

GUJARAT TECHNOLOGICAL UNIVERSITY
BACHELOR OF ENGINEERING – SEMESTER 8 – EXAMINATION – SUMMER 2026

Subject Code: 2180502

Date: 21/05/2026

Subject Name: Petroleum Refining & 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.**

- Q.1**
- | | | |
|-----|---|----|
| (a) | Explain the composition of crude oil | 03 |
| (b) | Discuss exploration of crude oil in brief. | 04 |
| (c) | Discuss the about crude oil reservoirs and refineries of India in detail. | 07 |

- Q.2**
- | | | |
|-----|---|----|
| (a) | Highlight the need of dehydration and desalting. | 03 |
| (b) | Classify crude oil based on different parameters in detail. | 04 |
| (c) | Define: Smoke point, Diesel index, Pour point, Viscosity index, Softening point, Octane number, Cetane number | 07 |

OR

- | | | |
|-----|---|----|
| (c) | Define flash and fire point, highlight its significance and explain in detail about its determination method. | 07 |
|-----|---|----|

- Q.3**
- | | | |
|-----|--|----|
| (a) | Explain the vis-breaking unit in brief. | 03 |
| (b) | Define aniline point and highlight its significance. Also explain its determination in brief. | 04 |
| (c) | Discuss fluidized catalytic cracking (FCC) unit of refinery and explain role of each part of this unit.. | 07 |

OR

- Q.3**
- | | | |
|-----|---|----|
| (a) | Explain the delayed coker unit of the refinery in short. | 03 |
| (b) | Explain the additives of gasoline. | 04 |
| (c) | Explain the regeneration with reference to the reformer unit. | 07 |

- Q.4**
- | | | |
|-----|--|----|
| (a) | Compare LDPE with HDPE. | 03 |
| (b) | Explain electric desalting in detail with neat sketch. | 04 |
| (c) | Discuss manufacturing of methanol with a neat sketch. | 07 |

OR

- Q.4**
- | | | |
|-----|---|----|
| (a) | Enlist various types of rubbers obtained as petrochemicals. | 03 |
| (b) | Explain any one sweetening process in detail with a neat sketch. | 04 |
| (c) | Explain manufacturing of formaldehyde in detail with a neat sketch. | 07 |

- Q.5**
- | | | |
|-----|--|----|
| (a) | Explain the major applications of SBR in various fields. | 03 |
| (b) | Explain the major problems associated with Ethylene Chloride production. | 04 |

(c) Explain the manufacturing process of poly vinyl chloride in detail. **07**

OR

Q.5 **(a)** Explain major applications of polyethylene. **03**

(b) Explain the engineering problems associated with methanol production. **04**

(c) Explain the manufacturing process of LDPE in detail. **07**
