Code No: RR320805 **Set No. 1**

III B.Tech II Semester Supplimentary Examinations, Aug/Sep 2008
PETRO CHEMICAL ENGINEERING
(Chemical Engineering)

Time: 3 hours **Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

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1. Compare natural gas with crude oil as a fuel. Also discuss pollution related problems with both the feeds. [16]
2. What is fractionation? Write short notes on it with a neat diagram? What is their application in petrochemical industry? Why it is preferred to other process in petrochemical industry? [16]
3. Discuss the influence of the following parameters in naphtha cracking operation.
   (a) Temperature
   (b) Partial Pressure
   (c) Total pressure
   (d) Residence time
   (e) Coil diameter
   (f) C/H ratio
   (g) Molecular weight of the feed stock.
   (h) Influence of inerts in feed stock. [8×2 =16]
4. (a) What is polymerization?
   (b) Give an example of polymerization for a finished product.
   (c) How does it improve the quality of gasoline. [5+5+6]
5. (a) For getting good alkylated gasoline what are the paraffins required?
   (b) Alkylation is reverse of cracking Explain. [8+8]
6. (a) How is propylene obtained in a large scale?
   (b) Name important derivatives of propylene. [8+8]
7. (a) Name some higher olefins directly used in detergent industry.
   (b) Describe the process of chlorination of olefins. [8+8]
8. Describe the production of styrene with the aid of a flow sheet. [16]

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Code No: RR320805 **Set No. 2**

III B.Tech II Semester Supplimentary Examinations, Aug/Sep 2008
PETRO CHEMICAL ENGINEERING
(Chemical Engineering)

Time: 3 hours **Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

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1. Explain Refining of Crude petroleum in detail with a neat diagram? [16]
2. What is fractionation? Write short notes on it with a neat diagram? What is their application in petrochemical industry? Why it is preferred to other process in petrochemical industry? [16]
3. (a) What is the temperature required for naphtha cracking?
   (b) Identify the products of naphtha cracker.
   (c) What are the precautions you take while operating naphtha cracking? [4+6+6]
4. Discuss briefly about the different process used in petroleum chemical manufacture when the feed stock is naphtha. [16]
5. (a) Dehydrogenation of butane is better to get butylenes and butadiene rather than cracking. Explain
   (b) Explain the process of dehydrogenation and cracking. [8+8]
6. (a) Explain the production of cumene.
   (b) Explain the reactions involved in cumene oxidation. [8+8]
7. Explain the difficulties involved in the production of isoprene from pyrolysis of gasoline. [16]
8. Discuss how c_8 - aromatics are separated. [16]

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Code No: RR320805 **Set No. 3**

III B.Tech II Semester Supplimentary Examinations, Aug/Sep 2008
PETRO CHEMICAL ENGINEERING
(Chemical Engineering)

Time: 3 hours **Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

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1. Write notes on present scenario of petrochemical industry in India and world? [16]
2. (a) How do you produce industrial heating oils?
   (b) Characterize the properties of heating oils. [8+8]
3. (a) Explain Alkylation with suitable reactions.
   (b) Describe the process of Hydrofluoric acid alkylation with a neat flow diagram. [8+8]
4. (a) What are different catalysts used in isomerization process?
   (b) Explain the use of hydrogenation cracking catalyst for isomerization process. [8+8]
5. (a) For getting good alkylated gasoline what are the paraffins required?
   (b) Alkylation is reverse of cracking Explain. [8+8]
6. Propylene is a very useful component in many reactions. Justify. [16]
7. Explain the method of producing isoprene by dehydrogenation. [16]
8. Show how the petrochemical industry marched in the last two decades. [16]

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Code No: RR320805 **Set No. 4**

III B.Tech II Semester Supplimentary Examinations, Aug/Sep 2008
PETRO CHEMICAL ENGINEERING
(Chemical Engineering)

Time: 3 hours **Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

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1. What is the composition of petroleum? Explain briefly about physical properties of petroleum? [16]
2. (a) Describe two stage distillation of petrochemical.
   (b) Indicate the draw temperatures of different fractions. [8+8]
3. Discuss how the parameters influence yeild of ethylence in naphtha cracker. [16]
4. (a) What is polymerization?
   (b) Give an example of polymerization for a finished product.
   (c) How does it improve the quality of gasoline. [5+5+6]
5. (a) For getting good alkylated gasoline what are the paraffins required?
   (b) Alkylation is reverse of cracking Explain. [8+8]
6. (a) What is wax.
   (b) How is wax produced in petroleum industry? [8+8]
7. Describe the production of butadiene from ethyl alcohol? [16]
8. (a) What do you mean by BTX?
   (b) Explain the manufacturing process of BTX by Catalytic reforming method with a neat flow chart. [4+12]

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