

GUJARAT TECHNOLOGICAL UNIVERSITY**M. E. - SEMESTER – II • EXAMINATION – SUMMER • 2013****Subject code: 1721105****Date: 05-06-2013****Subject Name: High Speed Diesel Engine****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 various stages of combustion in Diesel engine with fig. 07
(b) Explain Common Rail Direct Injection technique with fig. 07
- Q.2** (a) State and explain the functions of injection nozzles. Give its various types. 07
(b) Calculate for 4-cylinder, four stroke Diesel engine, the quantity of fuel to be injected per cylinder per cycle if the engine consumes 0.3 kg/kWh. The power developed by the engine is 375 kW at a speed of 200 rpm. Take sp. Gravity of fuel as 0.9. 07
- OR**
- (b) Make comparison between direct and indirect combustion chambers. Explain Pre-combustion chamber in short. 07
- Q.3** (a) Define delay period. Explain the effect of various operating variables on it for diesel engine. 07
(b) Write short note on M combustion chamber. 07
- OR**
- Q.3** (a) State and explain the difference between actual and theoretical diesel cycle with fig. 07
(b) Explain distributor pump in detail. 07
- Q.4** (a) Discuss induction swirl, compression swirl and combustion swirl. 07
(b) Explain phases of spray formation in diesel engine. 07
- OR**
- Q.4** (a) Explain special features of agricultural and industrial engine. 07
(b) Write short note on turbo charging methods. 07
- Q.5** (a) Write short note on multi fuel engines 07
(b) Explain different criteria for turbo charger selection. Give various types of turbo chargers. 07
- OR**
- Q.5** (a) Explain latest developments of combustion chambers 07
(b) Explain necessity and limitations of turbo charging of diesel engine. 07
