



MBA.P.IV/04.13. 0412

MBA DEGREE (PT) IV SEMESTER EXAMINATION APRIL 2013

SMP 2402 PRODUCTION AND OPERATIONS MANAGEMENT

Time: 3 Hours

Maximum Marks: 50

(5 × 10 = 50)

- I. A. (a) Discuss the scope of operations management.
(b) Discuss the characteristics of service systems.
OR
B. (a) What are the types of production system? Explain in brief.
(b) What are the types of capacity? Explain.

- II. A. (a) Distinguish between 100% inspection and sampling.
(b) Sketch OC curve and explain the parameters affecting it.
OR
B. The following data were obtained over a 5-day period to indicate.

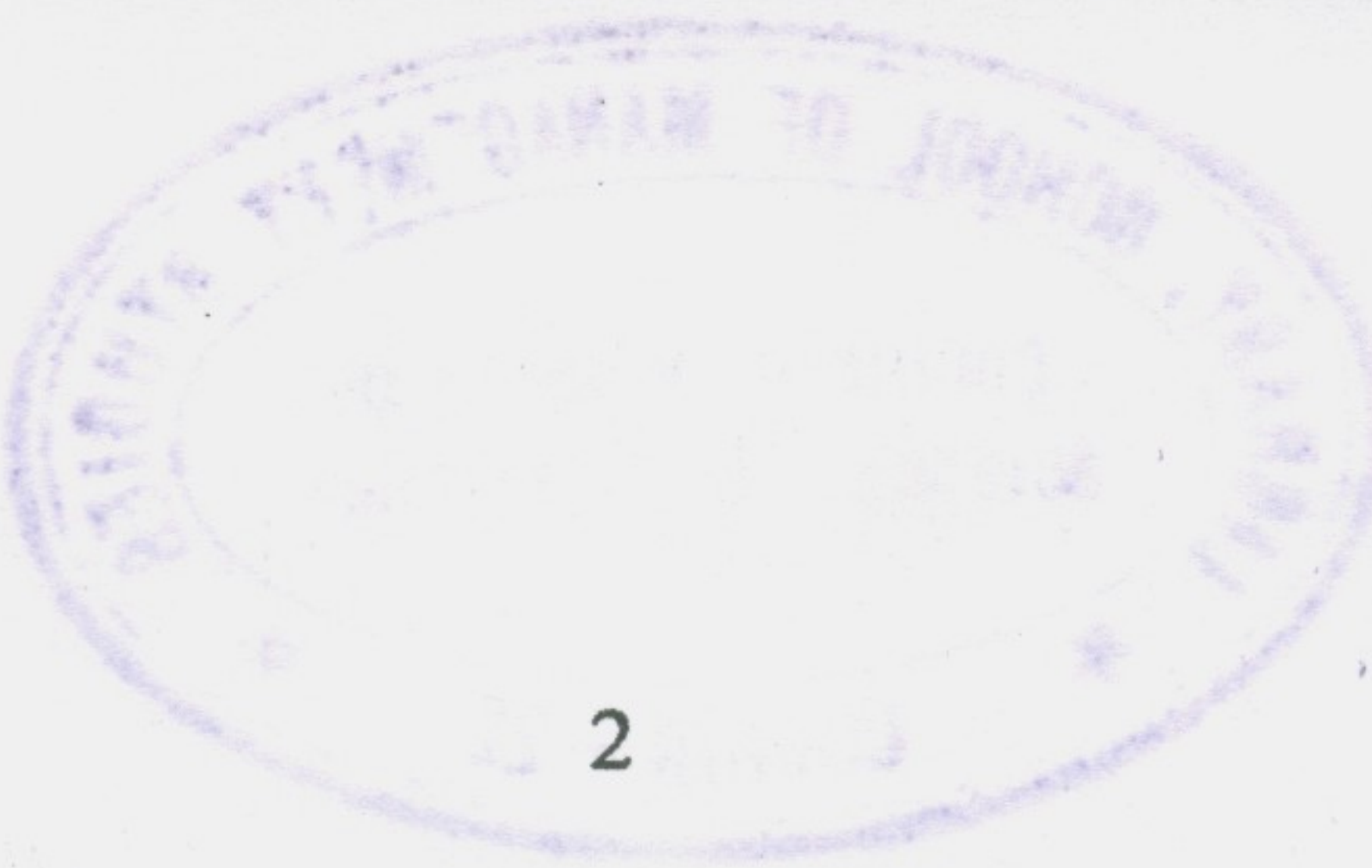
\bar{X} and R control chart for a quality characteristic of a certain manufacturing product that had required a substantial amount of rework. All the figures apply to the product made on a single machine by a single operator. The sample size was 5.

Two samples were taken per day. Comment on the process using \bar{X} and R charts.

Sample Number	Observation				
	1	2	3	4	5
1	11	12	13	10	9
2	6	10	10	11	9
3	11	12	9	12	10
4	14	10	8	13	11
5	12	11	11	10	7
6	11	10	10	12	11
7	10	12	13	13	12
8	10	11	11	10	12
9	12	13	11	12	10
10	11	13	9	9	12

- III. A. List the computerized layout planning techniques and discuss the inputs and expected outputs of them.
OR
B. (a) Explain the steps of method study.
(b) What is work sampling? Explain it with an example.

(P.T.O)



- IV. A. (a) What is ABC analysis? Illustrate its steps with an example.
(b) How will you determine the ROL of the basic purchase model of inventory which has constant lead time and constant demand?

OR

- B. (a) What is Bill of Material Structure? Give an example.
(b) Discuss working principle of JIT kanban system.

V. A. Beta associates produces accounting machines that have a seasonal demand pattern. We are required to plan for the optimum production rates and inventory levels for the next four quarter periods. The available production capacity during regular time and overtime, as well as other cost data are as follows.

Period	Capacity in units		
	Regular time	Over time	Subcontract
1	1200	150	800
2	900	200	800
3	1000	350	800
4	700	350	800

Period	Units of demand
1	1200
2	1100
3	1800
4	1500

- Available initial inventory = 110 units
 - Desired final inventory = 140 units
 - Regular time cost/unit = ₹100
 - Overtime cost/unit = ₹125
 - Subcontracting cost/unit = ₹145
 - Inventory cost/unit/period = ₹ 15
 - The cost of unused capacity = ₹ 40/unit
- Formulate the problem as a transportation model.

OR

B. An electronic equipment contains 1000 resistors. When any resistor fails, it is replaced. The cost of replacing a resistor individually is ₹10/-. If all the resistors are replaced at the same time, the cost per resistor is ₹3/-. The percent surviving, $S(i)$ at the end of month i is given below. What is the optimum replacement plan?

i	0	1	2	3	4	5	6
S_i	100	90	80	60	45	20	0

