

Name:
Enrolment No:



UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
End Semester Theory Examination, December 2021

Course: Pharmaceutical Organic Chemistry-II

Semester: III

Program: B.Pharm

Course Code: BP301T

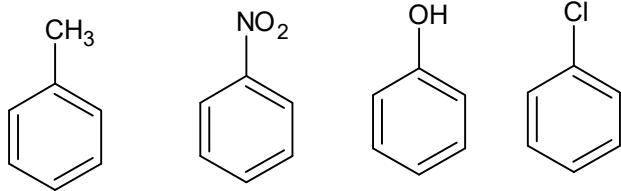
Instructions: Read the Question Paper Carefully.

Time 03 hrs.

Max. Marks: 75

SECTION A

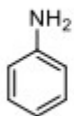

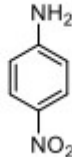
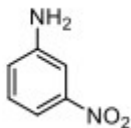
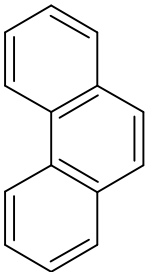
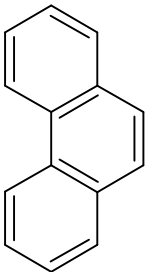
S. No.	CO	Objective type Questions (20X1)	Marks
Q1			20
1	CO1	Name an electrophilic substitution reaction of benzene where rearrangement is possible in the electrophile.	1
2	CO1	Write two functional groups that can deactivate benzene ring for electrophilic substitution reaction.	1
3	CO2	Arrange in increasing order of basic strength Nitroaniline, aniline, benzene, p-methylaniline	1
4	CO5	Methylcyclopropane on addition of HBr gives.....	1
5	CO2	Reaction of benzene with conc. HNO ₃ in presence of Sulphuric acid followed by reaction with ethyl chloride in presence of Lewis acid will give: a) No product b) Meta ethylnitrobenzene c) Both ortho and para ethyl nitro benzene d) Only para ethyl nitrobenzene	1
6	CO5	An addition reaction on cyclopropane is easier as compared to on cyclobutane. True or False?	1
7	CO5	The reaction of cyclopropane with ozone will give a) Reaction is not possible b) Ozonoid c) Glyceraldehyde d) A diol	1
8	CO4	In Haworth's synthesis of naphthalene, following catalysts are used a) AlCl ₃ b) Zn-Hg/ HCl c) Conc. H ₂ SO ₄ d) All of the above	1
9	CO3	The molecular formula of Palmitic acid is a) CH ₃ (CH ₂) ₁₃ COOH b) CH ₃ (CH ₂) ₁₄ COOH c) CH ₃ (CH ₂) ₁₅ COOH d) CH ₃ (CH ₂) ₁₆ COOH	1

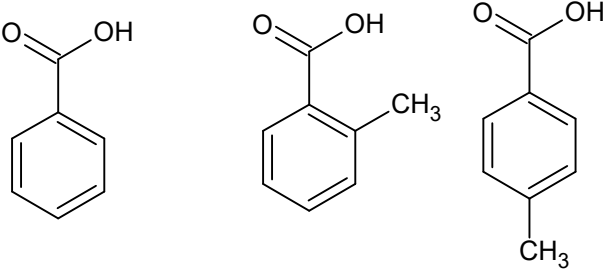
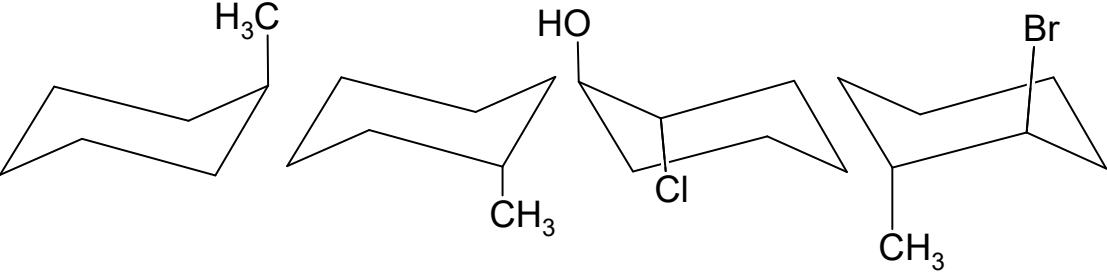
10	CO1	Select the most reactive molecule for Electrophilic substitution reaction 	1
11	CO3	Select the cyclic fatty acid a) Chaulomoogric acid b) lactobacillic acid c) Both of the above d) None of the above	1
12	CO2	Dow's method is used for synthesis of	1
13	CO2	Pyrolysis of sodium benzene sulphonate gives.....	1
14	CO3	Natural fats and oils are triesters of	1
15	CO4	Tetraline can be formed by reduction of a) Tetralone b) Naphthalene c) Phthalic acid d) Anthracine	1
16	CO5	True or False: Singlet carbene is more stable than triplet carbene	1
17	CO1	Halogens are deactivating due toeffect	
18	CO4	Anthracene can dimerize if exposed to UV light of wavelength	1
19	CO1	An example of antiaromatic compound is.....	
20	CO5	Cyclopentanone on pyrolysis gives.....	1

SECTION B

Long Answers (Answer any two out of 3) 2X10

Q2			20
1	CO5	Highlight the limitations of Baeyer's Strain theory. What are the two advanced theories that helped to overcome the limitations. Explain them in brief with necessary structures.	10
2	CO2	i) An aromatic compound has two OH groups and it can treat acne, psoriasis, and other skin disorders. Guess the structure and propose a suitable synthesis for the compound. ii) A compound that degrades and liberates nitrogen at high temperature so must be synthesized at low temperature. Guess and propose synthesis iii) Salicylic acid is used to treat warts, calluses, psoriasis. Can you propose a synthesis for the same. iv) Propose a separate synthesis for a reduced product of salicylic acid.	2.5X4

3	CO4	<p>i) The preferable position for electrophilic substitution reaction in naphthalene is? Explain your answer with suitable reasoning.</p> <p>ii) Propose the reaction scheme for synthesis of 1-alkyl naphthalene from benzene and succinic anhydride.</p>	5+5
SECTION C			
Short Answers (Answer 7 out of 9) 7X5			
Q3			35
1	CO2	<p>Propose a synthetic scheme for the following interconversion</p> <p>i) Nitrobenzene to Phenol</p> <p>ii) Aniline to 2-ethylphenol</p>	2.5 X 2
2	CO2	<p>Rank the following compounds in increasing order of basic strength. Propose suitable reason for your ranking.</p> <p>A)  B)  C)  D) </p>	2+3
3	CO1	<p>Bromination of Phenol can be accomplished at room temperature however benzene requires higher temperature and a suitable catalyst (FeBr₃) for the same reaction. Explain.</p>	5
4	CO4	<p>Arrange in increasing order of acidic strength. Explain the reason. Toluene, Diphenylmethane and triphenylmethane</p>	5
5	CO4	<p>Complete the following reactions:</p> <p> $\xrightarrow{\text{Br}_2}$ A</p> <p> $\xrightarrow[\text{FeBr}_3]{\text{Br}_2}$ B</p>	2.5+2.5
6	CO1	<p>Select most acidic compound. Give suitable reasoning.</p>	1+4

			
7	CO5	<p>Convert the following in stable wedge dash structures</p> 	
8	CO3	Calculate the acid value of an oil sample, 20grams dispersed in 100mL of ethanol. It requires 100mL of decimolar KOH solution for complete neutralization.	5
9	CO3	Explain the principle involved in determination of Reichert Meissl (RM) value and acetyl value.	5
		Total	75