

GUJARAT TECHNOLOGICAL UNIVERSITY
M. E. - SEMESTER – I • EXAMINATION – SUMMER • 2014

Subject code: 711108**Date: 24-06-2014****Subject Name: Combustion Engineering****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 mark.

- Q.1** (a) What is ignition lag? Discuss the effect of engine variables on ignition lag. **07**
(b) Discuss the effect of following engine variables on flame propagation: **07**
(i) Compression ratio
(ii) Turbulence
(iii) Engine speed

- Q.2** (a) Describe the phenomenon of detonation in S.I. engines. **07**
(b) Discuss the general principles of S.I. engine combustion chamber design. **07**

OR

- (b) Explain: (i) Preignition (ii) Run away (iii) Wild ping. **07**

- Q.3** (a) Discuss pollution due to combustion of coal in power plants. **07**
(b) Explain M-combustion chamber with neat sketch. **07**

OR

- Q.3** (a) Discuss the method for determination of theoretical air required for complete combustion of coal. **07**
(b) Discuss various methods used in combustion of pulverized coal. **07**

- Q.4** (a) Explain the phenomenon of diesel knock. **07**
(b) Discuss the advantages and disadvantages of induction swirl. **07**

OR

- Q.4** (a) Discuss the variables affecting fuel atomization and penetration. **07**
Q.4 (b) Explain effect of compression ratio on thermal efficiency and specific fuel consumption. **07**

- Q.5** (a) Explain design considerations of coal burners. **07**
(b) Explain fluidized bed combustion. **07**

OR

- Q.5** (a) Explain with help of P-" diagram combustion in C.I. Engine. **07**
(b) Explain spray formation and characteristics. **07**
