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**B. E / B. TECH.DEGREE EXAMINATIONS, MAY 2024**

Fourth Semester

**CH18404 – CHEMICAL PROCESS INDUSTRIES II***(Chemical Engineering)***(Regulation 2018/ 2018A)****TIME:3 HOURS****MAX. MARKS: 100**

- CO1** Impart knowledge on the manufacture of paper, various processes involved in the sugar industry, and starch derivatives.
- CO2** Acquire knowledge on oils, fats, soaps and detergents and the various processes involved in their production.
- CO3** Discuss about processes in petrochemical industries and various types of explosives.
- CO4** Discuss the manufacture of rubbers and their role in industries.
- CO5** Explore the various processes adopted in synthetic fibre and film industries.

**PART- A(10x2=20Marks)**

(Answer all Questions)

	CO	RBT LEVEL
1. Name some wood chemicals extracted from wood.	1	1
2. Differentiate sulfitation and carbonation clarification process in sugar manufacturing process.	1	2
3. Differentiate oils and fats.	2	2
4. Write any two detergent builders and additives.	2	1
5. Identify the different conversion operations in petroleum refining operations.	3	2
6. Mention the steps required for solvent dewaxing of lubricating oils.	3	2
7. Write the monomer and copolymer units of neoprene.	4	1
8. Compare and contrast natural and synthetic rubber.	4	2
9. Write the unit operations involved in manufacturing of rayon by viscose process.	5	2
10. List the processes by which polyethylene is manufactured.	5	1

**PART- B (5x 14=70Marks)**

	Marks	CO	RBT LEVEL
11. (a) Analyse the various stages involved in the manufacture of paper with the help of a neat flow chart.	(14)	1	4
<b>(OR)</b>			
(b) Outline the cane sugar manufacturing process with a neat process flow diagram also mention the major engineering problems encountered in the operation.	(14)	1	4

**12. (a)** Write in detail on the analysis and extraction methods of fats and oils. **(14)** **2** **3**  
**(OR)**

**(b)** Differentiate soaps and detergents and elaborate the manufacture of soap with a neat process flow sheet. **(14)** **2** **3**

**13. (a)** With a neat sketch, explain the various products obtained in a petroleum refining. **(14)** **3** **3**  
**(OR)**

**(b)** Discuss the alkylation process using HF catalyst. Compare sulfuric acid and HF alkylation process. **(14)** **3** **3**

**14. (a)** Elaborate the manufacturing of styrene-butadiene rubber with a neat flow sheet and give its uses. **(14)** **4** **3**  
**(OR)**

**(b)** With neat flow sheet, write the manufacturing of styrene from ethyl benzene, also explain the separation processes involved in this process. **(14)** **4** **3**

**15. (a)** With the help of a neat process flow sheet, describe the manufacture of Nylon 6,6. and differentiate Nylon 6 with Nylon 6,6. **(14)** **5** **3**  
**(OR)**

**(b)** Illustrate the manufacture of Polyethylene Terephthalate with a neat process flow diagram. **(14)** **5** **3**

**PART- C (1x 10=10Marks)**

(Q.No.16 is compulsory)

		Marks	CO	RBT LEVEL
<b>16.</b>	Asses the growth elements and functions of Indian Polymer industries.	<b>(10)</b>	<b>5</b>	<b>5</b>

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