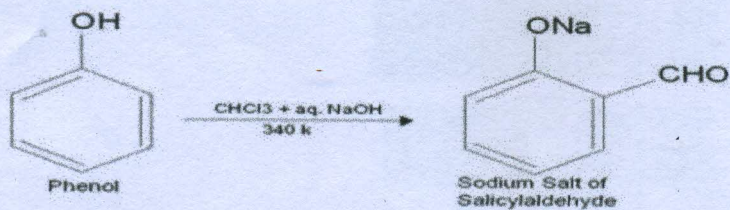
17. The correct order of acidic strength of the following compounds:

I. Phenol      II. *p*-Cresol      III. *m*-Nitrophenol      IV. *p*-Nitrophenol is:

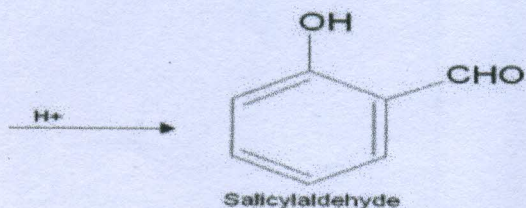
- IV > III > I > II
- II > IV > I > III
- I > II > IV > III
- III > II > I > IV

Answer: a





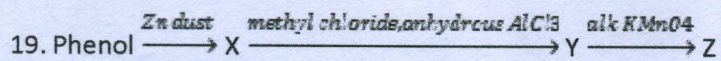
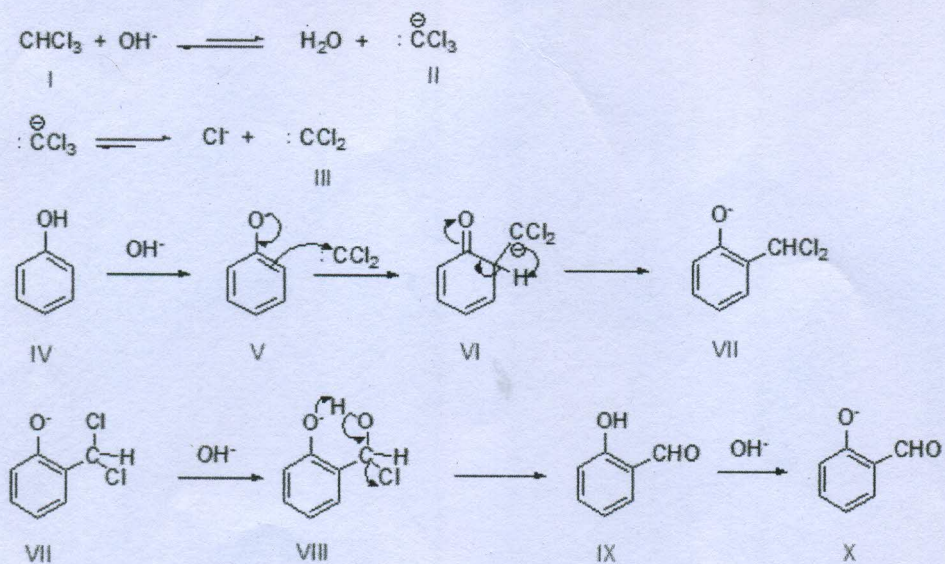
18.



The above transformation proceeds through

- electrophilic addition
- electrophilic substitution
- activated nucleophilic substitution
- benzyne intermediate

Answer: b



The product Z is

- benzaldehyde



b. benzoic acid

c. Salicylic acid

d. toluene

Answer: c

20. The best reagent to convert pent-3-en-2-ol into pent-3-en-2-one is:

a. alkaline  $\text{KMnO}_4$

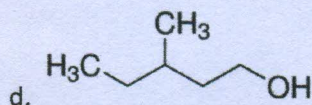
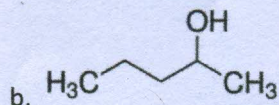
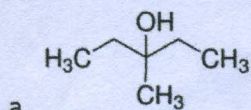
b. acidified dichromate

c. chromic anhydride in glacial acetic acid

d. pyridium chlorochromate

Answer: d

21. Among the following compounds which can be dehydrated very easily is:



Answer: a

22. Two aromatic compounds having formula  $\text{C}_7\text{H}_8\text{O}$  which can be distinguished by  $\text{FeCl}_3$  solution test are:

a. *o*-cresol and benzyl alcohol

b. *m*-cresol and *p*-cresol

c. *o*-cresol and *p*-cresol

d. methylphenyl ether and benzyl alcohol



Answer: a

23. Which are the major compounds formed when  $(\text{CH}_3)_3\text{COCH}_3$  reacts with HI at 373 K?

- a.  $(\text{CH}_3)_3\text{COH}$  and  $\text{CH}_3\text{I}$
- b.  $(\text{CH}_3)_3\text{CI}$  and  $\text{CH}_3\text{OH}$
- c.  $(\text{CH}_3)_3\text{COH}$  and  $\text{CH}_3\text{OH}$
- d. No reaction takes place

Answer: b

24. Ether is functional isomer of

- a. Aldehydes
- b. Ketones
- c. Alcohols
- d. Esters

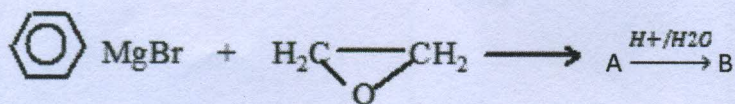
Answer: c

25. What is the product formed when ethyl bromide is heated with dry silver oxide?

- a. ethanol
- b. acetone
- c. ethanal
- d. diethyl ether

Answer: d

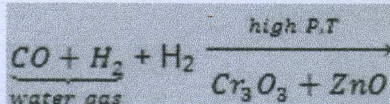
26. What is the end product formed in the following reaction?



- a. Phenol
- b. Ethyl benzene
- c. 2-phenyl ethanol



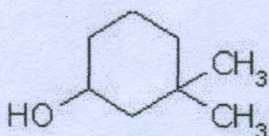
d. Benzaldehyde



27. The reaction:

- a. HCHO
- b. HCOOH
- c. CH<sub>3</sub>OH
- d. C<sub>2</sub>H<sub>5</sub>OH

28. The IUPAC name of the compound is:



- a. 1,1-Dimethyl-3-hydroxy cyclohexane
- b. 3,3-Dimethyl-1-cyclohexanol
- c. 2,3-Dimethyl-1-hydroxy cyclohexane
- d. 1,1-Dimethyl-3-cyclohexanol

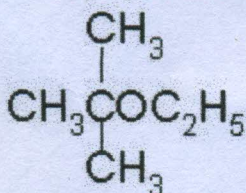
29. Formaldehyde on reaction with Grignard reagent gives :

- a. Primary alcohol
- b. Secondary alcohol
- c. Tertiary alcohol
- d. Both (A) and (B)

30. Nitration of anisole gives majorly:

- a. Nitroanisole
- b. para-Nitroanisole
- c. ortho-Nitroanisole
- d. meta-Nitroanisole

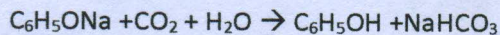
31. To prepare tert-butyl ethyl ether, the reagents required are:



- a. Sodium ethoxide and tert-butyl bromide
- b. Sodium tert butoxide and ethyl bromide
- c. Dimethyl ketone, ethylbromide and sodium
- d. Sodium propoxide and propyl bromide



32. The reaction,



Suggests that:

- Phenol is a stronger acid than carbonic acid
- Carbonic acid is a stronger acid than phenol
- Water is a stronger acid than phenol
- None of the above

Answer: b

33. **Acid catalysed hydration of alkenes except ethene leads to the formation of**

- mixture of secondary and tertiary alcohols
- mixture of primary and secondary alcohols
- secondary or tertiary alcohol
- primary alcohol

34. **An ether is more volatile than an alcohol having the same molecular formula. This is due to**

- a dipolar character of ethers
- alcohols having resonance structures
- inter-molecular hydrogen bonding in ethers
- inter-molecular hydrogen bonding in alcohols

35. **An organic compound A containing C, H and O has a pleasant odour with boiling point of 78°C. On boiling A with concentrated H<sub>2</sub>SO<sub>4</sub>, a colourless gas is produced which decolourises bromine water and alkaline KMnO<sub>4</sub>. The organic liquid A is**

- C<sub>2</sub>H<sub>5</sub>COOCH<sub>3</sub>
- C<sub>2</sub>H<sub>5</sub>OH
- C<sub>2</sub>H<sub>5</sub>Cl
- C<sub>2</sub>H<sub>6</sub>

36. **Catalytic dehydrogenation of a primary alcohol gives a**

- ketone
- aldehyde
- secondary alcohol
- ester

37. **Chloro ethane reacts with X to form diethyl ether. What is X**

- NaOH
- H<sub>2</sub>SO<sub>4</sub>



c  $C_2H_5ONa$

d  $Na_2S_2O_3$

38. From amongst the following alcohols the one that would react fastest with conc. HCl and anhydrous  $ZnCl_2$ , is

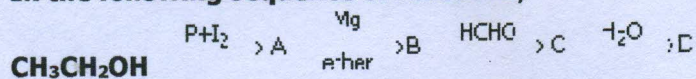
a 2-Methylpropan-2-ol

b 2-Butanol

c 1-Butanol

d 2-Methylpropanol

39. In the following sequence of reactions,



the compound 'D' is

a butanal

b n-butyl alcohol

c n-propyl alcohol

d propanal

40. Which of the following is Lucas reagent?

a  $ZnCl_2$ /con HCl

b  $Br_2/CCl_4$

c Ammoniacal silver nitrate

d Cold Alkaline  $KMnO_4$