



## BRAINWARE UNIVERSITY

Term End Examination 2023-2024

Programme – B.Pharm-2021/B.Pharm-2022/B.Pharm-2023

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) Which of the following is a tertiary amines?  
a) Methylamine  
b) Dimethylamine  
c) Ethylmethylamine  
d) Trimethylamine
- (ii) Identify the IUPAC name of  $\text{CH}_3\text{-O-CH}_2\text{CH}_3$ .  
a) Dimethyl ether  
b) Methoxy ethane  
c) Propyl ether  
d) Ethyl methyl ether
- (iii) Which of the following compounds has the functional group -OH?  
a) 2-butanone  
b) 1, 2-ethandiol  
c) Nitrobenzene  
d) Ethanal
- (iv) Select the correct option: A molecule is said to be chiral if it \_\_\_\_\_.  
a) contains plane of symmetry  
b) contains centre of symmetry  
c) cannot be superimposed on its mirror image  
d) can be superimposed on its mirror image
- (v) Identify the bond present between two carbons in alkene.  
a) Single bond  
b) Double bond  
c) Triple bond  
d) Not connected
- (vi) Find the correct option. The order of reactivities of the following alkyl halides for a  $\text{S}_\text{N}2$  reaction is \_\_\_\_\_.  
a)  $\text{RF} > \text{RCl} > \text{RBr} > \text{RI}$   
b)  $\text{RF} > \text{RBr} > \text{RCl} > \text{RI}$   
c)  $\text{RCl} > \text{RBr} > \text{RF} > \text{RI}$   
d)  $\text{RI} > \text{RBr} > \text{RCl} > \text{RF}$
- (vii) Which of the following compounds reacts fastest with Lucas reagent?  
a) 1-butanol  
b) 2-propanol

- c) 2-butanol  
 (viii) Select the correct option. A hydrazone will result from the reaction of hydrazine with \_\_\_  
 a) a phenol  
 c) an alcohol  
 d) 2-methyl-2-propanol  
 b) an aldehyde  
 d) An acid
- (ix) Select the correct option. Cannizzaro reaction is not given by \_\_\_\_\_  
 a) Formaldehyde  
 c) Acetaldehyde  
 b) Trimethyl acetaldehyde  
 d) Benzaldehyde
- (x) Select the correct option. The ozonolysis of alkane involves the addition of ozone to an alkene to form \_\_\_\_\_  
 a) ozonode  
 c) oznide  
 b) ozonid  
 d) ozonide
- (xi) Select the correct option. The \_\_\_\_\_ when treated with oxidising agents or heated with copper undergo oxidation to form ketones.  
 a) secondary alcohol  
 c) tertiary alcohol  
 b) primary alcohol  
 d) quaternary alcohol
- (xii) Select the correct option. The Clemmensen reduction of a ketone is carried out in the presence of which of the following?  
 a) H<sub>2</sub> and Pt as catalyst  
 c) Zn-Hg with HCl  
 b) Glycol with KOH  
 d) LiAlH<sub>4</sub>
- (xiii) Select the correct option. The compound which forms acetaldehyde when heated with dilute NaOH is \_\_\_\_\_  
 a) 1 chloro ethane  
 c) 1, 2 dichloro ethane  
 b) 1, 1 dichloro ethane  
 d) 1, 1, 1 trichloro ethane
- (xiv) What is the IUPAC name of the aldehyde whose common name is formalhyde?  
 a) methanal  
 c) propanal  
 b) ethanal  
 d) 2-methylpropanal
- (xv) Select the correct option. Formic acid is obtained when which of the given reaction occurs?  
 a) Calcium acetate is heated with conc. H<sub>2</sub>SO<sub>4</sub>  
 c) Glycerol is heated with oxalic acid at 110°C  
 b) Calcium formate is heated with calcium acetate  
 d) Acetaldehyde is oxidised with K<sub>2</sub>Cr<sub>2</sub>O<sub>7</sub> and H<sub>2</sub>SO<sub>4</sub>
- (xvi) Select the correct option. Benzoyl chloride is prepared from benzoic acid by \_\_\_\_\_  
 a) Cl<sub>2</sub>, hv  
 c) SOCl<sub>2</sub>  
 b) SO<sub>2</sub>Cl<sub>2</sub>  
 d) Cl<sub>2</sub>, H<sub>2</sub>O
- (xvii) Select the correct option. Viniger is a \_\_\_\_\_  
 a) 5% solution of acetic acid in water  
 c) 50% solution of acetic acid in water  
 b) 25% solution of acetic acid in water  
 d) 40% solution of acetic acid in water
- (xviii) Select which of the following is the strongest acid?  
 a) CH<sub>3</sub>COOH  
 c) CH<sub>3</sub>CH<sub>2</sub>COOH  
 b) ClCH<sub>2</sub>COOH  
 d) FCH<sub>2</sub>COOH
- (xix) Select which of the followings is most basic?  
 a) Ammonia  
 c) Dimethylamine  
 b) Methylamine  
 d) Trimethylamine
- (xx) Select the correct option. The aromatic primary amines reacts with nitrous acid yield \_\_\_\_\_  
 a) diazonium salts  
 c) tetrazonium salts  
 b) tiazonium salts  
 d) tauzonium salts

**Group-B**  
(Short Answer Type Questions)

5 x 7=35

2. Discuss in brief about the qualitative tests and uses of ethyl alcohol. (5)
3. Define Perkin condensation reaction and describe the mechanism of this reaction. (5)
4. Describe the IUPAC rules for naming alkanes. (5)
5. Explain the mechanism of SN1 reaction in alkyl halide. (5)
6. Describe conjugated dienes and Saytzeff's rule with example. (5)
  
7. Construct the relationship between methyl alcohol, ethyl alcohol and explain the physical properties of alcohol. (5)

**OR**

8. Explain in brief about the qualitative tests and uses of cetosteryl alcohol. (5)
8. Explain the differences between E1 and E2 reaction. (5)

**OR**

- Explain how do you distinguish primary, secondary and tertiary alcohols by chemical test. (5)

**Group-C**  
(Long Answer Type Questions)

10 x 2=20

9. Describe Wolf-Kishner reduction and Clemmensen reduction with mechanism. (10)
  
10. Explain in details about the inductive effect and qualitative tests for carboxylic acids. (10)

**OR**

- Illustrate the basicity of amines and also explain the effect of substituents on the basicity of amines. (10)

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