


Name:			
Enrolment No:			
UPES End Semester Examination, December 2024			
Course: Industrial Organic Chemistry Program: BSc (H) Chemistry by Research Course Code: CHEM4029P		Semester: VII Time : 03 hrs. Max. Marks: 100	
Instructions: Read all the below mentioned instructions carefully and follow them strictly: <ol style="list-style-type: none"> 1) Mention Roll No. at the top of the question paper. 2) Do not write anything on the question paper except roll number. 3) Attempt all the parts of a question at one place only. 4) Internal choice is given only in Q 9 and 11. 			
SECTION A (5Qx4M=20Marks)			
S. No.		Marks	CO
Q 1	Recite four purification techniques used in the industries along with one example of each type.	4	CO1
Q 2	Recognize the common form of table sugar? Write its chemical formula. Glucose is the direct form of energy participating in our body metabolism, however we do not consume it directly as sugar source. Why?	4	CO1
Q 3	State true or false: <ol style="list-style-type: none"> a. Fatty acids can be obtained by the hydrolysis of triglycerides. b. The density of oils and fats is lesser than water. c. Oleic acid normally dries at room temperature. d. cis-fatty acids have lower melting point than trans-fatty acids. 	4	CO1
Q 4	Complete the following: <ol style="list-style-type: none"> a. Santalin is the chemical present in wood. b. Brazil wood is used for the extraction of colored dye. c. Common pigment responsible for imparting green color is d. Kino is used for imparting color to different materials. 	4	CO2
Q 5	Identify four herbal sources for the extraction of yellow dye.	4	CO1
SECTION B (4Qx10M= 40 Marks)			
Q 6	Write short notes on the following: <ol style="list-style-type: none"> a. Fixed bed reactor b. Fluidized bed reactor 	10	CO1

Q 7	Classify the term 'raw sugar'. How is it purified in the industries? Differentiate jaggery and table sugar with respect to its composition and nutritional value. Which would you recommend to be healthier?	10	CO2
Q 8	<p>a. Distinguish between drying and non-drying oils. Why do they behave so? Give one example of each type with structure.</p> <p>b. Discuss solvent extraction method for the extraction of oils from various resources. What are the conventional solvents used for this purpose? Suggest a strategy for shifting the process to a cleaner route.</p>	4+6	CO1, CO2
Q 9	<p>Write one example of each of the following categories along with its structure:</p> <p>a. Anthraquinone dyes</p> <p>b. Quinoline dyes</p> <p>c. Acid dyes</p> <p>d. Vat dyes</p> <p>e. Water soluble dyes</p> <p>Also specify the colors imparted by these dyes.</p> <p style="text-align: center;">OR</p> <p>Classify dyes on the basis of chemical structure. Mention one example of each type and specify the color produced by these dyes.</p>	10	CO2
SECTION-C (2Qx20M=40 Marks)			
Q 10	<p>a. How are natural dyes advantageous over synthetic dyes? Give five examples of natural dyes with their structures.</p> <p>b. Cane sugar juice is subjected to the stages of evaporation, centrifugation, crystallization, gradation and packaging. What is the final product of this process? How will you confirm in the lab that you have obtained the intended product and the product is up to the mark as per qualitative analysis?</p>	10+10	CO2
Q 11	<p>a. Which country is the major producer of coconut and groundnut oil at global level? Which fatty acids will dominate the chemical compositions of these oils?</p> <p>b. Mention five vegetable sources for the extraction of oils and fats.</p> <p>c. How can the extent of hydrogenation of an oil be estimated in the lab? Discuss a method for the same.</p> <p style="text-align: center;">OR</p> <p>a. Specify the important properties for ensuring the quality of the extracted dye.</p> <p>b. What are the different products obtained during the extraction of red dyes from plants?</p> <p>c. Elaborate the important properties of an oil to be checked by the quality control department of an industry.</p>	5+5+10	CO1, CO2, CO2