

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) |

-----End-----