



hmName : .....

Roll No. : .....

Invigilator's Signature : .....

**CS/B.PHARM (OLD)/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.*

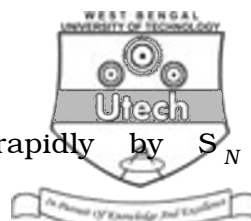
**GROUP – A**

**( Multiple Choice Type Questions )**

1. Choose the correct alternatives for any *ten* of the following : 10 × 1 = 10
- i) Lindlar's catalyst is
    - a)  $\text{LiAlH}_4$
    - b)  $\text{Pd/BaSO}_4$  in quinoline
    - c)  $\text{NH}_2\text{NH}_2$
    - d)  $\text{HCl/ZnCl}_2$  .
  
  - ii) 1-butyne can be distinguished from 2-butyne by using
    - a) potassium permanganate
    - b) bromine in  $\text{CCl}_4$
    - c) Tollen's reagent
    - d) chlorine in  $\text{CCl}_4$  .

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- iii) Which compound reacts most rapidly by  $S_N1$  mechanism ?
- a) Methyl chloride                      b) Isopropyl chloride  
c) Ethyl chloride                        d) *tert*-Butyl chloride.
- iv) 2,2-Dichloropropane reacts with aqueous KOH to give
- a) 2,2-propanediol                      b) propanal  
c) acetone                                d) propene.
- v) Benzene reacts with conc.  $HNO_3$  in the presence of  $H_2SO_4$  to give nitrobenzene. The reaction is an example of
- a) electrophilic addition  
b) nucleophilic addition  
c) electrophilic substitution  
d) nucleophilic substitution.
- vi) Ethyl alcohol can react with conc.  $H_2SO_4$  to give
- a) ethylene  
b) diethyl ether  
c) ethyl hydrogen sulphate  
d) all of these.
- vii) A meso compound
- a) is an achiral molecule which contains chiral carbon  
b) contains a plane of symmetry or a centre of symmetry  
c) is optically inactive  
d) is characterized by all of these.
- viii) 1-Buten-3-yne has
- a) six  $\sigma$  and four  $\pi$  bonds  
b) seven  $\sigma$  and three  $\pi$  bonds  
c) eight  $\sigma$  and two  $\pi$  bonds  
d) nine  $\sigma$  and nine  $\pi$  bonds.



- ix) Optically active compounds are the compounds that
- produce polarized light
  - rotate polarized light
  - rotate UV light
  - rotate plane of polarized light.
- x) The chief constituent of vinegar is
- ethyl alcohol
  - grape juice
  - acetic acid
  - none of these.
- xi) In C-C, there is
- SP<sup>3</sup> hybridization
  - SP hybridization
  - SP<sup>2</sup> hybridization
  - no-hybridization.
- xii) Conformational isomers represented by
- Fischer projection
  - Newman projection
  - Howarth projection
  - none of these.

**GROUP – B**

**( Short Answer Type Questions )**

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

- Cyclopropane is more reactive than cyclopentane. Explain.
- Why is phenol more acidic than alcohol ?
- What do you mean by cis-trans geometrical isomerism ?
- Discuss SP<sup>2</sup> and SP<sup>3</sup> hybridization of nitrogen with example.
- Differentiate between bonding and anti-bonding.

CS / B.PHARM (OLD) / SEM-2 / PT-204 / 2010



**GROUP – C**

**( Long Answer Type Questions )**

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

7. a) Describe the preparation of alkane and chemical properties of alkane.  
b) Explain Markonikov rule and anti-Markonikov rule.  
c) What is diene ?  $7 + 6 + 2$
8. Explain any *three* of the following terms :  $3 \times 5$   
a) Pauli exclusion principle  
b) Molecular Orbital *vs* Atomic Orbital  
c) Bond dissociation energy  
d) Intermolecular forces.
9. a) How will distinguish  $1^\circ$ ,  $2^\circ$  and  $3^\circ$  amines ?  
b) How will you distinguish  $1^\circ$ ,  $2^\circ$  and  $3^\circ$  alcohols ?  
c) How will you distinguish between methyl alcohol and ethyl alcohol ?  
d) Explain why alcohols have much higher boiling points than those of corresponding alkanes ?  $4 + 4 + 4 + 3$
10. Write short notes on any *three* of the following :  $3 \times 5$   
a) Friedel-Crafts reaction  
b) Reimer-Tiemann reaction  
c)  $S_N2$  reaction  
d) Diazotisation reaction  
e) Dipole moment.
11. Describe the classical reactions of aldehyde and ketone, giving mechanism of reactions.  $7\frac{1}{2} + 7\frac{1}{2}$