


Name:	 UPES <small>UNIVERSITY OF TOMORROW</small>
Enrolment No:	

UNIVERSITY OF PETROLEUM AND ENERGY STUDIES

End Semester Examination, May 2023

Course: Pharmaceutical Organic Chemistry III

Semester: IV

Program: B. Pharmacy

Time: 03 hrs.

Course Code: BP401T

Max. Marks: 75

Instructions: All the sections are compulsory.

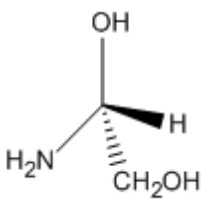
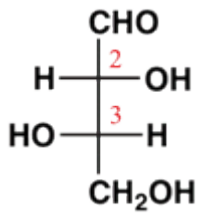
SECTION A

1. Each Question will carry 1 Marks

2. Instruction: Select the correct answer(s)/ Objective type questions.

Answers all the 20 questions.

S. No.	CO	Questions	Marks
Q1	CO2	In glyceraldehydes, the complete sequence of priority is a) $-\text{OH} > -\text{CH}_2\text{OH} > -\text{CHO} > -\text{H}$ b) $-\text{H} > -\text{CH}_2\text{OH} > -\text{CHO} > -\text{OH}$ c) $-\text{H} > -\text{OH} > -\text{CH}_2\text{OH} > -\text{CHO}$ d) $-\text{OH} > \text{CHO} > -\text{CH}_2\text{OH} > -\text{H}$	1
Q2	CO2	The enantiomeric excess (ee%) for a reaction with 70% of S and rest R isomer will be.....	1
Q3	CO2	Why solubility of cis isomer is greater than trans isomer?	1
Q4	CO2	Arrange the order of stability of cyclohexane conformations : Chair, boat, half chair and twist boat.	1
Q5	CO1	Reaction of imidazole with $\text{HNO}_3/\text{H}_2\text{SO}_4$ gives which of following products a) 2-Nitroimidazole b) 3- Nitroimidazole c) 1- Nitroimidazole d) All of the above	1
Q6	CO2	Thiophene undergo substitution at ____ position a) 1 b) 2 c) 3 d) 4	1
Q7	CO1	β -D(+)-Glucose has how many asymmetric carbons? a) 4 b) 3 c) 6 d) 5	1
Q8	CO1	What does a polarimeter measure? a) Polarity of the substance. b) Angle of rotation of an optical active compound. c) Concentration of the substance. d) pH of the substance.	1

Q9	CO2	Assign R or S configuration for following: 	1
Q10	CO2	Which is the correct assignment of chirality at C2 and C3 of the following molecule?  a) 2S,3S b) 2R,3R c) 2S,3R d) 2R,3S	1
Q11	CO2	Catalyst used in Clemmensen reduction is.....	1
Q12	CO1	2- Aza naphthalene is a) Pyridine b) Quinoline c) Isoquinoline d) Indole	1
Q13	CO2	What does a polarimeter measure? a) Polarity of the substance b) Angle of rotation of an optical active compound c) Concentration of the substance d) pH of the substance	1
Q14	CO1	Write the structure of azepines.	1
Q15	CO2	What are meso compounds?	1
Q16	CO2	Write the name of starting material used in Gabriel synthesis of Thiazole?	1
Q17	CO1	Radziszewski synthesis is used to prepare a) Thiazole b) Quinoline c) Oxazole d) Imidazole	1
Q18	CO2	Write the basic structure and uses of Purine.	1
Q19	CO2	LiAlH ₄ is a _____ agent. a) Reducing agent b) Pyrophoric agent c) Oxidizing agent d) both (a) and (b)	1
Q20	CO2	Select the incorrect option from the following. a) Fischer projections are two dimensional representations of three dimensional molecules b) A molecule is achiral if it cannot be superimposed on its mirror reflection c) E and Z notations are based on Cahn, Ingold and Prelog priority system	1

		d) Chiral molecules which are non-superimposable mirror images of each other are enantiomers	
SECTION B			
1. Each question will carry 10 marks.			
2. Instruction: Long Answer type questions (Answer any two questions out of three questions)			
Q1	CO1	Write a note on followings: a) Fisher oxazole synthesis. b) Robinson Gabriel oxazole synthesis.	(5+5)
Q 2	CO2	a) Write any two methods for synthesis of pyrrole compound. b) Why Pyrrole undergoes electrophilic substitution at C-2 position” – Justify with nitration reaction. c) Discuss the amphoteric nature of pyrrole.	(4+4+2)
Q 3	CO1	a) Discuss the point of similarities and differences in Skraup synthesis and Dobner miller synthesis. b) Explain the mechanism involved in Skraup synthesis and Dobner Synthesis.	(5+5)
SECTION C			
1. Each question will carry 5 marks.			
2. Instruction: Short Answer type questions.			
Answer any seven questions out of nine questions.			
Q 1	CO1	a) Write the Hantzsch synthesis to prepare pyridine derivatives. b) Compare the basicity of pyridine with aliphatic amines?	(3+2)
Q 2	CO2	a) What do you mean by stereoisomer? b) Explain the difference between configurations and conformations with proper examples.	(1+4)
Q 3	CO2	Describe confirmation isomerism of n-butane with energy profile diagram.	(5)
Q 4	CO1	Write a note on Oppenauer-oxidation reaction.	(5)
Q 5	CO3	Differentiate between enantiomers and diastereomers.	(5)
Q 6	CO2	Explain the mechanism involved in Beckmanns rearrangement	(5)
Q 7	CO2	Discuss the aromaticity and reactivity of Furan, Pyrrole and Thiophene.	(5)
Q 8	CO3	Why all the stereospecific reactions are stereoselective but all the stereoselective reactions are not stereospecific? Justify with an example.	(5)
Q 9	CO3	a) Describe different process to synthesize imidazole from carbonyl compounds. b) Write any one electrophilic substitution reactions of imidazole ring.	(4+1)