Seat No.: _____ *Enrolment No._____*

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–VII • EXAMINATION – WINTER • 2014

Subject Code: 171304 **Date: 29-11-2014**

Subject Name: Cleaner Production and Waste Utilization

Time: 10:30 am - 01:00 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)**	What is CP? Discuss CP concept in Detail.	**07**
	(b)	How CP benefits to the Industry?	**07**
Q.2	**(a)**	Discuss CP Tools	**07**
	(b)	Write brief note on "Difficulty in assessing the Cleaner Technology".	**07**
		OR	
	(b)	Enlist the CP options for Chemical Industry & Pharmaceutical Industry.	**07**
Q.3	**(a)**	Write a short note on Good House Keeping.	**07**
	(b)	How to motivate the industries for Cleaner Production? Discuss in detail.	**07**
		OR	
Q.3	**(a)**	Enlist the CP options for Dyes & Dyes intermediate & Dairy Industry.	**07**
	(b)	Explain Six Step Methodology in CP.	**07**
Q.4	**(a)**	How waste heat utilization is useful for the Industry?	**07**
	(b)	Types of Heat recovery system with neat sketch.	**07**
		OR	
Q.4	**(a)**	Describe heat recovery boiler with one stack without fan. (with neat sketch)	**07**
	(b)	What is LMTD? Draw the temperature profile for counter and parallel flow.	**07**
Q.5	**(a)**	Describe heat recovery boiler with Two stack without fan. (with neat sketch)	**07**
	(b)	Differentiate between direct and indirect heat recovery system.	**07**
		OR	
Q.5	**(a)**	Describe heat recovery boiler with Two stack with fan. (with neat sketch)	**07**
	(b)	Explain Shell and Tube Heat exchanger with neat sketch.	**07**

****