

GUJARAT TECHNOLOGICAL UNIVERSITY**BE- VIIth SEMESTER-EXAMINATION – MAY/JUNE- 2012****Subject code: 170503****Date: 09/06/2012****Subject Name: Plant design & 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 significance of plant layout. Enlist factors in planning plant layout. **07**
(b) Explain with Tree diagram showing cash flow for an industrial process. **07**

- Q.2** (a) Distinguish between standard and special equipment **07**
(b) Discuss principles for piping design, layout and supports. **07**

OR

- (b) Write briefly about importance of utilities in chemical industry. **07**

- Q.3** (a) Write about specification sheet of any important vessel used in chemical industry **07**
(b) What are flow diagrams? Discuss different flow diagrams used in process development **07**

OR

- Q.3** (a) Discuss various factors to be considered in location of a chemical plant **07**
(b) Explain Continuous V/s Batch processing **07**

- Q.4** (a) Write a brief note on 'Cost indices' **07**
(b) Enlist various methods of profitability analysis. Explain any one method in detail **07**

OR

- Q.4** (a) State methods of estimating capital investment. Discuss any one in detail. **07**
(b) Discuss in detail factors affecting Total product cost. **07**

- Q.5** (a) List methods used for determining depreciation. Explain any one method with formula and assumptions assumed. **07**
(b) The original value of a heat exchanger is Rs, 6.00 lacs. At the end of useful life of 10 years its salvage value is estimated to be Rs. 60,000. Determine the asset value of the heat exchanger at the end of 5 years using: **07**
i) Straight line method
ii) Text book declining-balance method

OR

- Q.5** (a) Discuss optimum production rate in plant operation and optimum condition in cyclic operation. **07**
(b) Discuss with example concept of 'Alternative investments and Replacement'. **07**
