



BRAINWARE UNIVERSITY

Term End Examination 2025-2026

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

Course Name – Pharmaceutical Organic Chemistry III

Course Code - BP401T

(Semester IV)

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 among the following options define meso form of isomers?
 - a) Meso form is optically inactive due to external compensation
 - b) The molecules of the meso isomers are chiral
 - c) It can be separated into optically active enantiomeric pairs
 - d) It is a single compound
- (ii) Which among the following options does not exhibit geometric isomerism?
 - a) 1-hexene
 - b) 2-hexene
 - c) 3-hexene
 - d) 4-hexene
- (iii) Which among the following options correctly defines diastereomer?
 - a) These have same magnitude but different signs of optical rotation
 - b) Nonsuperimposable object mirror relationship
 - c) These differ in all physical properties
 - d) Separation is very difficult
- (iv) Choose the correct option: The number of possible isomers for C_6H_{14} is _____.
 - a) 4
 - b) 5
 - c) 6
 - d) 7
- (v) Identify the correct compound that exhibits cis-trans isomerism.
 - a) 2-butene
 - b) 2-butyne
 - c) 2-butanol
 - d) butanal
- (vi) Select hydrocarbon from the followings that does not have any isomer.
 - a) C_7H_{16}
 - b) C_6H_{14}
 - c) C_5H_{10}
 - d) C_3H_8
- (vii) Which element is present as hetero atom in pyridine structure?
 - a) Sulphur
 - b) Nitrogen

- c) Oxygen d) Sulphur and nitrogen
- (viii) Choose the correct option: pyridine is a _____ membered heterocyclic compound.
- a) Six b) Seven
c) Four d) Five
- (ix) Classify the Alkenes represent geometrical isomerism due to
- a) Asymmetry b) Rotation around a single bond
c) Resonance d) restricted Rotation around a double bond
- (x) If position of functional group varies in each of its show isomer then its is
- a) position isomerism b) functional group isomerism
c) chain isomerism d) all of them
- (xi) Select Which of the following compounds may not exist as enantiomers
- a) $\text{CH}_3\text{CH}(\text{OH})\text{CO}_2\text{H}$ b) $\text{CH}_3\text{CH}_2\text{CH}(\text{CH}_3)\text{CH}_2\text{OH}$
c) $\text{C}_6\text{H}_5\text{CH}_2\text{CH}_3$ d) $\text{C}_6\text{H}_5\text{CHClCH}_3$
- (xii) Report Which of the following is a not a five membered ring?
- a) Pyridine b) Pyrrole
c) Furan d) Thiophene
- (xiii) Write Pyridine come under which category of heterocycle classification on the basis of chemical behavior?
- a) excessive heterocycle b) deficient heterocycle
c) equivalent heterocycle d) can't say about the five membered rings
- (xiv) Cite how many number of resonating structure stabilises a pyridine molecule?
- a) 4 b) 5
c) 6 d) 7
- (xv) Select the correct option: Nitration of oxazole leads to produce _____.
- a) 2-Nitrooxazole b) 4-Nitrooxazole
c) 3-Nitrooxazole d) 5-Nitrooxazole
- (xvi) Pyridine act with concentrated H_2SO_4 in presence of fuming HNO_3 at 300°C
- a) 2-Nitro pyridine b) 3-Nitro pyridine
c) 4-Nitro pyridine d) 6-Nitro pyridine
- (xvii) Quinoline act with Pt and hydrogen in presence of acetic acid to produced _____
- a) DecahydroQuinoline b) 1,2,3,4,- tetrahydroquinoline
c) 1,2- dihydroquinoline d) 2-hydroquinoline
- (xviii) Quinoline act with fuming HNO_3 and fuming H_2SO_4 to produce _____.
- a) 8-nitroquinoline b) 6-nitroquinoline
c) 4-nitroquinoline d) 3-nitroquinoline
- (xix) Acridine undergo nitration reaction with Conc. HNO_3 to produce _____
- a) 2,4 -Dinitroacridine b) 4,6- Dinitroacridine
c) 2,8-Dinitroacridine d) 4,8- Dinitroacridine
- (xx) Acridine act with sodamide to produce _____
- a) 2-aminoacridine b) 4-aminoacridine
c) 6-aminoacridine d) 9-aminoacridine

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Group-B

(Short Answer Type Questions)

5 x 7=35

2. Describe the method of preparing lithium aluminium hydride (LiAlH_4) and mention its advantage over NaBH_4 . (5)

3. Explain the reaction involved in Beckmann's rearrangement with example (5)

4. Discuss about the Wolff-Kishner reduction reaction with example. (5)

5. Write about the steps involved in Dakin reaction with example. (5)

6. Describe the different synthetic procedures of pyrrole. Write the medicinal uses of pyrrole. (5)

7. Illustrate the methods of synthesis and chemical reactions of Furan. (5)

OR

Explain the aromaticity of furan, pyrrole, and thiophene. (5)

8. Describe the Skraup synthesis of quinoline. (5)

OR

Illustrate the synthesis and reactions of Pyridine (5)

Group-C

(Long Answer Type Questions)

10 x 2=20

9. Describe any two name reactions that involve reduction process with proper examples. (10)

10. Illustrate the following reactions ; A) Skraup synthesis, B) Chichibabin reaction, C) Gattermann reaction in indole, D) Mannich reaction in indole, E) Lapp synthesis in isoquinoline. (10)

OR

Illustrate the synthesis and medicinal uses of oxazole and thiazole. (10)