Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

M. E. - SEMESTER – I • EXAMINATION – WINTER 2012

Subject code: 713004N **Date: 16-01-2013**

Subject Name: Advance Petroleum Refining (Major Elective-I)

Time: 02.30 pm – 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)**	Explain steam reforming with CO_2 absorber and methanator for hydrogen production with the help of a neat flowsheet.	**07**
	(b)	Discuss the safety considerations in refinery plant lay out.	**07**
Q.2	**(a)**	Explain the objectives and role of hydrocracking process in refinery.	**07**
	(b)	Discuss "Delayed Coking" with neat sketch.	**07**
		OR	
	(b)	Compare in brief different types of coking processes.	**07**
Q.3	**(a)**	Explain production of clean fuels from natural gas and coal.	**07**
	(b)	Explain steam reforming via PSA process.	**07**
		OR	
Q.3	**(a)**	Discuss OLEX process in detail with the help of neat sketch.	**07**
	(b)	What is FCC? Explain FCC process in detail with the help of neat sketch.	**07**
Q.4	**(a)**	Explain in brief: (i) Alkylation (ii) Desulphurization	**07**
	(b)	Explain different methods for treatment and control of waste gas from refinery unit.	**07**
		OR	
Q.4	**(a)**	List out various applications of gas chromatography in refinery units.	**07**
	(b)	Discuss naphtha hydrocracking process in refinery.	**07**
Q.5	**(a)**	Explain Claus process for sulphur recovery from gaseous H_2S with the help of neat sketch.	**07**
	(b)	List out and compare different types of reactor bed involved in hydroprocessing method for residue upgradation in refineries.	**07**
		OR	
Q.5	**(a)**	Explain "Deep Desulphurization" process with the help of neat sketch.	**07**
	(b)	Discuss "Biofuels".	**07**

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