

**PETROCHEMICAL TECHNOLOGY
(CHEN 3132)**

Time Allotted : 3 hrs

Full Marks : 70

Figures out of the right margin indicate full marks.

Candidates are required to answer Group A and any 5 (five) from Group B to E, taking at least one from each group.

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

**Group – A
(Multiple Choice Type Questions)**

1. Choose the correct alternative for the following: **10 × 1 = 10**
- (i) LABS is an example of
(a) Olefin (b) Hard detergent
(c) Soft detergent (d) Napthene
- (ii) Raw materials of Nylon 6,6 productions are
(a) Acylic acid & Ammonia
(b) Adipic acid & Hexamethylene diamine
(c) Propylene & KBS
(d) Ammonia & hydrochloric acid
- (iii) Fischer-Tropsch synthesis process converts synthesis gas into
(a) Olefins (b) Ethylene
(c) SBR (d) PVC
- (iv) Propylene oxide is produced from propylene through
(a) Catalytic sulfonation reaction
(b) Catalytic oxidation reaction
(c) Hypochlorination followed by hydrolysis reaction
(d) Hypochlorination followed by H₂O₂ treatment reaction
- (v) PVC is
(a) Polyvinyl Chloride (b) Polyvinyl trichloride
(c) Polyvinyl acetate (d) Polyvinyl chlorohypochloride
- (vi) Best dehydrating agent is
(a) Lithium chloride (b) Alum
(c) Silica gel (d) bauxite

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- (vii) Catalyst used for the manufacture of ethylene oxide by oxidation of ethylene is
(a) platinum (b) gold
(c) mercury (d) silver
- (viii) Dowtherm is used to control
(a) The reaction pressure
(b) The reaction temperature
(c) The catalyst activity
(d) The reaction residence time
- (ix) Cracking of naphtha is
(a) an exothermic reaction
(b) an endothermic reaction
(c) favoured at very low pressure
(d) none of these
- (x) Catalyst used during VAM production is
(a) Palladium chloride (b) Alumina
(c) Silver (d) Nickel.

Group – B

2. (a) Briefly discuss the liquid phase technology of methanol production with the help of a proper flow sheet.
(b) Give an overview of petrochemical feedstock. **6 + 6 = 12**
3. (a) State the different petrochemical refinery operations.
(b) Explain in detail the solvent absorption for natural gas. **6 + 6 = 12**

Group – C

4. (a) Discuss the manufacturing process of ethylene oxide production with a help of a neat flow sheet.
(b) What is Dowtherm? **10 + 2 = 12**
5. Briefly discuss the manufacturing process of glycerine production through acrolein route with a help of a neat flow sheet. **12**

Group – D

6. (a) Discuss the manufacturing process of isopropanol production with a help of a neat flow sheet.
(b) Why fluidized bed is used during phthalic anhydride production from naphthalene?

10 + 2 = 12

7. (a) Explain in detail the BTX separation process from reformat with a help of a neat flow sheet.
(b) Briefly describe the additives used for the detergents.

6 + 6 = 12

Group – E

8. Discuss the manufacturing process of Nylon 6, 6 production with a help of neat flow sheet.
9. Write short notes on any three of the followings **(4 × 3) = 12**
(i) Catalyst development of high density polyethylene production
(ii) Major engineering problems associated with low density polyethylene production
(iii) Manufacturing process of styrene butadiene rubber production (without flow sheet)
(iv) Thermoforming.

Department & Section	Submission Link
CHE	https://classroom.google.com/c/Mjc0NDA5OTQyNzcy/a/Mjc0NDA5OTQyODE2/details