

JK LAKSHMIPAT UNIVERSITY, JAIPUR

INSTITUTE OF ENGINEERING AND TECHNOLOGY

End Term Examination (Regular/ Backlog), April-May 2015

B. Tech in Chemical Engineering, Semester VI

Roll No.....

CHE 602: CHEMICAL PROCESS TECHNOLOGY

Time: 3 hours

Max. Marks: 100

Instructions to students:

1. Do not write anything other than your roll number on question paper.
2. Assume suitable data wherever required and mention it clearly.
3. Writing appropriate units, nomenclature, and drawing neat sketches/schematics/ flow chart wherever, required are an integral part of the answer.

Q.1A	Objective type multiple choice questions (10 questions @ 1 mark)	10
i.	Formaldehyde is a chemical compound from _____ group of Petrochemicals. (a) C2 (b) C3 (c) C1 (d) C4	
ii.	Make up chemical used in Kraft Pulping is (a) Sulfurous acid (b) Sodium sulfate (c) Sodium acetate (d) None of these	
iii.	Light Naphtha consist of molecules with: (a) 1 to 6 carbon atoms (b) 6 to 12 carbon atoms (c) 4 to 6 carbon atoms (d) 4 to 15 carbon atoms	
iv.	Propane in petroleum refining is used for the removal of? (a) Asphalt (b) Wax (c) Sulphur compound (d) Aromatics	
v.	Which of the coal has highest percentage of carbon? (a) Peat (b) Bitumen (c) Anthracite (d) Lignite	
vi.	What is 'black liquor'?	
vii.	Fisher-Tropsch (FT) Process is used for _____.	
viii.	Various bleaching chemical used for bleaching of pulp are _____.	
ix.	Name any five petrochemical industry of India.	
x.	How a paper mill can be integrated with sugar mill?	
Q.2	Short answer type questions (4 questions @ 2.5 marks)	10
i.	Differentiate between coal carbonization and coal gasification.	
ii.	Why we add gypsum in final grinding process of clinkers in cement industry?	
iii.	Differentiate between Refiner mechanical pulping and thermomechanical pulping?	
iv.	Differentiate between steam cracking and steam reforming?	



Q.3A	Describe the major products of chemical industries and their area of application? What are the typical issues in chemical industry to meet the future challenges?	05
Q.3B	What are petrochemicals? How they are classified? Describe the manufacturing process of any compound from 'C1 Group of Petrochemicals'?	05
Q.4A	Describe a coke oven plant in detail? What are the products derived from coke oven plant?	05
Q.4B	Differentiate between fixed bed combustor and fluidized bed combustor?	05
Q.5A	Describe the gasification process for the manufacture of syngas with neat diagram.	04 + 01 = 05
Q.5B	What is pulp? Differentiate between mechanical pulping and chemical pulping process.	05
Q.6A	Describe the process of vinyl chloride from ethylene with neat labeled diagram? Also write the applications of poly vinyl chloride?	10
Q.7B	What are the uses of isopropanol? Describe the process of manufacture of isopropanol via propylene with neat flowsheet?	10
OR		
Q.7B	Describe the process of steam cracking? Make a process flowsheet for the manufacture of ethylene and acetylene via steam cracking of hydrocarbons.	04 + 06 = 10
Q.8A	Discuss in brief about petroleum refinery industry in India. Describe Vacuum distillation Unit (VDU) with suitable Diagram. Why diameter of VDU is larger than ADU?	03 + 05 + 02 = 10
Q.9A	Name any five cement industry of India. Describe the process of cement manufacturing in detail.	10
Q.9B	Discuss the status of paper industry in India. What are short comings and major challenges for improving economy of paper industry? Also describe the Kraft pulping process?	03 + 03 + 04 = 10
OR		
Q.9B	Describe the various type catalytic reforming reactors? Describe the catalytic reforming process? What are the various reactions involved in catalytic reforming?	05 + 03 + 02 =10

***** GOOD LUCK *****