

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VI (NEW) EXAMINATION – SUMMER 2023****Subject Code:3160207****Date:06-07-2023****Subject Name:Alternative Fuels 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.
4. Simple and non-programmable scientific calculators are allowed.

		MARKS
Q.1	(a) What is the need of fuels? List out the various alternate fuels.	03
	(b) Compare alternative fuels with fossil fuels.	04
	(c) Discuss on availability and properties of alternate fuels.	07
Q.2	(a) Explain drawback of using pure alcohol as a fuel in vehicle.	03
	(b) Give the properties of methanol as fuel with its merits and demerits.	04
	(c) Explain Dual fuel system with detail.	07
	OR	
	(c) Explain the properties of diesel blended with vegetable oil and discuss the effects of it on performance of engine.	07
Q.3	(a) Explain Synthetic Alternative Fuels.	03
	(b) Describe the various raw materials for biodiesel production.	04
	(c) Write a short note on Gasifiers.	07
	OR	
Q.3	(a) Discuss cost assessment of LPG and CNG.	03
	(b) Write the properties of LPG & CNG as engine fuels.	04
	(c) Discuss the various factors affecting on biogas formation.	07
Q.4	(a) Compare the working of fuel cell with batteries.	03
	(b) Give the advantages and disadvantages of hydrogen as a fuel.	04
	(c) Explain the working of Electric-Fuel cell hybrid configurations vehicle.	07
	OR	
Q.4	(a) Give the comparison of fuel cell with batteries.	03
	(b) Explain storage of hydrogen for automobile application.	04
	(c) List out the various types of fuel cell and explain any one with neat diagram.	07
Q.5	(a) List out the different types of Non-Conventional I.C. Engines.	03
	(b) Explain the limitations of electric vehicles.	04
	(c) Draw the layout of solar powered vehicle and explain the working of it.	07
	OR	
Q.5	(a) Explain eco friendly plastic fuel.	03
	(b) Write a note on free piston engine.	04
	(c) Explain the types of electric motors for automobile with detail.	07
