



Department of Chemical Engineering
NATIONAL INSTITUTE OF TECHNOLOGY CALICUT
Monsoon Semester 2014
End Semester Examination

CH4022 Petroleum Refining Operations and Processes

Maximum Marks: 50

Duration: 3 hours

Answer all questions

- 1) Explain the occurrence of petroleum and mention the important petroleum products with the corresponding boiling range. [2]
- 2) Describe Indian petroleum resources & industries. [2]
- 3) Explain any two theories of origin of petroleum [2]
- 4) Explain the terms:
a. API
b. U.O.P characterisation factor
c. Correlation index
d. Diesel index [2]
- 5) Briefly explain the types of lube oils based on the services intended. [2]
- 6) What is next generation process? Explain the major technologies used for next generation processes. [2]
- 7) Mention the major four uses of following petrochemicals:
a. Ethylene glycol
b. DMT
c. Maleic anhydride
d. Methyl methacrylate [2]
- 8) What is carbon black? Explain the different methods of manufacturing and its uses. [2]
- 9) Briefly explain the following processes (No flow sheet):
a. HYCAR
b. DTC
c. RCC [2]
- 10) What is alkylation? Describe the process in detail. [1 1/2]
- 11) What is the significance of solvent extraction of lube oils? Explain phenol extraction process with flow sheet. [2]
- 12) Explain the delayed coking operation in detail with flow diagram. Mention the temperature and pressure. [3]
- 13) Describe the Cherry process with neat flow diagram. [3]
- 14) Explain the process of production of formaldehyde from methanol with chemical reactions and flow sheet. [3]
- 15) Explain the production of linear alkyl benzene with flow diagram. [3]
- 16) What is dewaxing? What are different types of dewaxing? Explain any one method in detail with flow sheet. [4]

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- 17) What is the use of isomerisation process in petroleum industries? Explain the aluminium chloride isomerisation process with flow diagram. [4]
- 18) Explain heavy oil treating process in detail with proper reactions and flow sheet. [4]