

Topic :- Alcohols, Phenols & Ethers

- 1 (b)
Zymase enzyme act on glucose and give ethyl alcohol and carbon dioxide.
$$\text{C}_6\text{H}_{12}\text{O}_6 \xrightarrow{\text{Zymase}} 2\text{C}_2\text{H}_5\text{OH} + 2\text{CO}_2\uparrow$$

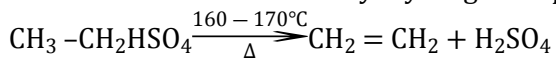
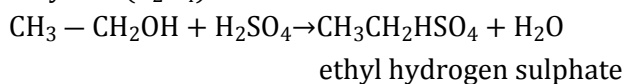
ethyl alcohol
- 2 (d)
Only CH₂OH group is oxidized to —COOH; Double bond is not affected.
- 3 (d)
Both Zn-Hg/HCl and NH₂NH₂,OH⁻ reduce CO to CH₂, but acid sensitive reagents are not reduced by Zn-Hg/HCl.
- 4 (b)
Glycerol has 3 —OH groups and thus shows extensive H-bonding.
- 5 (b)
The best method to prepare cyclohexene from cyclohexanol is by conc. H₃PO₄ because in given options dehydrating agent is conc. H₃PO₄.
- 6 (a)
Diethyl sulphate in the presence of NaOH acts as alkylating agent, it causes alkylation of phenol to give ethyl phenyl ether which is also called phenetole.
$$\text{C}_6\text{H}_5\text{OH} + \text{NaOH} \rightarrow \text{C}_6\text{H}_5\text{O}^-\text{Na}^+ + \text{H}_2\text{O}$$
$$\text{C}_6\text{H}_5\text{O}^-\text{Na}^+ + (\text{C}_2\text{H}_5)_2\text{SO}_4 \rightarrow \text{C}_6\text{H}_5\text{OC}_2\text{H}_5\text{ph} + \text{C}_2\text{H}_5\text{NaSO}_4$$

diethyl sulphate phenetole
- 7 (c)
Tertiary alcohols are dehydrated on passing over heated Cu; Primary and secondary are dehydrogenated.
- 8 (b)
The process is called hydroboration.
- 9 (b)
Secondary alcohols give turbidity within 5 min with Lucas reagent
- 11 (c)
Diethyl ether itself being a Lewis base is not attacked by nucleophiles, *ie*, OH⁻ ion. All others contain an electrophilic carbon and are readily attacked by nucleophile
- 12 (d)
Ethers acts as Lewis base only towards strong acids.

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(d)

When ethyl alcohol is heated with conc. H_2SO_4 at $160^\circ - 170^\circ\text{C}$, the product obtained is ethylene (C_2H_4).



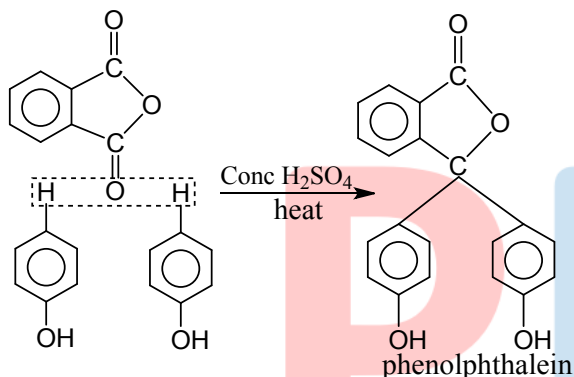
ethylene

But at lower temperature ether is formed.

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(a)

Phenol is heated with phthalic anhydride in presence of conc H_2SO_4 to give phenolphthalein which gives pink colour with alkali



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(c)

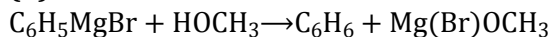
Large is $\text{H}-\text{X}$ bond length, more is acidic nature of halogen acid.

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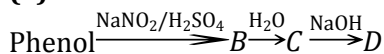
(c)

Rectified spirit is $\text{C}_2\text{H}_5\text{OH} + \text{water}$ mixture obtained after distillation of fermented liquid. On further careful fractional distillation (rectification) gives II fraction as 93 to 95% ethyl alcohol (rectified spirit).

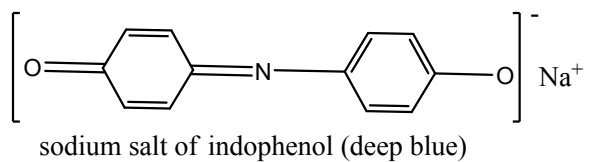
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(b)

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(a)

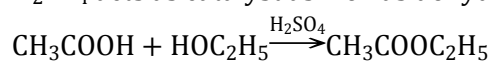
This is Liebermann's nitroso reaction of phenol. When phenol is warmed with sodium nitrite and 1 cc. conc. H_2SO_4 , blue colour is obtained which on adding water, becomes red. This again turns to blue on adding NaOH . Deep blue colour is due to the formation of sodium salt of indophenol.



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(d)

H_2SO_4 acts as catalyst as well as dehydrating agent for the reaction,



ANSWER-KEY										
Q.	1	2	3	4	5	6	7	8	9	10
A.	B	D	D	B	B	A	C	B	B	B
Q.	11	12	13	14	15	16	17	18	19	20
A.	C	D	A	B	A	C	C	B	A	D