

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VI (NEW) EXAMINATION – WINTER 2018****Subject Code:2160207****Date:27/11/2018****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) Explain the properties flash point and viscosity. **03**
(b) Which parameters considered for emission analysis of fuel **04**
(c) Write a short note on biodiesel production process. **07**
- Q.2** (a) Explain the production process of methanol with reaction process. **03**
(b) Explain different properties which affect combustion characteristic of fuel. **04**
(c) With neat sketch discuss construction and working of electric vehicle. **07**
- OR**
- (c) Explain construction and working of Wankel engine with neat sketch. **07**
- Q.3** (a) Write a short note on different types of bio diesels used in vehicle. **03**
(b) Explain in short effect of vegetable oil on in engine emission characteristics **04**
(c) Discuss advantages & disadvantages of CNG as an alternative fuel. Explain different components of CNG gas conversion kit in brief. **07**
- OR**
- Q.3** (a) What is a fuel cell? Explain its power rating and performance. **03**
(b) What are the factors affecting transesterification process? Explain **04**
(c) Write a short note on fuel cell with neat sketch. **07**
- Q.4** (a) Which modification is required to convert petrol engine in to CNG engine? **03**
(b) How is ethanol produced? **04**
(c) Discuss Improvement in emission characteristics with respect to percentage (%) blending of Alcohol **07**
- OR**
- Q.4** (a) Explain why it is difficult to implement use of alternative fuels in India? **03**
(b) Limitation of electric vehicles. **04**
(c) Discuss Eco friendly plastic fuels(EPF) **07**
- Q.5** (a) Difference between pour point and cloud point of fuel. **03**
(b) Write a short note on “need of alternative fuels in India **04**
(c) What is emulsification of alcohol with diesel? Describe emission improvement by blending of alcohol with diesel. **07**
- OR**
- Q.5** (a) Explain different electric motors used for automotive applications. **03**
(b) Explain working of hybrid vehicles in brief **04**
(c) Write merits and limitations of Hydrogen as an automotive fuel **07**
