Syllabus

1. productivity
2. plant layout and material Handling
3. Work study
4. production planning and control [PPC]
5. Material, purchase and store Management
6. Quality control and TQM
7. Management
8. Organization Management
9. Human Resources Management
10. Financial Management
11. Entrepreneurship

How to remember syllabus

1. अगर productivity बढ़ाना है, तो Plant में Work, planning के साथ होना चाहिए।

2. उसके बाद Material का quality Management के द्वारा चैक किया जाना चाहिए।

3. Organization का काम है कि Human Resource को बढ़ावा दे ताकि Financial समस्या दुर हो सके और Entreprenurship को बढ़ावा मिल सके।

Trick :-

CH-1. Productivity

1. production

→ The process of conversion of raw material into a proper device is known as production.

→ The process of manufacturing any device or component is known as production.

2. System

→ The group of all the component to perform a particular work is known as system.

→ Every system can take proper input and can give proper output

→ The process of conversion of input into output is known as production.

3. production system

→ The system by which a row material is converted into proper device or component is known as production system.

4. Type of production system

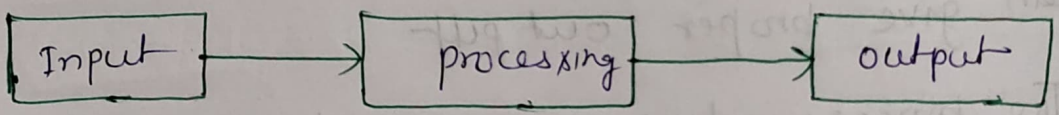
→ There are two type of production system

(a) open loop production system

(b) close loop production system

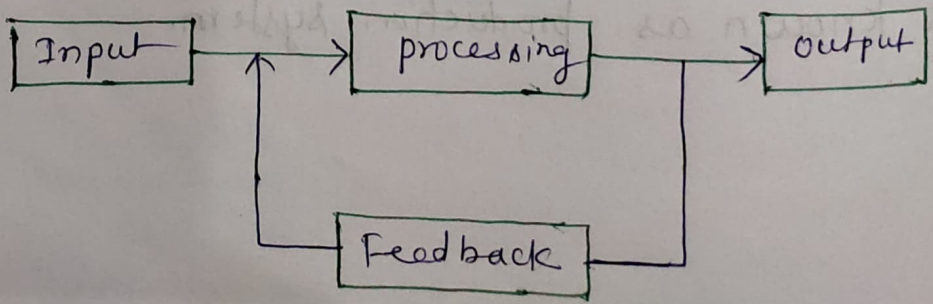
(a) open loop production system

→ The type of production system in which feed back is not present is known as open loop production system



(b) close loop production system

→ The type of production system in which feed back is present is known as close loop feed back system



5. characteristics of production system

Following are the main characteristics of production system.

(a) This system is having a proper goal to produce devices

(b) It should properly accept the input given to it

(c) It should give desired out put to the end ~~user~~ user

(d) It is having various types of subsystem like
   (i) purchasing
   (ii) distribution
   (iii) manufacturing
   (iv) marketing
   (v) selling etc

6. Types of production

There are three type of production
(a) Job production
(b) Batch production
(c) Mass production

(a) Job production

⇒ The type of production in which product is manufactured according to requirement of customer is known as Job production.

⇒ It is a traditional method of production

⇒ It is an oldest method of production.

⇒ Here product is made in small amount

⇒ The cost of unit item is very high

⇒ Here highly skilled operator is required

⇒ Here We have to take proper super-vision for job.

⇒ It require less amount of initial investment.

⇒ It require general purpose machine

⇒ Here every time new product is produced

⇒ Here either process lay out or some time fixed lay out is used.

⇒ These are the basic points related with Job production.

(b) Batch production

⇒ The type of production in which product is manufactured in the form of batches is known as Batch production

⇒ Here batch of product regularly repeated after a fixed time interval.

⇒ Her product is made in lot or batches.

⇒ The cost of unit item is lower than Job production but higher than mass production.

⇒ Here medium skilled operator is required

⇒ It does not require proper supervision for Job.

⇒ It require medium amount of initial investment

⇒ It require semi-automatic machine.

⇒ Here every time product is repeated

⇒ Here process Layout is used

⇒ These are the basic points related with Batch productions.

© Mass production

⇒ The type of production in which products are continuously produced is known as mass production

⇒ It is also known as continuous production

⇒ Here large amount of product are produced.

⇒ Here the cost of unit item is very less compare to all other type of production.

⇒ Here semiskilled or unskilled operators are required.

⇒ Here job supervision is very less.

⇒ It redurie very high initial investment

⇒ Here special purpose machine is required.

⇒ Here the size of plant is very large

⇒ Here product lay out is used

⇒ There are the basic points related with mass production.

6. Production

⇒ The transformation of raw material into a final output device is known as production

⇒ If amount of input increases then amount of production increases.

⇒ The production can be only increased by increasing the input material.

⇒ It is given in term of number of units per unit time.

⇒ If production increases, then it means no. of product in a definite time increases.

⇒ If productivity is high then production will be high but if production is High then productivity may or may not be high

⇒ These are the basic points related with production

7. productivity

⇒ The ratio of output goods to the input goods is known as productivity

$$\text{i.e productivity} = \frac{\text{output goods}}{\text{input goods.}}$$

⇒ productivity represent the efficiency of the system

⇒ If output is higher then productivity will be higher.

⇒ If output is lower then productivity will be lower.

⇒ If input is higher then productivity will be lower.

⇒ If input is lower then productivity will be higher.

⇒ We can increase the productivity by decreasing the input and increasing the out put

8. Importance of productivity

Following are the main importance of productivity.

1. The growth of any industry is directly proportional to the productivity
2. If productivity decreases then growth of industry decreases.
3. If productivity increases then cost of production decreases.
4. If productivity increases then cost of product will be low.
5. If productivity is high then production will be high
6. If productivity is high then input will be low.
7. If productivity is high then we can export large amount of product.
8. It increases the economy of the country

9. Factors affecting productivity

Following are the important factors which can affect the productivity of the system.

1. Employee

⇒ If all the employee are working happily in the industry then productivity of industry can be increased.

⇒ For happiness of the employee we have to participate these employee into the decision making.

⇒ We have to develop good work place, work culture, work condition etc

~~2 Empl~~

2. process

⇒ We have to use that process which can increase the manufacturing of output device.

⇒ We can improve the process by work study.

3. product

⇒ The quality of product should be very high

⇒ If quality is not good then it can decrease the productivity

⇒ The space of industry should be flexible. It means we can make any change according to requirement

⇒ 4. Working condition

⇒ The working condition should be worker friendly. If it is not worker friendly then worker will not perform properly and finally productivity will be decreased.

5. Technology

⇒ To increase the productivity, we have to use updated technology

some more factors can directly or indirectly affect the productivity

6. Improper working environment can decrease the productivity

7. lack of motivation to employee can decrease the productivity
8. Unequal salary of employee can also decrease the productivity
9. Inappropriate use of resources.
10. poor leadership quality also decrease the productivity

10. Means of increasing productivity

Following are the means of increasing productivity

1. Incentives
2. product design
3. Human relation
4. Work study
5. Cost control
6. training about productivity
7. plant layout
8. Technology
9. Working condition
10. process.

Important question

1. Explain and define productivity
2. Explain the difference between production and productivity with example.
3. What are the various technique to improve productivity
4. Explain factors affecting productivity
5. Compare between production and productivity

CH-2. PLANT LAYOUT & MATERIAL HANDLING

1. plant layout

⇒ The arrangement of various things according to plan is known as plant layout.

⇒ By the help of lay out we can make effective utilisation of

1. Men
2. Machine
3. Material
4. Method

⇒ By the help of lay out we can make proper arrangement of every thing

⇒ By proper arrangement of every thing disturbance free production can takes place

⇒ A best lay out can increase the efficiency of the factory

⇒ By the help of lay out we can decide the actual position of each unit of the factory.

2. objective of plant layout

Following are the main objective of plant layout

1. It can save the floor space
2. It can decrease the distance of material travelling.
3. It can make effective utilization of labour [men]
4. It can make effective utilization of machine
5. It can make effective utilization of material.
6. It can make effective utilization of method.
7. It can provide better working condition for the employee
8. It can increase the production

9. It can increase the productivity
10. It can minimize the operating time.
11. It can minimize the initial investment.
12. It can minimize the accident in the plant.
13. It can minimize the work pressure on the employee.
14. It can minimize the material handling
15. It can minimize wastage of material.
16. It can provide future extension in the plant.
17. It should provide good storage faculity
18. It should allow good flow of material
19. It can increase the efficiency of plant
20. It can decrease losses of plant.

3. principle of plant layout

Following are the principle of plant layout.

(a) principle of overall integration.

(b) principle of minimum distance.

(c) principle of flow.

(d) principle of cubic space

(e) principle of satisfaction and safety

(f) principle of flexibility

(g) principle of minimum investment

(a) principle of overall integration

⇒ This principle indicates that close campus of the plant must be present

⇒ All the department of the plant must be connected to each other.

⇒ interconnection of all the department represent a single unit

(2) principle of minimum distance

⇒ This principle indicates that movement of material should cover less distance.

⇒ This principle helps in the effective utilisation of material.

⇒ If material travels minimum distance then it can reach fastly at the final point

(3) principle of flow

⇒ This principle indicates that movement or flow of material must be horizontally or verticallly

⇒ If material follow the flow of standard path then operation takes place easily

⇒ due to proper flow, sequence of operation is proper and systematic

(4) Principle of cubic space

⇒ This principle indicates that proper utilization of available space by each and every department of plant.

⇒ By ↑ proper utilization of available space, we can decrease requirement of land.

(5) principle of satisfaction and safety

⇒ This principle indicates, the working of layout should give satisfaction and safety to the all

(6) principle of Flexibility

⇒ This principle indicates that we can make any change in future in the plant

⇒ If possibility of changes is not present then plant is not flexible.

(7) principle of minimum investment

⇒ This principle indicates that the overall investment cost of plant should be minimum as much as possible

4. Types of plant layout

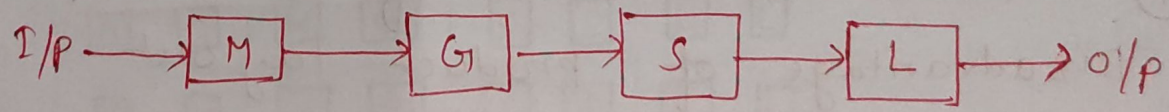
There are three type of plant layout

1. product layout
2. Functional Layout
3. project layout

① product Layout

⇒ The type of Layout in which all the machines are present in a straight sequence is known as product layout. It is also called as ~~product~~ line layout.

Let us consider a diagram which represent product layout as shown below.



M = milling m/c
G = grinding m/c
S = shaper m/c
L = lathe m/c

(2) Functional Layout

Advantage of product layout

Following are the advantage of product layout

(1) The handling of product is simple and easy

(2) The transportation of product is easy

(3) The manufacturing time is small.

(4) The deadline of product export is easily maintain.

(5) We requrie minimum space

(6) Here flow of material is very easy and simple.

(7) Here less amount of work in process.

Disadvantage of product layout

Following are the disadvantage of product layout

(1) If one machine damage then total work will stop.

(2) Here we can not use ~~full~~ full capacity of all machines.

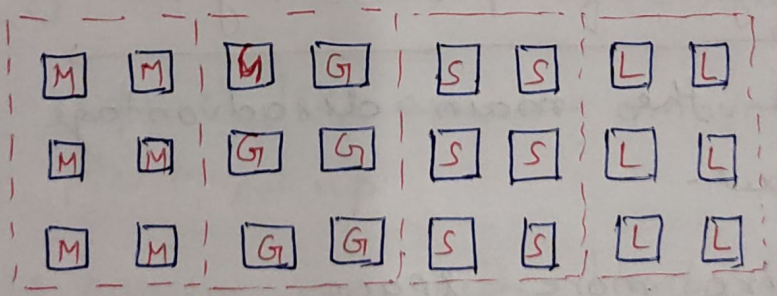
(3). We require skilled operator for operation of each machine.

(4) The flow of production depends on speed of slow machine.

(2) Functional layout

⇒ The type of layout in which all the machine of similar operation are placed in same group is known as functional layout. It is also called as process layout.

Let us consider a diagram which represent functional layout as shown below.



M = milling m/c
G = Grinding m/c
S = shaper m/c
L = lathe m/c

Advantage of process lay out

Following are the main advantage of process layout

1. It require less no. of machine
2. Breakdown of any one machine does not affect overall production.
3. It is a flexible lay out.
4. It can produce any volume of product
5. Here incentives can be given to the workers for individual performance
6. Skill of worker increases,

Disadvantage of process lay out

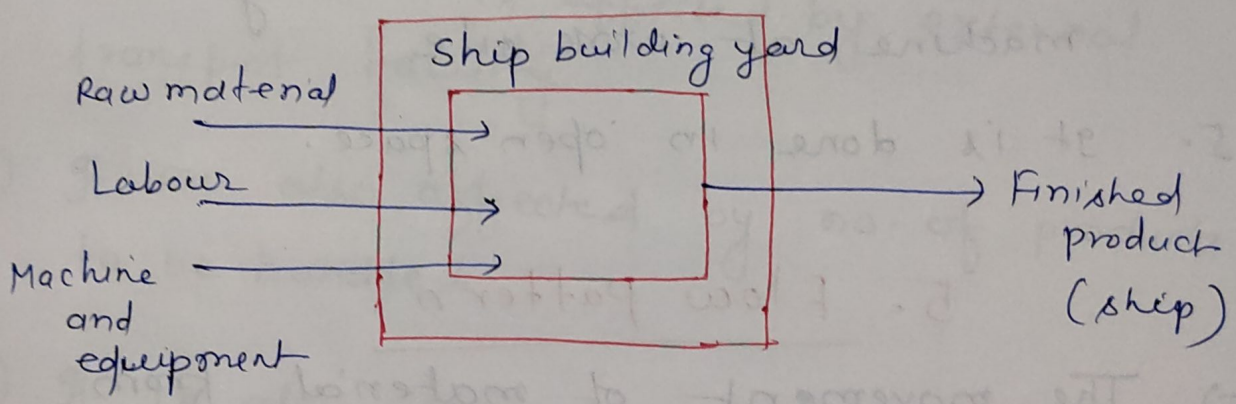
Following are the main disadvantage of process lay out

1. It require more space
2. It require costly inspection
3. It is having long work process
4. Handling of product is difficult

③ Fixed layout

⇒ The type of layout in which all the operation takes place at the work site is known as fixed layout. It is also called as project layout.

Let us consider a diagram which represent fixed layout as shown below.



Advantage of Fixed layout

Following are the main advantage of fixed layout

① It require less ~~amout~~ amount of investment for plant set up

② It is having very high flexibility

③ It is having minimum movement of material.

④ Skill of labour is effectively used.

⑤ It is having high efficiency

Disadvantage of fixed layout

Following are the main disadvantage of fixed layout

1. Total product cost is very high
2. It require complicated m/c.
3. It require more space.
4. It takes more time to bring the machine at work site
5. It is done in open space.

5. Flow pattern

⇒ The movement of material from entry point to exit point is known as flow pattern.

⇒ The cost of handling depends on flow pattern.

⇒ The total work process also depends on flow pattern.

⇒ The total time of manufacturing also depends on flow pattern

=> The pattern of material flow can affect the productivity of the plant.

Factors governing flow pattern

=> Following are the important factor which can affect the flow pattern.

① Flow pattern is affected by external transport facility

② It can also affected by no. of products to be handled.

③ It is also affected by no. of operation on each product

④ It is also affected by size of available land.

⑤ It is also affected by no. of units to be processed.

⑥ It is also affected by flow between work area.

Industrial

Type of flow pattern

There are two type of flow pattern.

(a) Horizontal flow pattern
(b) Vertical flow pattern.

(a) Horizontal flow pattern.

⇒ The type of flow pattern which is present on horizontal space area is known as horizontal flow pattern.

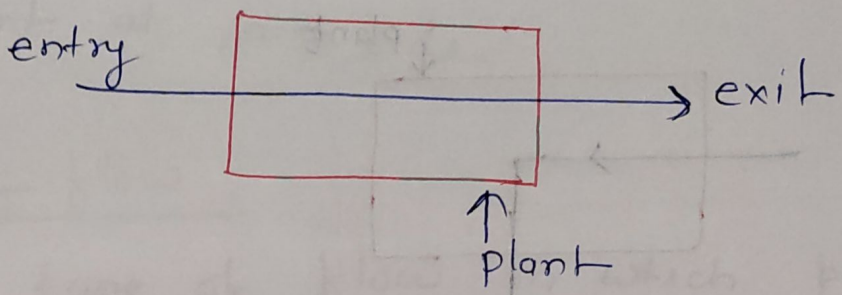
There are five type of flow patter.

(a) I- flow pattern / line - flow pattern
(b) L- Flow pattern
(c) U- Flow pattern
(d) S- Flow pattern
(e) O- Flow pattern

(a) I- Flow pattern

⇒ The type of flow pattern in which material moves in straight line motion is known as I- Flow pattern.

Let us consider a diagram which represent I- flow pattern



(b)

⇒ It is the simple type of flow pattern.

⇒ Here material is given at one end and it is taken out at other end

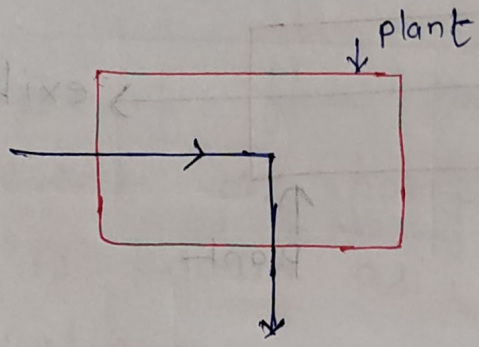
⇒ This flow pattern can save the required land.

⇒ It is mainly used in automobile industry

(b) L- flow pattern

⇒ The type of flow pattern in which material flow in L-shape path is known as L- flow pattern.

Let us consider a diagram which represent this flow pattern as shown below

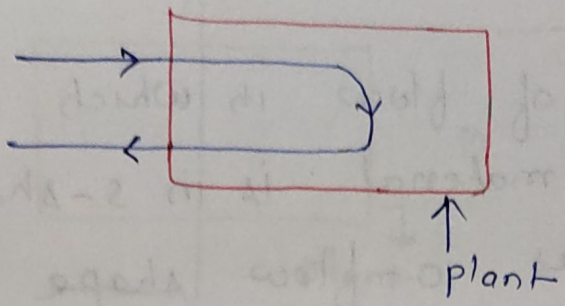


⇒ It is very similiary to I- flow

(c) U- Flow pattern

⇒ The type of flow pattern in which entry terminal and exit terminal of the material is same side and material follow the U-shap path is known as U-flow pattern.

Let us consider a diagram which represent U-flow pattern as shown below.



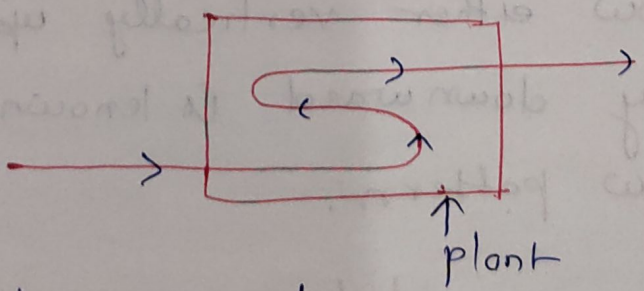
⇒ This type of flow is used in the electric motor industry.

⇒ Here input and output both terminal are present at same side.

(d) S-flow

⇒ The type of flow in which path of material is present in S-shape is known as S-flow.

Let us consider a diagram which represent ~~s-pt~~ S-flow as shown below



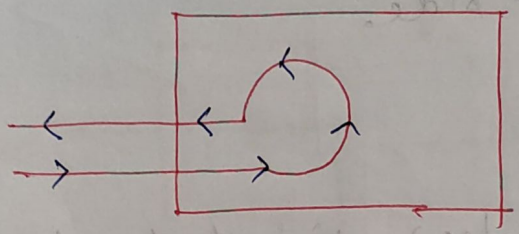
⇒ This type of flow require more space.

⇒ This type of flow follow the zig-zag path

(e) O-flow

⇒ The type of flow in which path follow by material is in S-shape is known as O-flow ~~shape~~ pattern.

Let us consider a diagram which represent O-flow as shown below.

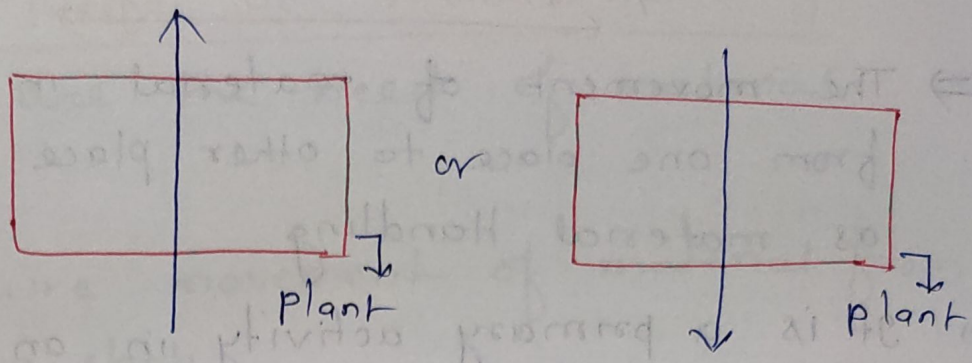


⇒ This type of flow is used in rotary handling system.

(2) Vertical flow pattern

⇒ The type of flow pattern in which material flow either vertically upward or vertically downward is known as vertical flow pattern.

Let us consider a diagram which represent vertical flow pattern as shown below.



6. Steps in planning layout for new enterprise

Following steps are present in planning of new enterprise.

(a) Collection of required data
(b) prepration of blue print for the floor plant.
(c) prepration of process chart and flow diagram
(d) prepration of draft layout
(e) Test run
(f) Misllaneous.

7. Material Handling

⇒ The movement of material in an organisation from one place to other place is known as material Handling

⇒ It is a primary activity in an organisation

⇒ Material handling decide the cost of product.

⇒ We have to select proper method for material handling.

⇒ A proper material handling method can decrease the handling time.

⇒ Good material handling can increase the productivity of the plant

⇒ Good material handling can increase the efficiency of plant

⇒ Good material handling can increase the production of plant

⇒ A Good material handling can increase effective utilization of Man, Material, machine, method, money

Need of material Handling

Following are the need of material handling

(a) It require movement of material from stores to shop.

(b) It require movement of material from one work station to other work station.

(c) It require movement of material to storage area.

(d) It require movement of material to inspection department

(e) It require movement of material to assembly line

(f) It require movement of material to dispatch section

(g) It require movement of material to load in the external transport

Objective of material Handling

Following are the main objective of material Handling

(a) It increases speed of movement of material.

(b) It can prevent chances of accident

(c) It can increase the plant efficiency

(d) It can decrease fatigue of worker

(e) It can maintain better house keeping in the plant

(f) It can increase productivity of plant

(g) It can full fill the deadline in time.

(h) It can increase effective utilization of man, material, machine, method, money

(i) It can decrease Wastage of material

principles of material Handling

Following are the main principle of material Handling

(a) Work principle
(b) planning principle
(c) Unit load principle
(d) Ergonomics principle
(e) space utilization principle
(f) system principle
(g) Automation principle
(h) standardization principle

(a) Work principle

According to this principle we can decide about following things

(a) The time of material handling can be decreased
(b) Eliminate unnecessary movement of material
(c) Maintain proper movement of material.

(b) planning principle

According to this principle we can decide about following things.

(a) The movement of material should be properly planned.

(b) Each department of movement already should be decided.

(c) Required method of material handling already should be decided

(c) Unit load principle

According to this principle we can decide about following things.

(a) At one time, movement of single load should be maintain

(d) Ergonomics principle

According to this principle We can decide about following things

(a) Human capacity can be identified

(b) It gives saf and effective operation

(e) Space utilization principle

According to this principle We can decide about following things.

(a) All the available space effectively can be utilized.

(b) All the available space can be efficiently utilized.

(c) Three dimensional space must be used.

(f) System principle

According to this principle We can decide about following things.

(a) We should maintain proper co-ordination between material movement and storage activity

(g) Automation principle

According to this principle We can decide about following things

(a) If possible, we should use automatic devices for material handling

(h) Standarization principle

According to this principle we can decide about following things.

(a) All the equipments must be of standard type.

(b) Size of each equipment must be proper.

#. Types of material Handling devices.

There are three type of material Handling devices.

(a) Vertical motion devices
[lifting and lowering devices]

(b) Horizontal motion devices
[Transporting devices]

(c) Combinational devices.

List of material Handling devices.

(a) Belt conveyor.
(b) Roller conveyor
(c) Screw conveyor
(d) Bucket conveyor
(e) Hoist
(f) Bridge crane
(g) Gantry crane
(h) jib crane
(i) Fork lift truck

Selection of material Handling devices.

The selection of material Handling devices depends on following factors

(a) Types of material to be handled
(b) plant building
(c) Type of layout
(d) Type of production
(e) Distance to be covered
(f) Cost of installation
(g) Material flow patter
(h) Frequency of material flow.

CH-3 Work study

1. Industrial Engineering

⇒ The branch of engineering in which we study about all the concept related to industry is known as industrial Engineering

2. Work study

⇒ The technique by which we can improve the production and productivity of plant is known as work study

⇒ To increase the production, we have to develop new-new method to do the work. The process of finding this new method is known as work study

⇒ We can do work study to ~~increase~~ make the effective utilization of man, material, method, machine and money

⇒ There are two type of work study one is called as method study and other one is called as work measurement

⇒ Work study is very important for development of any a industry.

3. objective of Work study

Following are the main objective of work study

(a) We can improve the productivity of plant

(b) We can increase the production of plant by work study

(c) We can decrease the wastage of raw material by work study

(d) We can make effective utilization of man, material, method, machine, money

(e) We can properly use the strength of the worker

(f) We can improve the working condition

(g) We can develop new-new method for doing the work

(h) We can increase the efficiency of the plant.

4. ~~Metho~~ Type of Work study

There are two type of work study

(a) Method study

(b) Time study

(a) Method study

=) The type of work study in which we can find new method to do the work is known as method study.

objective of method study

Following are the main objechve of work study

(a) We can improve the working process by method study

(b) We can increase the quality of product by method study

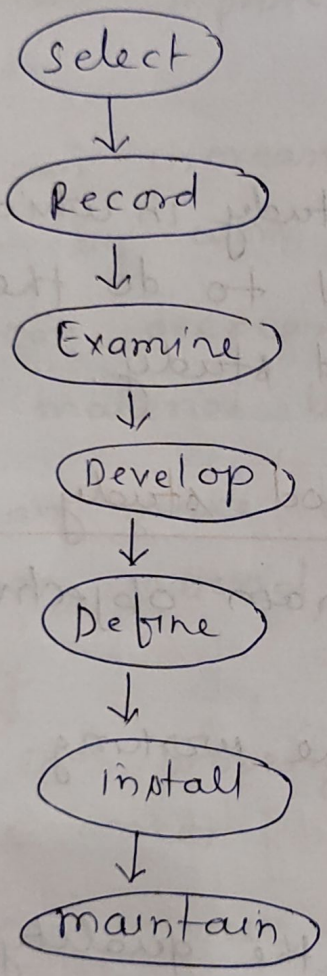
(c) We can improve working condition

(d) We can decrease the fatigue of worker

(e) We can find best way to operate the machine

Procedure of method study

When we are doing method study then we have to use following procedure.



1. Select

⇒ According to this step initially we have to select the work for method study.

2. Record

⇒ According to this step we have to collect all the data related to work and that data must be recorded for future purpose.

3. Examine

⇒ According to this step we have to check properly all the data related to work.

4. Develop

⇒ According to this step we have to develop a new method related to that work.

5. Define

⇒ According to this step we have to define the new method. By defining new method, we can standarized this method.

6. Install

⇒ According to this step we have to keep this new method properly

7. Maintain

⇒ According to this step we should maintain this new method.

critical examination

⇒ The process by which we can check all the data related to a particular method or task or event is known as critical examination

We can make critical examination by primary question and secondary question.

primary question

The primary question must be related with purpose, place, sequence, person and means.

purpose :- What is the purpose of event? Why is it necessary

place :- Where does the event take place and why does it take place there?

Sequence :- When does it occur and why only then?

person :- Who is the worker for that event and what are the reason for selecting him?

means :- How is the purpose achieved ? By what method ?

Secondary questions

The secondary question is also must be related with purpose, place, sequence and person and means.

purpose :- What should be done ?

place :- Where should it be done ?

sequence :- When should it be done ?

person :- Who should do it ?

means :- How should it be done ?

By the help of critical examination we can eliminate unnecessary activity related to a particular work.

principle of motion economy

All the rules given by Gilbreth to develop a better working condition and better method to do the job is known as principle of motion economy.

There are three type of principle of motion economy

(a) Rules related with human body
(b) Rules related with work place lay out and material handling
(c) Rules related with tools and equipment

(a) Rules related with Human body

Following rules are given by Gilbreth related to human body

1. Both the hands should be used for productive work.
2. Motion of both hand started and finished at same time

3. Hands must not be idle during working period.
4. Motion of arms must be symmetrical
5. Motion should have minimum no. of limbs.
6. Motion should not involve frequent stop.
7. Help the worker during required ~~conti~~ condition.
8. Ballistic movement are not allowed
9. Work should be comfortable

(b) Rules related with work place layout and material Handling

Following rules are given by Gilbreth

1. Keep all the tools near to the work area.
2. The location of tools should be easily accessible
3. If possible use conveyor for delivery of material
4. lighting and ventilation should be proper.

(5). The height of table should be proper.

6. All the mechanical load must be lifted by mechanical device.

7. The colour of work place should be proper.

(c) Rules related with tools and equipment

Following rules are given by a Gilbreth related to tools and equipments

(a) Jigs, fixture and foot operated device should be present.

(b) Two or more tools should be combined

(c) We should use all the finger properly. All the finger should carry ~~all the~~ equal load.

(d) Use that equipment in which body movement is very less.

#. Work measurement

The type of work study in which we study about time taken by any worker to complete a work is known as work measurement. It is also called as time study

#. Work measurement technique

There are four type of work measurement technique

(a) stopwatch time study
(b) Work sampling
(c) Analytical estimating
(d) predetermined motion time standard
(e) Synthesis from standard data

#. Stop watch procedure for collecting time study data

⇒ The type of time study in which a stop watch is used is known as stop watch study.

Following are the important steps for stop watch study -

1. Select the task for time study.
2. Find the good procedure of doing the selected task from method study department
3. Select the operator for time study.
4. Record the complete detail of the method.
5. Now, break the task into small-small task.
6. Now measure the time required for each small task
7. Repeat step ⑥ again and again and collect all the data

8. Now, give the proper rating of worker during recording the time.

9. Now, calculate the normal time from the observed time.

10. Now, determine the allowances to be given.

11. Now, add the various allowance to the normal time to obtain the standard time.

12. The basic time is given by

$$\text{Basic time} = \text{observe time} \times \frac{\text{Rating}}{\text{standard Rating}}$$

$$\text{Standard time} = \text{Basic time} + \text{Allowance}$$

#. Work sampling

The type of technique by which we can decide amount of actual time used by a worker in a working day is known as work sampling. It is a type of work measurement.

We can calculate each and every activity of a worker in working period. We can calculate following time

Spent by worker.

(1) How much time he is working.

(2) How much time he is doing his personal work.

(3) How much time he is idle.

Advantage

1. It gives very good result
2. It gives unbiased result.
3. We can ~~sty~~ study team work by the help of worksampling
4. It takes less time
5. It is more economical.

Disadvantage

1. It is not good for short time job.
2. Here breakdown of activity is not present.
3. Here observation is limited.
4. We can not decide work speed by this process.

#. Recording Technique

⇒ The step of method study by which which we can store the data properly is known as Recording technique.

There are various type of technique used for recording purpose

1. process chart
2. Time scale chart
3. Diagram indicating movement

1. process chart

⇒ The type of chart which represent the process of a manufacturing unit is known as process chart.

There are three type of process chart

(a) Outline process chart
(b) Flow process chart
(c) Two handed process chart

2. Time scale chart

⇒ The type of chart in which process is represented with respect to time is known as time scale chart. Multiple activity chart is an example of time scale chart

3. Diagram indicating Movement

⇒ The type of chart in which process is represented by the help of diagram is known as diagram indicating movement.

CH-4. production planning and control [PPC]

1. **production :-** The process of conversion of raw material in finish good is known as production.

2. **production planning**

⇒ The planning in which we decide all the steps present in production of a good before its production is known as production planning.

3. **production planning and control [PPC]**

⇒ The process by which a product is made in time, in proper amount, in proper quality is known as PPC.

By PPC we can decide all the steps present in production of a good in proper time.

4. objective of PPC

Following are the main objective of PPC.

1. We can make a good in proper time
2. We can make a good in proper quality.
3. We can make a product in given dead line
4. We can select a particular path for production
5. We can co-ordinate all the department by PPC.
6. We can decide the sequence of operation.

5. Function of PPC

Following are the main function of PPC

1. Material
2. Method
3. Machine
4. Routing
5. Estimating
6. Loading
7. Scheduling
8. Dispatching
9. Expediting
10. Inspection
11. Evaluating

1. Material

⇒ By the help of this function of PPC, We can maintain proper amount of raw material for production. We can maintain proper amount of all the parts for main product.

2. Method

⇒ By the help of this function of PPC, We can select that method which is suitable for a product. Suitable method is very important.

3. Machine

⇒ By the help of this function of PPC, We can produce a proper goods.

4. Routing

⇒ By the helf of this function of PPC, We can select a proper path or proper route for manufacturing

5. Estimating

⇒ By the help of this function of PPC, we can estimate the operating time. Due to estimation of operating time, we can make a product in proper time interval.

6. Loading

⇒ By the help of this function of PPC, We can properly load the product to transfer from one side to other side.

7. Scheduling

⇒ By the help of this function of PPC, We can determine proper schedule of work. If schedule is not present then a work can not be done in proper manner.

8. Dispatching

⇒ By the help of this function of PPC, We can send a product from one place to other place. We can dispatch a product by centralizing or decentralizing process.

9. Expediting

⇒ By the help of this process, we can make ~~operation~~ manufacturing process very fast

10. Inspection

⇒ By the help of this process, we can check quality of product or we can check any thing which is suitable for manufacturing

11. Evaluating

⇒ By the help of this process, we can evaluate any work process related to production work. Due to evaluation of work process quality is improved.

6. Production Control

⇒ The process by which we can control each and every step related to production of a product is known as production control.

By the help of production control, we can improve the quality of product directly or indirectly. It is a very important action in PPC.

7. Objective of production Control

Following are the main objective of production control.

1. We can continuously supply raw material.
2. We can increase productivity
3. We can improve the efficiency of plant.
4. We can save some amount of raw material.

8. principles of sound production planning and control

⇒ The type of PPC in which industry is having main focus on customer demand, material, equipment etc is known as sound production.

Following are the main principle of sound production planning and control.

1. Customer demand
2. Material
3. Equipment
4. Manpower
5. process
6. Control

1. Customer demand

⇒ According to this principle we always try to satisfy the customer. Customer demand is prime focus in sound production.

2. Material

⇒ According to this principle, we have to supply proper amount of material continuously. If proper amount of material is not given then quality of product decreases.

3. Equipment

⇒ According to this principle, We have to use good equipment. If equipments are not good then productivity is affected.

4. Manpower

⇒ According to this principle, We have to maintain proper amount of manpower. If proper amount of manpower is present the each work can be done properly.

5. process

⇒ According to this principle, We have to use proper method or proper process for converting a raw material is to final product.

6. Control

⇒ According to this principle, we have to use proper control action. Due to proper control action each department can work properly. The productivity of industry increases.

7.

CH-5.. Material, purchase and store Management

1. Material Management

⇒ The type of management by which we can maintain proper amount of material in the industry is known as Material management

⇒ For material management we have to make proper planning to supply the material in the industry.

⇒ For material management we have to make proper organisation to supply the material in the industry

⇒ For material Management we have to make proper control on flow of material.

⇒ So, Finally we can say that the combination of planning, organising, and controlling of material is known as material management

⇒ For development of any industry material management is very important

2. objective of material management

Following are the main objective of material management

1. We have to continuously supply proper amount of raw material.
2. We have to continuously supply good quality of material.
3. To increase the productivity material management is required.
4. To increase the efficiency of industry material management is required
5. To maintain effective utilisation of worker material management is required
6. To maintain inventory of material, material management is required
7. To produce good quality product material management is required.

3. Function of material management

Following are the main function of material management.

1. production and Material Control
2. purchasing
3. Non-production store
4. Transportation
5. Material handling
6. Receiving

1. production and material Control

⇒ This function of material management indicates that we have to maintain proper amount of raw material at the production department. If material is not properly available then production decrease and Image of industry become bad.

If proper amount of material is not present then we can not make quality product.

2. purchasing

⇒ This function of material management indicates that we have to purchase proper amount of material. If proper amount of material is continuously present then production will be continuously maintained. The main goal of this department is to buy good quality material at minimum price.

3. Non-production store

⇒ This function of material management indicates that maintain all those materials which are not directly involved in production. These material are not purchase at daily but it must be present regularly in the store.

4. Transportation

⇒ This function of material management indicate that import and export of material should be properly maintain in the industry. It is completely handled by transportation department.

5. Material Handling

⇒ This function of material management indicates that material handling should be proper. Material handling indicate that flow of material from one department to other department should be proper. If material Handling is proper then wastage of material decreases.

4. Inventory control

⇒ We know that the store in which material is kept is known as inventory.

The process by which we can maintain proper amount of material in the inventory is known as Inventory control.

⇒ Inventory control is important to stop overstocking of the material.

⇒ Inventory control is important to decrease the wastage of material.

⇒ Inventory control is important to maintain shortage of material

⇒ Inventory control is important to maintain the material at right time.

⇒ Inventory control is important to maintain quality of material

⇒ Inventory control is important to maintain production

⇒ Inventory control is important to increase the efficiency of plant

⇒ Inventory control is important to make market image of company

⇒ Inventory control is important for maximum profit of industry.

⇒ Inventory control is handled by a separate department

⇒ The responsibility of this department is very high

5. objective of inventory control

Following are the main objective of inventory control.

1. continuity of productive operation
2. Effective use of capital
3. Reduction of administrative workload.
4. Service to customer.
5. Economy in purchasing
6. Reduction of risk of loss.

1. Continuity of productive operation

⇒ This objective indicates that production should be continue and production will be continue when proper amount of material is present. And proper amount of material is maintain by proper material inventory control.

2. Effective use of capital

⇒ If proper inventory control is present then wastage of material decreases. So, We can save capital of industry

3. Reduction of administrative workload

⇒ We can decrease administration work load by the help of proper management of inventory control.

4. Service to customer

⇒ We can provide good service to all customers by the help of proper inventory control. If inventory control is good, production will be good, quality of product will be good. So, We can provide good quality product to the customers.

5. Economy in purchasing

⇒ If inventory control is good then we can purchase any component at good price.

6 Reduction of risk of loss.

⇒ If inventory control is good then chances of loss decreases because we can produce goods at right time to customers.

6. Advantage of inventory control

Following are the main advantage of inventory control.

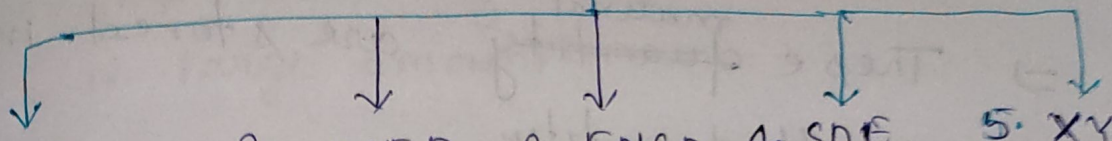
1. It makes balance between input and output
2. Our production is not affected by price increase in the market
3. We can provide good quality material
4. We can save capital cost
5. We can increase customer satisfaction

7. Symptoms of poor inventory Management

Following are the main symptom of poor inventory management

1. If overtime working takes place, it means poor inventory management is present
2. If continuous production is not present, it means poor inventory management is present
3. If we are increasing the cost of product, it means poor inventory management is present
4. If Work load of department increases, it means poor inventory management is present
5. If shortage of material is present, it means poor inventory management is present.
6. If overstocking of material is present, means poor inventory mangement.

8. Method of inventory control



1. ABC Analysis

⇒ The type of analysis in which all the material, component are divided into class A, class B and class C is known as ABC Analysis.

In this analysis there are three type of material.

1. class A material
2. class B material.
3. class C material.

1. class A material

⇒ In this class of material are present in very less amount.

⇒ The amount of class A material is 5 to 10 % of total material

⇒ The cost of these materials are 70 to 80% of total cost

⇒ These material ~~quantity~~ are stored in small quantity

⇒ These material require very high control

2. class B material

⇒ This class of material are present in moderate amount.

⇒ The amount of class B material is 10 to 20% of total material

⇒ The cost of these materials are 15 to 20% of total cost

⇒ These material are stored in moderate quantity

⇒ These material require moderate control

3. class c material

⇒ This class of material are present in large amount

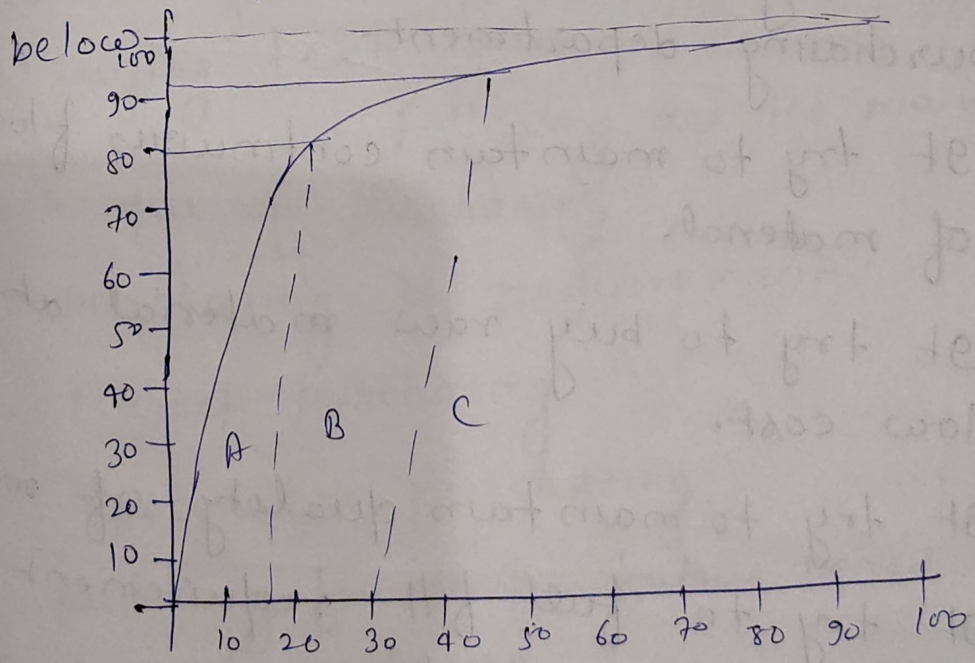
⇒ The amount of class c material is 70 to 80% of total material.

⇒ The cost of these material are 5 to 15% of total cost.

⇒ These material are stored in large quantity

⇒ These material require less control

Let us consider a graph which represent ABC analysis as shown below



ABC analysis is also known as Always Better control. It is also called as Always Be careful. This analysis is based on on pareto's law.

9. purchasing department

⇒ The department which purchase raw material for industry is known as purchasing department

objective of purchasing department

Following arethe main objective of purchasing department

1. It try to maintain continuous flow of material.
2. It try to buy raw material at low cost.
3. It try to maintain quality of material.
4. It try to full fill requirement of inventory

5. It try to find new sources of material.
6. It try to find new contractor for raw material.
7. It try to maintain good buyer - seller relationship.
8. It try to make good purchase policy
9. It try to maintain good relation between each department
10. It try to compete market.

purchasing technique / Buying technique

⇒ The type of technique by which we can purchase any raw material is known as purchasing technique. It is also called as buying technique.

Following are the main technique of purchasing

1. purchasing by requirement
2. Market purchasing
3. Speculative purchasing
4. purchasing for specific future period.
5. Contract purchasing
6. Scheduled purchasing
7. Group purchasing of small item.

1. purchasing by requirement

⇒ This technique indicates that we can purchase that material which is more important and which is not present in the industry.

2. Market purchasing

⇒ This technique indicates that we can purchase that material which is present in low cost in the market. This type of purchasing is used for future purpose. It is not related with shortage of material.

3. Speculative purchasing

⇒ This technique indicates that we have to purchase at low price and we have to send it at high price. This purchase is not related with production.

4. purchasing for specific future period

⇒ This technique indicates that we have to purchase those goods which are regularly used.

5. contract purchasing

⇒ This technique indicates that we have to purchase the material by the help of contractor. We have to make some deal or contract and according to that contract we have to purchase the material.

6. Scheduled purchasing

⇒ This technique indicates that we have to purchase the material in the scheduled way. This type of items are purchase at a particular schedule, before the schedule, we have not purchase the material. This type of material are not kept in inventory for a long time interval

7. Group purchasing of small items.

⇒ This technique indicates that we have to purchase small items in a group. These items are having low cost. So these are purchase in group. We can store these materials for long time in inventory

purchasing procedure.

Following are the main procedure for purchasing of materials.

1. Receiving and Analysing purchasing Requisition

⇒ This step indicated that a PR is made by department. This PR is having information of all material which are required.

2. Selecting suppliers.

⇒ This step indicates that we have to select a particular supplier who is going to supply raw material. A company is having large number of suppliers list. Out of these supplier we have to select any one supplier.

The past record of supplier should be good.

3. Requisting quotations

⇒ This step indicates that the supplier who want to give supply in industry should give a requisting quotation. On the basis of that quotation, we can select any one supplier.

4. Determining the right price

⇒ This step indicates that the cost of item should be properly determined. If cost is not proper then material can not be purchase

5. Issuing a purchasing order

⇒ This step indicates that a purchase order is released by the company. This purchase order indicates that we have to purchase the product or not.

6. Follow-up and delivery

⇒ This step indicates that supply agency is responsible for delivery of the materials.

7. Receiving And Accepting Goods.

⇒ This step indicates that when goods are received then receiving department check properly. If all the items are present in proper amount then all the goods are accepted by department

8. Approving Supplier's Invoice for payment.

⇒ This step indicates that after acceptance of all the goods, payment is given to supply agency. The bill is made up on the basis of given PR

10. Store

⇒ The part of industry in which all the items are kept safely is known as store.

⇒ Store is important department of any industry to keep all the goods safely in the industry.

Function of a store

Following are the main function of store.

1. It can keep all the items properly in the proper amount.
2. It keep good inventory management
3. shortage of material decreases
4. production is continuously maintain
5. It can receive all the incoming goods.

Location of stores.

Generally, There are two type of stores.

(a) Centralized store

(b) Decentralized store

(a) centralized store.

⇒ The type of store from which all the department take required items is known as centralized store.

⇒ This type of store are make in small factories.

⇒ This type of store are present at central position.

⇒ Generally, all the departments are present near to the store.

(b) Decentralized store

⇒ The type of store which is present at different - different location is known as Decentralized store.

⇒ This type of store are present in large industry.

⇒ This type of store made near to the required department.

layout of store

⇒ The layout by which a store is made is known as layout of store. The layout of store depends on following factors

(a) Flow of materials
(b) character of material
(c) quantity of material
(d) Weight of material
(e) Frequency of handling

Material receipt

⇒ The type of receipt which is having detail of material is known as material receipt. A material receiving is having four steps.

(a) checking of material
(b) Unloading of material
(c) packing, unpacking of material.
(d) storing / Distribution of material

Material issue

⇒ The letter which is having order to deliver the material is known as material issue

⇒ A store keeper can issue materials.

⇒ It is related with inventory department

CH-6. Quality control and TQM

1. Quality

⇒ The property of many product which can satisfy the customer need is known as Quality.

⇒ A product should have always good quality to full fill the customer need.

⇒ It should always full fill the customer demand.

⇒ There are various definitions given by different differen scholars. Some of the definitions are given below.

⇒ According to Crosby quality is confor-mance to standards, specification or requirements

⇒ According to peters and Waterman quality is excellance

⇒ According to Juran Quality is fitness for use.

2. Need of quality

Quality is needed for following

1. To face competition of market quality is needed.
2. To reduce chances of product return Quality is needed
3. To make a normal company into brand Quality is needed.
4. To satisfy the need of customer quality is needed
5. To create a good image of company in the market Quality is needed
6. To make effective utilization of raw material quality is needed
7. To make life of company long quality is needed.

3. Quality Control

⇒ The method by which quality of product is maintain according to need of customer is known as Quality control

4. Advantage of quality control

Following are the main advantage of quality control

1. A quality product can attract the customer.
2. A quality product can increase number of customer
3. A quality product make a good image of company.
4. A quality product can provide customer satisfaction.
5. A quality product can increase the productivity

6. A quality product can increase the production.

7. A normal company can be converted into to brand due to quality product.

8. A quality product can make effective utilization of worker.

9. A quality product can decrease wastage.

10. product can not be return, if it is having quality.

5. Methods of quality control

Following are the method of quality control

1. Inspection
2. statistical quality control [SQC]

1. Inspection

=> The process of checking of quality, amount of raw material present in a product is known

as inspection. There are two type of inspections.

(a) 100 percent inspection

=> According to this inspection each and every raw material is checked.

=> It can decrease chances of defective material present in the final product

=> This inspection is made when high valuable product is produced by the company

=> It is very difficult to check each and every component of product

=> It is more costly to check each and every component of product

=> 100 percent inspection is not possible for each and every item.

(b) Sample inspection

⇒ The type of inspection in which some amount of final product is checked is known as sample inspection.

⇒ This inspection is used for those goods which are not highly valuable

⇒ This inspection is used where 100 percent inspection is not possible

⇒ This method of inspection is also known as partial inspection method.

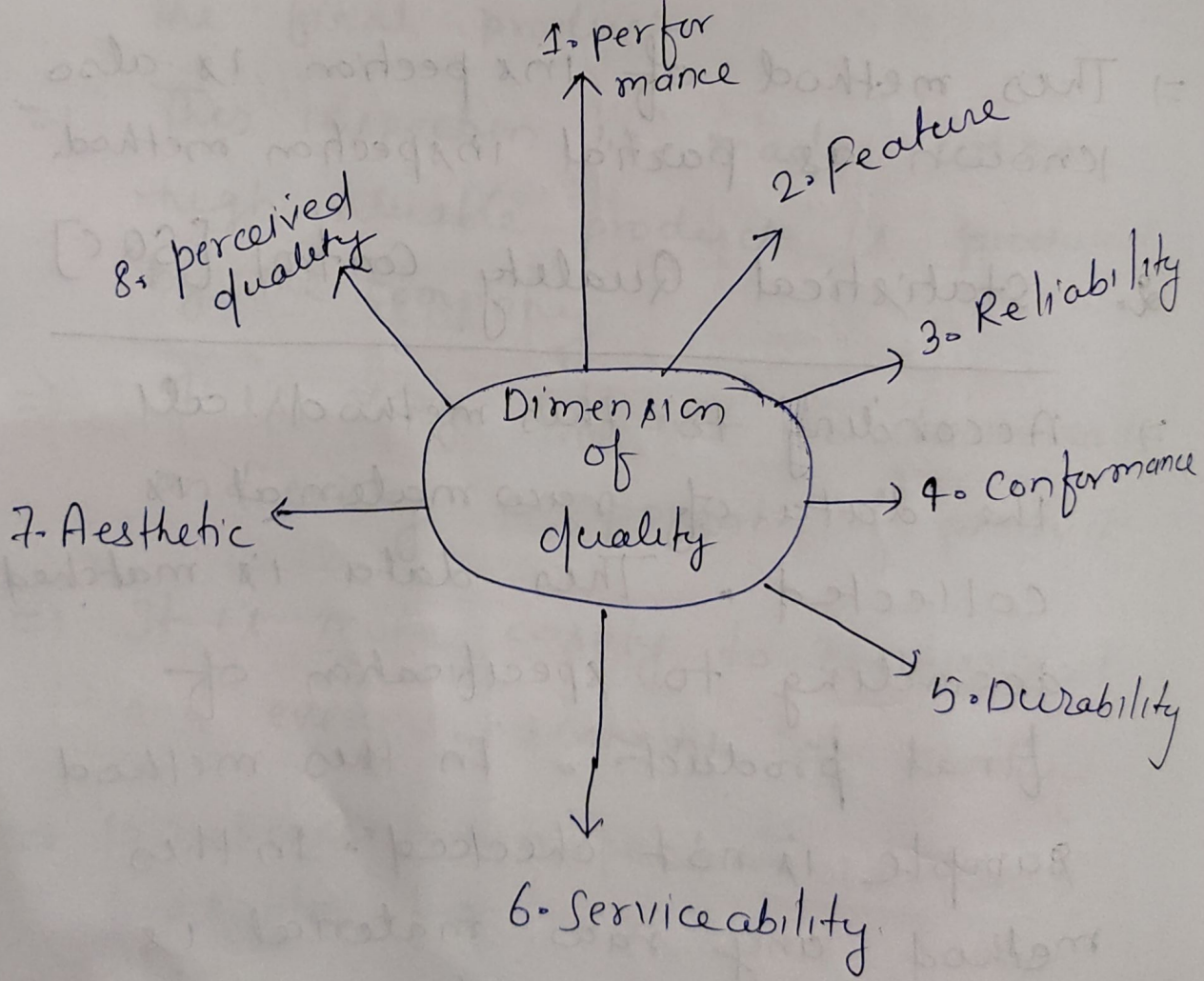
2. Statistical Quality Control [SQC]

⇒ According to this method all the data of raw material is collected. This data is matched according to specification of final product. In this method sample is not checked. In this method any raw material is not checked. In this method only data is matched. If

data is matching then quality is verified - If data is not matching then it is resend for quality checking.

6- Dimensions of quality

According to Dr. A Garvin, there are eight dimension of quality



1. performance

⇒ According to this dimension we know that product is doing its job or not. If it is doing properly it means performance is good.

2. Feature

⇒ According to this dimension we know that what are the extra work can be performed by that product.

3. Reliability

⇒ According to this dimension we know that How long can product last without failure? If product is long lasting then product is reliable. If it is not long lasting then product is not reliable.

4. Conformance

⇒ This dimension indicates that product is having required design or not. If its design is attracting

the customer, it means it is good. If it is not according to customer then we have make some change in its design.

5. Durability

⇒ It indicates that product should be long lasting.

6. Serviceability

⇒ It indicates that the service of product should be easy. It should be easily operated by any customer. It should not require high skill for its operation.

7. Aesthetics

⇒ It indicates that product should be good looking. If it is good looking then it can attract all the customers.

8. perceived quality

⇒ It indicates that what is the feeling of customer after use of product. If customer feed back is good then product is good. If customer feed back is not good then product is not good.

7. Quality circle

⇒ The group of management people to control the quality of product is known as Quality circle. Generally, two or more than two people are present in a Quality circle.

Objective of quality circle

Following are the main objective of quality circle

1. It can improve the quality of material
2. It can reduce the wastage of material.
3. It can create a good working place
4. It can increase the potential of the worker.

5. It can increase the productivity
6. It can increase the production
7. It can increase the skill of worker.
8. It can make a good image of company in the market
9. It can full fill the need of customer.
10. It can provide quality product to the customer.

Features of quality circle

Following are the main features of quality circle.

1. It is a small group of employee
2. It is organised in same work area.
3. It can increase total performance of industry
4. Quality circle are voluntary.
5. It can organise a meeting regularly

(8) Total quality Management (TQM)

⇒ The type of management technique by which a continuous improvement in quality is developed by the help of whole management is known as TQM.

⇒ It is a never ending process.

⇒ It is a continuous process of increasing the quality of worker

⇒ It is a continuous process of increasing the quality of product

⇒ It is a continuous process of increasing the quality of whole organisation

⇒ It is a top management strategy

⇒ It try to achieve 100 percent satisfaction of customer

⇒ It try to increase number of customer day-by-day

⇒ It try to convert the normal company is to brand

Elements of TQM

⇒ Following are the main elements of TQM

1. Ethics
2. Integrity
3. Trust
4. Training
5. Team Work
6. Leadership
7. Communication
8. Recognition

1. Ethics

⇒ It is an element which can decide that what is good or what is bad in work place. It is a common subject related to organisation and worker.

2. Integrity

⇒ It is an element which teach honesty to each worker and higher authority of industries.

3. Trust

⇒ It is a most important element. All the member of organisation should trust on each other. If trust is high then TQM will be good

4. Training

⇒ It is an element by which we can improve the skill of employee. After increasing the skill of employee, we can increase the quality of product

5. Leadership

⇒ It is an element which gives a particular direction of TQM. It try to maintain good relation between each department. If each department is having good relation then TQM will be very good otherwise it is not good.

The leader of TQM should have potential to integrate each employee together.

6. Communicaton

⇒ It is an element by which one department of TQM communicate with other department - If Communicaton is good then TQM is good.

Due to lack of communicaton, lack ~~take~~ of information and due to lack of information misunderstanding is develop. This misunderstanding can decrease the quality of TQM.

7. Recognition

It is an element which gives positive feedback. It can encourage department to increase TQM. If recognition is good Then TQM is good

9. concept of 'KAIZEN'

⇒ It is a concept which tells about continuous improvement of productivity of an industry.

⇒ It is a Japaneses concept which is present in Japan from a long time.

⇒ It was initially used in different Japaneses business.

⇒ According to this concept all old system, process are taken out from the industry and all new system, process are used.

⇒ It was initially used in japan after world war-II.

⇒ By the use of this concept a developed work place is created.

⇒ By the use of this concept a developed, process is used in the industry to produce any product.

⇒ ~~Acco~~

⇒ According to KAIZEN concept, Waste material decreases

⇒ According to KAIZEN concept, New - Neco technologies are used in the industry.

⇒ According to KAIZEN concept, production of product increases

⇒ According to KAIZEN concept, discipline is maintain in the organisation.

⇒ According to KAIZEN concept, all the department of an organisation are having proper co-ordination

⇒ According to KAIZEN concept, the total organisation is having complete clean operation.

10. concept of '5S'

⇒ It is a group of five japaneses ward which are started with letter 'S'. All these words are given below.

1. Seiri. (sorting - क्रम बद्ध करना)
2. Seiton (set - तय करना)
3. Seiso (shine - चमकना)
4. Seiketsu (standarized - मानकीकरण)
5. Shitsuke (sustaining - कायम रखना)

1. Seiri [sorting]

⇒ This indicates that throw away all the waste product. Don't scold a worker for throwing the waste product. In work place only usefull product or item should be present.

2. seiton [set]

⇒ This indicates that keep all the products in a proper manner.

⇒ Keep all the item at proper place.

⇒ Identification of each item become easier

3. Seiso [shining]

⇒ It indicate that everyone is a janitor.

⇒ It indicate proper cleaning of work place.

⇒ Each work place should be properly clean.

⇒ If work place is clean then health issue of worker does not comes and all the worker attend their work properly.

4. Seiketsu [standardizing]

⇒ It indicates that cleanliness level is at standard level.

⇒ It gives a good visual management to the each worker.

⇒ proper colour of painting is used for standard level of cleaning.

5. Shitsuke [sustaining]

⇒ It indicates discipline of an organisation.

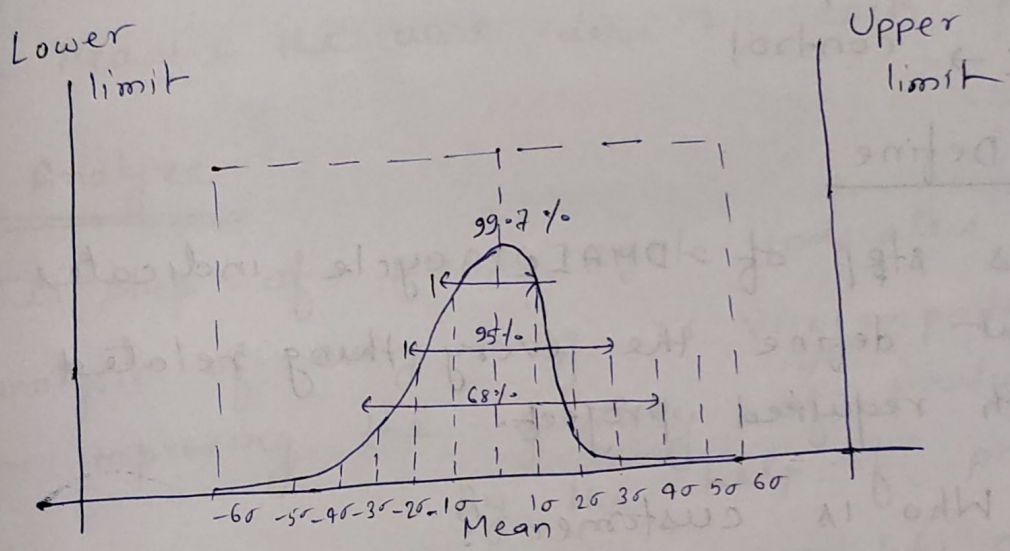
⇒ If a good discipline is present then work done is proper.

⇒ By the help of proper work done, production and productivity of plant increases.

II. Six Sigma

⇒ It is a management technique by which we can reduce the error and and we can improve the our business.

To explain the six sigma Let us consider a graph as shown below.



from above graph it is clear that if standard deviation is increasing in upper limit and lower limit both direction then accuracy of product increases. If we reaches up to 3-σ then the accuracy of product become up to 99.7%. It means if value of sigma increases in both direction then the accuracy of product increases. If Accuracy increases it means quality of product, productivity, production also increases.

12. DMAIC cycle

⇒ It works on the principle of Six Sigma rule.

⇒ The full form of DMAIC is

D → Define
M → Measure
A → Analyze
I → Improve
C → control

⇒ 1. Define

This step of DMAIC cycle indicates that define the every thing related with required project.

(a) Who is customer ?
(b) What is the scope of this project ?
(c) What is the due date ?

⇒ If we define the every thing related with this project then we can improve the quality of product.

⇒ If quality of product increases then demand of product increases.

2. Measure

This step of DMAIC cycle indicate that measure every thing related with project.

(a) Measure the progress of work.
(b) Measure the success of work.
(c) Measure the amount of raw materials
(d) Measure the work done by each operator

3. Analyze

This step of DMAIC cycle indicates that analysis of every thing is very important for improving the quality of product. By the help of proper analysis we can improve the quality of product. We have to analyse about following thing

(a) Raw material related with product.
(b) Amount of work done.
(c) Time spent by worker to do a work.
(d) Type of raw material related to one final product
(e) Work done of each department

4. Improve

=) This step indicates that if any demerits are present in the quality of product then that demerit must be short out.

If we are not using a good method then we have to change that method.

5. Control

=) It is an important step related to quality improvement. We have to make proper control on each and every thing.

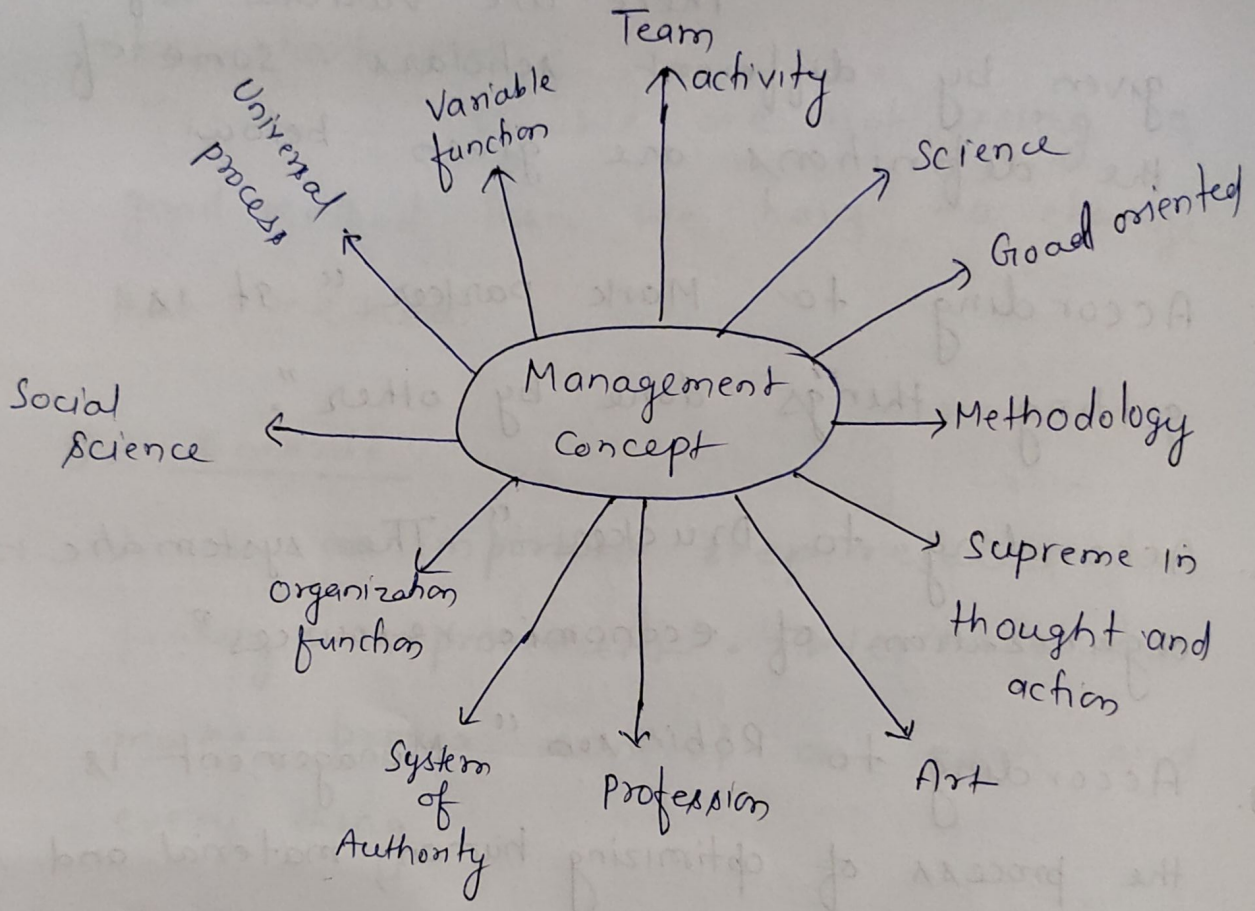
CH-7. Management

⇒ The process by which we can control, co-ordinate, organise an organisation in proper manner is known as Management. There are various definition given by different scholars - some of the definitions are given below.

1. According to Mark parker "It is getting things done by other".
2. According to Drucker "The systematic organization of economic resources".
3. According to Robinson "Management is the process of optimizing human, material and financial contributions for the achievements of organisational goals
4. According to Drucker "The systematic organization of economic resources

1. Concept of Management

To explain the concept of management, let us consider a diagram as shown below



1. **Team Activity** :- This concept indicates that management is a team work. Group of people are present in a management team.

2. **Science** :- It is a science to handle other people.

3. **Goal oriented** :- It is having some aim, this aim is achieved by management team.

4. Methodology :- It is having some method to conduct a particular management work.

5. Supreme in thought and Action :-

→ It is having some plane and according to that plan all actions are taken.

6. Art :- It is an art to complete a work properly. It is an art to handle two or more than two group of people

7. profession :- It is a profession, most of people want to make their carrier in this profession.

8. System of Authority :- It is a group of higher authority of a plant. These authority make a system and that system handle management work.

9. Organization function :- It is an organizational function by which all the activity of organization is controlled.

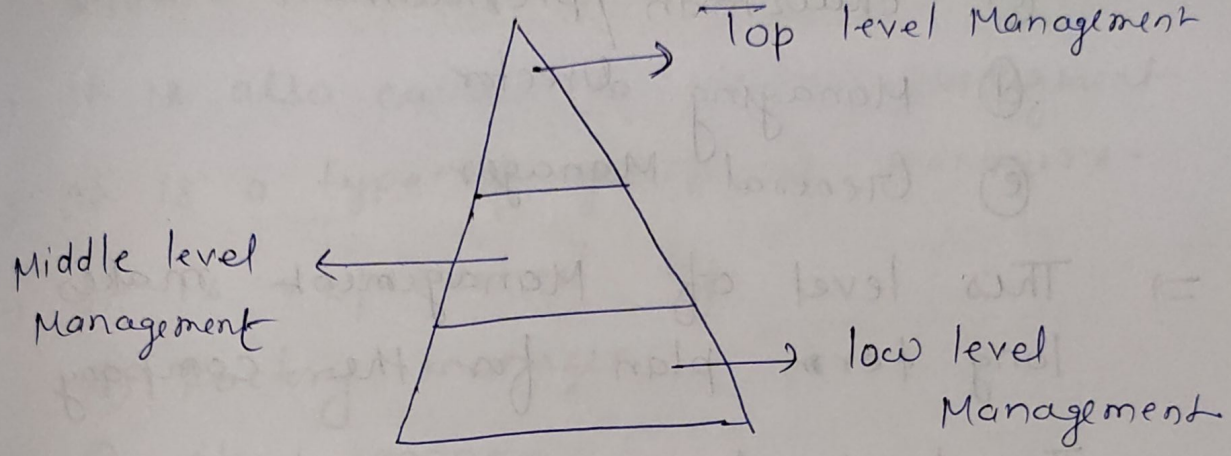
10. Social science :- It is a subject of social science. This subject teach us, how to handle all other people.

11. Universal process :- It is an universal process by which every action of an organization is controlled. Any where in the world, no management, no good operation, no completion of a work.

12. Variable function :- It is a type of variable function. This function can work in different sector. By the help of this function each sector is operated smoothly.

2. level of Management

To explain the level of management, Let us consider a diagram as shown below.



From above fig. it is clear that there are three type of Management level.

(a) Top level Management
(b) Middle level Management
(c) low level Management

(a) Top level Management

⇒ The level of management which makes strategy is known as top level management

⇒ It is also called as strategical level of Management

⇒ This management level is higher authority of the company

⇒ It is represented by
(a) Board of director.
(b) chief executive officer
(c) chairman / president
(d) Managing director
(e) General Manager.

⇒ This level of Management makes long term plan for the company

⇒ This level of management set the goal of the company

⇒ This level of management is responsible for overall development.

⇒ This level of management take care all the demands of customers.

⇒ This is a group of higher authority.

⇒ This management level is very important part for company development.

(b) Middle level Management

⇒ The level of management which is just below to the top level is known as middle level management

⇒ It is also called as tactical Managment.

⇒ It is a type of group of managers.

⇒ It is represented by

(a) Factory manager.
(b) plant manager
(c) HOD
(d) Senior Manager.

⇒ This level of management execute the strategy made by the top level Management

⇒ This management level makes small level of policies.

⇒ It helps the top level of management

⇒ This level of management guide the lower level of workers.

(c) low level Management

⇒ The level of management which is ~~lower~~ just below to the middle level of management is known as low level Management.

⇒ It is also called as operational Management

⇒ This management level is directly connected with labour of company

⇒ This management is represented by
- (a) shift incharge
- (b) Trainee engineers.
- (c) Senior supervisor.
- (d) Foreman
- (e) Junior Manager
- (f) line incharge

⇒ This management is having responsibility of machine and Material

⇒ It can observe the operation.

⇒ It can keep daily records.

3. Administration and Management

1. Administration

⇒ The overall execution of given task is known as administration.

⇒ It maintain all the documentation work.

⇒ It can conduct the meeting of different authority

⇒ It can guide by the help of legal terms and conditions.

⇒ It can execute the policies made by higher authorities

⇒ It can perform the work in a proper schedule.

⇒ It can maintain discipline in the department.

⇒ It can maintain good work culture.

⇒ It can make effective use of man, material, machine etc.

2. Management

⇒ The process by which we can control, organise and co-ordinate the organisation in proper way is known as Management

⇒ It can make strategy of industry

⇒ It can conduct training for the employees.

⇒ It can execute strategy in proper manner

⇒ It can keep the daily record of employee

⇒ It can handle all the labour properly

⇒ It can make proper care for the customers.

⇒ It can try to satisfy the customer

⇒ It can handle properly all the work of each department.

4. Scientific management by F.W. Taylor

⇒ It uses scientific approach for selection, training and placement of employees.

⇒ It works on the research and experiment

⇒ It try to finish the the work in scientific approach

⇒ It can uses the verified method

⇒ It can maintain the proper working condition.

⇒ It can increase the productivity.

⇒ It gives more attention on productivity

⇒ It can provide better job security to the employees.

⇒ It properly focused on quality of work.

⇒ It ~~take seriously~~ take more care on safety of employee.

⇒ It try to decrease the Waste material

⇒ It can increase the production of industry.

5. principle of Management

Following are the main principle of management

1. Authority and responsibility
2. Equity
3. Discipline
4. Centralization
5. Division of Work
6. subordination of individual interest to group interest
7. Initiative
8. Remuneration
9. Team work
10. Unity of direction
11. Unity of command
12. Stability
13. Scalar chain
14. Esprit De Corps.

1. Authority and responsibility

=> It is having main power of management work.

=> It is having all power of industry.

=> Authority is having responsibility to complete the work.

=> Generally, top level management comes under this category

2. Equity

⇒ According to this principle, management should behave equally to all the employees.
⇒ It should not miss behave to any one.

3. Discipline

⇒ It is the most important principle of management. If discipline is not present then, work is not completed in proper manner

4. Centralization

⇒ The control of different functions from a common authority is known as centralization.
⇒ The main authority is present at the central position.

5. Division of Work

⇒ The main work is divided into small small parts by the help of management
⇒ Each part is operated properly under the guidance of management

6. Subordination of individual interest to group interest

⇒ It indicates that we have to give importance to the interest of organization

⇒ We have to respect ~~importa~~ interest of each individuals but we have to give priority to group interest.

7. Initiative

⇒ Starting of any work in the industry is known as initiative

⇒ Top level management makes strategy to start any initiative.

8. Remuneration

⇒ This principle indicates that we have to pay all the employees in to proper manner.

⇒ Many worker work for ~~ma~~ good remuneration

9. Team work

⇒ According to this principle, it indicates that a team work is very important.

⇒ Without team work, a good management is not possible in the industry

⇒ By the help of team work, we can perform a large work in very simple way

10. Unity of direction

⇒ It indicates that we have to give an unique direction to each employees.

⇒ Don't give different-different direction each and every time. This type of direction can confuse any employee.

11. Unity of command

⇒ It indicates that one command is given by one boss.

⇒ If more than one higher authority are present then there will be some confusion to the employee.

12. Stability

⇒ It indicates that there will be some stability of work to employee.

⇒ Stability can helps for growth of organisation.

13. Scalar chain

⇒ It indicates that a chain of instruction is given from higher authority to lower authority

⇒ This chain is present in all department of organisation

14. Esprit de corps

⇒ It is related with team work.

⇒ Team should have proper under-standing

⇒ Co-ordination and communication must be present

6. Functions of Management

Following are the main functions of management

1. planning
2. organizing
3. Directing
4. controlling
5. Decision-Making
6. Motivating

1. planning

⇒ The process of deciding any thing in advance is known as planning.

2. ⇒ We can find any problem before doing the work.

⇒ We can clearly focus on real objective

⇒ We can make working process more economical.

⇒ planning is more important for success of management.

2. Organizing

⇒ The process of co-ordinating and directing the company's resources is known as organizing.

⇒ We can use all the workers in a proper organized way.

⇒ We can properly utilize the resources by organizing it.

⇒ We can increase the productivity of plant.

⇒ We can decrease the amount of waste material.

3. Directing

⇒ The correct way of doing any work is known as directing.

⇒ It is very important to do a particular job in good manner.

⇒ We can give proper instruction to others.

⇒ We can take help of experienced workers for proper direction.

4. Controlling

⇒ The process of maintaining rule and regulations is known as controlling

⇒ It is very important function of a management

⇒ If proper control action is not present then worker can not work properly

⇒ By the help of proper control discipline is maintained at the working place

5. Decision - Making

⇒ The action taken by higher authority to complete a work is known as decision-Making.

⇒ It is a very important function of a management

⇒ If proper decision is not taken at right time then chances of damage of product increases.

6. Motivating

⇒ The process of increasing the internal power of a worker is known as motivating

⇒ Motivation is very important for frustrated employee

CH-8. Organizational Management

1. Organization

⇒ A group of persons to ~~get~~ do any particular task is known as organization.

⇒ We can do a work in proper manner by the formation of organization.

⇒ We can do a work in the form of team work by forming an organization.

⇒ We can properly utilize the resources by the help of organization.

⇒ There are various example of organization. some of the examples are given below:

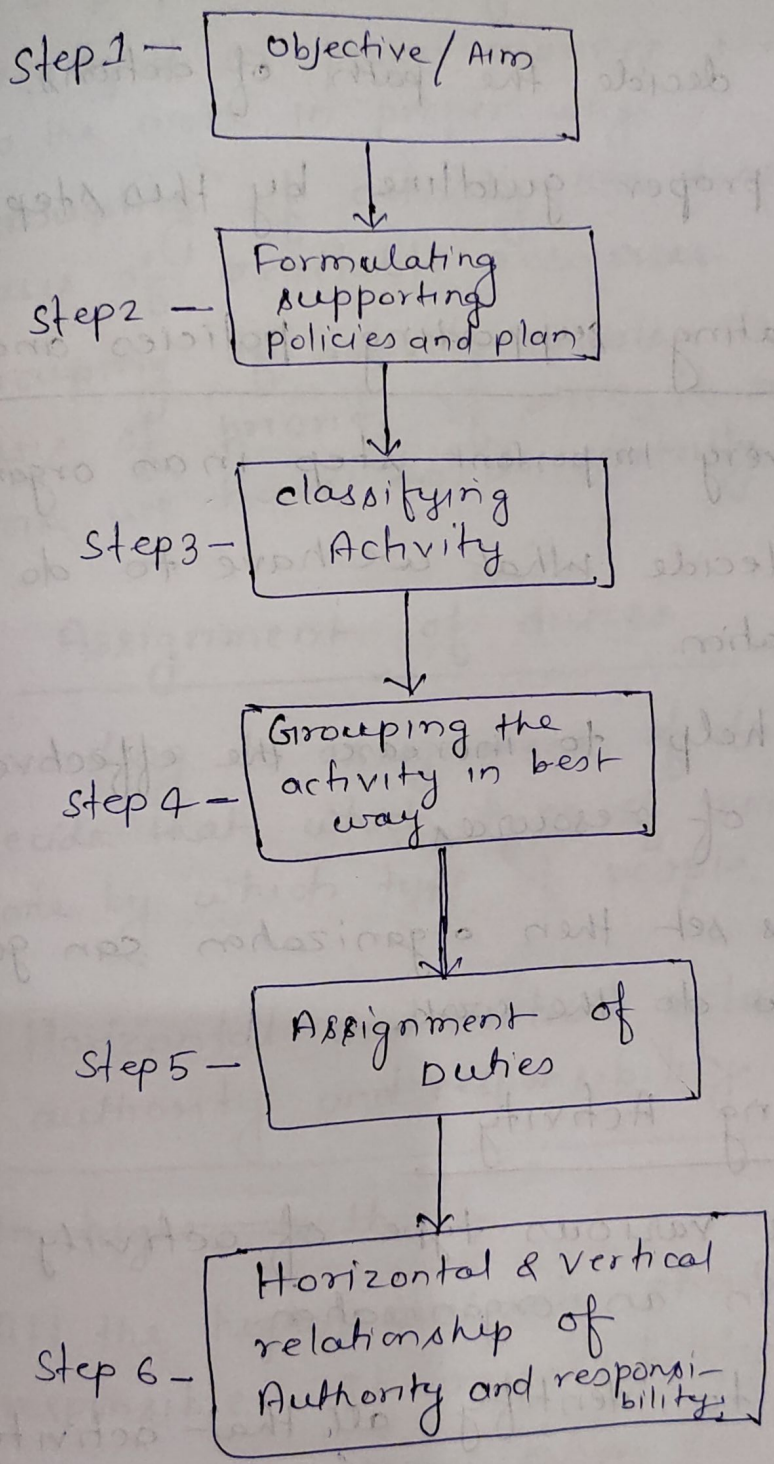
1. Any company
2. Any Government department
3. Any institute
4. Any NGO

⇒ An organization is having following thing

1. Task
2. Functions
3. people
4. Managment
5. Rules and Regulation
6. Technology
7. Aims and objective
8. Structure
9. Department

2. Steps in forming organization

Following are the main steps in formations of organization.



1. objective / Aim

⇒ We have to know our aim before starting any work.

⇒ This step decide the path of actions.

⇒ We get proper guidline by this step.

2. Formulating supporting policies and plan

⇒ plan is very important step in an organizaton

⇒ We can decide what we have to do in organisation

⇒ plan can help to increase the effective utilizaton of resources.

⇒ If plan is set then organizaton can go forward to do the work

3. classifying Activity

⇒ There are various type of activity are present in an organisaton.

⇒ We have to identify all that activity

⇒ We can start to do the work on a particular activity after classifying this activity

4. Grouping the activity in best way

⇒ All the classified activity are arranged in a proper order. If these activity are arranged in proper manner then we can do the work in proper way.

⇒ Grouping of activity are done on the basis of available resources.

⇒ Grouping of activity is also done on the basis of priority of work, it means which work we have to do initially

5. Assignment of duties

⇒ According to assignment of duties we can decide that which type of work can be done by which type of people.

6. Horizontal and vertical relationship of authority and responsibility.

⇒ ~~An higher authority~~

⇒ All the higher authority should be of responsible. If responsibility is not present then organisation can not develop.

3. Types of organization

There are four type of organisation

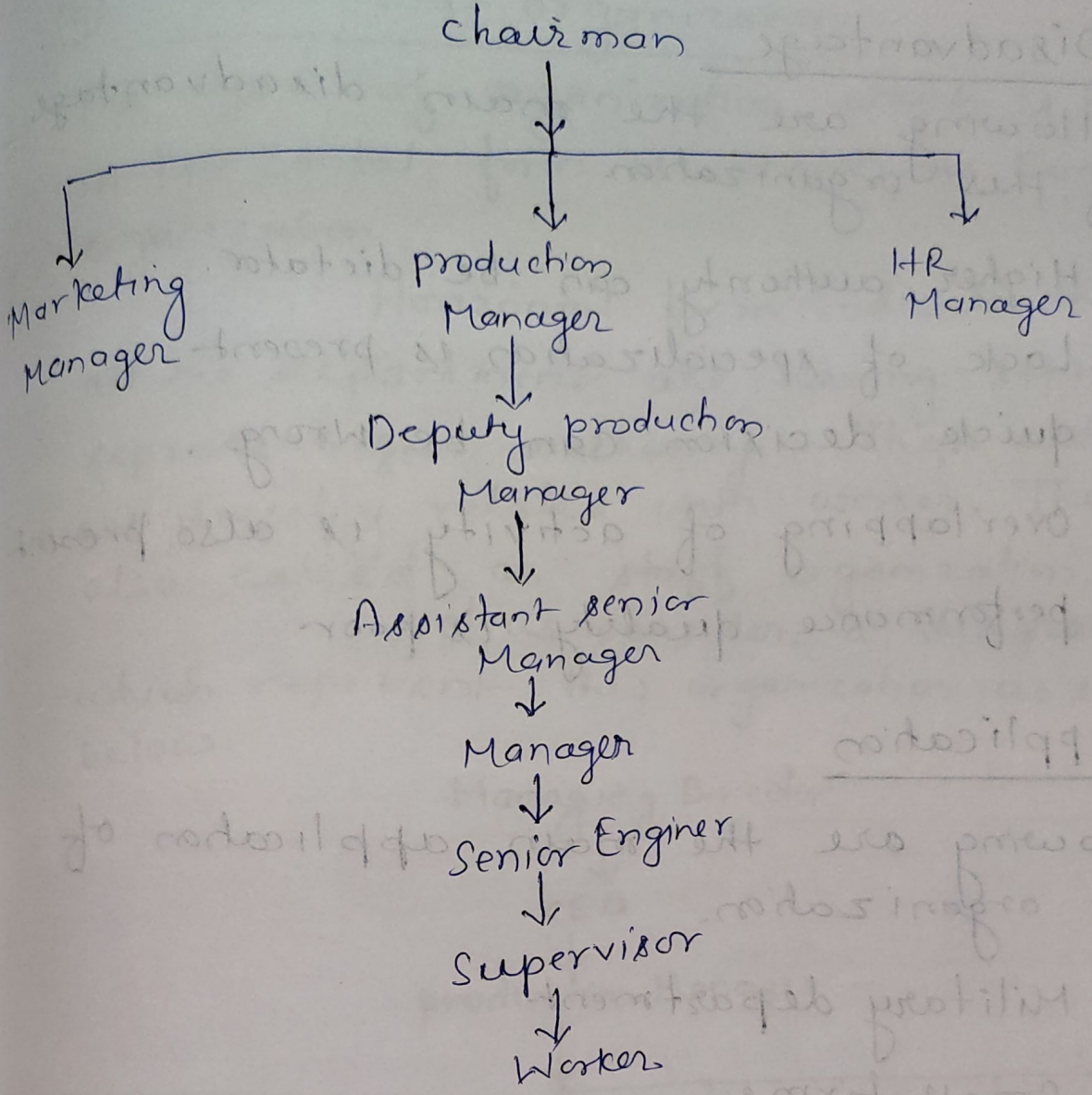
(a) line organization
(b) Functional organizaton
(c) line and staff organizaton
(d) project organization

(a) line organization

⇒ The type of organizaton which is present in vertical form is known as line organizaton.

The vertical form indicates that all the authority from higher level to lower level are connected to each other. This is also called as scalar organizaton.

Let us consider a diagram which represent this type of organizaton as shown below.



Advantage

Following are the main advantage of this organization.

1. It is very simple
2. It can be easily understand.
3. We can take quick decision.
4. Confusion is very less
5. It is having high discipline

Disadvantage

Following are the main disadvantage of this organization.

1. Higher authority can be dictator.
2. Lack of specialization is present
3. quick decision can be wrong.
4. Overlapping of activity is also present.
5. performance quality is poor

Application

Following are the main application of this organization.

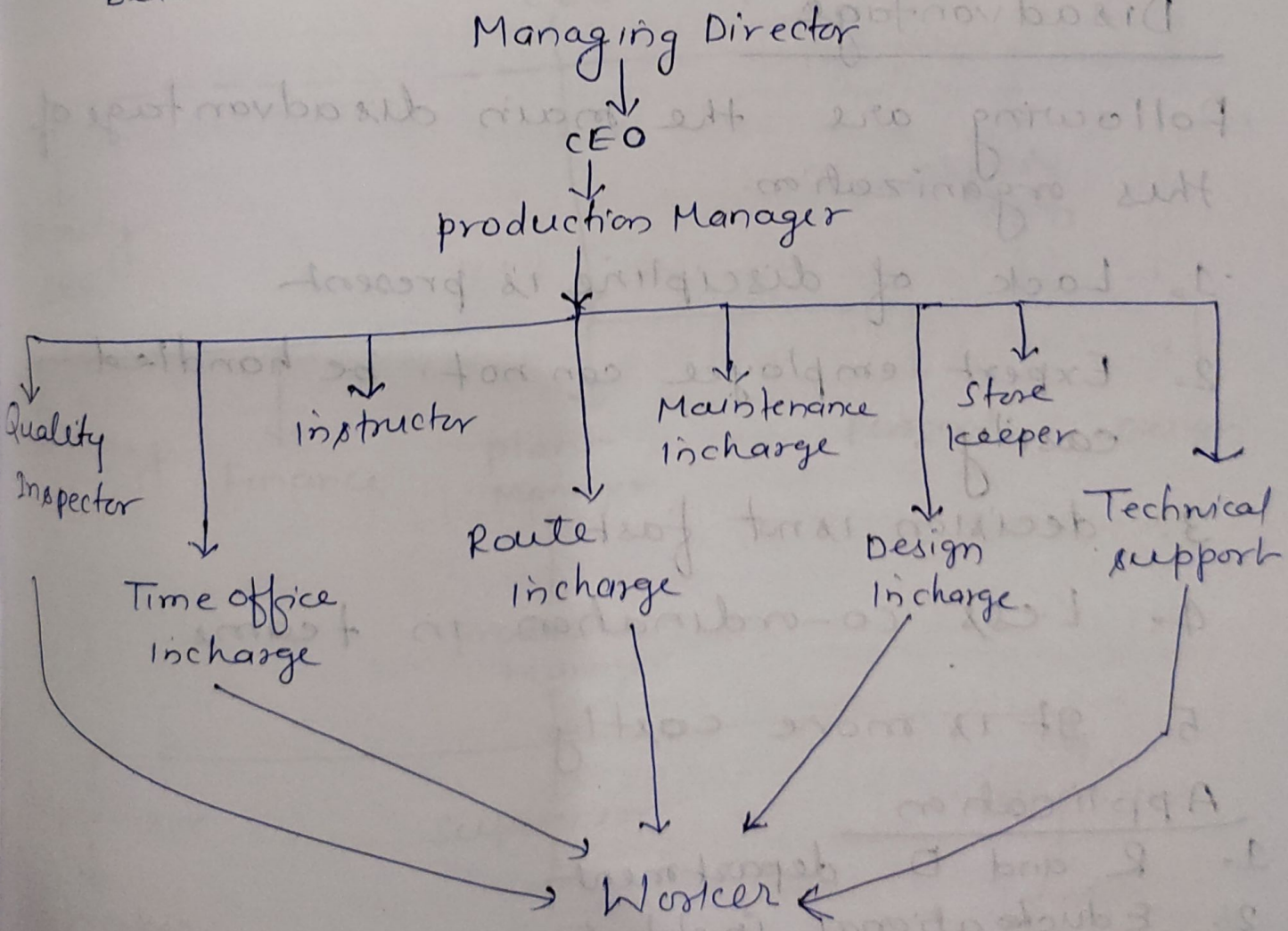
1. Military department
2. Small firms
3. Workshop etc.

(b) Functional organizaton

⇒ The type of organization which is present in horizontal form is known as Functional organizaton.

Horizontal form indicate that all the department are having seprate-seprate higher authority. There authority are directly related with worker. This is also called as staff organization.

Let us consider a diagram which represent this organizaton as shown below.



Advantage

Following are the main advantage of this organization

1. It is having better performance
2. We can take good decision
3. effective utilization of staff.
4. Heavy work load can be handle easily
5. Work load is distributed

Disadvantage

Following are the main disadvantage of this organization.

1. Lack of discipline is present
2. Expert employee can not be handled easily.
3. decision is not fast
4. Less co-ordination in teams.
5. It is more costly

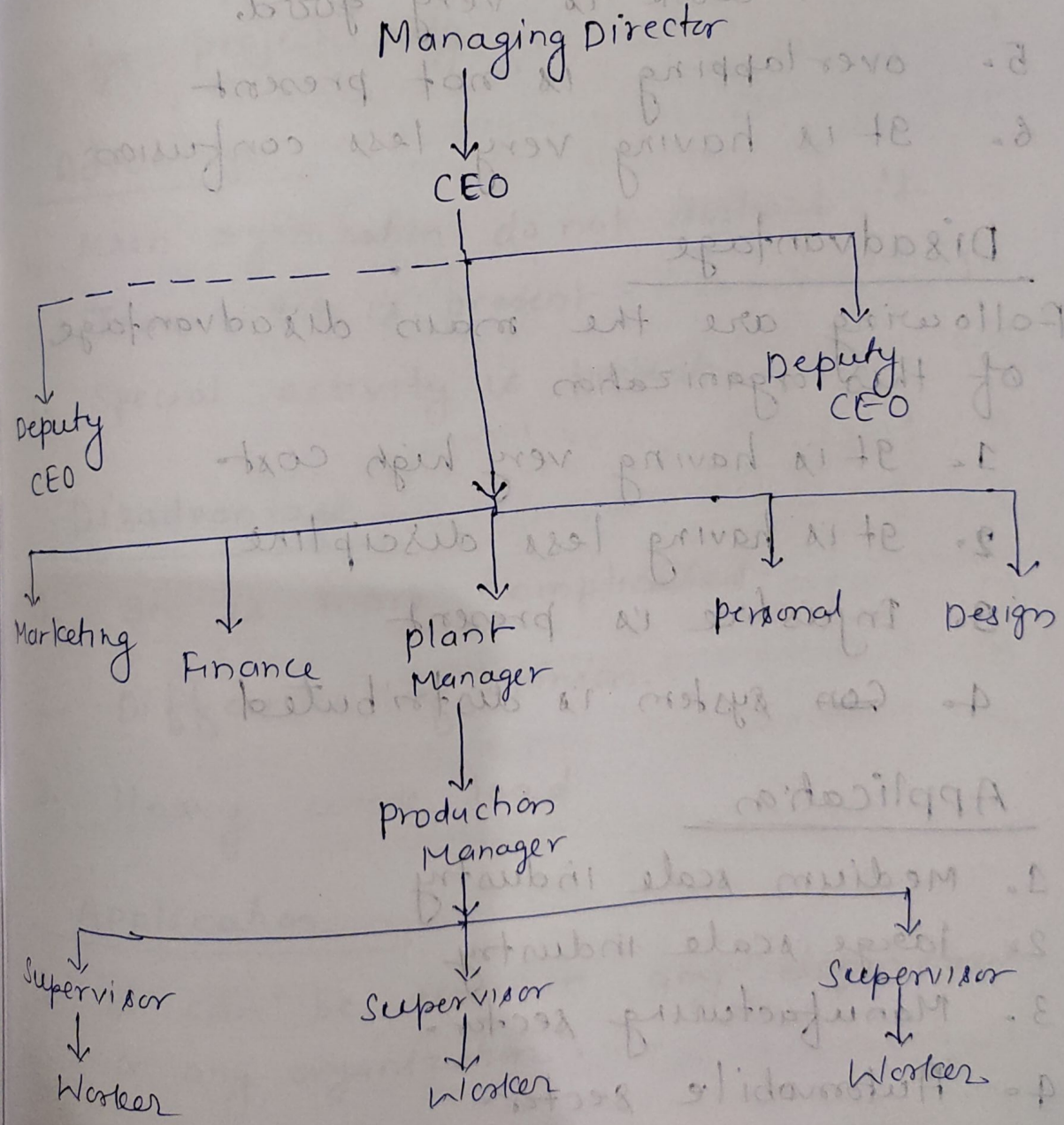
Application

1. R and D department.
2. Educational institute.

3. line and staff organization

⇒ The type of organization which is present in vertical and Horizontal form is known as line and staff organization.

Let us consider a diagram which represent this organization as shown below.



Advantage

Following are the main advantage of this organization.

1. It is having high discipline.
2. It is having specialized system.
3. Here decision is quick and correct.
4. Team work is very good.
5. overlapping is not present
6. It is having very less confusion.

Disadvantage

Following are the main disadvantage of this organization

1. It is having very high cost.
2. It is having less discipline
3. Injustice is present
4. ~~Con~~ system is distributed

Application

1. Medium scale industry
2. large scale industry
3. Manufacturing sector.
4. Automobile sector.

4. project type organization

⇒ The type of organization which is directly related with project is known as project type organization. It is an inter-organization. It means it is present inside some other organization. This type of organization is temporary in nature. It is formed for project only.

Advantage

1. Main organization do not disturb it.
2. Team work is present.
3. Special activity is present

Disadvantage

1. It is more complicated.
2. Difference of opinion.
3. Heavy work load

Application

1. It can be use in any department or any organization.

4. Department

⇒ The small part of a large organization is known as department.

⇒ To control the each and every action, an organization is divided into small-small part

⇒ These each part are known as department.

⇒ Each department try to achieve the main goal of the organization.

⇒ A large organization can have various department. some of the departments are given below.

(a) Marketing department
(b) production department
(c) Design
(d) Research and development
(e) Maintenance department. etc.

⇒ Each department is controlled by management

⇒ Each department is having seprate seprate Management work.

#. Importance of Department

Following are the main importance of department

1. It can provide special action.
2. It can provide proper affort at proper place.
3. complicated work is solved easily by the help of department
4. It can increase the efficiency of employee
5. It can increase the efficiency of organizahon.

#. Aim of department

Following are the main aim of department

1. To distribute the work.
2. To make specialized worker.
3. To create identity of each activity
4. To improve productivity of organizahon.
5. To avoide mixing of various funchon

#. Types of department

Following are the main type of department

(a) Departmentation by product.
(b) Departmentation by function.
(c) Departmentation by process.

(a) Departmentation by product

⇒ The type of department which is directly related with production of product is known as Departmentation by product.

⇒ If a company produces different type of product then each product are having different department.

⇒ Let us conside an example
1. organization → Engineering Company
2. production → Automobile
3. products → small car, Big. Car
4. Department → small car department, Big car department

Advantage

1. It gives proper attention to the product.
2. Worker become expert
3. Maximum use of Worker efficiency.
4. customer satisfaction is more.
5. quality of product increases.

Disadvantage

1. It require more man power.
2. It require more facility
3. more castly
4. chances of duplicate product.

(b) Departmentation by function

⇒ The type of department which is directly related with operating function is known as departmentation by function.

⇒ Let us consider an example.

1. organization → Engineering company
2. production → Electronics parts.
3. Functions → production, sale, purchase Finance.
4. Department → production department, purchase department, Finance department

Advantage

1. proper use of facility.
2. It gives more productivity
3. It is more economical.
4. Division of labour is easy
5. Employee become exper.

Disadvantage

1. chances of delay
2. Due to delay customer satisfaction decreases
3. Extra load of work.
4. less time for training.

(b) Departmentation by ~~func~~process

=> The type of department which is directly related with process of production of product is known as Departmentation by process.

Let us consider an example which represent this department as shown below.

1. organization → Engineering company
2. Type of production → Heat treatment
3. process → carbonising, Nitriding
4. Department → Carbonising department, Nitriding department.

Advantage

1. Duplication is not present.
2. Labour control is easy
3. Effective utilization of resources.
4. Division of work is easy
5. productivity is high.

Disadvantage

1. Cost of machine is high.
2. Running cost is high.
3. It require more experts.

5. principle of organization

There are two principle of organization

(a) Centralized principle
(b) Decentralized principle.

(a) Centralized principle

⇒ The type of principle in which every thing is controlled from only one position is known as centralized principle.

Advantage

1. It can give uniform control.
2. policy does not changes.
3. Duplication is not present.
4. Decision is easy
5. Effective co-ordination between each sector.
6. Discipline is very high

(b) Decentralized principle

⇒ The type of principle in which every thing is not controlled from only one position is known as decentralized principle.

In this type of principle control is taken from different - different position.

Advantage

1. Here work is distributed
2. Specialized work culture is possible.
3. Decision is proper.
4. Control is more effective.
5. It can give result oriented work.
6. productivity is more.
7. Documentation is less.

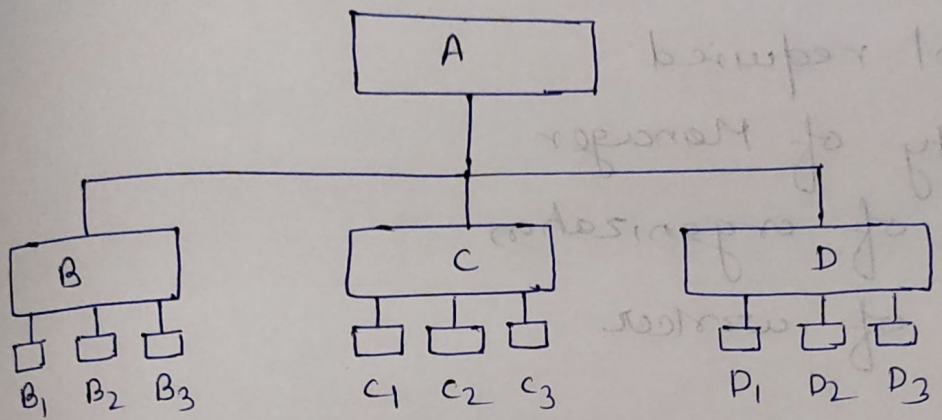
6. Authority and Responsibility

Authority	Responsibility
1. It can be group of top level management.	1. It is done by top level management.
2. It can take work from other people	2. It is related with working process.
3. It is having very high status and dignity.	3. It can finish the work in given time interval.
4. Higher the post, higher the authority	4. Higher the post, Higher the responsibility
5. It can check the results	5. It can show the results.
6. Authority is power to settle the issue.	6. It is power to complete the work.
7. It is the main command	7. It is the main duty

7. Span of control

The number of authority present in a group is known as span of control.

Let us consider fig. ④ as shown below-



from above fig. it is clear that A is having three group B, C, D and B, C, D are having separately three - three group. So, We can say that Here span of control is 3.

We can increase or decrease the span of control according to requirement. Span of control can distribute the main work into small parts.

Factors affecting span of control

Following are main method which can directly or indirectly affect the span of control.

1. Management Method.
2. Control required
3. Capacity of Manager
4. policy of organization
5. Type of worker

limitations of span of control

1. Interference increases.
2. Ego problem increases
3. Work complication is high
4. possibility of mismanagement