



14338

**BRAINWARE UNIVERSITY**

Library
Pharmaceutical Technology
Brainware University
Barasat, Kolkata-700125

Term End Examination 2024-2025**Programme – B.Pharm-2020/B.Pharm-2022/B.Pharm-2023/B.Pharm-2024****Course Name – Pharmaceutical Organic Chemistry I/Pharmaceutical Organic****Chemistry I - Theory****Course Code - BP202T****(Semester II)****Full Marks : 75****Time : 3:0 Hours**

[The figure in the margin indicates full marks. Candidates are required to give their answers in their own words as far as practicable.]

Group-A

(Multiple Choice Type Question)

1 x 20=20

1. Choose the correct alternative from the following :

(i) Select among the following is a type of structural isomerism.

- | | |
|-------------------------------|---|
| a) Functional group isomerism | b) Chain isomerism |
| c) Position isomerism | d) Functional, chain and position isomerism |

(ii) Select the correct option: the compound which has same molecular formula, but different structural formula is called _____.

- | | |
|--------------------|-----------------------|
| a) Optical isomer | b) Geometrical isomer |
| c) Position isomer | d) Structural isomer |

(iii) Select how many classes are there in structural isomerism?

- | | |
|------|------|
| a) 1 | b) 3 |
| c) 4 | d) 5 |

(iv) Show the weakest bond from the followings?

- | | |
|----------------|------------------------|
| a) Co-ordinate | b) Ionic bond |
| c) Covalent | d) Polar covalent bond |

(v) Select the correct option: in C-C, there is _____.

- | | |
|-------------------------|-----------------------|
| a) sp^3 hybridization | b) sp hybridization |
| c) sp^2 hybridization | d) no-hybridization |

(vi) Select among the followings: acetylene (Ethyne) has _____.

- | | |
|---------------------------------------|--------------------------------------|
| a) three σ and two π bonds | b) one σ and two π bonds |
| c) two σ and three π bonds | d) one σ and four π bonds |

- (vii) Develop the following series of atoms in order of their increasing electronegativity. N, O, F, P, As.
- a) $N < O < F < P < As$
 b) $F < O < N < P < As$
 c) $As < P < N < O < F$
 d) $As < P < N < F < O$
- (viii) Which compound has the IUPAC name- 2,2,2-trichloroethane-1,1-diol?
- a) Chloroethane
 b) Chloral Hydrate
 c) Chloropicrin
 d) Iodal
- (ix) Select the incorrect statement regarding alkanes.
- a) It is otherwise known as paraffin
 b) It is an acyclic saturated hydrocarbon
 c) In alkanes, C-C bonds are single
 d) Alkanes have the general formula C_nH_{2n}
- (x) Select the minimum number of carbon atoms, a molecule must possess so as to be regarded as a higher alkane
- a) 15
 b) 16
 c) 17
 d) 18
- (xi) Which among the following reaction can be used to prepare propane alkane?
- a) Wurtz Reaction
 b) Wolf-Kishner Reaction
 c) Kolbe electrolysis
 d) All of these
- (xii) Select the correct option: Markovnikov addition _____.
- a) gives the most stable carbocation
 b) gives the least stable carbocation
 c) is addition to a carbon atom containing the least hydrogen atom
 d) none of these
- (xiii) Select the correct option: the carbon atoms involved in the double bond of an alkene are _____.
- a) sp Hybridized
 b) sp^2 Hybridized
 c) sp^3 Hybridized
 d) none of these
- (xiv) Select the correct option: Diel's Alder reaction comes under _____.
- a) Cycloaddition
 b) Electrocyclic
 c) Sigmatropic
 d) All
- (xv) Select which of the followings is a conjugated diene?
- a) $C = C - C = C$
 b) $C - C = C - C$
 c) $C = C - C - C = C$
 d) $C = C = C$
- (xvi) Identify the incorrect statement regarding alkenes.
- a) In alkenes, the carbons are connected by pi bonds
 b) Alkenes have almost same physical properties as that of the alkanes
 c) Alkenes are less reactive than alkanes
 d) Alkenes undergo polymerization reaction
- (xvii) Identify the bond present between two carbons in alkene.
- a) Single bond
 b) Double bond
 c) Triple bond
 d) Not connected
- (xviii) Find the correct option: in the _____, the double bond undergoes complete cleavage, converting the alkene molecule into smaller fragments.
- a) cleavage reaction
 b) Alkylation
 c) Acylation
 d) cleavage reaction
- (xix) Find the correct option: LPG (Household cooking gas) is mainly a mixture of _____.
- a) Methane + Ethane
 b) Acetylene + O_2
 c) Butane + propane
 d) Acetylene + H_2
- (xx) Select which among the following compound assigned the octane number of zero?

- a) n-Octane
c) n-Heptane

- b) 2,3,3-Trimethylpentane
d) 2,2,4-Trimethylpentane

Group-B

(Short Answer Type Questions)

5 x 7=35

2. Show the structures of the following IUPAC names: 3-ethyl-2,2,5-trimethylhexane; 2,3-dihydroxypentanoic acid; 2-chloro-3-methylpentanal; 3-methyl-2 butanone; 4-chloro-2aminophenol. (5)
3. Differentiate between the E1 and E2 reactions. (5)
4. Define carboxylic acids and describe the effect of electron withdrawing groups on acidity. (5)
5. Discuss anti-Markovnikov rule and the Wolff-Kishner reduction reaction for synthesis of alkane. (5)
6. Describe the complete mechanism of Cannizzaro reaction with example. (5)
7. Develop the process of synthesizing ethyl alcohol from acetylene and explain the uses of methyl alcohol. (5)

OR

- Explain the difference between SN1 and SN2 reaction. (5)
8. Explain with reason, which of the following between aldehyde and ketones is more reactive toward nucleophilic addition. (5)

OR

- Differentiate between electromeric effect and resonance effect and explain the E effect and -E effect with examples. (5)

Group-C

(Long Answer Type Questions)

10 x 2=20

9. Explain the mechanism, stereochemistry and kinetics involved in unimolecular nucleophilic substitution reaction by selecting an appropriate example. (10)
10. Contrast the structural isomerism and functional group isomerism with example also illustrate the types of isomerism by showing a suitable example. (10)

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OR

Classify dienes and illustrate the stability of conjugated dienes comparing with other dienes (10)
with suitable examples.
