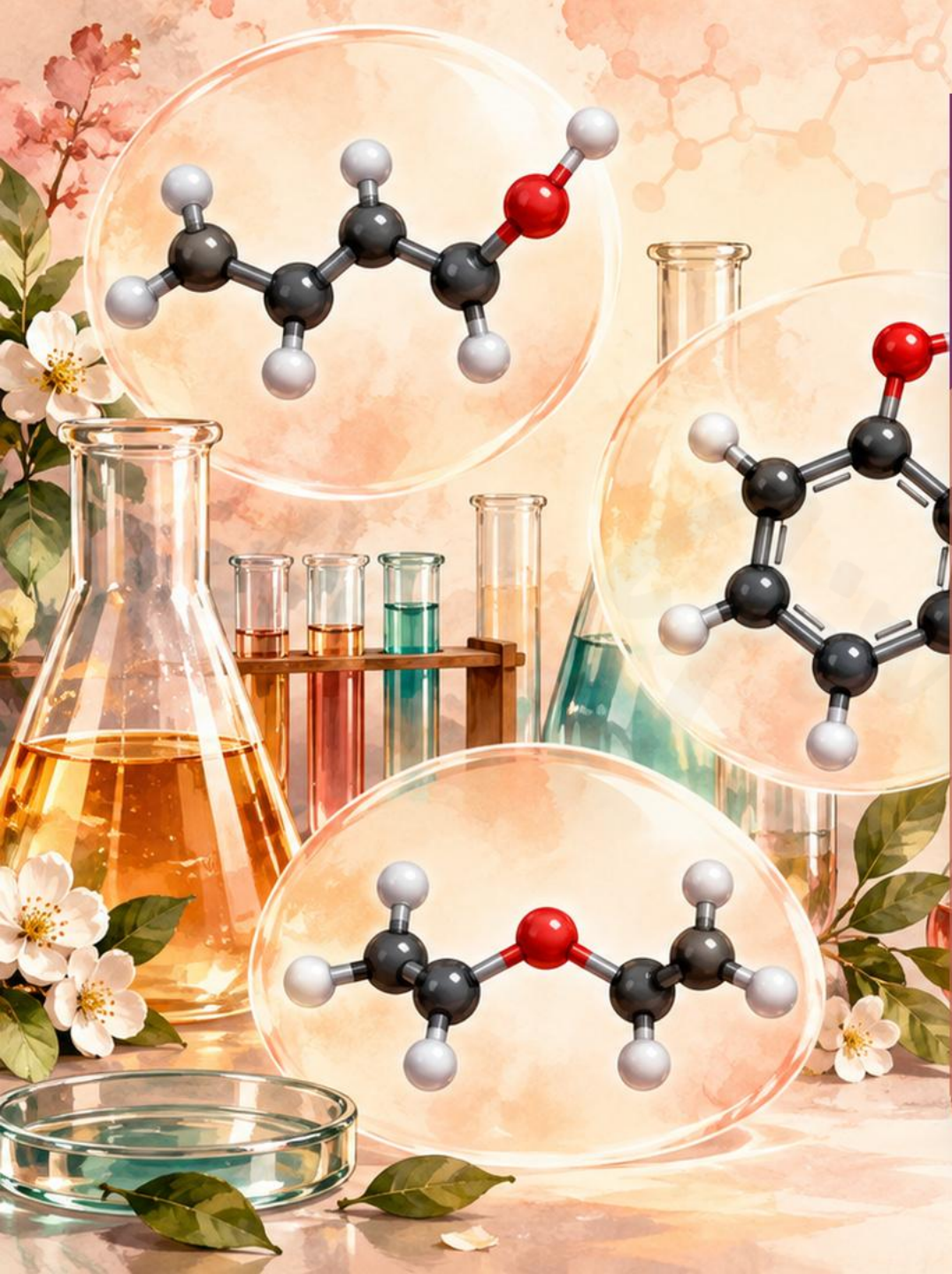




CHEMISTRY • CLASS 12

CHAPTER 7

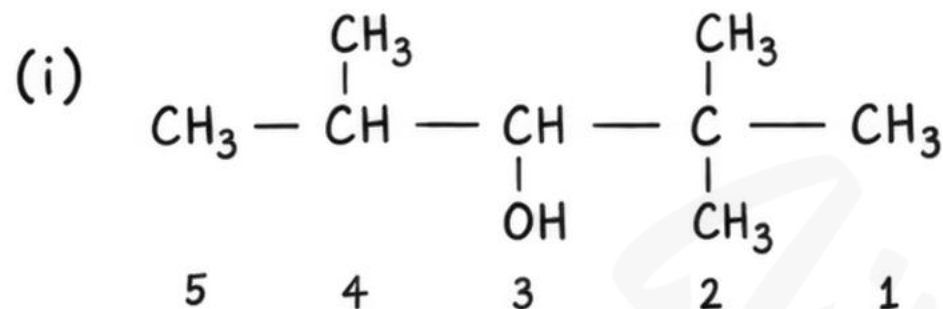
Alcohols, Phenols and Ethers

NCERT SOLUTIONS

NAME THE ALIPHATIC ALCOHOLS: I-III

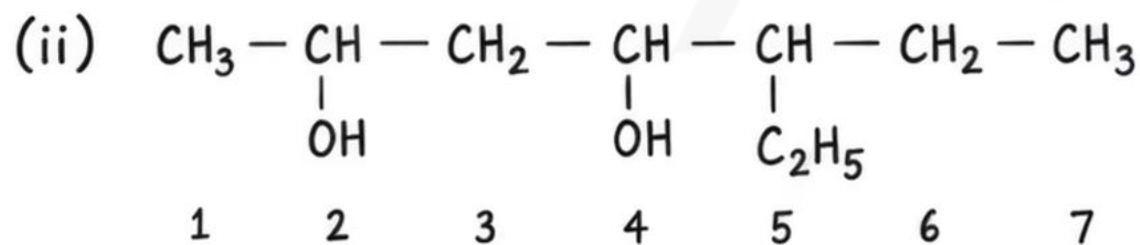
Name the three drawn aliphatic alcohols in Exercise 7.1(i-iii).

Solution:



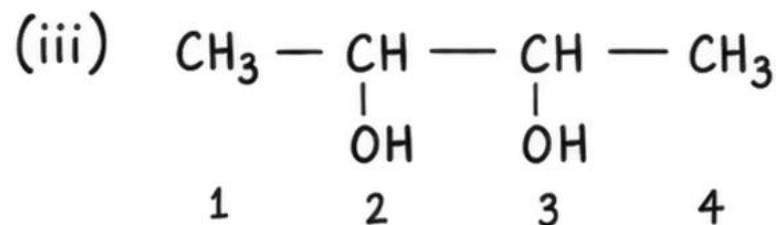
The longest chain has 5 carbons (pentane). Numbering from the gem-dimethyl end gives methyl groups at C-2, 2 and 4, and the -OH group at C-3.

∴ Name: 2,2,4-trimethylpentan-3-ol.



The longest chain has 7 carbons (heptane). Numbering from the left gives -OH groups at C-2 and C-4, and an ethyl group at C-5.

∴ Name: 5-ethylheptane-2,4-diol.

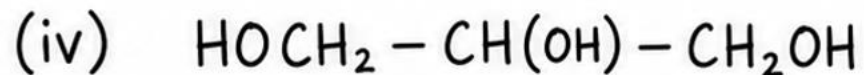


The longest chain has 4 carbons (butane) with -OH groups at C-2 and C-3.

∴ Name: butane-2,3-diol.

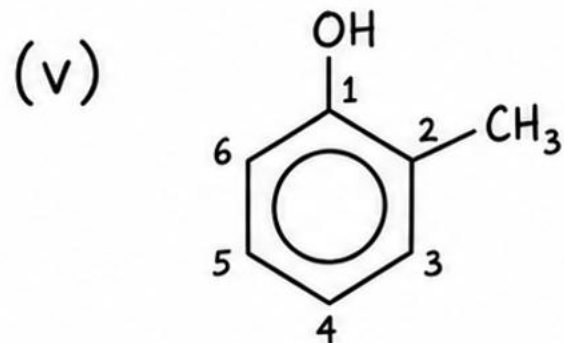
GLYCEROL AND CRESOL NAMES: IV-VI

Exercise 7.1(iv-vi), name these three structures.



Solution:

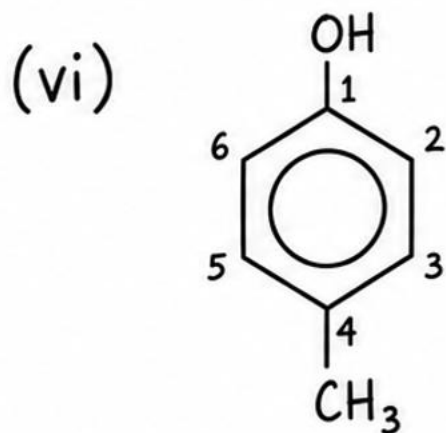
This is a three carbon chain with a hydroxyl group on each carbon.
Hence, the IUPAC name is propane-1,2,3-triol (glycerol).



Solution:

This is a phenol with a methyl group at the adjacent (2-) position to the hydroxyl group.

Hence, the IUPAC name is 2-methylphenol (o-cresol).



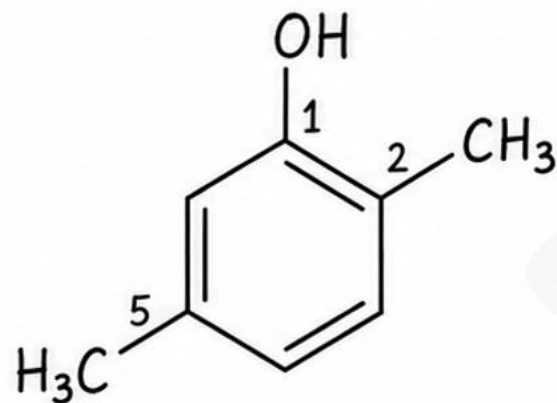
Solution:

This is a phenol with a methyl group at the opposite (4-) position to the hydroxyl group.

Hence, the IUPAC name is 4-methylphenol (p-cresol).

DIMETHYLPHENOLS AND AN ETHER: VII-IX

(vii) Give the IUPAC name of the following compound.



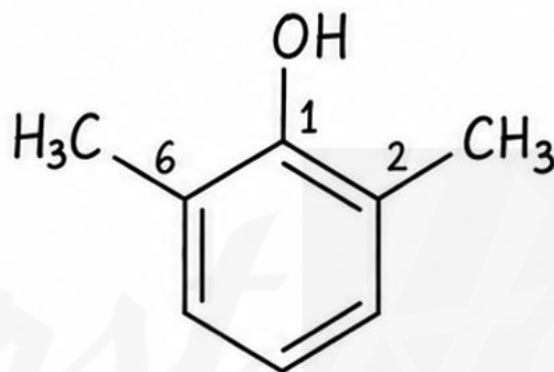
Solution:

The parent compound is phenol with methyl groups at positions 2 and 5 on the benzene ring.

IUPAC name:

2,5-dimethylphenol

(viii) Give the IUPAC name of the following compound.



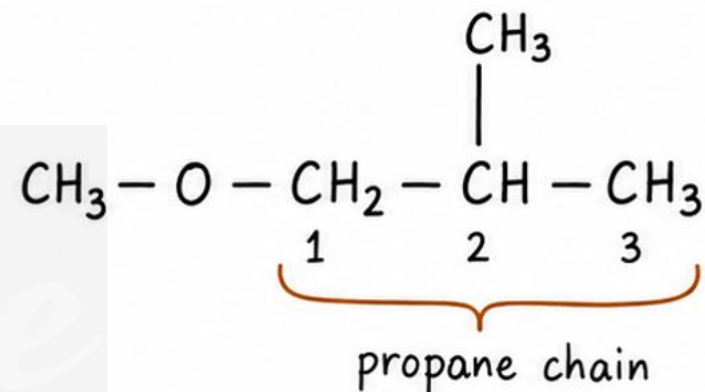
Solution:

The parent compound is phenol with methyl groups at positions 2 and 6 on the benzene ring.

IUPAC name:

2,6-dimethylphenol

(ix) Give the IUPAC name of the following compound.



Solution:

Consider propane as the parent chain with a methoxy ($-\text{OCH}_3$) group at C-1 and a methyl group at C-2.

IUPAC name:

1-methoxy-2-methylpropane

PHENOXY AND ETHOXY ETHERS: X-XII

Exercise 7.1 (x-xii): Give the IUPAC name of the following ethers:



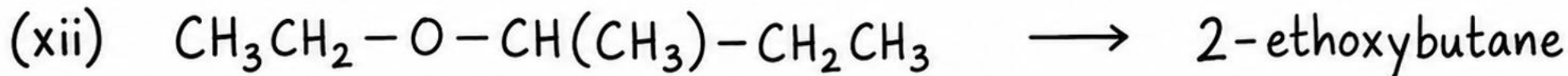
Solution:

The parent is benzene and $-\text{OCH}_2\text{CH}_3$ is an ethoxy group.



Solution:

The parent is heptane and $\text{C}_6\text{H}_5\text{O}-$ is a phenoxy group attached at C-1.



Solution:

The parent is butane and $-\text{OCH}_2\text{CH}_3$ is an ethoxy group attached at C-2.



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