

POSTAL Study Package

2021

Production and Industrial Engineering

Objective Practice Sets

Industrial Engineering

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Facility Design

- Q.1** Which factor influences the location strategy for facility location?
- (a) Cost structure
 - (b) Government policies
 - (c) Existing demand, supply and marketing locations
 - (d) All of the above
- Q.2** What is an important aspect of service layout?
- (a) Ambient Conditions
 - (b) Ergonomic Considerations
 - (c) Interpretation Aspects
 - (d) All of the above
- Q.3** What is the advantage of using the factor ratings to evaluate location alternatives?
- (a) Simplicity
 - (b) Bring diverse location considerations
 - (c) Consistency of judgement about location alternatives
 - (d) All of the above
- Q.4** Which of the following are the facility location evaluation methods?
- (a) Cost-Volume Analysis
 - (b) Factor Rating Method
 - (c) Center of Gravity Method
 - (d) All of the above
- Q.5** Which of the following factor affects the plant location?
- (a) Closeness to the market place
 - (b) Stability of demand
 - (c) Availability of communication facilities
 - (d) All of the above
- Q.6** What is the main objective of plant layout?
- (a) Minimum investment in equipment
 - (b) Minimum overall production time
 - (c) Utilize existing space effectively
 - (d) All of the above
- Q.7** Which of the following factors influence the location for a service organization?
- (a) Proximity to consumers
 - (b) Access to skilled workers
 - (c) Closeness to suppliers
 - (d) All of the above
- Q.8** Which one of the following layout type, is an arrangement of resources on the basis of process characteristics of the resources available?
- (a) Product Layout
 - (b) Process Layout
 - (c) Group Technology Layout
 - (d) Fixed Position Layout
- Q.9** What is the advantage of good layout design, in the case of service organizations?
- (a) Customers may need to walk shorter distances.
 - (b) Customers spend less time in the system.
 - (c) Both (a) and (b)
 - (d) None of the above
- Q.10** Which of the following is a crucial factor affects the layout?
- (a) Industry Type
 - (b) Production System
 - (c) Volume of Production
 - (d) All of the above
- Q.11** Which one of the following is a potential disadvantage of process layout?
- (a) Complex flow can be difficult to control
 - (b) Low product flexibility
 - (c) Easily disrupted
 - (d) Hard to supervise
- Q.12** Which one of the following is a potential disadvantage of product layout?
- (a) High Unit Cost
 - (b) Not very robust if there is a disruption

- (c) Limited opportunities for specialization of equipment
(d) Inconvenient movement of materials
- Q.13** The layout of an operation is concerned with deciding where to put :
(a) Staff, machines, facilities and equipments
(b) Equipments, staff and machines
(c) Facilities and machines
(d) Staff and facilities
- Q.14** A self service cafeteria is usually positioned as:
(a) Process Layout
(b) Cell Layout
(c) Product Layout
(d) Fixed Position Layout
- Q.15** The type of layout suitable for use of the concept, principles and approaches of 'group technology' is
(a) Product Layout
(b) Job-Shop Layout
(c) Fixed Position Layout
(d) Cellular Layout
- Q.16** Which one of the following types of layout is used for the manufacture of huge aircrafts?
(a) Product Layout
(b) Process Layout
(c) Fixed Position Layout
(d) Combination Layout
- Q.17** Which one of the following combinations is valid for product layout?
(a) General purpose machine and skilled labour.
(b) General purpose machine and unskilled labour.
(c) Special purpose machine and semi-skilled labour.
(d) Special purpose machine and skilled labour.
- Q.18** In relation to product flexibility and production volume achieved in computer controlled manufacturing systems, the flexible manufacturing system has
(a) High flexibility in types of product but low volume of production.
(b) Moderate product flexibility and moderate production volume.
(c) Low product flexibility but high production volume.
(d) Extremely low product flexibility but low production volume.
- Q.19** From high variety to low variety, which is the correct order of layout types?
(a) Product, Fixed Position, Process
(b) Fixed Position, Cell, Process
(c) Process, Cell, Product
(d) Product, Cell, Process
- Q.20** The layout where the equipment, machinery, plant and people move as necessary is known as :
(a) Process Layout
(b) Product Layout
(c) Cell Layout
(d) Fixed Position Layout
- Q.21** Vehicle manufacturing assembly line is an example of
(a) Product Layout (b) Process Layout
(c) Fixed Layout (d) Manual Layout
- Q.22** Process layout is employed for
(a) Batch Production
(b) Effective Utilisation of Machines
(c) Continuous Type of Product
(d) None of the above
- Q.23** Product layout is employed for
(a) Batch Production
(b) Continuous Production
(c) Effective Utilization of Machine
(d) None of the above
- Q.24** Military organization is known as
(a) Line Organization
(b) Line and Staff Organization
(c) Functional Organization
(d) None of the above
- Q.25** Which of the following layouts is suited for mass production?
(a) Process Layout
(b) Product Layout
(c) Fixed Position Layout
(d) Functional Layout
- Q.26** Which of the following is not usually considered a characteristic of a fixed-position layout?

- (a) Fixed position layouts are often used for large or delicate product or services.
(b) Transforming resources often move to the work.
(c) Transforming resources are grouped in cells.
(d) Fixed position layouts are able to offer high flexibility.
- Q.27** Cell layouts typically :
- (a) Are dominated by the transforming resources.
(b) Cost more to run than other types of process layout.
(c) Involve all the operations on a product being located adjacent to each other.
(d) Are the most efficient form of process layout.
- Q.28** Which objective is not a consideration when designing a good layout?
- (a) Employee flexibility
(b) Clarity of flow, whether for material or customers
(c) Inherent safety
(d) Accessible plant, to facilitate cleaning and maintenance
- Q.29** In which of the following layouts, the lines need to be balanced
- (a) Process Layout (b) Product Layout
(c) Functional Layout (d) Fixed Position Layout
- Q.30** A low unit cost can be obtained by the following layout :
- (a) Product Layout (b) Cell Layout
(c) Functional Layout (d) Process Layout
- Q.31** The most significant advantage of U-shaped layout is :
- (a) Cost minimization
(b) Easy handling of process
(c) Increased flexibility in the work
(d) All of the above
- Q.32** In general, work in process inventory is _____ for a process layout and _____ for a product layout.
- (a) Small, Large (b) Large, Small
(c) Large, Large (d) Small, Small
- Q.33** Which of the following is an advantage of cellular layouts?
- (a) It is easier to balance the flow of work through a cell.
(b) It requires less training of workers.
(c) It has reduced work-in process inventory.
(d) It requires less capital investment.
- Q.34** The flexible manufacturing system layout which is the most complex and most flexible is called
- (a) Open-Field System
(b) Ladder Layout
(c) Closed Loop System
(d) Progressive Layout
- Q.35** A production line is said to be balanced when
- (a) There are equal number of machines at each workstation.
(b) There are equal number of operators at each workstation.
(c) The waiting time for service at each station is the same.
(d) The operation time at each station is the same.
- Q.36** Which of the following are the benefits of assembly line balancing?
1. It minimizes the in-process inventory.
 2. It reduces the work content.
 3. It smoothenes the production flow.
 4. It maintains the required rate of output.
- Select the correct answer using the codes given below :
- (a) 1, 2 and 3 (b) 2, 3 and 4
(c) 1, 3 and 4 (d) 1, 2 and 4
- Q.37** In an assembly line, when the workstation times are unequal, the overall production rate of an assembly line is determined by the :
- (a) Fastest station time
(b) Slowest station time
(c) Average of all station times
(d) Average of slowest and fastest station times
- Q.38** Which of the following characteristics of assembly line balancing are true?
- (a) Apportionment of sequential work activities into work stations
(b) High utilization of equipment
(c) Minimization of idle time
(d) All of the above

Explanations Facility Design**1. (d)**

Cost structure, government policies, existing demand and supply and marketing locations factors influence the location strategy for facility location.

2. (d)

Ambient conditions, ergonomic considerations, interpretation aspects are important aspects of service layout.

3. (d)

Simplicity, bring diverse location considerations, consistency of judgement about location alternatives etc. are advantages of using the factor ratings to evaluate location alternatives.

4. (d)**Facility Location Evaluation Methods :**

- (i) Cost-Volume Analysis
- (ii) Factor Rating Method
- (iii) Center of Gravity Method, and
- (iv) Transportation Model

5. (d)**Factors affecting the plant location :**

- (i) Closeness to the market place
- (ii) Stability of demand
- (iii) Availability of communication facilities

6. (b)

The main objectives of the plant layout are :

- (i) Minimum investment in equipment
- (ii) Minimum overall production time
- (iii) Utilize existing space effectively

7. (d)

The factors influencing the location for a service organization are as follows :

- (i) Proximity to the consumers
- (ii) Access to skilled workers near the organization
- (iii) Closeness to suppliers/vendors

8. (b)

In process layout, all machines performing similar type of operations are grouped at one

location. Example: All lathes, milling machines etc. are group in the shop will be clustered in like groups.

9. (c)

The main advantages of good layout design, in the case of service organizations are :

- (i) Customers may need to walk shorter distances.
- (ii) Customers spend less time in the system.

10. (d)

Industry type, production system, volume of production are the some crucial factor that affects the layout.

11. (a)

Disadvantages of process layout are :

- (i) reducing material handling efficiency.
- (ii) Throughput time is high.
- (iii) Complex flow can be difficult to control.
- (iv) Process time is prolonged which reduce the inventory turnover and increases the in-process inventory.

12. (b)

Disadvantages of product layout are :

- (i) Not very robust if there is a disruption.
- (ii) Comparatively high investment in equipments is required.
- (iii) Lack of flexibility.

13. (a)

The layout of an operation is concerned with deciding where to put staff, machines, facilities and equipments.

14. (c)

A self-service cafeteria is usually positioned as product layout.

15. (d)

Group technology has become an increasingly popular concept in manufacturing that is designed to take advantages of mass production layout and technique in smaller batch production system and cellular layout is used in group technology.