

**IV B.Tech. I Semester Regular Examinations, November -2005**  
**PRODUCTION PLANNING AND CONTROL**  
**( Common to Mechanical Engineering, Mechatronics and Production Engineering)**

**Time: 3 hours**

**Max Marks: 80**

**Answer any FIVE Questions**  
**All Questions carry equal marks**

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1. (a) Explain in detail about Production Planning.  
(b) Explain the terms planning, operations and control. [8+8]
2. (a) Explain the organization of service systems.  
(b) What is the experience curve phenomenon. Explain. [8+8]
3. Explain the following :  
(a) Forecast error  
(b) Forecasting - Prediction  
(c) Forecasting Techniques for seasonal products. [4+6+6]
4. (a) What is inventory ? Explain different types of inventories.  
(b) What are symptoms that indicate poor inventory management in an organization. [8+8]
5. (a) What factors do you consider in fixing the maximum and minimum stock levels ?  
(b) Why do we balance the conflicting objectives of minimizing cost and maximizing service levels in inventory models  
(c) What are some of the benefits and costs associated with safety stock? [4+12]
6. (a) What do you meant by bill of material ?  
(b) Explain the bill of material with design specification chart. [4+12]
7. Explain the following standard scheduling techniques  
(a) Master scheduling  
(b) Perpetual scheduling  
(c) Order scheduling  
(d) Loading by scheduled periods [16]
8. How does dispatching in continuous ( flow ) system differ from dispatching in intermittent ( order ) system ? [16]

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1. (a) Explain various objectives of Production Planning and Control.  
(b) Explain Production Control. [8+8]
2. Explain with suitable examples (any two) product focused systems. [16]
3. Explain the following :  
(a) Forecast error  
(b) Forecasting - Prediction  
(c) Forecasting Techniques for seasonal products. [4+6+6]
4. An electrical housing has an annual usage rate of 75,000 units / year, an ordering cost Rs.800 and annual carrying charge of 15.4% of the unit price. Delivery lead time is 2 weeks. Determine the optimal operating doctrine. [16]
5. (a) What are the characteristics of fixed order Quantity (Q) System. Illustrate with a figure.  
(b) What are the limitations and advantages of Fixed Order Quantity (Q) System and mention the application. [8+8]
6. Explain the following:  
(a) Z Chart  
(b) Cumulative Production Schedule graph.  
(c) Schedule chart used for large sized articles say for example construction of a Railway coach. [4+4+8]
7. (a) Explain forward scheduling and back ward scheduling.  
(b) List out the guide lines for aggregate scheduling  
(c) Explain the different costs associated with aggregate planning. [5+6+5]
8. (a) Explain the use of Computers in Inventory.  
(b) Give the specimen of Job card. What are its uses? [10+6]

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1. (a) Explain in detail about the Process Plan of a product.  
(b) Explain the common steps which are generally followed by all process planners.  
[8+8]
2. List the common information and data contained in a process sheet. Explain briefly.  
[16]
3. (a) What are different methods of sales forecasting?  
(b) Discuss the merits and limitations of sales forecasting method. [8+8]
4. (a) Explain the various selective inventory control techniques.  
(b) Find the Economic Order Quantity from the following data:  
Average annual demand = 30,000 units  
Inventory carrying cost = 12% of the unit value per year  
Cost of placing an order = Rs. 70  
Cost of unit = Rs. 2. [12+4]
5. (a) What is the difference between Q-system and P-system.  
(b) M/s. KOBO Bearing Ltd is committed to supply 24000 bearings per annum to M/s. Deluxe Fans on a steady daily basis. It is estimated that it costs 10 paise as inventory holding cost per bearing per month and the set up cost per run of bearing manufacture of Rs. = 324.
  - i. What should be the optimum run size for bearing manufacture ?
  - ii. What should be the interval between two consecutive optimum runs
  - iii. Find out the minimum inventory holding cost ? [4+12]
6. (a) Why do you need scheduling?  
(b) What are the inputs of scheduling? [4+12]
7. What is Aggregate Planning? How does it differ from Long range Planning and short period planning. Explain with an example. [16]
8. (a) With the help of a Organizational Charts, explain the Centralized and Decentralized System of Dispatching.  
(b) List the merits and demerits of Centralized and decentralized system of dispatching. [10+6]

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1. (a) Explain in detail about the Process Plan of a product.  
 (b) Explain the common steps which are generally followed by all process planners. [8+8]
2. (a) Explain the product life cycle.  
 (b) What is “Productive systems”, explain. [8+8]
3. (a) Explain the methods used for short-range forecasting.  
 (b) Find the MAD (Mean Absolute Deviation) and MSE (Mean Square Error) for the following forecast. [8+8]

Period	1	2	3	4	5	6	7	8	9	10	11	12
Actual Demand	97	93	110	98	130	133	129	138	136	124	139	125
Forecasted Demand	100	100	100	100	102	104	106	108	110	112	114	116

4. How to control inventories in Hospital Management? Explain. [16]
5. (a) What are the informational pre-requisites of an MRP system?  
 (b) What are the materials planning techniques available as to direct and indirect materials? [8+8]
6. (a) Define routing ?  
 (b) Discuss different routing procedure. [4+12]
7. Explain:
  - (a) Line balancing
  - (b) Expediting. [16]
8. (a) With the help of a Organizational Charts, explain the Centralized and Decentralized System of Dispatching.  
 (b) List the merits and demerits of Centralized and decentralized system of dispatching. [10+6]

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