Seat No.: _____ **Enrolment No._____**

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–VI (NEW) - EXAMINATION – SUMMER 2017

Subject Code: 2160207 **Date: 03/05/2017**

Subject Name: Alternative fuel and power systems

Time: 10:30 AM to 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.**

			MARKS
Q.1		**Short Questions**	**14**
	1	What is the full form of DME?	
	2	What is the range of octane number of CNG?	
	3	Define calorific value.	
	4	What by product generated when biodiesel is produced?	
	5	Define fire point of a fuel.	
	6	Lead acid, nickel cadmium, nickel iron are types of _____.(battery, solar cell, car)	
	7	From 1 April 2017_____standard of emission is implemented.(BS-3, BS-4,BS-6)	
	8	B30 means ___% of biodiesel blend in total fuel.(70,30,100)	
	9	C_2H_5OH is the chemical formula of_____(ethylene, methanol, ethanol)	
	10	Write the common feedstock for production of biodiesel.	
	11	To measure flash point of fuel which equipment is utilized?	
	12	Sugarcane waste is an important source for production of___(coal, petrol, ethanol)	
	13	Toyota Camry has a hybrid version. True or false.	
	14	Hybrid car uses both engine and electric motor. True or false.	
Q.2	**(a)**	Explain the properties flash point and viscosity.	**03**
	(b)	What is the drawback of using pure alcohol as fuel in vehicle.	**04**
	(c)	Write a short note on biodiesel production process with figure.	**07**
		OR	
	(c)	What is biomass gasification with figure.	**07**
Q.3	**(a)**	Advantage and disadvantage of using biogas as fuel in automobile.	**03**
	(b)	Explain in short effect of vegetable oil on in engine emission characteristics.	**04**
	(c)	Explain use of LPG as fuel for I.C. engines	**07**
		OR	
Q.3	**(a)**	Why world needs alternate fuel?	**03**
	(b)	Enlist few factors affecting biogas formation	**04**
	(c)	Discuss Multi fuel engine.	**07**
Q.4	**(a)**	What is fuel cell?	**03**
	(b)	How is ethanol produced?	**04**
	(c)	Write a short note on Solar vehicle with block diagram.	**07**
		OR	
Q.4	**(a)**	What are ecofriendly plastic fuels?	**03**
	(b)	Explain working of hybrid vehicles in brief.	**04**
	(c)	Discuss production and storage of hydrogen.	**07**
Q.5	**(a)**	Which parameters considered for emission analysis of fuel.	**03**
	(b)	Limitation of electric vehicles.	**04**
	(c)	Explain construction and working of Wankel engine with neat sketch	**07**

OR

Q.5	**(a)**	What equipment are required for emission analysis of petrol and diesel.	**03**
	(b)	Explain advantage and disadvantage of using hydrogen as fuel.	**04**
	(c)	Write short note on Electric motors for automobile applications.	**07**

****