

**GUJARAT TECHNOLOGICAL UNIVERSITY****PDDC-Semester –V (May-2012) Examination****Subject code: X51904****Subject Name: Internal combustion engines****Date: 17/05/2012****Time: 10.30 am – 01.00 pm****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1** (a) Explain valve timing diagram of four stroke diesel engine. **07**  
(b) Explain difference between actual cycle and fuel air cycle for SI and CI Engines. **07**
- Q.2** (a) An air standard Otto cycle is required to operate between the temperature limits of 300K and 1800K. Estimate the optimum compression ratio and the corresponding thermal efficiency. **07**  
(b) Explain desirable properties of I. C. Engine fuels. **07**
- OR**
- (b) Explain working of simple carburetor with neat sketch. **07**
- Q.3** (a) Explain various types of spray nozzles with neat sketches. **07**  
(b) Enlist various methods for supercharging and explain any one of them with neat sketch. **07**
- OR**
- Q.3** (a) Explain factors affecting detonation. **07**  
(b) Write short note on combustion chambers for S. I. Engines. **07**
- Q.4** (a) Explain testing of I. C. Engines as per Indian Standard 10001. **07**  
(b) Explain effect of different pollutants on human and plant life. **07**
- OR**
- Q.4** (a) Explain working principle of variable compression ratio engines. **07**  
(b) Explain with neat sketch stages in combustion of C. I. Engine. **07**
- Q.5** (a) Enlist alternative fuels for I.C. Engine and explain any one of them in details. **07**  
(b) Explain battery ignition system with neat sketch. **07**
- OR**
- Q.5** (a) Explain need of engine governing. Explain in detail hit and miss governing system. **07**  
(b) Explain supercharging limits for S.I. Engines. **07**

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