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**B.E. / B.TECH. DEGREE EXAMINATION, MAY 2023**

**Eighth Semester**

**CH16013 – PETROLEUM TECHNOLOGY**

*(Chemical Engineering)*

**(Regulation 2016)**

**Time: Three hours**

**Maximum : 100 Marks**

Answer ALL questions

**PART A - (10 X 2 = 20 marks)**

1. List a few middle distillates.
2. Mention the significance of Vacuum distillation.
3. Give the advantages of Hydrotreating.
4. Indicate a few catalysts used for catalytic cracking.
5. State the purpose of Reforming.
6. Compare RON with MON.
7. Categorize the methods used for viscosity improvement in lube oils.
8. Give a few petrochemical feedstocks.
9. Exemplify Payout time for projects in process industries.
10. List a few direct and indirect costs involved in any one unit process in a refinery..

**PART B - (5 X16 = 80 marks)\***

11. (a) Develop a neat flowsheet of a brownfield refinery and explain the various unit processes involved in it. (16)

**(OR)**

- (b) Categorize different types of crude oil based on any 5 of their properties and explain. (16)

12. (a) Illustrate with process flow diagram and reactions, the Fluidized Catalytic cracking. (16)

**(OR)**

- (b) Describe the reactions involved in a Hydrotreating process and explain with a neat flow diagram. (16)
13. (a) Classify different alkylation techniques and explain any one with a neat flow diagram. (16)
- (OR)**
- (b) Describe the typical polymerisation process with a neat flow diagram clearly stating from operating parameters, catalysts used and feed types. (16)
14. (a) Discuss the furfural extraction process in detail with a neat flow diagram. (16)
- (OR)**
- (b) Exemplify with process flow diagram and reactions, the Claude's process to produce Sulphur. (16)
15. (a) With a suitable case study, discuss in detail about the economic study of a refinery. (16)
- (OR)**
- (b) Discuss the various methods involved in capital cost estimates of industrial process plants with example. (16)