

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY
BE SEM-V Examination-Nov/Dec.-2011

Subject code: 151802

Subject Name: Thermodynamics-I

Date: 24/11/2011

Time: 2.30 pm -5.00 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) Describe the working of a Carnot cycle **07**
(b) What do you mean by “clausius inequality”? **07**

- Q.2** (a) Explain in brief thermodynamics temperature scale. **07**
(b) Explain compound steam engine **07**

OR

- (b) Explain governing of steam engine. **07**

- Q.3** (a) Explain hypothetical indicator diagram **07**
(b) Give the Kelvin-planck statements of second law of thermodynamics **07**

OR

- Q.3** (a) Derive an expression for the efficiency of a reversible heat engine **07**
(b) What do you mean by enthalpy-entropy diagram? Explain. **07**

- Q.4** (a) Explain working of evaporators in boiler. **07**
(b) Explain boiler thermal efficiency **07**

OR

- Q.4** (a) Mention the advantages and disadvantages of multistage compressor. **07**
(b) Develop expression for work done to compress one kg of air for single stage air compressor. **07**

- Q.5** (a) With a neat sketch the working of a steam engine. **07**
(b) Explain with p-v diagram. The working of a two stage compressor **07**

OR

- Q.5** (a) Explain volumetric and gravimetric analysis of gas mixture **07**
(b) Explain dual combustion cycle. **07**
