

ISOMERISM AND ETHERS

Std. XII
CHEMISTRY

Time: 1½ Hrs
Max.Marks: 75

PART - I

Choose the correct answer

(15 × 1 = 15)

- When ethyl alcohol vapours are passed over heated alumina the substance obtained is
 - acetaldehyde
 - diethyl ether
 - acetone
 - acetic acid
- Which of the following is ortho and para directing group?
 - OCH₃
 - CHO
 - COOH
 - NO₂
- Phenetole is
 - C₂H₅-O-C₂H₅
 - C₆H₅-O-CH₃
 - CH₃-O-CH₃
 - C₆H₅-O-C₂H₅
- Dimethyl ether can be decomposed with
 - HI
 - KMnO₄
 - NaOH
 - H₂O
- Oxygen atom of ether is
 - comparatively inert
 - explosive
 - very active
 - replacable
- According to Lewis concept of acids and bases, ethers are
 - basic
 - neutral
 - amphoteric
 - acidic
- Which of the following statements is not true?
 - ethers are lighter than water
 - lower ethers act as anaesthetics
 - ethers are insoluble in organic solvents
 - ethers are chemically inert
- Dimethyl ether on exposure to air forms
 - an explosive peroxide
 - ethanol
 - ethyl acetate
 - ethyl methyl ketone
- How many ether isomers are possible for the formula C₇H₈O
 - one
 - five
 - two
 - three
- Williamsons synthesis is an example of
 - nucleophilic addition
 - electrophilic addition
 - nucleophilic substitution
 - electrophilic substitution

11. Ethers have low boiling point compared to alcohols as they
 - a have low density
 - b are explosive
 - c form hydrogen bonding
 - d cannot form hydrogen bonding
12. The IUPAC name of methyl n-propyl ether is
 - a methoxy propane
 - b 2-methoxy propane
 - c 1-methoxy propane
 - d ethoxy propane
13. Higher ethers can be prepared from lower members by the action of
 - a con. H_2SO_4
 - b Grignard reagent
 - c AgOH
 - d all the above
14. Which one of the following ethers is used in perfumery?
 - a dimethyl ether
 - b diethyl ether
 - c ethyl methyl ether
 - d methyl phenyl ether
15. Which reaction is used in Zeisel's method of detection and estimation of alkoxy group?
 - a alkyl halide + sodium alkoxide
 - b alcohol + acid
 - c natural products + excess of HI
 - d ethers + oxygen

PART - II

Answer all the questions

(10 × 3 = 30)

16. Distinguish enantiomers and diastereomers.
17. Write the differences between racemic form and mesoform.
18. Define optical isomerism.
19. Define chirality.
20. Define geometrical isomerism with a suitable example.
21. What are ethers? How are they classified?
22. Explain metamerism with an example.
23. Ethers are not soluble in H_2O give reasons.
24. Ethers should not be evaporated to dryness. Why?
25. Write the action of PCl_5 with ethers.

PART - III

Answer all the questions

(4 × 5 = 20)

26. Explain the optical isomerism of tartaric acid.
27. Discuss the conformations of cyclohexane.
28. Explain "ring flipping" and equilibrium composition in cyclohexanol.
29. Give the names and structures of all the isomers with the molecular formula $C_4H_{10}O$

PART - IV

Answer all the questions:

(1 × 10 = 10)

30. (a) Write Williamson's synthesis.
 (b) Write the preparation of anisole from phenol.
 (c) Write the manufacture of anisole.
 (d) Mention the uses of diethyl ether and anisole (two uses each)
 (e) How does diethyl ether react with (i) HI (ii) Con. H_2SO_4