B. Tech.
(SEM. IV) EXAMINATION, 2006-07

INDUSTRIAL ENGINEERING

Time : 3 Hours

[Total Marks : 100]

Note: Attempt all questions. Choice is given in each question. All questions carry equal marks.

1. Attempt any two parts: 10x2=20
   (a) Differentiate between production and productivity. Describe various methods to improve productivity.
   (b) Explain salient points of job shop, batch, and mass production system with suitable examples.
   (c) What is man-machine (multiple activity) chart? Discuss its importance in time and motion study.

2. Attempt any two parts: 10x2=20
   (a) What are the factors affecting plant location? Discuss the situations when one has to take plant location decision.
   (b) Discuss merits and demerits of process layout and product layout.
   (c) Discuss principle of material handling list and explain classification of material handling equipment.
3 Attempt any two parts: \[10 \times 2 = 20\]

(a) The fixed costs for the year 2004-05 for a manufacturing company are Rs.1,00,000/-. The estimated sales are Rs.3,00,000/-. The variable cost for a single product made is Rs.5.00. If each unit sells at Rs.30/-, construct Break-Even chart and
(i) Determine Break-Even Points, and
(ii) Find profit at a turn over of Rs.2,00,000.

(b) Replacing manual labour in a loading operation by automatic equipment will reduce net operating expenses by Rs.27,200/- in a year. The equipment costs Rs.1,00,000/- (Rupees one lakh) and the scrap value will just cover removal cost at the end of its 5 year life. Should the equipment be installed when the minimum acceptable rate of return on new investment is 10%.

(c) What are various types of maintenance? Explain them in brief.

4 Attempt any two parts: \[10 \times 2 = 20\]

(a) A company needs 2,000 units per month. Cost of placing an order is Rs.40/-. Inventory carrying cost is Rs.10/- of average inventory per year. Find economic order quantity and number of orders placed per year, if cost of an item is Rs.15/-

(b) Write short note on:
Supply chain management

(c) Describe operating characteristics (OC) curve and explain LTPD and AQL.

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Attempt any two parts: 10 × 2 = 20

(a) What is meant by joint stock company? Describe briefly procedure for forming joint stock company.

(b) Explain Urwick’s ten principles of organization.

(c) Describe the following methods of job evaluation:
   (i) Ranking method
   (ii) Job classification method.

(d) Mention the full form and write very briefly about PPC, JIT, SQC, TQM.