

Total No. of printed pages = 5

25(2) POM 202

2009

**PRODUCTION AND OPERATIONS
MANAGEMENT**

Paper : 202

Full Marks - 70

Time - Three hours

The figures in the margin indicate full marks
for the questions.

Answer any *five* questions.

1. (a) What is job shop production ? What are its characteristics, advantages and limitations ? Suggest strategies to overcome some of its limitations. 8
- (b) Indicate how and why each of these factors is important to the successful design and operation of a super market. 6
 - (i) Layout of the store

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(ii) Location

(iii) Capacity planning.

2. (a) What do you understand by "Plant Design"? Discuss the various factors to be considered in deciding the location of a car manufacturing plant. 6

- (b) An assembly line must be established to include the tasks as given in the table.

Task	Task time (in sec)	Predecessors
A	120	none
B	50	A
C	40	B
D	80	C, F
E	100	A
F	20	E
G	90	H
H	60	A
I	30	A
J	60	D, G, I

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Draw a sequence diagram for the

the line to a 120-second cycle
what is the minimum number of
required ?

the longest operation time (LOT)
to balance the line to a 120-second
cycle time.

(iv) What is the efficiency of the line ?

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(a) What do you understand by productivity ? In what units can it be expressed ? Explain the difference between production and productivity. 7

(b) What is the difference between method study and work measurement ? What steps are followed for doing a method study of job process ? 7

(a) What is ABC, FSND and VED analysis ? What are the basic steps in implementing them ? 7

2. (b) A manufacturing company purchases parts of a machine for its annual requirements. The lead time for X is one week, the standard order quantity is 40 units and current availability is 35 units. The requirements for the next six weeks are 40, 20, 15, 15 and 20 units respectively. For item Z, lead time is two weeks, standard order quantity is 80 units and current availability is 90 units. A schedule receipt for 80 Z's is due in week 1. Develop complete MRP records for X and Y. 9
- You have been asked to suggest an economical purchasing policy for the company. What advice would you offer and how much would it save the company per year?

5. (a) What is inspection? What is the basic difference between inspection and quality control? 5
- (b) The following are the inspection results for 20 lots of magnets, each lot of being of 75 magnets. Number of defective magnets in each lot is 48, 56, 47, 71, 83, 48, 200, 5, 70, 67, 47, 34, 48, 37, 57, 29, 45, 20, 10 and 30. Calculate the average fraction defective and three sigma control limits. Draw P-chart and examine whether the process is in control.
- (c) What role does forecasting play in the aggregate planning process? Demonstrate how aggregate planning and scheduling costs are affected by forecast errors. 5
- (d) State and explain the advantages and limitations of acceptance sampling over 100% inspection. 5
- (e) Explain the goals and standards of ISO 9000 quality system. 4
6. (a) Within the context of overall planning and scheduling systems for operations, explain the role of MRP.