BACHELOR OF TECHNOLOGY IN
MECHANICAL ENGINEERING
(COMPUTER INTEGRATED
MANUFACTURING)

00207

Term-End Examination

June, 2010

BME-013 : PRODUCTION MANAGEMENT

Time : 3 hours   Maximum Marks : 70

Note :   Attempt **any seven** questions. All questions carry **equal**
marks. Use of non-programmable scientific calculator is
allowed.

1.   (a)   Discuss the factors affecting the plant   4
location decision.

(b)   What is meant by plant layout ? Compare   6
product layout and process layout by giving
suitable example.

2. Consider the following single machine scheduling   10
   problem with weights Table :

Job (J)	1	2	3	4	5
Processing time (tj) (hrs)	15	4	5	14	8
Weight Wj	1	2	1	2	2

Determine the sequence which will minimize the weighted mean flow time of the above problem. Also find the weighted mean flow time.

3. (a) Describe supplier relations both before and   5
       after implementation of a JIT system.

   (b) What are the objectives of MRP ? Explain   5
       how each of these objectives is achieved ?

4. A specific forecasting model was used to forecast   10
   demand for a product. The forecasts and the corresponding demand that subsequently occurred are shown below. Use the MAD and tracking signal to evaluate the accuracy of the forecasting model.

Month ↓	Actual Demand	Forecast Demand
October	700	660
November	760	840
December	780	750
January	790	835
February	850	910
March	950	890

5. Clean-clothes cleaners is a dry cleaning business that is considering four possible sites for its new operation. The annual fixed and variable costs for each site have been estimated as follows :

Location	Fixed cost	Variable cost
A	Rs. 350,000	Rs. 5/unit
B	Rs. 170,000	Rs. 25/unit
C	Rs. 100,000	Rs. 40/unit
D	Rs. 250, 000	Rs. 20/unit

(a) Plot the total cost curves for each location on the same graph and identify the range of output for each location provides the lowest total cost. **7**

(b) If demand is expected to be 10,000 units per year, which is the best location ? **3**

6. Explain Economies of scale and diseconomies of scale with the help of suitable example. A work centre operates 5 days a week on a shift per day basis, each shift of 8 hours duration. There are five machines of the same capacity in this work centre. If the machines are utilized 80% of the time at a system efficiency of 90%, what is the rated output in the standard hours per week ?   **10**

7. (a) Define the term 'method study' and state its objectives.   **3**

   (b) Define the term 'therbligs'.   **3**

   (c) Distinguish between time study and motion study.   **4**

8. Write the salient features of Enterprise Resource Planning (ERP). Discuss the factors in successful implementation of ERP in an organization.   **10**

9. What are the basic convention techniques used in project management ?   **10**

   Following table provides the list of activities and their time estimates in weeks for a task :

Table

Activity	Predecessor Activity	Time Estimates (Weeks)		
		a	m	b
A	-	20	24	30
B	A	2	3	4
C	B	8	16	20
D	A	2	2	3
E	D	4	5	6
F	C, E	4	5	9

Prepare a network diagram and calculate the total time to complete the task. Also identify the critical path.

10. Write short notes on *any two* of following :   2x5=10

   (a) Supply chain management

   (b) Theory of constraints

   (c) Capacity Planning

   (d) Aggregate Planning