



**BUDDHA SERIES**  
**Course – BBA 4<sup>th</sup> SEM**  
**College – Buddha Institute of Management**  
**Department: Business Administration**

**Subject: POM**

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## UNIT-1

### Short answer type question

#### **1. What is the nature of production?**

Production is the process of converting inputs such as raw materials, labor, capital, and information into finished goods or services. It involves value addition at every stage of transformation. The nature of production is both physical (manufacturing goods) and service-oriented (like banking or education). It is continuous, systematic, and goal-oriented. Production is essential for economic development and ensures the availability of goods and services to meet human needs. It also focuses on efficiency, quality, and cost-effectiveness in operations.

#### **2. Explain production as a system.**

Production as a system consists of interrelated components working together to achieve a common goal. It includes inputs (raw materials, labor), transformation processes (machining, assembling), outputs (finished goods), and feedback (performance evaluation). This system ensures smooth coordination and efficient functioning. Any disturbance in one component affects the entire system. Feedback helps in improving quality and productivity. Thus, production operates like a closed-loop system that continuously adapts and improves.

#### **3. What is decision making in production?**

Decision making in production involves selecting the best course of action from various alternatives to achieve organizational goals. It includes decisions related to product design, process selection, capacity planning, scheduling, and quality control. These decisions are based on cost, time, efficiency, and customer requirements. Effective decision making ensures optimal use of resources and minimizes waste. It plays a vital role in improving productivity and maintaining competitiveness in the market.

#### **4. State the importance of production function.**

The production function is crucial as it transforms inputs into outputs efficiently. It ensures the availability of goods and services in the market. It contributes to employment generation and economic growth. Efficient production reduces costs, increases profitability, and improves quality. It also helps organizations meet customer demand and maintain competitive advantage. Without a strong production function, business operations cannot sustain or grow effectively.

#### **5. What are the objectives of Production Planning and Control (PPC)?**

The objectives of PPC are to ensure smooth production flow, optimal utilization of resources, timely delivery of products, and cost reduction. It aims to maintain quality standards and minimize production delays. PPC also helps in coordinating different departments and avoiding bottlenecks. By proper planning and control, it enhances productivity and ensures efficient use of machines, labor, and materials.

## **Long Answer Type Question**

### **1. Explain the scope of production and operations management.**

Production and Operations Management (POM) covers a wide range of activities involved in producing goods and services. It includes product design, process selection, facility location, plant layout, inventory control, quality management, and maintenance. POM also focuses on planning, organizing, directing, and controlling production activities. It ensures efficient utilization of resources like labor, machines, and materials. In modern organizations, POM integrates advanced technologies such as automation and artificial intelligence to improve productivity. It also deals with supply chain management and customer satisfaction. The scope is not limited to manufacturing but extends to service sectors like healthcare, banking, and education. Thus, POM plays a vital role in achieving organizational efficiency and competitiveness.

### **2. Discuss the characteristics of modern production systems.**

Modern production systems are characterized by automation, flexibility, and integration of advanced technologies. They use robotics, computer-aided design (CAD), and artificial intelligence to improve efficiency and reduce human effort. Lean manufacturing and just-in-time (JIT) production minimize waste and inventory costs. Customization is another key feature, allowing products to be tailored according to customer needs. Globalization has expanded production across countries, increasing competition. Modern systems also emphasize quality control, sustainability, and environmental responsibility. Continuous improvement techniques like Kaizen are widely used. Overall, modern production systems focus on efficiency, innovation, and adaptability.

### **3. Explain principles of Production Planning and Control.**

Production Planning and Control is guided by several principles. Planning before execution ensures smooth workflow. Proper scheduling helps in timely completion of tasks. Coordination among departments is essential for efficiency. Flexibility allows adjustments to unexpected changes. Continuous monitoring and control ensure that production stays on track. Standardization improves consistency and quality. The principle of economy ensures cost-effective operations. Feedback mechanisms help in correcting errors and improving processes. These principles collectively ensure efficient production management.

### **4. Describe functions of PPC department.**

The PPC department performs several key functions. Routing determines the path of production and sequence of operations. Scheduling fixes the time and order of production activities. Dispatching involves issuing instructions to start production. Follow-up ensures that work is progressing as planned. Inspection checks the quality of products. PPC also manages inventory levels and coordinates between departments. It helps in avoiding delays and ensures efficient utilization of resources. Overall, PPC plays a crucial role in maintaining production efficiency.

### **5. Explain production as an organizational function.**

Production is a vital organizational function responsible for creating goods and services. It works in coordination with other functions like marketing, finance, and human resources. Production ensures that products are manufactured according to demand and quality standards. It involves planning, organizing, and controlling production processes. Efficient production leads to cost reduction and customer satisfaction. It also supports organizational growth and competitiveness. Without a proper production function, business operations cannot function effectively.

## Short answer type question

### 1. What factors influence the choice of manufacturing methods?

The choice of manufacturing method depends on several factors such as product type, production volume, cost, and available technology. If production is low and customized, job production is preferred, while high-volume standardized production uses mass production. Availability of skilled labor, machinery, and capital also plays a role. Flexibility, delivery time, and quality requirements influence the decision. Market demand and product design complexity are also important. Selecting the right method ensures efficient production, cost control, and customer satisfaction.

### 2. What is project production?

Project production is a manufacturing method where a **single, large, and unique product** is produced at a fixed location. Resources like labor and equipment are brought to the site. Examples include construction of bridges, buildings, and ships. It is characterized by high customization, long duration, and complex planning. Each project is different and requires special management. Coordination among activities is critical. It involves high cost and risk but allows flexibility in design and execution.

### 3. Define batch production.

Batch production is a method where products are manufactured in **groups or batches** instead of continuous production. Each batch goes through the entire production process before the next batch begins. It is suitable for moderate production volumes and allows some flexibility in product design. Machines are adjusted between batches, which may cause delays. It balances between job and mass production. Examples include bakery products, garments, and pharmaceuticals.

### 4. What is standard time?

Standard time is the **time required by an average skilled worker** to complete a task under normal working conditions with proper allowances for rest and delays. It is used for planning, scheduling, and performance measurement. Standard time helps in setting targets, controlling costs, and improving productivity. It is calculated using time study techniques and includes allowances for fatigue, personal needs, and unavoidable delays.

### 5. What is work study?

Work study is a systematic technique used to improve productivity by analyzing work methods and measuring work performance. It consists of **method study** (improving how work is done) and **work measurement** (determining time required). It aims to eliminate unnecessary activities, reduce costs, and increase efficiency. Work study helps in better utilization of resources and improves overall production performance.

## Long answer type question

### 1. Explain classification of manufacturing methods.

Manufacturing methods are classified based on production volume, variety, and process. **Project production** involves producing a unique product at a fixed location, such as construction projects. **Job production** produces customized items as per customer requirements, often in small quantities. **Batch production** manufactures goods in groups, allowing moderate flexibility and efficiency. **Mass production** produces standardized products in large quantities using assembly lines, ensuring low cost and high efficiency. **Flow production** is similar to mass production but involves continuous movement of materials. **Process production** is used in industries like chemicals and oil, where production is continuous and products are homogeneous. Each method has its advantages and is selected based on product type, demand, and cost considerations.

### 2. Discuss importance of work study.

Work study is essential for improving productivity and efficiency in an organization. It helps in identifying unnecessary operations and eliminating waste. By analyzing work methods, it ensures that tasks are performed in the most efficient way. Work measurement helps in setting standard times, which are useful for planning and control. It reduces production costs and improves resource utilization. Work study also enhances worker performance and reduces fatigue by optimizing movements. It plays a vital role in increasing output and maintaining quality standards. Overall, it contributes to better management and organizational growth.

### 3. Explain method study and time & motion study relationship.

Method study focuses on improving the way work is performed by eliminating unnecessary steps and simplifying processes. Time study measures the time required to complete a task. Motion study analyzes movements of workers to reduce fatigue and increase efficiency. Time and motion study together form an integrated approach. While motion study improves physical movements, time study ensures optimal time utilization. Both are essential components of work study. Their relationship helps in achieving maximum productivity, reducing costs, and improving work conditions.

### 4. Explain techniques of work measurement.

Work measurement techniques are used to determine the time required to complete a task. Common techniques include **time study**, where tasks are measured using stopwatches; **work sampling**, which estimates time based on random observations; **predetermined motion time systems (PMTS)**, which use standard data for movements; and **analytical estimating**, used for non-repetitive jobs. These techniques help in setting standard times, improving efficiency, and planning production. They are essential for cost control and performance evaluation.

### 5. Explain factors influencing productivity.

Productivity is influenced by several factors such as technology, labor skills, management efficiency, and working conditions. Availability of modern machinery increases output. Skilled and motivated workers perform better. Proper planning and supervision improve efficiency. Good working conditions like lighting, ventilation, and safety reduce fatigue. Availability of raw materials and effective inventory management also impact productivity. Training and incentives further enhance worker performance. External factors like government policies and economic conditions also play a role. Improving these factors leads to higher productivity and organizational success.

## **Short answer type question**

### **1. What factors affect plant location?**

Plant location is influenced by factors such as availability of raw materials, labor supply, transportation facilities, and proximity to markets. Cost of land, government policies, taxes, and incentives also play a role. Availability of power, water, and infrastructure is essential. Environmental conditions and community attitude are important considerations. A good location reduces production and distribution costs and improves efficiency. Selecting the right location ensures smooth operations and long-term profitability.

### **2. What are the principles of plant layout?**

Plant layout refers to the arrangement of machines, equipment, and work areas. Its principles include smooth workflow, minimum material handling, optimum space utilization, flexibility, and safety. It should ensure proper coordination between departments. Good layout reduces delays and improves productivity. It should also allow easy supervision and maintenance. Proper lighting, ventilation, and working conditions must be considered. Overall, an effective layout enhances efficiency and reduces production costs.

### **3. Define process layout.**

Process layout (functional layout) is a type of layout where similar machines or processes are grouped together. For example, all drilling machines are placed in one area, and all cutting machines in another. It is suitable for job or batch production. It provides flexibility in production but may increase material handling and time. It is commonly used in workshops and hospitals. It allows handling of different product designs efficiently.

### **4. What is product layout?**

Product layout (line layout) arranges machines and equipment according to the sequence of operations. It is suitable for mass production where standardized products are produced in large quantities. Materials move continuously along a production line. It ensures high efficiency, low handling cost, and fast production. However, it lacks flexibility and is difficult to modify. It is commonly used in automobile and assembly industries.

### **5. What are facilities in plant layout?**

Facilities include all physical resources required for production such as buildings, lighting, ventilation, sanitation, air conditioning, and safety systems. These facilities ensure a comfortable and safe working environment. Proper facilities improve worker efficiency and reduce accidents. They also help in maintaining product quality. Good facilities are essential for smooth production operations and employee satisfaction.

## Long Answer Questions

### 1. Explain factors affecting plant location.

Plant location decisions are critical for business success. The availability of raw materials is a primary factor, as proximity reduces transportation costs. Labor availability, cost, and skill level also influence location. Transportation facilities such as roads, railways, and ports are essential for movement of goods. Market proximity helps in reducing delivery time and costs. Government policies, taxes, and incentives can attract industries to certain areas. Infrastructure like power, water, and communication is necessary for smooth operations. Environmental and climatic conditions must also be considered. Social factors such as community attitude and quality of life affect employee satisfaction. Selecting an appropriate location ensures cost efficiency, operational effectiveness, and long-term growth.

### 2. Discuss types of plant layout.

Plant layout can be classified into several types. **Process layout** groups similar machines together and is suitable for job production. **Product layout** arranges machines in a sequence and is ideal for mass production. **Combined layout** uses features of both process and product layouts for flexibility and efficiency. **Static product layout (project layout)** is used when the product remains stationary, such as in construction projects. **Cellular layout** organizes machines into cells for producing similar products, improving efficiency. **Job shop layout** is flexible and used for customized production. Each type has advantages and is selected based on production requirements, volume, and variety.

### 3. Explain plant layout principles in detail.

Plant layout principles focus on efficient arrangement of facilities. The principle of minimum movement ensures reduced material handling. Smooth workflow avoids delays and bottlenecks. Space utilization ensures maximum use of available area. Flexibility allows future expansion or changes. Safety is essential to prevent accidents. Proper supervision and control are achieved through effective layout. Integration of all activities improves coordination. Good layout also considers worker comfort through proper lighting, ventilation, and sanitation. These principles collectively enhance productivity and reduce costs.

### 4. Explain different types of facilities in a plant.

Facilities in a plant include physical and environmental resources necessary for production. Buildings provide space for operations. Proper sanitation ensures hygiene and health of workers. Lighting is important for visibility and accuracy in work. Ventilation and air conditioning maintain comfortable working conditions. Safety facilities such as fire extinguishers, alarms, and protective equipment prevent accidents. Storage facilities are needed for raw materials and

finished goods. Transportation facilities within the plant help in smooth material movement. These facilities improve efficiency, safety, and worker satisfaction.

### **5. Explain cellular and job shop layout.**

Cellular layout groups machines into cells, each designed to produce a family of similar products. It reduces movement, improves efficiency, and supports flexible production. It is widely used in modern manufacturing systems. Job shop layout, on the other hand, is designed for customized production where different jobs follow different routes. Machines are arranged based on function, and skilled workers handle various tasks. It offers high flexibility but involves more material handling and longer production time. Both layouts are useful depending on production needs and complexity.

## **Short answer type question**

### **1. What is purchasing?**

Purchasing is the process of acquiring raw materials, components, and services required for production. It involves identifying needs, selecting suppliers, negotiating prices, and placing orders. Effective purchasing ensures the right quality, quantity, price, and time of delivery. It plays a crucial role in cost control and smooth production operations. Proper purchasing helps maintain inventory levels and avoids production delays. It also builds strong relationships with suppliers.

### **2. What is supplier selection?**

Supplier selection is the process of choosing the most suitable vendor for supplying materials or services. It is based on factors such as quality, price, reliability, delivery time, and reputation. A good supplier ensures consistent supply and maintains product quality. Evaluation methods include quotations, past performance, and financial stability. Selecting the right supplier reduces risks and improves production efficiency. Long-term relationships with reliable suppliers are beneficial for organizations.

### **3. Define inventory management.**

Inventory management involves controlling and maintaining stock of raw materials, work-in-progress, and finished goods. Its objective is to ensure availability of materials while minimizing holding costs. It includes ordering, storing, and tracking inventory. Proper inventory management avoids shortages and overstocking. It helps in smooth production flow and customer satisfaction. Techniques like EOQ and ABC analysis are used to manage inventory effectively.

### **4. What is material handling?**

Material handling refers to the movement, storage, protection, and control of materials throughout the production process. It includes activities like loading, unloading, transporting, and storing materials. Efficient material handling reduces costs, improves safety, and increases productivity. It ensures smooth flow of materials within the plant. Equipment like conveyors, cranes, and forklifts are commonly used. Proper handling minimizes damage and delays.

### **5. What is ergonomics?**

Ergonomics is the science of designing workplace conditions and equipment to fit human capabilities and limitations. It aims to improve worker comfort, safety, and efficiency. Proper ergonomics reduces fatigue, injuries, and stress. It includes designing chairs, tools, and workstations to suit human needs. Ergonomics enhances productivity and job satisfaction. It is an important aspect of modern industrial management.

## Long Answer Questions

### 1. Explain inventory management and its importance.

Inventory management is the process of planning, organizing, and controlling inventory to ensure smooth production and distribution. It includes maintaining optimal levels of raw materials, work-in-progress, and finished goods. Proper inventory management avoids both shortages and excess stock. It reduces storage and carrying costs while ensuring timely availability of materials. Techniques like Economic Order Quantity (EOQ), ABC analysis, and Just-in-Time (JIT) help in efficient management. It improves cash flow and reduces wastage. Inventory management also ensures customer satisfaction by meeting demand on time. Overall, it plays a vital role in cost control and operational efficiency.

### 2. Discuss principles of material handling.

Material handling principles focus on efficient and safe movement of materials. The principle of planning ensures systematic handling methods. Standardization reduces complexity and improves efficiency. The principle of work minimization reduces unnecessary movement. Safety ensures protection of workers and materials. Flexibility allows adaptation to changes in production. The use of gravity and mechanization reduces manual effort. Proper utilization of space improves storage efficiency. Environmental considerations focus on reducing waste and pollution. These principles help in reducing costs, improving productivity, and ensuring smooth operations.

### 3. Explain supplier selection process.

The supplier selection process involves identifying potential suppliers, evaluating them, and choosing the best one. Criteria include quality, price, delivery reliability, and financial stability. Organizations may request quotations and compare offers. Past performance and reputation are also considered. Site visits and audits may be conducted for evaluation. After selection, contracts are signed and performance is monitored. Good supplier relationships ensure continuous supply and quality improvement. Effective supplier selection reduces risks and enhances efficiency in production.

### 4. Explain value analysis and value engineering.

Value analysis and value engineering focus on improving the value of a product by reducing cost without affecting quality. Value analysis is applied to existing products, while value engineering is used during product design. Both aim to eliminate unnecessary features and optimize resources. Techniques include functional analysis and cost evaluation. These approaches help in reducing production costs and increasing profitability. They also enhance product performance and customer satisfaction. Organizations use these methods to remain competitive in the market.

### 5. Explain inventory control techniques.

Inventory control techniques are used to maintain optimal stock levels. **EOQ (Economic Order Quantity)** determines the ideal order size to minimize total cost. **ABC analysis** classifies inventory into categories based on importance. **JIT (Just-in-Time)** reduces inventory by

receiving goods only when needed. **Safety stock** ensures availability during uncertainties. **Perpetual inventory system** tracks stock continuously. These techniques help in reducing costs, avoiding shortages, and improving efficiency. Proper inventory control ensures smooth production and better financial management.

## UNIT-5

### Short answer type question

#### **1. What is maintenance?**

Maintenance refers to the activities carried out to keep machines, equipment, and facilities in proper working condition. It includes inspection, repair, and servicing to prevent breakdowns. Maintenance ensures smooth production operations and reduces downtime. It helps in extending the life of machines and maintaining safety standards. Proper maintenance improves efficiency and reduces unexpected failures. It is an essential function in production management.

#### **2. What are the types of maintenance?**

Maintenance is mainly classified into preventive, corrective, and breakdown maintenance. Preventive maintenance involves regular inspection and servicing to avoid failures. Corrective maintenance is performed after detecting faults. Breakdown maintenance is done after equipment fails. Modern approaches also include predictive maintenance, which uses data and technology to predict failures. Each type helps in maintaining efficiency and reducing production losses.

#### **3. What is waste management?**

Waste management involves the collection, treatment, and disposal of waste materials generated during production. It aims to reduce environmental impact and improve resource utilization. Proper waste management includes recycling, reuse, and safe disposal methods. It helps organizations comply with environmental regulations and reduce costs. Effective waste management improves sustainability and workplace cleanliness.

#### **4. Define scrap and surplus disposal.**

Scrap refers to waste materials that have little or no value, while surplus refers to excess materials not required for production. Scrap and surplus disposal involves selling, recycling, or reusing these materials. Proper disposal helps in reducing storage costs and recovering some value. It also prevents clutter and improves efficiency. Effective disposal contributes to better resource management.

#### **5. What is salvage and recovery?**

Salvage refers to retrieving usable parts or materials from damaged or discarded items. Recovery involves extracting valuable materials from waste. Both processes aim to reduce waste and increase resource utilization. They help in minimizing losses and improving profitability. Salvage and recovery are important aspects of sustainable production and waste management.

## Long Answer Questions

### **1. Explain maintenance and its importance.**

Maintenance is the process of keeping equipment, machinery, and facilities in good working condition. It includes inspection, servicing, repair, and replacement activities. Maintenance is important because it ensures continuous production without interruptions. It reduces downtime and prevents unexpected breakdowns. Proper maintenance increases the lifespan of machines and improves efficiency. It also ensures safety by preventing accidents caused by faulty equipment. Maintenance reduces repair costs and enhances productivity. In modern industries, predictive maintenance uses advanced technologies to monitor equipment performance. Overall, maintenance plays a crucial role in achieving operational efficiency and cost control.

### **2. Discuss types of maintenance in detail.**

Maintenance can be classified into several types. Preventive maintenance involves regular inspection and servicing to avoid breakdowns. It is planned and scheduled. Corrective maintenance is performed to fix identified defects before they cause failure. Breakdown maintenance occurs after equipment fails and requires immediate repair. Predictive maintenance uses sensors and data analysis to predict failures and schedule maintenance accordingly. Each type has its own advantages. Preventive and predictive maintenance reduce downtime, while corrective and breakdown maintenance handle unexpected issues. A combination of these methods ensures efficient operation of machinery.

### **3. Explain waste management and its importance.**

Waste management involves handling waste generated during production in an efficient and environmentally friendly manner. It includes collection, segregation, recycling, and disposal of waste materials. Proper waste management reduces environmental pollution and promotes sustainability. It helps organizations comply with legal regulations and improve their public image. Recycling and reuse reduce raw material costs. Effective waste management also improves workplace cleanliness and safety. It contributes to efficient resource utilization and cost savings. Thus, it is essential for sustainable industrial development.

### **4. Explain scrap and surplus disposal methods.**

Scrap and surplus disposal involves managing waste and excess materials efficiently. Scrap materials can be recycled or sold to recover value. Surplus materials can be reused, transferred to other departments, or sold. Proper disposal methods include auction, direct sale, or recycling processes. These methods help in reducing storage costs and improving space utilization. Effective disposal ensures better inventory management and prevents wastage. It also contributes to environmental sustainability by reducing waste.

### **5. Explain salvage and recovery in detail.**

Salvage and recovery are important processes in waste management. Salvage involves retrieving usable parts from damaged or discarded products. Recovery focuses on extracting valuable materials from waste through processes like recycling. These methods help in reducing waste

and conserving resources. They improve profitability by recovering value from waste materials. Salvage and recovery also reduce environmental impact and support sustainable practices. Industries adopt these methods to minimize losses and maximize efficiency.