Types of Production:

Some of the most important types of production are:

(i) Job Production
(ii) Batch production and
(iii) Mass or flow production!

A production manager will have to choose most appropriate method for his enterprise.

The final decision regarding any particular method of production is very much affected by the nature of the products and the quantity to be produced. Production methods may be broadly classified as Job Production, Batch production and Mass or Flow Production.

(i) Job Production:

Under this method peculiar, special or non-standardized products are produced in accordance with the orders received from the customers. As each product is non-standardized varying in size and nature, it requires separate job for production. The machines and equipment's are adjusted in such a manner so as to suit the requirements of a particular job.

Job production involves intermittent process as the work is carried as and when the order is received. It consists of bringing together of material, parts and components in order to assemble and commission a single piece of equipment or product.

Ship building, dam construction, bridge building, book printing are some of the examples of job production. Third method of plant layout viz., Stationery Material Layout is suitable for job production.

Characteristics:

The job production possesses the following characteristics.

1. A large number of general purpose machines are required.
2. A large number of workers conversant with different jobs will have to be employed.
3. There can be some variations in production.
4. Some flexibility in financing is required because of variations in work load.
5. A large inventory of materials, parts and tools will be required.
6. The machines and equipment setting will have to be adjusted and readjusted to the manufacturing requirements.
7. The movement of materials through the process is intermittent.

Limitations:

Job production has the following limitations:

1. The economies of large scale production may not be attained because production is done in short-runs.
2. The demand is irregular for some products.
3. The use of labour and equipment may be an inefficient.
4. The scientific assessment of costs is difficult.

(ii) Batch production:
Batch production pertains to repetitive production. It refers to the production of goods, the quantity of which is known in advance. It is that form of production where identical products are produced in batches on the basis of demand of customers' or of expected demand for products.

This method is generally similar to job production except the quantity of production. Instead of making one single product as in case of job production, a batch or group of products are produced at one time. It should be remembered here that one batch of products may not resemble with the next batch.

Under batch system of production the work is divided into operations and one operation is done at a time. After completing the work on one operation it is passed on to the second operation and so on till the product is completed. Batch production can be explained with the help of an illustration. An enterprise wants to manufacture 20 electric motors.
The work will be divided into different operations. The first operation on all the motors will be completed in the first batch and then it will pass on to the next operation. The second group of operators will complete the second operation before the next and so on. Under job production the same operators will manufacture full machine and not one operation only.
Batch production can fetch the benefits of repetitive production to a large extent, if the batch is of a sufficient quantity. Thus batch production may be defined as the manufacture of a product in small or large batches or lots by series of operations, each operation being carried on the whole batch before any subsequent operation is operated. This method is generally adopted in case of biscuit and confectionery and motor manufacturing, medicines, tinned food and hardware's like nuts and bolts etc.

The batch production method possesses the following characteristics:
1. The work is of repetitive nature.
2. There is a functional layout of various manufacturing processes.
3. One operation is carried out on whole batch and then is passed on to the next operation and so on.
4. Same type of machines is arranged at one place.
5. It is generally chosen where trade is seasonal or there is a need to produce great variety of goods.

(iii) Mass or flow production:
This method involves a continuous production of standardized products on a large scale. Under this method, production remains continuous in anticipation of future demand. Standardization is the basis of mass production. Standardized products are produced under this method by using standardized materials and equipment. There is a continuous or uninterrupted flow of production obtained by arranging the machines in a proper sequence of operations. Process layout is best suited method for mass production units.
Flow production is the manufacture of a product by a series of operations, each article going on to a succeeding operation as soon as possible. The manufacturing process is broken into separate operations.

The product completed at one operation is automatically passed on to the next till its completion. There is no time gap between the work done at one process and the starting at the next. The flow of production is continuous and progressive.

Characteristics:
The mass or flow production possesses the following characteristics.
1. The units flow from one operation point to another throughout the whole process.
2. There will be one type of machine for each process.
3. The products, tools, materials and methods are standardised.
4. Production is done in anticipation of demand.
5. Production volume is usually high.
6. Machine set ups remain unchanged for a considerable long period.
7. Any fault in flow of production is immediately corrected otherwise it will stop the whole production process.

Suitability of flow/mass production:
1. There must be continuity in demand for the product.
2. The products, materials and equipments must be standardised because the flow of line is inflexible.
3. The operations should be well defined.
4. It should be possible to maintain certain quality standards.
5. It should be possible to find time taken at each operation so that flow of work is standardised.
6. The process of stages of production should be continuous.

Advantages of mass production:
A properly planned flow production method, results in the following advantages:
1. The product is standardised and any deviation in quality etc. is detected at the spot.
2. There will be accuracy in product design and quality.
3. It will help in reducing direct labour cost.
4. There will be no need of work-in-progress because products will automatically pass on from operation to operation.
5. Since flow of work is simplified there will be lesser need for control.
6. A weakness in any operation comes to the notice immediately.
7. There may not be any need of keeping work-in-progress, hence storage cost is reduced.

Continuous production system

Continuous means something that operates constantly without any irregularities or frequent halts.
In the continuous production system, goods are produced constantly as per demand forecast. Goods are produced on a large scale for stocking and selling. They are not produced on customer's orders. Here, the inputs and outputs are standardized along with the production process and sequence.
Following are examples on the continuous production system. Please refer above chart while reading examples given below.

1. The production system of a food industry is purely based on the demand forecast. Here, a large-scale production of food takes place. It is also a continuous production.
2. Similarly, the production and processing system of a fuel industry is also purely based on, demand forecast. Crude oil and other raw sources are processed continuously on a large scale to yield usable form of fuel and compensate global energy demand.

The characteristics of a continuous production system are listed as follows:
1. The flow of production is continuous. It is not intermittent.
2. The products are standardized.
3. The products are produced on predetermined quality standards.
4. The products are produced in anticipation of demand.
5. Standardized routing sheets and schedules are prepared.

The types of continuous production system include:
1. Mass production flows, and
2. Process production flows.

Intermittent production system

Intermittent means something that starts (initiates) and stops (halts) at irregular (unfixed) intervals (time gaps).
In the intermittent production system, goods are produced based on customer's orders. These goods are produced on a small scale. The flow of production is intermittent (irregular). In other words, the flow of production is not continuous. In this system, large varieties of products are produced. These products are of different sizes. The design of these products goes on changing. It keeps changing according to the design and size of the product. Therefore, this system is very flexible.

Following are examples on the intermittent production system. Please refer above chart while reading examples given below.
1. The work of a goldsmith is purely based on the frequency of his customer's orders. The goldsmith makes goods (ornaments) on a small-scale basis as per his customer's requirements. Here, ornaments are not done on a continuous basis.
2. Similarly, the work of a tailor is also based on the number of orders he gets from his customers. The clothes are stitched for every customer independently by the tailor as per one's measurement and size. Goods (stitched clothes) are made on a limited scale and is proportional to the number of orders received from customers. Here, stitching is not done on a continuous basis.

The characteristics of an intermittent production system are listed as follows:

1. The flow of production is not continuous. It is intermittent.
2. Wide varieties of products are produced.
3. The volume of production is small.
4. General purpose machines are used. These machines can be used to produce different types of products.

5. The sequence of operation goes on changing as per the design of the product.
6. The quantity, size, shape, design, etc. of the product depends on the customer's orders.

The types of intermittent production system include:

1. Project production flows,
2. Jobbing production flows, and
3. Batch production flows.