

**UNIVERSITY OF PETROLEUM AND ENERGY STUDIES**  
**End Semester Examination, April/May 2018**

**Course: Petroleum Refining and Petrochemical Technology (CHEG 341)**

**Semester: VI**

**Program: B.Tech (APE GAS)**

**Time: 03 hrs.**

**Max. Marks: 100**

**Instructions:** Answer all the questions

**SECTION A**

**5 X 4 = 20**

S. No.		Marks	CO
1.	What is an opportunity crude? Give any one of its advantage and disadvantage.	4	CO1
2.	Give the quantitative definition of dry and sour natural gas. Name the method by which sweetening natural gas is done.	4	CO2
3.	Name the distillates obtained in the atmospheric distillation column, their boiling range and hydrocarbons size.	4	CO3
4.	How are petrochemicals classified? Give any two examples for each.	4	CO4
5.	What are the different types of storage tank used in a petroleum refinery and petroleum product stored in it?	4	CO5

**SECTION B**

**5 X 8 = 40**

6.	Explain the method of elemental analysis of petroleum and give its significance.	8	CO2
7.	Name the methods of catalytic cracking and explain any one of them with the help of diagram.  <b>(Or)</b> With the help of process flow diagram, explain the process of hydrocracking.	8	CO3
8.	Explain the pretreatment of natural gas for its sweetening and separation of natural gas liquid.  <b>(Or)</b> Describe the method of manufacture of syngas from natural gas and give the names of any four important chemicals derived from syngas.	8	CO4
9.	Draw the schematic diagram of petroleum refinery integrated with petrochemicals production and give any four important benefits of the same.	8	CO5
10.	Name any four important properties of petroleum & petroleum products related to their volatility and explain the determination of any one of them and its significance.	8	CO3

**SECTION-C**

**2 X 20 = 40**

11.	<p>(a) Explain the process of catalytic reforming with the help of process flow diagram and the reactions involved.</p> <p>(b) With the help of flow diagram, explain the process of manufacture of ethanol from lignocellulose.</p> <p style="text-align: center;"><b>(Or)</b></p> <p>(a) With the help of flow diagram explain the steam cracking of naphtha to olefins.</p> <p>(b) Name the different types of processes employed in bio-refinery and describe the production of biogas and its upgradation to bio methane.</p>	<p><b>10</b></p> <p><b>10</b></p> <p><b>10</b></p> <p><b>10</b></p>	<p><b>CO3</b></p> <p><b>CO5</b></p> <p><b>CO4</b></p> <p><b>CO5</b></p>
12.	<p>(a) What is the impact of shale gas on the petrochemical industries?</p> <p>(b) Give a brief account of blending of crude oil and petroleum products</p> <p>(c) How is octane number determined and what is its significance?</p> <p>(d) Explain the determination of polycyclic aromatic hydrocarbons in diesel and its significance.</p>	<p><b>4</b></p> <p><b>6</b></p> <p><b>5</b></p> <p><b>5</b></p>	<p><b>CO1</b></p> <p><b>CO5</b></p> <p><b>CO3</b></p> <p><b>CO3</b></p>