



14145

**BRAINWARE UNIVERSITY**

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Pharmaceutical Technology
Brainware University
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Term End Examination 2024-2025**Programme – B.Pharm-2020/B.Pharm-2021/B.Pharm-2022/B.Pharm-2023****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) Identify the incorrect option regarding isomerism.
- | | |
|---|--|
| a) They differ in both physical and chemical properties | b) They have the different molecular formula |
| c) There are two types of Isomerism : Structural and Stereo Isomerism | d) Geometric and optical isomerism are two types of Stereo Isomerism |
- (ii) Identify the chiral molecule among the following.
- | | |
|----------------------|---------------------|
| a) Isopropyl alcohol | b) 2-pentanol |
| c) 1-bromo 3-butene | d) Isobutyl alcohol |
- (iii) Choose the correct option: The number of possible isomers for C_6H_{14} is ____.
- | | |
|------|------|
| a) 4 | b) 5 |
| c) 6 | d) 7 |
- (iv) Select the correct isomer of ethanol.
- | | |
|-------------|-------------------|
| a) methanol | b) diethyl ether |
| c) acetone | d) dimethyl ether |
- (v) Select among the following heterocyclic compounds that is not aromatic.
- | | |
|--------------|----------------|
| a) Pyrrole | b) Furan |
| c) Thiophene | d) Pyrrolidine |
- (vi) Select the correct option: Electrophilic substitution in furan usually occurs at
- | | |
|----------------------------|------------------|
| a) the o atom | b) the C(2) atom |
| c) both C(2) and C(3) atom | d) the C(3) atom |
- (vii) Recognise the compounds will be optically active
- | | |
|----------------------------|----------------------------|
| a) Propanoic acid | b) 3- chloropropanoic acid |
| c) 2- chloropropanoic acid | d) 3-chloropropene |
- (viii) Identify Which of the following solvents is a heterocyclic compound?
- | | |
|--------|---------|
| a) THF | b) DMSO |
|--------|---------|

- c) DMF
(ix) Name Which of the following compounds may exist as cis trans isomers
a) 1-Butene
c) Cyclopropane
(x) Write Pyridine come under which category of heterocycle classification on the basis of chemical behavior?
a) excessive heterocycle
c) equivalent heterocycle
(xi) Select the correct option: Nitration of oxazole leads to produce _____
a) 2-Nitrooxazole
c) 3-Nitrooxazole
(xii) Pyridine act with concentrated H_2SO_4 in presence of fuming HNO_3 at $300^\circ C$
a) 2-Nitro pyridine
c) 4-Nitro pyridine
(xiii) Pyridine act with solid potassium hydroxide to produce _____
a) Piperidine
c) 1,4-dihydropyridine
(xiv) Distinguish the Quinoline undergo bromination above $500^\circ C$ to produce
a) 2-bromoquinoline
c) 6-bromoquinoline
(xv) Indole show solubility in _____
a) Cold Water
c) Insoluble in water
(xvi) Discover Indole ring is formed by _____
a) Benzene and pyrrole
c) Pyrrole & Acridine
(xvii) Oxazole used as a _____
a) HIV inhibitor
c) Muscle relaxant
(xviii) Clemmensen reduction used to reduce an aldehyde and ketone to _____
a) Alkane
c) Cycloalkane
(xix) Identify Dakin reaction is used to synthesize _____
a) Hydroquinone
c) Benzene
(xx) Point out the correct option: Imidazole is used as a
a) Antihypertensive
c) Antacid
d) Diglyme
b) 2-Butene
d) Acetone
b) deficient heterocycle
d) can't say about the five membered rings
b) 4-Nitrooxazole
d) 5-Nitrooxazole
b) 3-Nitro pyridine
d) 6-Nitro pyridine
b) Pyridol
d) 1,2-dihydropyridine
b) 8-bromoquinoline
d) 5-bromoquinoline
b) Hot water
d) None of them
b) Benzene and Pyridine
d) Pyrrole & Pyridine
b) Anti inflammatory
d) All of them
b) Alkene
d) Alkyne
b) Acetic acid
d) Lactines
b) Diuretics
d) Antipyretic

Group-B

(Short Answer Type Questions)

5 x 7=35

2. Describe about Clemmensen reduction reactions and its mechanism with suitable examples. (5)
3. Describe in detail about the Oppenauer oxidation reaction with examples. (5)
4. Discuss about the Wolff-Kishner reduction reaction with example. (5)
5. Explain in brief about optical isomerism. (5)

6. Write a note on elements of symmetry with example. (5)
7. Explain the mechanism involved in Beckmann's rearrangement. (5)

OR

- Illustrate the methods of synthesis and chemical reactions of Thiophene. (5)
8. Explain the reactivity of furan, pyrrole, and thiophene. (5)

OR

- Describe the medicinal uses of purine and acridine with their structure. (5)

Group-C

(Long Answer Type Questions)

10 x 2=20

9. Describe the synthesis, physical properties, reactions and medicinal uses of oxazole. (10)
10. Explain the synthesis, physical properties, reactions and medicinal uses of indole. (10)

OR

- Illustrate about the synthesis and the medicinal uses of pyrazole and imidazole. (10)