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 1. Volumetric Efficiency. 2. FAD(Free Air Delivery)	**07**
	(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 1. Hypothetical indicator diagram. 2. The actual indicator diagram.	**07**
		OR	
Q.4	**(a)**	"Constant volume cycle"-describe.	**07**
	(b)	Explain work done for single stage compressor. 1. Without clearance. 2. With clearance	**07**
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 1. Root Blower 2. Vane-type compressor.	**07**
	(b)	Explain in detail for steam engine. 1. Work Done. 2. Mean effective pressure	**07**

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