Code No: 5421AR

R17

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
M. Tech II Semester Examinations, June/July - 2018
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 are the advantages and limitations of CNG? [5]
  b) List the desirable properties of ethanol. [5]
  c) Which modification should be done to use LPG in an engine? [5]
  d) Write down the unfavourable properties of Vegetable oil. [5]
  e) What is the purpose of hybrid electric vehicle? [5]

PART - B

5 × 10 Marks = 50

2. Discuss on the availability of LPG, CNG and alcohols for continuous use in automobiles. [10]

OR

3. What are the properties required in alternate fuels for effectively replacing conventional fuels in automobile engines? [10]

4. Compare and evaluate the performance characteristics of gasoline and gasoline-alcohol blended engines. [10]

OR

5. Define DEE and explain their properties, performance characteristics with their merits and demerits. [10]

6. Explain the performance and emission characteristics of CNG using LPG in SI engine. [10]

OR

7. Discuss the aspects of hydrogen storage and handling. Also, list out the safety aspects in hydrogen usage as a fuel in an engine. [10]

8. Describe trans-esterification process of manufacturing biodiesel. [10]

OR

9. What are the properties of bio-fuels and discuss about their importance in the context of IC Engines? [10]

10. Draw schematic layout of solar powered auto vehicle and write its advantages. [10]

OR

11. Describe important components of hybrid vehicle. List out the merits and limitations. [10]

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