



BRAINWARE UNIVERSITY

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Barasat, Kolkata -700125

Term End Examination 2025-2026

Programme – B.Pharm-2020/B.Pharm-2021/B.Pharm-2022/B.Pharm-2023/B.Pharm-2024

Course Name – Pharmaceutical Organic Chemistry II

Course Code - BP301T

(Semester III)

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) Identify the correct option; Benzene reacts with propane in the presence of H_2SO_4 catalyst to give _____

a) n-Propylbenzene	b) Benzophenone
c) Cumene	d) Nothing Happens
- (ii) Identify the correct option, Benzene undergoes Friedel-Crafts reaction with isopropyl alcohol in presence of H_2SO_4 catalyst to give _____

a) n-Propylbenzene	b) Benzophenone
c) Isopropylbenzene	d) Nothing happens
- (iii) Select the correct option; Benzene reacts with benzoyl chloride in the presence of anhydrous aluminium chloride to form _____

a) Benzyl chloride	b) Benzaldehyde
c) Benzal chloride	d) Benzophenone
- (iv) Select the correct option. Benzene reacts with acetic anhydride in the presence of anhydrous aluminium chloride to form _____

a) Acetophenone	b) Benzophenone
c) Phenylacetic acid	d) Phenyl acetate
- (v) Identify the product form after the reaction of Benzene with chlorine in presence of $FeCl_3$ catalyst.

a) Hexachlorobenzene	b) Chlorobenzene
c) Hexachlorocyclohexane	d) Benzyl chloride
- (vi) What is the electrophile for sulphonation process?

a) H^+	b) SO_2
c) SO_3H^+	d) HSO_4^-

- (vii) What is the attacking electrophile for chlorination of benzene?
 a) Cl^- b) Cl^+
 c) Cl_2 d) HCl
- (viii) Select the electrophile responsible for nitration of benzene is _____.
 a) NO_2^- b) NO
 c) NO_2^+ d) HNO_2
- (ix) Which of the following reagent is used in order to make benzene react with bromine to give bromobenzene?
 a) Al_2O_3 catalyst b) Ultraviolet light
 c) Fe catalyst d) Nickel catalyst
- (x) Identify the product of this reaction; Cresols on distillation with zinc.
 a) o-Xylene b) benzene
 c) o-plus p-Xylene d) Toluene
- (xi) What is the use of saccharin?
 a) Sweetening agent b) Bitter tonic
 c) Flavoring agent d) Colouring agent
- (xii) Select the correct formula of benzene.
 a) $\text{C}_{10}\text{H}_{10}$ b) C_4H_4
 c) C_6H_6 d) C_6H_{12}
- (xiii) Select the correct option; benzene having the side chain of CH_3 Known as ____.
 a) Alkyl benzene b) Toluene
 c) Methyl benzene d) Cumene
- (xiv) Select the correct product after the reaction between bromine with benzene.
 a) Bromo benzene b) Iso benzene
 c) Meta benzene d) None of these
- (xv) Choose which amine is not soluble in water-
 a) Methylamine b) Trimethylamine
 c) Dimethylamine d) All are soluble in water
- (xvi) Choose which of the following will have highest boiling point-
 a) Methylamine b) Trimethylamine
 c) Dimethylamine d) Ethylamine
- (xvii) Choose the correct option. Amines are generally classified as _____.
 a) Weak acids b) Strong acids
 c) weak bases d) Strong bases
- (xviii) Choose which of the following is most basic-
 a) Methylamine b) Trimethylamine
 c) Dimethylamine d) Ammonia
- (xix) Choose the correct option. Acetamide reacts with Br_2/NaOH to give _____.
 a) Methylamine b) Urea
 c) Ethylamine d) Acetyl bromide
- (xx) Choose the correct option. Reduction of an imine will give an _____.
 a) Acid b) Amide
 c) Amine d) Alcohol

Group-B

(Short Answer Type Questions)

5 x 7=35

- Describe the structure, preparation and uses of Chloramine. (5)
- Discuss in brief about the Friedel Craft's alkylation reaction along with mechanism. (5)
- Why the $-\text{CF}_3$ group is meta directing? (5)

5. Discuss in brief about the nitration of benzene along with its mechanism. (5)
6. Explain the significance & principle involved in determination of RM value. (5)
7. Write the synthesis process of cyclohexane from benzene. (5)

OR

Explain about any two chain opening reactions of cycloalkanes. (5)

8. Explain any two chain opening reactions of Cycloalkane. (5)

OR

Explain the saponification and hydrolysis of fats. (5)

Group-C

(Long Answer Type Questions)

10 x 2=20

9. Explain the reactivity of benzene and the various electrophilic aromatic substitution reactions predominantly undergone by benzene with the reaction mechanism involved in each of them. (10)
10. Explain the significance of theory of Coulson and Moffitt's modification, Sachse Mohr's theory (Theory of strainless rings). (10)

OR

Explain about the introduction, properties, sources, health effects of polynuclear hydrocarbons. (10)
