

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY

PDDC - SEMESTER-V • EXAMINATION – WINTER • 2014

Subject Code: X 51904

Date: 06-12-2014

Subject Name: Internal Combustion Engines

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) Draw and explain Valve timing diagram with P vs V plot of two stroke petrol engine. **07**

(b) Give complete classification of IC Engines with suitable diagrams. **07**

Q.2 (a) What do you mean by air standard cycle? List assumptions for air standard cycle and list causes of departure of actual diesel cycle from ideal. **07**

(b) Derive the equation showing the effect of variable specific heat on efficiency of diesel cycle. **07**

OR

(b) In an air standard Diesel cycle, the compression ratio is 13 and the fuel is cut-off at 8% of the stroke. Calculate the % change in efficiency if the specific heat at constant volume increases by 2%. Assuming $\gamma = 1.4$ constant for air. **07**

Q.3 (a) Explain phenomenon of Knocking in SI Engine. Write its effects and methods to prevent it. **07**

(b) Enlist methods for measurement of fuel consumption in testing of IC Engine. Explain any one of them. **07**

OR

Q.3 (a) Give complete classification of SI engine Combustion chamber with schematic diagram of each type. **07**

(b) Enlist methods to find frictional power of IC Engine. Explain any one of them. **07**

Q.4 (a) Explain mixture requirement for different working condition of SI Engine with suitable diagrams. **07**

(b) Enlist types of Fuel injection nozzles for CI Engine. Explain each type with schematic diagram and their spray characteristics. **07**

OR

Q.4 (a) Explain Battery ignition system for SI engine with schematic diagram. **07**

(b) Enlist types of governing methods for I C Engines. Explain each method with suitable diagram. **07**

Q.5 (a) Write brief note on variable compression Engine. **07**

(b) What is scavenging? Explain methods for scavenging in two stroke engine with suitable diagram. **07**

OR

Q.5 (a) Write short note on Pollutants from CI Engine and its effects on environment. **07**

(b) Describe with sketches the different methods of supercharging. **07**
