

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER– VI (NEW) EXAMINATION – WINTER 2021****Subject Code:3160510****Date:02/12/2021****Subject Name:Petroroleum Refining and Petrochemicals****Time:10:30 AM TO 01:00 PM****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Simple and non-programmable scientific calculators are allowed.

		MARKS
Q.1	(a) Give classification of crude oil.	03
	(b) What is cracking? Discuss the properties of cracked materials.	04
	(c) Discuss about different tests and properties of kerosene In brief.	07
Q.2	(a) Write down the composition of crude oil.	03
	(b) Define/explain the following terms in context with Petroleum refining. (i) Sour crude (ii) API Gravity (iii) Viscosity index (iv) Aniline point	04
	(c) Discuss manufacturing process of Styrene with neat flow Diagram.	07
	OR	
	(c) With neat sketch, explain MEROX treatment in detail.	07
Q.3	(a) State types of reflux in crude oil distillation column.	03
	(b) Write explanatory note on visbreaking.	04
	(c) Discuss various types of naphtha and their important properties & applications.	07
	OR	
Q.3	(a) Discuss about different impurities present in crude oil. What is sweetening? List few methods for sweetening.	03
	(b) Explain catalytic reforming in brief.	04
	(c) Explain with neat flow diagram: Manufacturing process of vinyl chloride monomer (VCM).	07
Q.4	(a) Which heavy fractions remain after fractionation of crude petroleum? List out various important properties of heavy fractions.	03
	(b) What is dewaxing? List various dewaxing processes? Which is the major solvent used for dewaxing.	04
	(c) Explain manufacturing process of formaldehyde with diagram.	07
	OR	
Q.4	(a) List out various distillation characteristics of crude oil. Discuss any one in brief.	03
	(b) Enlist various pipe still heater used for heating of crude petroleum. Explain any one in brief. Petroleum. Explain any one in brief.	04
	(c) Discuss MEK dewaxing with neat diagram.	07

- Q.5** (a) Explain the parameters which affects the reforming. **03**
(b) Discuss major engineering problems associated with manufacturing process of Phthalic anhydride. **04**
(c) Explain (FCC) fluidized catalytic cracking with neat sketch. **07**

OR

- Q.5** (a) List out various types of raw materials used in production of ethylene. **03**
(b) What is the principle of propane deasphalting? **04**
(c) What is delayed coking? Describe the delayed coking operation with diagram. **07**

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VI (NEW) EXAMINATION – SUMMER 2022****Subject Code:3160510****Date:08/06/2022****Subject Name:Petroleum Refining and Petrochemicals****Time:10:30 AM TO 01:00 PM****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Simple and non-programmable scientific calculators are allowed.

		MARKS
Q.1	(a) Write a short note on oil fields and refineries in India.	03
	(b) State and explain evidences in favor of biogenic origin crude oil of crude oil.	04
	(c) Describe any two important properties employed for Gasoline.	07
Q.2	(a) Explain any three types of gases in detail.	03
	(b) Explain and discuss about the additives for gasoline	04
	(c) Discuss about different tests and properties of kerosene in brief.	07
	OR	
	(c) Describe any two important properties employed for Diesel in detail.	07
Q.3	(a) Discuss electric desalting process in brief.	03
	(b) Write a short note on Atmospheric Distillation Unit.	04
	(c) Describe different arrangement of distillation tower in petroleum fractioning with the help of neat sketches.	07
	OR	
Q.3	(a) Discuss the process of Lead doctoring of gasoline.	03
	(b) Write manufacturing process of LPG with flow sheet.	04
	(c) Explain Merox sweetening process for gasoline treatment.	07
Q.4	(a) Discuss about various catalysts used in catalytic cracking.	03
	(b) Differentiate between moving bed crackers and fluidized bed crackers.	04
	(c) Explain catalytic reforming in terms of reaction, catalyst, feed stock, operating condition, end products and effect of operating variables.	07
	OR	
Q.4	(a) Explain reforming process for crude processing.	03
	(b) Describe plat forming in detail with a neat diagram.	04
	(c) What is delayed coking? Describe the delayed coking operation with diagram.	07
Q.5	(a) Discuss major engineering problems involved in production of Methanol.	03
	(b) Discuss major engineering problems involved in production of ethylene.	04
	(c) With the help of a detailed flow sheet explain the manufacturing process of polypropylene.	07

OR

- Q.5**
- (a) Explain the major engineering problems involved in the manufacturing of Vinyl chloride monomer **03**
 - (b) Describe manufacturing process of LDPE in detail along with its application. **04**
 - (c) Describe manufacturing process of HDPE in detail along with its application. and also explain difference between HDPE and LDPE. **07**
