

COLLEGE OF ENGINEERING, PUNE
END SEMESTER EXAMINATION Dec 2012
Subject – (ME 412) Production and Operations Management
CLASS: B. TECH (Mechanical)

Date: 1st Dec 2012
 Time: 2 p.m. to 5 p. m.

Year: 2012-13
 Max. Marks: 50

Instructions:

- 1) Question No. 1 is compulsory; solve any three from the remaining.
- 2) Draw neat figures wherever required.
- 3) Use of calculator is permitted.
- 4) Assume suitable data if necessary.

- Q. No. 1**
- a) What do you understand by “manufacturing system”? Explain the job order and batch order manufacturing system along with their characteristics. (6)
- b) “The control function of Production Planning and Control department provides valuable feedback for further improvement” Explain. (6)
- c) The following table gives the actual sales of the product observed during last nine periods.
- | Period | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|---------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Sales (Lakhs) | 64.25 | 76.65 | 77.01 | 78.44 | 82.37 | 85.34 | 88.44 | 92.57 | 96.33 |
- Forecast for next three periods by using method of least squares technique and three moving average method. (5)
- Q. No. 2**
- a) Explain in brief any two of the following
 i) Unit load concept in material handling
 ii) Product development and design (PDD)
 iii) Evaluation of plant layout (6)
- b) “Work study technique can be the valuable tool for productivity improvement.” Explain. (3)
- c) Explain the concept of “Productivity” and “Partial productivity” with the help of example. (2)
- Q. No. 3**
- a) Explain the interrelationship between plant layout and material handling function. (4)

Please turn over

- b) Explain the importance of maintenance function in an organization. State the various functions of maintenance department. (4)
- c) A manufacturer company requires 12, 000 units per year. Ordering cost is 240 per order and carrying cost is 20%. Purchase price per unit is Rs. 40. Determine the following (3)
- EOQ
 - Optimum number of orders.
 - Total cost including acquisition of material.

- Q. No. 4** a) State and explain the inter-relationship of Production function with other functions in an organization. (at least three). (3)
- b) State and explain the various principles of the materials handling function (4)
- c) The project consists of the following activities. Construct the network and calculate the total duration required to complete the project.

Activity	Duration (Days)	Activity	Duration (Days)
1-2	15	3-6	12
1-3	15	4-5	1
2-3	3	4-6	14
2-5	5	5-6	3
3-4	8	6-7	14

- Q. No. 5** a) Write short note on "Materials Requirement Planning (MRP)" (3)
- b) Explain the importance of scheduling function and explain any one of the scheduling techniques. (4)
- c) Six jobs are to be processed on two machines A, B and C, in the order ABC. Processing times are as given below. Find the minimum elapsed time idle time and percentage utilization of each machine.

Job	1	2	3	4	5	6
Machine A	3	12	5	2	9	11
Machine B	8	6	4	6	3	1
Machine C	13	14	9	12	8	13