# A 1128

B.E./B.Tech. DEGREE EXAMINATION, MAY/JUNE 2007.

Seventh Semester

Chemical Engineering

CH 431 — PROCESS ECONOMICS AND INDUSTRIAL MANAGEMENT

(Common to Leather Technology/ Polymer Technology/ Textile Chemistry / Textile Technology)

Time : Three hours                                      Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Mention any two steps in planning process.

2. Define controlling.

3. Define economic batch quantity.

4. What are the allowances required for calculating standard time?

5. What are the causes for depreciation?

6. Define variable cost.

7. Define deflation.

8. What is break even sales?

9. What is the need for balance sheet?

10. Mention any two examples of unit operations with single variable.

PART B — (5 × 16 = 80 marks)

11. (a) Describe the various types of plans with an example?                (16)

Or

(b) (i) Explain the barriers and break downs in communication.        (10)

(ii) What are the guidelines required for improving communication? (6)

12. (a) Describe the concept of method study and work measures to techniques in detail. (16)

Or

(b) (i) Define scheduling. (2)

(ii) Consider a inventory system in which demand occurs at a constant rate of units/unit time. As soon as the inventory reaches a zero level, supply of '$d$' units ordered starts immediately and occurs at a constant rate of '$K$' unit/time ($k > d$). Thus in each cycle both supply and demand occur initially, while in the second part of the cycle there is only demand. No shortage occurs. The cost of holding inventory is $C_1$/unit/time and the cost of each order $C_2$.

    (1) Sketch for 2 cycles the variation of inventory time. (5)

    (2) Derive formula for economic order quantity $q$ (9)

13. (a) Describe the procedure of $\overline{X}$, $R$ and $\sigma$ chart with an example. (16)

Or

(b) (i) Define capital cost. (2)

(ii) The variable overhead charges for a product are Rs. 2 and the fixed overhead charged/month are Rs. 35,100. It is found that 65,000 products are manufactured/month under normal conditions :

    (1) find the normal overhead cost/product. (4)

    (2) if the production drops to 90%, determine the overhead charges that are uncovered. (5)

    (3) If the production is increased to 130% by what amount these changes will be over–recovered. (5)

14. (a) Explain the concepts of estimation of project profitability and sensitivity analysis with an example. (16)

Or

(b) Write short notes for the following :

    (i) Investment alternative. (6)

    (ii) Replacement policy. (5)

    (iii) Forecosting sales. (5)

15. (a) Explain the various types of financial ratios used in the process industry. (16)

Or

(b) (i) What is income statement? Give an example? (4)

(ii) Describe the basic steps followed for the computation of balance sheet? (12)

———————