

GUJARAT TECHNOLOGICAL UNIVERSITY
PDDC - SEMESTER – V • EXAMINATION – WINTER 2012

Subject code: X 51904**Date: 21/01/2013****Subject Name: Internal Combustion Engine****Time: 02.30 pm - 05.00 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) What do you mean by air standard cycle? List assumption for air standard cycle. Compare air standard and actual cycle for S I. engines. **07**
(b) Explain working of a 4 stroke C.I. Engine on the Valve timing diagram. **07**

- Q.2** (a) Discuss advantages and disadvantages of CNG as a IC engine fuel. **07**
(b) Find the percentage change in efficiency of an Otto cycle having compression ratio of 10, if the Specific heat at constant volume decreases by 2 %. **07**

OR

- (b) What are desirable properties of I.C Engine Fuels? **07**

- Q.3** (a) Describe a simple carburetor with sketch and explain the function of choke, venturi and throttle valve. **07**
(b) Why Nozzles are required? Discuss types of nozzles with diagrams. **07**

OR

- Q.3** (a) With a neat sketch explain Working and constructional detail of a Bosch fuel injection pump. **07**
(b) Explain MPFI system with a neat diagram. **07**

- Q.4** (a) What is ignition timing? Discuss various factors affecting ignition timing requirements. **07**
(b) List out various component of Battery ignition system and explain in brief. **07**

OR

- Q.4** (a) What is the effect of supercharging on performance of the engine? **07**
Q.4 (b) What do you understand by Knocking in S.I engine? Explain factors affecting knocking and methods to control Knocking. **07**

- Q.5** (a) What are basic requirement of a good CI engine combustion chamber. Discuss different types of combustion chambers for CI engine. **07**
(b) Explain emission of I.C engines and steps to control them. **07**

OR

- Q.5** (a) Explain Wankle engine with a sketch. **07**
(b) Describe methods to measure Indicated power of I.C Engine. **07**
