**Faculty of Pharmacy**

**B.Pharm. (Semester–II) (New) Examination**

**PHARMACEUTICAL ORGANIC CHEMISTRY–I**

**Paper–BP202T**

**(35340)**

Time : Three Hours] [Maximum Marks : 75

**INSTRUCTIONS TO CANDIDATES**

(1) Answer **ALL** questions.

(2) Illustrate your answer wherever necessary with the help of neat sketches.

(3) Discuss the reaction, mechanism wherever necessary.

1 (A) Multiple choice questions : 10

(1) The isomers of a substance must have _____.

(a) Same structural formula

(b) Same chemical properties

(c) Same molecular weight

(d) Same functional group

(2) Which of the following reactions can be used to prepare alkanes ?

(a) Wurtz reaction (b) Wolf-Kishner reduction

(c) Kolbe's electrolysis (d) All of these

(3) A Diels – Alder reaction is a method of making _____.

(a) Cyclohexanes (b) Cyclobutanes

(c) Cyclohexenes (d) Hexenes

(4) Ketones are prepared by the oxidation of _____.

(a) Primary alcohol (b) Secondary alcohol

(c) Tertiary alcohol (d) None of these

(5) Amines are generally classified as _____.

(a) Strong acids (b) Weak acids

(c) Strong bases (d) Weak bases

(6) The thermal decomposition of alkanes in the absence of air is called :

(a) Cracking (b) Oxidation

(c) Combustion (d) Hydrogenation

(7) The most typical reaction of simple alkenes is _____.

(a) Nucleophilic substitution

(b) Nucleophilic addition

(c) Electrophilic substitution

(d) Electrophilic addition

(8) Lucas Test is used to determine the type of _____

(a) alcohols (b) amines

(c) acids (d) carbohydrates

(9) The $SN^2$ reaction is known to occur with :

(a) mutarotation

(b) racemization

(c) partial inversion

(d) almost complete inversion

(10) The reduction of a ketone _____.

(a) always gives a primary alcohol

(b) always gives a secondary alcohol

(c) always gives a tertiary alcohol

(d) always gives a ketal

(B) Solve the following : 10

(1) Draw the molecular structure of 1, 3 –Butadiene.

(2) Draw the molecular structure of 2, 3 –diethylhex–1–ene.

(3) Give the classification of dienes.

(4) Write the uses of vanilin.

(5) Write the uses of propylene glycol.

2. Solve the following (any **two**) : 20

(1) Explain the reaction, mechanism and kinetics of $SN^1$ and $SN^2$ reaction.

(2) Explain Markownikoff's rule with reference to addition of HBr to propene. Write a note on Anti Markownikoff's orientation.

(3) What is $E_1$ reaction ? Discuss its mechanism, kinetics and stereochemistry.

3. Solve the following (any **seven**) : 35

(1) Discuss halogenation reaction of alkane with mechanism.

(2) What is isomerism ? Give its classification with example.

(3) Discuss the basicity of aliphatic amines.

(4) Define hybridization. Explain $sp^3$ hybridization in alkane.

(5) What is conjugated dienes ? Discuss Diel-Alder reaction.

(6) Explain the acidity of carboxylic acid.

(7) Write the structure and uses of acetone and citric acid.

(8) Discuss Aldol condensation of carbonyl compounds.

(9) Discuss kinetics and stereochemistry of $E_2$ reaction.