

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY

M.E Sem-I Remedial Examination January/ February 2011

Subject code: 711102

Subject Name: Fundamentals of I.C. Engine and Automobile

Date: 01 /02 /2011

Time: 02.30 pm – 05.00 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) Explain mixture requirements in S.I engine. **06**
(b) Explain scavenging in two stroke engine. **06**
- Q.2** (a) Explain with a neat sketch the valve timing diagram for 4 – stroke diesel engine. **06**
(b) Explain working of air-fuel cycle. **06**
- OR**
- (b) Explain Air capacity of four stroke engine. **06**
- Q.3** (a) Explain selection of material and design procedure for crankshaft. **06**
(b) A single cylinder, single acting, four stroke oil engine develops 20 kw at 300 r.p.m. The work done by the gases during the expansion strokes 2.3 times the work done on the gases during the compression and the work done during the suction and exhaust stroke is negligible. The speed is to be maintained within $\pm 1\%$. Determine the mass moment of inertia of the flywheel. **06**
- OR**
- Q.3** (a) Explain with a neat sketch the working of multiplate clutch. **06**
(b) Explain with a neat sketch the construction of an automobile tyre. **06**
- Q.4** (a) Explain working of low heat rejection engine. **06**
(b) An ideal diesel engine has a diameter of 15 cm and stroke 20 cm. The clearance volume is 10 per cent of the swept volume. Determine the compression ratio and the air standard efficiency of the engine if the cut-off takes place at 6 per cent of the stroke. **06**
- OR**
- Q.4** (a) Explain with a neat sketch the working of synchromesh gearbox. **06**
(b) Explain electronic ignition system. **06**
- Q.5** (a) What additional systems are necessary in a complete carburettor ? Why? **06**
(b) Explain the multipoint fuel injection system. **06**
- OR**
- Q.5** (a) Explain working of a jerk pump fuel injection system. **06**
(b) Explain working of fuel injector. **06**
