

**GUJARAT TECHNOLOGICAL UNIVERSITY****BE - SEMESTER-VII • EXAMINATION – SUMMER • 2014****Subject Code: 171304****Date: 31-05-2014****Subject Name: Cleaner Production and Waste Utilization****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) Enlist benefits of Good Housekeeping. **07**  
(b) With special reference to dairy industry, cite the areas where Cleaner Production (CP) tools are useful. **07**
- Q.2** (a) Enumerate the benefits of cleaner production. **07**  
(b) Can we consider the following techniques, (i) waste treatment and (ii) diluting constituents to reduce hazard or toxicity, as CP option? – Justify your answer. **07**
- OR**
- (b) Write a short note: CP methodology **07**
- Q.3** (a) Explain in detail: Barriers to cleaner production **07**  
(b) Enlist the objectives of Energy Audit. **07**
- OR**
- Q.3** (a) Write a short note: Waste Heat Recovery **07**  
(b) Discuss barriers to Energy Conservation. **07**
- Q.4** (a) Enlist various CP tools and Explain any two in detail. **07**  
(b) With the help of a neat sketch explain Shell and Tube Heat Exchanger. **07**
- OR**
- Q.4** (a) What is LMTD? Give expression for finding LMTD for parallel and counter current flow. **07**  
(b) Write a short note: Recycling of Solid Industrial Waste. **07**
- Q.5** (a) Write a short note: Recycling and Reuse of Liquid Industrial Waste **07**  
(b) Explain in detail Energy Audit Methodology. **07**
- OR**
- Q.5** (a) Write a short note: Methods of Good Housekeeping **07**  
(b) Define and explain in brief the concept of Recycling and Reuse. **07**

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