

PARUL UNIVERSITY
FACULTY OF ENGINEERING & TECHNOLOGY
B.Tech. Summer 2021 - 22 Examination

Semester: 8th
Subject Code: 203103481
Subject Name: Petrochemical Technology

Date: 28/03/2022
Time: 10:30am to 1:00pm
Total Marks: 60

Instructions:

1. All questions are compulsory.
2. Figures to the right indicate full marks.
3. Make suitable assumptions wherever necessary.
4. Start new question on new page.

Q.1 Objective Type Questions**(15)**

1. High-density polyethylene (HDPE) is a _____ polymer.
2. A scrubber is a device or process used for removing _____ from _____ streams.
3. Naphtha fraction which boils above 100°C to below 150°C is called _____ naphtha.
4. Low density polyethylene has density range of _____ kg/m³.
5. Oxychlorination involves the treatment of _____ with oxygen and HCl.
6. When Ethylene is treated with chlorine it gives _____.
7. Name of the catalyst used in direct oxidation of ethylene?
8. Which type of reactor is used for manufacturing of ethylene oxide?
9. Name of the process used for removal of sulphur?
10. Which type of polyethylene has highest degree of chain branching?
11. The purpose of performing pyrolysis of kerosene is to produce
(A) Petrol
(B) Lighter paraffins
(C) Gasoline
(D) Olefins & aromatics
12. In petroleum refining which process is used for conversion of hydrocarbons to aromatics
(A) Hydrotreating
(B) Catalytic cracking
(C) Alkylation
(D) Catalytic reforming
13. Octane number of gasoline is indicator of
(A) Ignition delay
(B) Ignition temperature
(C) Smoke point
(D) Resistance to knock
14. Which of the following process involves hydrogen consumption
(A) Visbreaking
(B) Fluid catalytic cracking
(C) Both A and B
(D) None of these
15. Ethylene glycol is added to water in the radiators to
(A) To lower the viscosity
(B) To bring down the specific heat of water
(C) To make water a better lubricant
(D) To lower the freezing point of water

Q.2 Answer the following questions. (Attempt any three)**(15)**

- A) What is naphtha? Give classification of naphtha cracking alongwith the applications of naphtha.
- B) Explain hydrocracking with the help of a neat flow diagram.
- C) What is low density polyethylene (LDPE)? Give suitable reasons behind its low density.
- D) Explain various feedstocks of petrochemicals.

Q.3 A) Differentiate between LDPE and HDPE.**(07)**

- B) What do you mean by Fluid catalytic cracking (FCC)? Explain the flowsheet of FCC in detail.

(08)

OR

B) Write a short note on manufacturing of Phthalic anhydride with its applications.

(08)

Q.4 A) Explain styrene manufacturing with flowsheet in brief.

(07)

OR

A) Write down the environmental, safety & health aspects of petrochemical production.

(07)

B) Explain the manufacturing of vinyl acetate and polyvinyl acetate.

(08)