



Name : .....

Roll No. : .....

Invigilator's Signature : .....

**CS/B.Tech(CHE-OLD)/SEM-6/CHE-605(E)/2013  
2013**

**PETROCHEMICAL TECHNOLOGY**

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 the following :  $10 \times 1 = 10$ 
  - i) Low pressure Ziegler process for the manufacture of polyethene uses a catalyst which is
    - a) Ni
    - b) Fe
    - c)  $V_2O_5$
    - d)  $Al(C_2H_5)_3$  and  $TiCl_4$ .
  - ii) Cumene ( isopropyl benzene ) is made by
    - a) oxidation of naphthalene
    - b) polymerization of a mixture
    - c) propylene alkylation of benzene
    - d) none of these.

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[ Turn over



- iii) The ratio of  $\text{CH}_4 : \text{O}_2$  used for methanol production by oxidation is
- a) 1 : 1                                      b) 4 : 1  
c) 9 : 1                                      d) 3 : 2.
- iv) The steam of natural gas ratio for steam reforming is
- a) 4.5 : 1                                      b) 2.5 : 1  
c) 3.5 : 1                                      d) 1 : 1.
- v) Synthesis gas is a mixture of
- a)  $\text{N}_2 + \text{O}_2$                                       b)  $\text{CO}_2 + \text{O}_2$   
c)  $\text{CO} + \text{H}_2$                                       d)  $\text{CH}_4 + \text{CO}$ .
- vi) In methanol production from oxidation of methane, the ratio of methane to oxygen is ..... under pressure of 100 atm and 360 degree Celsius.
- a) 1 : 2                                      b) 2 : 3  
c) 9 : 1                                      d) 1 : 1.
- vii) Which of the following is a detergent ?
- a) Dichlorobenzene  
b) Polyethylene terephthalate  
c) Polytetrafluoroethylene  
d) Alkyl benzene sulphonate.



- viii) Polystyrene with molecular weight more than 1,00,000 is
- a) easy to mold                      b) not easy to mold
- c) low strength                      d) none of these.
- ix) If the ratio of CO to H<sub>2</sub> in the feedstock for oxo-synthesis is high, then the formation of ..... is favoured.
- a) alcohol                      b) aldehyde
- c) acid                      d) ether.
- x) In emulsion polymerization, the initiator used is usually soluble in
- a) water                      b) hexane
- c) cyclohexane                      d) acetonitrile.

### GROUP – B

#### ( Short Answer Type Questions )

Answer any *three* of the following.                      3 × 5 = 15

2. What do you know about methanator ? In shift converters explain shortly about HTS, LTS.
3. Write short note on production of butadiene from butane by dehydrogenation.
4. What are the polymers produced from ethylene ? Give some examples of their uses.
5. What are the main differences between Sohio and Monetedison process for the acrylonitrile production from propylene.



**GROUP – C**  
**( Long Answer Type Questions )**

Answer any *three* of the following.

3 x 15 = 45

6. a) What is the oxosynthesis process ?  
  
b) Briefly describe the production of VCM ( Vinyl chloride monomer ) by oxichlorination method. 7 + 8
7. Briefly describe the polystyrene production process and its applications. 9 + 6
8. Briefly describe the Keryl benzene sulphonate production process and then discuss about the activity of fillers, processing aids, binders, builders, bleaches, perfumes, foam agents, other additives in detergent. 7 + 8
9. a) Describe the production process for Butyl Rubber.  
  
b) Describe the production process for Phenol formaldehyde resin. 7 + 8
10. a) Briefly describe the production process of Ethylene glycols and uses.  
  
b) Briefly describe the production process of Ethanol amines and uses. 8 + 7

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