
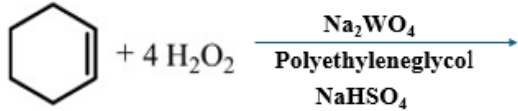
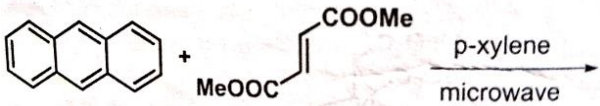
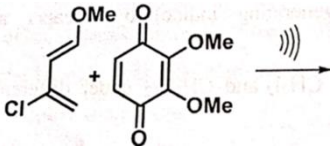
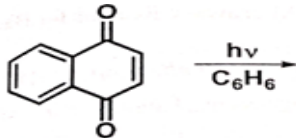


Name:			
Enrolment No:			
UPES End Semester Examination, May 2024			
Course: Green & Sustainable Chemistry Program: Int. B.Sc. M.Sc. Chemistry Course Code: CHEM3029		Semester: VI Time : 03 hrs. Max. Marks: 100	
Instructions: All questions are compulsory.			
SECTION A (5Qx4M=20Marks)			
S. No.		Marks	CO
Q 1	What is sustainability? Why is green chemistry called the sustainable chemistry?	4	CO3
Q 2	Mention two advantages and two disadvantages of SC-CO ₂ .	4	CO2
Q 3	Polar molecules respond to MW reaction, but non-polar molecules are inert to MW. Justify the statement.	4	CO2
Q 4	Define photocatalyst with suitable example.	4	CO2
Q 5	Differentiate between green chemistry and environmental chemistry.	4	CO3
SECTION B (4Qx10M= 40 Marks)			
Q 6	Explain biopolymers? Illustrate the synthesis of polylactic acid from corn.	5+5	CO1
Q 7	<p>Discuss the principle of green chemistry with respect to safer solvents and auxiliaries with suitable examples.</p> <p style="text-align: center;">OR</p> <p>In a reaction, 37 grams of butanol (C₄H₉OH), 60 grams of glacial acetic acid (CH₃COOH), and 3 drops of sulfuric acid (H₂SO₄) were mixed. The resulting reaction mixture was then poured into 250 ml of water. The organic layer was separated and washed successively with 100 ml of water, 25 ml of saturated sodium bicarbonate (NaHCO₃), and another 25 ml of water. The crude ester obtained was then dried over 5 grams of anhydrous sodium sulfate (Na₂SO₄) and subsequently distilled, yielding 40 grams of product.</p> $ \text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2\text{OH} + \text{CH}_3\text{CO}_2\text{H} \longrightarrow \text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2\text{OC}(=\text{O})\text{CH}_3 + \text{H}_2\text{O} $	<p>10</p> <p>5+5</p>	CO2

	<p>a. Determine the atom economy of the reaction.</p> <p>b. Calculate the E-Factor of the reaction.</p>		
Q 8	Compare the conventional and green synthesis of catechol along with their drawbacks and advantages.	10	CO1
Q 9	<p>Complete the following reactions:</p> <p>a. </p> <p>b. </p> <p>c. </p> <p>d. </p>	10	CO1
SECTION-C (2Qx20M=40 Marks)			
Q .10	Discuss the traditional commercial synthesis of paracetamol and its drawbacks. Also, explain the green route for the synthesis of paracetamol along with its advantages.	10+10	CO1
Q.11	<p>Write the short notes on the following.</p> <ol style="list-style-type: none"> Greener approaches for nanoparticle synthesis Solar power Geothermal Solution Sustainability Assessment Methods and Tools <p style="text-align: center;">OR</p> <p>What role do organic and inorganic molecules play in water and soil pollution. How can green chemistry reactions be utilized to mitigate environmental contamination effectively?</p>	20	CO3
		10+10	