

Final Assessment

Summer Semester 2023

BBA program

Course title : production and operation Management

Course code : POM-325

Student Name : MD TUSHAR AHMED

Student ID : 1113300361

Answer to the question no: 1

Qualified worker: Qualified worker is one who

has the requisite physical attributes, requisite intelligence and education, requisite skill and

knowledge, With the above mentioned qualities,

he can complete the work to meet the satisfactory standards of safety, quality and quantity.

Work Measurement Techniques: There are

many techniques available to measure the work

The techniques are listed below:

1) Time study.

2) Work sampling.

3) Predetermined motion time system.

4) Synthesis.

1) Time Study: Time study refers to the ascertainment of the time needed to carry

out unit of work. In this method, observation

and recording of time is necessary for undertaking each unit of an operation are done, with a view to ascertaining, the actual time, in which the work can be accomplished.

2) Work sampling: A work measurement method,

in which the work of several employees is sampled randomly, at periodic intervals, to ascertain the proportion of total operations, of a specific activity.

3) Predetermined motion time system (PMTS): In

PMTS method, basic times are set up for basic human motions. Such time values are used to compute the time required by the job for its completion, with fixed standard. It is a new and improved version of motion study.

4) Synthesis: A work measurement method, in

which the job or activity is divided into various parts, after which the time consumed in

- Performing each element of the job is recorded and then combined.

Answer to the question no:2

Fixed Product layout: The fixed product layout is developed by locating the workstations or production centers on the fixed job. Fixed layout type is used when the job size is large. Logistics are involved in ensuring that the right processes are brought to the product at the right time and at the right place.

The advantages and limitations of fixed product layout are given below:

Advantage:

- 1) This method is highly flexible and changes in product design and product mix can be easily accommodated.
- 2) Since work centers are independent, scheduling results in achieving minimum total

production time.

3) The teams of personnel are responsible for continuity of operations.

4) Movement of materials is reduced.

5) Job enlargement could be promoted by allowing individuals or teams to perform the whole job.

Limitations:

1) Skilled labour is required.

2) Supervision is required.

3) Positioning of material and machinery is costly and complex.

4) Equipment duplication may occur.

5) Utilization of equipment is required.

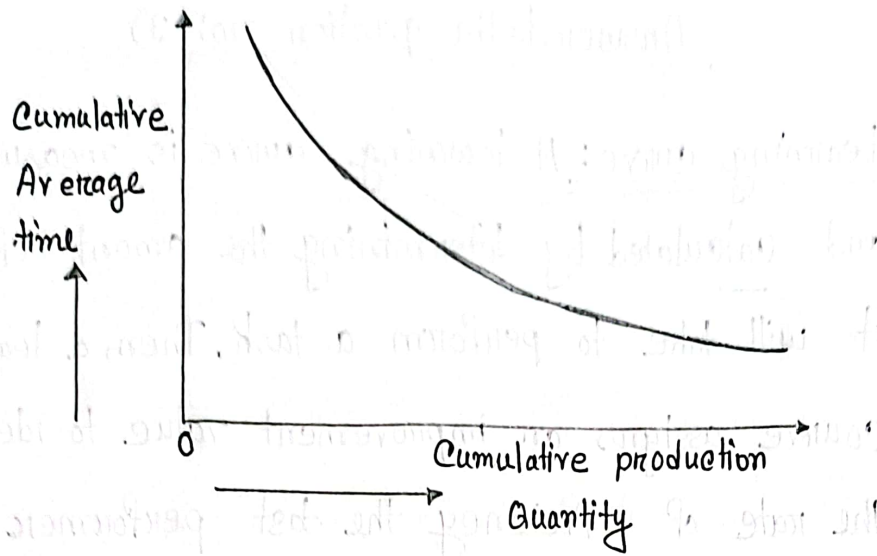
Answer to the question no: (3)

Learning curve: A learning curve is measured and calculated by determining the amount of time it will take to perform a task. Then, a learning curve assigns an improvement value to identify the rate of efficiency the task performer will incur as they learn and become more proficient at the task.

Illustrate and discuss learning curve with a proper diagram:

| Situation | Quantity (Q) | Production Time (TP) | Cumulative batches (1) Time (2) | Cumulative Production (3) = (2)/(1) | Cumulative Average Time |
|-----------|--------------|----------------------|------------------------------------|-------------------------------------|-------------------------|
| 1 | 20 | 164 | 20 | 164 | 8.2 |
| 2 | 30 | 228 | 50 | 392 | 7.84 |
| 3 | 50 | 340 | 100 | 732 | 7.32 |
| 4 | 80 | 453 | 180 | 1185 | 6.58 |
| 5 | 120 | 655 | 300 | 1840 | 6.13 |
| 6 | 150 | 767 | 450 | 2607 | 5.79 |
| 7 | 210 | 863 | 660 | 3470 | 5.26 |
| 8 | 260 | 1115 | 920 | 4595 | 5 |
| 9 | 330 | 1488 | 1250 | 6083 | 4.86 |
| 10 | 380 | 1311 | 1630 | 7394 | 4.37 |

Using (1) and (3) if you draw the curve, it appears as follows.



Since the nature of the curve is exponential, the general equation for exponential curve is.

$$Y = a \times X^b$$

Y = Cumulative average time.

X = Cumulative production quantity.

a = The time required produce the first quantity.

b = Exponent.

' b ' depends upon the operating condition. In

the above model, for the particular cumulative production quantity what will be the cumulative average time? This could be easily calculated

provided, if you know the two parameters namely

' a ' and ' b ' since the curve is exponential in nature,

if you take the logarithm for the x value and y value then you can get a linear curve as follows:

$$\text{Log}(Y) = \text{Log}(a) + b \times \text{Log}(x)$$

Thus the curve is of the form

$$Y = a + bx$$

where

$$y = \text{Log}(Y)$$

$$x = \text{Log}(x)$$

So using the simple regression analysis you can find the values of 'a' and 'b' for the given data, shown in the table, let us try to estimate the regression model.

Answer to the question no (4)

CADD: CADD is an electronic tool that enables you to make quick and accurate drawings with the use of a computer.

What to Expect from CADD?

We can do amazing things with CADD that never thought possible while creating drawings with a pen or pencil. The following are some of the important capabilities that make CADD a powerful tool:

- a) Presentations
- b) Flexibility in editing
- c) Units and accuracy levels.
- d) Storage and access for drawings.
- e) Sharing CADD drawing.
- f) Project reporting.
- g) Engineering analysis.
- h) Computer Aided Manufacturing (CAM)

i) Design

ii) Add-on programs.

(a) Presentation: You can create fine drawings with hundreds of colors, line types, hatch patterns, presentation symbols, text styles, etc.

(b) Flexibility in editing: CADD provides the flexibility to make quick alterations to drawings. You can erase any portion of a drawing with pinpoint accuracy. It takes only seconds to do a job that could take hours on a drawing board.

(c) Units and accuracy: CADD allows you work with great accuracy. If you need to create highly accurate geometrical shapes, CADD is the answer. It can help avoid time-consuming mathematical calculations.

(d) Storage and access for drawing: It is quick and convenient to organize for a

CADD drawing in the computer. You can have thousands of drawing on a computer's hard disk and can open any one of them within seconds.

(e) Sharing CADD Drawings: The electronic drawings can be shared by a number of users, allowing them to co-ordinate their tasks and work as a team, This is accomplished by connecting different computers via a network.

(f) Project Reporting: The computer can be used to prepare project reports such as records of areas, quantities and cost estimates.

(g) Engineering Analysis: CADD drawing can be used to perform specific engineering analysis.

There is a separate category of programs called Computer Aided Engineering (CAE) that can use CADD drawings for engineering analysis.

(h) Computer Aided Manufacturing (CAM): CADD

extends its power to yet another branch of engineering called Computer Aided Manufacturing (CAM). CAM is a common method of manufacturing by large corporations.

(i) Design: CADD provides a convenient means to create designs for almost every engineering discipline.

(j) Add-on programs: There are a number of separate programs available that can enhance the power of CADD. The add-on programs work as an extension of CADD to accomplish specific tasks.