Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

M. E. Sem. – IInd - Examination – June/July- 2011

Subject code: 1721102

Subject Name: Alternate Fuels & Energy

Date:24/06/2011 **Time: 10:30 am – 01:00 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)**	Compare various gaseous fuels for, engine performance, engine emission, safety related issue.	**07**
	(b)	Show the current scenario of conventional fuels? Also show your views on requirement of alternate fuel for I.C. Engines.	**07**
Q.2	**(a)**	Storage and dispensing system for LH_2.	**07**
	(b)	How to produce ethanol? State its important properties.	**07**
		OR	
	(b)	Compare the performance and emissions of I.C. engine when use - conventional fuel and biodiesel From that show the advantages of biodiesel over conventional fuel.	**07**
Q.3	**(a)**	Explain the emissions of engine use ethanol as fuel.	**07**
	(b)	What are the difficulties to use biodiesel as fuel?	**07**
		OR	
Q.3	**(a)**	Discuss use of 'Liquefied Natural Gas (LNG) ' as fuel for automobile engines	**07**
	(b)	Explain operating system of electric car.	**07**
Q.4	**(a)**	Describe the different types of batteries used in electric vehicle and its effect on engine performance.	**07**
	(b)	Explain trans esterification process.	**07**
		OR	
Q.4	**(a)**	Operational characteristics of dual fuel engines.	**07**
	(b)	Explain pyrolysis process used to make biodiesel from any vegetable oil.	**07**
Q.5	**(a)**	Compare Emission of dual fuel engine and conventional fuel engine.	**07**
	(b)	Draw schematic arrangement of CNG kit for any vehicle and state the function of different components of CNG kit.	**07**
		OR	
Q.5	**(a)**	What modifications are required for solar car?	**07**
	(b)	What is hybrid vehicle technology? How it is differ from conventional vehicle?	**07**

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