

**GUJARAT TECHNOLOGICAL UNIVERSITY****BE - SEMESTER-VII(NEW) EXAMINATION – SUMMER 2019****Subject Code: 2171304****Date: 16/05/2019****Subject Name: Cleaner Production & Waste Utilization****Time: 02:30 PM TO 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) Define Good Housekeeping. **03**  
(b) Differentiate between CP and END-OF-PIPE approach. **04**  
(c) Explain six step methodology of CP. **07**
- Q.2** (a) Define Cleaner Production. **03**  
(b) Enlist the benefits of CP. **04**  
(c) Assess various CP Tools in regards to barriers in its implementation. **07**
- OR**
- (c) “Good Housekeeping is a must step for CP”, Justify. **07**
- Q.3** (a) Define LMTD. **03**  
(b) Illustrate CP Hierarchy. **04**  
(c) Discuss Shell & Tube Heat Exchanger with neat sketch. **07**
- OR**
- Q.3** (a) Enlist types of Heat Exchanger. **03**  
(b) Give one example of each Material & Energy balance. **04**  
(c) Explain with neat sketch Waste heat recovery system. **07**
- Q.4** (a) Define Sustainable Cleaner Production. **03**  
(b) Give one example of each recycling and reuse of solid Industrial waste. **04**  
(c) Describe one case study of implementation of CP. **07**
- OR**
- Q.4** (a) Define Walk-through Energy audit. **03**  
(b) Argue which step in CP is most important. **04**  
(c) Describe methods & techniques for financial analysis of CP. **07**
- Q.5** (a) Write down Concept of CP. **03**  
(b) Discuss the concept of 3Rs in brief. **04**  
(c) Explain with neat sketch plate and frame type heat exchanger. **07**
- OR**
- Q.5** (a) Enlist members to be included in CP team for Sugar Industry. **03**  
(b) Categorize checklist for Good Housekeeping. **04**  
(c) Compare Walk-through Energy audit & Detailed Energy audit. **07**

\*\*\*\*\*