
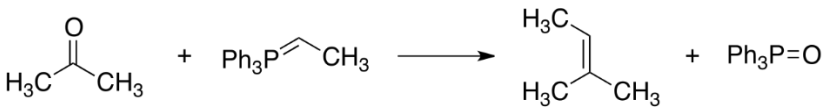
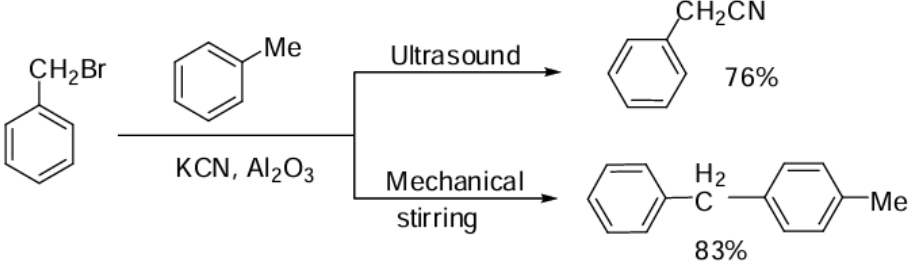


Name:			
Enrolment No:			
UPES End Semester Examination, May 2024			
Course: Green Chemistry Program: BSc Hons Chemistry Course Code: CHEM3021		Semester: VI Time: 03 hrs. Max. Marks: 100	
Instructions: <ol style="list-style-type: none"> 1. Read all the questions carefully and attempt questions of one section in one place. 2. Question 9 in Section B and Question 11 in Section Chave internal choice questions. 3. Use of Calculator is allowed. 			
SECTION A (5Qx4M=20Marks)			
S. No.		Marks	CO
Q1	Write the advantages of Microwave assisted green synthesis over the conventional methods.	4	CO1
Q2	Why are the percentage yield and atom economy poor methods for the determination of the efficiency of a green reaction.	4	CO2
Q3	Justify the statement “Catalytic reagents are superior to stoichiometric reagents”.	4	CO2
Q4	Calculate the atom economy of the following reaction. 	4	CO3
Q5	Give examples of green organic reactions having 100% atom economy.	4	CO1
SECTION B (4Qx10M= 40 Marks)			
Q6	What is the role of solvent in a chemical reaction? How is the role fulfilled in solvent free reaction. What are the advantages of solvent free synthesis? Explain with suitable reactions.	10	CO3
Q7	What are fluoruous biphasic solvents? Discuss the limitations and valuable applications of these solvent systems in green synthesis.	10	CO2
Q8	Explain the different outcome of the sonication reaction on the following substrate over mechanical stirring.	10	CO2

			
Q9	<p>Discuss the performance of 'Diels Alder' reaction under solvent free conditions with three examples.</p> <p style="text-align: center;">OR</p> <p>Ultrasound-assisted reaction is a step towards a greener environment. Justify giving example.</p>	10	CO3
		10	CO1
SECTION-C (2Qx20M=40 Marks)			
Q10	<p>Write short notes on the following:</p> <ol style="list-style-type: none"> Flixiborough accident. Fully recyclable carpet: Cradle to cradle carpeting. Cocrystal controlled solid state synthesis. Production of healthier fats and oils by green chemistry. 	20	CO2
Q11	<p>What is PEG-400? Give an example of asymmetric aldol reaction using PEG-400 as a solvent and point out the green context of the reaction. What are the advantages of PEG-400 over ionic liquids?</p> <p style="text-align: center;">OR</p> <ol style="list-style-type: none"> What is super-critical carbon dioxide? What are its advantages over conventional organic solvents? What do you understand by the term Sonochemistry? Discuss how transfer of energy occurs in ultrasound assisted reactions? How does the use of protection/de-protection group(s) reduce the atom economy of the reaction? Explain using appropriate example. 	20	CO3
		20	CO2