

GUJARAT TECHNOLOGICAL UNIVERSITY**BE Semester VIII • EXAMINATION – WINTER 2017****Subject Code: 180502****Date: 02-11-2017****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.

- Q.1** Answer the following: **07**
- (a)(i) Define Flash & Fire point.
(ii) Give the expression for API gravity. Write expression for a blend.
(iii) What is LPG? List grades of LPG.
(iv) What is knocking? Define octane number.
(v) What is sweetening? List criteria of doctoring
(vi) Give the expression of UOP characterization factor. Write expression for a mixture of components.
(vii) State the significance of Softening point.
- (b) List tests for gasoline. Discuss ASTM distillation characteristics with a neat diagram. **07**
- Q.2** (a) Write short note on gases from petroleum. **07**
(b) With a neat sketch of True Boiling Point apparatus, explain the test method and significance. **07**
- OR**
- (b) With a neat sketch of Conradson carbon residue apparatus, explain the test method and significance **07**
- Q.3** (a) Explain oxidation of Mercaptans to disulfides. **07**
(b) What is cracking? Discuss thermal cracking operations and properties of cracked materials. **07**
- OR**
- Q.3** (a) Discuss dehydration and desalting of crude. **07**
(b) Explain Merox sweetening in detail **07**
- Q.4** (a) Discuss polyethylene manufacture by low pressure process. **07**
(b) Discuss major engineering problems in SBR manufacture **07**
- OR**
- Q.4** (a) Explain manufacture of methanol with a neat flowsheet. **07**
(b) Discuss major engineering problems in ethylene oxide manufacture. **07**
- Q.5** (a) Explain manufacture of vinyl chloride monomer. List major engineering problems. **07**
(b) Write short note on petrochemical feedstock **07**
- OR**
- Q.5** (a) With a neat flow diagram discuss manufacture of acetic acid and the major engineering problems associated with it. **07**
(b) Write short note on “Petrochemical sector- present and future” **07**

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