

Exam Date & Time: 17-Jan-2024 (02:30 PM - 05:30 PM)



MANIPAL ACADEMY OF HIGHER EDUCATION

DEPARTMENT OF MECHANICAL AND INDUSTRIAL ENGINEERING END SEMESTER MAKEUP
EXAMINATION- JAN 2024 VII SEMESTER B.TECH. - 2018 CURRICULUM COURSE NAME:
INTRODUCTION TO ALTERNATE FUELS AND APPLICATIONS COURSE CODE: MME 4304

Introduction to Alternate Fuels and Applications [MME 4304]

Marks: 50

Duration: 180 mins.

Descriptive

Answer all the questions.

- 1A) Demonstrate the barriers for implementing vegetable oils in engines. (4)
- 1B) Interpret the role of renewable energy in economic status of a nation. (3)
- 1C) Demonstrate how alternate fuels are superior to conventional fuels. (3)
- 2A) Articulate the role of gaseous fuels in exhaust gas emission reduction in SI engines. (4)
- 2B) Demonstrate the benefits of blending of alternate liquid fuels in case of CI engines. (3)
- 2C) Compare the performance and emission characteristics of hydrogen operation with neat gasoline operation in SI engines. (3)
- 3A) Analyze the role of cetane improver on the performance and emissions of CI engines. (4)
- 3B) Demonstrate the role of auto ignition temperature of fuels in SI engine. (3)
- 3C) Use suitable techniques to use liquid alternate fuels in SI engines. (3)
- 4A) Demonstrate the importance of biogas from an Indian perspective. (4)
- 4B) Analyze the role of CNG as a fuel in SI engine. (3)
- 4C) Apply suitable technique to use hydrogen in CI engines. (3)
- 5A) Differentiate the working principle of series and parallel of hybrid vehicles. (4)
- 5B) Sketch and label the different layout of hybrid electric vehicles. (3)
- 5C) Illustrate the benefits of hydrogen in hybrid electric vehicles. (3)

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