

P P SAVANI UNIVERSITY

Third Semester of B. Tech. Examination

November 2022

SEPE2010 Pharmaceutical Chemistry

23.11.2022, Wednesday

Time: 10:00 a.m. To 12:30 p.m.

Maximum Marks: 60

Instructions:

1. The question paper comprises of two sections.
2. Section I and II must be attempted in separate answer sheets.
3. Make suitable assumptions and draw neat figures wherever required.
4. Use of scientific calculator is allowed.

SECTION - I

Q - 1	Answer the Following: Short answers (Any five)	[05]	CO	BTL
(i)	What is the formula of Phosgene gas?		3	1
(ii)	Write the name and formula of the product formed when chloride sample reacts with silver nitrate solution.		3	2
(iii)	Define Grignard Reagents.		1	1
(iv)	$4C_2H_5MgBr + 2PbCl_2 \rightarrow ?$		1	4
(v)	Write down the full form of DCC.		3	1
(vi)	What is the chemical formula of Methyl magnesium iodide?		3	1
(vii)	What product do we get if cyclohexanone is treated with Zn-Hg/HCl?		1	2
Q - 2 (a)	Explain with equations 'The Limit Test for Iron'	[05]	3	3
Q - 2 (b)	When chlorine is passed into boiling toluene, three different chlorinated products are obtained. What products will be obtained if each of these chlorinated products is separately treated with aqueous sodium hydroxide solution?	[05]	1	4

OR

Q - 2 (a)	Draw the resonance structure of aniline. How will you justify the electrophilic substitution with the help of the above resonance structure.	[05]	1	5
Q - 2 (b)	Explain with equations 'The Limit Test for Sulphate'	[05]	3	3
Q - 3 (a)	Write down the products when benzene is treated with (i) the mixture of nitric and sulphuric acid, (ii) Chlorine/sunlight, (iii) Fe/Bromine in the absence of sunlight, (iv) warm conc. Sulphuric acid, (v) Ozone and water.	[05]	1	4
Q - 3 (b)	Write the structures of Phenanthrene and Pyridine. Explain their aromaticity in terms of Huckel's rule.	[05]	3	3

OR

Q - 3 (a)	Write Short Notes on Friedel-Crafts alkylation and acylation of benzene.	[05]	1	3
Q - 3 (b)	How will you convert i) Benzene to tri-bromobenzene. ii) Toluene to meta nitro benzoic acid	[05]	1	3
Q - 4	Attempt any one.	[05]		
(i)	Explain with reasons what all precautions to be taken during the preparation of Grignard Reagents.		3	3
(ii)	Write two main differences between LAH and DIBAL. Write the full form of DIBAL and draw its structure.		3	6

SECTION - II

Q - 1	Answer the Following: Short Answers (Any five)	[05]		
(i)	Name the reducing agent in Meerwein Ponndorf Verley reduction.		1	2
(ii)	Name the proper reducing agent for converting 2-Butenal to 2-buten -1-ol		1	2
(iii)	The product formed when formaldehyde reacts with ammonia.		1	2

(iv)	The presence of _____ group is required for haloform reaction.	1	3
(v)	Name the bond which is responsible for solubilization of alcohol in water.	3	4
(vi)	Tert-butyl alcohol + Cu/300°C →?	3	3
(vii)	Propene + HBr/peroxide →?	3	3
Q - 2 (a)	What happens when (only equations)	[05]	1 3
	i) Mg ribbon burns in CO ₂ atmosphere		
	ii) CO ₂ gas is passed through barium hydroxide solution		
	iii) Thermal decomposition of ammonium nitrate		
	iv) Ammonium bi carbonate is heated		
	v) Reaction between sodium nitrate and ammonium sulphate		
Q - 2 (b)	i) Write the IUPAC names and draw the structures of functional isomers with general formula C ₂ H ₄ O ₂ .	[05]	2 6
	ii) Write note on 'meso Compounds'.		
	iii) Draw the structure of meso-tartaric acid.		
OR			
Q - 2 (a)	i) Write short note on 'dry ice'.	[05]	3 5
	ii) How to store and label nitrous oxide gas? Why is this gas named as 'laughing gas'?		
Q - 2 (b)	Write notes on	[05]	2 6
	i) Plane polarized light		
	ii) Tautomerism		
Q - 3 (a)	Explain with equations how to distinguish between primary, secondary and tertiary alcohols with the help of Victor Meyer test.	[05]	1 3
Q - 3 (b)	i) What is Fehlings' solution? How is this solution used to identify aldehydes? Write equations for support.	[05]	1 2
	ii) How will you convert bromobenzene to fluorobenzene.		
OR			
Q - 3 (a)	Give reasons	[05]	1 4
	i) Alcoholic KOH causes substitution while aqueous KOH causes elimination in alkyl halides.		
	ii) The acidic strength of acetic acid is less than trichloroacetic acid but more than propionic acid.		
Q - 3 (b)	Identify the products of the following	[05]	1 3
	i) Sodium acetate + sodalime →?		
	ii) Acetic acid + chlorine/uv →?		
	iii) Acetaldehyde + Hydrazine/sodium ethoxide →?		
	iv) Phenol + Chloroform + alc. KOH →?		
	v) Aniline + Chloroform + alc. KOH →?		
Q - 4	Attempt any one.	[05]	
(i)	Write the mechanism of Beckmann rearrangement.	1	2
(ii)	Write the mechanism of Aldol Condensation.	1	2

CO : Course Outcome Number

BTL : Blooms Taxonomy Level

Level of Bloom's Revised Taxonomy in Assessment

1: Remember	2: Understand	3: Apply
4: Analyze	5: Evaluate	6: Create