Code No: 5421AR

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JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

M. Tech II Semester Examinations, June/July - 2019

ALTERNATIVE FUELS FOR I. C. ENGINES

(Thermal Engineering)

Time: 3hrs Max.Marks:75

Note: This question paper contains two parts A and B.
Part A is compulsory which carries 25 marks. Answer all questions in Part A. Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

PART - A

5 × 5 Marks = 25

1.a) What is the need of hybrid cars? Explain. [5]
b) What is DEE and DME? Mention its details. [5]
c) Differentiate between LPG and CNG. [5]
d) Differentiate between properties of biodiesel and diesel. [5]
e) Enumerate the benefits of solar vehicle. [5]

PART - B

5 × 10 Marks = 50

2. List various types of alternative fuels and discuss their important properties. [10]

OR

3. Discuss suitability of the following fuels in diesel engine. Also mention any modifications to be made. [10]
a) Alcohols
b) Vegetable Oils
c) Biogas

4. Discuss the important properties of Alcohols as an engine fuels. [10]

OR

5. Compare the performance of alcohols and gasoline blends in S.I. engine. [10]

6.a) Describe the functions of typical CNG kit elements with layout.
b) Discuss the different methods of hydrogen storage. [5+5]

OR

7. Discuss the emission characteristics of CNG using LPG in S.I. engine. [10]

8. Explain the detailed method of
a) Production of bio diesels from vegetable oil.
b) Biodiesel testing. [5+5]

OR

9. Discuss the process of transesterification to be done for different biofuels production in detail. [10]

10.a) Draw neat diagram of general layout of electric car.
b) What are the advantages of electric cars? [5+5]

OR

11.a) Draw neat diagram of hybrid vehicle and explain its working.
b) Explain the working principle of fuel cell vehicles. [5+5]

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