

Subject Code: 2180502
Date: 26/10/2020
Subject Name: Petroleum Refining & 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** (a) Define: (i) Cracking (ii) Vis breaking (iii) Catalytic reforming **03**
 (b) Write down various properties and uses of Poly vinyl chloride (PVC). **04**
 (c) Enlist various treatment techniques of gasoline. Explain Lead Doctoring treatment technique of gasoline in detail. **07**
- Q.2** (a) Differentiate: Atmospheric Distillation Unit(ADU) and Vacuum Distillation Unit(VDU) of crude petroleum **03**
 (b) Write down various properties and uses of Isopropanol. **04**
 (c) Define Following: **07**
 (i) Octane number (ii) Flash & Fire point (iii) Smoke point (iv) Aniline point (v) Pour point (vi) Cetane number (vii) Softening point
- OR**
- (c) Describe various types of gases evolved from fractionation of crude petroleum with their composition. **07**
- Q.3** (a) Discuss in brief: Role of crude oil in global economy **03**
 (b) Discuss major engineering problems associated with manufacturing process of methanol. **04**
 (c) Explain with neat flow diagram: Manufacturing process of ethylene dichloride **07**
- OR**
- Q.3** (a) Give classification of crude oil. **03**
 (b) Write down various properties and uses of formaldehyde. **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) Enlist various pipe still heater used for heating of crude petroleum. Explain any one in brief. **04**
 (c) Explain with neat flow diagram: Manufacturing process of Polypropylene **07**
- OR**
- Q.4** (a) List out various distillation characteristics of crude oil. Discuss any one in brief. **03**
 (b) Discuss in brief: Pumping of waxy crude **04**
 (c) Explain with neat flow diagram: Manufacturing process of Styrene Butadiene Rubber (SBR) **07**
- Q.5** (a) Which are the different types of reflux methods for distillation of petroleum? Explain any one in brief. **03**
 (b) Explain in brief: BTX separation **04**
 (c) Define thermal cracking. Explain Dubb's two coil process of thermal cracking in detail. **07**
- OR**
- Q.5** (a) What is dewaxing of Lube oil? Enlist various dewaxing processes of lube oil. **03**
 (b) Discuss major engineering problems associated with manufacturing process of Phthalic anhydride. **04**
 (c) Define catalytic cracking. Explain Fluid Catalytic Cracking process in detail. **07**
