	(Unean
Name:	A
Roll No.:	An Annual O'S amendage 2nd Sandard
Inviailator's Sianature :	

CS/B.Tech(CHE)/NEW/SEM-6/CHE-603/2013

2013 CHEMICAL PROCESS TECHNOLOGY – II

Time Allotted: 3 Hours Full Marks: 70

The figures in the margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

GROUP – A (Multiple Choice Type Questions)

1. Choose the correct alternatives for any *ten* of the following:

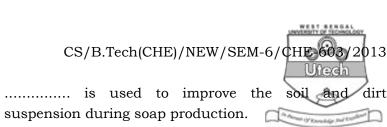
 $10 \times 1 = 10$

- i) The process of hydrogenation is an
 - a) endothermic
 - b) exothermic
 - c) exothermic and endothermic both
 - d) none of these.
- ii) The generic chemical name of commercial polymer Nylon 6 is known as
 - a) Polyhexmeth
- b) Polyester
- c) Polycaprolactum
- d) None of these.
- iii) Ethylene oxide is manufactured commercially by the oxidation of ethylene in presence of Ag₂O as catalyst at
 - a) 1 atm & 100° C
- b) 5 atm & 275° C
- c) 100 atm & 500° C
- d) 50 atm & 1000° C.

6316 Turn over

CS/B.Tech(CHE)/NEW/SEM-6/CHE-603/2013

iv)	The monomer of natural rubber is							
	a)	Butadiene	b)	Styre	ne new (Vernedig and Confort			
	c)	Isoprene	d)	Chlo	roprene.			
v)	The	manufaturing of h	nigh p	urity	styrene-butadiene			
	rubber is done by a) Emulsion polymerization							
	b)	b) Solution polymerization						
	c)	Suspension polymerization						
	d) Bulk polymerization.							
vi)	Zeig	Zeigler process uses						
	a)	a) high pressure & low temperature						
	b)	low pressure and high temperature						
	c)	high pressure & high temperature						
	d) low pressure & low temperature.							
vii)	IRR/	RRATHENE, AGILENE-HT are						
	a) irradiates of polyethylene							
	b) irradiates of polypropylene							
	c)	irradiates of polyviny	d chlor	ide				
	d) all of these.							
viii)	Buta	utadiene and Styrene are co-polymerised by						
	a)	condensation polymo	erizatio	n				
	b)	emulsion polymerization						
	c)	suspension polymerization						
	d) solution polymerization.							
ix)	_	SO_2 is added as in the steep tank during the						
	production of starch.							
	a)	Bacteriostatic	b)		olorizer			
	c)	Coagulating agent	d)		eener.			
x)	In a sugar industry per cent of cane crushe would yield into bagasse.							
	a)	42	b)	35				
	c)	40	d)	38.				
6		0						



- a) Sodium carboxy cellulose
- b) Dyes

xi)

- c) Zeolites
- d) Sodium silicate.
- xii) The catalyst used during the production of soap is
 - a) NaOH

b) H_2SO_4

c) ZnO

d) HCl.

GROUP - B

(Short Answer Type Questions)

Answer any three of the following.

- $3 \times 5 = 15$
- 2. Analyze the major engineering problems of the process of hydrogenation of vegetable oils.
- 3. Mention the optimum operating conditions of reactor for production of Butadiene by Houndry Process. How is catalyst bed regenerated?

 3 + 2
- 4. What are the various byproducts of sugar industry? How can they be recovered?
- 5. What are the advantages of using less concentrated H₂SO₄ for the production of Isopropyl alcohol from Propylene?
- 6. Compare Suspension Polymerization & Emulsion Polymerization with respect to their mode of polymer growth.

GROUP - C

(Long Answer Type Questions)

Answer any *three* of the following. $3 \times 15 = 45$

- 7. a) With a neat flow diagram, explain the manufacturing process of starch from maize.
 - b) What does it mean by detergent builders?

3

CS/B.Tech(CHE)/NEW/SEM-6/CHE-603/2013



- 8. a) Explain the role of H_2SO_4 in nitration of benzene? How is it expressed? What factors are to be taken into consideration during commercial nitration? 3+2
 - b) Describe the process of Phenol manufacturing in two steps from cumene showing specific unit operations involved.
- 9. a) Why does Polyvinyl chloride (PVC) show self-extinguishing characteristics and why is it thermally unstable? "Technically PVC is graded not by Melt Flow Index (MFI) but by solution viscosity parameter known by *K*-value". Justify the statement. 3 + 2
 - b) Mentioning a typical recipe, briefly explain PVC manufcaturing process through emulsion polymerization with a neat sketch.
- 10. a) How is natural rubber cured? What is the significance of maximum curing time? 3+2
 - b) Mention different kinds of ingredients generally used for compounding of natural rubber with their specific roles.

6

- c) Mention different steps of chain growth polymerization with a suitable example.
- 11. Write short notes on any *three* of the following: 3×5
 - i) Nylon
 - ii) DDT
 - iii) Phenol Formaldehyde resin
 - iv) Chemistry of Soap formation
 - v) Pesticides and Fungicides.

6316 4