

Second Semester M.B.A. (Day) Degree Examination, July/August 2005
(Updated Scheme)

Paper - 2.5 : MANAGEMENT
Production and Operations Management

Time: 3 Hours

Max. Marks: 75

SECTION - A

Answer any six questions.

(5×2=12)

1. a) Distinguish between Defectives and Defects and what are the control charts used for monitoring the two.
- b) What are the two types of line balancing and what techniques are used to solve the same ?
- c) What are the ways of controlling work in process inventory ?
- d) What is SIX SIGMA ?
- e) What is "CRAFT" ?
- f) Is Value Engineering a cost control or cost reduction technique ? Explain briefly.
- g) What are the factors considered for evaluating a vendor ?
- h) What is Beta distribution, where is it used and what is the mean of the distribution ?

SECTION - B

Answer any four questions.

(4×5=20)

2. What are the criteria for deciding what items should be made in house and what items to be outsourced ?
3. An item is required at the rate of 2500 numbers/month. Each item costs Rs. 12 and cost of placing each order is Rs. 50. The inventory carrying cost is Re. 1 plus 12% of unit cost. Find EOQ and total inventory cost.

If the supplier gives 8% discount for quantities ordered in the range of 10000 and above should they accept it. If the company works for 300 days a year, find the number of days required to consume the Economic order quantity.

4. What is ISO 14000 ? What are the steps involved in getting the certification ?
5. What is TPM ? How does it differ from the other maintenance systems ? What are the salient features of TPM ?
6. Calculate the Vendor Quality Rating for the following:

Suppliers	X	Y	Z
Qty. Supplied	100	110	120
Qty. Accepted	93	98	103
Price of item	5 Rs.	5.2 Rs.	4.9 Rs.
Delivery Promised	6 Weeks	6 Weeks	6 Weeks
Actual Delivery	7 Weeks	6.2 Weeks	6.6 Weeks

Weightage Quality : 70%

Price : 15%

Delivery : 15%

7. a) What are the various types of control charts used for monitoring quality on shop floor ?
- b) A resistor is made from a process which operates between 99.5 ohms to 100.5 ohms. The specification of resistor is $100 \text{ ohms} \pm 1 \text{ ohm}$. Find the C_p (Process Capability).

SECTION - C

Answer any **three** questions.

(3×10=30)

8. a) Why work measurement is required ? What are the areas where the work measurement is used ?
- b) A time study on a job relates to the following:

Hrs worked	: 8 Hrs.
Av. performance rating	: 90%
Total allowances for 8 hrs.	: 55 mts.
Units produced	: 400
Idle time	: 10%

Find the standard time per piece.

9. a) What are the various forecasting methods used ?
b) Forecast for the period 12 for the following data:

Time	Actual value	Moving average for 3 months	Exponential smoothing for $\alpha = 0.7$
1	10.0		
2	11.5		
3	12.0		
4	10.9		
5	8.9		
6	10.5		
7	8.9		
8	10.5		
9	11.7		
10	13.8		
11	15.0		

Use Mean Absolute deviation and decide between Moving Average (3 months) or Exponential smoothing ($\alpha = 0.7$) and predict the value for period 12.

10. Discuss:
a) J.I.T.
b) Criteria for Product Design
c) Computer Integrated manufacturing.
11. A sports wear firm has set up an automated production of sweaters. Twenty samples of size $n = 50$ are checked to establish the control limits for the process. Defective items in 20 samples of size 50 are

Sample No.	No. of Defective items
1	2
2	3
3	4
4	1
5	0
6	2
7	4
8	1
9	1
10	3
11	0
12	1
13	2
14	1
15	0
16	3
17	7
18	2
19	1
20	2

Establish the control limits using the appropriate control chart.

12. a) What are the modern tools of management used by Industries, to produce High Quality Products at optimum cost ?
- b) What is meant by Quality Cost ? How it is calculated and how does it help the organisation ?

SECTION - D

Compulsory.

(1×13=13)

A contractor had bid Rs. 2 lakhs to complete a project in 20 weeks. A penalty of Rs. 25,000 will be levied for every week's delay. Also he will be given an incentive of Rs. 10,000 per week of advance completion. The details are:

Activity	Precedence	Duration (weeks)	Total cost of the activity Rs.
A	-	3	6,000
B	A	4	8,000
C	A	6	12,000
D	A	4	8,000
E	B	5	10,000
F	C	3	6,000
G	D	7	14,000
H	F, G	3	6,000
I	E, H	2	4,000

Draw a network and find the project duration.

Calculate total project cost.

The Management wants to get the project completed in 17 weeks. Which of the following activities should be considered for shortening at given costs and why ?

Activity 'C' at Rs. 8,000/week shortening possible by 1 week

D at Rs. 14,000/week " " " 1 week

E @ Rs. 5,000/week " " " 1 week

G @ Rs. 8,000/week " " " 2 weeks