

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE- Vth SEMESTER-EXAMINATION – MAY/JUNE - 2012

Subject code: 151802

Date: 02/06/2012

Subject Name: THERMODYNAMICS-1

Time: 02:30 pm – 05:00 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) With diagram describe Heat engine and Heat pump. **07**
(b) Explain Kelvin Plank statement and Clasius statement **07**

- Q.2** (a) Explain dual cycle with P-V & T-S diagram. **07**
(b) Describe condition for minimum work per kg of Air Delivered by two stage compressor with inter cooler **07**

OR

- (b) Explain Rankine cycle with P-V & T-S diagram. **07**

- Q.3** (a) Derive the Efficiency equation of 'Carnot Cycle' with all diagrams. **07**
(b) Describe direct contact Regenerative cycle with all circuits and diagrams. **07**

OR

- Q.3** (a) For compressor describe the term **07**
1. Volumetric Efficiency.
2. FAD(Free Air Delivery)

- (b) Explain 'Reheat cycle' with diagram and sketch. **07**

- Q.4** (a) Explain Multi effect & Flash type Evaporators with neat sketch. **07**
(b) Describe in detail **07**
1. Hypothetical indicator diagram.
2. The actual indicator diagram.

OR

- Q.4** (a) "Constant volume cycle"-describe. **07**
(b) Explain work done for single stage compressor. **07**
1. Without clearance.
2. With clearance

- Q.5** (a) "Diesel cycle"-describe with all diagram. **07**
(b) Explain 'Thermodynamic Temperature Scale' with diagram. **07**

OR

- Q.5** (a) Explain with sketch **07**
1. Root Blower
2. Vane-type compressor.
(b) Explain in detail for steam engine. **07**
1. Work Done.
2. Mean effective pressure
