

GUJARAT TECHNOLOGICAL UNIVERSITY**M. E. IST Semester–Remedial Examination – July- 2011****Subject code: 711102****Subject Name: Fundamentals of I.C. Engine and Automobile****Date: 08/07/2011****Time: 10:30 am – 01:00 pm****Total Marks: 60****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1** (a) Write comparison of actual cycle and air fuel cycle **06**
 (b) Explain with a neat sketch the valve timing diagram for 4 -stroke petrol engine **06**

- Q.2** (a) Explain with a neat sketch the scavenging process in 2-stroke engine **06**
 (b) Explain use of combustion charts for cycle analysis **06**

OR

- (b) For actual cycle explain **06**
 1) Exhaust Blow-down loss
 2) Pumping loss

- Q.3** (a) Write design procedure to determine the dimensions of cross-section of the connecting rod. **06**
 (b) Explain selection of material for piston and write design procedure to design piston head **06**

OR

- Q.3** (a) Draw neat sketch of arrangement for steering linkage. Explain briefly with a neat sketch the worm and worm-wheel type steering gear **07**
 (b) Explain briefly the working of telescopic type hydraulic shock absorber **05**

- Q.4** (a) Explain working of stratified charge engine **08**
 (b) What is the effect of percentage change in the efficiency of otto cycle having a compression ratio of 7, if the specific heat at constant volume is increased by 1% **04**

OR

- Q.4** (a) Explain with a neat sketch the working of constant mesh gearbox **06**
 (b) Draw typical layout of an electrical system of an automobile and explain it briefly **06**

- Q.5** (a) Explain briefly the mixture requirements for steady state operation in S.I. Engine **06**
 (b) Explain with a neat sketch the compensating jet device used in carburettor **06**

OR

- Q.5** (a) Draw a schematic diagram of helix bypass type Bosch fuel pump and explain its working **08**
 (b) Explain the concept of multipoint fuel injection system **04**
