



**Institute of Management
JK LakshmiPat University, Jaipur
END TERM EXAMINATION 2015**

MBA (FT) Sem-II
MM: 50 Marks

Course: Production & Operation Management
Time: 3 Hours
Subject code: MBA205

Instructions: Attempt any three questions from Section A. Section B is compulsory.

Section A

Q1. -----(10 marks).

Do all parts (equal marks for each 2+2+2+2+2):

- What is forecasting and why is it required for Productions and Operations Management? Does forecasting, in general, have any obvious pre-requisites and/or pitfalls?
- How can factors like trend, seasonality, and business cycles be taken into account in forecasting? Explain using examples.
- What are the similarities and differences between 1) weighted moving averages method, and 2) exponential smoothing method, when both are used with time-series data?
- How can error monitoring be done for the forecasting process? Can this help determine which technique is most suited for use in a given situation?
- In what kind of business areas or for what kind of forecasting issues can use be made of expert opinion methods like the Delphi technique? Illustrate how this can be done with an example.

Q2. -----(10 marks).

Do all parts (equal marks for each 2+2+2+2+2):

- What do you understand by the term "Quality" when used in the context of Production and Operations Management?
- What are the challenges in managing quality in services sector as compared to manufacturing sector?
- What do the following concepts denote: 1) Total Quality Management, and 2) Six Sigma Methodology?
- What is the Kaizen Principle? What is the concept of the Deming Wheel? Are the two related and how?
- Write short notes on : 1) Taguchi Loss Function; 2) Ishikawa Diagram; 3) ISO 9000 Standards; and 4) Zero-Defect Programme.

Q3. ----- (10 marks).

Do all parts (equal marks for each 2+2+2+2+2):

- What is inventory and what are its basic functions in Production and Operations Management? What are the typical objectives of Inventory Management Systems?
- What is the use of ABC classification technique in Inventory Management Systems? Explain with suitable example.
- Describe the Economic Order Quantity (EOQ) model.
- What is the impact on EOQ, if 1) carrying or holding costs are expressed as a percentage of unit price; or 2) discounts are available on the basis of quantity ordered in bulk?
- What is the concept of service level for Inventory Management Systems? How is it important in case of uncertainty of demand?

Q4. ----- (10 marks).

Do all parts (equal marks for each 2+2+2+2+2):

- What do you understand by the term "Just-In-Time (J-I-T) Production"? Explain its aims.
- How does J-I-T Production philosophy differ from traditional production philosophy on the following factors: 1) inventory; 2) focus on quality management; 3) vendor/supplier relationships; and 4) treatment of workers.
- Can it be said that J-I-T production systems combine the virtues of both job-shop and assembly-line production systems? Explain.
- What are "Kanbans" and how are they put to use in J-I-T production systems?
- To achieve shorter setup times, J-I-T production systems recognize and differentiate between "internal" and "external" portions of setup. Explain.

Q5. ----- (10 marks).

Do all parts (equal marks for each 2+2+2+2+2):

- Explain the difference between "Lean" and traditional thinking in the context of Production and Operations Management.
- What is the concept of value-stream and how is it important for the goal of achieving lean operations?
- The Toyota Production System focused on eliminating seven basic kinds of waste (Muda). List and describe them.
- Can lean operations concepts be also applied in services sector? What difficulties can arise in their use there?
- Lean operations lead to absence of safety nets. What does this mean or imply? Explain.

Section B

Q6. ----- (20 marks).

Do all parts (4+4 marks for parts a, b; 3+3+3+3 marks for parts c, d, e, f):

- Given the sales data below, forecast the demand (sales in Rs. Lakhs) for year 1999 quarter 1. (Hint: use forecasting technique of simple moving averages and seasonal indices for taking care of seasonality). Show the working steps.

year quarter sales in Rs. Lakhs

1996	1	47
	2	49
	3	53
	4	44
1997	1	43
	2	55
	3	58
	4	48
1998	1	44
	2	43
	3	58
	4	49

- Repeat the above question with use of exponential smoothing technique (alpha value or smoothing constant 0.4). Which technique gives closer forecast - simple moving averages or exponential smoothing in case of this problem? Demonstrate with calculations.

- Given below data, what would be the appropriate ABC grouping of inventory items? Which stock items would fall in which of the ABC categories?

Stock Number	Annual Value ('000 Rs.)	% of total inventory annual value
J24	12500	46.2
R26	9000	33.3
L02	3200	11.8
M12	1550	5.8
P33	620	2.3
T72	65	0.2
S67	53	0.2
Q47	32	0.1
V20	30	0.1

- A firm producing fire extinguishers, makes 30,000 of these fire extinguishers per year (assume a 300 day work year for daily usage rate purposes). Each extinguisher requires one handle. If annual carrying cost per handle is Rs. 1.50; the setup cost for producing a batch of handles is Rs. 150; and daily rate of production for handles is 300; what is the optimal production order quantity for handles?

- M/s Acme Engineers use 1,000 electric drills per year in their production process. The ordering cost for these is Rs. 100 per order and the carrying cost is assumed to be 40% of the per unit cost. In orders of less than 120, drills cost Rs. 78 per unit; for orders of 120 or more the cost drops to Rs. 50 per unit. Should the firm take advantage of the quantity discount?

- Presume that M/s Lighthouse carries a modern white kitchen ceiling lamp that is quite popular. The anticipated demand during lead-time can be approximated by a normal curve having a mean of 180 units and a standard deviation of 40 units. What safety stock should the firm carry to achieve a 95% service level? (Hint: Normal Distribution tables indicate z score of 1.645 for the value of 95% cumulative area under a standard normal curve).
