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Department of Chemical Engineering

Subject: CH 412 – Petroleum Refining & Petrochemical Engineering
End Semester Examination, September 2023

Branch: Chemical Engineering

Class: B. Tech. | **Semester:** VII | **Full Marks:** 50 | **Time:** 2 hours

Instructions:

- Answer all the questions.
- Missing data may suitably be assumed, if any.

1. What do you understand by the petrochemical derivatives and products. Describe the following with their applications:

(a) Ethylene (b) Propylene (c) Benzene (4 Marks)

2. What are the petroleum precursors? Discuss the various ways for production of:

(a) Synthesis gas and (b) aromatics and naphthenes. (6 Marks)

3. What are the effects of different types of refinery feed stocks in a refinery? (2 Marks)

4. Explain the process for the production of:

(a) Polypropylene and (b) Phenolic resins and epoxy resins. (8 Marks)

5. Discuss the process for gasification of coal and chemicals produced from its gasification. Explain with process flow sheets. (6 Marks)

6. Explain the following:

(a) Coking (b) sweetening (c) Visbreaking (6 Marks)

7. Explain the process for the production of (a) Polyamides (b) Polyesters from the monomers. (6 Marks)

8. What are the major changes one would see foresee in the Petroleum refineries based on new energy technology developments. (2 Marks)

9. State the physicochemical characteristics of petroleum and petroleum products. (3 Marks)

10. What is the need for Vacuum distillation unit? How it is different from atmospheric distillation unit? (2 Marks)

11. What are the various exploration techniques employed for the recovery of crude oil. Describe any two of them. (5 Marks).

*****End of Question Paper*****