Seat No.:	Enrolment No.

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-VII EXAMINATION - SUMMER 2016

Subject Code:170503 Date:10/05/2016 Subject Name: Plant Design & Project Engineering 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. Discuss significance of plant layout. Enlist factors in planning plant 07 **Q.1** (a) lavout. (b) Discuss Cost indices in brief. **07 Q.2** Write a brief note on 'Process utilities and process auxiliaries. (a) 07 **(b)** Write briefly on overhead v/s underground piping 07 (b) Discuss flow control valves with neat figure and its applications 07 Q.3 (a) Distinguish between standard and special equipment 07 Write in detail about selection of material of construction for process **(b) 07** equipment. OR **Q.3** (a) Write short note on "Scale up and pilot plant studies in chemical 07 industries" What are the various stages of process development of a chemical 07 plant? **Q.4** Discuss in detail about components of Total product cost 07 Discuss Break-even point and importance of break-even point with the help of 07 suitable diagram. OR (a) With neat diagram discuss cash flow for an industrial operation. **Q.4** 07 (b) State methods of estimating capital investment and discuss any one in **07** detail. What are various methods to determine the depreciation costs? Explain 0.5 (a) 07 briefly? 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. 50,000. Determine the asset value of the heat exchanger at the end of 6 years using: i) Straight line method ii) Sum of years digit method OR **Q.5** Discuss optimum production rate in plant operation and optimum 07 condition in cyclic operation. Enlist various method of Profitability analysis. Explain any one method in **07**

detail.