

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER– VI (New) EXAMINATION – WINTER 2019****Subject Code: 2160207****Date: 09/12/2019****Subject Name: Alternative fuel and power systems****Time: 02:30 PM TO 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.

	MARKS
Q.1 (a) State the merits and demerits of CNG.	03
(b) Justify the need of alternative fuels in India.	04
(c) Explain storage, emission, cost and safety criteria for LPG and CNG.	07
Q.2 (a) Explain different electric motors used for automotive applications.	03
(b) State positive and negative consequences of electric vehicles.	04
(c) Discuss construction and working of electric vehicle with neat sketch.	07
OR	
(c) Discuss construction and working of solar vehicle with block diagram.	07
Q.3 (a) Illustrate production process of methanol.	03
(b) Explain the drawback of using pure alcohol as fuel in vehicle.	04
(c) List down types of biogas plants. Explain each with diagrams.	07
OR	
Q.3 (a) Illustrate production process of ethanol.	03
(b) List the advantages and disadvantages of Hydrogen as a fuel.	04
(c) Enlist factors affecting biogas formation.	07
Q.4 (a) Distinguish between viscosity and volatility.	03
(b) Describe stratified charge engine.	04
(c) Explain construction and working of Sterling engine with neat sketch.	07
OR	
Q.4 (a) Distinguish between Fire point and Flash point.	03
(b) Describe dual fuel engine.	04
(c) Explain construction and working of Wankel engine with neat sketch.	07
Q.5 (a) Define Fuel cell. List down the types of fuel cell.	03
(b) Explain production process and storage of hydrogen in brief.	04
(c) Discuss pro, cones & important properties of biodiesel.	07
OR	
Q.5 (a) Enlist types of Biodiesel.	03
(b) Define effect of vegetable oil on engine emission characteristics.	04
(c) Describe Eco friendly plastic fuels (EPF).	07
