



MUTHAYAMMAL ENGINEERING COLLEGE

(An Autonomous Institution)

(Approved by AICTE, New Delhi, Accredited by NAAC & Affiliated to Anna University)



Rasipuram - 637 408, Namakkal Dist., Tamil Nadu

DEPARTMENT OF MANAGEMENT STUDIES

QUESTION BANK

19MBB03- OPERATIONS MANAGEMENT

UNIT - 1

PART A (2 MARKS)

1. Define operation management
2. Define production system.
3. State the objectives of production management
4. What are the functions of production department?
5. Define Lead Time.
6. Define Batch production.
7. What are the advantages of mass production?
8. Write short note on cellular production system.
9. Define tactical decision.
10. What is meant by mass production?

PART B

- 1.(i) Discuss the nature and importance of operation management.
(ii) Explain the frame work of production management.
2. (i) Explain the salient feature, characteristics and when to use the following types of production system.
 - a) Make to order (5 marks)
 - b) Make to stock (4marks)
 - c) Make to assemble. (4 marks)(ii) Distinguish between “Make to stock” and “Make to order” production systems.
- 3.(i) Distinguish between job order production and mass production.
(ii) Give the characteristic features of the following types of production.
 - a) Job order and project type. (4marks)
 - b) Batch production. (5 marks)
 - c) Mass production and flow production.(4 marks)
4. (i) Explain briefly the responsibilities of production managers.
(ii) Describe the functions and flows in supply chain management?
5. (i) Describe the five basic competitive priorities that have to be considered in formulating production / operation strategy for a firm.
(ii) Discuss the framework of operations strategy.

UNIT- II

PART A (2 MARKS)

1. Define forecasting
2. Write the importance of demand forecasting.
3. Distinguish between forecasting and prediction.
4. What is meant by long term forecasting?
5. What is meant by short term forecasting?
6. What are the different methods of demand forecasting?
7. Write short note about time series analysis.
8. Define capacity planning.
9. What is meant by capacity requirement planning?
10. Define aggregate planning.

PART B (13 MARKS)

1. (i) Describe different methods of demand forecasting.
(ii) Explain the capacity requirement planning.
2. (i) Explain the aggregate planning strategies.
(ii) Briefly explain the implementation of operation strategy.
3. (i) Differentiate quantitative and qualitative methods.
(ii) What are the types of capacity planning? Write the difference between rough-cut capacity planning and capacity requirement planning?
4. (i) Explain the various facility location model in detail.
(ii) A company manufactures seasonal products. The information regarding the seasonal demand pattern, available production capacities during regular time, overtime and other details are as follows:

Forecasted Demand

period	1	2	3	4
Demand (Units)	700	1000	2000	1200

Available production capacity

period	Regular time	overtime	subcontracting
1	900	350	600
2	1000	350	600
3	1100	350	600
4	700	350	600

Initial inventory = 200 units

Desired final inventory = 150 units

Regular time production cost/unit = Rs.125

Overtime production cost/unit = Rs.150

Subcontracting cost/unit /period = Rs.25

Formulate this problem as a transportation model to determine the optimum production levels and means of production for the next four quarters.

5.(i) what are the different types of facility layout? write the difference between product and process layout.

(ii) Briefly explain the selection of forecasting techniques.

UNIT-III

PART A (2 MARKS)

1. Define product design.
2. What is process planning?
3. What is process selection?
4. Define mass customization
5. Define work study
6. Explain method study.
7. Explain motion study.
8. What is flow process chart?
9. What is time study?
10. Difference between method study and work measurement

PART B

1. (i)Give the characteristics of good product design. Explain the various aspects of product design.
(ii)Explain the elements in product design and factors that influencing the product design.
2. (i)Explain the product development procedure and various techniques of product development.
(ii)Explain the various process selection decisions. What are the stages in process selection method?
3. (i)What are the factors that affect the process design decision? Elaborate the various types of process design.
(ii)What is the objective of work study? Explain the advantages and disadvantages of work study.
4. (i)What are the techniques of method study with reference to chart technique?
(ii)Explain work measurement with its components.
5. (i)Explain productivity and factors that influence productivity.
(ii)How productivity is measured? what are the techniques of improving productivity?

UNIT-IV

PART A (2 MARKS)

1. Write the importance of material management.
2. What is vendor rating?
3. What is meant by value?
4. Distinguish between value engineering and value analysis.
5. State the benefits of value analysis
6. What are the principles of value analysis?
7. Define kanban card.
8. What are the benefits of JIT?
9. What are the types of purchasing?
10. What is material planning?

PART B (13 MARKS)

1. (i) Define the term material management. State its relation with other functions of management.
(ii) Explain the concept of JIT manufacturing system in the organization
2. (i) Explain the steps involved in the value analysis.
(ii) "Value engineering prevents unnecessary cost build up into the product. Explain.
3. (i) Discuss the various fields of application of value engineering.
(ii) Explain the various methods of selective control of inventory.
4. (i) Explain the various models of inventory.
(ii) Explain in detail about ABC Analysis with suitable examples.
5. (i) Explain the advantages of purchase management.
(ii) Explain the objectives of materials management.

UNIT-V

PART A (2 MARKS)

1. Define project.
2. Define project management.
3. Define scheduling.
4. What is PERT?
5. What is critical path method (CPM)?
6. What is sequencing?
7. Define flow shop scheduling.
8. What is shopfloor control?

9. What is Gantt charts?
10. State workload charts.

PART B

1. (i) Explain project management and its process .
(ii) Explain in detail about types of scheduling.
2. (i) What is meant by PERT and CPM? State the difference between PERT and CPM.
(ii) Explain the four ways of scheduling of work.
3. (i) Explain the importance of scheduling.
(ii) Describe the priority rules for job sequencing? What are the objectives of job sequencing?
4. (i) Explain the Johnson's rule for optimal sequence of 'n' jobs on 2 machines with example.
(ii) Elaborate the different types of gantt chart?
5. (i) Describe personnel scheduling in services by two ways?
(ii) Following the manpower requirements for each activity in a project:

Activity	1-2	1-3	2-4	2-6	3-4	4-5	4-6	5-7	6-7	7-8
Duration (in months)	10	11	13	14	10	7	17	13	9	1

PART C (15 marks)

1. Pradeep Dutta (Dutta), proprietor of Xtra Power Group, found himself on the horns of a dilemma. Dutta had recently reconfigured Xtra Power Energy System's (Xtra Power) supply chain. The reconfiguration had resulted in a lowering of lead times and increased production, making it difficult for the company to focus on the line of reconditioned batteries. Dutta was considering two options: 1. Hire Revathi Batteries (Revathi) to manufacture its reconditioned line of batteries. 2. Rent an adjacent facility and start reconditioning the batteries on its own. However, Revathi Batteries insisted on a contract of at least three years for an annual payment. On the other hand, if Xtra Power went ahead with the other option, it had to incur significant expenditure on procuring machinery, equipment, etc.

Question:

1. Understand issues and challenges in sales and operation planning.
2. Understand issues and challenges in managing a reverse supply chain.

2. The case is about the 787 Dreamliner, an airplane developed by the US based airplane manufacturer, Boeing Airplane Company (Boeing). The case examines the reasons that prompted Boeing to initiate the 787 project. It highlights the making of the aircraft, which was expected to change the dynamics of the world aviation industry. The case also highlights the distinguishing features of the aircraft and explains how it is more advanced than the existing aircraft. Various supply chain related issues are discussed in the case. The case also talks about the post-launch problems faced by the 787 Dreamliner and its repercussions. While some analysts were of the view that those problems were part of initial hiccups, some industry experts opined that Boeing's aggressive outsourcing was responsible for them.

Question:

1. Understand the importance of innovation in the aerospace industry and how Boeing managed the supply chain to come up with a product that was hailed as a major innovation.
2. Discuss the reasons for the post launch problems faced by the 787 Dreamliner.
3. Discuss and debate whether the 787 Dreamliner can be considered an innovation in light of the problems it was facing.

3. This case study is a sequel to Mahindra & Mahindra (A): Transformation of an Indian Family Business into a Globally Competitive Firm. This case study illustrates how companies from emerging markets like Mahindra & Mahindra (M&M) from India are competing globally by leveraging on their core competencies. Global companies, for a long time, came from developed countries. However, the scenario at present is changing as companies from emerging markets are taking advantage of the resources of their home countries like low-cost labour, R&D capabilities, and a large pool of talented individuals. M&M has also capitalised on these resources and built globally competitive products in the automotive segment. The company exports its tractors to the US, China, Sri Lanka and Bangladesh. It is planning to export the company's flagship product, 'Scorpio', to the US and Europe as well. The company's future plans include entering into a variety of segments in the automotive segment using its R&D capabilities. Emerging-market companies like M&M, however, suffer from a few challenges like institutional voids, constant changes in consumer behaviour and lack of brand recognition, that test their ability to compete with global giants. Moreover, the low-cost model alone cannot always formulate a winning strategy. Will M&M be able to address these challenges and make a mark in the global automotive segment? Does it make sense for an emerging-market company like M&M to expand its product portfolio considering the challenges it is facing? Will M&M be able to manage its strategies for new products and new markets simultaneously?

Question:

1. To analyze how 'emerging-market' companies are going global using unique strategies, leveraging on their acquired capabilities.

4. This case study deals with the distinctive distribution strategies of Coca-Cola India (CCI) for the rural and urban market segments in India; and the company's efforts towards effective execution of these strategies. CCI built a distribution network in combination with its bottling partners and contract manufacturers. In urban areas, it distributes products directly from bottling plants to retailers. However, owing to lack of proper infrastructure and difficult access to the remote villages, it modified its distribution chains and adopted the three-tier 'hub and spoke' distribution model, to penetrate into the rural areas and increase its sales. Besides its distribution network, CCI adopted 'Right Execution Daily' (RED) strategy for effective execution of its distribution mainly in urban areas, which boosted the sales of the company. RED ensures the proper display, availability and activation of company's products in the retail stores. With the

success of RED in urban markets, the company plans to implement it in rural areas. However, given the potential of the Indian rural markets and the challenges it poses, the question that arises is, how far can RED be effectively implemented and what are the challenges the company might face in reaching out to the rural consumers?

Question:

1. To understand Coca-Cola India's 'Right Execution Daily' (RED) and analyze how its effectiveness has become fundamental to Coca-Cola India's growth.

5. Indian Institute of Materials Management (IIMM) is a forum for purchase and materials related employees and they have frequent meetings, seminars and annual conventions to share knowledge.

In one of their annual conventions the topic was implementation of JIT for competitive advantages. Leading personalities of the Indian industries talked lots of positive points and benefits due to the JIT purchase and JIT manufacturing methods. Many presented calculations and statistics of savings in costs and time and how it helps in reduce the price of the end products and hence competitive advantage. Most of the audience were impressed about the theory and thought of practical application in their respective companies. However, few of the executive participants were more worried about practice and less interested in idealistic theories.

One Mr. Jitendra Joshi of LML's Bangalore office was impressed. He has been arranging Engine Block castings, tyre tube sets, machined components, speedometers etc from southern region to LML, Kanpur Unit. He has 15 years' of experience in facing lots of problems in arranging the long distance supplies. He mustered courage to get up and ask few questions against the JIT and summary of question to Mr. Sudhakar (the speaker) were as follows:

Mr. Joshi said JIT cannot be fully implement able in Indian conditions due to following genuine constraints.

- (a) The inter-state disputes like 'Kaveri Dispute', "Border disputes' at times disturb the arrangements.
- (b) On and off terrorism, political agitations, holidays due to local, regional and national leaders' deaths also disturb work environment.
- (c) Spread of vendors all over India and vastness of coverage do not enable to know correct position of WIP of vendors.
- (d) Transport bottlenecks, heavy rains, floods (coastal areas), workers' strikes cause anxiety and worry.
- (e) Partnership problems, financial and quality constraints are not easily attended or solved.

These questions were like a mini speech on anti JIT and the atmosphere in the auditorium got charged up. Mr. Sudhakar, the speaker, gave half hearted replies to questions for which Mr. Joshi and his friends were not satisfied. Finally Mr. Sudhakar said:

“The system which operate successfully in Japan may not work equally well in other countries.” Only when Mr. Joshi took his seat as he felt he has made his clear on practical problems than merely going through the theory. Suddenly he seems to have won the admiration of the gathering.

Prof. Rao who was chairman of the technical session gave his concluding remarks. He appreciated the ideology of JIT but advised executives to take it up step by step and ensure pragmatic views and do not overdepend on JIT to fail. This he told as Indian Industrial Environment is yet to mature to take care of JIT systems in totality.

Questions:

1. Explain why JIT purchase works well in the developing countries
2. Do you agree with Mr. Joshi's views on constraints to JIT? Explain the correct problems in northern and eastern India.
3. Write how you feel the JIT systems can be adopted in India with an example.