

**Programme: B. Pharm**  
**Subject: Pharmaceutical Organic Chemistry –I**  
**Subject Code: BP202T**  
**Enrollment No: \_\_\_\_\_**

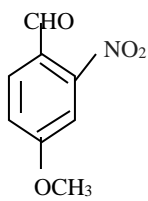
**Full Marks: 75**  
**Time: 3 Hrs.**

**Section I**

**1. Objective type questions. Answer all questions.**

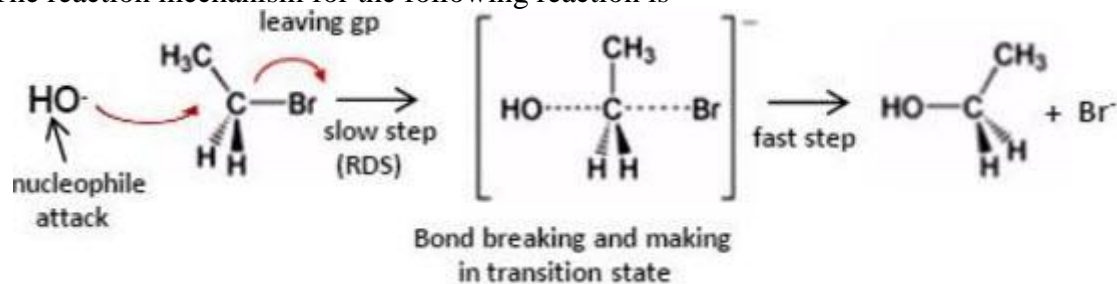
**20 x 1 = 20**

- i. Primary alcohol is obtained by
  - a. Hydration of alkene
  - b. Dehydrogenation of alkenes
  - c. dehydration of alkenes
  - d. None of above
- ii. Alcohols reacts with  $\text{PCl}_5$  to give
  - a. Alkene
  - b. Alkyl halide
  - c. Acid
  - d. None of these
- iii. What is the correct IUPAC name of
 



  - a. 4-methoxy-2-nitrobenzaldehyde
  - b. 4-methoxy-6-nitrobenzaldehyde
  - c. 4-formyl-3-nitro anisole
  - d. 2-formyl-5-methoxy nitrobenzene
- iv. Paraffin is a
  - a. Alcohol
  - b. Alkane
  - c. Acid
  - d. Ether
- v. Primary alcohol is obtained by
  - a. Hydration of alkene
  - b. Dehydrogenation of alkenes
  - c. dehydration of alkenes
  - d. None of above
- vi. Which one of the following compounds is an isomer of  $\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2\text{OH}$ ?
  - a.  $\text{CH}_3\text{CH}_2\text{CH}_2\text{OH}$
  - b.  $\text{CH}_3\text{CH}(\text{OH})\text{CH}_3$
  - c.  $\text{CH}_3\text{CH}_2\text{CH}_2\text{CHO}$
  - d.  $\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_3$
- vii. Which of the following will undergo an addition reaction with chlorine?
  - a.  $\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_3$
  - b.  $\text{CH}_3\text{CH}_2\text{CH}=\text{CHCH}_3$
  - c.  $\text{C}_6\text{H}_6$
  - d.  $\text{CH}_3\text{CH}_2\text{COOH}$
- viii. Dehydration of an alcohol leads to the formation of an \_\_\_\_\_.
  - a. Alkene
  - b. Alkane
  - c. Alkyne
  - d. Alkyl halide
- ix. Ethanol can be oxidized stepwise. What is the first stable intermediate product when ethanol is oxidized with a mild oxidation agent?
  - a.  $\text{CH}_3\text{COOH}$
  - b.  $\text{CO}_2$
  - c.  $\text{CH}_3\text{CHO}$
  - d.  $\text{CH}_3\text{CH}_2\text{OH}$
- x. According to anti Markovnikov's rule when propylene reacts with  $\text{HBr}$  in presence of peroxide product is
  - a. n – propyl bromide
  - b. Isopropyl bromide
  - c. Butyl bromide
  - d. Isobutyl bromide
- xi. Which of the following compound would react most rapidly in an  $\text{S}_\text{N}2$  reaction ?
  - a.  $\text{CH}_3\text{CH}_2\text{I}$
  - b.  $\text{CH}_2=\text{CHI}$
  - c.  $(\text{CH}_3)_2\text{CHI}$
  - d.  $(\text{CH}_3)_3\text{CCl}$
- xii. 1, 2 dibromo ethane is formed by the reaction between
  - a.  $\text{CH}_2=\text{CH}_2$  and  $\text{Br}_2$
  - b. Ethylene with excess of  $\text{HBr}$
  - c. Acetylene with excess of  $\text{HBr}$
  - d. 1, 2 dichloro ethane with  $\text{Br}_2$
- xiii. What is the IUPAC name of given structure  $\text{CH}_3-\text{CH}=\text{CH}-\text{CH}_2-\text{OH}$ 
  - a. 2 – buten – 1 – ol
  - b. 2 – buten – 2 – ol
  - c. 2 – buten – 4 – ol
  - d. 2 – butan – 4 – ol

xiv. The reaction mechanism for the following reaction is



- a. SN1      b. SN2      c. E1      d. E2
- xv. SN1 mechanism proceeds \_\_\_\_\_ intermediate state.  
 a. Free radical      b. Carbonium ion      c. Pentavalent transition      d. Carbanion state
- xvi. **Cis-trans isomers are:**  
 a. Diastereomers.      b. Enantiomers      c. Geometric isomers.      d. Constitutional isomers.
- xvii. In the preparation of Grignard reagent from haloalkane, the metal \_\_\_\_\_ is used  
 a. Mg      b. Zn      c. Li      d. K
- xviii. Diel's Alder reaction is  
 a. [2+2]-Cycloaddition reaction      c. [4+2]-Cycloaddition reactions  
 b. [4+4]-Cycloaddition reaction      d. [6+2]-Cycloaddition reaction
- xix. Which of the following factors has no effect on the rate of SN1 reactions?  
 a. the concentration of the alkyl halide      c. the concentration of the nucleophile  
 b. the nature of the leaving group      d. the value of the rate constant
- xx. Benzoic acid is used as  
 a. Preservative      b. pH modifier      c. Cosolvent      d. None of the above

### Section II

2. **Short Answer type questions. Answer any five.**

**5 x 7 = 35**

- a. Discuss basicity and effect of substitution on basicity of aliphatic amines
- b. Discuss effect of substitution on acidity of organic acids.
- c. Discuss structure and uses of
  - i. Acetic acid
  - ii. Acetyl Salicylic acid
- d. Discuss the structures and uses of vanillin and cinnamaldehyde
- e. Give the qualitative tests for alcohols.
- f. Discuss the classification of ketones.
- g. Discuss factors affecting E1 and E2 reactions.

### Section III

**Long Answer type questions. Answer any two.**

**2 x 10 = 20**

3. Explain the mechanism of Aldol condensation and Cannizaro reaction in details.
4. Discuss the procedure for IUPAC nomenclature for organic compounds
5. Write an note on structural isomerism on organic compounds.

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