Seat No.: Enrolment No. GUJARAT TECHNOLOGICAL UNIVERSITY M. E. - SEMESTER - II • EXAMINATION - SUMMER • 2014 Subject code: 1721105 Date: 23-06-2014 **Subject Name: High Speed Diesel Engine** Time: 02:30 pm - 05:00 pm **Total Marks: 70** 

## **Instructions:**

(b)

1. Attempt all questions.

2. Make suitable assumptions wherever necessary.

3. Figures to the right indicate full marks. **Q.1** 07 (a) Why actual cycle efficiency is much lower than air standard efficiency? What is delay period? State and explain the factors affecting the delay period (b) 07 in CI engine combustion. **Q.2** State and explain different types of open combustion chambers for CI engine. **07** (a) Discuss Induction swirl, compression swirl and combustion swirl. (b) 07 Explain Air-cell combustion chamber with fig. Give its merits and demerits. **07** (b) Q.3 (a) Explain the phenomenon of spray formation in HSDE. **07 (b)** State and explain various types of nozzles used in HSDE with fig. 07 OR Explain quantity of fuel injected and size of nozzle orifice in HSDE. Q.3 07 (a) **(b)** Explain distributor type fuel-injection pump with fig. **07 Q.4** 07 (a) Explain necessity and limitations of supercharging in HSDE. Explain various methods of turbo charging. **(b)** 07 **Q.4** (a) What is pilot injection? Discuss its suitability for various engines. 07 Explain special features of agricultural and industrial engines. **07 (b) Q.5** (a) Write short note on multi fuel engines. 07 Explain the process of piston cooling in HSDE 07 (b) OR **Q.5** Write short note on latest combustion chambers. **07** (a)

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Explain common rail direct injection technique used in HSDE.

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