

# QUESTION BANK

**B.Tech –IV Year –II Semester**

**DEPARTMENT OF MECHANICAL ENGINEERING**



## **MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY**

**(An Autonomous Institution – UGC, Govt.of India)**

**Recognizes under 2(f) and 12(B) of UGC ACT 1956**

**(Affiliated to JNTUH, Hyderabad, Approved by AICTE –Accredited by NBA & NAAC-“A” Grade-ISO 9001:2015  
Certified)**

# **AUTOMATION IN MANUFACTURING**

**(R15A0344 )**

## **UNIT -I**

1. Draw a neat sketch of pneumatic system and explain its components.
2. What is automation? Discuss various types of automation.
3. List various mechanical feeding devices. Explain any one with neat sketch.
4. Explain ten strategies for automation and process improvement.
5. Write about fixed automation and programmable automation.
6. Define Automation. Discuss various levels of automation.
7. Explain any one mechanical feeding device with neat sketch.

## **UNIT-II**

1. What is Buffer storage? Explain the reasons for the use of Buffer storage zones.
2. What are the methods of transporting work pieces on flow lines? Explain them.
3. Discuss the various control functions of an automated transfer line.
4. Explain the analysis of transfer lines with no internal parts storage.
5. What are the objectives of flow line automation?
6. What are the design and fabrication considerations in an automated flow lines.

### UNIT –III

1. What are the methods used in industry to accomplish the assembly process?
  2. What are the two ways in which transfer of work part takes place between workstations?
  3. What is assembly line balancing, discuss in detail?
4. The following data apply to a 10-station in-line transfer machine:  $P = 0.01$  (all stations have an equal probability of failure)  
 $T_c = 0.3$  min  
 $T_d = 3.0$  min

Using the upper-bound approach. Compute the following for the transfer machine:

- (i)  $F$ , the frequency of line stops. (ii)  $R_p$ , the average production rate.
- (iii)  $E$ , the line efficiency.

5. A six-station automatic assembly line has an ideal cycle time of 12 sec. Downtime occurs for two reasons. First, mechanical and electrical failures cause line stops that occur with a frequency of once per 50 cycles. Average downtime for these causes is 3 min. Second, defective components also result in downtime. The fraction defect rate of each of the six components added to the base part at the six stations is 2%. The probability that a defective component will cause a station jam is 0.5 for all stations. Downtime per occurrence for defective parts is 2 min. Determine

- i) yield of assemblies that are free of defective components,
- ii) proportion of assemblies that contain at least one defective component,
- iii) average production rate of good product, and
- iv) Uptime efficiency.

### UNIT-IV

1. What are the principles of material handling system?
2. What are the components of AS/RS system?
3. Explain the applications of Automated Guided Vehicles.
4. With neat diagrams explain the functioning of various types of

Transfer Mechanisms.

5. Explain any two material handling equipment with neat sketches.
6. Explain the importance of automated work-in-process storage systems.

#### **UNIT-V**

1. Explain the principle and structure of adaptive control.
2. What is the drawback of adaptive control with optimization?
3. Explain with neat block diagram typical configuration of Adaptive control machining system.
4. Describe adaptive control with constraint for turning with a neat sketch.
5. What is Business process Re-engineering?
6. Explain BPE logistics, ERP.

# PRODUCTION PLANNING & CONTROL

## UNIT I

### SHORT QUESTIONS.

1. Define the term production planning and control?
2. Define the terms planning and controlling?
3. Explain mass production?
4. Describe continuous production?
5. Explain the relationship between production planning and control?
6. Define production planning and control.
7. List the objectives of PPC.
8. What are the phases of production planning and control?
9. List various functions of PPC.
10. What is production system?
11. List the types of production system
12. What are the objectives of product analysis?
13. List the various factors that influence the product design.
14. What is meant by standardization?
15. What is meant by simplification?

### LONG QUESTIONS

1. Differentiate between job order production and batch production systems?
2. Describe the functions of production planning and control?
3. Explain planning in manufacturing organization?
4. What are the objectives of production planning?
5. State the purpose of manufacturing organization in an industry?
6. Briefly explain the prerequisites of PPC.
7. Explain the production lifecycle with the aid of a graph.
8. "PPC regulates and controls "how," "where," and "when" work is to be done." What do you understand by this statement?
9. State the principles of good production planning and control.
10. What are the levels of aggregation in forecasting for a manufacturing organization? How should this hierarchy of forecasts be linked and used?
11. List out the advantages and disadvantages of short term long term forecasting.
12. A firm uses simple exponential smoothing with  $\alpha = 0.1$  to forecast demand. The forecast for the week of February 1 was 500 units, whereas actual demand turned out to be 450 units.
13. Forecast the demand for the week of February

14. Assume that the actual demand during the week of February 8 turned out to be 505 units. Forecast the demand for the week of February 15, Continue forecasting through March 15, assuming that subsequent demands were actually 516, 488, 467, 554 and 510
15. Explain the scope of production planning and control.

## **UNIT II**

### **SHORT QUESTIONS**

1. Define forecasting?
2. Explain types of forecasting?
3. List quantitative methods of forecasting?
4. Describe various steps involved in forecasting?
5. Explain regression method?
6. Differentiate between the production planning and production control.
7. How the “controlling” can be done to regulate the progress of work?
8. Give the step by step Forecasting procedure for using time series
9. List out the various functions of production planning and control
10. What are the needs for PPC?
11. What is the importance of forecasting?
12. What are the differences between short term and long term forecasting?
13. What are the functions of PPC
14. What kind of pre-requisite data is a must to actually begin with the activities of PPC?
15. Explain the different types of production system and their characteristics.
16. State the objectives and Inputs of an MRP system
17. Explain computer aided process planning.

### **LONG QUESTIONS**

1. State the objectives of long term and short term forecasting?
2. What are the advantages of forecasting?
3. Describe moving average method?
4. Explain types of forecasting?
5. Explain Delphi method?
6. Explain different types of production systems and differentiate between them.
7. Distinguish between production planning and production control and state their objectives.
8. Discuss organization of Production planning and control department.
9. Discuss the factors which affects the choice of forecasting method..
10. Forecast the production for next two years when the production quantity for last ten years is as follows: 200, 225, 235, 240, 255, 260, 265, 275, 270, 271

11. Use the following methods and comment on results
12. Moving average (3 years and 5 years)
13. Exponential smoothing for  $\alpha=0.3$  and 0.7.
14. Describe 'Least Square Method' of sales forecasting with its advantages and limitations.
15. Describe the Survey of buyers intention method of sales forecasting with its advantages and limitations.

### **UNIT III**

#### **SHORT QUESTIONS**

1. Define inventory?
2. What are the functions of inventory?
3. Explain shortage or penalty cost?
4. What is economic order quantity?
5. Define economic lot size?
6. Write the various types of inventory.
7. What is safety stock?
8. What is lead time?
9. What is reorder point?
10. What is order quantity?
11. What is economic order quantity?
12. What are the characteristics of two bin system?
13. What is purchase cost?
14. What is ordering cost?
15. What is carrying cost?
16. What is stock out cost?

#### **LONG QUESTIONS**

1. What are the types of inventory?
2. Explain direct inventories?
3. Describe the cost associated with inventories?
4. Explain carrying cost and ordering cost?
5. Derive the formula for determining EOQ?
6. Describe the various inputs to MRP system?

7. Differentiate between MRP/MRP-II and ERP?
8. What are the Japanese concepts used in JIT (Just in time)?
9. Explain the VED analysis
10. Write short notes on P-System
11. Write short notes on Q-System
12. Explain the procedure involved in carrying ABC analysis
13. Mention the control procedures are to be exercised on A class; B class and C class items?

## **UNIT IV**

### **SHORT QUESTIONS**

1. Define scheduling.
2. Define production control.
3. Define master schedule.
4. What is expediting?
5. What is Gantt chart?
6. Define line balancing.
7. What do you mean by MRP?
8. Define routing.
9. Define bill of materials.
10. What is aggregate planning?
11. Explain line of balance?
12. What is Enterprise Resource planning?

### **LONG QUESTIONS**

1. Explain Routing procedure?
2. What is the information required on the Bill of material form?
3. Explain expediting and follow up?
4. Name types of scheduling? Explain?
5. What are the objectives of aggregate production planning?
6. What are the factors affecting routing procedure
7. State the important factors that affecting routing procedure
8. Distinguish between loading and scheduling
9. a. What is route sheet?  
b. What is the information it contains
10. a. Write short notes on Job shop.  
b. Write short notes on Flow shop
11. List out various scheduling rules. Explain at least three of them



## UNIT V

### SHORT QUESTIONS

1. What is dispatching?
2. What are the activities of dispatcher?
3. Explain dispatching rule.
4. What is move order?
5. What is tool order?
6. What is job ticket?
7. What is inspection order?
8. What is store order?
9. What is finished product order?
10. What is machine load chart?

### LONG QUESTIONS

1. Explain the functions of dispatching?
2. Explain dispatching procedure?
3. Explain centralised dispatching?
4. Explain the advantages of decentralised dispatching?
5. Describe briefly the application of computer in PPC?
6. Write short notes on Dispatching procedure.
7. Write short notes on Activities of dispatches
8. List out various forms raised by dispatcher?
9. Explain the applications of computer in Production Planning & Control
10. Write short notes on Applications of computer in PPC.
11. A. What is follow up  
B. Explain follow up significance in production
12. Describe the forms used in dispatching Move order
13. Discuss about a) issue of move orders.  
b) Issue of tool orders.