

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VII • EXAMINATION – SUMMER 2013****Subject Code: 170503****Date: 28-05-2013****Subject Name: Plant Design and Project Engineering****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) Discuss design information from literature. **07**
(b) Considering the factors in planning layouts, draw a typical master plot plan of an industry. Justify the same. **07**
- Q.2** (a) State the preliminary specifications for equipments. Prepare the specification sheet for a heat exchanger. **07**
(b) Discuss selection of size reduction equipment. **07**
- OR**
- (b) Discuss selection of material handling equipment. **07**
- Q.3** (a) What is a pilot plant? Explain semi-commercial and commercial evolutionary stages in a pilot plant. **07**
(b) Explain unit area concept and scale models. Discuss principles of Plant layout. **07**
- OR**
- Q.3** (a) Discuss checklist to be considered in pilot plant investigation. **07**
(b) List types of flow diagrams. Discuss all in detail. **07**
- Q.4** (a) Write short note on Profitability analysis. **07**
(b) What is payout period? Explain how will you compute payout period in years, with and without interest charge. **07**
- OR**
- Q.4** (a) What is capital investment? List all methods for fixed capital cost estimates. Discuss any two in detail. **07**
(b) Explain the term 'replacement' and discuss methods of profitability evaluation for the same. **07**
- Q.5** (a) Discuss cost indices in chemical engineering cost estimation. Explain how will you use the index method **07**
(b) Explain the six-tenths factor method for approximating the cost of equipment of different size or capacity when one entity is known. **07**
- OR**
- Q.5** (a) Define depreciation. List methods of determining depreciation. Discuss any two in detail. **07**
(b) Write short note on CPM and PERT. **07**
