

W-2022

Seat Number 

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**PANKH-28**

**BP-401T**

**Pharmaceutical Organic Chemistry-III**  
**(724401)**

**Total Pages : 5]**

**Time : 3 Hours**

**Max Marks : 75**

- Note :** (1) Do not write anything on question paper except Seat No.  
(2) Graph or diagram should be drawn with the black ink pen being used for writing paper or black HB pencil.  
(3) Students should note, no supplement will be provided.  
(4) All questions are compulsory.

1. All questions are compulsory : 20

- (i) In Indole which of the heterocyclic ring is fused with benzene ring.
- |               |               |
|---------------|---------------|
| (a) Pyrrozone | (b) Imidazole |
| (c) Isoxazole | (d) Pyrrole   |
- (ii) In Indole electrophilic attack occurs at :
- |                |                |
|----------------|----------------|
| (a) 1 Position | (b) 2 Position |
| (c) 3 Position | (d) 4 Position |
- (iii) If a molecule has no element of symmetry it is said to be :
- |                    |                   |
|--------------------|-------------------|
| (a) Asymmetric     | (b) Symmetric     |
| (c) Meso compounds | (d) None of these |

P.T.O.

- (iv) Which of the following confirmation has highest stability ?
- |               |                        |
|---------------|------------------------|
| (a) Gauche    | (b) Fully eclipsed     |
| (c) Staggered | (d) Partially eclipsed |
- (v) Specific rotation is denoted by :
- |       |                |
|-------|----------------|
| (a) R | (b) S          |
| (c) D | (d) $[\alpha]$ |
- (vi) Which conformer of ethane has maximum energy ?
- |               |                           |
|---------------|---------------------------|
| (a) Skew      | (b) Eclipsed              |
| (c) Staggered | (d) All have equal energy |
- (vii) Identify the reaction in which benzenediol and carboxylate are formed :
- |                                  |
|----------------------------------|
| (a) Dakin reaction               |
| (b) Claisen-Schmidt condensation |
| (c) Wolff Kishner reaction       |
| (d) Oppenauer Oxidation          |
- (viii) Choose the product :
- $$\text{C}_6\text{H}_5\text{CHO} + \text{CH}_3\text{CHO} \xrightarrow{\text{NaOH}} ?$$
- |                  |                      |
|------------------|----------------------|
| (a) Acetaldehyde | (b) Cinnamaldehyde   |
| (c) Formaldehyde | (d) Both (a) and (b) |
- (ix) Racemic mixture can be separated by :
- |                            |                         |
|----------------------------|-------------------------|
| (a) Mechanical separation  | (b) Chemical separation |
| (c) Biochemical separation | (d) All of these        |

- (x) A molecule is achiral if :
- (a) It has plane of symmetry (b) Centre of symmetry  
(c) Axis of symmetry (d) All of these
- (xi) Predict the product :
- $$\text{RCOCl} \xrightarrow{\text{NaBH}_4} ?$$
- (a) Aldehyde (b) Acids  
(c) Alcohol (d) Both (a) and (b)
- (xii) Which of the following is selective reducing agent and reduces aldehyde and ketones to alcohols ?
- (a)  $\text{LiAlH}_4$  (b) Birch reduction  
(c)  $\text{NaBH}_4$  (d)  $\text{NaBH}_4\text{CN}$
- (xiii) ..... is the starting material used in Claisen Schmidt reaction.
- (a) Aldehyde (b) Aromatic Aldehyde  
(c) Alcohol (d) Amines
- (xiv) In Birch reduction stereospecifically alkynes are reduced to :
- (a) Trans alkanes (b) Trans alkenes  
(c) Cis alkenes (d) Cis alkynes
- (xv) Cinnamaldehyde ..... Isoquinoline.
- (a)  $\text{H}_2\text{SO}_4, \text{P}_2\text{O}_5$  (b) 10% NaOH  
(c) Liq.  $\text{NH}_3$  (d) Strong base

- (xvi) The molecular formula for imidazole is :  
 (a)  $C_3H_5N$  (b)  $C_3H_3H_2N$   
 (c)  $C_3H_3HN_2$  (d)  $C_3N_2H_4$
- (xvii) Which of the ring in isoquinoline gets easily reduced ?  
 (a) N-containing ring (b) Benzene ring  
 (c) Both (a) and (b) (d) None of these
- (xviii) In acridine which of the following catalysts cause reduction of benzene ring :  
 (a)  $Pt/HCl$  (b)  $Zn/HCl$   
 (c)  $LiAlH_4$  (d) All of these
- (xix) Nitration of Pyrrole is best carried out using :  
 (a) Ammonium nitrate (b) Conc.  $HNO_3$  and  $H_2SO_4$   
 (c) Acetyl nitrate (d) Nitric acid
- (xx) Cis-trans isomers are :  
 (a) Diastereomers (b) Enantiomers  
 (c) Stereoisomers (d) All of these

20

2. Solve any *two* out of the following :

- (i) What do you mean by racemic mixture ? Explain various methods of resolution of racemic mixture.
- (ii) Explain synthesis, reaction and medicinal uses of :  
 (i) Pyrrole  
 (ii) Thiophene
- (iii) Write reaction, mechanism and application of Clemmensen reduction and Beckmann's rearrangement.

3. Solve any *seven* out of the following :

35

- (i) Explain basicity of pyridine.
- (ii) Explain synthesis, reaction and medicinal uses of Quinolines.
- (iii) Explain in detail Oppenauer-Oxidation reaction with example.
- (iv) Elaborate stereospecific and stereoselective reaction.
- (v) What is Chiral compound ?
- (vi) Give details on geometrical isomerism.
- (vii) Write aromaticity and reactivity of Furan.
- (viii) Explain synthesis, reaction and medicinal uses of pyrazole.
- (xi) Elaborate stereoisomerism in biphenyl compound.