R09

Code No: C2108

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
M.TECH I - SEMESTER EXAMINATIONS, APRIL/MAY-2012
ADVANCED I.C. ENGINES
(THERMAL ENGINEERING)

Time: 3hours **Max. Marks: 60**

Answer any five questions
All questions carry equal marks
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1.a) List out five important differences between the design and operating characteristics of spark – ignition and compression ignition engines.
b) Explain briefly the relative force diagram for a four stoke single cylinder engine with respect to crank angle.

2. Explain briefly the following
i) Road – load power
ii) Specific fuel consumption and efficiency
iii) Volumetric efficiency
iv) Engine specific weight.

3.a) Sketch and explain the stratified change engines.
b) Derive an expression for geometrical properties of reciprocating engine.

4.a) Derive an expression for thermodynamic relations for engine processes.
b) Explain briefly
i) Ideal gas Model
ii) Combustion Stoichometry.

5.a) Discuss briefly “Combustion charts”.
b) What is the difference between Real cycle and Fuel air cycle? Briefly explain the factors to minimize the losses.

6.a) Explain the three phases of C. I engine combustion with PO diagram.
b) What are the cold starting aids for C.I Engines? Explain.

7.a) Discuss control of emission from S.I. Engines.
b) Sketch and explain the working of adiabatic engines.

8. Write short notes on
a) Alternate fuel – Hydrogen
b) Factors affecting flame propagation in S.I Engines.
c) Computer Modeling
d) Poppet value geometry and timing

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