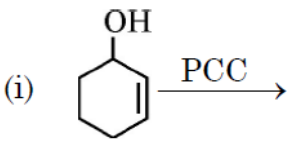
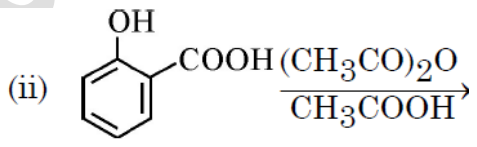
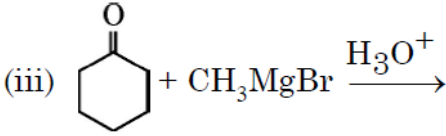
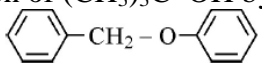


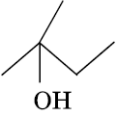
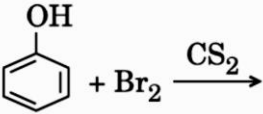
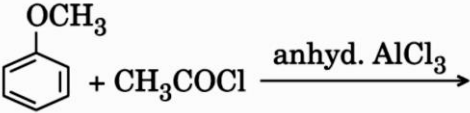
**QUESTION BANK**  
**ORGANIC CHEMISTRY**  
**UNIT-11 ALCOHOLS & PHENOLS**  
**CLASS-12 (CBSE)**

S. No.	Questions	Year
1.	<p>(a) Out of t-butyl alcohol and n-butanol, which one will undergo acid catalyzed dehydration faster and why?</p> <p>(b) Carry out the following conversions :</p> <p>(i) Phenol to Salicylaldehyde</p> <p>(ii) t-butylchloride to t-butyl ethyl ether</p> <p>(iii) Propene to Propanol</p> <p style="text-align: center;"><b>OR</b></p> <p>(a) Give the mechanism for the formation of ethanol from ethene.</p> <p>(b) Predict the reagent for carrying out the following conversions :</p> <p>(i) Phenol to benzoquinone</p> <p>(ii) Anisole to p-bromoanisole</p> <p>(iii) Phenol to 2,4,6-tribromophenol</p>	2020
2.	<p>Give reasons for the following :</p> <p>(a) Bond angle in alcohol is slightly less than the tetrahedral angle.</p> <p>(b) C – OH bond length in CH<sub>3</sub>OH is slightly more than the C – OH bond length in phenol.</p>	2020
3.	<p>(a) Write the mechanism of the following reaction :</p> $2 \text{CH}_3\text{CH}_2\text{OH} \xrightarrow[413 \text{ K}]{\text{H}^+} \text{CH}_3\text{CH}_2\text{OCH}_2\text{CH}_3 + \text{H}_2\text{O}$ <p>(b) Write the preparation of phenol from cumene.</p> <p style="text-align: center;"><b>OR</b></p> <p>How can you convert the following :</p> <p>(i) Sodium phenoxide to o-hydroxybenzoic acid</p> <p>(ii) Acetone to propene</p> <p>(iii) Phenol to chlorobenzene</p>	2020
4.	<p>Write the product(s) of the following reactions :</p> <p>(i)  (ii) </p> <p>(iii) </p> <p style="text-align: center;"><b>OR</b></p> <p>(a) Write the mechanism of the following S<sub>N</sub>1 reaction :</p> $(\text{CH}_3)_3\text{C}-\text{Br} \xrightarrow{\text{Aq. NaOH}} (\text{CH}_3)_3\text{C}-\text{OH} + \text{NaBr}$ <p>(b) Write the equation for the preparation of 2-methyl-2-methoxypropane by Williamson synthesis.</p>	2020
5.	<p>Give the structures of final products expected from the following reactions :</p> <p>(i) Hydroboration of propene followed by oxidation with H<sub>2</sub>O<sub>2</sub> in alkaline medium.</p> <p>(ii) Dehydration of (CH<sub>3</sub>)<sub>3</sub>C–OH by heating it with 20% H<sub>3</sub>PO<sub>4</sub> at 358 K.</p> <p>(iii) Heating o  with HI.</p> <p style="text-align: center;"><b>OR</b></p>	2020

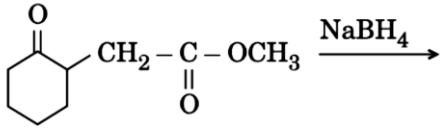
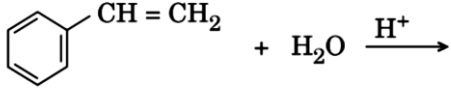
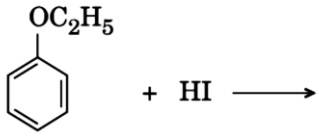
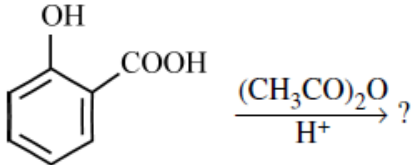
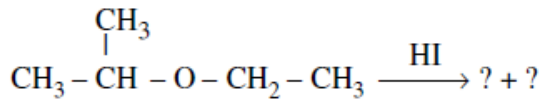
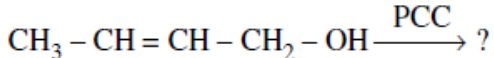
**QUESTION BANK**  
**ORGANIC CHEMISTRY**  
**UNIT-11 ALCOHOLS & PHENOLS**  
**CLASS-12 (CBSE)**

	How can you convert the following? (i) Phenol to o-hydroxybenzaldehyde. (ii) Methanal to ethanol (iii) Phenol to phenyl ethanoate.	
6.	(a) How do you convert the following : (i) Phenol to Anisole (ii) Ethanol to Propan-2-ol (b) Write mechanism of the following reaction : $\text{C}_2\text{H}_5\text{OH} \xrightarrow[443 \text{ K}]{\text{H}_2\text{SO}_4} \text{CH}_2 = \text{CH}_2 + \text{H}_2\text{O}$ (c) Why phenol undergoes electrophilic substitution more easily than benzene? <b>OR</b> (a) Account for the following : (i) o-nitrophenol is more steam volatile than p-nitrophenol. (ii) t-butyl chloride on heating with sodium methoxide gives 2-methylpropene instead of t-butylmethylether. (b) Write the reaction involved in the following : (i) Reimer-Tiemann reaction (ii) Friedal-Crafts Alkylation of Phenol (c) Give simple chemical test to distinguish between Ethanol and Phenol.	2019
7.	(a) Give equations of the following reactions : (i) Phenol is treated with conc. $\text{HNO}_3$ . (ii) Propene is treated with $\text{B}_2\text{H}_6$ followed by $\text{H}_2\text{O}_2/\text{OH}^-$ . (iii) Sodium t-butoxide is treated with $\text{CH}_3\text{Cl}$ . (b) How will you distinguish between butan-1-ol and butan-2-ol? (c) Arrange the following in increasing order of acidity : Phenol, ethanol, water <b>OR</b> (a) How can you obtain Phenol from (i) Cumene, (ii) Benzene sulphonic acid, (iii) Benzene diazonium chloride? (b) Write the structure of the major product obtained from dinitration of 3-methylphenol. (c) Write the reaction involved in Kolbe's reaction.	2019
8.	Arrange the following in increasing order of their acidic character : Benzoic acid, Phenol, Cresol	2019
9.	What happens when (a) Salicylic acid is treated with $(\text{CH}_3\text{CO})_2\text{O}/\text{H}^+$ ? (b) Phenol is oxidised with $\text{Na}_2\text{Cr}_2\text{O}_7/\text{H}^+$ ? (c) Anisole is treated with $\text{CH}_3\text{Cl}/\text{anhydrous AlCl}_3$ ? Write chemical equation in support of your answer.	2019
10.	Arrange the following in increasing order of their boiling point : $\text{CH}_3\text{CH}_2\text{OH}$ , $\text{CH}_3\text{CHO}$ , $\text{CH}_3 - \text{O} - \text{CH}_3$	2019
11.	Arrange the following in increasing order of their acidic character : Ethanol, Phenol, Water	2019
12.	Define with equation : (a) Riemer-Tiemann Reaction (b) Williamson's Synthesis	2019

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13.	(a) How will you synthesise the following alcohol from appropriate alkene :  (b) Write the mechanism of the following reaction : $\text{CH}_3\text{CH}_2\text{OH} \xrightarrow[443 \text{ K}]{\text{H}^+} \text{CH}_2 = \text{CH}_2 + \text{H}_2\text{O}$	2019
14.	Write the equations involved in the following reactions : (a) Kolbe's reaction (b) Friedel-Crafts alkylation of anisole	2019
15.	(a) Show how you will synthesise the following alcohol prepared by the reaction of a suitable Grignard reagent on methanal? $\begin{array}{c} \text{CH}_3 - \text{CH} - \text{CH}_2 - \text{OH} \\   \\ \text{CH}_3 \end{array}$ (b) Write the mechanism of the following reaction : $\text{CH}_2 = \text{CH}_2 + \text{H}_2\text{O} \xrightarrow{\text{H}^+} \text{CH}_3\text{CH}_2\text{OH}$	2019
16.	What happens when (a) Phenol reacts with Conc. $\text{HNO}_3$ ? (b) Ethyl chloride reacts with $\text{NaOC}_2\text{H}_5$ ? Write the chemical equations involved in the above reactions.	2019
17.	(a) Butan-1-ol has a higher boiling point than diethyl ether. Why? (b) Write the mechanism of the following reaction : $2\text{CH}_3\text{CH}_2\text{OH} \xrightarrow[413 \text{ K}]{\text{H}^+} \text{CH}_3\text{CH}_2 - \text{O} - \text{CH}_2 - \text{CH}_3$	2019
18.	An aromatic compound 'A' on treatment with $\text{CHCl}_3$ and $\text{KOH}$ gives two compounds, both of which give same product 'B' when distilled with Zinc dust. Oxidation of 'B' gives 'C' with molecular formula $\text{C}_7\text{H}_6\text{O}_2$ . Sodium salt of 'C' on heating with soda lime gives 'D' which may also be obtained by distilling 'A' with Zinc dust. Identify 'A', 'B', 'C' and 'D'. <p style="text-align: center;"><b>OR</b></p> How do you convert the following : (a) Phenol to Toluene (b) Ethanol to Ethanal	2019
19.	Give one chemical test to distinguish between the following : (a) Phenol and 1-propanol (b) Ethanol and dimethyl ether (c) 1-propanol and 2-Methyl-2-propanol <p style="text-align: center;"><b>OR</b></p> Write the products of the following reactions : (i) $\text{CH}_3 - \text{CH}_2 - \text{O} - \text{CH}_3 + \text{HI} \longrightarrow$ (ii)  (iii) 	2019

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20.	<p>Write the structures of the main products in the following reactions :</p> <p>(i) </p> <p>(ii) </p> <p>(iii) </p>	2018(OD)
21.	<p>(a) Arrange the following compounds in the increasing order of their acid strength :  <b>p-cresol, p-nitrophenol, phenol</b></p> <p>(b) Write the mechanism (using curved arrow notation) of the following reaction:</p> $\text{CH}_2 = \text{CH}_2 \xrightarrow{\text{H}_3\text{O}^+} \text{CH}_3 - \text{CH}_2^+ + \text{H}_2\text{O}$	2017(OD)
22.	<p>Write the structures of the products when Butan-2-ol reacts with the following :</p> <p>(a) <math>\text{CrO}_3</math>            (b) <math>\text{SOCl}_2</math></p>	2017(OD)
23.	<p>(a) Write the product(s) in the following reactions :</p> <p>(i) </p> <p>(ii) </p> <p>(iii) </p> <p>(b) Give simple chemical tests to distinguish between the following pairs of compounds :</p> <p>(i) Ethanol and Phenol                      (ii) Propanol and 2-methylpropan-2-ol</p>	2017(D)
24.	<p>(a) Write the formula of reagents used in the following reactions :</p> <p>(i) Bromination of phenol to 2,4,6-tribromophenol            (ii) Hydroboration of propene and then oxidation to propanol.</p> <p>(b) Arrange the following compound groups in the increasing order of their property indicated :</p> <p>(i) p-nitrophenol, ethanol, phenol (acidic character)            (ii) Propanol, Propane, Propanal (boiling point)</p> <p>(c) Write the mechanism (using curved arrow notation) of the following reaction :</p> $\text{CH}_3 - \text{CH}_2 - \overset{+}{\text{O}}\text{H}_2 \xrightarrow{\text{CH}_3\text{CH}_2\text{OH}} \text{CH}_3 - \text{CH}_2 - \overset{+}{\text{O}}(\text{H}) - \text{CH}_2 - \text{CH}_3 + \text{H}_2\text{O}$	2017(D)

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25.	What happens when (a) $(\text{CH}_3)_3\text{C} - \text{OH}$ is treated with Cu at 573 K, (b) Anisole is treated with $\text{CH}_3\text{Cl}$ / anhydrous $\text{AlCl}_3$ , (c) Phenol is treated with Zn dust? Write chemical equations in support of your answer.	2017(F)
26.	Write the major product in the following equations:  (a) $\begin{array}{c} \text{CH}_3 \\   \\ \text{CH}_3 - \text{C} - \text{O} - \text{CH}_3 \\   \\ \text{CH}_3 \end{array} + \text{HI} \longrightarrow$  (b) $\text{CH}_3 - \text{CH}_2 - \underset{\text{OH}}{\text{CH}} - \text{CH}_3 \xrightarrow{\text{Cu}/573\text{K}}$  (c) $\text{C}_6\text{H}_5 - \text{OH} \xrightarrow[\text{(ii) } \text{H}^+]{\text{(i) } \text{CHCl}_3 + \text{aq. NaOH}}$	2016 (OD)
27.	Write the mechanism of the following reaction: $2 \text{CH}_3\text{CH}_2\text{OH} \xrightarrow[413 \text{ K}]{\text{H}^+} \text{CH}_3\text{CH}_2\text{OCH}_2\text{CH}_3 + \text{H}_2\text{O}$	2016(D) 2013(D)
28.	Write the main product (s) in each of the following reaction:  (i) $\begin{array}{c} \text{CH}_3 \\   \\ \text{CH}_3 - \text{C} - \text{O} - \text{CH}_3 \\   \\ \text{CH}_3 \end{array} + \text{HI} \longrightarrow$  (ii) $\text{CH}_3 - \text{CH} = \text{CH}_2 \xrightarrow[\text{(ii) } 3\text{H}_2\text{O}_2/\text{OH}^-]{\text{(i) } \text{B}_2\text{H}_6}$  (iii) $\text{C}_6\text{H}_5 - \text{OH} \xrightarrow[\text{(ii) } \text{CO}_2, \text{H}^+]{\text{(i) } \text{aq. NaOH}}$	2016(D)
29.	Give reason for the following: (i) Phenol is more acidic than methanol. (ii) The C-O-H bond angle in alcohols is slightly less than the tetrahedral angle ( <b>109°28'</b> ) (iii) $(\text{CH}_3)_3\text{C} - \text{O} - \text{CH}_3$ on reaction with HI gives $(\text{CH}_3)_3\text{C} - \text{I}$ and $\text{CH}_3 - \text{OH}$ as the main products and not $(\text{CH}_3)_3\text{C} - \text{OH}$ and $\text{CH}_3 - \text{I}$ .	2015(OD)
30.	(a) How do you convert the following: (i) Phenol to anisole (ii) Propan-2-ol to 2-methylpropan-2-ol (iii) Aniline to phenol	2015(D)

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31.	(a) Write the mechanism of the following reaction: $2\text{CH}_3\text{CH}_2\text{OH} \xrightarrow{\text{H}^+} \text{CH}_3\text{CH}_2 - \text{O} - \text{CH}_2\text{CH}_3$ (b) Write the equation involved in the acetylation of Salicylic acid.	2015(D)
32.	(a) Write the mechanism of the following reaction. $\text{CH}_3\text{CH}_2\text{OH} \xrightarrow{\text{HBr}} \text{CH}_3\text{CH}_2\text{Br} + \text{H}_2\text{O}$ (b) Write the equation involved in Reimer-Tiemann reaction.	2014(OD) 2014(D)
33.	Which of the following isomers is more volatile: o-nitrophenol or p-nitrophenol.	2014(D)
34.	Explain the mechanism of the following reaction: $\text{C}_2\text{H}_5\text{OH} \xrightarrow[443 \text{ K}]{\text{H}_2\text{SO}_4} \text{CH}_2 = \text{CH}_2 + \text{H}_2\text{O}$	2013(OD)
35.	Write the equation involved in the following reactions: (i) Reimer - Tiemann reaction                      (ii) Williamson's ether synthesis	2013(OD)
36.	How will you convert: (i) Propene to Propan-2-ol?                      (ii) Phenol to 2, 4, 6 – trinitrophenol?	2013(D)
37.	Explain the mechanism of acid catalysed hydration of an alkene to form corresponding alcohol.	2012(OD)
38.	Explain the following behaviors: (i) Alcohols are more soluble in water than the hydrocarbons of comparable molecular masses. (ii) Ortho-nitrophenol is more acidic than ortho-methoxyphenol.	2012(OD)
39.	Draw the structure and name the product formed if the following alcohols are oxidized. Assume that an excess of oxidizing agent is used. (i) $\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2\text{OH}$ (ii) 2-butenol                      (iii) 2-methyl-1-propanol	2012(D)
40.	How would you convert ethanol to ethene?	2011(OD)
41.	How would you obtain the following: (i) Benzoquinone from phenol (ii) 2-Methylpropan-2-ol from methyl magnesium bromide (iii) Propan-2-ol from propene	2011(OD)
42.	Name the reagents used in the following reactions: (i) Benzyl alcohol to benzoic acid. (ii) Dehydration of propan-2-ol to propene. (iii) Butan-2-one to butan-2-ol.	2011(OD)
43.	How would you obtain (i) Picric acid (2, 4, 6-trinitrophenol) from phenol    (ii) 2-Methylpropene from 2-methylpropanol?	2011(D)