Seat No: _____ Enrollment No: _____

PARUL UNIVERSITY

FACULTY OF PHARMACY

B. Pharm, Winter 2023-24 Examination

Semester: 3 **Date: 22/01/2024**
Subject Code: BP301T **Time:10:00am to 1:00pm**
Subject Name: Pharmaceutical Organic Chemistry-II **Total Marks: 75**

Instructions:
1. All questions are compulsory.
2. Figures to the right indicate full marks.
3. Make suitable assumptions wherever necessary.
4. Start new question on new page.

Q.1	**Multiple Choice Questions (MCQs)** (1 Mark Each)				**(20)**	CO	PO	BT
1.	What is Huckel's rule?					**1**	**1-4,6, 8-11**	**1**
	a)	3n+2	b)	4n+2				
	c)	2n+2	d)	1n+2				
2	These (E+) symbol is denoted as:					**1**	**1-4,6, 8-11**	**1**
	a)	Nucleophile	b)	Electrophile				
	c)	Both	d)	None of the above				
3	In the nitration of benzene, what is the role of sulfuric acid (H2SO4)?					**1**	**1-4,6, 8-11**	**2**
	a)	Catalyst	b)	Solvent				
	c)	Reducing agent	d)	Dehydrating agent				
4	Which compound is obtained by the reduction of nitrobenzene?					**1**	**1-4,6, 8-11**	**2**
	a)	Aniline	b)	Phenol				
	c)	Benzene	d)	Benzaldehyde				
5	Which of the following is a derivative of benzene?					**1**	**1-4,6, 8-11**	**1**
	a)	Ethanol	b)	Acetone				
	c)	Toluene	d)	Butanal				
6	What is the major factor determining the acidity of phenols?					**2**	**1-3, 6, 8-11**	**2**
	a)	Presence of a hydroxyl group	b)	Aromaticity				
	c)	Substituent effects	d)	Number of carbon atom				
7	Which of the following is a qualitative test for phenols?					**2**	**1-3, 6, 8-11**	**1**
	a)	Tollens' test	b)	Ferric chloride test				
	c)	Bromine water test	d)	Both (B) and (C)				
8	What is the synthetic use of aryl diazonium salts?					**2**	**1-3, 6, 8-11**	**1**
	a)	Antiseptic	b)	Dye formation				
	c)	Solvent	d)	Flavoring agent				
9	Which factor significantly affects the acidity of aromatic acids?					**2**	**1-3, 6, 8-11**	**2**
	a)	Presence of a hydroxyl group	b)	Aromaticity				
	c)	Substituent effects	d)	Number of carbon atom				

10	What is the IUPAC name for C6H5OH?					**2**	**1-3, 6, 8-11**	**1**
	a)	Phenol	b)	Benzyl alcohol				
	c)	Benzene alcohol	d)	Benzoic acid				
11	Which process involves the addition of hydrogen to unsaturated fats, making them more saturated?					**3**	**1-4, 6, 8-11**	**2**
	a)	Hydrolysis	b)	Saponification				
	c)	Hydrogenation	d)	Rancidity				
12		Which type of oils exhibit the property of drying and are used in the preparation of paints and varnishes?				**3**	**1-4, 6, 8-11**	**1**
	a)	Hydrogenated oil	b)	Saturated oil				
	c)	Drying oil	d)	Essential oil				
13	What is the process by which fats and oils react with alkali to form soap and glycerol?					**3**	**1-4, 6, 8-11**	**1**
	a)	Hydrolysis	b)	Saponification				
	c)	Hydrogenation	d)	Rancidity				
14	What does the Iodine value of a fat or oil measure?					**3**	**1-4, 6, 8-11**	**1**
	a)	The degree of unsaturation	b)	The acidity level				
	c)	The amount of alkali required for saponification	d)	The extent of hydrogenation				
15	What is the significance of the Reichert Meissl (RM) value in the analysis of fats and oils?					**3**	**1-4, 6, 8-11**	**1**
	a)	The degree of unsaturation	b)	The acidity level				
	c)	The amount of alkali required for saponification	d)	Measures the amount of volatile fatty acids				
16	Which polynuclear hydrocarbon is commonly used as a moth repellent?					**4**	**1-4, 6, 8-11**	**1**
	a)	Naphthalene	b)	Phenanthrene				
	c)	Anthracene	d)	Diphenylmethane				
17	According to Baeyer's strain theory, which cycloalkane is expected to be the most stable?					**4**	**1-4, 6, 8-11**	**2**
	a)	Cyclopropane	b)	Cyclobutane				
	c)	Cyclopentane	d)	Cyclohexane				
18	What does Coulson and Moffitt's modification provide a more accurate explanation for in cycloalkanes?					**4**	**1-4, 6, 8-11**	**1**
	a)	Molecular weight	b)	Bond angles				
	c)	Stability	d)	Boiling points				
19	Which of the following is a polynuclear hydrocarbon?					**4**	**1-4, 6, 8-11**	**1**
	a)	Methane	b)	Ethane				
	c)	Cyclopropane	d)	Naphthalene				
20	Which of the following is a reaction specific to cyclopropane and cyclobutane?					**4**	**1-4, 6, 8-11**	**1**
	a)	Addition reaction	b)	Substitution reaction				
	c)	Ring-opening reaction	d)	Isomerization reaction				

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Q.2	**Long Answers (any 2 out of 3)** (10 Mark Each)	**(20)**	CO	PO	Bloom's Taxonomy
1.	(a) Define aromatic electrophlic substitution reactions. Discuss the reaction and mechanism of Nitration (b)Discuss general method of preparations and reactions of aromatic amines.		**1,2**	**1-4,6, 8-11**	**1**
2.	(a) Explain the various reactions of Fatty acids. (b) Write a note on Haworth synthesis for Naphthalene		**3,4**	**1-4, 6, 8-11**	**1**
3.	Enumerate the necessary modifications suggested by Coulson – Moffit for cyclo alkanes and, add note on limitations of Baeyer's strain theory.		**4**	**1-4, 6, 8-11**	**2**

Q.3	**Short Answers (any 7 out of 9)** (5 Mark Each)	**(35)**	CO	PO	Bloom's Taxonomy
1.	Draw the orbital picture of Benzene and write a note about it.		**1**	**1-4,6, 8-11**	**1**
2.	Give an account on the Friedel crafts alkylation and Friedel crafts acylation reaction with mechanism.		**1**	**1-4,6, 8-11**	**2**
3.	Write any three methods of preparation of phenols.		**2**	**1-3, 6, 8-11**	**1**
4.	Write a note on ortho effect on aromatic carboxylic acids.		**2**	**1-3, 6, 8-11**	**2**
5.	Explain the determination of acid value with its significance.		**3**	**1-4, 6, 8-11**	**1**
6.	Write a note on saponification value and iodine value.		**3**	**1-4, 6, 8-11**	**1**
7.	Give an account for reactions of anthracene.		**4**	**1-4, 6, 8-11**	**1**
8.	Add note one the basicity of amines.		**2**	**1-3, 6, 8-11**	**1**
9.	Discuss the stability of cycloalkanes on the basis of Baeyer strain theory.		**4**	**1-4, 6, 8-11**	**2**