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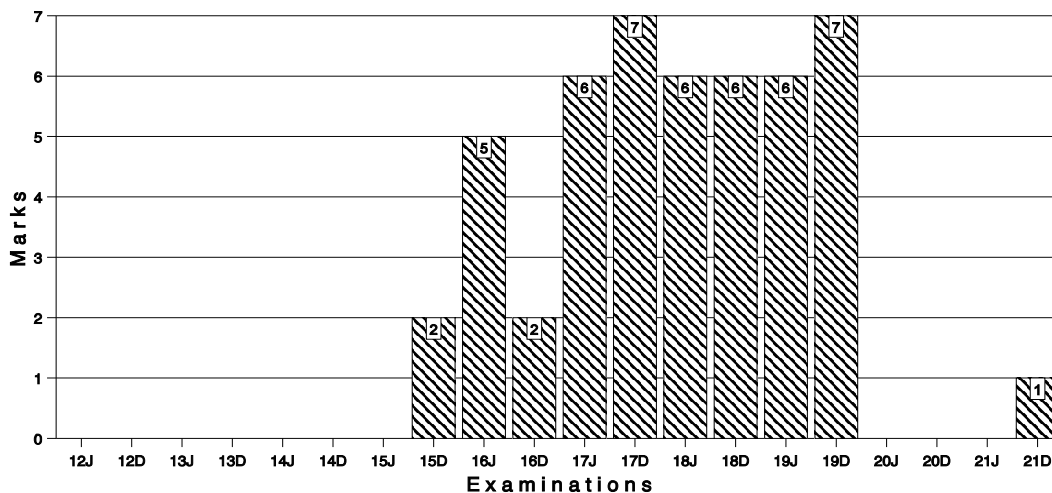
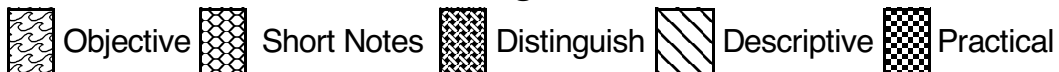
## **OPERATIONS MANAGEMENT- INTRODUCTION**

### **THIS CHAPTER INCLUDES**

- Operations Management - Introduction
- Production Management vs. Operation Management
- Characteristic of Modern Operation Function
- Recent Trends in Production/ Operations Management

Marks of Objective, Short Notes, Distinguish Between, Descriptive & Practical Questions

### **Legend**



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**CHAPTER AT A GLANCE****1. Operations Management- Introduction**

Operations management is the management of that part of an organization that is responsible for producing goods and/or services. There are examples of these goods and services all around you. Every book you read, every video you watch, every e-mail you send, every telephone conversation you have, and every medical treatment you receive involves the operations function of one or more organizations. So does everything you wear, eat, travel in, sit on, and access the internet with.

**2. Objectives of Operations Management**

- (i) Customer service
- (ii) Resource Utilization

**3. Scope of Operation Management**

- 1. Location of facilities.
- 2. Plant layouts and Material Handling.
- 3. Product Design.
- 4. Process Design.
- 5. Production and planning control.
- 6. Quality control.
- 7. Materials management.
- 8. Maintenance management.

**4. Characteristic of Modern Operations Function**

- 1. Manufacturing as Competitive Advantage
- 2. Services Orientation
- 3. Disappearance of Smokestacks
- 4. Small has become beautiful

**5. Recent Trends in Production/Operations Management**

1. Global Market Place
2. Production/Operations Strategy
3. Total Quality Management (TQM)
4. Flexibility

**DESCRIPTIVE QUESTIONS**

**2015 - Dec [1]** Answer the question:

- (a) Identify four principal functions of an operating system with reference to Operation Management. **(2 marks)**

**Answer:**

An Operating System is defined as a configuration of resources combined for the provision of goods or services.

The function of an operating system is a reflection of the purpose it serves for its customers. The following four principal functions identified below also relate to the basic four operations done in any organization:

|                       |  |
|-----------------------|--|
| 1. <b>Manufacture</b> | Manufacturing function is the one which involves some physical transformation, or a change in the form utility of the resources. Something is physically created and the output consists of goods which differ physically (e.g., in terms of form, content etc.) from those materials input to the system.       |
| 2. <b>Transport</b>   | This function of operating system provides a change in the place utility of something or someone in order to satisfy customer. The customer, or something belonging to the customer, is moved from place to place and thus results in the change in location. There is no major change in the form of resources. |

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|                   |  |
|-------------------|--|
| 3. <b>Supply</b>  | This function provides a change in the possession utility of a resource, i.e., the ownership or possession of goods in changed. Unlike manufacture, outputs of the system are physically same as the inputs.   |
| 4. <b>Service</b> | This function primarily results in a change in the state utility of a resource. The principal common characteristic is the treatment or accommodation of something or someone. The state or condition of the physical outputs will differ from the inputs as they have undergone same kind of treatment. |

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**2016 - June [II]** Answer the question:

1. (b) 'Operations management is responsible for producing goods and/or services.' In this context, define 'Operating System' and state the principal functions of an operating system. **(1+4 = 5 marks)**

**Answer:**

**Please refer 2015 - Dec [1] (a) on page no. 15**

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**2016 - Dec [1]** (d) List categories of processes in a production system.

**(2 marks) [Sec. A]**

**Answer:**

**Basically, processes can be categorised as:**

- (i) **Conversion processes:** i.e., converting the raw materials into finished products (for example, converting iron ore into iron and then to steel). The conversion processes could be metallurgical or chemical or manufacturing or construction processes.
- (ii) **Manufacturing processes:** Can be categorised into (a) Forming processes, (b) Machining processes and (c) Assembly processes.
- (iii) **Testing processes:** Which involve inspection and testing of products (sometimes considered as part of the manufacturing processes.)

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**2017 - June [2]** (a) 'An important objective of Operations Management is Resource Utilization'. Enumerate. Also list the scope of Operations Management. **(3 + 3 = 6 marks)**

**Answer:**

### **Resource Utilization**

Another major objective is to utilize resources for the satisfaction of customer wants effectively, i.e., customer service must be provided with the achievement of effective operations through efficient use of resources. Inefficient use of resources or inadequate customer service leads to commercial failure of an operating system.

Operations management is concerned essentially with the utilization of resources, i.e., obtaining maximum effect from resources or minimizing their loss, under utilization or waste. The extent of the utilization of the resources' potential might be expressed in terms of the proportion of available time used or occupied, space utilization, levels of activity, etc. Each measure indicates the extent to which the potential or capacity of such resources is utilized. This is referred as the objective of resource utilization.

Operations management is also concerned with the achievement of both satisfactory customer service and resource utilization. An improvement in one will often give rise to deterioration in the other. Often both cannot be maximized, and hence a satisfactory performance must be achieved on both objectives. All the activities of operations management must be tackled with these two objectives in mind, and many of the problems will be faced by operations managers because of this conflict. Hence, operations managers must attempt to balance these basic objectives.

### **Scope of Operation Management**

Operations Management concern with the conversion of inputs into outputs, using physical resources, so as to provide the desired utilities to the customer while meeting the other organizational objectives of effectiveness, efficiency and adoptability. It distinguishes itself from other functions such as personnel, marketing, finance, etc. by its primary concern for 'conversion by using physical resources'. Following are the activities, which are listed under

**Production and Operations Management Functions:**

1. Location of facilities
2. Plant Layouts and Material Handling
3. Product Design
4. Process Design
5. Production and Planning Control
6. Quality Control
7. Materials Management
8. Maintenance Management

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**2017 - Dec [2]** (a) Briefly explain the characteristics of the modern production system. **(7 marks)**

**Answer:**

The production management of today presents certain characteristics which make it look totally different from what it was during the past as follows:

1. **Manufacturing as Competitive Advantage:** In the past production was considered to be like any other function in the organisation. When the demand was high and production capacities were inadequate, the concern was to somehow muster all inputs and use them to produce goods which would be grabbed by market. But today's scenario is contrasting. Plants have excess capacities, competition is mounting and firms look and gain competitive advantage to survive and succeed. Production system offers vast scope to gain competitive edge and firms intend to exploit the potential. Total Quality Management (TQM), Time-Based Competition, Business Process Re-engineering (BPRE), Just-in-Time (JIT), Focused Factory, Flexible Manufacturing Systems (FMS), Computer Integrated Manufacturing (CIM), and The Virtual Corporation are some techniques which the companies are employing to gain competitive advantage.
2. **Services Orientation:** Service sector is gaining greater relevance these days. The production system, therefore, needs to be organised keeping in mind the peculiar requirements of the service component. The entire manufacturing needs to be geared to serve (i) intangible and perishable nature of the services, (ii) constant interaction with clients or customers,

- (iii) small volumes of production to serve local markets, and (iv) need to locate facilities to serve local markets. There is increased presence of professionals on the production, instead of technicians and engineers.
3. **Disappearance of Smokestacks:** Protective labour legislation, environmental movement and gradual emergence of knowledge based organisations have brought total transformation in the production system. Today's factories are aesthetically designed and built, environment friendly - in fact, they are homes away from homes. Going to factory every day is no more excruciating experience, it is like holidaying at a scenic spot.
  4. **Small has Become Beautiful:** It was E.F. Schumacher who, in his famous book Small is Beautiful, opposed giant organisations and increased specialisation. He advocated instead, intermediate technology based on smaller working units, community ownership, and regional workplaces utilising local labour and resources. For him, small was beautiful. Businessmen, all over the world, did not believe in Schumacher's philosophy. Inspired by economies of scale, industrialists went in for huge organisations and mass production systems.

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**2018 - June [2]** (a) Categorise the objectives of operations management and discuss about each category. **(2 + 4 = 6 marks)**

**Answer:**

Operations management is also concerned with the achievement of both satisfactory customer service and resource utilization. An improvement in one will often give rise to deterioration in the other. Often both cannot be maximized, and hence a satisfactory performance must be achieved on both objectives. All the activities of operations management must be tackled with these two objectives in mind, and many of the problems will be faced by operations managers because of this conflict. Hence, operations managers must attempt to balance these basic objectives.

- **Resource Utilization** Another major objective is to utilize resources for the satisfaction of customer wants effectively, i.e., customer service must be provided with the achievement of effective operations through efficient use of resources. Inefficient use of resources or inadequate

customer service leads to commercial failure of an operating system. Operations management is concerned essentially with the utilization of resources, i.e., obtaining maximum effect from resources or minimizing their loss, under utilization or waste. The extent of the utilization of the resources' potential might be expressed in terms of the proportion of available time used or occupied, space utilization, levels of activity, etc. Each measure indicates the extent to which the potential or capacity of such resources is utilized. This is referred as the objective of resource utilization.

- **Customer Service** an operations objective reflects how fast the firm can respond to customer requests. The more enhanced operations cycles, the faster the firm can respond, the higher customer satisfaction then the more likely they will buy again. The aim is to speed up response, ensure dependability of delivery, and reduce costs through minimizing total inventory across the whole system. Fast operations cycles reduce the time between customer request and product delivery and hence increase the overall revenue of the firm.

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**2018 - Dec [2]** Answer the following question:

- (a) Explain the concept of Operating System in order to have a clear idea of Operations Management. **(6 marks)**

**Answer:**

In order to have a clear idea of Operations Management, one must have an idea of 'Operating Systems'.

An Operating System is defined as a configuration of resources combined for the provision of goods or services.

Retail organizations, hospitals, bus and taxi services, tailors, hotels and dentists are all examples of operating systems. Any operating system converts inputs, using physical resources, to create outputs, the function of which is to satisfy customers wants. The creation of goods or services involves transforming or converting inputs into outputs.



Various inputs such as capital, labour, and information are used to create goods or services using one or more transformation processes (e.g., storing, transporting, and cutting). To ensure that the desired output are obtained, an organization takes measurements at various points in the transformation process (feedback) and then compares with them with previously established standards to determine whether corrective action is needed (control).

It is important to note that goods and services often occur jointly. For example, having the oil changed in your car is a service, but the oil that is delivered is a good. Similarly, house painting is a service, but the paint is a good.

The goods-service combination is a continuum. It can range from primarily goods, with little service, to primarily service, with few goods. Because there are relatively few pure goods or pure services, companies usually sell product packages, which are a combination of goods and services. There are elements of both goods production and service delivery in these product packages. This makes managing operations more interesting, and also more challenging.

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**2019 - June [2]** (a) List down various activities lying under Production and Operations Management function. **(6 marks)**

**Answer:**

**Various Activities lying under Production and Operations Management functions:**

- (i) Location of Facilities.
- (ii) Plant layouts and Material Handling.
- (iii) Product Design.
- (iv) Process Design.
- (v) Production Planning and Control.
- (vi) Quality Control.
- (vii) Materials Management.
- (viii) Maintenance Management.

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**2019 - Dec [2]** (a) Enumerate the characteristics of a modern operations function. **(7 marks)**

**Answer:**

***Please refer 2017 - Dec [2] (a) on page no. 18.***

**2021 - Dec [19]** To provide the “right thing at the right price at the right time” can be closely associated with which objective of Operations Management? **(1 mark) [Sec. B - SAQ]**

**Answer:**

Customer service

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| <b>Repeatedly Asked Questions</b> |  |                  |
|-----------------------------------|--|------------------|
| <b>No.</b>                        | <b>Question</b>  | <b>Frequency</b> |
| <b>1</b>                          | Descriptive Question of:<br>15 - Dec [1] (a), 16 - June [II] 1. (b)                                  | 2 Times          |
| <b>2</b>                          | Enumerate the characteristics of a modern operations function.<br>17 - Dec [2] (a), 19 - Dec [2] (a) | 2 Times          |