



Name :

Roll No. :

Invigilator's Signature :

CS/B.Pharm (NEW)/SEM-2/PT-204/2010

2010

PHARMACEUTICAL CHEMISTRY (ORGANIC CHEMISTRY)

Time Allotted : 3 Hours

Full Marks : 70

The figures in the margin indicate full marks.

*Candidates are required to give their answers in their own words
as far as practicable.*

GROUP - A

(Multiple Choice Type Questions)

1. Choose the correct alternatives for any *ten* of the following : 10 × 1 = 10

i) Which alkane cannot be synthesized in a Wurtz reaction ?

a) C_2H_6

b) CH_4

c) C_3H_8

d) C_5H_{12}

ii) The numbers of pi & sigma bonds for 2-Butene are

a) 1 π & 11 σ

b) 2 π & 1 σ

c) 3 π & 9 σ

d) 11 π & 1 σ .

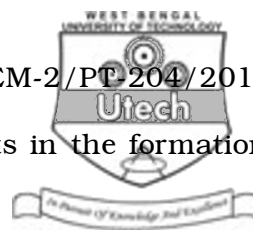
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- iii) Haloform Reaction is given by compounds having a
- a) Keto-ethyl group
 - b) Keto-methyl group
 - c) Carboxyl group
 - d) Ether group.
- iv) When acetylene is passed through hot iron at 400°C , it gives
- a) Mesitylene
 - b) Toluene
 - c) Xylene
 - d) Benzene.
- v) Number of molecular orbital in a Hydrogen molecule is
- a) 2
 - b) 3
 - c) 4
 - d) 1.
- vi) A meso compound
- a) is optically inactive
 - b) contains a centre of symmetry or a plane of symmetry
 - c) is an achiral molecule which contains chiral carbon
 - d) is characterized by all of these.



vii) Hydrolysis of Grignard reagent results in the formation of

- a) Alkane
- b) Alkene
- c) Alkyne
- d) Carboxylic acid.

viii) Dipole moment of which molecule is zero ?

- a) Carbon dioxide
- b) Water
- c) Carbon monoxide
- d) Ammonia.

ix) The following Alkyl Halides are in the increasing order of their boiling points. The correct order is

- a) $RF < RCl < RBr < RI$
- b) $RI < RBr < RCl < RF$
- c) $RF < RBr < RCl < RI$
- d) $RF < RI < RCl < RBr.$

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- x) Which of the following reactions can be used to prepare ethers ?
- a) Friedel-Crafts reaction
 - b) Williamson synthesis
 - c) Diels-Alder reaction
 - d) Reimer-Tiemann reaction.
- xi) Optically active compounds are the compounds that
- a) produce polarized light
 - b) rotate the polarized light
 - c) rotate the plane polarized light
 - d) rotate the sunlight.
- xii) Which one will show geometrical isomerism ?
- a) 1, 2-Dichloro ethene
 - b) 1, 2-dichloro cyclopropane
 - c) Both of these
 - d) None of these.



GROUP – B

(Short Answer Type Questions)

Answer any *three* of the following. $3 \times 5 = 15$

2. Write a proper explanatory notes on : Markovnikov and Anti-Markovnikov rules.
3. How will you distinguish primary, secondary and tertiary amines ?
4. When alkanes are heated to high temperature, the C–C bond breaks rather than C–H bond. Why ?
5. What do you mean by cis – trans geometric isomerism ?
6. One mole of a hydrocarbon (A) reacts with one mole of Bromine giving a dibromo compound $C_5H_{10}Br_2$. Substance A on treatment with cold dilute $KMnO_4$ solution forms a compound $C_5C_{12}O_2$. On ozonolysis A, gives equimolar quantities of propanone and ethanol. Deduce the structure of substance A.

GROUP – C

(Long Answer Type Questions)

Answer any *three* of the following. $3 \times 15 = 45$

7. a) What are optical activity and specific rotation ?
b) What are the elements of symmetry ? Explain each of them.
c) Explain the terms 'enantiomers', 'diastereomers' and 'meso-compound'.

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8. Write notes on any *three* of the following briefly.

- i) Diels-Alder reaction
- ii) Aldol condensation
- iii) Kolbe reaction
- iv) Hell-Volhard-Zelinsky reaction.

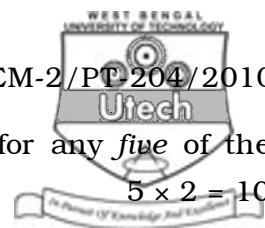
9. Differentiate any *five* of the following :

- a) Bonding and anti-bonding orbital.
- b) Bond energy and bond dissociation energy with examples.
- c) R and S system of isomerism.
- d) Polar and non-polar compounds.
- e) E & Z system of isomerism.
- f) Anti and Gouche conformation of butane.

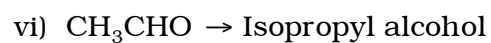
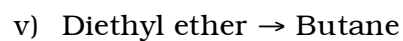
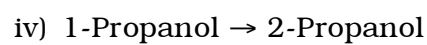
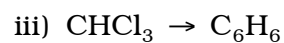
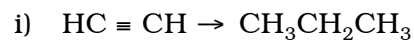
10. Define hybridization and describe three hybridized states of carbon. Outline the criteria for aromaticity. What do you mean by cracking ? What is the importance of cracking in

Pharmacy ?

1 + 7 + 3 + 1 + 3



11. a) Carry out the different conversions for any *five* of the following :



b) Discuss shortly on any *two* of the following : $2 \times 2 \frac{1}{2} = 5$

i) Haloform Reaction

ii) Ozonolysis

iii) Peroxide effect and Markovnikoff's Rule.

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