Total No. of Questions: 6 *Total No. of Printed Pages:2*

Enrollment No.....

Faculty of Science

End Sem Examination May-2024

BT3CO04 Chemistry -II

Programme: B.Sc. Branch/Specialisation: Biotechnology

Duration: 3 Hrs. **Maximum Marks: 60**

Note: All questions are compulsory. Internal choices, if any, are indicated. Answers of Q.1 (MCQs) should be written in full instead of only a, b, c or d. Assume suitable data if necessary. Notations and symbols have their usual meaning.

Q.1 i. The reduction is a gain of _____. **1**
(a) Electrons (b) Protons (c) Neutrons (d) Oxygen

ii. Which of the following free radical has the maximum ease of formation? **1**
(a) Primary (b) Secondary (c) Tertiary (d) CH_3

iii. Which of the following can make difference in optical isomers? **1**
(a) Heat (b) Temperature
(c) Polarized light (d) Pressure

iv. Which of the following can exist as diastereomers? **1**
(a) Lactic acid (b) 1- Butene
(c) 2-Butene (d) Ethane

v. In SN^1 reaction which intermediate is formed? **1**
(a) Carbanion (b) Carbocation
(c) Carbene (d) Nitrene

vi. Which of the following molecule undergoes an addition reaction with bromine? **1**
(a) Ethanol (b) Ethene (c) Ethyne (d) Ethanal

vii. Which of the following is not a five membered ring? **1**
(a) Pyridine (b) Pyrrole (c) Furan (d) Thiophene

viii. Quinoline contains how many nitrogen atoms? **1**
(a) 1 (b) 2 (c) 3 (d) 4

ix. Which group is involved in the formation of Schiff bases? **1**
(a) Hydroxyl (b) Carbonyl (c) Amine (d) Ester

x. Which type of functional group transformation occurs in Umpolung reactions? **1**
(a) Reduction (b) Oxidation
(c) Rearrangement (d) Polar inversion

Q.2 i. Write difference between carbocation and carbanion. **4**
ii. Write a detail note on stability and methods of synthesis of free radicals. **6**
OR iii. Write examples of reactive intermediates with application to biological systems. **6**

Q.3 i. Define Geometrical isomerism with example. **4**
ii. Explain conformation of cyclohexane with structure. **6**
OR iii. Write short note on: **6**
(a) Optical activity
(b) Walden Inversion

Q.4 i. Write difference between oxidation and reduction. **4**
ii. Write a detail note on substitution reaction. **6**
OR iii. Write short note on: **6**
(a) Ester formation
(b) Aromaticity

Q.5 i. Write difference between Furan and Pyrrole. **4**
ii. Write about the structure and significance of Pyridine. **6**
OR iii. Write about the synthesis and reactivity of isoquinoline. **6**

Q.6 i. Write a note on phase transfer catalysis. **4**
ii. Write a detail note aldol condensation with its applications. **6**
OR iii. Describe Michael addition reaction with applications. **6**

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Marking Scheme

Chemistry - II (T) - BT3CO04 (T)

Q.1	i)	The reduction is a gain of….. a) electrons	**1**
	ii)	Which of the following free radical has the maximum ease of formation? c) Tertiary	**1**
	iii)	Which of the following can make difference in optical isomers? c) Polarized light	**1**
	iv)	Which of the following can exist as diastereomers? c) 2-Butene	**1**
	v)	In SN^1 reaction which intermediate is formed? b) Carbocation	**1**
	vi)	Which of the following molecule undergoes an addition reaction with bromine? b) Ethene	**1**
	vii)	Which of the following is not a five membered ring? a) Pyridine	**1**
	viii)	Quinoline contains how many nitrogen atoms? a) 1	**1**
	ix)	Which group is involved in the formation of Schiff bases? b) Carbonyl	**1**
	x)	Which type of functional group transformation occurs in Umpolung reactions? d) Polar inversion	**1**
Q.2	i.	Any 4 difference between carbocation and carbanion. 1*4= 4 marks	**4**
	ii.	Write a detail note on stability - 3 Marks and methods of synthesis of free radicals.- 3 marks	**6**
	iii.	Write examples of reactive intermediates with application to biological systems.- 6 marks	**6**
Q.3	i.	Define Geometrical isomerism with example. 2+2	**4**
	ii.	Explain conformation of cyclohexane with structure. 3+3	**6**
	iii.	Write short note on: a) Optical activity- 3 Marks b) Walden Inversion- 3 Marks	**6**
Q.4	i.	Write difference between oxidation and reduction.- 4 marks	**4**
	ii.	Write a detail note on substitution reaction.- 6 marks	**6**
	iii.	Write short note on: a) Ester formation= 4 marks b) Aromaticity- 3 marks	**6**
Q.5	i.	Write difference between Furan and Pyrrole.- 4 marks	**4**
	ii.	Write about the structure – 3 marks and significance of Pyridine.- 3 marks	**6**
	iii.	Write about the synthesis – 3 marks and reactivity of isoquinoline.- 3 marks	
Q.6	i.	Write a note on phase transfer catalysis.- 4 marks	**4**
	ii.	Write a detail note aldol condensation – 2 marks with its applications.- 3 marks	**6**
	iii.	Describe Michael addition reaction – 3 marks with applications- 3 marks	**6**

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