(b) Delay Period

(c) Knocking

(d) Ignition timing

(e) Carburation

(f) Twin-turbo

(g) Supercharging

(h) Brake horse power

(i) Morse test

(j) Biodiesel.

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Sep-21-00052

B. Tech. EXAMINATION, 2021

Semester IV (CBCS)

I.C. ENGINES (ME, AE)

ME-403

Time : 2 Hours *Maximum Marks : 60*

The candidates shall limit their answers precisely within 20 pages only (A4 size sheets/assignment sheets), no extra sheet allowed. The candidates should write only on one side of the page and the back side of the page should remain blank. Only blue ball pen is admissible.

Note : Attempt *Four* questions in all, selecting *one* question from any of the Sections A, B, C and D. Q. No. **9** is compulsory.

Section A

1. (a) With neat sketches explain the working principle of four-stroke SI engine. **7.5**

(b) Compare four-stroke and two-stroke cycle engines. Bring out clearly their relative merits and demerits. **7.5**

2. (a) Explain the phenomenon of pre-ignition ? How pre-ignition leads to detonation and vice versa. **7.5**

(b) Describe the phenomenon of knocking in CI engine. On what factors does detonation depend ? **7.5**

Section B

3. (a) What is carburetor ? Explain its basic types. **7.5**

(b) Describe a high-tension magneto ignition system with the help of a neat sketch. **7.5**

4. (a) Describe different types of injection nozzles and discuss their relative advantages and disadvantages. **7.5**

(b) What is Engine Control Unit (ECU) ? Explain its function in diesel engine. **7.5**

Section C

5. (a) Explain the different types of lubrication systems used for IC engines. **7.5**

(b) What is turbo-charging ? How is it achieved ? Which engine is more suitable for turbocharging : Spark Ignition or Compression Ignition ? **7.5**

6. (a) What is the difference between absorption and transmission dynamometer ? Describe one dynamometer with a neat sketch. **7.5**

(b) Explain the various methods of measuring indicated power. Briefly compare their relative accuracy. **7.5**

Section D

7. (a) What are the main constituents of exhaust emission from petrol engine ? **7.5**

(b) Explain the function and working of catalytic converter. **7.5**

8. (a) State and explain the properties of alcohol-petrol blend fuels. **7.5**

(b) List the problems encountered in the use of vegetable oils in diesel engines because of the difference in their properties. Also, suggest the modification required to overcome these problems. **7.5**

(Compulsory Question)

9. Explain the following terms briefly : **1.5×10=15**

(a) Scavenging