MANAGEMENT PROGRAMME

Term-End Examination

December, 2012

02891

MS-5 : MANAGEMENT OF MACHINES AND MATERIALS

Time : 3 hours

Maximum Marks : 100

(Weightage 70%)

Note : (i) *Section - A has five questions that carry 20 marks each. Attempt any three questions from this section.*

(ii) Section - B is compulsory and carries 40 marks.

SECTION-A

1. (a) Which factors are most important in determining the location of the following ? Briefly explain the reasons for your answer : 10+10

   (i) A garment plant

   (ii) A paper mill

   (iii) An automobile repair shop

   (iv) A distribution warehouse

   (b) Product - A consists of three B type sub-assemblies and one C type sub-assembly. The sub-assembly B consists of one D, one E sub-assembly, and one F. The sub-assembly C consists of a G and an F. The sub-assembly E consists of a D and a K.

   (i) Prepare a product tree

(ii) Prepare the Bill of Materials

(iii) Determine the number of each sub-assembly/Components required to produce fifty units of item A.

2. (a) Define FMS. What is the general field of FMS application ? Is the field of FMS application significant in terms of the potential market size for its capability ? State with reference to any production unit. 10+10

(b) There are seven jobs that must be processed in two process : A and B. All seven jobs must go through A and B in that sequence - A first, then B. Determine the optimal order in which the jobs should be sequenced through the process using these times.

Job	Process A Time	Process B Time
1	9	6
2	8	5
3	7	7
4	6	3
5	1	2
6	2	6
7	4	7

3. (a) What is the major difference between aggregate planning in manufacturing and aggregate planning in services ? Discuss with suitable examples. 10+10

(b) Processing times (including set-up times) and due dates for five jobs waiting to be processed at a work centre are given in the following table. Determine the sequence of jobs, the average flow time, average job lateness and average number of jobs at the work centre, for each of these rules

(i) Shortest Processing Times (SPT)

(ii) Earliest Due Date (EDD)

Job	Process Time (Days)	Due date (Days from Now)
A	12	15
	6	24
C	14	20
D	3	8
E	7	6

4. (a) Discuss the role of the operations manager in today's context. Do you agree that operations management is a multi-disciplinary function ? Discuss with the help of suitable examples. 10+10

(b) What is buffer stock ? List the reasons for keeping a buffer stock. Suppose the lead time for procurement of a product gets doubled. Will you recommend doubling its buffer stock ? Justify your answer.

5. (a) What do you understand by automated storage and retrieval ? For what kinds of goods and in which companies in India do you think such systems would be appropriate ? 10+10

(b) Explain why quality should be better by following the "Total Quality Management" concept than in a system that depends on final inspection. Give an example of how improving quality can also increase productivity.

SECTION - B

6. The R & D department is planning to bid on a large project for the development of a new communication system for commercial planes. The accompaning table shows the activities, times and sequence required. **20**

Activity	Immediate Predecessors	Estimated Duration (Months)
A		6
B	A	2
C	A	5
D	A	7
E	A	1
F	B	2
G	C, D, E	3
H	F	6
I	G	7
J	H	8
K	I, J	4

(a) Draw the network diagram

(b) Find the Critical Path

(c) Find the project completion time

(d) Calculate the total float for each of the activities

7. Write short notes on any five of the following : 5x4=20

(a) Taxonomy of waste

(b) Learning Curve

(c) Job enrichment

(d) Standardization and Codification

(e) Robotics

(f) Delphi Technique

(g) Vendor Rating

(h) Consumer's Risk