Seat No: _____ Enrollment No: _____

PARUL UNIVERSITY

FACULTY OF ENGINEERING & TECHNOLOGY

M. Tech. Winter 2019 - 20 Examination

Semester: 1 **Date: 18/12/2019**
Subject Code: 203206130 **Time: 10:30am to 1:00pm**
Subject Name: Alternative Fuels & Power Trains **Total Marks: 60**

Instructions:

1. All questions are compulsory.
2. Figures to the right indicate full marks.
3. Make suitable assumptions wherever necessary.
4. Start new question on new page.

Q.1 A) Discuss the role of alternative fuels for the future development of India. Mention the important policies or schemes promoted by government for the same. **(05)**

B) List out potential alternative fuels for IC engine. Discuss the criterion/challenges need to be incorporated for the successful implementation of alternative fuels. **(05)**

C) What are the safety aspects need to be considered while using hydrogen as an alternative fuel. Enlist the instruments used for hydrogen safety. **(05)**

Q.2 **Answer the following questions**. (Attempt any three) (Each five mark) **(15)**

A) What are the significant properties of CNG which makes it suitable for the use in petrol Engine?

B) Compare ethanol and methanol as substitute to gasoline.

C) What is dual fuel technology? How it is differ from conventional engine?

D) Discuss about the EURO-VI standards used for automobile emission. What are the prominent features of it?

Q.3 A) Explain trans-esterification process of biodiesel production from vegetable oil. **(07)**

B) Explain the modification required for operating SI engine on alcohol. **(08)**

OR

B) Draw schematic arrangement of LPG kit for any vehicle and state the function of different components of LPG kit. **(08)**

Q.4 A) Explain the working of electric vehicle with neat sketch. **(07)**

OR

A) What are the different types of hybrid vehicles? Discuss any one in detail with neat sketch. **(07)**

B) With help of graphs discuss the effect of percentage of bio-diesel on specific fuel consumption, brake thermal efficiency and exhaust emissions as CO, HC & NOx. **(08)**