Live Session-1

Principles of Industrial Engineering
NPTEL ONLINE CERTIFICATION COURSE
DATE: Feb 1, 2022      Time: 7pm-8pm
Q.1) The industry which comprises the service sectors

a. Primary industry – use the natural resources for obtaining the goods

b. Secondary industry – output is in form of various usable goods which are produced from the output of the primary industry

c. Tertiary industry – comprises the service sector, all industries related with service. e.g. transport, education, banking, insurance, hospitality, hotels

d. All of the above
Q.2) The product is directly harvested from the natural resources to get raw materials in a sector

a) Primary sector - use the natural resources for obtaining the goods
e.g producing the crops using agriculture

b) Secondary sector- e.g bread prepared using wheat which is the output of the agricultural industry

c) Tertiary sector – comprises the service sector, all industries related with service.
e.g. transport, education, banking, insurance, hospitality, hotels
Q.3) **Gantt charts are used for**

a. Buffer stocks handling  

b. Control of inventories  

c. Machine repairing in a sequence  

d. **Scheduling or load distribution to machines and workers**

Gantt chart are used to see the effectively scheduling or giving the load to the different machines and workers so that the utilization index, utilization index of the resources, utilization of the resources in terms of the man and the machines can be realized. It is basically the time versus activity chart.
Q.4) Therblig is described by standard symbol and colour in

a. Macro-motion study – This is the one which can be measured through stopwatch

b. Gantt chart - Scheduling or load distribution to machines and workers

c. **Micro-motion study** - This is the one which cannot be measured through stopwatch

d. Curve chart- Type of chart which displays information as a series of data points called markers joined by straight line segments

Therbligs help in breaking down the job into the very-very small elements. These elements are very very small (like a fraction of seconds), which help in like gripping of something, then positioning of the job, movement of the hand. So, those kind of the, the small events and activities were identified in form of Therbligs by Frank and L Gilbreth. This is used in breaking down the job into the small elements to identify the presence of the productive and non-productive elements. So, this was used for the micro motion studies.
Q.5. Facility layout of industrial engineering provides

a. Smooth flow of resources integrated
b. Caring for the cost and quantity of products
c. Designing of machine
d. Feedback system to improve functions

Whatever the facilities have been installed, they are properly integrated so that the flow of the resources is smooth for producing the goods and services. They are integrated in such a way that the flow of the resources through the different divisions, different functional groups is smooth and the job is done in the minimum possible time at a minimum cost.
Q.6. Work measurement includes techniques

I. Time study
II. Work sampling
III. Standard table method
IV. Predetermined time-motion study

a. I, II
b. I, IV
c. II, III
d. I, II, III, IV

All the four techniques above are included in work measurement.
Q.7. Value analysis technique comprises

a. Development of new methods
b. Measurement to complete a job
c. Watching actions of body parts during service
d. Reducing the cost of items and services

This is the kind of a tool or technique which is available in the industrial engineering with the goal of reducing the cost of the item being produced or the cost at which service is being provided. The focus is on reducing the cost of the item or the cost of the service by working on various design and production aspects related with a particular product or service.
8. Ergonomics is related to

a. Value analysis
b. Human engineering
c. System analysis
d. Management engineering

Human engineering, is also called ergonomics. In human engineering basically the systems, equipment, machines are designed in such a way that the efforts required to use those machines by the workers and the manpower is minimum (easy to use, less effort, less fatigue, easy to control)
9. The objective(s) of an organization is(are)

a. Coordination of efforts of people for goal realization
b. Create a communication channel between different layers
c. Division of roles and responsibilities
d. All of the above

Coordination means efforts of the people working in an organization need to be coordinated for realizing the goal of the organization. So, for coordination it is important that people communicate with each other, which is very crucial. Thus, the communication channels need to be established across the functions and divisions, so that they facilitate the smooth flow of the work from one function to the another. In order to avoid any conflict, it is important that there is a clarity in roles, the relationship with each other, their interdependency of the different functions or the different positions.
10. The specifications of centralized structure

a. Decisions are taken at the top level
b. Less number of managers are needed
c. Reduced level of overloading of information
d. Motivation level is high

In the centralized structure most of the decisions are taken at top. In a way it is good that these decisions are taken in light of the objectives. In this type of authority pattern in the organization, we may find easy coordination because the decisions are being taken at the top.