



SYED AMMAL ENGINEERING COLLEGE

Approved by the AICTE, New Delhi, Govt. of Tamilnadu and Affiliated to Anna University, Chennai)

Established in 1998 - An ISO 9001:2008 Certified Institution

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DEPARTMENT OF MECHANICAL ENGINEERING

PRODUCTION PLANNING AND CONTROL

QUESTION BANK

UNIT 1

Part-A

1. Define production planning and control.

PPC may be defined as the direction and coordination of the organisation's material and physical facilities towards the attainment of prespecified goals in the most efficient way.

2. List the objectives of PPC.

- To design a production system to meet due date consistent with cost and quality standard.
- To systematically plan the production activities to achieve the high production efficiency.
- To ensure maximum utilization of all resources.
- To maintain optimum inventory level.

3. What are the phases of production planning and control?

- Pre-planning phase
- Planning phase
- Control Phase

4. List various functions of PPC.

- Materials planning
- Facility planning
- Methods planning
- Process planning
- Estimating
- Scheduling
- Dispatching
- Expediting
- Inspection and testing
- Evaluation

5. What is production system?

A production system is the framework within which the conversion of input into output occurs. At the one end of the production system are the inputs and at the other end outputs.

6. List the types of production system.

- Job shop production
- Batch production
- Mass production
- Continuous production

7. What are the objectives of product analysis?

The main objective of product analysis is to obtain a qualitative as well as quantitative evaluation of the influencing factors which determine primarily the success of a manufactured product.

8. List the various factors that influence the product design.

- Marketing aspects
- Product characteristics
- Economic analysis
- Production aspects

9. What is meant by standardization?

Standardization means setting up standards or measuring sticks by which extent, quality, quantity, value, performance or service may be gauged or determined.

10. What is meant by simplification?

Product simplification is the process of reducing the variety of products manufactured i.e., variety reduction.

Part-B

1. What do you understand by production planning and control? Discuss its main Elements / functions.

2. Enumerates the activities involved in the production planning and control function under the Convenient points.

3. Explain different types of production systems. Differentiate between them.

4. Explain the functional and operational aspects of product design.

5. Explain in detail the production aspects of product design.

Unit 2

Part-A

1. What is meant by work study?

Work study is a generic term for those techniques, particularly method study and work measurement, which are used in the examination of human work in all its contexts, and which lead systematically to the investigation of all the factors which affect the efficiency and economy of the situation being reviewed, in order to effect improvement.

2. List the objectives of work study?

- (i) To find the most economical way of doing the work.
- (ii) To simplify and standardise the method, materials, tools and equipment.

(iii) To determine the time required by a qualified worker to perform the work at a normal pace.

(iv) To plan the training programmes for the workers for the new methods.

3. Define method study?

Method study is the systematic recording and critical examination of existing and proposed ways of doing work, as a means of developing and applying easier and more effective methods and reducing costs.

4. List the objectives of method study?

(i) To improve the processes and procedures.

(ii) To improve the design of plant and equipment.

(iii) To improve the plant layout.

(iv) To improve flow of production and process.

5. What is a Process chart?

A process chart is a graph representation of the sequence of event and related information that occur in the work method or procedures.

6. List the types of process chart?

Various types of process chart:

1. Outline process chart

2. Flow process chart

3. Two-handed process chart

7. What is flow diagram?

Flow diagram is a plan drawing, substantially to scale, of the work area, showing the location of the various activities identified by their numbered symbols and are associated with particular flow process chart.

8. What is meant by work measurement?

Measurement of work goes hand in hand with method design, once the method study develops an improved method, work measurement is used to find the time allowed to complete the job by that procedure.

9. What is meant by work sampling?

Work sampling is a statistically based technique utilised for analysing work performance and machine utilisation by direct observation, but without a stop watch. So work sampling is another useful technique of work measurement.

Part-B

1. Explain briefly the various steps involved in conducting the work study.

2. State and explain in brief the steps involved in conducting the method study procedure.

3. Briefly explain the various techniques of work measurement.

4. Define time study. List down the various steps in conducting a stopwatch time study.

5. Explain the following terms

a) Work sampling

b) Synthetic data

c) PMTS

Unit 3

Part-A

1. What are steps involved in a product planning process?

- (i) Marketing and marketing analysis.
- (ii) Performance of feasibility studies.
- (iii) Advanced product planning.

2. Define value analysis.

value analysis is a systematic application of recognised technique which identify the function of a product or service, establish monetary value for the function and provide the necessary function reliable at the lowest overall cost.

3. List the types of economic value.

- 1. Use value
- 2. Esteem value
- 3. Cost value
- 4. Exchange value

4. Define Process planning.

Process planning is the systematic determination of the method by which a product is to be manufactured, economically and competitively.

5. What are the different steps or specific activities involved in process planning?

- 1. Analyse finished part requirements.
- 2. Determination operating sequence
- 3. Select machines
- 4. Material selection parameters.
- 5. Calculate processing times
- 6. Document process planning

6. Write the general approaches to process planning.

- 1. Manual process planning
- 2. Computer aided process planning (CAPP)
 - (i) Retrieval CAPP system
 - (ii) Generative CAPP system

7. What is machine loading?

Machine loading is the process of assigning specific job to machines, men or work centres based on relative priorities and capacity utilisation.

8. What is balancing?

Balancing refers to procedure of adjusting the time at work centres to conform as much as possible to the required cycle time.

9. What are the factors affecting process planning?

- 1. Volume of production
- 2. The skill and experience of manpower
- 3. Delivery dates for parts or products
- 4. Material specification
- 5. Accuracy and process capability of machines
- 6. Accuracy requirement of parts or product

10. What are steps involved in the value analysis?

1. Blast
 - (i) Identify the product
 - (ii) Collect relevant information
 - (iii) Define different functions
2. Create
 - (iv) Create different alternatives
 - (v) Critically evaluate alternates
3. Refine
 - (vi) Develop the best alternative
 - (vii) Implement the alternative

PART-B

1. What is value analysis? Describe the basic steps involved in the value analysis.
2. Explain the importance of process planning with reference to production control. Discuss the activities in process planning
3. Compare and contrast the manual process planning with CAPP.
4. What is meant by machine loading? Also enumerate the various methods to the cycle time to a minimum.
5. What do you mean by machine balancing? Also explain the effect of balancing on number of machines required with an illustration.
6. Write short notes on analysis of process capacities in a multiproduct system.

Unit 4

Part-A

1. What is Scheduling?

Scheduling refers to the setting of operation start dates so that jobs will be completed by their due date.
2. List out types of scheduling techniques.
 1. Maser scheduling
 2. Perpetual scheduling
 3. Job shop scheduling
 4. Batch production scheduling
3. Define master scheduling

The master schedule, also known as master production schedule (MPS), formalizes the production plan and translates it into specific end-item requirements over a short to immediate planning horizon.
4. What are basic scheduling problems?
 1. Job shop scheduling (also known as unit scheduling),

2. Batch production scheduling, and
3. Product sequencing
5. Define Line of balance.
Line of balance (LOB) is a charting technique that uses lead times and assembling sequencing to compare planned component completions with actual component completions.
6. Write out various charts used in LOB.
 1. Operation programme chart/or assembly chart,
 2. Objective chart
 3. Progress chart, and
 4. Line of balance chart
7. Define Material requirements planning.
Material requirements planning (MRP) is a computational technique that converts the master schedule for final products into a detailed schedule for the raw materials and part used in the final products.
8. Define dispatching.
Dispatching is the routine of setting productive activities in motion through the release of orders and instructions, in accordance with previously planned times and sequences, embodied in route sheets and schedule charts.
9. Define Expediting.
Expediting, also known as follow-up or progressing, is a control function that keeps track of the progress of work in accordance with planned schedule.
10. Define Priority sequencing.
Priority sequencing is a systematic procedure for assigning priorities to waiting jobs thereby determining the sequence in which the jobs will be performed.

Part-B

1. Explain the procedure by which scheduling 2 jobs in m machines can be done with suitable example
2. Write short notes on:
 - a) Aggregate run-out method of batch scheduling.
 - b) Line of balance method
3. Discuss the concepts, inputs, characteristics, working, outputs, and benefits of MRP.
4. What are the functions of dispatching? Explain the various documents raised
5. What is progressing? Explain its function? Also write short notes on 'recording progresses'.

Unit 5

Part-A

1. Define Inventory control.

Inventory control may be defined as the scientific method of determining what to order, when to order and how much to order and how much to stock so that costs associated with buying and storing are optimal without interrupting production and sales.

2. What are the types of inventory?

A. classification based on material flow

1. Raw material inventories,
2. Brought out parts inventories,
3. Work-in-process inventories(WIP),
4. Finished goods inventories, and
5. MRO inventories.

B. classification based on nature of use

1. Anticipation inventories,
2. Fluctuation inventories,
3. Lot size inventories,
4. Transportation inventories.

3. What are the main costs associated with inventory?

1. Ordering costs,
2. Carrying (or holding) costs,
3. Shortage (or stock out) costs, and
4. Purchase costs

4. What are the types of inventory system?

1. Fixed-order quantity models (Q models), and
2. Fixed-time period models (P models).

5. What is meant by selective inventory control?

Selective inventory control refers to the variation in method of control from item to item on some selective basis.

In this system, the items are clustered into a few groups depending upon the selected criteria such as value, usage and frequency of consumption.

6. What is JIT?

Just-In-Time (JIT) is a management that strives to eliminate sources of manufacturing waste by producing the right part in the right place at the right time.

7. List out any six selective inventory control techniques.

S.No.	Techniques	Meaning	criteria
1.	ABC analysis	Always , better, Control analysis	Annual usage value of items

2.	VED analysis	Vital, Essential Desirable analysis	Material criticality
3.	HML analysis	High, Medium, Low Analysis	Unit price of material
4.	FSN analysis	Fast moving, Slow moving, Non-moving analysis	Issues from stores
5.	SDE analysis	Scarce, Difficult easy to obtain analysis	Level of difficulty in the procurement of inventory
6.	SOS analysis	Seasonal, off-Seasonal analysis	Nature of the supplies

8. What is ERP?

Enterprise resource planning (ERP) is a new system concept in which every enterprise function is integrated in a seamless flow of information. This system integrates all facets of business including sales and order entry, engineering, manufacturing, finance and accounting, distribution, order planning and execution and supply chain flows.

9. What is MRP II?

MRP II is defined as a computer-based system for planning, scheduling, and controlling the materials, resources and supporting activities needed to meet the master production schedule (MPS).

10. Differentiate between pull system and push system.

A kanban system, is a pull system, in which the kanban is used to pull parts to the next production stage when they are needed to meet the master production schedule (MPS).

In fact, MRP II consists of virtually all of the function in the PPC system plus additional business functions that are related to production.

Part-B

1. What do you understand by inventory control? Explain the purpose of maintaining inventory in any production unit.

2. What is EOQ? Derive the expression for EOQ when the demand of the item is uniform, the production rate is infinite and no stock-outs are allowed.

3. a) Explain the terms: lead time, stock out, buffer stock, inventory carrying cost.
b) Distinguish between in-process inventory, safety stock inventory and seasonal inventory

4. Describe the fixed period quantity inventory model? Also compare and contrast P-system with Q- System.

5. What is selective control of inventory and explain various selective control techniques.
6. What is ABC analysis? Explain its significance in the inventory control with suitable example.