Total No. of Questions :8] *[Total No. of Printed Pages :2*

Roll No .....

MMTP-105

M.E./M.Tech., I Semester

Examination, December 2016

IC Engines and Alternate Fuels

Time : Three Hours

Maximum Marks : 70

Note : i) Attempt any five questions. All questions carry equal marks.

ii) Assume suitable data if any missing.

1. a) Discuss desirable properties of a good fuel of SI engine.
   b) What is Octane Number? How it is measured?

2. a) Discuss the different stages of combustion in SI engine.
   b) What are the advantages of MPFI system?

3. Following observations were recorded during a test on a single cylinder oil engine.
   Bore = 300mm
   Stroke = 450mm
   Speed = 300rpm
   imep = 6bar
   Net brake load = 1.5kN
   Brake drum dia. = 1.8m
   Calculate:
   i) Indicated power,
   ii) Brake power,
   iii) Mechanical efficiency.

4. a) What do you understand by Fichz power? Explain one method of measuring it in detail.
   b) Write a note on air pollution by engines.

5. a) What do you understand by dual fuel engine. State its advantages also.
   b) What is super charging? Why it is done?

6. What is a Rotary engine? Explain the working of a rotary engine with the help of neat diagram.

7. a) What is Ethanol? How it is used in IC engines?
   b) Discuss the advantages and disadvantages of using Ethanol or methanol as a substitute in IC engines.

8. Write short notes on (any two)
   a) Multi-fuel engine and its advantages.
   b) Variable compression ratio engines.
   c) Hydrogen as an alternative fuel.

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