Seat No.:	Enrolment No.

GUJARAT TECHNOLOGICAL UNIVERSITY M. E. - SEMESTER – I • EXAMINATION – WINTER • 2013

Subject code: 712104N Date: 06-01-2014 **Subject Name: Combustion Engineering** 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 different factors affecting Ignition Lag in S.I. Engines. 07 Write a short note on F - head type of combustion chamber. 07 Explain the stages of combustion in C.I. Engines. 07 0.2 (a) Write a short note on Open - combustion chambers. **07** Explain the different methods of generating Air swirl in C.I. Engines. **07 Q.3** Explain the various theories of Knocking. 07 (a) **(b)** Write a brief note on various parameters affecting Knock in S.I. Engines. **07** OR **Q.3** Compare Knocking phenomenon in S.I. and C.I. Engines. 07 (a) **(b)** Explain the different factors to be considered in the design of combustion **07** chambers for C.I. Engines. Write a brief note on Combustion Stoichiometry. 07 **Q.4** (b) Calculate the air-fuel ratio on both molar and mass basis for a hydrocarbon fuel 07 (C₁₂H₂₆) with (1) Theoretical amount of air and (2) 160% of Theoretical air. OR **Q.4** (a) Write a brief note on Droplet Combustion. 07 **(b)** Explain the types of Elementary reactions. 07 (a) Discuss Fluidized Bed Combustion systems. Q.5 **07 (b)** Write a short note on Chain Reactions. 07 OR **Q.5** Explain the various types of Burners for combustion of Pulverized coal. **07** (a) **(b)** Write a brief note on Pollution due to combustion of solid fuels. 07
