

25 (2) POMN 202

2011

PRODUCTION AND OPERATIONS
MANAGEMENT

Paper : 202

(Old Syllabus)

Full Marks : 70

Time : 3 hours

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

Answer any **five** questions

1. (a) Under what circumstances a market-pull, a technology-push or an inter-functional cooperation approaches to new product design be the best approach? 7
- (b) Examine how different types of layout design apply to different situations. 7
2. (a) What are the major factors which affect productivity of operations? List the steps to be followed in a productivity improvement program. 7

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(Turn Over)

(2)

(b) The following tasks are required to be performed on an assembly line with the given precedence relationship and task time specified below :

Task	Task time (sec)	Precedence
A	25	none
B	15	A
C	13	A
D	15	A
E	12	A
F	20	A, B, C, D, E

- (i) For a 40-second cycle time, balance the assembly line.
- (ii) What is the minimum number of stations?
- (iii) What is the efficiency of the balanced line?

3. (a) Explain the difference between made-to stock and made-to-order processes. Classify processes according to product flow and type of customer order.

(b) A manufacturer requires 1500 units of a part annually for assembly. Manufacturer can produce this at the rate of 100 per day. Setup cost for each product run is Rs 24. To hold one

(3)

unit of this part, inventory cost of manufacturer is Rs 5 for a year. Assume 250 working days per year. Find out the economic batch quantity and economic run length.

4. (a) Describe an FMS and its major characteristics.

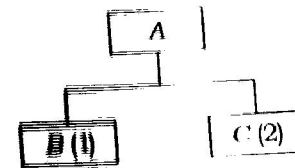
(b) Describe the general procedures for facility location planning for some kinds of facilities of your choice.

(ii) In what ways do independent demand inventories differ from dependent demand inventories?

Explain aggregate planning and its characteristics.

Explain the role of the master production schedule (MPS). How it relates to the other elements of an MRP system?

Using the information given below, develop a complete MRP plan :



(4)

At the beginning of time period 1, the following information is available :

<i>Item</i>	<i>On hand</i>	<i>Lead time</i>
A	100	1
B	150	2
C	80	1

The gross requirements of item A are 200 units for period 4 and 250 units for period 5.

7. (a) How do control charts differ from acceptance sampling plans? Under what circumstances is each appropriate?

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(b) Fifteen samples of 50 observations each yield the information in the table below :

<i>Sample No.</i>	:	1	2	3	4	5	6	7	8
<i>No. of defective</i>	:	4	2	1	4	5	1	1	2
<i>Sample No.</i>	:	9	10	11	12	13	14	15	
<i>No. of defective</i>	:	3	3	1	4	2	2	3	

Determine the 3-sigma control limits for the percentage of defectives. Is the system under control?

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