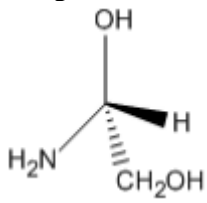


Name:			
Enrolment No:			
<b>UPES</b> <b>End Semester Examination, May 2024</b>			
<b>Course: Pharmaceutical Organic Chemistry-III</b> <b>Program: B. Pharm</b> <b>Course Code: BP401T</b> <b>Instructions: All the sections are compulsory.</b>		<b>Semester: IV</b> <b>Duration: 03 Hours</b> <b>Max. Marks: 75</b>	
<b>SECTION A</b>			
<b>1. Each Question will carry 1 Marks.</b> <b>2. Instruction: Select the correct answer(s)/ Objective type questions.</b> <b>Answers all the 20 questions.</b>			
S. No.	Questions	Marks	COs
Q 1	Define Atropisomers.	1	CO1
Q 2	Synonym of quinoline is. (a) Benz-imidazole (b) Benz-pyridine (c) Benz-pyrrole (d) Benz-oxazole	1	CO2
Q 3	Identify the position of nitrogen in isoquinoline ring. (a) 1 <sup>st</sup> (b) 2 <sup>nd</sup> (c) 1 <sup>st</sup> and 2 <sup>nd</sup> both (d) None of the above	1	CO1
Q 4	Identify how many nitrogen atoms are present in pyrazole. (a) 1 (b) 2 (c) 3 (d) 4	1	CO1
Q 5	Which of the following is a six membered heterocyclic ring? (a) Pyrrole (b) Pyridine (c) Furan (d) Pyrazole	1	CO1
Q 6	Which reagent is used in Reimer Tiemann reaction of pyrrole? (a) Dichloromethane (b) Chloroform (c) Carbon dioxide (d) Formic acid	1	CO2
Q 7	Which statement is true for azepine ring? (a) Six membered ring with one nitrogen (b) Six membered ring with one nitrogen and one oxygen (c) Seven membered ring with one nitrogen (d) Seven membered ring with one oxygen	1	CO2

<b>Q 8</b>	Identify the product when 1,4-diketone reacts with phosphorus trisulphide. (a) Pyrrole (b) Furan (c) Thiophene (d) Pyridine	<b>1</b>	<b>CO2</b>
<b>Q 9</b>	Cyclic compounds can exhibit geometrical isomerism: True or False.	<b>1</b>	<b>CO1</b>
<b>Q 10</b>	According to CIP Sequence rule, the complete sequence of priority is _____ (a) -OH > -CH <sub>2</sub> OH > -CHO > -H (b) -H > -CH <sub>2</sub> OH > -CHO > -OH (c) -H > -OH > -CH <sub>2</sub> OH > -CHO (d) -OH > CHO > -CH <sub>2</sub> OH > -H	<b>1</b>	<b>CO2</b>
<b>Q 11</b>	Define constitutional isomers.	<b>1</b>	<b>CO1</b>
<b>Q 12</b>	Which reaction proceeds in the presence of hydrazoic acid? (a) Dakin reaction (b) Beckmann rearrangement (c) Wolff Kishner reaction (d) Schmidt reaction	<b>1</b>	<b>CO2</b>
<b>Q 13</b>	Choose catalyst used in Oppenauer oxidation. (a) Hydrogen peroxide (b) Aluminium isopropoxide (c) Aluminium chloride (d) Hydrazine hydrate	<b>1</b>	<b>CO2</b>
<b>Q 14</b>	Define enantiomers.	<b>1</b>	<b>CO1</b>
<b>Q 15</b>	Identify the product when benzaldehyde reacts with hydrazine hydrate in presence of ethanol. (a) Acetophenone (b) Toluene (c) Cresol (d) Ethyl benzene	<b>1</b>	<b>CO2</b>
<b>Q 16</b>	Which reaction is used for the synthesis of lactam from cyclic oximes? (a) Dakin reaction (b) Beckmann rearrangement (c) Wolff Kishner reaction (d) Schmidt reaction	<b>1</b>	<b>CO1</b>
<b>Q 17</b>	Define stereoisomerism.	<b>1</b>	<b>CO1</b>
<b>Q 18</b>	Assign R or S configuration for following: 	<b>1</b>	<b>CO1</b>
<b>Q 19</b>	What do you understand by the term center of symmetry?	<b>1</b>	<b>CO2</b>

Q 20	Enantiomers have same boiling point: True or False.	1	CO1
<b>SECTION B (20 Marks)</b> <b>(2Qx10M=20 Marks)</b>			
<b>1. Each question will carry 10 marks.</b> <b>2. Instruction: Long Answer type questions (Answer any two questions out of three questions)</b>			
Q 1	Define conformational isomers and explain with suitable example how they differ from constitutional isomers. Discuss the concept of conformational stability in n-butane.	(5+5)	CO3
Q 2	Discuss the methods of resolution of racemic modification in detail. Highlight the advantages and limitations of each method.	(6+4)	CO2
Q 3	(a) Explain electrophilic substitution reactions of thiophene with suitable examples. (b) Identify the product and write appropriate reaction when pyrrole undergoes: (i) Reduction (ii) Oxidation.	(5+5)	CO5
<b>SECTION-C (35 Marks)</b> <b>(7Qx5M=35 Marks)</b>			
<b>1. Each question will carry 5 marks.</b> <b>2. Instruction: Short Answer type questions.</b> <b>Answer any seven questions out of nine questions.</b>			
Q 1	Describe the aromaticity and resonance in pyrrole with suitable resonating structures in detail.	5	CO1
Q 2	Mention the product and write suitable reactions if acridine reacts with (a) nitrating mixture (b) sodamide in presence of liquid ammonia.	(2.5+2.5)	CO5
Q 3	Explain the structure and uses (in pharmaceuticals) of indole and azepine.	5	CO1
Q 4	Explain Skaup synthesis and Doebner miller synthesis for preparation of quinoline derivatives with suitable examples.	5	CO5
Q 5	What will be the product of reaction of acetone with benzaldehyde in the presence of aqueous sodium hydroxide? Justify the product formation with appropriate mechanism.	5	CO4
Q 6	Write down reaction with appropriate mechanism related to reduction of carbonyl compounds by LiAlH <sub>4</sub> . What precautions should be taken while handling LAH?	5	CO4
Q 7	Differentiate Clemmenson and Wolff-Kishner reduction with suitable examples.	5	CO4
Q 8	Justify with suitable example: a) Meso compounds can be optically active: true or false. b) A compound with chiral center cannot be optically inactive” true or false.	(2.5+2.5)	CO3
Q 9	Write a short note on D & L and Syn & Anti system of nomenclature of optical isomers.	5	CO2