

GUJARAT TECHNOLOGICAL UNIVERSITY**BE- SEMESTER-VI (NEW) EXAMINATION – WINTER 2024****Subject Code:3160510****Date:02-12-2024****Subject Name:Petroleum Refining and Petrochemicals****Time:02:30 PM TO 05:00 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) Define: Flash point, Pour point, Smoke point	03
	(b) Brief about Indian refining scenario and oil reservoirs in India.	04
	(c) Enlist various tests for gasoline and explain all in detail.	07
Q.2	(a) List various sweetening processes and brief the adverse effects of impurities present in the petroleum product.	03
	(b) Explain electric desalter with neat sketch.	04
	(c) Classify crude oil based on various properties.	07
	OR	
	(c) Explain the role and need of additives of gasoline. Discuss each type of additive in detail.	07
Q.3	(a) Explain ASTM distillation test for gasoline.	03
	(b) Explain the biogenic theory for formation of crude oil in detail.	04
	(c) Explain isomerization and polymerization units of refinery.	07
	OR	
Q.3	(a) Explain Ball and Ring test for bitumen.	03
	(b) Briefly explain catalytic alkylation.	04
	(c) Explain about delayed coker unit in detail.	07
Q.4	(a) Compare thermal and catalytic cracking.	03
	(b) Explain lead Doctor process in detail. Also explain its reactions,	04
	(c) Explain FCC with neat sketch.	07
	OR	
Q.4	(a) Explain pumping of waxy crude oil.	03
	(b) Compare phenol extraction and furfural extraction.	04
	(c) Explain need of reforming unit and explain with neat sketch. Also write on regeneration of catalyst in reformer unit.	07
Q.5	(a) Enlist various routes for methanol synthesis.	03
	(b) Discuss various applications of SBR and Methanol.	04
	(c) Discuss formaldehyde production with neat sketch.	07
	OR	
Q.5	(a) List various C1, C2 based and aromatic petrochemicals.	03
	(b) Explain BTX separation in brief.	04
	(c) Explain LDPE production with neat sketch and differentiate between HDPE and LDPE.	07
