

GUJARAT TECHNOLOGICAL UNIVERSITY**PDDC SEM-V Examination-Nov-2011****Subject code: X51904****Date: 26/11/2011****Subject Name: Internal Combustion Engines****Time: 2.30 pm -5.00 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) Compare air cycle and actual cycle of S.I engines. **07**
(b) Explain working of 4-stroke SI engine on valve timing diagram. **07**

- Q.2** (a) What are the important properties of fuel for IC engine? **07**
(b) Find the percentage change in efficiency of an Otto cycle, compression ratio of 8, if the specific heat at constant volume increases by 2%. **07**

OR

- (b) Discuss the advantages and disadvantages of hydrogen as IC engine fuel. **07**

- Q.3** (a) Describe the following system of carburetor with suitable sketches. **07**
1- idling system
2- choke
(b) What are the functional requirements of an injection system? **07**

OR

- Q.3** (a) Why nozzles are required? Explain different types of nozzles with suitable sketch. **07**
(b) Explain MPFI system. **07**

- Q.4** (a) List out the various component of battery ignition system and explain in brief. **07**
(b) What is the effect of supercharging on performance of the engine? **07**

OR

- Q.4** (a) What are the factors affecting flame speed? Discuss. **07**
(b) Explain different phases of CI engine combustion. **07**

- Q.5** (a) What is Forced cooling system? State its advantages. **07**
(b) Explain emission from SI engine. What are its controlling methods? **07**

OR

- Q.5** (a) Calculate the diameter and stroke length of, 4 cylinder, 2 stroke cycle petrol engine. The engine develops 30 kW at 2500 rpm. The mean effective pressure on each piston is 8 bar and mechanical efficiency is 80%. Take cylinder stroke to bore ratio 1.5. **07**
(b) Describe different methods to measure friction power of IC engine. **07**
