

**GUJARAT TECHNOLOGICAL UNIVERSITY****BE - SEMESTER-VI • EXAMINATION – SUMMER • 2014****Subject Code: 161902****Date: 21-05-2014****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)** Explain the stages of Combustion in the S.I. Engine with the help of a P-  $\theta$  Diagram. **07**

**(b)** What do you understand by knock in S.I. Engines? Explain this phenomenon? **07**  
How does the knock in S.I. Engines differ from the knock in C.I. Engines?

**Q.2 (a)** What are the basic requirements of a good combustion chamber? How can these be achieved? **07**

**(b)** Explain the following terms related to surface ignition **07**  
(I)Pre-ignition  
(II)Run-on  
(III)Run-away  
(IV)Wild ping  
(V)Rumble

**OR**

**(b)** What do you mean by valve timing diagrams? Explain valve lead, valve lag valve overlap period. **07**

**Q.3 (a)** What are the criteria for the selection of I.C.Engine fuels? **07**

**(b)** What are the advantages and disadvantages of using gaseous fuels in I.C.Engines. **07**

**OR**

**Q.3 (a)** What is the function of a carburetor? What is carburetion? **07**

**(b)** Explain The construction and operation of a simple carburetor with the help of a diagram. **07**

**Q.4 (a)** What are the main components required in a fuel injection system? **07**

**(b)** Describe the construction of a jerk pump type fuel injection pump. **07**

**OR**

**Q.4 (a)** Describe the construction and working of a fuel injector nozzle with the help of a diagram. **07**

**(b)** Describe the working principle of an electronically controlled fuel injection system. **07**

**Q.5 (a)** Describe the simple mechanical governor used for C.I. Engines. **07**

**(b)** Define super charging of an I.C. Engine. What are its objectives? **07**

**OR**

**Q.5 (a)** Explain the importance of engine testing. **07**

**(b)** What are the major pollutants from the exhaust of gasoline & diesel engines? **07**  
What are the detrimental effects of these pollutants?

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