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LOGISTICS MANAGEMENT

B.P.A.S.-184

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Sample Preview of the Solved Sample Question Papers

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QUESTION PAPER

June – 2023

(Solved)

LOGISTICS MANAGEMENT

B.P.A.S.-184

Time: 2 Hours] ***[Maximum Marks : 50***

Note: *Attempt any* ***five*** *questions. Attempt at least* ***two*** *questions from each Section. All questions carry equal marks.*

SECTION–I

Q. 1. Describe the specific concepts of Logistics Management.

Ans. Ref.: See Chapter-2, Page No. 17, 'Logisitics Management : Specific Concepts'.

Q. 2. Bring out the challenges of supply chain management.

Ans. Ref.: See Chapter-3, Page No. 32, 'Supply Chain Management: Challenges'.

Q. 3. "Logistics Management cycle has key interrelated activities?" Comment.

Ans. Ref.: See Chapter-4, Page No. 41, 'Logisitics Management Cycle Activities'.

Q. 4. Write short notes on the following:

***(a)* Inventory control : conceptual framework**

Ans. Ref.: See Chapter-5, Page No. 52, 'Inventory Control: Conceptual Framework'.

***(b)* Material handling systems**

Ans. Ref.: See Chapter-6, Page No. 62, 'Material Handling Systems'.

SECTION–II

Q. 5. Write a note on Logistics Information Flow.

Ans. Ref.: See Chapter-8, Page No. 82, 'Logistics Information Flow'.

Q. 6. Describe the technology applications of Logistics Information Systems.

Ans. Ref.: See Chapter-9, Page No. 95, Q. No. 4.

Q. 7. "Customer satisfaction is the degree to which customer expectations are met." Elucidate.

Ans. Ref.: See Chapter-10, Page No. 104, 'Customer Satisfaction'.

Q. 8. Write short notes on the following:

***(a)* Air and water pollution**

Ans. *(a)* The combustion engines of transportation vehicles like trucks, airplanes, ships, and locomotives are the primary contributors to air pollution, which impacts the air quality. Six types of pollutants, also known as criteria pollutants, are generated during combustion:

(i) Particulate Matter (PM) is a mixture of small particles and liquid droplets made up of organic chemicals, acids, metals, and dust particles. The size of the particles determines their impact on the environment and health.

(ii) Carbon Monoxide (CO) is a colourless, odourless gas produced during combustion processes, and transportation is the largest contributor to CO emissions.

(iii) Nitrogen Oxides (NOx) refers to nitric oxide and nitrogen dioxide, which contribute to air pollution. Half of the emissions come from transportation combustion engines.

(iv) Lead, a naturally occurring element that can be harmful to humans when ingested or inhaled, has been primarily emitted by fuels in motor vehicles and industrial sources.

(b) Water transportation contributes to water pollution through:

- Accidental spills and operational discharges of oils and chemicals.
- Release of biocides from toxic chemicals used in paints, specifically those that prevent metal corrosion.
- Dumping of waste garbage and sewage.

Shipping activities cause 40% of seabed pollution, while coastal facilities and ports add another 9% to water pollution. As water transportation is crucial, efforts to mitigate the environmental impact through better technology and environmentally conscious operations can directly benefit the environment.

***(b)* Information processing**

Ans. Ref.: See Chapter-8, Page No. 83, 'Information Processing'.

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QUESTION PAPER

December – 2022

(Solved)

LOGISTICS MANAGEMENT

B.P.A.S.-184

Time: 2 Hours] ***[Maximum Marks : 50***

Note: *Attempt any* ***five*** *questions. Attempt at least* ***two*** *questions from each Section. All questions carry equal marks.*

SECTION–I

Q. 1. Explain the logistics principles, activities and classification.

Ans. Ref.: See Chapter-1, Page No. 2, 'Logistics: Principles, Activities and Classification'.

Q. 2. 'Logistics management is important for any enterprise.' Elaborate.

Ans. Ref.: See Chapter-2, Page No. 19, 'Importance of Logistics Management and Page No. 20, Q. No. 4.

Q. 3. Discuss the various procurement methods of material and inventory control.

Ans. Ref.: See Chapter-5, Page No. 51, 'Procurement Methods' and Page No. 54, Q. No. 3.

Q. 4. Describe the various types of material handling equipment.

Ans. Ref.: See Chapter-6, Page No. 62, 'Material Handling Equipment'.

SECTION–II

Q. 5. Discuss the various modes of transportation that play a key role in Logistics Management.

Ans. Ref.: See Chapter-7, Page No. 71, 'Introduction', 'Transportaion Modes'.

Q. 6. What are the components of Logistics Information System?

Ans. Ref.: See Chapter-8, Page No. 84, Q. No. 2.

Q. 7. 'There are certain protocols to be adhered to in implementation of green logistics strategies and measures.' Elaborate.

Ans. Ref.: See Chapter-11, Page No. 117, 'Protocols for Green Logistics'.

Q. 8. 'Regulatory and environmental issues are important in logistics management.' Examine.

Ans. Ref.: See Chapter-13, Page No. 145, Q. No. 4.

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Sample Preview of The Chapter

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LOGISTICS MANAGEMENT

Logistics: Concept, Principles and Forms

1

INTRODUCTION

The production and delivery of goods and services are crucial activities in any organization. It is essential to manage various aspects related to their design, acquisition, storage, movement, distribution, and maintenance. This is the primary unit of the Logistics Management Course, where we will introduce the concept of logistics, its principles and forms, and familiarize you with important terms and concepts. The unit introduces the concept of logistics, its principles, forms, and important terms and concepts that will be used throughout the course. Throughout the course, we will use the terms 'company', 'enterprise,' and 'firm' interchangeably.

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CHAPTER AT A GLANCE

CONCEPT OF LOGISTICS: AN OVERVIEW

The term logistics comes from the Greek word for 'order' and the French word for the movement and supply of armies. Originally, logistics was strictly related to the military and involved the design, acquisition, storage, movement, distribution, maintenance, and disposal of materials, as well as the movement and hospitalization of personnel, facilities management, and furnishing of services. In business, logistics refers to the management of the flow of goods from the point of origin to the point of consumption to meet customer or corporate requirements. The Babylonians were the first to create a military corps specialized in logistics around 2000 BC.

Development of Logistics: The industrial revolution brought about significant changes in logistics, as mass production and assembly of products made it necessary to overcome the challenge of mass distribution of goods. The second industrial revolution saw major innovations in transportation and communications, leading to the extension of logistics beyond the military context to manufacturing companies after World War II. Logistics management evolved, with new concepts focusing on the timely movement of raw materials and finished products to customers. With technological developments by 2000, logistics became a goal of total integration, aiming to coordinate all efforts of the organization to maintain a cost-effective flow of goods. In a globalized world, customers now demand the right product, at the right time, at a reasonable price, at the chosen location, and with the desired quality, which is being accomplished with excellent operations and better logistics management.

Logistics development could be influenced by several factors, including advancements in computer technology, the use of quantitative techniques, the development of the systems approach, the application of total cost analysis, and the recognition of the critical role played by logistics.

Types of Logistics: Logistics can be classified into four types: Business Logistics, Military Logistics, Event Logistics, and Service Logistics. Business Logistics involves the efficient flow and storage of goods and services to meet customer requirements. Military Logistics focuses on supporting military forces and equipment to ensure readiness, reliability, and efficiency. Event Logistics is about organizing, scheduling, and deploying resources for an event, including post event activities. Service Logistics is the acquisition, scheduling, and management of facilities, assets, personnel, and material to support and sustain a service operation or business.

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Key Logistics Terms: Here are some key points about logistics terms:

- The terms 'supplies', 'commodities', 'goods', 'products', and 'stock' all refer to items that move through a logistics system and are used interchangeably in logistics management.
- 'Users', 'clients', and 'customers' all refer to the people who receive supplies and are also used interchangeably.
- A central distribution centre is a warehouse that serves as the sole stocking point for a distribution system, while service delivery points are facilities where customers receive supplies.
- Inventory refers to all the goods and materials held by an organization for future sale or use.
- The term 'pipeline' refers to the entire chain of storage facilities and transportation links that move supplies from the manufacturer to the consumer. In a logistics setting, the logistics system is often referred to as a pipeline.
- Lead time is the time between ordering new stocks and when they become available for use. Logistics managers try to reduce lead time to ensure goods reach customers as quickly as possible.

Role and Function of Logistics in an Organization: Logistics is a broad field that encompasses many activities, including raw material procurement, inventory management, production management, and transportation. It is not limited to the distribution of products, as it plays an important role in service industries as well. The logistics concept emphasizes customer satisfaction, integrated efforts, and maximizing company profits while keeping costs low and maintaining an acceptable level of customer service.

Systems Approach: Logistics is a systems-based approach to managing the flow of materials from suppliers to end customers in a single chain to achieve customer satisfaction at a reduced cost. It requires close coordination of all interdependent functional areas of logistics, including information flow, warehousing, inventory control, packaging, and transportation. The different functional areas of logistics comprise of:

(a) **Information Management:** This encompasses ordering, checking, processing, and coordinating information flow.

(b) **Warehouse Management:** This includes storage of materials, unitising loads, material handling, network planning, order picking and filling, and documentation for dispatch.

(c) **Inventory Management:** This involves planning material requirements and making inventory level decisions to achieve customer service goals.

(d) **Packaging:** It involves packaging design for damage prevention, handling, communication, and intermodal transportation.

(e) **Transportation Management:** This covers planning of transportation routes, selecting the appropriate mode of transport, and scheduling vehicles.

The concept of logistics requires management to think in terms of managing the total system, rather than just one part of it.

LOGISTICS: PRINCIPLES, ACTIVITIES AND CLASSIFICATION

Logistics management aims to efficiently move materials through an enterprise's supply chain to provide the right product at the right time and place at the least cost. The two critical goals of logistics are customer satisfaction and cost-effectiveness, which can only be achieved when all logistics functions work together as a unified system to achieve a common goal.

Principles of Logistics: The Seven Rights of Logistics describe the central principles of logistics management, which include the efficient movement of materials to customers. The seven rights are the right materials/products, in the right quantity, in the right condition, at the right time, to the right place, at the right cost, and to the right customers, associates, suppliers, and stockholders.

1. **Right Materials/Product:** Ensure that the necessary product/service is always available by providing the appropriate materials/products.
2. **Right Quantity:** Maintain the correct quantity of materials/products to prevent production stoppages or excess inventory buildup.
3. **Right Condition:** Provide products/services in optimal condition to meet client quality expectations.
4. **Right Time:** Ensure products/services are delivered on time to meet client demands.
5. **Right Place:** Deliver products/services to the appropriate location based on client needs.
6. **Right Cost:** Offer products/services at a cost that is acceptable to the client.
7. **Right Customers:** Distribute products services to the appropriate stakeholders, including customers, associates, suppliers, and stockholders.

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These principles highlight the importance of moving and storing materials efficiently to achieve high levels of customer satisfaction and link logistics to key strategic objectives such as cost competitiveness, quality, flexibility, and delivery.

Key Logistics Activities: Logistics is the physical distribution of goods, which includes order processing, procurement, material handling, warehousing, inventory control, transportation, packaging, and information. An organization's logistics refers to the physical distribution of goods, which involves several related activities, including:

(a) **Order Processing:** This involves receiving, handling, recording, and ensuring the accuracy and speed of orders. The commercial team accepts the order from the customer and passes it to the warehouse, making it a critical step in the logistics process. Any errors in this step could affect the entire logistics process.

(b) **Procurement:** This includes sourcing, negotiation, order placement, inbound transportation, receiving and inspection, storage, and handling of materials obtained from outside suppliers.

(c) **Material Handling:** This refers to the movement of goods within the warehouse, in a way that facilitates efficient order processing. Material handling systems are typically mechanized, semi-automated, or fully automated.

(d) **Warehousing:** This involves storing finished goods until they are sold, with the warehouse being ideally located near distributors or dealers to enable easy delivery of goods.

(e) **Inventory Control:** This ensures that inventory is adequate to meet customer demand, with carrying costs being minimized. Continuous monitoring of demand enables proper inventory management, as inadequate inventory leads to loss of orders, while excessive inventory leads to unnecessary investment.

(f) **Transportation:** This involves physically delivering goods from the organization to the distributor or dealer, and then to the end customer. Better warehousing and inventory management lower transportation costs.

(g) **Packaging:** This involves the responsibility of the logistics team to ensure that the product reaches the customer in good condition. Packaging serves two purposes: making the product attractive to customers on store shelves, and safely transporting products in bulk.

(h) **Information:** Logistics is an information-based activity involving inventory movement across the supply chain. Information systems play a vital role in delivering superior service to customers, with technology tools aiding in identification, access, storage, analysis, retrieval, and decision support to enhance competitiveness.

These activities are important to ensure accurate and efficient delivery of goods to customers. Proper handling and management of inventory and warehouses can help reduce transportation costs. Information plays a vital role in logistics, and technology tools can help enhance competitiveness.

Classification of Logistics

Logistics can be categorized into two types:

(a) **Inbound or Upstream Logistics:** This refers to activities related to the sourcing, acquiring, receiving, storing, and delivering of raw materials and parts to the product or service department. Inbound logistics is an integral part of the operations for a manufacturing firm, as it ensures a smooth and cost-effective inflow of materials and other inputs required in the manufacturing process. Proper management of inbound logistics requires continuous communication with suppliers or vendors. Essentially, inbound logistics involves buying and scheduling the inflow of materials, tools, and final goods from suppliers to the production unit, warehouse, or retail store.

(b) **Outbound or Downstream Logistics:** This involves the collection, storage, and distribution of final goods and related information flows from the manufacturing unit to end users or buyers. It covers all activities involved in the outflow of merchandise from the seller to the buyer, including selecting, organizing, and transporting goods. Outbound logistics covers physical distribution management or supply chain management and is concerned with the flow of finished goods and related information from the firm to the customer. Proper management of outbound logistics requires maintaining continuous communication with transport operators and channels of distribution.

OPERATING OBJECTIVES OF LOGISTICS

Logistics management involves achieving at least six different operational objectives: rapid response, minimum variance, minimum inventory, movement consolidation, quality, and life-cycle support. Information technology plays a key role in minimising variances and improving logistical productivity. The six operational objectives aim to minimise variance,

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reduce and manage inventory, achieve movement consolidation, seek continuous quality improvement, and provide life-cycle support.

The main goal of logistics is to move inventory in an effective and efficient way, while meeting customer service expectations and minimizing costs. A firm must achieve six operational objectives to achieve successful logistics management: rapid response, minimum variance, minimum inventory, movement consolidation, quality, and life-cycle support.

1. **Rapid Response:** Rapid response pertains to a firm's ability to meet customer service requirements in a timely manner. Information technology has enabled logistics operations to be scheduled efficiently, resulting in quicker delivery times and reduced inventory.
2. **Minimum Variance:** Variance refers to any unexpected event that disrupts system performance. Logistics operations are susceptible to various variances, such as manufacturing delays or incorrect deliveries. Information technology plays a vital role in minimizing these variances and improving logistics productivity.
3. **Minimum Inventory**: Reducing inventory to the lowest possible level while achieving desired operating objectives is another essential objective.
4. **Movement Consolidation:** Transportation costs are a significant logistical expense, and achieving movement consolidation by shipping larger overall shipments over longer distances reduces transportation costs per unit.
5. **Quality Improvement:** The next objective is to seek continuous quality improvement, with total quality management (TQM) becoming a major commitment in all facets of industry.
6. **Life-Cycle Support:** Life-cycle support is also crucial, with product recalls and return logistics requirements resulting from strict quality standards and regulations on recycling materials.

Overall, a successful logistics management strategy must strive to achieve all six operational objectives to meet customer demands while minimizing costs and improving efficiency.

LOGISTICS FORMS

Logistics can be categorized into five distinct types: procurement logistics, production logistics, sales logistics, recovery logistics, and recycling logistics. The following are brief descriptions of each type:

1. **Procurement Logistics:** This refers to the acquisition of raw materials and parts required for manufacturing. Procurement logistics involves the movement of goods when procuring raw materials and parts from suppliers.
2. **Production Logistics:** This type of logistics involves the management of materials, products, and shipping in a manufacturing setting. It includes the management of procured parts and materials, distribution within the factory, product management, packaging, and shipping to the warehouse.
3. **Sales Logistics:** Sales logistics deals with the delivery of products from warehouses to wholesalers, retailers, and consumers. It typically involves the transfer of goods from delivery centers and logistics warehouses to distribution points such as wholesalers and retailers. With the rise of online shopping and e-commerce, direct delivery has become a significant component of this volume. Ensuring higher efficiency in transportation and delivery while reducing inventory is critical to delivering necessary goods to people at the right quantities and times and improving customer satisfaction.
4. **Recovery/Reverse Logistics:** Recovery or reverse logistics involves the recovery and recycling of products, containers, and packaging. Recovery logistics is the flow that recovers and recycles products, containers, and packaging that have fulfilled their roles.
5. **Recycling Logistics:** This type of logistics is concerned with the recovery and recycling of recyclable products and containers, similar to recovery logistics. Examples include the recovery and recycling of empty cans, plastic bottles, old paper, containers, packaging materials, old computers, and inkjet cartridges

Each system has its own advantages and disadvantages, and the choice depends on the company's requirements and nature of operations.

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