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# QUESTION PAPER

June – 2023

(Solved)

## MATERIALS MANAGEMENT

M.M.P.O.-6

Time: 3 Hours ]

[ Maximum Marks : 100

Note : (i) Question paper consists of seven questions. (ii) Answer any five questions. (iii) All questions carry equal marks.

**Q. 1.** “Materials management function helps the organizational activities to enhance both operating efficiencies and effectiveness.” Do you agree? Explain, in view of statement, the role of materials managers in organizational activities.

**Ans. Ref.:** See Chapter-2, Page No. 11, ‘Materials Management and Operational Excellence’ and ‘Roles of Materials Managers and Operational Excellence’.

**Q. 2.** Explain the meaning of materials requirement planning. Discuss the objectives of MRP.

**Ans. Ref.:** See Chapter-5, Page No. 49, Q. No. 4, and Page No. 46, ‘Objectives of MRP’.

**Q. 3.** Why is effective Materials Management a must for organisations? Also explain the key difference between Materials Management and Supply Chain Management.

**Ans. Ref.:** See Chapter-2, Page No. 18, Q. No. 4.

**Also Add:** Materials Management primarily focuses on the procurement, storage, and utilization of raw materials within an organization. It involves activities like inventory control, demand forecasting, and efficient handling of materials to ensure smooth production processes. Essentially, it's a subset of Supply Chain Management (SCM), concentrating on the internal flow and control of materials.

On the other hand, Supply Chain Management encompasses a broader scope. It involves the entire network of interconnected entities, processes, and activities involved in delivering a product to the end customer. SCM covers not only materials, but also logistics, supplier relationships, demand forecasting, distribution, inventory management, and customer satisfaction. It's a more comprehensive approach that considers the entire flow of goods and services from the sourcing of raw materials to the final delivery to the end-user.

**Q. 4.** “Warehouse location is the geographical place where any desired unit to manufacture products, deliver services or stock products is situated.”

**Comment on the statement. Also, state the reasons due to which organizations keep on changing the location of a warehouse.**

**Ans. Ref.:** See Chapter-10, Page No. 107, ‘Storage Space/Holding Function’.

**Also Add:** There are several reasons why organizations consider changing the location of a warehouse:

**Market Demand Changes:** Shifting consumer demand or market dynamics may require a company to move its warehouse closer to its target market. This can be due to population shifts, changes in consumer behaviour, or market expansion.

**Cost Efficiency:** Relocating a warehouse can be driven by the pursuit of cost savings. Moving to a new location might offer lower real estate costs, reduced labour expenses, or tax incentives.

**Supply Chain Optimization:** A warehouse might be relocated to optimize the supply chain. This includes being closer to suppliers or transportation hubs to reduce transportation costs, improve logistics, and enhance overall operational efficiency.

**Business Expansion or Contraction:** If a company is expanding its operations or markets, it might need a larger or more strategically positioned warehouse. Conversely, if there's a contraction in business, downsizing or consolidating warehouses might be necessary.

**Access to Skilled Labour:** Companies might relocate warehouses to access a larger pool of skilled labour or to benefit from better labour market conditions, reducing recruitment challenges.

**Infrastructure and Technology Upgrades:** Relocating a warehouse might be necessary to take advantage of better infrastructure or to implement advanced technologies that improve warehouse operations, such as automation or robotics.

**Regulatory or Environmental Factors:** Changes in regulations, zoning laws, or environmental considerations might prompt a move to comply with new standards or to mitigate risks associated with the current location.

**Risk Management:** In some cases, a company might move its warehouse to minimize risk, such as relocating from an area prone to natural disasters or political instability to a more stable region.

**Customer Service Improvement:** A warehouse relocation might be considered to better serve customers. Being closer to the target market can reduce delivery times and improve overall service.

**Lease Expiration or Facility Conditions:** The end of a lease or deteriorating conditions of the current facility could prompt a move to a new location that better meets the company's needs.

These factors can individually or collectively influence a company's decision to change the location of a warehouse, and the specific reasons for relocation will vary depending on the unique circumstances and goals of the organization.

**Q. 5. "To achieve the objectives of materials management, different controls are needed, depending upon the individual functions." Explain the different types of control needed in materials management.**

**Ans. Ref.:** See Chapter-13, Page No. 145, 'Why Control is Needed in Materials Management?' and

'Different Types of Control Needed in Material Management'.

**Q. 6. Explain the meaning of classifications. Discuss the classification of materials on the basis of nature of materials.**

**Ans. Ref.:** See Chapter-9, Page No. 96, 'Classification'.

**Q. 7. Write short notes on any three of the following:**

**(a) Flexible Manufacturing System.**

**Ans. Ref.:** See Chapter-7, Page No. 74, 'Flexible Manufacturing System'.

**(b) Materials Logistic Management (MLM).**

**Ans. Ref.:** See Chapter-1, Page No. 2, 'Materials Logistics Management'.

**(c) Characteristics of Good Customer Service**

**Ans. Ref.:** See Chapter-4, Page No. 39, Q. No. 2.

**(d) Warehouse Blaze**

**Ans. Ref.:** See Chapter-11, Page No. 118, 'Warehouse Blaze'.

**(e) Theory of super organization**

**Ans. Ref.:** See Chapter-12, Page No. 131, 'Theory of the Super Organization'.

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# Sample Preview of The Chapter

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# MATERIALS MANAGEMENT

## Introduction to Materials Management

### INTRODUCTION

Materials are those items or things that must be moved in order to create products. One of the five management resources at the disposal of managers is material, along with men, machines, methods, and money. Raw materials, paperwork, messages, and information, among other things, are all examples of materials. Therefore, materials can be both concrete and abstract. These are material objects. Additionally, certain information is changed when you watch a television movie or get a call.

### CHAPTER AT A GLANCE

#### MATERIALS MANAGEMENT AND ITS FUNCTIONS

Materials can be divided into three major categories. The first category includes materials that have been purchased, such as raw materials, components, spare parts, and items that are used but do not end up in the final product. In-process materials or materials that are semi-finished make up the second category, followed by finished products that are offered to clients. These materials and its flow must be managed. The goal is to purchase the materials for as little money as possible while maintaining both quality and quantity, and to keep inventories in such a way that just a little amount of money is spent while still having enough resources available for the production process.

For an organisation to achieve its goal of cost reduction, materials management is actually defined as a role that integrates purchasing, storage, inventory control, materials handling, and standardisation, among other things. Every business wants to produce as much as possible while keeping production costs as low as possible in order to maximise profit. In order to cut material costs, manage inventories, ensure a consistent flow of supplies, and uphold positive

relationships with suppliers, an organisation must have a strong materials management system.

The study of materials management began to acquire popularity in the early 1960s and has since grown in significance. Given that the whole cost of the materials is larger than the total cost of the workers, machines, and processes, the importance of the materials must be significant. It is the most practical area that can provide chances for cost-cutting and profit-improving prospects. Materials increase the worth of a product since they directly affect its quality.

#### The functions of materials management are:

**1. Materials planning and control:** Any manufacturing process's material needs are calculated by this function.

**2. Purchasing:** This function locates the sources of supply, conducts market research, calls for tenders, chooses suppliers, bargains with them, and therefore makes the raw materials available.

**3. Inventory control:** The location and storage of materials is the responsibility of this function in order to keep them readily available for the least amount of money and time possible.

**4. Storekeeping:** The materials' receipt and distribution are handled by this function.

**5. Material handling:** The purpose of this function is to reduce handling of materials and the need for handling equipment.

**6. Warehousing:** This duty is in charge of the material storage facilities, weighing facilities, equipment for handling materials, facilities for distributing goods, and equipment for combating fires, among other things.

**7. Standardization and simplification:** This process chooses products with high demand and establishes requirements for every product's quality, raw materials, sizes, and performance.



### 8. Organization and appraisal of materials:

By demonstrating smooth flow, this function aids in effective functioning.

The numerous costs that are involved in the management of materials are cost of materials, purchasing cost, inventory carrying cost, packaging costs, transportation cost, and material handling cost and waste during production.

#### **MATERIALS MANAGEMENT OR MANAGEMENT OF FLOW OF MATERIALS**

The responsibility for materials management begins as soon as supplies arrive at the organization's warehouse and continues through the creation of the finished product. The interconnected tasks that are completed to attain are the methodical sequencing of each group. Materials management is the control of this orderly movement of materials.

The notion of total materials management emerged to handle this aspect and prevent competing goals. Accountability is established with the use of whole material management, enabling quick and appropriate problem-solving. This integrated approach aids in the better coordinated completion of the material functions. Increased communication regarding the requirement for supplies results in lower costs, improved inventory turnover, decreased stock outs, and other important advantages. The integrated material function serves as the foundation for the design of data processing systems.

#### **MATERIALS LOGISTICS MANAGEMENT (MLM)**

A materials logistics management programme was established in the 1980s for management students at American universities to match industry standards. MLM asserts an integrated logic to ensure a seamless flow of materials and covers the three crucial areas that are necessary for moving materials, namely purchasing, manufacturing, and physical distribution. The MLM aims to achieve goals including managed customer service performance, inventory reduction, and minimal variance in planned operations, minimal overall cost of operations, and procurement and product quality management.

The three interfaces that MLM covers were further detailed by Bowers et al. in 1984. These include the manufacturing interface, the purchasing interface, and the physical distribution interface.

#### **Beliefs related to the physical distribution interface**

In an effort to reduce uncertainty and streamline transactions, demand management coordinates

and modifies how customers place product orders, scheduled distribution aims to fulfil customer orders quickly, and postponement carries a planned delay of an activity for as long as possible until a profitable preposition is reached.

#### **Beliefs related to the manufacturing interface**

1. Since predictions, customer orders, backorders, and physical distribution are all combined at this point to calculate total requirements, master schedule management helps to settle conflicts between marketing and manufacturing.

2. The goal of just-in-time scheduling or Kanban is to reduce inventories to zero.

3. Computer-based planning and control systems, or "pull" systems, should be used to achieve flexibility.

#### **Beliefs related to the purchasing interface**

1. For a sustained competitive advantage, supply management recognises the production trends and launches efficient purchasing.

2. Purchases are accelerated by time constraints. They must be specified in order for suppliers to give the supply network precise information on lead times and for buyers to give precise information on requirements.

3. The supply network's responsiveness reveals how frequently customer requirements and product life cycles change.

#### **INTERFACES OF MATERIALS MANAGEMENT**

Material management involve numerous interfaces such as market forecasting, production, finance, inventory control, inspection, quality control, material handling, physical distribution logistics, consumers and suppliers.

The following additional materials management functions are stressed by the entire material management concept:

1. Forecasting, budgeting, planning, and programming for materials.
2. Planning, acquiring, and procuring.
3. Inspection of the number and quality of the receiving.
4. Inventory management, warehousing, and storage.
5. Traffic management, movement control, etc.
6. Distribution, transport, and disposal.

Additionally, materials management must coordinate all of the aforementioned tasks and maintain contact with manufacturing, finance, and marketing, among other departments.

### MATERIALS FLOW PROCESS

Any organization's goal is to handle its 5 M's as efficiently as possible. These five M's are Men, Machines, Money, Methods, and Material. This collaboration aims to produce outstanding items at affordable prices.

The vendor or supplier from whom the material is to be purchased initiates the material flow. The stuff is received and examined after it has been purchased. It is accepted by retailers after inspection. The materials are needed as and when they are needed by manufacturing system and its sub-systems. After that, logistics assumes control and subsequently the warehousing and customer service.

There is constant flow of information. You can see that information flow encompasses a lot more than material flow does. Decision-information is therefore necessary for the materials flow to be effective. An organisation will be able to deliver high-quality goods at reasonable prices and provide excellent service if it can readily and effectively control these two flows.

#### ACTIVITY

**Does the MLM stand validated in present business circumstances too? Comment.**

**Ans.** The following are the reasons due to which Materials Logistics Management (MLM) stands to be validated in the present business circumstances:

1. The process of sourcing materials includes more than just locating the vendor with the lowest price for a certain raw material. In logistics, contributing elements and expenses are calculated and managed, including backorder delays, competitor priority rankings and lockouts, add-on service costs, supplemental charges, increased shipping costs because of distance or regulatory settings, and warehousing costs. It takes careful control of all influencing elements to identify the appropriate source for every given piece of information. Logistics is a key component of this planning process, which is known as strategic sourcing.

2. The act of physically moving things from point A to point B is at the heart of logistics. A corporation must first choose the best shipping method air or land, for instance and the best carrier based on price, efficiency, and distance, including maximising routes that call for many carriers. For international shipments, the shipper must be knowledgeable about customs, tariffs, compliance, and any applicable laws. Using dashboards and analytics, transport managers

must track and record shipments, handle billing, and produce performance reports.

3. Long-term storage and short-term storage are both frequently used in logistic planning. However, warehouse management systems also make it possible to plan logistics. For instance, logistics planners must take into account the availability of warehouse space as well as any unique requirements, such as cold storage, docking facilities, and closeness to transit hubs like rail lines or shipyards. Furthermore, logistic planning includes organising the warehouses. The front of the warehouse is typically where items are stored that move around a lot or are scheduled for transport soon. Items with lower demand are kept farther back. The oldest items are sometimes shipped out first when perishable goods are rotated. Items that are frequently bundled are typically kept next to one another, etc.

4. Businesses can maintain higher profits and accelerate inventory turns the ratio of how frequently you sell and replace inventory in a given period by employing inventory management techniques to prepare in advance for increased demand in seasonal or trending products. On the other hand, a business can more accurately predict when to offer promotional pricing or other incentives to free up money to reinvest in goods that are more in demand by observing slower inventory turns on other products. Retail sales also frequently vary from store to store, area to region, and nation to nation. The company might choose to ship products that are selling badly in one store to another instead of taking a loss by selling the stock at a discount price thanks to effective inventory management.

#### SELF ASSESSMENT QUESTIONS

**Q. 1. Define materials management. What are the categories/group materials can be put? Discuss the functions of the materials management in detail.**

**Ans.** A system for efficiently controlling and managing the supply and materials used by a company is called material management. In order to assist the production process and satisfy consumer demand, material management aims to make sure that the appropriate materials are available at the appropriate times and in the appropriate quantities. Materials management is a part of the planning and management of the supply chain. The primary goal of materials management is to provide producers with all the raw materials they need to finish the creation of their goods. The management of materials also places a strong emphasis on preventing the loss of any

individual components and attaining the highest levels of efficiency in the upkeep and management of stock.

**The following are the functions of the materials management:**

1. Production schedules that will be followed in the future must be created by the production manager. The requirements for the various components and materials are established using the production schedules. When creating production schedules, existing orders as well as projections of future demand for a product are taken into account. Every category or component of the raw materials is made available to support smooth manufacturing.

2. Purchase agreements can be made by the purchasing department using the requests from other departments. This department keeps up with contracts with numerous vendors and routinely collects quotes and other pertinent data. This section will make every effort to buy the right things at reasonable prices that are of the right quality. In addition to the simple act of buying, purchasing is a management action that encompasses planning and policy-related actions that span a wide range of activities and are interconnected with and mutually beneficial. As a result, purchasing encompasses more than just the act of making a purchase.

3. Transporting supplies from diverse vendors is one of the most important duties of materials management. The traffic department is in charge of organising transport services. The business will have to either purchase the vehicles outright or locate a third party to rent them out. The quantity and frequency of material purchases determine everything. The objective is to provide the commodities with affordable and useful transportation options. It has to do with how materials move within a production organisation, and material handling costs are kept under control. Additionally, it has been noted that there are no material losses or wastes when the materials are being transferred. One can buy specialised equipment for material handling.

**Q. 2. If the responsibility for maintaining the quality of the product and incurring less cost on its production is the responsibility of the “production/operation” and deciding the price of the product and finding the customers that will buy it comes under “marketing”. What do the “materials management function” does?**

**Ans.** The following are the tasks performed by the materials management:

1. Having the right materials accessible for manufacturing is the primary task of material

management. It entails determining the raw materials needed for production and guaranteeing that they meet the necessary standards for quality, quantity, and specification. Companies may reduce the risk of production delays and guarantee customer satisfaction by making sure the appropriate materials are accessible.

2. Assuring that the appropriate items are accessible at the appropriate moment is the second task of material management. It entails controlling the flow of materials inside the warehouse, cutting down on lead times, and enhancing the effectiveness of delivery procedures.

3. Making sure that there are enough resources accessible for production is the third task of material management. It entails deciding on the ideal inventory level to keep and putting procedures in place to control the movement of commodities inside the warehouse.

Companies may reduce the danger of stock shortages, save the cost of storage and handling, and boost productivity by making sure the proper quantity of resources is accessible.

4. Making sure that resources are bought at the appropriate price is the fourth task of material management. It entails haggling with suppliers to get the best deals and putting cost-cutting strategies in place including cutting waste, slashing lead times, and enhancing the effectiveness of delivery procedures.

5. Making sure that resources are supplied from the appropriate sources is the sixth goal of material management. It entails finding dependable suppliers, forming alliances with them, and ensuring that materials are only bought from recognised sources. Companies may lessen the risk of defective materials, cut down on the risk of production delays, and guarantee customer satisfaction by procuring materials from the appropriate suppliers.

**Q. 3. Discuss the value-added activities included in materials logistics management program (MLM). Describe the three interfaces that MLM covers.**

**Ans.** The two flows that make up the value-added activities in MLM are the flow of value-added materials from suppliers to customers and the flow of needs information from customers to suppliers. An integrated database controls the entire operation. MLM asserts an integrated logic to assure seamless material flow while covering the three key areas of purchasing, manufacturing, and physical distribution that are necessary for moving materials. The MLM aims to achieve goals including managed customer