

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VI(NEW) EXAMINATION – WINTER 2022****Subject Code:3160510****Date:16-12-2022****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.

- Q.1** (a) Differentiate: Atmospheric Distillation Unit (ADU) and Vacuum Distillation Unit (VDU) for crude petroleum **03**
 (b) Explain in brief: Necessity and types of Cracking **04**
 (c) Explain in detail with a neat flow diagram: Manufacturing process of Butadiene **07**
- Q.2** (a) Define sweetening of gas. Enlist various sweetening techniques for gases. **03**
 (b) Enlist important properties & tests for gasoline and explain any one in brief. **04**
 (c) Explain in detail with a neat flow diagram: Manufacturing process of Methanol **07**
- OR**
- (c) Explain in detail with a neat flow diagram: Manufacturing process of Ethylene Glycol **07**
- Q.3** (a) Explain in brief: Visbreaking technique for crude petroleum **03**
 (b) Discuss in brief: Pumping of waxy crude **04**
 (c) Explain in detail: Composition of crude oil **07**
- OR**
- Q.3** (a) Explain in brief: Hydrocracking technique for crude petroleum **03**
 (b) Discuss major engineering problems associated with the manufacturing process of Ethylene in brief. **04**
 (c) Enlist various pipe still heaters used for heating crude petroleum. Explain any two in brief. **07**
- Q.4** (a) Enlist various properties and uses of Chloromethane. **03**
 (b) Define Following: **04**
 (i) Smoke point (ii) Pour point (iii) Cetane number (iv) Softening point
 (c) Define cracking of crude petroleum. Explain Dubb`s two coil process of thermal cracking in detail. **07**
- OR**
- Q.4** (a) Explain in brief: LPG and its various composition **03**
 (b) Explain in brief: Conradson carbon residue method for lube oil **04**
 (c) Explain in detail with a neat flow diagram: Manufacturing process of Polypropylene **07**
- Q.5** (a) Explain in brief: Role of crude oil in Global economy **03**
 (b) Explain the Fluid Catalytic Cracking process in brief. **04**
 (c) Enlist various treatment techniques of gasoline. Explain Lead Doctoring treatment technique for gasoline in detail. **07**
- OR**
- Q.5** (a) Explain in brief: BTX separation **03**

- (b) Explain Penetration index test for Bitumen in brief. **04**
- (c) Enlist various treatment methods of lube oil. Explain Phenol extraction method in detail. **07**
