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**B.Tech. MECHANICAL ENGINEERING  
(BTMEVI)**

**Term-End Examination**

**December, 2013**

**BIME-010 : THERMAL ENGINEERING**

*Time : 3 Hours*

*Maximum Marks : 70*

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*Note: Attempt any seven questions. Assume missing data suitably, if any. Use of scientific calculator is permitted.*

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1. Explain the working principle of four stroke spark ignition engine with neat sketch. 10
2. Compare in detail SI engine and CI engine. 10
3. From point of view of fuel air cycle analysis how does fuel air ratio affect efficiency and maximum power ? 10
4. Explain the rating of SI and CI engine fuels. 10
5. With a neat sketch explain the working principle of simple carburetor. 10
6. Explain Transistorized Coil Ignition (TCI) system with neat sketch. 10
7. What is meant by abnormal combustion? Explain the phenomena of knock in SI engines. 10

8. A four cylinder engine running at 1200 rpm delivers 20 kW. The average torque when one cylinder was cut is 110Nm. Find the indicated thermal efficiency if calorific value of fuel is 43 MJ/kg and engine uses 360 g/kW hr. 10
9. Derive the expression for optimum intermediate pressure for perfect Intercooling in Reciprocating air compressor. 10
10. Write short notes of the following : 5x2=10
- (a) Effect of clearance in Reciprocating air compressor
  - (b) Retardation test
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