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BBA
48th batch
Course title: Production and Operations Management
Course code: POM 325

Answer to the question no. 1

The location of a plant or facility is the geographical positioning of an operation relative to the input resources and other operations or customers with which it interacts.
The facilities location problem is one of major importance in all types of business. It is important to notice the different problems that may arise whilst trying to choose a suitable location.

Different factors in Location

- **Proximity to market:** Organisations may wish to locate their facility close to their market, to be able to lower transportation costs, and most importantly, to be able to provide their customers with a better service. If the plant or facility is located close to the customer, the organisation would be in a better position to provide just-in-time delivery, to respond to fluctuations in demand and to react to field or service problems.
- **Availability of labor and skills:** A number of geographical areas have traditional skills but it is very difficult for an organisation to find a location which has the appropriate skilled and unskilled labor, both

readily available and in the desired quantities. Even so, new skills can be tought, processes simplified and key personnel moved from one area to another.

- **Availability of amenities:** Organisations would prefer to locate their facilities in a location which provides good external amenities such as housing, shops, community services and communication systems.
- **Availability of inputs:** A location which is near main suppliers will help to reduce cost and allow staff to meet suppliers easily to discuss quality, technical or delivery problems, amongst others. It is also important that certain supplies which are expensive or difficult to procure by transport should be readily available in the locality.
- **Availability of services:** There are six main services which need to be considered whilst a location is being chosen namely; gas and electricity, water, drainage, disposal of waste and communications. An assessment must be made of the requirements for these, and a location which provides most or all of these services will be more attractive than another which does not.
- **Room for expansion:** Organisations should leave room for expansion within the chosen location unless long term forecast convey very accurately that the plant will never have to be altered or expanded. This is often not the case and thus adequate room for expansion should be allowed.
- **Safety requirements:** Certain production and manufacturing units may present potential hazards to the surrounding neighborhood. For example certain plants such as nuclear power stations and

chemical factories should be located in remote areas.

- **Site cost:** The cost of the site is a very important factor, however it is necessary to prevent immediate benefit from jeopardizing the long-term plans of an organisation.
- **Political, cultural and economic situation:** It is also important to consider the political situation of potential locations. Even if other considerations demand a particular site, knowledge of the political, cultural and economic difficulties can assist in taking a number of decisions.
- **Special grants, regional taxes and import/export barriers:** It is often advantageous for an organisation to build its plant or facility in a location where the government and local authorities often offer special grants, low-interest loans, low rental or taxes and other grants.

Answer to the question no. 3

Quality control: Quality control involves testing units and determining if they are within the specifications for the final product. The purpose of the testing is to determine any needs for corrective actions in the manufacturing process. Good quality control helps companies meet consumer demands for better products.

- Quality control is a process through which a business seeks to ensure that product quality is maintained or improved.

- Quality control involves testing units and determining if they are within the specifications for the final product.
- The quality control used in a business is highly dependent on the product or industry, and several techniques exist for measuring quality.
- The food industry uses quality control methods to ensure customers do not get sick from their products.
- Quality control creates safe measures that can be implemented to make sure deficient or damaged products do not end up with customers.

Inspection: Product inspection is the process of checking or verifying products to ensure that they meet set specifications. Product inspection is usually carried out at the manufacturing plant where your goods are being made.
Inspection can happen at any stage of the manufacturing process and mostly focuses on product quality, construction, and functionality. Most importantly, it ensures that the product meets safety standards and complies with import regulations in your country.

Difference between Quality control and Inspection

Quality control can be conducted in various ways depending on the product, the manufacturing process, and its challenges. Some of the most common methods of quality control include product inspection and lab testing.
On the other hand, product inspection is a component of quality control that involves verifying that manufactured products meet pre-set requirements. Inspection can be

done during various manufacturing stages, with the most common being pre-production, during production, and pre-shipment inspections.

Answer to the question No. 6

Statistical quality control(SQC), the use of statistical methods in the monitoring and maintaining of the quality of products and services. One method, referred to as acceptance sampling, can be used when a decision must be made to accept or reject a group of parts or items based on the quality found in a sample. A second method, referred to as statistical process control, uses graphical displays known as control charts to determine whether a process should be continued or should be adjusted to achieve the desired quality.

Assume that a consumer receives a shipment of parts, called a lot, from a producer. A sample of parts will be taken and the number of defective items counted. If the number of defective items is low, the entire lot will be accepted. If the number of defective items is high, the entire lot will be rejected. Correct decisions correspond to accepting a good-quality lot and rejecting a poor-quality lot. Because sampling is being used, the probabilities of erroneous decisions need to be considered. The error of rejecting a good-quality lot creates a problem for the producer; the probability of this error is called the producer’s risk. On the other hand, the error of accepting a poor-quality lot creates a problem for the purchaser or consumer; the probability of this error is called the consumer’s risk.

Purpose:
The main objective of statistical quality control (SQC) is to achieve quality in production and service organizations, through the use of adequate statistical techniques.

Advantages of Statistical Quality Control

- Prevent recalls from happening. When a faulty product escapes out of the factory and into a consumer's hand, it's bad enough.
- Re-evaluate set production processes to increase efficiency.
- Generate complete confidence in your product.

Answer to the Question No 5

Materials management is a core supply chain function and includes supply chain planning and supply chain execution capabilities. Specifically, materials management is the capability firms use to plan total material requirements. The material requirements are communicated to procurement and other functions for sourcing. Materials management is also responsible for determining the amount of material to be deployed at each stocking location across the supply chain, establishing material replenishment plans, determining inventory levels to hold for each type of inventory (raw material, WIP, finished goods), and communicating information regarding material needs throughout the extended supply chain.

Typical roles in Materials Management include:

Materials Manager, Inventory Control Manager, Inventory Analyst, Material Planner, Expediter and emerging hybrid roles like "buyer planner".

The primary business objective of Materials Management is assured supply of material, optimum inventory levels and minimum deviation between planned and actual results.

Different types of Inventory Control:

Inventory control consists of systems and procedures for managing inventory items in a company's warehouse. It monitors the movement and storage of goods in a warehouse to help businesses maintain a sufficient supply in good condition. Establishing an inventory control system enables them to satisfy customer demands and maximize profits.

Inventory control is a key element of an inventory management system. Warehouse managers and production planners should adhere to the following activities and procedures in controlling their inventory:

- Receiving, storing, and transferring goods
- Placing items in strategic locations
- Tracking inventory items and their locations in the warehouse
- Documenting product details and histories
- Monitoring the condition of items in stock
- Fulfilling purchase orders with stock on hand
- Integrating barcode scanners
- Forming reorder reports

There are two main types of inventory control systems: the periodic and the perpetual system. Choosing the right inventory control system will depend on the business type, size, and kind of inventory. This section discusses these two types in detail, covering their pros and cons, as well as what they're best for.

Periodic Inventory Control System

The periodic inventory control system pertains to a recurring count of goods at specific intervals. In this system, warehouse managers manually count their inventory on a monthly, quarterly, or annual basis. The exact period depends on an organization's needs and business activities.

Perpetual Inventory Control System

The perpetual inventory control system provides an accurate count of inventory levels in real-time. It utilizes technology, such as barcodes and Radio Frequency Identification (RFID) tags, for tracking products. The information is then logged in a centralized database that warehouse managers can easily access.