Total No. of Questions : 8]

SEAT No. :

P983

[Total No. of Pages : 2

[5869]-269

S.E. (Chemical Engineering)

CHEMICAL TECHNOLOGY - I

(2019 Pattern) (Semester - IV) (209350)

Time : 2.½ Hours] *[Max. Marks : 70*

Instructions to the candidates:

1) ***Attempt Q.1 or Q.2, Q.3 or Q.4, Q.5 or Q.6, and Q.7 or Q.8.***
2) ***Neat diagrams must be drawn wherever necessary.***
3) ***Figures to the right indicate full marks.***
4) ***Use of electronic pocket calculator is allowed.***
5) ***Use of cell phone/Mobile phone is prohibited in the examination hall.***

Q1) a) Which raw materials are used for manufacture of nitrogeneous fertilizers produced from Ammonia. **[5]**

b) Explain Ammonia synthesis converter with a neat figure. **[5]**

c) Explain in brief stengel process for manufacture of Ammonium nitrate with a simplified flow chart. **[7]**

OR

Q2) a) Explain reactions & energy changes as of major importance in manufacture of nitric acid. **[5]**

b) Explain in brief process of manufacture of urea from ammonium carbamate with process flow diagram. **[8]**

c) Describe in brief market and sales for urea in India and in manufacture of industrial chemicals_____. **[4]**

Q3) a) Draw process flow diagram of a continuous process for the production of fatty acids and soap_____. **[6]**

b) Explain in brief main classes of soaps. **[4]**

c) Explain in brief sulfation of fatty alcohols & ALKYL-Aryl sulfonates. **[8]**

OR

Q4) a) Explain in brief use of raw materials in manufacture of soap. **[4]**

b) Explain in brief methods for manufacture of detergent and unit operations, unit processes involved. **[8]**

c) Describe in brief Bio-Degradable detergents. **[6]**

OR

P.T.O.

Q5) a) State main commodity polymers with uses. **[6]**

b) Explain reactions involved in manufacture of PVC & vinyl copolymers. **[6]**

c) Distinguish between thermosetting & thermoplastic resins. **[5]**

OR

Q6) a) Explain in brief poly urethanes. **[6]**

b) Draw a flow chart for manufacture of polyvinyl resin. **[6]**

c) Explain in brief reactions involved in Phenol-Formaldehyde. **[5]**

Q7) a) Explain in brief exploration methods in production of crude petroleum. **[4]**

b) Describe in brief unit operations and unit processes involved in refinery processes of crude oil. **[8]**

c) Explain in brief reactions involved in manufacture of silicone rubbers with mechanisms. **[6]**

OR

Q8) a) Describe in brief process description of manufacture of Olefin by polymerization using phosphoric acid on solid carrier as catalyst. Also draw its process flow diagram. **[10]**

b) Explain uses of SBR. **[4]**

c) Define pyrolysis and cracking in petroleum refining process. **[4]**

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