

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER- VI EXAMINATION – SUMMER 2020

Subject Code: 2160207

Date: 27/10/2020

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	(a) Explain use of LPG as fuel for I.C. engines	03
	(b) What is the drawback of using pure alcohol as fuel in vehicle?	04
	(c) Discuss advantages & disadvantages of CNG as an alternative fuel. Explain different components of CNG gas conversion kit in brief.	07
Q.2	(a) Explain the properties flash point and viscosity	03
	(b) Enlist few factors affecting biogas formation	04
	(c) Write a short note on biodiesel production process.	07
	OR	
	(c) Explain biomass gasification with figure.	07
Q.3	(a) Explain cost and safety criteria for LPG and CNG.	03
	(b) Which parameters considered for emission analysis of fuel	04
	(c) Discuss production and storage of hydrogen.	07
	OR	
Q.3	(a) What is fuel cell?	03
	(b) Discuss “scope of availability of fossil fuel in future”.	04
	(c) Explain combustion process & production process of methanol.	07
Q.4	(a) Is it possible to use Di- Methyl Ether (DME) as alternative fuel in I.C. engine? Explain in detail.	03
	(b) Explain in short effect of vegetable oil on in engine emission characteristics.	04
	(c) Write short note on Esterification.	07
	OR	
Q.4	(a) Discuss Improvement in emission characteristics with respect to percentage (%) blending of Alcohol.	03
	(b) Explain advantages and limitation of electric vehicles.	04
	(c) Explain construction and working of Wankel engine with neat sketch	07
Q.5	(a) Explain different electric motors used for automotive applications.	03
	(b) Explain series type & parallel type hybrid electric vehicle with neat schematic diagrams.	04
	(c) Write a short note on Solar vehicle with block diagram.	07
	OR	
Q.5	(a) Discuss Multi fuel/duel fuel engine.	03
	(b) Write merits and limitations of Hydrogen as an automotive fuel.	04
	(c) Discuss Eco friendly plastic fuels (EPF)	07
