

GUJARAT TECHNOLOGICAL UNIVERSITY**M. E. - SEMESTER – II • EXAMINATION – WINTER • 2013****Subject code: 1721101****Date: 24-12-2013****Subject Name: Instrumentation and Vehicle Testing****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 selection and basic requirements of measurement instruments. **07**
(b) Explain different types of measurement errors produced while measuring different parameters of an IC engine. **07**

- Q.2** (a) Enlist different types of vibrometers and explain use of any one vibrometer with neat sketch to measure engine vibration. **07**
(b) Explain FFT analyzer. **07**

OR

- (b) Enlist different types of Stroboscopes. Explain the use of stroboscopes and working principle of each one. **07**

- Q.3** (a) Explain the application of piezoelectric pressure transducer for measurement of P- θ diagram in an IC engine with neat sketch. **07**
(b) Enlist different types of automobile horns. Explain working of each of them. **07**

OR

- Q.3** (a) Explain operation and application of Air bag used in auto vehicle. **07**
(b) Explain working of warning systems used in auto vehicle. **07**

- Q.4** (a) What is Data acquisition system in automobile? Explain with suitable example. **07**
(b) What is the function of charge amplifiers? Explain construction and working of cathode ray oscillographs. **07**

OR

- Q.4** (a) Explain testing procedure of an CI engine as per IS standards. **07**
Q.4 (b) What is chassis dynamometer? Explain testing of an auto vehicle using chassis dynamometer. **07**

- Q.5** (a) What is road test of an auto vehicle? Explain necessity and testing methods of road test of an automobile. **07**
(b) Why wheel alignment of an vehicle is required? Explain procedure of an two wheel alignment using wheel aligner. **07**

OR

- Q.5** (a) Explain EURO and BS standards for an auto vehicle. **07**
(b) Explain procedure PUC testing of vehicle. Why is PUC testing is required? **07**
