

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY
ME Semester –III Examination Dec. – 2011

Subject code: 732101

Date: 08/12/2011

Subject Name: Advanced Internal Combustion 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) Write note on supercharged and turbocharged engine with configurations. **07**
- (b) A 6 cylinder , four stroke , 10 cm. X 12.50 cm. stroke diesel engine developed 50 kw at 1000 rpm. The various efficiencies are mechanical 76 %, Volumetric 80% under room condition, indicated relative 88%, theoretical thermal 52%. The lower calorific value of the liquid fuel is 45000 kj/kg. Compute (i) BMEP, (ii) A/F, (iii) BSFC.. Assume air density as 1.2 kg/m³ under room condition. **07**
- Q.2** (a) Differentiate CNG and LPG to use as a substitute fuel for S.I. engine. **07**
- (b) What is the future of biodiesel as substitute fuel for C.I. engine ? **07**
- OR**
- (b) What are the advantages and disadvantages of producer gas if used as a substitute fuel ? **07**
- Q.3** (a) Describe stages of combustion in S.I. engine with the help of diagram. **07**
- (b) What are the factors affecting of detonation in C.I. engine ? **07**
- OR**
- Q.3** (a) Explain abnormal combustion and knocking phenomenon in S.I. engines **07**
- (b) Explain the combustion stages of C.I. engine **07**
- Q.4** (a) Describe briefly the MPFI system with a neat sketch. **07**
- (b) What are the different material uses for different component of engine? **07**
- OR**
- Q.4** (a) Write short note on recent development accrue in I.C. engine. **07**
- (b) Write short note on Morden hybrid vehicle. **07**
- Q.5** (a) Discuss the effects of CO, HC, NO_x and smoke emission of human and biological life. **07**
- (b) What do you understand by catalytic converter? **07**
- OR**
- Q.5** (a) Compare the emission of CI and SI engine **07**
- (b) How the air pollution is reduced in case of IC engine? **07**
